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NON-PERFORMING LOANS: NEW REGULATIONS AND THEIR IMPACT ON BANKS' BALANCE SHEETS

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RINGRAZIAMENTI

ABSTRACT

During the last decade, the banking sector went through a period of hard recession. In this period, the problem of Non-Performing Loans emerged strongly, influencing not only the banking sector but also the whole economy. Indeed, it has been estimated that in 2016, the total amount of NPLs were above €1 trillion. This situation, started with the 2008 financial crisis, has put under strain the banking sector and the principal vigilance authorities were obliged to step in to tackle down the NPLs' problem.

To solve this issue, the European Central Bank and the European Banking Authority published, in 2017 and 2018 respectively, their Guidance. The main aim of these regulations was to settle the most adequate proceeds in order to identify, measure, monitor and finally solve this problem.

After a brief analysis of banking activity and of the credit risk management, the thesis takes in consideration the above-mentioned guidelines with the main objective to understand the requests of the vigilance authorities. Moreover, it will be observed the role that the introduction of the IFRS 9 accounting principles had in this situation and its repercussions on banks' balance sheets. Finally, the thesis will give a more in-depth explanation of the main strategies adopted by credit institutions to tackle down NPLs problem.

INTRODUCTION

Banks are considered as the engine of the economy of a country and their soundness is of primary importance. Lending money to firms and family has always been one of the banks' main activities. Thanks to these amounts of money, firms can invest and create new jobs while families can improve their consuming capabilities. The activity of granting credit to borrowers is associated with risk. Indeed, banks do not have the certainty that the borrower will repay the total amount of the exposure in the established time. If the debtor stopped to reimburse its debt, after a certain period of time the bank should intervene and reclassify that exposure as a bad loan. Vigilance authorities consider a credit as non-performing when there is high probability that a borrower will not repay its debt in time due to financial difficulties, or when the debt is past-due by more than 90 days. In these situations, banks should assess the borrower's financial difficulties and start a process for review the real value of the exposure in their balance sheet. In this phase, these exposures change their status from performing to non-performing.

Non-performing loans should be considered as a physiological element of the banking activity. Indeed, it frequently happens that a bank's debtor faces financial difficulties. To safely and successfully operate in the long-term, banks should be able to lower their stock of non-performing loans because, otherwise, their activity will provide lower profits. Moreover, banks should increase their level of provisioning in order to promptly contrast high stocks of NPLs. Both lower profitability and the increase of provisioning to react to the worsening of exposures subtract liquidity to other activities and consequently causing a reduction of operating margins and profits.

Banks with low profitability are more vulnerable to economic crisis and market turmoil: this may destabilize the banking system as a whole as happened during the 2008 financial crisis. NPLs make banks less safe and it is a primary task of vigilance authorities to monitor the health of European banks so that they can provide to borrowers the amount of credit they request. In order to reduce the problem of NPLs, ECB and EBA, two of the main European vigilance authorities, studied strategies to tackle NPLs. These strategies are ambitious but realistic. For instance, banks should decrease their stock of bad loans by selling or by changing how the payments are made. Tackling the issue of NPLs should worth the effort. Indeed, banks will become more profitable and lend more money to the real economy. Moreover, banks will also become more stable and thus more resilient to economic crisis.

In the first chapter of the thesis, banking activity will be briefly examined starting from the TUB definition and understanding its role in the real economy. The credit supply and the management of the associated credit risk represents one of the main activities of a bank. Thus, it is important to understand the role of credit risk and how it is linked with non-performing loans. Another important element to analyse is capital. Indeed, capital is a primarily safeguards against bankruptcy. In the recent years, vigilance authorities have reinforced capital requirements by imposing to banks stricter capital ratios to respect. For this, the capital planning process had a growing importance in banks' activities. Its job alongside with the credit risk management have become fundamental in order to provide effective and efficient procedures to identify, measure and monitor credit risk and the correlated exposures. A credit risk definition will be given in order to understand its role in the banking activity. In understanding what are the types of risks involved in it and how it is calculated, it will also be analysed the concept of probability of default and how it is linked to the credit risk.

Later in the first chapter, it will be explained the process that brought NPLs to such a high level. Starting from the 2008 financial crisis with high deregulation and the fast growth of Information Technology, the thesis explains how NPLs have become and international problem and how vigilance authorities tried to face it during the last decade. An Italian and European market analysis will be provided in order to better understand why this problem became so relevant and the principal causes that have led some countries, especially those of southern Europe, to have such high ratio of NPLs.

Finally, it will be analysed the NPLs literature in order to understand the main problems of these exposures. In this operation the two principal streams will be taken into consideration. The first one regards how the macroeconomic environment influences the growth of non-performing loans, while the second one stresses out the specific factors that affect banks' credit risk.

In the second chapter the principal actions to tackle non-performing loans will be analysed, focusing the attention on the Guidelines that in 2017 and 2018, BCE and EBA respectively published. Starting from the priority that vigilance authorities gave to this problem, the credit risk and higher level of non-performing loans took a relevant role among the banking risk. With these guidelines, these vigilance authorities wanted to identify the best proceeds in order to monitor the development of NPLs. All the individuated principles will provide a basic reference scheme to conduct a prudent and correct evaluation of banking activity in this specific sector. The structure of these documents follows the lifecycle of NPLs management: it starts with

vigilance expectations with regard to management strategies of NPLs, to which governance and operative aspects are linked. Then the forbearance measures are taken in consideration and later on, in the last paragraphs, the analysis moves on to the recognition and principal qualitative indications on provisioning and write-offs. At the end of the second chapter, the BCE Addendum on NPLs will be analysed with the main aim to integrate the other two guidelines, focusing on the prudential provisioning expectations for NPLs.

One of the main aspects introduced by these institutional documents is IFRS 9. This new accounting system will provide simplification regarding classification of financial instruments, setting a lower number of categories, and a faster adjustment to the business model adopted by the management introducing the concept of credit losses. It would be fundamental, for financial institutions and especially for banks, to make a deep provisional analysis with a forward-looking approach to estimate future credit losses and to adapt these estimates to changes in time, also considering borrower's creditworthiness. Banks will also need to pay attention to the level of reassessment of the credit risk. Indeed, its revaluation will allow to not overload excessively banks' balance sheets reducing the pro-cyclical effect. In the third chapter, all these aspect will be taken into consideration: starting from the macroeconomic policies issued by the vigilance authorities, the level of integration between the Expected Credit Losses model, the Internal Rate Based approach and Stress Testing will be discussed with the prospective of IFRS 9. Moreover, it will be important to understand the role of the stress testing activity, being able to anticipate the value of risk measures under different scenarios. In the second part of this chapter, the thesis concentrates on the European Banking Authority assessment of the pre and post implementation impact of IFRS 9 on EU institutions. On the basis of these assessments, the EBA wanted to analyse the actual data reported in a sample of banks' balance sheets and to supplement it with public disclosure. To do that, EBA has considered a series of indicators that take into account the initial impact, the classification and measurement, the impairment and solvency, used to determine the effect of IFRS 9 on the sample of banks. In order to develop a sufficient analysis, EBA observed this situation: twice before the official implementation of IFRS 9, on 1st January 2018, and once after its entry into force.

Finally, the fourth chapter of this thesis takes into consideration the main strategies in order to reduce the high stocks of NPLs detected in banks' balance sheets. In the first paragraph, the thesis analyses the main strategies adopted by the banks to tackle NPLs. For this purpose, it will be used the ECB taxonomy to help in understanding the various possible strategies. Indeed, the thesis will take a more detailed explanation of possible NPLs resolution strategies: the internal workout by the originating bank including various restructuring options, the asset

protection scheme where it will be analysed the risk sharing agreements to limit further losses, the securitisation as an alternative to outright sale, the Direct sale where non-performing assets are sold directly to investors and, finally, the Asset Management Companies and the role of secondary markets. After this analysis, the chapter goes on with a brief discussion about the main rules to adopt when evaluating these strategies, the principal variables to analyse when a Strategy Planning Process is put in place and the economic impact of these NPL reduction strategies on banks' balance sheets and on the real economy.

CHAPTER 1

INTRODUCTION TO NON-PERFORMING LOANS

1.1 – *Banking Activity and Banking System Soundness*

Banking activity has always been considered as the engine of the world economy. Especially in the recent years, through the supply of financial credit to private investors or firms, it has been able to boost the economic development and help financial stability.

To start this analysis is relevant to understand the role of the baking activity, what are the principles that govern these credit institutions and what are the main characteristics that drive to stability and profitability.

Initially, it is possible to find a definition to clarify the meaning of Banking Activity on the Art.10 of Consolidated Law on Banking Activity (TUB, Testo Unico Bancario). In this article the banking activity is defined in three points:

- The provision of deposits and loans singles out the banking activity, that has an enterprise form;
- The banking activity is limited to banks;
- Banks also operate with any other financial activity, following the proper discipline and other related and instrumental activities.[1]

It is easy to understand that the combined activity of intermediation between to different subjects (i.e. the savers and the borrowers) and offering liquidity as a service, represent the main activities a bank should be able to carry out. Indeed, these two activities are the so-called core banking activity and distinguish properly a bank from all the other firms. Moreover, the main difference between banks and all other financial firms is that banks can create current accounts.

As defined by the TUB, the main activities are the intermediary function of a bank and the offer of liquidity to the public. The first one, consider a simple equilibrium model where, in equilibrium, the banks pays a deposit rate and charge a loan rate. As long as, this bank interest margin (the difference between the rates adopted for deposits and loans, respectively) is positive, the bank covers its intermediation costs, the cost of capital, the risk premium charged on loans and other administrative costs and perform profitably its activity.

[1] Bank of Italy, "Testo Unico Bancario: Testo unico delle leggi in materia bancaria e creditizia"

In order to determine the profitability of a bank is important that a bank understand its market structure. Indeed, it can be identified as an economy of scope or as an economy of scale. Both types of market structures have advantages and disadvantages based on the competition, the interest margin and the level of profitability a bank want to reach.

The second one, that is the offer of liquidity to customers settles out one of the main problems of bank: technical solvency. Indeed, depositors, borrowers and lenders have different liquidity preferences, which, due to any kind of expected or unexpected events may change. In its activity, a bank should be able to meet liquidity preferences of all the parties involved in its activities. By pooling assets and liabilities originating from different parties, a bank is said to be engaged in the so-called asset transformation.

In the recent years, credit institutions faced lots of difficulties and for various reasons, but the biggest cause of bank distress is the poor risk management. The risk management department, can be identified as multitude of processes at the core of the banking activity which main objectives, as stated by *Angelopoulos et Al.*, are to:

- "Set risk tolerance levels, and approves risk measurement and risk control methods;
- Devises risk monitoring procedures that allow senior management to asses its risk exposures to market risks:
- Develops procedures to minimize the misuse of financial derivatives by bank traders and asset managers."[2]

The main problem, the risk management department have to face is the credit risk. Briefly, it is described by the potential situation in which the borrower fails to meet its obligations. The main aim of the credit risk management in these situations is to promptly intervene and to "maximise a bank's risk-adjusted rate of return by maintaining credit risk exposures within acceptable parameters."[3]

In order to improve the efficiency of the system, specific departments have been developed to analyse what risks banks and credit institutions are facing during their normal operations. To solve this problem and to better analyse the credit risk, the risk management department has been created. The successful management of credit risk is vital for the stability and profitability of a sound bank.

In the majority of the cases, the principal source of credit risk comes from the loans, but also banking book and trading book affects banks' balance sheets. In this dissertation the focus will

[2] Angelopoulos, P and Mourdoukoutas, P. (2001): "Banking Risk Management in a Globalizing Economy"
[3] Basel Committee on Banking Supervision (2000) "Principles for the Management of Credit Risk"

be on the exposures to credit risks. Indeed, during the last two decades the problem of non-performing loans has emerged strongly affecting not only single banks but also the whole banking system. Only in the recent years, European authorities took serious measures to face the problem, giving to banks a set of rules and procedures in order to identify, measure, monitor and control credit risk and the correlated exposures. These processes are established in order to assure that bank hold in their balance sheets adequate levels of capital to cover credit risk and the other risks related to the banking activity.

As previously stated, capital represents the primary safeguard against the risk associated with banking activity in general. An adequate level of capital to ensure the single bank to continue its activity with an appropriate level of autonomy and to preserve its stability. Moreover, capital is used from the vigilance authorities' assessments of the soundness of banks. The Supervisory capital, as established by the ECB, is composed by CET 1 and CET 2. Common Equity Tier 1 and 2 are two aggregates that are mainly used to calculate the solidity of a bank. CET 1 is composed by the higher-quality capital and consists of capital instruments, share premium accounts, retained earnings, accumulated other comprehensive income, reserves and funds for general risks. CET 2 consists on lower-quality capital and it take into consideration capital instrument and subordinated loans, share premium accounts related to previous loans, general credit risk adjustments (gross of tax effect) of up 1,25% of risk-weighted exposure amounts calculated with the standardised approach and positive amounts up to 0.6% of risk weighted exposure amounts if internal rating based approach is used, according to Basel III pillars[4].

Following this European regulations, a fundamental the CET1 ratio has become the most important ratio in order to understand the level of stability of a bank. Basel III establishes some benchmarks that every credit institution should follow. Indeed, institutions should satisfy:

- A Common Equity Tier 1 ratio of 4,5%
- A Tier 1 capital ratio of 6%
- A total supervisory capital ratio of 8%

All these ratios are expressed as a percentage of the total risk exposure amount. this amount is the sum of the risk weighted exposure amounts for credit risks in respect of all business activities, the own funds requirements relating both on trading-book business and to operational risks.

[4] Basel Committee on Banking Supervision (2010): "Basel III: A global regulatory framework for more resilient banks and banking systems"

Following the growing importance of presenting good and sound capital in banks' balance sheets, institutions started in the recent years to give more strength to their capital planning processes. Indeed, as analysed by the Bank for International Settlements, "some of the observed weakness reflected banks' processes that were not sufficiently comprehensive, appropriately forward looking or adequately formalised. As a result, some management teams underestimated the risk inherent in their bank's business strategies and, in turn, misjudged capital needs."[5]

Indeed, in the same paper, the BCBS, provided some fundamental components in order to sound capital planning processes. Internal control and governance, capital policy and risk capture, forward looking view and management framework for preserving capital. Each of these tasks perform a fundamental role in order to develop efficient and effective capital planning processes. The ability to incorporate in these processes stricter assumptions make possible to easily face distressed situations and increase the probability to take actions promptly to contrast the negative scenarios a bank could face.

In the last period, the ECB developed more stringent rules that required a higher-quality financial instruments as Supervisory Capital and some different rules in terms of measurement of risk. The principal challenges on capital adequacy requires, as observed by Advantage Reply in his document[6], to adapt to the new requirements imposed by banking authorities. Those analysis are based on the observation of the exposures that are at risk of default and present in the banks' balance sheets, evaluated with the disposal of Basel III, that is the so-called Risk Weighted Assets (RWA).

The effective weight of RWA represent an important indicator of the efficiency of the credit institutions stability and the way these institutions deal with crisis periods. The principal negative implication due to crisis period is the worsening of credit quality, the consequent increase of bad loans and non-performing exposures in banks' balance sheets. This increasing trend, that hit European Banks so hardly during the last decades, has serious implications mainly on the cost of risk that has continued to rise causing the rise of provisioning and credit impairment.

[5] Basel Committee on Banking Supervision (2014): "A Sound Capital Planning Process: Fundamental Elements"
[6] Osservatorio Advantage Reply sulla Solidità del Sistema Bancario (2014): "Adeguatezza Patrimoniale, Costo del Rischio e Redditività: Il Rebus per le Banche in Tempi di Crisi"

1.2 – Credit risk and Probability of Default

Considering the bank balance sheets' constraints, the profitability and capital requirements to which credit institutions are submitted, the management of these stocks of NPLs assume a high relevance. The improvement of the quality of the loans contributes to give strength to all technical requirements that the banking sector managers need to satisfy. For these reasons the decrease of the NPLs stocks constitute one of the most important priorities for national and international vigilance authorities and for the SSM.

The Credit risk can be defined as "a calculation of how likely it is that a person or company will not be able to pay back money they have borrowed from a bank or other organization."[7]

The main types of risk that are involved in the credit risk are:

- The default risk: it is the risk that arises when the other part involved in contract, declares bankruptcy, goes into liquidation or defaults on the loan. This risk affects bank' balance sheets producing losses equal to the product of the exposure at default (EAD) and loss given default (LGD);
- The migration risk: it is the risk connected to a worsening of the borrower creditworthiness. If the counterparty has a public credit rating can also be identified as the downgrading risk, that is when it goes through a deterioration of his credit rating;
- The spread risk: it is the risk associated with a rise in the spreads required of borrowers by the market. If there are events that increase investors' risk aversion, the spread associated with a pre-determined probability of default may increase. This could be due by market shocks caused by political events, financial crashes or as in our days by pandemic events. In these situations, the spread between the best quality and the worst quality bonds may increase. In these cases, the market value of the securities becomes lower without any reduction of issuer's credit rating;
- The recovery risk: it is the risk that the effective recovery rate after the liquidation phase would be less than the estimated one. This may occur because of the long-time of the liquidation process;
- The pre-settlement or substitution risk: it is the risk associated with the probability that the borrower will become insolvent before maturity and it will access to forbearance solution that are potentially less favourable for the bank;

[7] Definition from Cambridge Dictionary

- The country risk: it is the risk related to the fact that a counterparty, not resident in the same country of the credit institution, will be no longer able to meet its obligation due to political facts or legislative problems.[8]

Credit risk is also correlated with other concepts: the probability that a risk is connected to an unexpected event and the credit exposure. The risk as an unexpected event is linked to the possibility that a default situation or a deterioration of the credit can be caused by unforeseen events. In this case banks usually take into consideration this probability, but they cannot define a precise range because the event is, as definition, unexpected. The other element which credit risk is correlated to is the credit exposure. Indeed, credit risk considers many items that are off-balance sheet, such as guarantees, derivative contracts and transactions in securities, particular kind of derivatives and foreign currencies.

According to the IRB (Internal Rate-Based) Approach, there are four main components when calculating credit risk:

- Probability of Default (PD): it is the probability that a counterparty will default within a certain period of time (one year);
- Loss Given Default (LGD): it is the expected value of the ratio between the loss due to a default and the amount of the exposure at time of default (EAD);
- Exposure at Default (EAD): the value of on-balance sheet and off-balance sheet exposure;
- Maturity (M): the average, for a given exposure, of the residual contractual maturities of the payment due, each weighted by its amount.

There are to main approaches to estimate these components: the first one is the foundation approach, where banks use their own Probability of Default and supervisory values for other risk components/parameters. The second one is the advanced approach where bank use its own estimate of PD, LGD, CCF[9] and M.

According to the IRB Approach, the bank, using the rating system, assigns to the borrower an internal grade, the so-called rating, ranking the counterparties in relation to their level of

credit risk. Then, the bank estimates the risk component and finally estimates the risk-weighted assets (RWA). The determination of RWA of a specific exposure is dependent on the estimate

[8] Bijoy, S. "Types of Credit Risk"
[9] CCF (Credit Conversion Factors): factors used to determine the Exposure at Default for off-balance sheet items.

of the Probability of Default, on the maturity and on the Loss Given Default and Exposure at Default.

In order to quantify losses, two main components have to be analysed:

- The Expected Credit Loss (ECL): the weighted average of expected losses composing the bank's portfolio without considering the type of asset, manageable by adequate reserves;
- The Unexpected Credit Loss (UCL): the variability of expected losses around the mean value, that is, the probability of losses higher than the expected manageable by applying adequate portfolio diversification techniques.

The strategic decisions a bank have to take are related with the total amount of direct provisioning, the total reserves necessary to deal with Expected Credit Loss, holding an appropriate amount of capital in order to afford Unexpected Credit Loss and to apply to the debtor an higher interest rate, taking into account devaluations and reserves for Expected Credit Loss and the cost of equity for Unexpected Credit Loss.

In order to assess the credit risk bank, banks can choose between two different approaches:

- Default Mode (DM): the event that generates the losses, both Expected Losses and Unexpected Losses, in default only.
- Mark to Market (MtM): both expected losses and unexpected losses are measured not only in respect to default events, but also considering the downgrading of the creditworthiness of the borrower.

The Default Mode approach consists in the following implementations through different steps in order to:

- evaluate the probability of default of the borrower at the end of a specific time period. For this purpose, the formula to evaluate the Expected Loss is:

$$\text{ECL} = \text{PD} * \widehat{EAD} * \widehat{LGDR}$$

- Exposure at Default (EAD) can be defined as a stochastic variable whose volatility depends on the type of facility granted. If the facility is a bank loan, the EAD is deterministic and easily quantifiable because the repayment follows a pre-determined plan. If the facility is a credit line, the size of the actual loan may vary over time due to decisions external to the banks. Estimating requires to understand the concept of Drawn Portion (DP) that is the amount of loan used, Undrawn Portion (UP) that is the amount

of loan not used and the Credit Conversion Factor (CCF) that is the percentage of the UP)that could be used by borrower close to the time of default.

$$\widehat{EAD} = \text{DP} + \text{UP} * \text{CCF}$$

- Assuming uncertainty about the loss given default rate and the exposure at default, the unexpected loss (UL) is given by the following condition:

$$\text{UL} = \sqrt{PD \ * \ (1 - \ PD)} * \widehat{EAD} * \widehat{LGDR}$$

- The last step of the model is to calculate the Probability of Default (PD) through Capital Market Model. Using the price of stocks as an input, Capital Market Model is able to estimate the Probability of Default of the issuing company. Structural Models focus on the trait of a company that determines its PD and the volatility of asset values: they measure both financial risk that is related to the financial leverage and the business risk related to the volatility of assets. The most important model which is able to directly calculate the Probability of Default is the Merton Model[10].

The Mark to Market Approach or KMV Model, is based on some assumptions that solve the limitations of the Default Model Approach. Rather than calculating a company's Probability of Default directly, the KMV model follows a different procedure that makes it possible to remove the Merton's assumption that asset returns are normally distributed and to calculate "real-life" PDs, rather than risk-neutral one. The KMV model, that takes this name by the Californian firm who firstly adopted, takes a two-steps approach:

- A risk index is computed called the Distance to Default (DD). Real companies finance their activities with a combination of both short-term and long-term debt; while it is important that the value of asset remains higher than the value of short-term debt, it is possible that the assets fall below the level of total debt without the company becoming insolvent. On the basis of empirical data, KMV noticed that default usually occurs when the value of assets reaches a threshold that is usually between short-term liabilities and total liabilities. According to KMV model, this critical default threshold is called the Default Point (DP) and it is equal to all short-term debt (STD) plus 50% of long-term debt.

  $$\text{DP} = \text{STD} + 0{,}5 * \text{STD}$$

  Distance to Default is equal to the difference between asset value and the default point, expressed as a multiple of the standard deviation of assets:

[10] A simplistic Merton Model explanation can be found here https://www.mathworks.com/help/risk/default-probability-using-the-merton-model-for-structural-credit-risk.html

$$DD = (V_0 - DP) / (V_0 - \sigma_V)$$

- Distance to Default is converted into Probability of Default, based on the empirical link between DD and the actual past rates of default. The model's author calculated Distance to Default on past data from a large sample of companies, some of which ended in default. For various DD ranges, they then computed the percentage of companies that actually defaulted. The data suggested a fairly precise empirical correlation between DD and past default frequencies: once a company's DD is known, this correlation can be used to calculate the associated Probability of Default (the Expected Default Frequency EDF).

In the determination of the Expected Credit Losses (ECLs), every information available at the reporting date should be considered useful to implement computations. The data used in order to estimate ECLs must include all the information about events happed in the past, current condition of the borrower and forecast about future economic conditions. These estimates should reflect all the changes in the particular time period. Important variables to take into consideration are the unemployment rate, property prices, commodities prices and payment status. As stated by the IFRS 9 it is not required to incorporate any forecast of future events, but the value of the Expected Credit Loss should be calculated over the available information only.

Loans, as financial assets, are submitted to the IFRS 9 since 1st January 2018. This new accounting system requires more carefulness in the assessment of credit risk. Under IFRS 9, credit institutions should place their credit into three distinct stages "including performing (Stage 1), underperforming (Stage 2) and non-performing (Stage 3). This three-stage classification is used not only to signify the credit quality of an exposure but also to determine the method used to calculate expected credit losses."

The IFRS 9 introduced a new impairment model for financial assets, category to which loans belong to. The main purpose of this new purpose is a timely recognition of Expected Credit Loss in credit together with a more efficient and effective disclosure on them.

The Expected Credit Loss (ECL) is defined as the weighted average of the credit losses that the bank recognizes on the financial activity in case of default. The credit loss is calculated taking into consideration the present value of cash shortfalls discounted at the original Effective Interest Rate (EIR).

In particular, the new accountancy method requires credit institutions to account credit losses over a time period of 1 year for financial assets that have not increased significantly the credit risk since the initial recognition. This can be considered the Stage 1 of the credit allocation.

"Stage 1 includes financial instruments that have not had a significant increase in credit risk since initial recognition or that have low credit risk at the reporting date. For these assets, 12-month expected credit losses (ECL) are recognised and interest revenue is calculated on the gross carrying amount of the asset (that is, without deduction for credit allowance). 12-month ECL are the expected credit losses that result from default events that are possible within 12 months after the reporting date. It is not the expected cash shortfalls over the 12-month period but the entire credit loss on an asset weighted by the probability that the loss will occur in the next 12 months. Stage 2 includes financial instruments that have had a significant increase in credit risk since initial recognition (unless they have low credit risk at the reporting date) but that do not have objective evidence of impairment. For these assets, lifetime ECL are recognised, but interest revenue is still calculated on the gross carrying amount of the asset. Lifetime ECL are the expected credit losses that result from all possible default events over the expected life of the financial instrument. Expected credit losses are the weighted average credit losses with the probability of default ('PD') as the weight. Stage 3 includes financial assets that have objective evidence of impairment at the reporting date. For these assets, lifetime ECL are recognised and interest revenue is calculated on the net carrying amount (that is net of credit allowance)."[11]

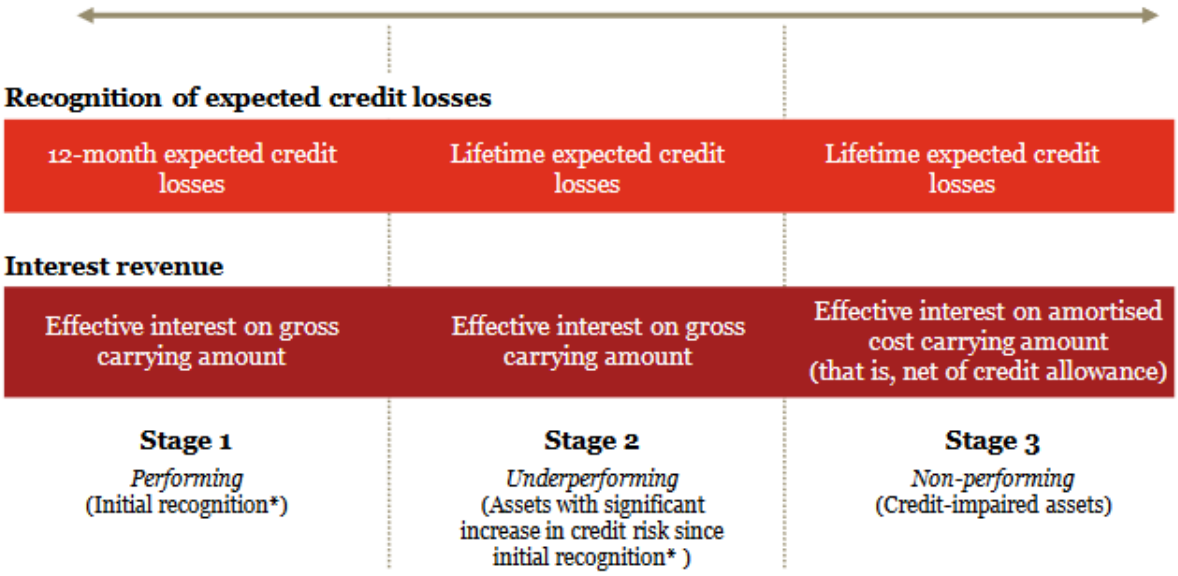

Figure 1 - Change in credit quality after initial recognition,

PWC "A look at current financial reporting issues"

[11] PWC (2017), "In depth: A look at current financial reporting issues"

Further discussion and in-depth analysis on the role of the new accounting system in the management of the credit will be provided in the third chapter of the dissertation.

1.3– *Regulatory Framework*

Banks and the other credit institutions have played a major role after the 2008 financial crisis, trying to support all the economic operators. Unfortunately, the crisis hit very hard and the worsening of the economic and patrimonial condition of private investors and firms created uncertainty about their ability to meet their obligations. The increase in unemployment and in financial difficulties in a growing number of firms have originated a huge increase of creditors that were no longer performing, from which the banks struggled to have back all the money lent. All these credits can be grouped under the name of Non-performing Loans.

Non-performing loans reduce profitability and afflict the soundness, not only of the single bank, but of the whole system. This problem, which origins can be identified with the 2008 financial crisis, is due to the fact that, during that crisis, a lot of impaired loans and exposures held by the banks went lost, causing the default and bankruptcy of some of the biggest financial institutions all around the world.

Analysing the years before the crisis is an important step in order to understand how these exposures were generated. Deregulation and development of Information Technology service (IT), have affected the whole economy and in particular the banking system. With the application of these two principles, financial institutions started to allow a more unregulated development of the credit system. Moreover, with the development of the credit system and with the deregulation process also the competition between banks increased. The research for the highest profits and the increasing competition affected seriously the banks' credit risk. Consequently, a large number of borrowers were able to obtain money from financial institutions and the amount of bad loans issued started to grow thanks to the lack of any prudential policy and the lack of appropriate screening.

In 2011-2012, when the financial crisis seems to be left behind, European countries experienced another additional crisis. Indeed, in many European countries the level of the public debt increased. This was due to political choices, taken at European level, which was oriented to cut short-term interest rate and to issue liquidity in the market. These policies experienced different results all over the Europe, differentiating even more the south European countries and the central European countries.

In a market characterized by such a distressed situation, the European Union recognised the need to define a new regulatory framework, to be applied to all credit institutions, that allow the management and limitation of the negative consequences affecting the economy. In order

to avoid the errors made previously and to operate in a more safety and sound banking system, vigilance authorities individuated some main instruments that could have made this possible. One of these is the Recovery Plan, which represents an important challenge for banks: it is essential to build a credible action plan, trying to prepare all credit institutions for any kind of overcoming situation of maximum stress and keeping the own position on the market.

During the years, especially after the 2008 financial crisis, there has been a constant improvement in the regulatory landscape. In the years after the financial crisis, many actions were taken in order to improve the whole banking system. In 2011 was issued by the Financial Stability Board (FSB) the *Key Attributes of Effective Resolution Regimes for Financial Institutions*[12]: this was a completely new approach resolution to the continuity of the critical economic functions, to lower the support expectations and cost for taxpayers, to orderly restructuring of failing banks and to speed, transparency and predictability through legal and procedural clarity. Later in the years, in 2014 the BRRD (Bank Recovery and Resolution Directive) was issued. Basing its contents on the previously issued document by FSB, the BRRD had the main aims to cover recovery planning, resolution planning, triggers for resolution. In addition, the Single Resolution Mechanism Regulation (SRMR) helped to develop the Single Resolution Board (SRB) and the Single Resolution Fund (SRF). The first one, with full legal powers from 2016, has the tasks to be directly responsible for resolution planning, resolvability assessment and resolution actions for significant banks under the supervision of ECB. The second one is a banking union-wide fund which is not fully available yet, that will have the scope to be used as a guarantee for assets or liabilities of failing banks.

In this situation of financial uncertainty, non-performing loans have assumed a relevant role inside banks' balance sheets and only in the last years vigilance authorities started to recognise them as one of the most important tools to reduce in order to maintain banking stability. In many countries, especially the southern European ones, they grew up quickly until 2015 where they touched high and almost uncontrolled peaks. The NPL issue was not only the consequence of the 2008 economic crisis. Indeed, they can identify a poor credit screening, recognition, inadequate provisioning and internal governance by the banks. Their presence in many countries in Europe give rise to financial instability and macroprudential risks obstructing all the efforts put in place to achieve sustainable growth. These motives can explain why the NPL issue is one of the most important issue European authorities have to face.

[12] Financial Stability Board (2011): "Key Attributes of Effective Resolution Regimes for Financial Institutions"

Starting from September 2016 the ECB started to investigate on the NPL problem with the draw up of the *Stocktake of national supervisory practices and legal framework related to NPLs*[13] with the scope to support the ECB's consultations on the draft guidance to banks on NPLs and to promote a productive dialogue on the possible solutions to tackle down the high stocks of non-performing loans. In March 2017 thanks to the hard work provided by the previous document ECB issued the *Guidance to banks on non-performing loans*[14]. As it will be explained later, this Guidance is a set of non-binding rules with the aim to harmonise all the procedures in order to manage NPLs in the correct way. Meanwhile, the Subgroup on Non-Performing Loans of the Council's Financial Service Committee was established in July 2016 in order to, as commented by *Arnaboldi (2019),* to "assess the state of play regarding current NPL stocks and related developments in Member States and at EU level, as well as the relevant legal framework at national and EU level and to deliver possible options supporting a significant and sustainable reduction of NPL levels, based on the current diverse situations assessed"[15] . This report had the ability to understand the complexity of the NPL problem and to highlights the difficulties in order to adders it with efficient and effective policy measures. One of these policy measures is the ECB's guidance we introduced before. It would be reckless to think that these measures have an immediate impact. Indeed, it is proved that these reforms, to successfully obtain their results, need time and need to be strengthened constantly in order to tackle down NPLs.

European Union on the basis of the work done as regard NPLs, adopted in July 2017 a comprehensive *Action Plan to Tackle Non-Performing Loans in Europe*[16]. The plan is addressed to all credit institutions in order to take appropriate measures to face the challenge of high NPL ratios in Europe. The Plan recognises the difficulties of dealing with the delicate balance between different institutions like banks, Member States and European Union with different objectives and intentions. It invites the more powerful institutions as the European Commission, the ECB, the EBA, the ESRB and the Member state "to take steps on several fronts to tackle both the legacy stock of NPLs and the risk of build-up in the future"[17]. With four main aims the Action Plan wanted to configurate and take further actions as the regard Supervision Activity, the reform of restructuring, insolvency and debt recovery frameworks, the development of secondary markets for non-performing assets and to promote the

[13] European Central Bank (2017): "Stocktake of national supervisory practices and legal frameworks related to NPLs"
[14] European Central Bank (2017): "Guidance to banks on non-performing loans"
[15] Arnaboldi, F. (2019): "Risk and Regulation in Euro Area Banks: Completing the Banking Union"
[16] https://www.consilium.europa.eu/en/press/press-releases/2017/07/11/conclusions-non-performing-loans/
[17] Arnaboldi, F. (2019): "Risk and Regulation in Euro Area Banks: Completing the Banking Union"

restructuring of the whole banking system. Monitoring is one of the most important phases introduced by the Action Plan, indeed, the evolution of NPLs and the development of other markets for NPLs transactions were supervised every 6 months in order to guarantee a coordinate approach to this issue and to evaluate all the progress made.

According to the measure applied by the European authorities, the European Union marked the road with its paper, Communication on completing the banking union, in October 2017. This document is a set of measures to address the NPL problem. It confirms the presence of supervisory authorities and their powers in the EU legislation allowing them to influence a banks' practices with regard to NPLs. Simultaneously, the European Council illustrates the main initiatives included in the packages:

- Measures to increase the development of secondary markets for NPLs with the aim of facilitate the transfer of loans;
- Measures to improve the protection of secured creditors;
- The introduction of prudential backstops in order to prevent the build-up of unforeseen NPLs;
- The introduction of a common definition of non-performing exposure (NPEs)

In March 2018, the European Commission introduced another package that includes several propositions on credit servicers, credit purchasers and recovery of collateral. Moreover, they include proposal for regulation modifying the capital requirements regulation and project on the set-up of national asset management companies.

The set of rules introduced are intended to reduce even more NPLs and to implement the European Union banking system. Banks are required to improve their resources to face new loans in danger with probability to become non-performing. These resources are useful to create incentives for banks in order to manage NPLs at an early stage in order to avoid a large accumulation of NPLs. If the loans become non-performing, more efficient mechanism should assure to the banks to manage NPLs. Then, if the level of NPLs reach too high levels the European Council establishes set of guidelines to sell these loans on markets that must be efficient, competitive and transparent. These are the rules to be applied to the secondary markets.

In 2018 and 2019 many further actions were taken in order to tackle the problem. The European Central Bank issued an addendum to his *Guidance to banks on NPLs* and in the subsequent

months the *Guidelines on management of non-performing loans and forborne exposure*[18] and the *Guidelines on disclosure of non-performing loans and forborne exposure*[19] were published by the European Banking Authority. This second document issued by the EBA is very similar to the ECB guidance and it has the main aim to extend all the prescriptions of Significant Institutions (SI), directly supervised by the ECB, to all Less Significant Institutions. These guidelines provide enhanced disclosure requirements, set of rules for the management of NPEs, rules in order to implement secondary markets and the disclosure templates with the objective to improve transparency in the NPL markets.

1.4 – What are Non-Performing Loans?

One of the main problems spotted during the 2008 financial crisis was the difficulties for comparing banks' information. Indeed, credit institutions were used to evaluate credit risk in a different way one from the other, because every country had their own evaluation methods for the asset quality in banks' balance sheets. In order to harmonize rules and guidelines to solve this problem, the Basel Committee created a task force with the main aim to analyse, identify and simplify the procedures in order to facilitate the comparison between banks from different countries but under the same Banking Union.

In general terms, non-performing loans are bank loans which repayment is considered at risk under different risk profiles. Moreover, when talking about NPLs, is possible to consider those financial expositions that banks or other credit institutions have with other subjects. These subjects are the so-called borrowers: due to a worsening of their economic and financial situation, they are no more able to meet their obligations towards the credit institution they have been funded. In majority of the case borrowers cannot repay their debt at the right times or in the way they planned when they signed the contract the first time.

Basel Committee was able to identify a definition for non-performing exposures: "When part of an exposure is identified as non-performing, the whole outstanding value of the on-balance sheet exposure is to be identified as such. For off-balance sheet items such as loan commitments and financial guarantees, the entire uncancellable nominal amount should be reported as non-performing.

[18] European Banking Authority (2018): "Final Report: Guidelines on management of non-performing and forborne exposures"
[19] European Banking Authority (2018): "Final Report: Guidelines on disclosure of non-performing and forborne exposures"

The following exposures are considered as non-performing:

- all exposures defaulted under the Basel framework[20]; or
- all exposures impaired (in the meaning of exposures having experienced a downward adjustment to their valuation due to deterioration of their creditworthiness) in accordance with the applicable accounting framework; or
- all other exposures that are not defaulted or impaired but nevertheless are: (a) material exposures that are more than 90 days past due; or (b) where there is evidence that full repayment of principal and interest without realisation of collateral is unlikely, regardless of the number of days past due."[21]

These non-performing loans definition builds on the definition of default, but with main objective of categorising loans into simple categories when borrower enters repayment difficulties and is complicated by the large number of different contracts and jurisdictions. This definition has stricter restrictions:

- "it is based on a standard 90 days past due (DPD) threshold, while the default definition used in the IRB approach allows to use a 180 DPD threshold for retail and public sector exposures;
- It offers more harmonised recategorization criteria then those currently existing under the definition of default;
- It offers more specific guidance regarding the interaction of forbearance measures and non-performing status"[22]

The definition of non-performing exposures, designed to be applied to different jurisdictions regardless any kind of credit exposure approach previously existing, provide harmonised asset quality indicators that can improve the comparison across different jurisdictions.

[20] Paragraph 452 of the Basel II framework: A default is considered to have occurred with regard to a particular obligor when either or both of the two following events have taken place:
•The bank considers that the obligor is unlikely to pay its credit obligations to the banking group in full, without recourse by the bank to actions such as realising security (if held).
•The obligor is past due more than 90 days on any material credit obligation to the banking group. Overdrafts will be considered as being past due once the customer has breached an advised limit or been advised of a limit smaller than current outstandings.
•In the case of retail and PSE obligations, for the 90 days figure, a supervisor may substitute a figure up to 180 days for different products, as it considers appropriate to local conditions. In one-member country, localconditions make it appropriate to use a figure of up to 180 days also for lending by its banks to corporates; this applies for a transitional period of 5 years.

[21] Basel Committee on Banking Supervision (2017), "Prudential treatment of problem assets – definition of non-performing exposures and forbearance"

[22] Basel Committee on Banking Supervision (2017), "Prudential treatment of problem assets – definition of non-performing exposures and forbearance"

Regarding the level of deterioration of a credit can face, Bank of Italy divide NPLs into three different categories:

- "Bad loans are exposures to debtors that are insolvent or in substantially similar circumstances
- Unlikely-to-pay exposures are those in respect of which banks believe the debtors are unlikely to meet their contractual obligations in full unless action such as the enforcement of guarantees is taken.
- Overdrawn and/or past-due exposures are those that are overdrawn and/or past-due by more than 90 days and for above a predefined amount."[23]

Bad loans are composed by credits due by borrowers that are no more able to meet their obligations, even if this situation is not legally confirmed yet. This category includes exposures to institutional bodies, credits bought by third people having borrowers in default and those loans which have all the characteristics to satisfy the definition of Non-Performing Exposures with forbearance measures.

It can be considered outside of the definition of "Bad Loans" the non-execution of a loan correlated to a temporarily, contingent and non-structural, illiquidity condition of the borrower. As stated by Cass. I Sez. Civile, 29.01.2015, n.1725, what really matters to be defined as Bad Loans is that there is a clear and documentable situation that the borrower is no more able to repay his debts.[24]

The definition of Bad Loan adopted by the Bank of Italy, which has to be considered independent from the one defined in the Italian Legge Fallimentare (art. 5 R.D. 16.3.1942, n.267), cannot be associated with any economical predetermined parameters. In this particular case, it is recognised to every credit institution a discretion margin: this margin is based on objective and impartial data analysis and on credit risk. Therefore, to consider an exposure as a Bad Loan, it is required a negative judgement of financial and economic situation of the borrower without any reference to the probability of a credit to be recovered.

The category of Unlikely-to-pay exposures (UTP) is composed by financial activities characterised by the low probability that the borrower will be able to fulfil to all its obligations

[23] https://www.bancaditalia.it/

[24] "Ciò che conta, in sostanza, è la chiara e documentabile emergenza che, al momento della segnalazione, il rientro non appaia sicuro o, quantomeno, altamente probabile e che pertanto si configuri un serio pericolo di insolvenza." (Cass. I Sez. Civile, 29.01.2015, n.1725)

without recurring to his bank guarantees.[25] The classification in this category is the result of a bank process that estimates, with principles of diligence and good faith, the probability (or improbability) that, without assessing any bank guarantees, the borrower will be able to fully meet its monetary obligations. This should happen independently by the presence of other amounts of money expired or not paid yet. Indeed, it is not necessary for banks to wait for explicit anomalies. They can promptly act if they discover potential risks in the ability to repay the debt.

These definitions, given by the Basel Committee and by the Bank of Italy, are fundamental in order to identify the expected credit loss and together with the introduction of the IFRS 9, are able to give a standard approach to all the banks, credit and financial institutions to better manage the problem of NPLs.

1.5 – Italian Market Analysis

The economic and financial crisis that hit Italy during the period from 2008 to 2014 is the main reason why NPLs are a real important component in the banks' balance sheets. Growing economic difficulties of families and companies have been reflected also in their ability to meet their obligations. Banks and Credit Institutions were no more able to recover all the initial amount of money they lent. This brought to a worsening in the banking system with the consequent raise of NPLs and the deterioration of the credit quality. According to Bank of Italy, more than the half of the total NPLs, in 2017, were past due exposure. Indeed, their estimates for that period confirmed that the bad loans were almost 190 billion, unlikely to pay exposures were 100 billion and 6 billion were past due exposures. Between 2008 and 2015, like other Mediterranean countries, Italy suffered a strong increase. The stock of NPLs has almost fourfold itself passing from 90 billion in 2008 to 340 billion in 2015. The recession that hit Italy's banking system severely affecting Italian banks' balance sheets and credit quality. The deterioration in customers' economic and financial circumstances led to a significant increase in the flow of new NPLs and in their stock (two figures below)[26].

[25] Banca d'Italia, Circ. N. 139/1991, Centrale dei rischi – Istruzioni per gli intermediari creditizi, aggiorn. giugno 2017; Banca d'Italia, Circ. n. 272 del 30 luglio 2008 – 9° aggiorn.)

[26] Bank of Italy, (2017): "Non-performing loans (NPLs) in Italy's banking system"
Annualized quarterly flows of adjusted NPLs and adjusted bad loans in relation to the stock of loans at the end of the previous quarter, net of adjusted NPLs and adjusted bad loans; data seasonally adjusted where necessary

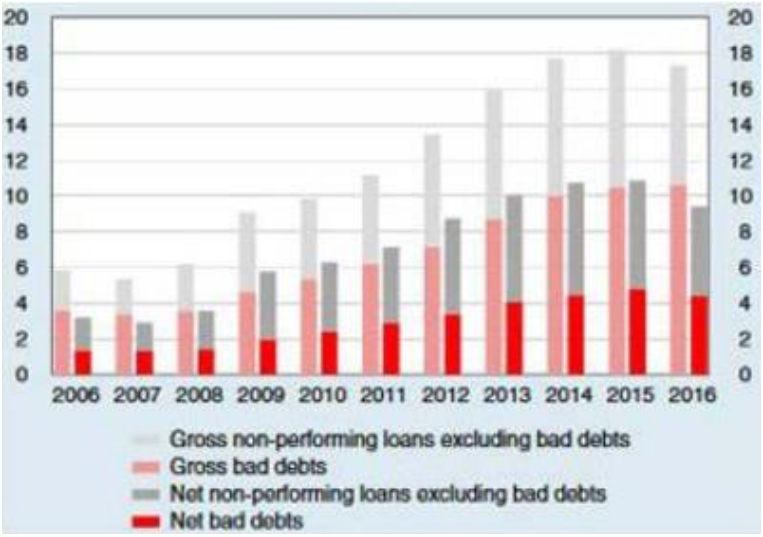

Figure 3 - Credit risk indicator and GDP growth

Source: Bank of Italy

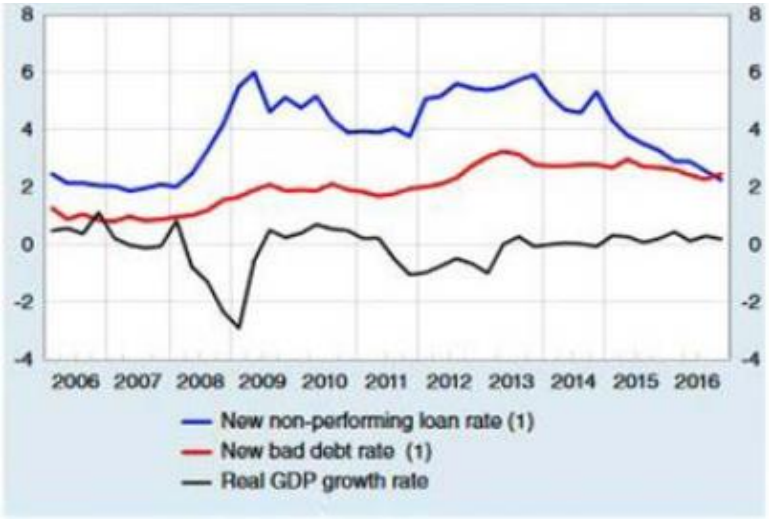

Figure 2 - Non-Performing loans ratio

Annualized quarterly flows of adjusted NPLs and adjusted bad loans in relation to the stock of loans at the end of the previous quarter, net of adjusted NPLs and adjusted bad loans; data seasonally adjusted where necessary

The second phase started in the second half of 2011 with the Italian sovereign debt crisis. With the strong impact of this second recession, customers that were already affected by financial difficulties, find themselves to face another crisis. Their ability to repay their debts diminished even more, leading to an increase in the rate of new NPLs and consequently to an increase of their stock.

The increase of NPLs in Italy has been worsen due to many specific factors of our country: long recovery time and many bureaucratic that made the job of banks and other credit institutions even harder (from 5 to 7 years to recover the loan, sometimes only partially). Another reason of the NPLs problem was the absence of a real market for bad loans during that period. Only

recently we are facing a development of this market where banks can set them free from NPLs, selling them to specialised operators who act in order to recover the loan due, unburden banks' balance sheets, as it will be analysed in the fourth chapter of this dissertation. Since 2014, the average ratio of NPLs in the EU has decreased by more than one third but what is alarming is the total volume of NPLs. Indeed, the total value of NPLs remains very high in some countries and they show a strong difficulty in reducing them. This is a major problem because the high level of NPLs can influence the economic growth of these countries as they reduce the profitability of their banks in the system and their ability to lend.

The financial crisis and the sovereign debt crisis, as already said, hit hardly Italian Economy. Following, in the dissertation, literature will play a principal role why the stock of NPLs is strictly correlated to some macroeconomic determinants. Anyway, can be easily defined, without any specific background, that there is a strong correlation between the level of NPLs in a financial system and the soundness of the real economy, where NPL influence the economy

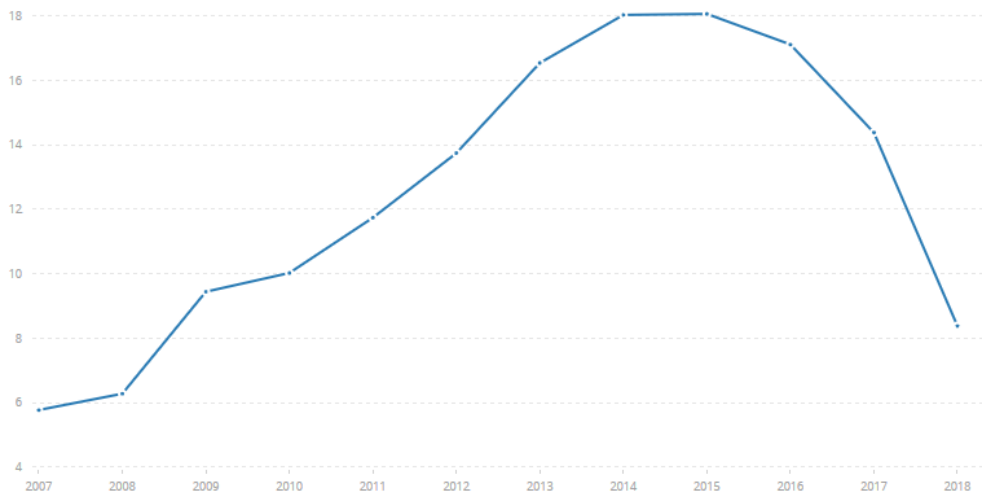

Figure 4 – Italian ratio of Non-performing loans to total gross loans (%)

Source: World Bank Database

and vice versa. It is not a case that after two crisis the ratio between the stock of NPLs and all loans reached its peak in 2015. The highest data of this ratio ever registered is 18.1%. in the recent years this ratio, due to the good managing behaviour and macro and microeconomic situation put in place, has reduced 14.4% in 2017 and 8.4% in 2018.

According to *Angelini (2018)*[27], the corresponding amounts for 2015 and 2017, net of provisioning were 9.8% and 5%. For the Significant Banks, those who are under the supervisory

[27]Angelini, P. (2018): "Non-performing loans: the market, the rules and a stronger system"

of the BCE, there was a decline in this ratio of 4.1%. The medium-term objective is to set the NPLs level of Significant Institutions below 4% within the end of 2020.

The decrease in the level of NPLs can be attributable to different factors. First, we can identify that the stock of NPLs reflects the cyclical improvement, which has helped to reduce the flow of NPLs to a level similar to the one observed before the crisis. Measures introduced in 2015 to speed up foreclosure proceedings are also having an effect. Data observed on Ministry of Justice' online portal confirms these signs of improvement, especially as regards the sale of real estate foreclosure proceedings. In the recent year we have evidence of an improvement of the whole NPL market in Italy. The quality of the analytical database has improved too, leading to a better management of the NPL portfolios. Structural changes in the market and the improvement of market techniques also favoured the increase in sale of NPLs.

1.6 – European Market Analysis

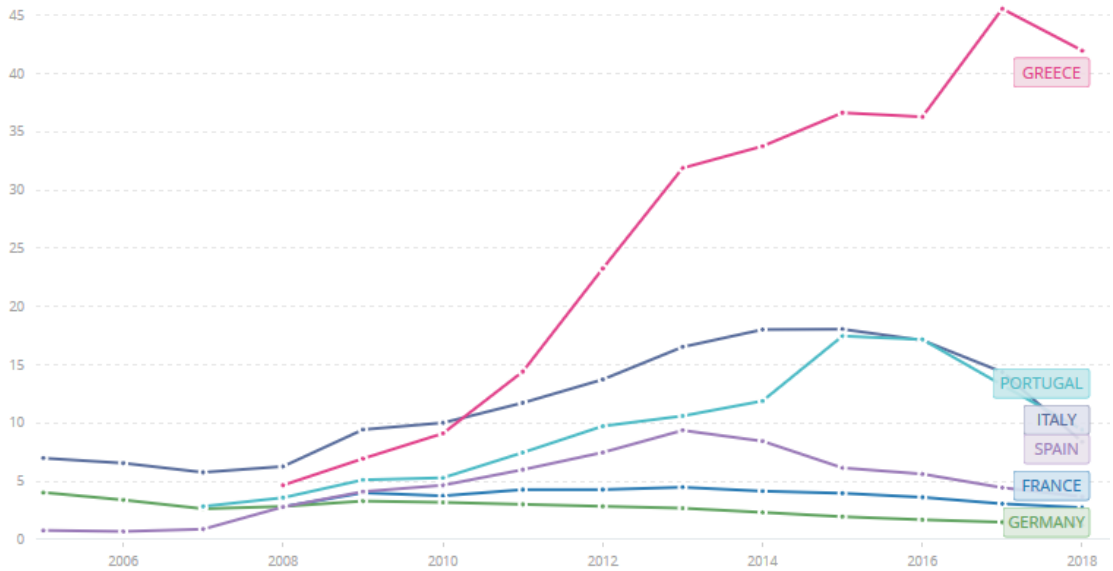

Figure 5 - Non-performing loans as a % of the total loans

Source: Elaboration on World Bank Database

Addressing the risk related to high stocks of NPLs is a primarily responsibility of affected banks and National Authorities. However, the high connection between all the economies of the members of the European Union can create spill-over effect. Then it is a clear interest of the European Union to find a solution to the problem of NPL and how to reduce their current ratios.

NPLs during the last 15 years have suffered a strong increase, "rising from two percent of total loans in 2006 to a peak of seven percent in 2012/2013; and to a peak of eight percent in the euro

area."[28] This problem regards particularly the Southern-European countries like Greece, Portugal, Italy and Spain but it is a common problem spread in the whole

Europe: even countries like Germany and France, with a strong and sound financial system, have been affected by this problem in the recent years and had to find measures to maintain low levels of Non-performing loans.

The data, from the World Bank Dataset[29], indicates a divergence in NPLs stock across nations which can be used as an explanation for the different recent performances of these economies. Indeed, as we will explain in the next chapter, it is expected that a worsening of the economic scenario could be correlated to a high level of NPLs and an NPL crisis should lead many banks to financial and economic difficulties. From the following table we see that in the recent years we had a reduction of the stock of non-performing loans. Indeed, we see that, apart from the Greek case who had a sharp increase until 2017, the other countries present an upward trend during the middle years of the decade (Spain and Portugal with a maximum of 9,4% and 17,5% respectively) and a subsequent decrease in the last years of the past decade (3,7% and 9,4% respectively). Germany and France, instead, configurate themselves as a benchmark for the other countries. With their strong economy, they have been able to face the crisis that afflicted the other countries.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
France	..	..	..	2.8	4.0	3.8	4.3	4.3	4.5	4.2	4.0	3.6	3.1	2.7
Greece	..	..	..	4.7	7.0	9.1	14.4	23.3	31.9	33.8	36.6	36.3	45.6	42.0
Germany	4.1	3.4	2.7	2.9	3.3	3.2	3.0	2.9	2.7	2.3	2.0	1.7	1.5	1.2
Italy	7.0	6.6	5.8	6.3	9.4	10.0	11.7	13.7	16.5	18.0	18.1	17.1	14.4	8.4
Spain	0.8	0.7	0.9	2.8	4.1	4.7	6.0	7.5	9.4	8.5	6.2	5.6	4.5	3.7
Portugal	..	..	2.9	3.6	5.1	5.3	7.5	9.7	10.6	11.9	17.5	17.2	13.3	9.4

Figure 6 - Bank nonperforming loans to total gross loans (%)

Source: World bank Database

Data from the World Bank indicates that not only Mediterranean countries are afflicted by the NPLs loans problem. This is a recurrent problem in many economies in the Central Europe and in the Baltics Area. For example, in Romania and Serbia, the ratio recorded peak of 22% and 15% in Croatia. In sum, the NPLs problem is much more emphasized in those countries of the

[28] KPMG (2018): "Non-performing loans in Europe. What are the solutions?"
[29] https://data.worldbank.org/

Eurozone, where the financial crisis has been followed by the sovereign debt crisis with economies that have experienced prolonged recessions and austerity.

The average rate of non-performing loans is slowly decreasing in the European Union, but it still higher than other developed countries: for example, the World Bank Database estimates that the NPL ratio for United States and Japan at the end of 2015 were less than 2% while the European Union ratio was above 5%.

The regulatory background in which banks and other credit institutions are moving is complex and it is putting a lot of pressure on banks result. Many standards and regulations have been introduced in the recent years to face this crisis. Their aim is to build up strong links and faithful relations between the market and financial institutions. Many of these changes concern, directly or indirectly, the NPLs. Indeed, non-performing loans are one of the tasks that vigilance authorities are trying to face with strong interest and attention. Many of these new regulations have been released and are already working: this is the case, for example, of the Single Supervisory Mechanism (SSM)[30], the new classification of non-performing loans issued by the Bank of Italy, the guidelines to banks on non-performing loans issued by the ECB and by EBA and finally the new accounting system, the IFRS 9. Other regulations are yet to come: the guidelines for the less significant banks and the Calendar Provisioning.

Countable principles of IFRS 9 have been introduced starting from 2018 and they consider more severe and restrictive rules to allow changes and adjustment on the characteristics of the loans, with a strong impact on European banks balance sheets. The evaluation of reserves will no more exclusively happen by "incurred loss" but on the "expected loss". The IFRS 9 principles will determine a rise on the credit adjustments with a consequent drop in the CET1 ratio.

1.7 – Literature Review

Understanding the NPLs market is always been one of the major challenges for many experts and economists. It is known that the high incidence of NPLs on the financial sector is one of the factors that limits the economic growth in many countries as expressed by *Boudriga et Al. (2010)*[31]. This corroborates what many years before *Schumpeter (1969)* said: "a healthy financial system promotes economic growth, but a weak financial system grappling with non-performing loans and insufficient capital could undermine growth."[32] The presence of

[30]"The Single Supervisory Mechanism (SSM) refers to the system of banking supervision in Europe. It comprises the ECB and the national supervisory authorities of the participating countries.

[31] Boudriga, A., Taktak, N. and Jellouli, S.: "Bank Specific, Business and Institutional Environment Determinants of Banks Nonperforming Loans: Evidence from MENA Countries"

[32] Schumpeter,J.A, (1969): "Essays on economic topics of J.A. Shumpeter"

asymmetric information between banks and borrowers characterises the credit market and the banking system and it is one of the pillars that have been studied by Bernanke and Gertler (1995)[33] and *Bernanke, Gertler and Gilchrist (1999)*[34]. In their presentations they underline how the presence of these asymmetric information are at the basis of many theories, such as the theory of financial accelerator and the theory of credit channel. They recognised that the presence of frictions in the credit market modify the effectiveness of the transmission of a monetary policy, restricting or expanding its starting proposal. In particular, *Kiyotaki and Moore (1997)*[35] showed how relatively small shocks can explain huge fluctuations of the economic cycle.

It is possible to find evidence of a double relation between the economic cycle and the amount of NPLs. It is easy to state that a negative trend of the economic cycle determines an increase of the NPLs. Consequently, we can determine that high stock of NPLs can have a strong impact on the ability of banks to grant credit to borrowers. This double relation, indeed, has a strong impact on the financial sector not allowing the mechanism of monetary policy transmission to work as it should.

There are two main streams in the literature that examine the determinants of bad loans: the first accepts the perspective that the macroeconomic environment influences credit risk. The second takes into consideration that the credit risk banks are available to take is directly affected by bank-specific factors.

The first stream considers, as we said before, specific factors of a country like GDP, personal income growth, unemployment and inflation and explain how they affect NPLs. Many papers have been done to highlights the influence of these macroeconomic factors. We can recall *Louzis et Al. (2012)*[36] for Greek Banks, *Gosh (2015)*[37] for USA Banks, *Gila-Gourgoura and Nikolaidou (2017)*[38] for the Spanish Banking System, *Us (2017)*[39] for Turkish Banks, *Makri et*

[33] Bernanke, Ben S., and Gertler, M. (1995): "Inside the Black Box: The Credit Channel of Monetary Policy Transmission."
[34] Bernanke, Ben S., Gertler, M. and Gilchrist, S. (1999): "The Financial Accelerator in a Quantitative Business Cycle Framework"
[35] Kiyotaki, N. and Moore, J. (1997): "Credit Cyrcles"
[36] Louzis, D., Voulidis A. and Metaxas, V.L. (2012): "Macroeconomic and bank-specific determinants of non-performing loans in Greece: A comparative study of mortgage, business and consumer loan portfolios"
[37] Gosh, A. (2015): "Banking-industry specific and regional economic determinants of non-performing loans: Evidence from US states"
[38] Gila-Gourgoura, E. and Nikolaidou, E. (2017): "Credit Risk Determinants in the Vulnerable Economies of Europe: Evidence from the Spanish Banking System"
[39] Us, Vuslat (2016): "Dynamics of non-performing loans in the Turkish banking sector by an ownership breakdown: The impact of the global crisis"

Al. (2015)[40] for the Eurozone. Every paper found out a negative correlation between NPL and economic growth (based on GDP). Furthermore, these works evidence that there is also a positive correlation between other economic cycle indicators like unemployment rate and loans rate. According to the literature, from a macroeconomic prospective, public debt, GDP and unemployment seems to affect the NPLs.

Bofondi and Ropele (2011)[41]*, Messai and Jouini (2013)*[42] and subsequently *Accornero et Al. (2017)*[43] did a similar job for the Italian Banks. In all these three works the authors confirms, substantially, the same tendencies and correlations in Italy as in the rest of the countries in the Eurozone.

Bofondi and Ropele, in particular, tried to investigate on the macroeconomic determinants of the quality of loans to households and firms. They found that the quality of the loans is directly affected by specific macroeconomic determinants e it gets better with a vital economic cycle. In particular, the authors find out that the worsening of household indicator is negatively correlated with the annual GDP growth rate and with the houses price. The same indicator can be positively associated to the unemployment rate and to the short-term interest rate. The authors find out that the worsening of the quality of the loans is positively correlated with the unemployment rate and with the ratio of net expenses to gross operating profits. Others finding are that the increase in the NBL ratio (what they used to measure the quality of loans) during the period subsequently the financial crisis was mainly due to the rise of the unemployment rate and the reduction in durables consumption. In conclusion they suggest that "the monitoring of changes in specific business cycle conditions, which anticipates future developments in loan quality, can be used as an early warning system to alert authorities to potential banking strains."[44]

The second stream of the literature is based on the fact that a high stock of NPLs could reduce the banking supply of credit and alter the transmission mechanism of monetary policies. This could be due to three types of channels: a mechanical accounting mechanism by which lower credit quality affects bank capital through risk weights, an increase in funding cost which drive to a higher market pressure and a change in the bank's attitude of taking risks. Ideally, Vigilance Authorities should act promptly to avoid the accumulation of high levels of NPLs. Authorities

[40] Makri, V., Tsagkanos, A.G. and Bellas, A. (2015): "Determinants of Non-Performing Loans: The Case of Eurozone"
[41] Bofondi, M. and Ropele, T. (2011): "Macroeconomic determinants of bad loans: evidence from Italian banks"
[42] Messai, A.S. and Jouini, F. (2013): "Micro and Macro Determinants of Non-performing Loans"
[43] Accornero, M., Alessandri, P., Carpinelli, L. and Sorrentino A.M.(2017): "Non-performing loans and the supply of bank credit: evidence from Italy"
[44] Bofondi, M. and Ropele, T. (2011): "Macroeconomic determinants of bad loans: evidence from Italian banks"

by doing this should impose strong procedures to approve credit and they should impose a strong reduction to the stock of NPLs to avoid their accumulation in the balance sheets over time. For these reasons, after the financial crisis started in 2008 with the Lehmann Brothers financial collapse, Vigilance Authorities started to develop a new methodological approach called Macroprudential Approach. As described by the BCE this approach should help all the countries participant to take a cautious and prudent approach to risks that could become systemic. The main Macroprudential Authorities in the EU are the European Central Bank, The European Systemic Risk Board and the national designated authorities (Central Banks or Financial Supervisory Authorities). The macroprudential approaches to non-performing loans have to deal with the fact that "the emergence and the accumulation of NPLs can become a systemic problem when this affects a considerable part of the financial system, threatening its stability and/or impairing its core functions of facilitating financial intermediation."[45] A significant increase in NPLs in the system may have strong impact on the ability of the banking sector to resist to a shock, thus increasing systemic risk. Higher funding cost and lower supply of credit to the real economy are two other reasons of why a high stock of NPLs can be dangerous for the banking system. The last two considerations may be the result of a negative market sentiment of sound banks to those banks with high levels of NPLs, which decreases, by far, the ability of a bank (that is already in financial difficulties) to access liquidity and capital markets. In the European Union, the main concerns are developed around the proportion of NPLs which have been accumulated on bank's balance sheets during the crisis and the persistence after it.

[45] European Systemic Risk Board (2019): "Macroprudential approaches to non-performing loans"

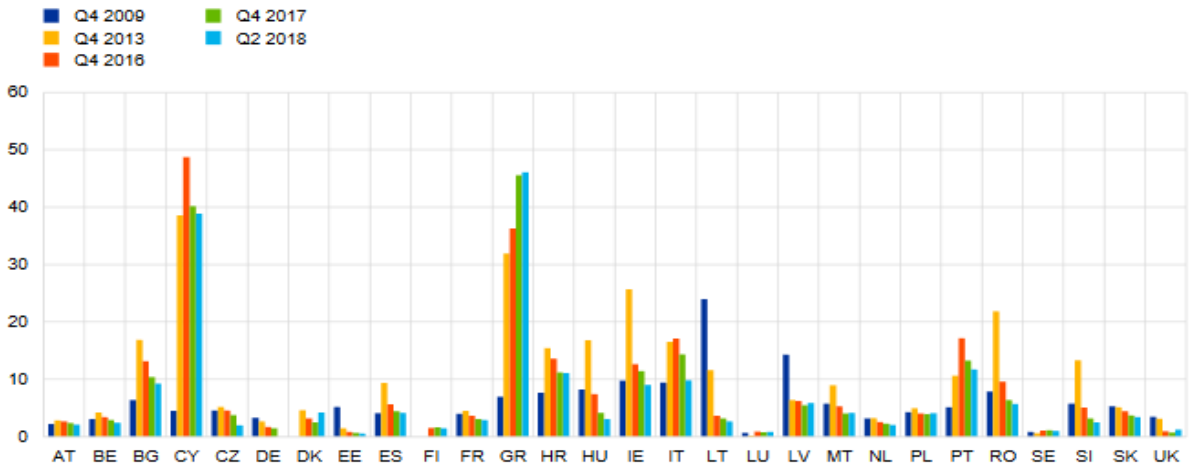

Figure 7- Evolution of the total ratio by EU Member State

Source: IMF Financial Soundness

Indicators.Notes: The NPL ratios are computed as Non-performing Loans to Total Gross Loans.For Finland no data were available for the fourth quarters of 2009 and 2013. For Cyprus, Greece and the United Kingdom, the last available data refers to Q1 2018. For Germany only annual data is available (last available data refers to Q4 2017).

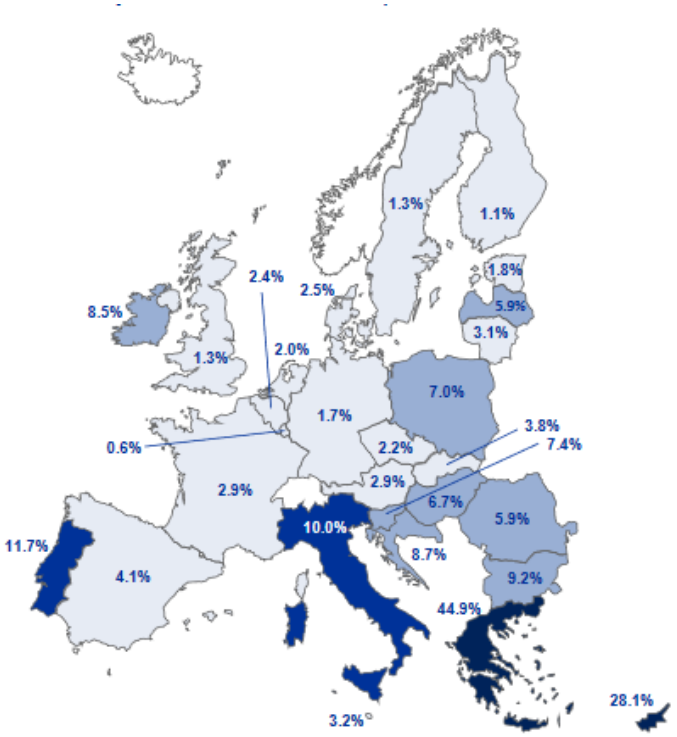

Figure 8- Total NPL ratio by EU member State in the second quarter of 2018

Source: ECB Consolidated Banking

Data.Note: The NPL ratios are computed as a percentage of total gross loans and advances.

In general, the Vigilance Authorities could ask to financial institutions and particularly to banks, to increase their capital with respect to those they have in normal times to face shocks. These capital buffers may change in times and be higher for some institutions (for example there are banks that in case of default will cause many defaults in the financial system).

In the literature is widely demonstrated that the explanatory power of a model with the objective to assess the causes of systemic increases in NPLs improves significantly when augmented by macroeconomics conditions. In this field we can analyse three different papers that altogether explain how macroeconomic policies influence the whole system. *Bonfim (2009)*[46], in analysing how firm-level characteristics play a role in determining the quality of loans granted to firms and the probability of default, studied that the inclusion of macroeconomic conditions adds power to the probabilistic model of default. Later, *Betz et al. (2013)*[47] confirmed that the ability to predict individual bank distress is enhanced by taking macroeconomic conditions into consideration. Finally, *Charalambakis et al. (2017)*[48] show that bank-specific characteristics associated only with bank capitalization and liquidity risk inly seem to determine NPLs under "normal economic conditions" while others macroeconomic conditions and political uncertainty have a central role in explaining the sharp increase in the stock of NPLs.

Jimenez et al. (2007)[49] studied the impact of macroprudential policy on credit supply cycles and real effect. They found out, testing dynamic provisioning introduced in Spain in 2000, that it affects banks differentially. Indeed, dynamic provisions lowers credit supply cycles and; in bad times, support firm performances. In their computations, an increase of one percentage point of capital buffers determines an increase of 9% of credit to firms, it increases firm employment by 6% and survival chances during a crisis by 1%.

Other important papers in the literature to keep in consideration are *Angelini et al. (2017)* and *Kjosevski and Petkovski (2017)*[50]. The first ones analysed what were the cause of Italian banks' gross non-performing loans to highest peak of €360bn at the end of 2015. The tried to identify which part of that stock was caused by unavoidable causes and which part was caused by poor ex-ante decisions by banks and financial institutions. Their research suggested that "relying on a simple counterfactual exercise suggest that at least 50% of defaults were unavoidable."[51]The

[46] Bonfim, D. (2009): "Credit risk drivers: Evaluating the contribution of firm level information and of macroeconomic dynamics"
[47] Betz, F., Oprică S., Peltonen T.A., and Sarlin, P. (2013): "Predicting Distress in European Banks"
[48] Charalambakis, E., Dendramis, Y. and Tzavalis E. (2017): "On the Determinants of NPLs: Lessons from Greece"
[49] Jimenex G., Ongena, S., Peydrò J.L. and Saurina J. (2017) "Macroprudential Policy, Countercyclical Bank Capital Buffers, and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments"
[50] Kjosevski, J. and Petkovski, M. (2017): "Non-performing loans in Baltic States: determinants and macroeconomic effects"
[51] Angelini, P., Bofondi, M., Zingales L. (2017): "The origins of Italian NPLs"

other 50% were caused by a combination between weak corporate sector and a weak ability of the bank to select borrowers. Kjosevski and Petkovski studied the links between macroeconomic and bank-specific determinants and their impact on macroeconomic performances in the countries of the Baltic Area: they found out, confirming what we previously highlighted with other authors, that the main important macroeconomic factors are GDP growth, inflation and domestic credit to private sector. Instead, the most important bank-specific determinants are equity to total asset ratio, return on asset, the return on equity and the growth of gross loans.

Another important research has been made by *Castro (2013)* who analyses the links between the macroeconomic developments and the banking credit risk in the GIPSI group (Greece, Ireland, Portugal, Spain and Italy). He determines that the banking credit risk is strongly correlated with the macroeconomic environment. As he states in his paper "the credit risk increases when GDP growth and the share and housing price indices decrease and rises when the unemployment rate, interest rate, and credit growth increase; it is also positively affected by an appreciation of the real exchange rate."[52] Moreover, he defines that all the policy measures taken to implement and to promote economic growth, employment, productivity competitivity paired with all the measures useful to reduce external and public debt in their country are fundamental to stabilize their weak economies.

[52] Castro, V. (2013): "Macroeconomic Determinants of the Credit Risk in the Banking System: The Case of GIPSI"

CHAPTER 2

HOW TO MANAGE NPLS, THE ECB'S "GUIDANCE TO BANKS ON NON-PERFORMING LOANS" AND THE EBA'S "GUIDELINES ON MANAGEMENT OF NON-PERFORMING AND FORBORNE EXPOSURE"

2.1 – Macroprudential Approaches

According to many economists the financial crisis of 2008 could be considered as the starting point of the system-wide increase of NPLs. To elaborate macroprudential approaches the Vigilance Authorities started to identify the main drivers of the rapid growth. The main drivers identified by the ESRB, the European Systemic Risk Board are[53]:

- Business cycle: data show that, in the majority of the cases, there is a strong relation between the countries recently affected by a system-wide increase in NPLs and the severe economic recession that followed the global financial crisis and the European sovereign debt crisis. Phases with a strong economic expansion are characterized by a low level of NPLs. When recessions start, the drop in economic activities weaken borrowers' ability to repay their loans, and if a system is not strong enough to it will not be able to face a strong increase in payment arrears and loans default.
- Asset prices shocks: they are considered a main driver especially in those countries whose credit booms were accompanied by asset price bubbles. In these countries, before the crisis, have been registered high expectations as regard future economic growth. These high expectations led to a credit boom in the real estate sector. In the positive momentum prices helped to increase the aggregate demand supporting an increase in expectations of further increases in real estate prices. The rapid growth in the supply of credit contributes, in turn, in amplifying the economic boom and the increase of an economic bubble. This mechanism could be defined as a self-sustaining and it-feeds on until the so-called bubble burst. When this happens, the collapse in asset prices led to the opposite loop. Indeed, it has a strong impact on the construction and the real estate sector and consequently, due to the heavy exposures, it has an impact to the whole financial system. Therefore, with a lot of borrowers no longer able to meet their obligations, banks and financial institutions have to face a strong increase in NPLs. In

[53] European Systemic Risk Board (2019): "Macroprudential approaches on NPL to non-performing loans"

this situation banks should reduce their risk-weighted assets in order to preserve their regulatory capital ratio and loss-absorbing capacity. All this mechanism feeds a negative loop for credit risk and NPLs.

- High indebtedness: the strong and unprecedent growth in demand following the financial crisis in some Member State, is correlated with a significant growth in household and NFC (Non-Financial Corporation) indebtedness. In some countries in the euro area, especially for GIPSI, it was difficult to determine sustainable level of indebtedness. This was due mainly because of the change in regime associated with a strong decline of inflation and nominal interest rates.

  Debt levels increased significantly in some EU countries, making NFCs and households particularly vulnerable to negative shocks to income and/or to an increase in interest rates and/or to a sharp depreciation of the exchange rate.

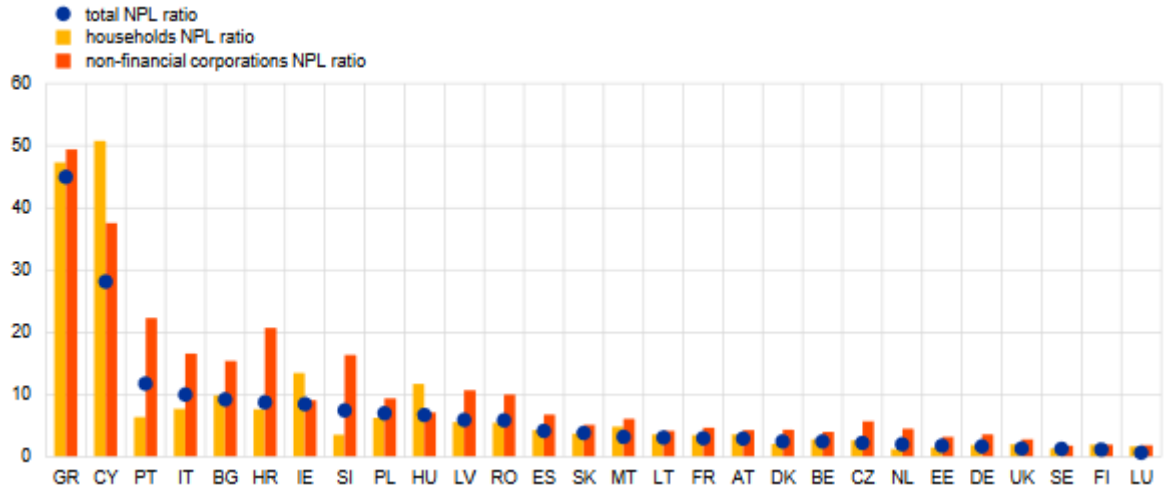

Figure 9 - NPL ratios by sector in the 2q of 2018

Source: ECB Consolidated Banking

Data.Notes: The NPL ratios are computed as a percentage of total gross loans and advances for the relevant portfolio (total, households or NFCs). Ordered by the total NPL ratio.

- Excessive credit growth: a high level of NPLs is easily identifiable in those counties where there has been unsustainable domestic demand growth and considerable capital inflows. The expansion in the business model of banks, led to a higher credit risk vulnerability especially in those countries where there was a lack of experience in mange these situations.
- Inadequate bank practices and governance: Governance structure and level of ability may play an important role in explaining their exposure that built up in the balance sheets before the crisis and how the financial crisis impacted on them. Bank practices helps to highlights credit quality during the lifecycle of a loan: origination, monitoring and early intervention, and repayment, resolution or disposal. The internal system of

incentives, its organizational culture and its risk culture and governance are the main drivers of these practices.

- Structural factors such as the legal and judicial framework: these two elements seems to be not that much correlated with NPLs but with the numerous studies, economists started to consider the legal and the judicial framework as one of the main drivers that contribute to the increase an persistence of system-wide NPL problems. Indeed, as stressed by *Report of the FSC Subgroup on Non-Performing Loans (2017)*[54] for the EU Council and by *Aiyar et al. (2015)*[55] for the International Monetary Fund, "the level of efficiency and effectiveness of the judicial an legal system, including the degree of inertia in insolvency frameworks, is repeatedly cited as a factor that correlates with the size of stocks of NPLs across countries."[56]It is demonstrated that an inefficient legal system can promote, the so-called, strategic defaulters. A percentage of borrowers started to stop payments due to banks and other financial institutions due to existing favourable legal protection framework. Asimakopoulos et al. (2017) studied that more than 13000 firms, in the period started with financial recession in 2008 to 2015, provides evidence that one over six of them were strategic defaulters.

These drivers have been the base to elaborates macroprudential policies to allow prevention against systemic increase in NPLs.

According to ESRB the toolkits that have been used so far are working well and no fundamental changes is required. Anyway, there is always need of some improvements and refinements in the original macroprudential policies. The instruments currently used should contribute to preventing system-wide increases in NPLs and to reinforce bank's resilience to such increases. The main areas in which the existing areas need to be improved are the use of sectoral capital buffer and the development of borrower-based measures, which are not harmonised at the European level yet.

Early Warning Systems (EWS) needs to be improved in order to monitor and manage credit portfolio deterioration from a macroprudential point of view. Macroprudential Authorities should be able to identify, promptly and at an early level, any kind of risk that are building up which could cause a system-wide increase in NPLs. This would be able thanks to the ability to

[54] Council of the European Union (2017): "Report of the FCS Subgroup on Non-Performing Loans"
[55] Aiyar, S., Bergthaler, W., Garrido, J.M., Ilyina, A., Jobst, A., Kang, K., Kovtun, D., Liu, Y., Monaghan, D. and Moretti M. (2015): "A Strategy for Resolving Europe's Problem Loans"
[56] European Systemic Risk Board (2019): "Macroprudential approaches on NPL to non-performing loans"

understand the changes that happen in any of the drivers previously described and to discern systemic risk signals related to appearance of potential NPLs.

Borrower-based measures helps to avoid or mitigate the vulnerabilities underlying the first stage of potential NPLs. This may happen through the promotion of sound decision-making processes focused and tailored on the borrower or possible client. Their main aim is to avoid that borrowers overburdens themselves with high leverage. These measures are also useful in lowering both credit growth and risk taking during the higher peaks of a business cycle and limiting the adverse effects of the lower peaks of a business cycle by promoting conservative credit allocation

The ERSB advises all the Member States that they should include these measures in their macroprudential toolkits. Borrowed-based measures plays an important role in mitigating the effects that could happen in the different stages of a business cycle. Therefore, it would be task of the European Union organise and guarantee that these rules have the same definitions and maintain a certain degree of harmonisation between all the countries.

Capital based instruments can be also useful to reduce excessive credit growth and banks' excessive exposure concentration. These instruments could be useful in two different ways: first, the increase the ability to absorb losses and reduce their impact on credit cycle; second, these instruments can be assigned to solve specific vulnerabilities in banks' loan portfolios.

Two of the main capital-based instruments are the CCyB (Countercyclical Capital Buffer) and SyRB (Systemic Risk Buffer). The Countercyclical Capital Buffers could be used when, in a situation of high indebtedness and with an unsustainable credit, in turn of fuel bubbles we want to have an instrument that as a main objective mitigates the potential systemic fallout from excessive credit growth and leverage. Authorities should consider using them to prevent the build-up of macro-financial imbalances and/or increase the ability of a bank to deal with NPLs situations. The Systemic Risk Buffers are a "flexible residual macroprudential tool that seeks to address systemic risks (of a long term, non-cyclical nature) which are not covered by the CRR."[57] The SyRB main object is to help institutions to increase their ability to absorbing losses thanks to an increase in capital and a reduction in risk-weighted assets. Authorities should use them when in the system there is a probability of a high increase in NPL flows associated to a development in specific market segments.

Macroprudential authorities should monitor developments in risk taking in financial system trying to anticipate the rise of problems regarding NPLs. This aim can be reached through a

[57] European Systemic Risk Board (2019): "Macroprudential approaches on NPL to non-performing loans"

specific vigilance on bank's governance structure. Authorities should, in addition to acknowledging that banks are responsible for adequately managing their loan portfolios, assuring that both micro-prudential supervisors and macroprudential authorities plays a role in this context. The first ones have to understand the possible specific risks that a bank is going to face. The second one, have to examine the environment all around the bank and understand the possible sources of financial pressure which could lead to excessive risk appetite and to a lack of effective internal controls.

2.2 – Measures falling outside the scope of macroprudential policies

The higher attention to the NPLs problem, brought with it a huge number of measures that are considered to fall outside the scope of macroprudential policy. The main developments introduced in the last decade regard how to address the risks underlying loans origination, monitoring, early intervention and governance. In order to impact the banks' behaviour and their long-term perspectives, several supervisory and regulatory initiatives have been implemented, alongside with other non-macroprudential initiative. All these policies are included in the *Action Plan to tackle non-performing loans in Europe*[58], adopted by the ECOFIN Council on 11th July 2017.

Two of the main packages introduced are the CRD III and the CRD IV/CRR. These rule packages are related to capital requirements for trading group, for re-securitisations on the supervisory review of remuneration policies and for prudential requirements of credit institutions and investment firms. In these directives primary legislation rules are supported by technical standards and guidelines related to how properly fit matters like assessment of board members, internal governance, remuneration packages and the Supervisory Review and Evaluation Process (SREP).

The European Banking Authority (EBA) worked on a set of guidelines with the aim to establish general governance requirements for credit risk taking, loan origination and monitoring. These guidelines, in respect of the current framework set out also further requirements for credit institutions with the aim to improve prudency on credit risk policies. Other provisions are provided to implement the role of monitoring credit risk, detailing in specific preforming loans.

In order to tackle down NPLs in an early stage, the SSM and the BCE, have published in the 2017, *Guidance to banks on non-performing loans*[59] with the aim to propose measures,

[58] Action Plan to Tackle Non-Performing Loans in Europe: https://www.consilium.europa.eu/en/press/press-releases/2017/07/11/conclusions-non-performing-loans/

[59] European Central Bank (2017): "Guidance to banks on non-performing loans"

processes and the best practices which banks and credit institutions should apply to tackle high stocks of NPLs. Based on this guidance, the EBA has consequently approved a set of guidelines, named *Guidelines on management of non-performing and forborne exposure*[60] on how manage non-performing exposures (NPEs) and forborne exposures (FBEs). The aim of these guidelines is ensuring that banks with a high quantity of bad loans have appropriated procedures to apply in case they have to face and manage high stock of non-performing loans and non-performing exposure and, consequently, to reduce, in a sustainable way, NPEs in the balance sheets. In order to solve this problem, guidelines specify prudential requirements (setting out specific strategies, associated operational and governance arrangements) both in the phase of NPE management and in the phase when credit institutions introduce forbearance measures.

Another important policy, introduced by the SSM in the *Addendum to the guidance to banks on NPLs*[61], is the one that officially established the IFRS 9 as the new method for accounting. Indeed, vigilance authorities expects that this accounting method will have a positive impact on the way banks face NPLs in a timely manner. IFRS 9 should also have a positive impact on how credit institutions originate a loan. These provisions are stricter and should encourage banks to choose for prudent approach in the first stages, at the moment of the origination.

2.3 – How to manage NPL

"NPLs are bad news for banks. They consume capital, they require management time and attention that diverts attention from the bank's core activities, they increase the running costs of the bank; the decrease profitability and they may even undermine the viability and sustainability of the bank."[62]

The consultation process, started from the European Central Bank (ECB) in September 2016 with the highest purpose to implement the Banking Union, has taken in consideration many comments and suggestion from the Supervisory Board of the BCE meeting that took place in July 2015 and following the 2014 Asset Quality Review. "National authorities and European institutions need to join forces to address the issue. This was recognised by the ECOFIN Council in July 2017, when finance ministers agreed on an Action Plan to tackle non-performing loans in Europe."[63] In line with this document, in October 2017 the European

[60] European Banking Authority (2018): "Final Report: Guidelines on management of non-performing and forborne exposures";
[61] European Central Bank (2018): "Addendum to the ECB Guidance to banks on non-performing loans: supervisory expectations for prudential provisioning of non-performing exposures"
[62] KPMG (2018): "Non-performing loans in Europe. What are the solutions?";
[63] https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-supervision-and-risk-management/managing-risks-banks-and-financial-institutions/non-performing-loans-npls_en

Commission, has assigned a central role at the objective of reducing Non-Performing Loans in the whole banking system. With this aim have been published the *Guidelines to banks on Non-Performing Loans*[64] by the European Central Bank.

The purpose was to develop strategies of organic vigilance to recognize, measure, manage and finally reduce NPLs present in each bank and in the whole banking system. Another document, which integrates and completes the one issued by the ECB, has been published in October 2018 by the European Banking Authority and it is called *Guidelines on management of non-performing and forborne exposures*[65]. These Guidelines have many similarities with the ones issued only one year before by the ECB. The main difference between the two is that the ones issued by the ECB were referred especially to Significant Institution (SI), while the ones issued by EBA rely to all those credit institutions of the European Union (more than 6000) and not only the biggest one directly controlled by the ECB.

The two documents have the purpose to suggest guidelines for managing NPLs with the main aim of reducing the quantity of NPLs and NPEs held by the banking system. Even if these NPL guidelines are similar and issued by two of the most important European institutions it is important to make an important distinctions: the guidelines issued by the ECB, are not mandatory, and the individual financial institutions have got a discretionary power in deciding whether to follow them or not, being respectful of current regulations. Indeed, financial institutions must be aware that vigilance authorities may ask them in every moment to illustrate e motivate why the individual financial institutions are not applying them. At the contrary, NPE's guidelines, issued by EBA more than 1 year later, are meant to be mandatory and binding after transposition into the national supervisory practices by the competent supervisory authorities.

The documents articulate following the lifecycle of the NPLs. At first, they take into exam the expectations about the strategies to adopt by the single financial institution on how to manage NPLs. ECB defines which steps are necessary to assess, develop, implement and embed the NPL strategy and the consequent operational plans. The part on NPL recognition provides definitions focusing on the unlikeliness to pay and its triggers. Then the guidance takes into consideration the NPL governance and operations: in this section the document analyses the management factors affecting NPL policies, providing information about NPL operating models, control framework, monitoring of NPLs and NPL workout activities and early warning

[64] European Central Bank (2017): "Guidance to banks on non-performing loans"
[65] European Banking Authority (2018): "Final Report: Guidelines on management of non-performing and forborne exposures";

mechanisms. The following chapters of the Guidance are aimed to prove what are the relevant aspects of forbearance measures and of NPL recognition. The part relative to forbearance measures focuses on the concession given to costumers, analyses possible solutions and the viability of their processes. Last chapters provided qualitative indications on NPL impairment measurements, writes-off and collateral valuation. This section highlights how a bank should assess its exposure and then provides some information about writes-off measures. About collateral valuation the guidance suggests the best ways as regards immovable properties held as collateral for NPLs. The paper suggested by the EBA, similarly to the ECB paper, has the main aims to describe what credit institutions should do to develop efficient NPE (Non-performing exposures) strategies. The core components of these guidelines are the development and the operationalisation of NPE strategies that should be used to effectively reduce the stock of NPEs in their balance sheets as well as the sustainable constraints they should use to limit NPE inflows. Whether a bank has a high level of NPEs is determining using the gross Non-performing Loan ratio. If the credit institution has a level of this ratio higher than the 5% threshold, the bank should be classified as a high NPE bank. All credit institutions, regardless of their ratio, should identify and address their internal policies and procedures including: the governance and operation of NPE management, the impairment measures and write-off procedures, policies and procedures for the evaluation of movable and immovable property collateral for NPEs and governance and operations of forbearance measures. Significant Institutions (SIs) are directly supervised by the ECB: the European Central Bank has the authority to supervise almost 120 banks and credit institutions. The other "less significant" institutions refers to the EBA guidelines in order to stabilise their stock of loans.

2.4 – NPL Recognition

In order to overcome the differences in terms of definitions and implementation of NPL, the EBA (European Banking Authority) has established a uniform definition of "non-performing exposure" (NPE). In this section the main aim is to define the cases in which is possible and/or suggested to apply the definition and to give provisions on the classification of forborne exposures as performing or non-performing, giving many time best practices examples.

Even though the NPE definition is currently only binding for supervisory reporting purposes, is quite important to uniform the definitions beyond these concepts being used for several relevant supervisory exercises as the EBA stress test or the asset quality review.

Following the paragraph 147 of Annex V of the EBA ITS on supervisory reporting which states that "Exposures in respect of which a default is considered to have occurred in accordance with

Article 178 CRR and exposures that have been impaired in accordance with the applicable accounting framework shall always be considered as non-performing exposures"[66], it is possible to understand how the concept how the concept of NPE defined above is broader than that of "impaired" and "defaulted".

Indeed, all impaired exposures and all defaulted exposures are necessarily NPEs, but NPEs can also encompass exposures that are not recognised as impaired or as defaulted in the applicable accounting or regulatory framework.

Going deeper in the definition process, according to paragraph 145 of Annex V of the EBA on supervisory reporting, non-performing exposures are those that satisfy either or both of the following criteria:

- Material exposures which are more than 90 days past-due where past-due are intended to be legal obligation to a compulsory payment to which is applied the counting past-days rule as soon as any material amount of principal, interest or fee has not been paid at the date it was due.

- The debtor is assessed unlikely to pay its credit obligations in full without realization of collaterals, regardless of the existence of any past-due amount or of the number of days past due.

Being the assessment "unlikely to pay" category based on less quantitative criterion, banks should act with the imperative of identifying indicators of unlikeliness to pay, with a reference on unlikely to pay situations (UTP events) in order not to lead some leeway for interpretation. There could be automatic events which make the exposure automatically identified as non-performing (for example the bankruptcy of the debtor). On the other hand, in the majority of the cases, there is the necessity of checking for confirmations in, the so called, manual events. In such situations it is important that the bank periodically controls for the creditworthiness and the repayment capacity of its customers, accompanying the procedure with updated financial information and rating for the subject involved. Furthermore, customers who have been identified as financially weak, such as customers on a watch-list or with a weak rating, the bank should put in place more frequent review processes depending on the materiality, segment and the customer's financial standing.

[66] European Central Bank (2017): "Guidance to banks on non-performing loans"

Although banks should develop their own thresholds based on notional specific in order to classify UTP events, there would be possibility to identify a guidance about a list of events for the implementation of UTP triggers.

2.5 – NPL Strategy

The ECB[67] is looking to establish clear goals with the aim of the reduction of the total value of NPLs over realistic medium-long horizons. Banks should create and produce, for each relevant portfolio, credible and effective NPL reduction plans according to the bank's approach and targets.

The Guidelines consider that every bank has to design, draw up and finally carry out strategies, to integrate to their balance and business plans, in which they have to clearly identify what are the objectives for NPLs reduction. These strategies have to be realistic and ambitious with specified deadlines that have to be respected. Coherently with the financial prospective strategy adopted by the financial institution, a specific operative plan has to be approved by the Board of Directors. This plan must offer a self-assessment about the ways in which the financial institution can act to achieve its specific objectives and a complete overview about quantities and the time in which NPLs are expected to be recovered. The operative plan has to be articulated in an analytical way for every single portfolio considered, providing results in the time period taken in consideration. This time-period analysed is suggested to be included between 1 and 3 years. The plan must define other specific aspects that regards Governance, resources employed, technical infrastructures and costs for the banks.

To develop and implement an NPL strategies the ECB suggest four fundamental steps:

1. Self-assessment, analyst of the operating environment and of external conditions

"Credit institutions should perform a comprehensive self-assessment to evaluate the actual situation and the steps to be taken internally to address any gaps in the internal capabilities to manage NPEs."[68]

The first phase of the correct formulation and execution of an NPL strategy is to develop an assessment of the following specific elements:

- Internal capabilities: to effectively manage and reduce NPLs over a defined time horizon: every bank need to be able to understand what aspects could influence the

[67] European Central Bank (2017): "Guidance to banks on non-performing loans"
[68] "Guidelines on management of non-performing loans and forborne exposure. Final Report", EBA, October 2018

ability of a bank to optimize the management of NPLs and the foreclosed assets. One important action to be taken is a self-assessment about the scale and drivers of the NPL issue (how and why they occurred and how the portfolio has been managed), the results of the NPL actions taken in the past, the operational capacities (tools, staff policies adopted in the process of early detection, forbearance and collateral valuation).

- External conditions and operating environment: to evaluate the current and possible future external operating conditions is fundamental to establish NPL strategy and associated NPL reduction targets. This can be possible through the assessment of macroeconomic conditions, market expectations, NPL investor demand, NPL servicing, legal and judicial framework and fiscal implications.

Banks should be able to dynamically model the capital implications of different elements to their NPL strategy, ideally under different economic scenarios. They should be considered in conjunction with the Risk Appetite Framework (RAF)[69] as well as the Internal Capital Adequacy Assessment Process (ICAAP)[70].

2. Developing the NPL strategy

An NPL strategy should encompass, at least, finite-horizon quantitative NPL targets, supported by corresponding comprehensive operational plan, based on self-assessment and analysis of the available implementation options. Examples of implementation options, not being mutually exclusive, are:

- Hold/forbearance strategy: strongly linked to the operating model and operational NPL management capabilities, in addition to outsourcing of servicing and write-off policies;
- Active portfolio reduction: can be achieved through sales and/or writing off NPL exposure considered unrecoverable. It is strongly linked to provision adequacy, collateral valuations, quality exposure data and NPL investor demand;
- Change of exposure type: includes foreclosures, debt to equity swapping, debt to asset swapping;
- Legal options: including insolvency proceedings or out-of-court solutions.

[69] The Risk Appetite is the amount of risk, at a broad level, that an organization is willing to accept in pursuit of its strategic objectives. Risk Appetite reflects the risk management philosophy that a Board wants the organization to adopt and, in turn, influences its risk culture, operating style and decision-making.
"Risk Appetite Framework", The Global Fund, Board Approved GF/B39/DP11, 10 May 2018

[70] Internal Capital Adequacy Assessment Process (ICAAP) is an internal review requirement that evaluates capital adequacy, capital management and planning at banks with a specific focus on core risk factors. Expected to be reviewed at least quarterly at a board level and submitted annually to the regulator, the ICAAP analysis supplement risk management infrastructure by increasing board level self-awareness of risk exposures carried on the bank's balance sheet.

These options are intended to be mixed up in the most appropriate way by each institution, in order to get an effective and efficient composition of strategies in the medium and long term, adapted case by case for the different portfolios or segments.

"Credit institutions should identify medium-and long-term strategy options for NPE reductions that may not be achievable immediately, for example due to a lack of immediate NPE investor demand, which might change in the medium to long term. The operational plan may therefore need to allow for such change sand require preparations for them, for example by enhancing the quality of NPE data in order to be ready for future investor transactions."[71]

Before starting the process of deciding the short to medium term targets, banks should define a clear view of what reasonable long-term NPLs levels are, both overall and on portfolio-level basis. To do so, historically and commonly used international benchmarks can help in defining what "reasonable levels" means.

Targets should be classified in the following dimensions:

- By time-horizons: short-term (1 year), medium-term (3 years) and possibly long term;
- By main portfolios: retail mortgage, retail consumer, SME corporates
- By implementation option chosen to drive reduction: cash recoveries from hold strategy, collateral repossession, recoveries from legal proceedings, revenues from sale of NPLs or write-offs.

For high NPL banks, the NPL targets should also include a projected absolute or percentage NPL exposure reduction.

3. Implementing the Operational Plan

Operational plans should support the NPL strategy of high NPL banks. Indeed, these plans should be approved by the management body. The operational plan should clearly define how the bank should implement its NPL strategies over a time-horizon of at least 1 or 3 years. The operational plan should include elements such as time-bound objectives and goals, activities to be delivered, governments arrangements, staffing and resource requirements and other operational issues. The plan should also include assessment on potential impediments to a successful achievement if the NPL strategy goals.

[71] "Guidelines on management of non-performing loans and forborne exposure. Final Report", EBA, October 2018

The implementation of the NPL strategy should rely on suitable policies and procedures, clear ownership and suitable governance structures, including escalation procedures, and should incorporate wide-ranging change management measures in order to integrate the NPL workout framework as a key element in the corporate culture.

4. Embedding the NPL strategy

Since a successful implementation of the strategy could only be reached by involving many areas within the financial institution, it should be embedded in a process at all levels of an organization, including strategic, tactical and operational. With this purpose it is indispensable that the defined plan has to be comprehensively communicated to perform as expected.

"Credit institutions should ensure a high level of monitoring and oversight by the risk management functions in respect of the formulation and implementation of the NPE strategy and operational plan."[72]

Particular relevance must be addressed on the communication to all the staff and management involved in NPL workout, especially if the implementation of the NPL strategy involves wide-ranging chances to business procedures. Specific roles, goals and activities must be given, and incentives should be provided in order to achieve effectively the strategy goals. A clear allocation of responsibilities has to be made. All relevant components of the NPL strategy like accountability, reporting lines and the specification of targets, should be fully aligned and integrated to the business plan and budget, including all the relevant costs associated with the implementation of the operational plan but also potential losses stemming for NPL workout activities. In addition, the strategy should be fully embedded in the risk management framework, paying attention to ICAAP[73], RAF[74] and Recovery plan[75]. A comprehensive monitoring approach via back office is indispensable to ensure: the control in progress and targets achievements, the respect of the

[72] "Guidelines on management of non-performing loans and forborne exposure. Final Report", EBA, October 2018

[73] As defined in Article 108 of Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013, on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (OJ L 176, 27.6.2013, p. 338), known as the CRD

[74] Financial Stability Board'(2013) "Principles for An Effective Risk Appetite Framework";

[75] As required by Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council (OJ L 173, 12.6.2014, p. 190), known as the Bank Recovery and Resolution Directive (BRRD) (Directive 2014/59/EU);

reduction schedule, the effectiveness and efficiency of these reduction measures and the utilisation of the defined loss budget.

2.6 – NPL Governance and Operations

The ECB and EBA wants banks and other credit institutions to have a governance structure and operational arrangements that allow to address the problem of high NPLs in an efficient and effective way through sales, securitization or workout.

The Guidelines sets out the activation of an appropriate governance structure and operational model for the management of NPLs in terms of structures, processes and technical infrastructures. A bank' management body, as we have already seen should approve and monitor the institution's strategy. The management body has therefore other tasks very crucial when we talk about steering and decision making:

- Approving and review on annual basis the NPL strategy, including the operational plan;
- Define management objectives and incentives for NPL workout activities;
- Overseeing and monitoring progresses in comparison with the targets and milestones defined in the initial plan;
- Define adequate approval processes for NPL workout decisions;
- Ensure sufficient internal controls over NPL management processes.

An appropriate governance and operational set-up are fundamental to properly manage the NPL issues in an efficient and sustainable way. There are several relevant elements to take into account in analysing this subject:

1. NPL operating model
    - NPL Workout Units: the establishment of dictated workout units separated from loan origination processes in order to avoid any conflict of interest
        - Separated and dedicated loan

        The implementation of dedicated NPL workout units (WUs) is a suitable operating way to separate the loan origination staff from NPL monitoring staff and reduce the conflict of interest between the two expertise. Therefore, high NPL banks should implement separated these WUs ideally from the moment of early arrears, also including the duties rising from forbearance negotiation with clients and the following decision-making process, even with NPLs workout specific bodies.

As long the overlaps between the two body's task for some lines of exposure are not avoidable, the internal controls should provide at least sufficient mitigation policies to ensure the best degree of separation allowed case by case.

Even though separated, the two bodies should regularly feedback each other with information regarding both the NPL inflows and the NPL workout to learn about the origination of new businesses.

- Alignment with NPL life cycle
  - Early arrears (up to 90 days past due): financial advisors should focus their attention on an initial engagement with the borrowers for initial recoveries and for the assessment of his circumstances. Here the financial institution staff need to recover information as financial position, level of cooperation, status of the collateral and may others. This will help financial institution to define an appropriate segmentation and workout strategy. Having this information available will guide the financial institution staff through the choice of the most useful short-term forbearance measure.
  - Late arrears / Restructuring / Forbearance: the staff should formalize and implement forbearance measures and other decisions previously took and decide whether put them into places or if the borrower affordability assessment states that viable options exist. After the ending of the restructuring period the borrower should be constantly monitored for a minimum cure period of 1 year and eventually transferred out of the workout unit if no other bad situations are observed.
  - Liquidation / Debt recovery / Legal cases / Foreclosure: this is the last phase for borrowers that have not been considered available to receive forbearance solutions. This might be caused by the lack of cooperation between them and the financial institution or due to unrecoverable financial circumstances. After performing a cost-benefit analysis the bank has to choose the best liquidation practice (in and out of court) and proceed with it. To ensure and effective and efficient liquidation phase, specific liquidation specialists are required, so financial institutions refers to external specific expert and/or the implementation of an internal guidance on debt recovery policies to be followed.

- Tailoring to portfolio specificities: when designing the WUs structure, banks should consider the specificities of their main NPL portfolios.

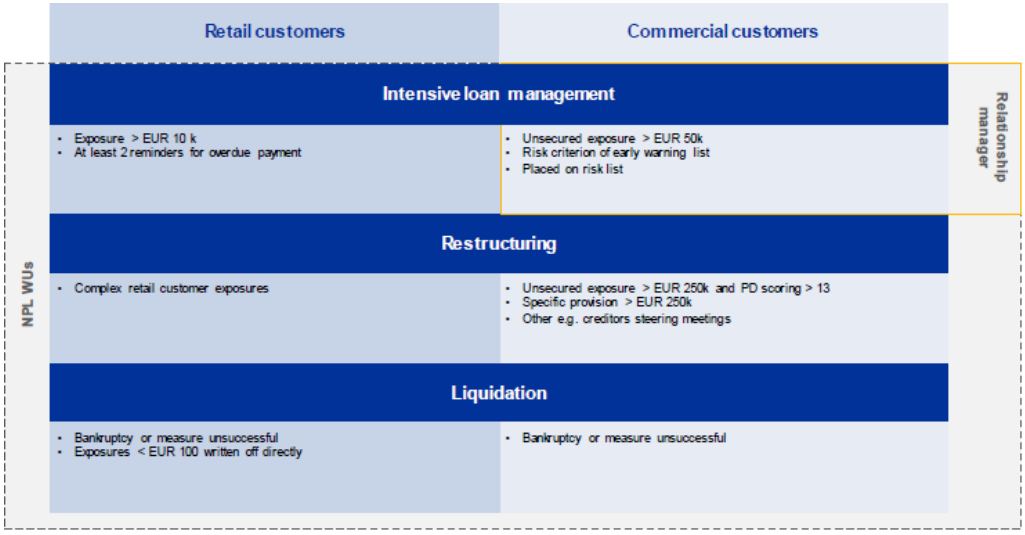

Figure 10 – Example of an NPL WU structure and triggers implemented by a mid-sized bank

Source: ECB "Guidance to banks on Non-Performing Loans"

Indeed, they may distinguish between retail portfolios where a standardized approach can be used or corporate NPL portfolios where a relationship management can be a better solution.

- Portfolio segmentation

  "A suitable operating model is based on analysing the bank's NPL portfolio with a high degree of granularity, resulting in clearly defined borrower segments."[76]Borrowers can be grouped together on the base of the characteristics of their portfolio. To those borrowers in the same segment, there is high probability that the same treatment will be applied.

  Portfolio segmentation is a key driver as regards corporate NPL portfolios.
- Human resources
  - Proportionality of the NPL organization:

    High NPL banks should pay attention to internal control costs. They should regularly review the adequacy of their internal and external NPL workout resources and regularly determine their capacity needs.
  - Expertise and performance management:

    Resources addressed to NPL Workout Units should be used to carry out the specific tasks they are dedicated to. If this not happens financial institutions should put

[76] "Guidance to banks on non-performing loans", BCE, March 2017

higher focus on training and staff development like (negotiating skills, updating about forbearance measure, understanding local legal framework and so on). Alternatively, banks should outsource those tasks to external and independent experts. For this reason, NPL Workout Unit staff should always be monitored on regular basis. If its performances are not in line, then its tasks can be outsourced. "Further to quantitative elements linked to the bank's NPL targets and milestones, the appraisal system may include both qualitative, such as negotiation competencies, and quantitative measurements for the management bodies. Incentive framework and remuneration policies should also be granted to gain strong commitment on early warnings to efficiently address pre-arrears to their own specific NPL Workout Units."[77]

- Technical resources

  The adequate technical infrastructure is a key determinant for the future success of an NPL strategy. The infrastructure should be completed and up-to-date throughout the whole NPL workout process. Initially, data and information should be easily available as regards notification of early-arrear, borrower movements, updates of collateral information, efficiency of forbearance measures, foreclosed asset and central credit registers. in the next phase, the NPL workout monitoring, the IT system should help the Workout Unit in activities such as tracking the loans status, incorporating early warnings signal and generating automatic analysis of the NPL workout lifecycle and future evolution trends. In the last phase, dealing with NPL measurement, the infrastructure the IT system should recognise impairments, perform suitable segmentation analysis, support the assessment of borrowers' personal data and calculate the NPV and the of NPL restructures.

2. Control Framework

   Control processes for the NPL workout framework are indispensable in order "to ensure the full alignment between the NPL strategy and the operational plan on the one hand, and the bank's overall business strategy and risk appetite on the other hand. The control framework should involve three lines of defence and everyone has its characteristics in order to avoid overlaps between them.

   - First line of defence controls:

[77] Guidance to banks on non-performing loans", BCE, March 2017

The first line key tools are the strong embeddedness of internal policies on NPL workout processes and even in the IT procedure as much as possible from the highest level to the lowest one.

- Second line of defence controls:

  The second line involves a depth degree of control which is proportionate to the level of risk posed by NPLs, in particular by:

  - Monitoring NPLs both on granular and aggregate basis with ICAAP dispositions;
  - Reviewing the performance of the overall NPL operating model;
  - Assuring quality to the NPL loan processing, as concerned by forbearance and provisions;
  - Reviewing alignment between internal and public policies about NPL classification, provisioning, collateral valuations, forbearance and early warning mechanism;

- Third line of defence controls:

  The third line comprises the internal audit function, fully independent from business units, and should have all the expertise to control the efficiency and the effectiveness of the NPL framework. The line should perform regular assessments to verify the adherence of internal NPL-workout policies with a proportional approach, also with unannounced inspections and file reviews at least annually for high NPL banks.

3. Monitoring of NPLs and NPL workout activities

The monitoring system is based on NPL targets approved in the NPL strategy together with key performance indicators (KPIs) to measure progress.

- High-level NPL metrics
  - NPL ratio and coverage:

    Absolute and relative levels of NPLs, early arrears, level of foreclosed asset and forborne exposure should be carefully monitored.

    "Another key monitoring element is the level of impairment/provisions and collateral/guarantees overall and for different NPL cohorts."[78] These cohorts should be built as to provide meaningful information to the management body. For example, the Texas Ratio that links NPL exposure and capital levels. If possible, the indicators should be benchmarked with

[78] European Central Bank (2017): "Guidance to banks on non-performing loans"

competitor/market ones to provide to management a complete picture of the current situation and therefore signal deviations from the operational plan.

- Customer engagement and cash collection:

  "Once NPL WUs have been established, key operational performance metrics should be implemented to assess the unit or employees (if adequate) efficiency relative to the average performance and/or standard benchmarks (if they exist)."[79] Some of these could be, for example, scheduled vs. actual borrower engagements, cash collected vs. contractual cash obligation (both from voluntary payments and from legal procedures.

- Forbearance solutions

  Forbearance activity is the main solution to the NPL problem. It can be measured it two ways: efficiency is related to the volume of credit facilities offered and the time needed to negotiate with the borrower, while effectiveness relates to the probability of success of the forbearance option.

  The principal indicators to monitor the success rate of the restructuring solutions proposed are:

  - Forbearance cure rate and re-default rate: banks should conduct an analysis after a period of time, generally 1 year, from the date of modification to determine the cure rate that determines whether the loan has been effectively cured.
  - Type of forbearance measure: banks should identify whether the forbearance measures are short or long-term and the specific characteristics like months, principal increase, collateral amount.
  - Cash collection rate: cash collection from restructured credit facilities. This indicator can be monitored against the revised contractual cash flows and in absolute term.
  - NPL write-off: this could be a part of a forbearance option that could partial or full basis. The loss associated to a write-off of an unrecoverable loans should be monitored against the cure rate in order have better information for the management and the institutions' forbearance strategy and policies.

  A proper monitoring of forbearance measure is indispensable to assure that the main goal of this measure is respected: banks need to recover as much as possible from the amount due and not a delaying of an assessment of an uncollectable exposure.

[79] European Central Bank (2017): "Guidance to banks on non-performing loans"

- Liquidation activities:

  "Provided that no sustainable restructuring solution has been reached, the bank is still expected to resolve the non-performing exposure".[80] Concerning legal measures, banks should monitor volumes and recovery rates of this particular cases. In the operation of monitoring the financial institutions are expected to build a database that will help in future segmentation decisions. For facilities with collateral, banks should measure the time prior needed for liquidation and the potential haircuts due to forced sales in certain markets. The data regarding the recovery rates on an ongoing base will improve the reliability of the choice between NPV loan assessment and forbearance solution.

4. Early warning mechanism/watch-list

"In order to monitor performing loans and prevent the deterioration of the credit quality, all banks should implement adequate internal procedures and reporting to identify and manage potential non-performing clients at a very early stage."[81]

The EWIs (early warnings indicator) should be computed at least monthly. To identify early signal of credit deterioration, banks should have a dual prospective: the first one based to a portfolio level and the second one based on the transaction/borrower level.

- Portfolio-level EWIs:

  They should concern grouping of credit risk portfolios by common features, as geographical area, business developing, level of collateralization. Each subcategory of risk should be deeply measured as a function of the expected risk. Then the banks should identify specific ECWs and triggers in relation of each class of risk and involve first and second lines of defence.
- Transaction/borrower level EWIsThis prospective should be set on the basis of all the input or information available at a certain date or over a specified period (for example internal score system, external ratings and also macroeconomics indicators for the business-specific area. The warning engine should work with defined triggers which initiate different types of alerts.

The front office should be provided with effective tools and operational reporting instruments to promptly identify the first signals of client deterioration. The alerts to the relationship managers and related operational and management reporting should be carried out at least

[80] European Central Bank (2017): "Guidance to banks on non-performing loans"
[81] European Central Bank (2017): "Guidance to banks on non-performing loans"

monthly. The involvement of dedicated units to assess the financial situation of the client and discuss potential solutions with counterparties should be envisaged.

2.7 – Forbearance Solutions

As stated in the Annex, Forbearance measures consists, as we said before, in concessions extended to any exposure of a debtor who faces financial troubles. These concessions consist in either a modification of the previous terms of the contract or a partial/total refinancing of the exposure. In order to better identify forbearance measures the bank should conduct and assessment of financial difficulties where the borrower is not in economic troubles but market conditions are changed significantly and could have an hard impact on the debtor's ability to repay its loan. Being able to understand at an early stage whether a borrower will be able or not to repay his loans is fundamental for financial institutions.

"To identify the condition of financial difficulties of the debtor the following trigger can be used:

- Debtor/facility more than 30 days past due during three months prior to its modification or refinancing;
- Increase of probability of default (PD) of institution's internal rating class during the three months prior to its modification or refinancing;
- Presence in watch-list during the three months prior to its modification or refinancing."[82]

If forborne exposures are supported by inadequate payment plans, or there is an introduction of contractual terms that delay the time of repayment or they include amounts of money that are not recognised which exceed the accumulated credit risk losses of similar exposures with similar risk profile and unless there is no evidence of the contrary, these exposure must be identified as non-performing.

To identify whether a forborne measure can be performing or non-performing, in accordance with paragraph 176 of Annex V of the EBA ITS on supervisory.

In order to reclassify the forborne exposure as non-performing it should complete a "cure period" of one year starting from the date of the adoption of the forbearance measure. Then the debtor should demonstrate with his behaviour that concerns about his future full repayment no longer exist. All these concerns are examined in a financial analysis performed by the institution

[82] European Central Bank (2017): "Guidance to banks on non-performing loans"

on the debtor's finance and behaviour. To be sure that this analysis is carried out meeting all the requirements set out in the paragraph 157 of the same Annex, financial analysis needs the following criteria to be satisfied:

- "the exposure is not considered as impaired or defaulted;
- there is no past-due amount on the exposure;
- the borrower has settled, by means of regular payments, an amount equivalent to all those previously due or total equal to the amount written off as part of the forbearance measures, or the borrower has otherwise demonstrated its ability to comply with the post-forbearance conditions."[83]

The credit institution's policies used in this analysis should specify what are the procedures used to estimate if the borrower is able or not to comply with the post-forbearance conditions.

When a debtor has other exposures to a credit institution, the institution should consider the performances of these exposures and provide an adequate analysis in order to assess the real borrower's ability to comply with the post-forbearance measures.

In order to classify the forborne exposure as performing there are few conditions that must be met:

- "an analysis of the financial condition of the debtor showed that the transactions no longer met the conditions to be considered as non-performing;
- A minimum of two years has elapsed since the later of the date of the concession or the date of reclassification from non-performing;
- The borrower has made regular payments of more than an insignificant aggregate amount of principal or interest during at least half of the probation period;
- The borrower does not have any other transactions with amounts more then 30 days past due at the end of the probation period."[84]

Credit institutions should require the borrower to demonstrate its ability to comply with the post-forbearance conditions under different criteria that imply a repayment of both principal and interest.

[83] European Central Bank (2017): "Guidance to banks on non-performing loans"
[84] European Central Bank (2017): "Guidance to banks on non-performing loans"

The ECB is seeking to ensure that forbearance measures allows to bad situations to become situations of sustainable repayment.

The analysis of forbearance measures seems to be fundamental in order to understand the strict connection between non-performing exposure and the concession that a bank can give to a customer. When a borrower is in financial difficulties and he is facing some problems in meeting its commitments, he can obtain some concessions such as load or debt securities that could be revocable or irrevocable.

The condition a concession has to respect in order to be considered as a forbearance measure is a modification of the previous term and conditions of the contract or the total (or partial) refinancing of the exposure. An effective assessment of financial difficulties should also be conducted in order to identify them in an early-stage and so for exposure where market conditions have changed significantly in a way that could impact the ability to repay. With this purpose the ECB provides a set of triggers in order to figure out financial difficulties during the three months prior the modification or refinancing of the loan:

- Debt/facility more than 30 days past due;
- Increase of probability of default (PD) of institution's internal rating class;
- Presence in the watch-list.

When granting forbearance measures to performing exposures, banks should also assess whether these measures lead to a need to reclassify the exposure as non-performing. On the other hand, the bank can reclassify a non-performing exposure as a performing one if after at least 1 year is in good health and after the demonstration by the debtor that concerns regarding full repayment no longer exist.

However, unless there are other evidences, forborne exposure meeting any of the following criteria should be classified as non-performing in any case:

- they are supported by inadequate plans, changes to the payment plan to avoid violations or payment plan's resting on expectations that are not supported by macroeconomic forecast or by realistic assumptions on the repayment capability or willingness of the debtor;
- they include contract terms that delay the time for the regular repayment instalments on the transaction, that could hind a possible classification;

- they include de-recognised amounts that exceed the accumulated credit risk losses for non-performing exposures with a similar risk profile

Short-term measures		
1. Interest only	During a defined short-term period, only interest is paid on credit facilities and no principal repayment is made. The principal amount thus remains unchanged and the terms for the repayment structure are reassessed at the end of the interest-only period, subject to the assessed repayment ability.	This measure should only be granted/considered viable if the institutions can demonstrate (based on reasonable documented financial information) that the financial difficulties experienced by the borrower are of a temporary nature and that after the defined interest-only period the borrower will be able to service the loan at least based on the previous repayment schedule. The measure should generally not exceed a period of 24 months and, in the case of construction of commercial property and project finance, 12 months. Once the defined period of this forbearance measure is over, institutions should reassess the borrower's debt servicing capacity in order to proceed with a revised repayment schedule that is able to account for the unpaid capital element during this interest-only period. In most cases, this measure will be offered in combination with other measures of a longer-term nature to compensate for the temporary lower repayments (e.g. extension of maturity).
2. Reduced payments	Decrease of the amount of repayment instalments over a defined short-term period in order to accommodate the borrower's affected cash flow situation and then continue with the repayments on the basis of projected repayment ability. The interest remains to be paid in full.	See "1. Interest only" If the amount of payment reduction is moderate and all other conditions mentioned above are met, this measure could be applied for a period longer than 24 months.
3. Grace period/payment moratorium	An agreement allowing the borrower a defined delay in fulfilling the repayment obligations, usually with regard to the principal and interest.	See "1. Interest only"
4. Arrears/interest capitalisation	Forbearance of arrears and/or accrued interest arrears by the addition of those unpaid amounts to the outstanding principal balance for repayment under a sustainable rescheduled programme.	The measure should only be granted/considered viable where the institution has assessed that the borrower's verified income/expenditure levels (based on reasonable documented financial information) and the proposed revised repayments are sufficient to enable the borrower to service the revised loan repayment on a principal and interest basis for the duration of the revised repayment schedule; and where the institution has formally sought confirmation that the customer understands and accepts the capitalisation conditions. Arrears capitalisation should only be provided selectively in cases where the recovery of historical arrears or payments due under the contract is not possible and capitalisation is the only option realistically available. Institutions should generally avoid offering this measure to a borrower more than once; and the measure should only be applied to arrears that do not exceed a predefined size relative to the overall principal (which should be defined in the bank's forbearance policy). The institution should assess the percentage of arrears being capitalised compared to the principal and interest repayments as adequate and appropriate for the borrower.

Figure 11 - List of most common Short-term Forbearance measures

Source: ECB Guidance to banks on Non-performing loans

Moreover, for the pulling effect, if more the 20% of the total exposures of the debtor are past due by more than 90 days, all other exposures of the debtor should be considered non-performing as well.

The main aim that all financial institutions should face is to return the exposure to a situation of suitable repayment and to avoid foreclosure. The viability assessment of forbearance measures should be carried out by distinguish between short-term and long-term options:

Short-term options should be considered viable where:

i. The bank can demonstrate that the borrower can realistically afford the forbearance solution;
ii. It is a temporarily solution with a maximum with a maximum duration of two years and the borrower should demonstrate the ability to repay;
iii. The solution does not result in multiple consecutive measures in the same exposure.

- Long-term options should be considered viable where:

    i. The bank can demonstrate that the borrower can realistically afford the forbearance solution;

    ii. The resolution of the outstanding arrears is fully addressed and there is a significant reduction in the borrower's balance;

    iii. In case of previous forbearance measures granted with respect to an exposure, the bank should ensure additional control.

Long-term measures		
5. Interest rate reduction	Permanent (or temporary) reduction of interest rate (fixed or variable) to a fair and sustainable rate.	Credit facilities with high interest rates are one of the common causes of financial distress. The financial difficulties of a borrower may partly derive from the fact that the interest rates are excessively high compared to the income of the borrower or from the fact that the evolution of interest rates, as opposed to a fixed rate, has resulted in the borrower receiving finance at an exorbitant cost, compared with prevailing market conditions. In such cases, an interest rate reduction could be considered. However, banks should ensure that the relevant credit risk is sufficiently covered by the interest rate offered to the borrower. It should be clearly flagged if the affordability can only be achieved at below-risk or below cost rates.
6. Extension of maturity/term	Extension of the maturity of the loan (i.e. of the last contractual loan instalment date), which allows a reduction in instalment amounts by spreading the repayments over a longer period.	If the borrower is subject to a compulsory retirement age, term extension should only be considered viable where the institution has assessed and can demonstrate that the borrower can, through a pension or other sources of verified income, service the revised loan repayments on an affordable basis.
7. Additional security	When additional liens on unencumbered assets are obtained as additional security from the borrower in order to compensate for the higher risk exposure and as part of the restructuring process.[31]	This option is not a viable standalone forbearance measure as it does not by itself resolve the presence of arrears on a loan. It usually aims to improve or cure loan-to-value (LTV) ratio covenants. Additional security may take many forms, such as a pledge on a cash deposit, assignment of receivables or a new/additional mortgage on immovable property. Institutions should value second and third liens on assets as well as personal guarantees with care.
8. Sale by agreement/assisted sale	When the bank and the borrower agree to voluntarily dispose of the secured asset(s) to partially or fully repay the debt.	The institution should restructure any residual debt post the assisted sale with an appropriate repayment schedule in line with the borrower's reassessed repayment ability. For forbearance solutions which may require the sale of the property at the end of the term, banks should conservatively consider the future approach to any shortfall that could remain after the sale of the property and address it as early as possible. For loans that are repaid by repossession of collateral at a predefined moment, the repossession does not constitute a forbearance measure unless it is exercised ahead of the predefined moment due to financial difficulties.
9. Rescheduled payments	The existing contractual repayment schedule is adjusted to a new sustainable repayment programme based on a realistic, current and forecasted assessment of the borrower's cash flows	Different repayment example options include: i. Partial repayment: When a payment is made against the credit facility, e.g. from a sale of assets that is lower than the outstanding balance. This option is applied to significantly reduce the exposure at risk and to enable a sustainable repayment programme for the remaining outstanding amount. This option should be preferred to the bullet or step-up options described below. ii. Balloon or bullet payments: When the rescheduled repayment ensures a large payment of the principal at a later date before loan maturity. This option should only be used/considered viable in exceptional circumstances and when the institution can duly demonstrate future cash flow availability by the borrower to meet the balloon or bullet payment. iii. Step-up payments: Institutions should only consider a solution including this option viable when they can ensure, and are able to demonstrate, that there is good reason to expect that future increases in payments can be met by the borrower.
10. Conversion of currency	When the currency of the debt is aligned to the currency of the cash flows.	Banks should explain fully to borrowers the risks of foreign exchange and should also refer to currency conversion insurance.
11. Other alteration of contract conditions/covenants	When the bank discharges the borrower of covenants or conditions included in a loan agreement not yet listed above.	

12. New credit facilities	Providing new financing arrangements in order to support the recovery of a distressed borrower.	This is usually not a standalone viable forbearance solution, but should be combined with other forbearance measures addressing existing arrears. It should only be applied in exceptional cases. New credit facilities may be granted during a restructuring agreement, which may entail the pledge of additional security. In the case of inter-creditor arrangements, the introduction of covenants should be necessary to compensate for the additional risk incurred by the bank. This option should be usually applied for corporate exposures only and a thorough assessment of the borrower's ability to pay should be performed, including sufficient involvement of independent sector experts to judge on the viability of provided business plans and cash-flow projections. It should only be considered viable when the thorough affordability assessment demonstrates repayment capacity in full.
13. Debt consolidation	Entails the combination of multiple exposures into a single loan or a limited number of loans.	This is usually not a viable standalone forbearance measure, but needs to be combined with other forbearance measures addressing existing arrears. This option is particularly beneficial in situations where combining collateral and secured cash flows provides greater overall security coverage for the entire debt than individually. For example, by minimising cash leaks or by facilitating re-allocation of cash flow surplus between exposures.
14. Partial or total debt forgiveness	This corresponds to the bank forfeiting the right to legally recover part or the whole of the amount of debt outstanding by the borrower.	This measure should be used where the bank agrees to a "reduced payment in full and final settlement", whereby the bank accepts to forgive all of the remaining debt if the borrower repays the reduced amount of the principal balance within an agreed timeframe. Banks should apply debt forgiveness options carefully since the possibility of forgiveness can give rise to moral hazard and thus might encourage "strategic defaults". Therefore, institutions should define specific forgiveness policies and procedures to ensure strong controls are in place.

Figure 12 - List of most common Long-term Forbearance measure

Source: ECB Guidance to banks on Non-performing loans

The first step that credit institutions have to do, before granting any forbearance measures, is assessing borrower's creditworthiness. Institutions have to check the financial situation and they have to evaluate relevant factors like debt servicing capacity and overall indebtedness in addition to the borrower's recurring income, expenditure prospects, cash flow and business plan. For comprehensive and verified disclosure of the borrower's financial position credit institutions should develop standardised templates for retail borrowers. Other external information should be used by the banks to classify borrowers regarding overall indebtedness and behaviour.

These standardised forbearance solutions for segments and homogeneous borrowers with less complex exposures. Decision trees may help to implement appropriate and sustainable forbearance strategies for specific segments of borrowers in consistent manner based on approved criteria.

Always, before making a decision on the viability of forbearance option, bank should review and evaluate other NPL solutions to have a better comparison. Banks should use Net Present Value approach in order to determine which is the most suitable workout option.

The forbearance contract and documentation should include a well-defined borrower milestone target schedule, detailing all necessary milestones to be achieved by the borrower in order to repay the original loan over the course of the contract term. The performance of forborne borrower, including the borrower's compliance with all agreed targets, should be closely monitored by the NPL WU responsible for granting the forbearance, at least for the duration of the EBA-defined probation period.

Banks should disclose quantitative information in addition to that required in the CRR:

- Credit quality of forborne exposures (classification, amount of impairment, collateral and guarantees)
- Quality of forbearance;
- Ageing of forborne exposure;
- Net Present Value impact:

For reporting purposes, a breakdown of forborne exposures by major types of forbearance measure options should be provided to supervisors at least on an annual basis.

2.8 – NPL Impairment Measures and Write-Offs

"The ECB wants banks to use the EBA definition of a non-performing exposure in their internal risk management and for their public disclosure, not just for their supervisory report"[85]

Banks should define the criteria to identify exposures subject to individual estimation of loss provisions, taking into account several factors (individual significance of the exposure) and these criteria should be documented in the internal policy of the bank.

Principles for impairment recognitions were written down in IAS 39. Now the standard applied, starting from 1st January 2018 is the IFRS 9 that require the measurement of impairment loss provisions based on an expected credit loss. It differs from the previous standard that required the measurement of impairment based on an incurred loss accounting model.

When conducting a specific assessment for impairment, banks are expected to apply a true and fair view to the estimation of both future cash-flows and the collateral valuations. The estimation of future cash-flows can be done by using a "going concern" or a "going concern" scenario and the guidance on how estimation of cash-flows should be done under each scenario is provided by the ECB. Other provisions on individual estimations are included (documentation for the purpose of checking the reliability of the individual estimations, etc).

The management body should be responsible for ensuring that the bank has appropriate methods for estimating provisions on a collective basis, which should be integrated in the credit risk control system.

The methods for monitoring and updating estimates of provisions should ensure at all times that the results obtained are based on a robust method of estimation of the provisioning levels which can be justified based on empirical data. Moreover, robust policies and procedures should be in

[85] KPMG (2018): "Non-performing loans in Europe. What are the solutions?";

place to validate the accuracy and consistency of the collective provision estimations (the expectation is that banks will back-test the provisions estimations for every significant portfolio, at least once a year).

An internal policy of the banks should establish the methodology for grouping exposures (type of instrument, geographical localisation, collateralisation). Estimations should be based on historical loss experience for assets with similar risk characteristics, and they should be based on historical loss experience for assets with similar credit risk characteristics, and they should be adjusted on the basis of current observable data.

Other expectations related to the collective estimation of provisions are included (annually review of methodology and assumptions, documentation).

A sophisticated approach for estimating provisions for financial guarantee contracts and loan commitments should be used (use of robust historical data and back-testing).

A non-exhaustive list of cases where reversal of impairment may be assumed is included. Regarding foreclosed assets classified as held for sale, banks should develop internal policies that clearly define the main methodologies and assumptions used to determine both the fair value of foreclosed assets and the cost of selling them.

The ECB wants to have adequate and consistent processes for the identification of the need of provisions and for making the adequate provisions.

When loans are deemed unrecoverable, they should be written off in a timely manner, taking into account several criteria. Once an amount has been written off from the balance sheet, it is not possible to writeback/reverse the adjustment (in opposition to impairment provisions).

Banks should include in their internal policies clear guidance on the timeliness of provisions and write-offs. Especially for exposures that are not covered by collateral, banks should determine suitable maximum periods for full provisioning and write-off. As regard exposures covered by collateral, the establishment of a minimum provisioning level depending on the type of collateral is deemed supervisory best practice.

The management body should be responsible for ensuring that the bank has appropriate credit risk practices. Moreover, banks should adopt sound methodologies. Regarding write-offs, they should have an internal policy approved by the management body.

Banks should also comply with certain documentation requirements specified in the guidance and should have databases compliant with certain requirements. Then upon request by supervisors, banks should, at a minimum, be able to provide them with data regarding the model

they use to calculate impairment provisions for NPLs and the interest accrued on NPEs. Moreover, banks are expected to disclose a set of qualitative and quantitative disclosures.

2.9 — Collateral Valuation

The ECB wants banks to assess frequent and adequately the value of their collateral and real estate.

To evaluate the immovable property collateral, banks should have written policies and procedures approved by the management and these valuations are performed by appraiser at least on annual basis. Or even more frequently if the market is subject to significant negative changes.

To challenge the valuations (to face the fact that they may be wrong) banks should develop an implement a robust internal quality assurance policy.

Furthermore, the internal audit department should regularly review the consistency and the quality of the immovable property valuation policies and procedures, the independence of the appraiser selection process and the appropriateness of the valuation.

There are two different types of valuation:

- Individual Valuation: individual property valuations are defined as property-specific appraisal, which are performed by an appraiser on a specific property. The appraiser can be either internal or external but in both cases they have to be independent and they have to possess the necessary qualifications, ability and experience to execute a valuation.
- Indexed Valuation: they are valuations derived from indexation or any other automated processes and they can be used to evaluate NPLs < 300.000 € (gross value). The indices used to carry out this indexation have to be:
    - Reviewed regularly;
    - Sufficiently granular;
    - Based on a sufficient time series of observed empirical evidence.

  Indexed valuations do not constitute a revaluation or an individual property valuation.

All immovable property collateral should be valued on the basis of market value which is the estimated amount for which an asset or liability should be exchanged on the valuation date between a willing buyer and a willing seller.

The European Banking Authority underlined that, for movable property, credit institutions should periodically assess the liquidity of the property. If there is a material volatility in the market prices, the institutions should demonstrate that the valuation of the collateral is sufficiently conservative.

Individual estimations of provision allowances by discounting future cash flows can be carried out by using two broad approaches:

- "going concern" scenario: the operating cash flows of the debtor can be used to repay the financial debt and collateral may be exercised to the extent it does not influence operating cash flows;
- "gone concern" scenario: the operating cash flows of the debtor ceases and collateral is exercised.

2.10 – ***Addendum to the ECB Guidance to Banks on Non-Performing Loans***

On March 2018, the BCE published the final version of the Addendum of the Guidance to Banks on Non-performing Loans which integrates the guidelines already issued specifying the supervisory expectations when assessing the level of prudential provisions for Non-performing Exposure. BCE intention is to avoid, with this Addendum, an excessive build-up of non-coverable exposures that could be classified as NPLs, promoting prudential provisioning expectations to new NPEs, classified as such from 1st April 2018.New NPEs are all those exposures that are reclassified form performing to non-performing in line with the definition of the European Banking Authority.

In this context, the Addendum, dictate that for the new NPE positions it will be calculated a seniority in years from the date of classification to Non-performing. This seniority is computed in the same way for every type of positions of Unlikely-to-Pay and for those Past Due by more than 90 days. In the case that a UTP, in the meanwhile, becomes past due, the counting of the initial date not stop.

The Addendum made also an important differentiation as regard secured and unsecured NPE. It provides a differentiation for those exposure non totally secured as we can see in the figure below:

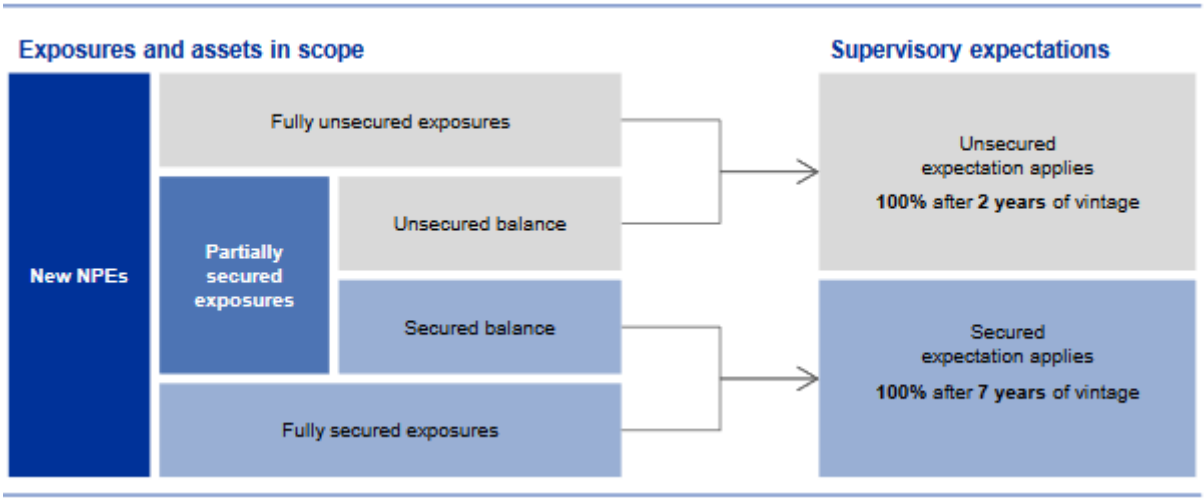

Figure 13 - Blended approach for new NPEs in scope

Source: Addendum to the ECB Guidance to banks on non-performing loans: supervisory expectations for prudential provisioning of non-performing exposures

In particular, the Addendum settles prudential provisioning expectations by the Vigilance Authority of a complete amortisation in two years of secured loans. For unsecured loans, the level of provisioning established is 40% after 3 years increasing it progressively until the complete provisioning after seven years. Supervisor expect that a secured loan classified as NPL the 1st May 2018, would be entirely amortised within May 2020. An unsecured loan, instead, classified as such in the same date would suffer a devaluation of 40% within May 2021 and a complete amortisation within May 2025.[86]

	Unsecured part	Secured part
After two years of NPE vintage	100%	
After three years of NPE vintage		40%
After four years of NPE vintage		55%
After five years of NPE vintage		70%
After six years of NPE vintage		85%
After seven years of NPE vintage		100%

Figure 14 - Overview of quantitative expectations

Source: Addendum to the ECB Guidance to banks on non-performing loans: supervisory expectations for prudential provisioning of non-performing exposures

The Addendum is relevant for all Significant Institutions, those which are subordinated to the ECB supervisory control. It is not mandatory because BCE will discuss with every single institution the divergences between the level of provisioning already implemented and those prudential devaluation to by applied in conformity with the Addendum. The result of this

[86] "Addendum to the ECB Guidance to banks on non-performing loans: supervisory expectations for prudential provisioning of non-performing exposures", BCE, 2018

dialogue, following the principles of prudence and transparency, will be published on the 2021 SREP report.

BCE specify that its expectations on prudential provisioning could be more tighten then the actual accounting rules but always in line with the Guidelines and the Addendum. Therefore, banks and credit institutions are encouraged to ascribe the maximum level of provisioning in their balance sheets. Moreover, if the authorities would judge insufficient the level of reserves with regards to the expectations of prudential provisioning, bank could decide to change their Common Equity Tier 1 (CET1).

CHAPTER 3

NPL MANAGEMENT: THE COOPERATION BETEWEEN MACROPRUDENTIAL POLICIES AND RISK MANAGEMENT

3.1 - Integration between ELC model, IRB model and stress testing

In the first chapter of this dissertation, the role of Expected Credit Loss models has been briefly analysed. The evaluation of ECL and credit risk variation should base their estimates on reasonable and sustainable information. The information should be able to reflect past, present and future conditions of the exposition. Since future economic conditions of the exposure are uncertain, information need to be evaluated with neutral valuation models. Moreover, data used in these models must be coherent with data used by the banks in order to perform stress testing and capital planning.

The IFRS 9 does not require statistical model to evaluate the Expected Credit Losses. However, as analysed in papers and surveys by the European Banking Authority and different auditing firms, many banks and credit institutions use internal models they already use for other purposes. For example, the models used for the estimates of the economic value and the models IRB that are validate from the vigilance authorities. For activities classified in Stage 1 and Stage 2, the most utilized model is the General Value Adjustment, while the evaluation methodologies which regards the changes of value of non-performing activities stays identical.

The IFRS 9 concepts of Expected Credit Loss and Risk of Default, as explained in the first chapter are similar to the ones of Expected Loss and Probability of Default explained by Basel Frameworks. The IFRS 9 does not dictate any rules or approaches in order to evaluate the Expected Credit Loss, but it identifies a series of necessary conditions that the Expected Credit Loss must possess. These necessary conditions are in order to evaluate the Expected Credit Loss are:

- An impartial estimate obtained through a weighted average of different possible scenarios;
- The temporary value of the money;
- The reasonable and sustainable information about past, present and future events obtained without excessive costs.

To have precise and impartial estimates, risk parameters must reflect the estimates at a certain Point-in-Time. As stated *by Chawla et al (2016)*"A good conditional PIT estimate accounts for

all relevant information including the current state of the credit cycle till today but only the specified macroeconomic or credit-factor scenario in the future."[87] This need, goes in contrast with what was forecast for the regulatory Basel Framework which, with the main aim to reduce the economic the cycle variability of capital requirements, introduced a series of strict rules oriented to a Through-the-Cycle Approach. Indeed, as confirmed by *Aguais et Al*, a "through the cycle" process requires assessment of the borrower's riskiness bases on a worst-case, "bottom of the cycle scenario" (i.e., its condition under stress). In this case, a borrower's rating would tend to stay the same over the course of the credit/business cycle"[88]. This approach measures the one-year default probabilities that will probably affect the credit cycle. The Through-the-Cycle credit measures "are useful in applications which the cost of adjusting credit exposures outweighs the cost of negative credit events (such as default)"[89]. For these reasons, banks that decide to use their parameters from regulatory models, should adjust and recalibrate their Probability of Default in order to obtain estimates that must respect both the Point-in-Time Approach and that are forward-looking.

Taking in consideration the Loss Give Default Ratio, the majority of the banks will use regulatory LGDR both for retail portfolios and for corporate portfolios. Principal adjustments in banks' balance sheets will regard the removal of parameter calibration on adverse scenarios and the removal of the so-called floors, the actualization of the Effective Interest Rate (EIR) flows, the inclusion of estimates on the relevant LGD economic factors like the value of the guarantee and finally the recovery costs. The cashflows to be considered part of the LGD estimate, differently form the regulatory Loss Given Default, banks should not include internal administrative costs related to the recovery time of the exposure.

The table below briefly explains what parameters are used and the main divergence between the ones used under the IFRS 9 and the ones used under Basel pillars:

[87] Chawla, G., Forest Jr. R.L., Aguais, S.D. (2016): "Point-In-Time (PIT) LGD and EAD Models for IFRS9/CECL and Stress Testing"
[88]Aguais S.D., Lawrence R. Forest, Jr. L. R., Wong E. Y. L. and Diaz-Ledezma, D.: "Point-in-Time versus Through-the-Cycle Ratings"
[89]Moody's Analytics (2011): "An Introduction to Through-the-Cycle Public Firm EDF Credit Measures"

	IFRS 9	Basel
Probability of Default (PD)	*Point in time and forward-looking view of the PD; *1 year and life-time horizon; *Default definition generally 90 days + unlikeliness to pay;	*"Through the cycle" representing a log run average PD through an entire economy cycle; *1-year horizon; *Default definition generally 90 days + unlikeliness to pay; *Possibility of models using a 180 definition;
Loss Given Default Rate (LGDR)	*Represents the LGDR expected given the current and future economic events; *Internal administration costs are not included; *Discounting by EIR (Effective Interest Rates) both in default and on the reporting date in ECL calculation	*Represents the LGDR at a certain point in time; *All the costs coming from incurred processes are included; *Discounting by the cost of capital or other measures.
Exposure at Default (EAD)	*1 year and life-time horizon; *Amortization and prepayments included for term lending; *Additional draw -owns included for committed lines and expected EAD for guarantees and off-balance sheets positions.	*1-year horizon; *Floored at current balances *Additional draw-downs included on expected EAD both for guarantees and off-balance sheets positions.

Table 1 - EY 2016 elaboration[90]

3.2 – The role of Stress Testing

Basel frameworks pushed banks to strongly invest and implement their measures of credit risk, Earnings at Default, Probability of Default and Loss Given Default Rates, that are through-the-cycle or downturn. The main problem of this measures is that they do not reflect an expectation for the realization of a loss rate or default rate at a certain time in the near future, but rather they represent a longer-time expectations forecasted at the present time.

[90] Definitions of Default: https://www.ey.com/it_it

Under IFRS 9, as described in the previous paragraph, the information used to compute these measures should be point-in-time and forward looking. Indeed, the parameters need to provide the best expectations, reflecting and anticipating current and future trends and thus they need to provide the best expectation of the actual realization of a variable in the next future using all the information available.

In this framework it is easy to understand how important it is the role of stress testing. The main aim of stress testing is that to anticipate the value of risk measures under different scenarios. These scenarios need to reflect every possibility of economic development: both severe macroeconomic scenarios and normal economic scenarios have to be taken in consideration. "Hence stress testing is the area where the banks had already developed capabilities to compute and project point-in-time and forward-looking indicators"[91], as stated by *Bezat (2017)*.

For most banks has been a natural choice to entrust stress testing infrastructure to satisfy the IFRS 9 requirements that regard the computation and the correct evaluation of risk parameters.

Stress testing models used in the accounting context are able to reinforce and spread, to all the credit institutions, the same models and techniques in order to evaluate these risks. Many stakeholders could be attracted by the prospective that stress testing models will drive Profit and Loss impact and thus allowing them to receive more accurate and detailed feedbacks on the banks' performances.

The introduction of the accounting principles of IFRS 9, brings some issues to face:

- In this context, the stress testing teams changes their scope form a context of risk anticipation, budgeting and financial planning to a context of accounting statement. Indeed, stress testing should be able to address direct impact on the income statement. This change has led to significant modification in terms of governance, reporting needs and consequently in the way banks should monitor model risk.
- Stress testing itself could represent a problem. While institutions contribute to implement the IFRS 9, stress testing teams need to implement an approach in order to stress costs of risk under IFRS 9. Given that IFRS 9 measures are not easy to compute, this process requires a huge development in order to adapt methodologies and systems. Indeed, as already explained, IFRS 9 requires a lot of additional information to satisfy requirements and, most of the times, these data are not present in the systems used.

[91] Bezat, A (2017): "The synergies between IFRS 9 and stress testing models and processes"

In the recent years, due to the development of the regulatory framework, stress testing requirements have become more and more tighten and have forced credit institutions to develop their methodologies and evolve the previous ones into more complex and efficient ones. Many institutions, with the implementation of the IFRS 9, teams associated to stress testing have no more room for using consuming and resource intensive processes. Then to increase the efficiency and effectiveness, it is necessary to "document the full to-end stress testing process and accurately measure the full costs of delivery in order to identify optimization opportunities and support investment decisions to better design, integrate and automate stress testing processes"[92]. In this accounting context, teams working both on internal and external stress testing need to incorporate stress testing into the existing planning and forecast activities. This operation may help banks and credit institutions to concentrate their efforts on IFRS 9 and internal risk management. Tight deadlines and challenging environments are the main problems that these teams are facing. This teams need to design and made automatic a real capacity of analysis to explain Profit & Loss impacts due to the adoption of the IFRS 9 as demanded from stakeholders especially taking into consideration the volatility of provisions and the Common Equity Tier 1 (CET1).

3.3 – Generation of different scenarios

The forward-looking approach adopted in the valuation process of the Expected Credit Losses represented one of the major issues when banks had to implement the impairment model of the IFRS 9. The majority of the banks adopted a three scenarios approach: in this situation banks study different approaches for every forecast regarding the best scenario, the base one and the worst one. Anyway, there still some banks who did not adopted this common view and opted for a single scenario, because they want to oppose the non-linearity in the loss distribution through specific management intervention.

With the main aim to ensure coherency between accounting standards, credit monitoring, and regulatory processes, most of the banks chose to adopt internal developed centralized scenarios based on market information.

The inclusion of forward-looking information in the risk parameters happens as follows:

- Probability of Default: the inclusion of forward looking may be adopted in: the calibration phase, modifying the Probability of Default forecast based on different evolutions of macroeconomic factors or borrower specific factors; directly in the model;

[92] Bezat, A (2017): "The synergies between IFRS 9 and stress testing models and processes"

with an ex-post modification of the Probability of Default based on the judgment of experts.

- Loss Given Default Rate: for financing with real warranties, the Loss Given Default Rate has to reflect the possible evolution of the value of the good.
- Exposure at Default: the estimates of possible evolutions of these parameters for the exposures that do not include depreciation plans is made by exploiting regular credit conversion factors, avoiding the previous rules applied by the Basel Committee.

In the last two years, banks have adopted different methodologies to adapt themselves to the new accounting system. The process of implementation of IFRS 9 is not yet concluded because many banks are seeing the first results of this adoption only recently. Only further Single Supervisory Mechanism research will establish the most appropriate operation in order to develop systems to obtain the highest level of accuracy.

3.4 – The EBA assessment on IFRS 9

IFRS 9' impact on banks' capital has been discussed by many authorities. EBA contributed to this mission by publishing the first impact assessment in order to prepare and to increase knowledge about the new regime adopted with greater uniformity then in the past. The first impact assessment, a document issued in 2016, validates the negative impact on Common Equity Tier 1 ratio which is estimated to be higher than the impact on total capital ratio.

The lower negative impact on the capital could be due to an excess of accounting provisions with respect to those expected losses for IRB portfolio to Tier 2 capital. The actual regulatory framework identifies two different kind of credit risk adjustments: Generic Credit Risk Adjustments (GCRAs) and Specific Credit Risk Adjustments (SCRAs). The GCRAs are defined in the Basel III as "Provisions or loan-loss reserves held against future, presently unidentified losses are freely available to meet losses which subsequently materialise."[93] It is possible to identify another type of provisioning: a specific type of collective provisioning are the so-called Incurred But Not Reported (IBNR). This particular type of provisioning, as stated by the Basel framework and subsequently by European Banking Authority, that include the cumulative amount of the collective value reduction determined by financial activities that do not have suffered any individual reduction, may be computed in the Tier 2 within the limit expressed by the Basel Framework. EBA clarified that the provisions measured to face the incurred but not reported loss corresponds to:

[93] Basel Committee on Banking Supervision (2010) "Basel III: A global regulatory framework for more resilient banks and banking systems";

- Credits, individually evaluated and which impairment test have not shown any loss of value;
- Credits, individually not significant, which have not been impaired (for example performing credits).

The second type losses, correctly included in the Incurred but not Reported category, should not be confused with the category of Specific allowances for collectively assessed financial assets which refers to non-significant credits that suffered a loss in their individual value but for which the bank evaluates the total amount of the loss collectively through a statistical based computations.

The biggest difference between Generic Credit Risk Adjustments and Specific Credit Risk Adjustments, is that the Specific are observed on credits for which a loss at an individual level incurred, while in the Generic case.

It can be identified a regulatory framework to regulate the credit provisioning:

- "Specific allowances for individually assessed financial assets: shall include the cumulative amount of impairments related to financial assets which have been assessed individually;
- Specific allowances for collectively assessed financial assets: shall include the cumulative amount of collective impairments calculated on insignificant loans which are impaired on individual basis and for which the institution decides to use a statistical approach (portfolio basis). This approach does not preclude performing individual impairment evaluations of loans that are individually insignificant and reporting these as specific allowances for individually assessed financial assets.
- Collective allowances for incurred but not reported loss: shall include the cumulative amount of collective impairments determined on financial assets which are not impaired on individual basis. For allowances for incurred but not reported losses the collective impairment allowances should be proportionally allocated among group assets that are unimpaired but subject to impairment."[94]

IFRS 9 is based and it has been modelled on the basis of an accounting context in which credit risk adjustments are subordinate to the incurred loss logic. The changes in the accounting system that disciplines the treatment of financial activities, makes strong modification to IAS 39 coherently with a new prudential approach. About this, the Credit Requirements Regulation

[94] EBA response to Q&A, https://eba.europa.eu/single-rule-book-qa/-/qna/view/publicId/2013_201

(CRR) entrust the European Banking Authority to give technical support to European Commission in order to review further rules.

EBA on this argument published in 2017 *the Final Guidelines on credit institutions' credit risk management practices and accounting for expected credit losses (2017)*[95]. These guidelines were published with the main aim to ensure effective and efficient credit risk management implemented with the on-going application of the accounting of Expected Credit Losses. These guidelines are based on the general indication of the Basel Committee on Banking Supervision (BCBS) that in 2016 published a discussion document where they proposed different possible solutions to solve the problem:

- Not change the IAS 39 treatment rules on provisioning, leaving space for jurisdictional discretion in order to account provisions;
- Maintain the distinction between SCRA and GCRA giving a clear definition that allows to classify in a univocal way the Expected Credit Losses whether they are generic or specific;
- The introduction of a competent standard regulation of expected losses for banks that adopts a standard approach;
- Follow alternative approaches on the basis of the comments following the paper discussion;

The proposed solutions have the main objective to create and ensure a level playing fields across the whole banking panorama, considered the high non-homogeneous between credit institutions and jurisdictions, with respect to the level of provisioning adopted and their regulatory treatment. In order to reduce the differences highlighted, the Basel Committee studied a set of rules to change the provisioning approach. The proposed hypotheses had an effect in particular on the standard approach: Basel Committee wanted to adjust the accounting treatment of provisions on expositions subordinated to a standard approach to those that are subordinated to the Internal Rate Based approach. Indeed, with the introduction of a standard expected loss, they wanted to replicate the same approach used for IRB shortfalls even for standard exposures, subjecting them to the regulatory capital.

Moreover, another aspect under the Basel Committee on Banking Supervision was the necessity to introduce some specific dispositions to reduce the impact of Expected Credit Losses on regulatory capital. These measures are work in progress, given that the European Banking

[95] European Banking Authority (2017): "Final Report: Guidelines on credit institutions' credit risk management practices and accounting for expected credit losses"

Authority has only in 2018 published the second impact assessment of IFRS 9 and the results and the best practices to adopt are still being evaluated. The main idea, supporting EBA reasoning, is to avoid the introduction of measures that involve a total neutralization of impacts coming from the adoption of the Expected Credit Loss model. For example, EBA want to avoid the adoption of measures that neutralize the impact of ECLs on stage 1. In this particular case, there would be the risk that the banks could have a lower incentive to transfer, where necessary, assets in the next stages. The interaction between funds and the Expected Credit Loss it is one of the main aspects that link prudential requirements and accounting framework. It will be important to develop these themes in order to evaluate the final impact of IFRS 9

3.5 – First European Banking Authority Impact Assessment

After a starting period where the European Banking Authority observed the application of the IFRS 9 accounting standards, now they are concentrating their efforts on analysing and understanding the impact of IFRS 9 on European Union institutions. During this period many analyses have been made in order to understand the impact. While waiting for certain data and information, available only after 1st January 2018 (date of official implementation of IFRS 9 accounting standards), EBA published in November 2016 and in July 2017, *the first*[96] and *second impact*[97] *assessment*, in order to try to analyse ex ante a series of indicators relating on the initial impact, classification and measurement, impairment and solvency used to determine the effects across EU institutions.

The first impact assessment, published in 2016, had as main objective to acquire information about IFRS 9 implementation on capital requirements and the correlations between the new accounting standards and other prudential requirements. The study has been made on a sample of 50 banks belonging to the Euro Area.

From this study it emerges that the availability of resources and historical data are one of the key points in order to implement the Expected Credit Loss model. Taking into consideration the availability of data, not always there are the appropriate information and many times they are not sufficient in order to determine in an effective way the credit risk of an exposure at the time it has issued, because many exposure took by the banks were started before the adoption of Internal Rate Based approach. Indeed, EBA found difficulties, for example, in evaluate the

[96] European Banking Authority (2016): "Report: On results from the EBA impact assessment of IFRS 9"
[97] European Banking Authority (2017): "Report: On results from the second EBA impact assessment of IFRS 9"

so-called low default portfolios[98]. Another trigger aspect regards the consideration of forward-looking information for the quantification of the Expected Credit Loss.

Considering that business models of the banks are composed in their asset side especially by exposures to families and firms, due to the reclassification of those assets "The estimated increase of provision compared to the current levels of provisions under IAS 39 is 18% on average and up to 30% for 86%"[99].

For the banks which already calculate the capital requirements using models validate rating models, the impact on capital deriving form an increase in the provisioning will be partially filtered by the process itself. For example, in the IRB model this process will be carried out by the IRB shortfall. Therefore, with similar conditions, bigger will be the spread of IRB models, lower will be the impact on Common equity Tier 1.

Another aspect to consider when talking about provisioning is that it is composed by several components and one of these is the country where credit institutions are: indeed, banks that at the implementation moment are showing high levels of provisioning, will show a lower marginal increase of provisioning below the average.

At the time when this first assessment was published, the majority of provisioning calculated by IAS 39 and due to exposures to family and not financial firms, suffered a reduction of value. Similar to the functioning of the previous accounting system, for IFRS 9 even if with an amplified disposition with regard to impairment, provisioning seems to be driven by the same cause of IAS 39 but with the difference that the Expected Credit Losses could be measured also on in-bonis positions classified in stages 1 and 2.

The expected increase in the levels of provisioning is driven by the Expected Credit Loss observed in the sage 2. Indeed, in this category, while the exposures could be considered performing, they suffered a significative increase in credit risk and it will need to calculate the expected loss for the entire life of the instrument.

Another interesting fact is that EBA estimates an increase of provisions for debt securities for more than 4 times with respect to the previous standards. , "it should be mentioned that, for the vast majority of the respondents, the current IAS 39 provisions for debt securities is lower (or even null) compared to the IAS 39 provisions for loans and advances (as a result of the different

[98] Portfolios characterized by low default rates and for those it is difficult construct a loss model.
[99] European Banking Authority (2016): "Report: On results from the EBA impact assessment of IFRS 9"

credit quality of the counterparties)"[100]. In light of this, the comprehensive impact on the level of capital, determines an average reduction of Common Equity Tier 1 up to 75 basis points.

Facing the potential impacts on the volatility of Profit & Loss and impact on balance sheets indices, banks considered that the impact of new reclassification methods should not be very significant and, therefore, should not cause an increase in the volatility in the income statement. Differently, many banks thought that the impairment requirements should increase the income statement volatility. This could be potentially due to the inclusion of forward-looking and macroeconomic factors and the so-called cliff effect[101].

However, banks previous the introduction of IFRS 9 were confident in the process and were firmly convinced that the new accounting standard should have stabilized the balance sheets. Ways in which models should implemented and calibrated was one of the main concerns especially taking into consideration the economic factors to take into account while evaluating credit risk. A wrong calibration, according to the majority of the banks should have led to an excessive sensibility of the Expected Credit Losses. They were worried about the continuous transfers of activities from stage 1 to stage 2 with a consequently variation in the Expected Credit Losses changing their status form 1 year to lifetime. In the same way, the model could not take in consideration variables that could be able to influence in a significative way the credit rating of the borrower. There should be cases in which activities should pass form stage 1 to stage 3 with similar consequences of the ones detected with IAS 39. It follows that, in presence of adequate back-testing analysis, the volatility impact should not be that relevant. Moreover, it should be considered that macroeconomic forecast represents only one of the information that constitute the forward-looking approach used to estimate the Expected Credit Loss and the consequent increase of credit risk.

The European Banking Authority analysis represented the first practical case of study on the newly regulations applied to the accounting standards and their effects on banks and credit institutions. This study, despite revolutionary, brought with it many limits to be aware of: first of all, it is important to remember that the sample of banks studied was constructed using a risk-based approach, and therefore including institutions with risk profiles not so relevant in order to disclose the level of riskiness and vulnerability of the banking sector. Considered that more than 90% of the banks involved in the study were institutions subjected to systematic relevance, it can be easily demonstrated that the results are not significant for all the banks or credit institutions with small dimensions. These banks or credit institutions with systemic relevance

[100] European Banking Authority (2016): "Report: On results from the EBA impact assessment of IFRS 9"
[101] The significant increase of Expected Credit Loss passing from Stage 1 to Stage 2

are financial institutions with well-developed risk models and high levels of IRB Coverage. These aspects have strong relevance on the impairment requirements and do not reflect the majority of small/medium dimension institutions.

Moreover, the information given by the banks, in certain cases are biased due to the simplifications adopted for the new methodologies in order to evaluate the expected credit losses, that did not reach a sufficient level of accuracy. Indeed, being the estimates of ECL point in time, these measures significantly reflect the state of economy in the moment of evaluation. In order to evaluate the consequence of this change in time, the EBA developed a subsequent study to replicate the 2016 first assessment and to better evaluate the impact of IFRS 9 on banks' balance sheets.

3.6 – Second European Banking Authority impact assessment

In order to develop the job done by the first impact assessment, the European Banking Authority, in the last month of 2016, published the second stage of the exercise in order to obtain more detailed data for some specific areas, considering the additional year and the development methodologies have suffered in order to implement IFRS 9. The second assessment, with respect to the first one, is more concentrated on "a better understanding of the stage of the preparation for the implementation of the Standard, the estimated impact of IFRS 9 on regulatory own funds, the interaction between IFRS 9 and other prudential requirements, and implementation issues relating to IFRS 9."[102] In order to maintain consistency with the results obtained with the first assessment the sample was similar to the one used before, consisting in almost 50 financial institutions across the Euro Area.

As explained above, the EBA study wanted to highlight the quantitative aspects of the IFRS 9 on banks' balance sheets and requirements provided by vigilance authorities, coming form the newly dispositions in the accounting standards for what regarded classification and measurement of financial activities.

Considering the impacts on balance sheets following the adoption of new rules for classification and measurement, the second assessment of EBA highlighted how reclassification of financial activities should be limited in the majority of the banks examined in the sample. From the study, indeed, EBA showed that more than 75% of financial activities were measured at amortized cost, another 15% were evaluated at fair value through profit and loss and the last 10 % were

[102] European Banking Authority (2017): "Report: On results from the second EBA impact assessment of IFRS 9"

evaluated at fair value with OCI reserve. With the application of the IFRS 9 principle the situation did not change significantly showing just small changes in the fair values evaluation.

Indeed, the second impact analysis provided by the EBA showed, as the first one did, that the financial activities measured at amortized cost should continue to be measured on the basis of the same criterium with the introduction of the IFRS 9. The other reclassification of financial activities will continue to be measured mostly in the category of financial activities at fair value in the OIC reserve.

With regard to the impairment, the impact of IFRS 9 are more relevant then what already described in theme of classification and measurement. As shown the data in the study considering the possible reclassification of financial activities through the different accounting categories, the exposures that should be subjected to IFRS 9 would coincides in almost their totality to the exposures subjected to the IAS 39. From the analysis emerged that the decrease of the exposures subject to the impairment rules of IFRS 9 with respect to the expositions subjected to the IAS 39 is equal to 1%.

From the EBA analysis it has emerged that the increment of provisioning fund for banks in the sample is equal to an average of 13%. These differences, with respect to those recognised with regards to the first and second impact assessment, can be attributed to the progress made in the implementation of systems due to the new dispositions in to introduce the IFRS 9, and to a decreasing in the provisioning re-evaluated under the new dispositions for all the different categories of financial activities, thanks to an improvement in the macroeconomic scenario. As exposed in the first assessment, such an increment could not be defined homogenous through the whole sample. Banks with bigger dimension estimated a higher increment in their provision funds with respect to small banks. This difference could be due both to the business models of different banks of different dimensions and also from the fact that bigger banks in the sample used by the EBA have generally bigger provisions fund to cover possible losses of the exposure.

From the EBA study has emerged that the decrease of the CET1 ratio estimated by the banks studied in the sample was caused mainly because of the new dispositions for impairment. In this second impact assessment this decrease was estimated to be, on average, 45%, 14% lower then what they estimated in the first impact assessment. Considering the different groups of banks in the sample there is evidence that the biggest impact on CET1 was estimated on banks with small dimensions. The impact of the new disposition can be highlighted even on the Total Capital Ratio: indeed, it emerges from the study that the impact is much lower than what estimated for the CET1 ratio. Anyway, it can be shown that the impact on large banks in lower

than for small banks by more than 50%. The difference in the estimated values it is mainly due to the fact, as explained in the first impact assessment, that banks with bigger dimension are more structured, with strong capitalization and therefore tend to suffer less the impact of a large number of losses due to the increment of specific values when changing the accounting system to IFRS 9.

3.7 – First observations on the impact of IFRS 9 by EU institutions

This is the latest document issued by the European Banking Authority with regard to the standard's impact on European institutions. This is a post-implementation impact assessment based on the previous ex-ante assessments on the application of the new accounting standards.

"While the observations in this report are consistent with the forecasts of the second EBA impact assessment report, in particular in terms of increase in provisions and CET1 initial impact, the monitoring of IFRS 9 is just starting and the effective impact and implementation of the standard will need to be reviewed through time. In addition, while this report is mainly factual and does not include recommendations at this stage, it already identifies some areas for ongoing scrutiny and areas for further work from an EBA perspective"[103].

The main observation described in the study are that the IFRS 9 impact on Common equity Tier 1 is consistent with what previous described by the second impact assessment. Indeed, the CET1, as described in the previous assessment had a negative impact from the application of the new standards. This impact has been demonstrated to be lower in those banks who already use Internal Rate-Based approach with respect to those that applied standard approaches. This difference could be mainly due to the application of regulatory calculation for banks: those who applied an IRB approach had losses already reflected in CET1.

The classification and measurement impact on the transition between the two accounting standards has emerged to be relevant only for part of the banks present in the sample. Indeed, the results are consistent: it has been pointed out that 80% of financial assets are measured at amortised cost, in an on-going process with the previous balance sheets. This observation is perfectly coincident with the one detected in the previous assessment.

"The supervisory data of the second quarter of 2018 indicates that 85% of on-balance-sheets exposures are allocated to stage 1, 8% to stage 2 and 7% to stage 3. In overall terms, some alignment observed between the definition of non-performing exposures and the accounting

[103] European Banking Authority (2018): "First observations on the impact and implementation of IFRS 9 by EU institutions"

definition of default"[104]. Specific cases regard the 90 days past due criterion that does not implies a transfer of the non-performing exposure to the stage 3, as recognised that many exposures past due by more than 90 days were not transferred the next stage. Similarly, this happens also when they take into consideration the transfers from stage 1 to stage 2 and EBA, in this analysis found evidences that even the 30 days past due criterion does not always find application.

With regards to the impact of IFRS 9 transitional arrangements, the Common Equity Tier 1 impact that result from the add-back of provisions for all the institutions in the sample corresponds to 118 % on simple average.

In order to improve the quality of accounting standards the European Banking Authority need to look forward. These analyses need to represent a starting point from where to start, to improve and better understanding balance sheets drivers and to ensure safe and sound processes in the banking system. It will essential exploit all the drivers for the impact on CET1, the qualitative and qualitative criteria used for transfers between stages as well as the complete use of IFRS 9 for transitional arrangements.

The processes to be followed by the banks in order to have sound systems will be implemented by implemented by the EBA. Standardised approaches will be investigated in the next few years to better understand their efficiency and effectiveness.

Further tests and benchmarking exercise will be conducted in the medium/long time to understand the effect of different methodologies and scenarios with respect different kind of macroeconomic inputs that could lead to possible inconsistencies in the Expected Credit Loss outcomes between institutions.

The activity of monitoring will be closely performed working alongside the Basel Committee on Banking Supervision to better understand the interaction between accounting expected credit loss models and regulatory provisions.

[104] European Banking Authority (2018): "First observations on the impact and implementation of IFRS 9 by EU institutions"

CHAPTER 4

IMPACT OF THE CHANGES AND STRATEGIES FOR NPL MANAGEMENT

4.1 – Integration of IFRS 9 supporting NPL reduction strategies

In the recent years a lot of improvements have taken place, as seen in the previous chapters, both from the macroprudential point of view and from the accounting standards prospective. Many aspects of this problematic need further developments with the main final aim to reduce the high stock of Non-Performing Loans and to avoid their re-rise in the future, especially in those countries that are already suffering from this disease.

As described in the first and third chapter of the dissertation, the adoption of the IFRS 9 accounting standards base it fundaments on the notion of Expected Credit Loss: this concept, applied mandatory to all banks and credit institutions form 1st January 2018, works through models that allow to estimate losses over the next year and over the whole expected lifetime of the exposure. Many aspects, as the procyclicality of write-downs, are largely affected by these implications and will be discussed more in detail in the next years. As studied by the ESRB in one of their documents, "if soundly implemented, the expected credit loss approach of IFRS 9 is expected to contribute to financial stability by introducing greater levels of transparency and more timely and decisive recognition of credit losses"[105]. In order to adapt their functioning to the new accounting standards, banks, before the adoption of IFRS 9, had the option to choose whether or not to adopt a transitional regime. In this case, banks were allowed to account extra provisioning, due to the transition to the new accounting standards, in such a way that these losses were not reflected in the capital ratio in their entirety, but gradually in the years. "The transitional measures allow banks to include in CET1 a portion of the increased loss provisions required by IFRS 9, applying the following percentages: 95% for 2018, 85 for 2019, 70% for 2020, 50% for 2021, 25% for 2022, zero thereafter."[106] Calendar approach, that will allow banks to reach high write-down rates at precise and pre-established dates, will probably have a huge impact without taking into account the recovery times of an exposure. On applying this concept, banks will pay more attention to collaterals and their appropriateness. In this case, if an economic crisis would hit, the stock of NPLs would increase and would provoke a significant

[105] European Systemic Risk Board (2017): "Financial Stability implications of IFRS 9"
[106] Bank of Italy (2019): "Financial Stability Report"

higher level of provisioning, with respect to the past, that working with the new accounting principles could be difficult to be satisfied.

In order to reduce the high levels of Non-Performing Loans in the system banks, as described in the second chapter of the dissertation, should review their practices on NPL management coherently with the Guidelines issued by the European Banking Authority and the European Central Bank. in these operations banks will have to decide whether maintain their position on a specific exposure until the recovery position has been completed or if they have to arrange a specific level of provisioning in line with market prices. From analysis provided on the significant risk transfer operation, according to Angelini 2018[107], a common model to manage an NPL portfolios can be summarized as:

- The bank may create, alongside an external partner, a specific society to which it sells a part or the total management of the NPL stock. This society will acquire the property of all the exposures, and it will in its ability to recover the loans past due.
- With respect to all those necessary conditions linked with prudential requirements and accounting deconsolidation, the bank may acquire the highest quote of this society, up to 49%, in order to secure part of its profits. This model could resolve two different requirements in order to face the NPLs problem: the first one is to reduce the impact of Non-performing Exposures on the banks' balance sheets and the other is the one to restrict the transfers of non-performing exposures out of bank balances. This model, always according to Angelini, would be useful both for medium-large dimensions banks and for small credit institutions, through the so-called multi-originator operations.
- Another important way for the NPLs resolution is that one of self-management through internal procedures or servicing. As already seen in the second chapter of the dissertation, when analysing the best practices in order to manage NPLs, these two options were not mandatory. While the credit recovery activity should be considered as a specialistic practice, the credit intermediaries that decide to manage Non-performing Loans with internal procedures should invest in this activity the adequate amount of time, human and financial resources.

As exploited in the second chapter of the dissertation, strategies and proceeds have been the focal point of the Guidelines issued by ECB and EBA. Their main objective was to introduce a new benchmark model to follow in order to improve and solve the problem of high stocks of NPLs in banking sector. In order to improve strategies, banks should be able to develop, first

[107] Angelini, P. (2018): "Non-performing loans: the market, the rules and a stronger system"

of all, efficient strategies. These strategies need to be ambitious but realistic, they need to take into account the available option in the market examining the current situation of the market and the banking sector situation. Important aspects to analyse are the capital constraints and the internal capabilities to effectively implement NPLs strategies. This process, as already discussed, led to the implementation of specific benchmarks and targets to level Non-performing loans in the medium term, in addition to the implementations of operational and organizational plans and the institution of specific strategy carried out by the management body, by the specific workout units thanks to the advanced information technology developments.

Other important factors introduced with these guidelines are the KPIs (Key Performance Indicators) and the Early Warning System. These indicators are suitable to address the problem of monitoring the dynamic of impaired loans and to check the efficiency and effectiveness of workout activities. "KPIs should range from measures of credit quality and loss coverage portfolio level and for different groups of NPLs, to operational performance indicators, gauging the results and the degree of success of every type of action"[108] while the Early Warning System is composed by a set of signals that allows the banks to produce an early identification for the deterioration of loans and, consequently, to perform the best strategies in order to solve particular financial situation a borrower may be forced to face.

Therefore, it will be extremely important to find the most effective strategies to achieve this goal and to prevent the accumulation of impaired loans.

[108] Mazzù, S., Muriano, F. (2018) "A strategic approach to non-performing loans treatment in banking: options and rules for decision-making"

4.2 – Different strategies to tackle the NPLs problem

Since NPLs have a negative influence on the single bank and on the banking system in general, many papers tried to describe what could be the most valuable solutions in order to deal with this problem. In a paper for the ECB, Fell et al. defined that the possibility to represent these

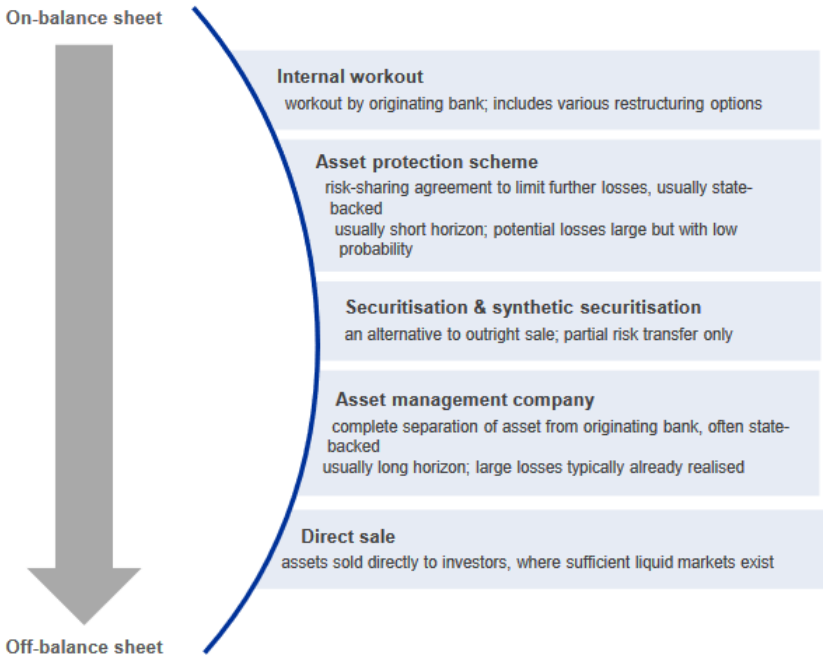

Figure 15 - Taxonomy of option to address NPLs

Source: EBA

solution on a line where we fine On-balance sheet solution and Off-balance sheet solutions on the hands and in the middle the various possibilities a bank can perform: from the internal workout, more "closer" to the on-balance sheet category, to direct sale connected to the off balance sheet category. In the middle we can find other proposed solutions like the Asset protection scheme, the securitization and the synthetic securitization and the asset management company.[109]

There may be advantages on both sides of the figure above: from one side of the figure the internal resolution of non-performing loans requires credit institutions to build specific area and to engage specific expertise in order to properly manage the situation. This would clearly bring lot of costs in addition to those already implied in the normal proceeds but, on the other hand, with internal activity they would recover more value from the management of the assets and probably build stronger relations with clients. On the opposite side of the figure there is the direct sale of past due loans directly to investors. This would allow the bank to get rid of these

[109] 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

non-performing exposures selling them to other investors more equipped to recover their value. This is the quickest possible way to resolve this problem but form a prospective point of view it could be also the most expensive.

The on-balance sheets strategies are carried out by banks in the medium or long period. Forbearance solutions and foreclosure activities, as seen in the second chapter of the dissertation, are to valuable way to recover the exposure value. In this category, we can do other important distinctions in order to diversify even more the workout possibilities. It is possible to identify passive and dynamic recovery management. In the passive strategies the resolution of the exposure is driven by the legal office following the legal procedures. In this case there is not a precise definition of recovery benchmarks and there is a lack of controls of credit risk performances. Opposite to the passive strategies, dynamic ones sees non-performing exposures as a business opportunity and in order to made them as profitable as possible, banks work to optimize and made efficient the workout processes. In this category we can distinguish the Internal recovery and the Outsourcing.

Internal Capital Recovery should be allocated on the dynamic category because of the high standard of efficiency required at all the bank levels. Indeed, due to the high consolidation between the bank sectors, the exposure is followed through its entire life cycle, starting from early arrears to insolvency or liquidation, involving many specialized teams in their management. These specialised workout units have the main aim to evaluate e find the more

$$Performance\ Index = \frac{\sum \frac{In - flows_t}{(1+r)^{t-t_0}} - \sum \frac{Out - flows_t}{(1+r)^{t-t_0}}}{Recovery\ Target}$$

appropriate way out to solve every single case of non-performing exposure. “The effectiveness of dynamic recovery management is strengthened by the implementation of a sound incentive system and the execution of a performance control activity on a regular basis. To that end, a useful indicator is based on NPL in-flows and out-flows net present values.”[110]

In this situation we can identify the In-flows as the part of the exposures that a bank is able to recover at a certain time, the Out-flows as the expenses that the bank had in order to recover the money from the borrower and the Recovery Target. The last index identifies the benchmark that the workout unit sets to recover at the stating time. If the ratio is equal or bigger than 1, then the workout unit is performing, otherwise the job done by these internal teams could be considered under-performing.

[110] 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

Outsourcing is a particular strategy adopted by the banks that can be considered dynamic. Variable costs, prepared and competent teams provided by servicing companies and industrialized operational frameworks are some of the advantages that this particular type of strategy can bring to a bank in a distress situation from the NPLs point of view. In contrast with these advantages, banks will have to face more complexities in order to coordinate and control the outsourced activity. To provide the adequate controls bank need to establish specific internal teams and develop IT platforms to share information about the stages of the exposure classification and every process involved in the management process in order to be coordinate with the external servicer.

In the middle of the figure we can find the category of the Asset Management Companies (AMCs). They are companies, legally separated from the main bank, which role is to receive from the main banks NPLs, helping them to remove these expected losses from their balance sheets. They can have decentralised or centralised structure, so this category cannot be ascribed completely neither to the on-balance sheet or off-balance sheet categories. Decentralised AMCs have different advantages: with their construction, the bank may have more developed workout units working in a specific entity, it could have the possibility to increase the transparency of its balance sheet, it can lower the impact of credit deterioration, it can improve and promote the core activity of the bank and help them to increase the strategic flexibility. Instead, centralised AMCs, are strictly correlated to distressed situation of bad banks in which "bank's distressed assets are pooled, on a mandatory or voluntary basis, into a vehicle, usually sponsored by the government"[111]. In this case, AMCs can be differentiated in two distinct types: restructured agencies with the main aim to improve he ability of the bank to recover the loans facilitating and speeding up its processes and asset disposition vehicles, aimed to recover the highest amount possible from the exposure and to minimize the credit losses, even over a longer period of time. For their role, this type of banks has been studied from a growing number of authors and have acquired more weight in the asset resolution strategies. As established by the ESRB, "they have proven to be useful in situations where potential losses from declining asset valuation are large but the likelihood of the losses actually occurring is low"[112].

Off-balance sheet strategies, as the decentralised AMCs, consist in the externalisation of part or total non-performing loan portfolio, removing these past due exposures from the bank's balance sheet. The strength of these strategies is the quickness in solving the non-performing problem. To reach a satisfying level of rapidity banks have to face many disadvantages: the

[111] Mazzù, S., Muriano, F. (2018) "A strategic approach to non-performing loans treatment in banking: options and rules for decision-making";
[112] European Systemic Risk Board (2017) "Resolving Non-Performing Loans in Europe"

price offered by investors is often different form the book value of the exposure. This is called the bid-ask spread problem of NPLs. For banks it could be difficult to deal with it because of the different credit evaluation methodologies adopted by the two counterparties, by the uncertainty on the real quality of the credit[113], by the high risk perceived linked to structural vulnerability and finally for the low number of investors operating in the NPLs secondary market. To solve the NPLs problem and the issues above mentioned, banks should meticulously assess: all the possible implication an exposure can have on the income statement and the capital requirements, all the processes in order to respect the credit quality transparency and all the techniques to improve portfolios clusters in order to minimize the difference on the portfolio evaluation with respect to those made by external investors.

Banks should adopt their resolution strategies to the macroeconomic and prudential approaches proposed by the international authorities to be in line with the process of harmonization dictated by the need to reduce the impact of NPLs on the banking system. These approaches, as explained in the previous chapters, should take in consideration all the effects that banks will need to face. As explained by *Mazzù 2018*, "banks should estimate the effects of off-balance sheet strategies on income, capital and risk and make sure they are consistent with:

- Dividend policies, that may pursue a given measure of pay-out ratio in order to reduce uncertainty for shareholders and provide them with consistent cash flow; these goals could be inconsistent with operating losses resulting from significant write offs;
- Capital planning, that may aim at preserving capital buffers with respect to regulatory requirements; this target could be jeopardized by lower profitability due to losses on sales of NPLs;
- Provisioning policies, that may be hindered from selling highly impaired loans."[114]

The resolution strategies adopted by the banks must take into consideration all these variables to adopt the most efficient strategy to their specific NPLs situation. Indeed, there could be banks which needs are reflected in selling to investor certain types of loans or different kind of assets. It should be important full transparency and effective segmentation of portfolio in order to implement effective resolution strategies. Information Technology Systems and the creation of NPLs transaction platforms will be indispensable to implement efficient strategies to face information and transaction costs, bargaining problems and insufficient controls that, as

[113] In this case it can be identified a sort of asymmetric information between the investor and the bank.
[114] Mazzù, S., Muriano, F. (2018) "A strategic approach to non-performing loans treatment in banking: options and rules for decision-making";

considered by Fell 2017, are the main potential sources of market failures in NPLs secondary markets."[115]

Considering the market price of NPLs sold in secondary markets, it is important to examine the two types of options that could be adopted when a bank decide to adopt an off-balance sheet strategy. Indeed, in direct sale this price of transaction is pre-arranged that can be influenced by the cost of searching for potential investors, the cost of preparation of files and the legal documentation. Moreover, an important tool that is important to implement in these transactions is the internal rate of return (IRR) that should be able to reflect and incorporate the previously mentioned market failures. NPL multi-originator platforms are platforms that can implement the success of direct sale operations thanks to the ability of these platforms to pool together loans originated by different banks with the main objective to construct a more attractive portfolio to, consequently, attract more willing investors.

Securitization is the other viable off-balance sheets strategy available presented by the ECB. With this strategy the bank sell his bad loans to another specific bank, the so-called Special Purpose Vehicle (SPV), which by definition of the Bank of England, is an entity "which is organised to carry out one or more securitisation transaction; and which issues, or may issue, securities and/or which holds, or may hold, assets underlying the issue of securities that are offered for sale to the public, sold on the basis of private placements, or held by the institution that originated the loans."[116] The SPV divide the loans just bought into tranches with different risk profiles and due to the high specificity of this operation, it comes with higher cost with respect to the ones with direct sale. In addition to these higher costs, the originator bank is often called to grant these loans, keeping in their balance sheet parts of the bonds previously issued by the SPV to provide financial support in case of adverse scenario as stated by the *Bank of England* in one of his consultation paper "firms should be able to demonstrate an adequate quantification of the risk retained, and reflect this retained risk in their post-transaction capital requirements" and, moreover, "measure the nominal value of the off-balance sheet securitisation position as a reasoned and prudent estimate of the credit enhancement provided by the systemic excess spread feature, for example as compared to a retained first loss tranche."[117] Based on this observation, it can be established that securitisation, as off-balance sheet operation, are an opportunity to achieve more favourable terms than on-balance sheet strategies. The main benefits of this strategy can be identified as the possibility of attracting

[115] Fell, J.,Grodzicki, M., Krušec, D., Martin, R. and O'Brien, E. (2017) "Overcoming non-performing loan market failure with transaction platforms"
[116] Bank of England (2010): "Securitisations & SPV Definition"
[117] Bank of England (2018): "The new EU framework and Significant Risk Transfer"

different kind investor interested in different risk profiles, the possibility to address information asymmetries and make investors more confident with respect of the tranches they are going to buy, the potential decrease that leverage could produce on the IRR of the securitisation.

4.3 – Reduction strategies: rules and principles

In order to implement their techniques to manage NPLs, banks need to adopt the right mix of suitable strategies to reach their objective. It is not possible to identify a specific solution that is good for every bank: indeed, each bank should to find the strategy mix that is the most appropriate for its situation, choosing between the options presented above. This strategy mix need to follow the ECB Guidelines in order to take into account all the relevant determinants that drives the NPL stock reduction. These drivers should be identified in:

- "the internal capabilities to effectively manage and reduce NPLs over a defined time horizon;
- The external conditions and operating environment;
- The capital implications of the NPL strategies"[118].

In these categories of drivers is possible to identify the capital buffers, the coverage ratios, the legal framework and the characteristics of the NPLs market and that of the secondary markets. As exploited by Mazzù and Muriano in their paper there are possible rules to be followed by banks when approaching to NPL reduction strategies:

1. "Sustainability of strategies: short term reduction targets require a shared vision of affordable impacts on income, capital and coverage ratio;
2. Consistency with the business environment: apart from sustainability, the choice between on-balance and off-balance sheet strategies as well as their timing should be based on the expected evolution of the external context;
3. Preservation of internal capabilities: apart from sustainability and external conditions, banks should maintain the ability to manage NPLs internally;
4. Strategy as a dynamic system: banks should harmonize the use of different strategic options over time."[119]

The first rule considers the time in which a bank wants to reach the pre-established targets: as said before, the most valuable strategies in order to reduce promptly the NPLs problem are the off-balance sheet ones. Indeed, to pursue on-balance sheet strategies it is indispensable to

[118] European Central Bank (2017): "Guidance to banks on non-performing loans"
[119] Mazzù, S., Muriano, F. (2018) "A strategic approach to non-performing loans treatment in banking: options and rules for decision-making";

internally develop IT systems and design specific work-out processes that will need time to produce their results. Both on-balance and off-balance sheet strategies produces their results on bank income, capital or coverage ratios. Therefore, in order to build their strategy each bank need to know what its expected credit loss are and what is their impact on balance sheet. This must be done through the use of an appropriate planning, estimating the proper level of risk, capital and provisioning in order to find the best strategy.

The second proposition is about the consistency a strategy with the business environment in order to fit properly with the bank needs. As already established, the off-balance sheet strategies help banks to reach their goals in a shorter time, but they could not be the best option. Indeed, banks should exhaustively analyse the microeconomic environment in which they work: if forecasts indicate a possible growth in the economy, it could be probable that the original borrower will be able to repay his debt in the future, thus allowing the bank the recover the value of the exposure without adopting off-balance sheet strategies. This situation would improve the whole system assuring positive trends in the NPLs market prices. Nevertheless, in this situation bank will probably suffer in the first phase because of the high NPL ratios featured in the balance sheet, therefore attracting the attention of vigilance authorities that should ask to promptly reduce these ratios. As suggested by Mazzù and Muriano, this would be the perfect fit for AMCs and their activity. Indeed, thanks to their internal proceeds, these companies could wait the best time to settle the exposure.

The third rule individuated by the authors is about the preservation of internal capabilities. Indeed, a bank should be strongly recommended to develop on-balance sheet strategies, especially for those loans who have a high expected value, or which belong to specific asset classes. Therefore, it would be preferable not abandon too early the possibility of an internal workout process, even in light of the advantages illustrated for off-balance sheet strategies. The ability to successfully complete internal workout processes, is attributable to the management of internal capabilities and to define efficient operating frameworks. Indeed, as established by the BCE Guidelines[120], it is fundamental the bank's ability to develop specific workout units, adopt suitable operating models, hire experienced and performant human resources and develop adequate technical infrastructure. The implementation of monitoring processes is another important aspect that banks should be able to enforce, being able to tackle the NPLs stock and to prevent from credit quality deterioration.

[120] European Central Bank (2017): "Guidance to banks on non-performing loans"

The fourth rule is about the ability of a bank to change their ideas about the best strategy to adopt at a certain point in time. It is important for a bank to adopt a dynamic system, being able to be performant in every possible economic scenario. Banks should increase their ability to switch strategy and adapt them to the market situation. Moreover, banks should increase their level of attention when choosing the adequate level of provisioning during the NPL workout activities. Indeed, in the worst-case scenario of failure of repayment the bank will need to impair the borrower for a longer time than expected.

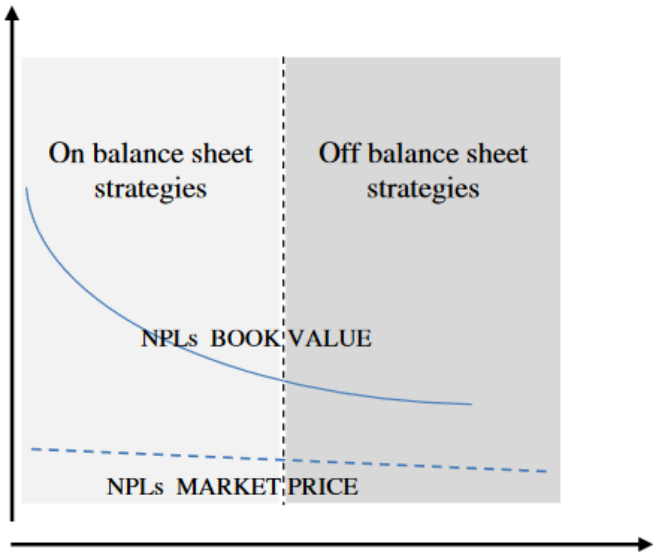

Figure 16 - Book value get closer to market value over time (time indicated in the x axis)

"In this way, as long as the recovery process is performed, estimates of loan recovery value refined and appropriate provisions are made in order to bring book value and market price closer to each other. As a consequence, on-balance sheet strategies may lead on to sustainable off-balance sheet strategies."[121]

4.4 – Principal variables analysed in the Strategy Planning Process

When taking into consideration the impact of the resolution strategies it is important to analyse particular variables in order to exploit all the possible mixes and their impact on balance sheets. This could help banks in taking the more appropriate decision:

- The operating margin: this margin is one of the most important when analysing the bank's balance sheets. Indeed, it reflects the ability of a bank to produce profits from its

[121] Mazzù, S., Muriano, F. (2018) "A strategic approach to non-performing loans treatment in banking: options and rules for decision-making";

operations. It is calculated by dividing the Operating Profits for the Total Revenues. This ratio can be used for the evaluation of the strategies adopted in the resolution of non-performing loans. When the spread between the NPL book value and their market prices arises, banks need to compensate the losses with sufficient profits. The forecast ability has a big impact: indeed, the bank should be able to forecast with sufficient precision the amount future incomes and should be able to define the maximum level of expected credit loss.

- The capital buffers: capital buffers are mandatory capital that the banks are asked to maintain in their balance sheets in additional to standard capital requirements. These buffers are affected by the rise of worse quality credit. As concluded by Klein in his book, "the fast increase in NPLs not only increased banks' vulnerability to further shocks but also limited their landing operations with broader repercussions for economic activity"[122] thus leading to substantial losses, resulting from the selling of non-performing exposures, in the banks' balance sheets and thus to the consequent reduction of capital buffers.
- The Coverage Ratio: it is calculated as the relation between the total amount of provisioning for credit risks and the sum of Non-performing Loans. Therefore, this ratio identifies the amount of reserves the credit institution should set in order to cover expected credit losses. Indeed, as described by *Golin et Al*. (2013) "the NPL coverage ratio indicate the extent to which the bank's loan-loss reserves will absorb the losses incurred on those loans designated as nonperforming."[123] Risk management policies and banking supervisions base their analysis on this ratio. Indeed, when applying resolution strategies, banks need to carefully evaluate this ratio because higher the spread between the coverage ratio and the ratio from a targeted minimum "the grater will be the chance to implement sustainable off-balance sheet strategies through sales of high impaired NPLs."[124]
- Internal capabilities: bank should assess the internal capabilities before implementing any kind of strategy. In order to do that and proceed with the creation of internal work-out unit, banks need, as Martino says, "to assess the internal capabilities to effectively manage NPLs – such as the size, evolution and drivers of their NPLs, as well as the

[122] Klein, N. (2013): "Non-performing Loans in CESEE Determinants and Impact on Macroeconomic Performance"
[123] Golin, J., Delhaise, P. (2013) "The Bank Credit Analysis. Handbook: A Guide for Analysts, Bankers and Investors"
[124] Mazzù, S., Muriano, F. (2018) "A strategic approach to non-performing loans treatment in banking: options and rules for decision-making";

outcomes of past NPL actions, the operational capacities (e.g. processes, tools, staff/expertise, etc.) for the different process steps involved, for which they should highlight strengths, weaknesses and any areas of improvement required to reach their NPL reduction targets."[125]

- Macroeconomic outlooks: these variables are relevant when the banks are choosing which resolution strategy to adopt. As extensively taken in consideration during this dissertation, banks and its workout units should base their decisions on variables which regard the current e future economic situation and the jurisdictional framework. Basing on these observations, banks should understand whether NPL prices have positive trends or negative ones. These models, alongside with efficient banking planning, should help banks in the decision of what mix of resolution strategies is the most appropriate and with the most precise estimates of NPL prices. This should allow banks to have better results reflected in the best bid/ask spread depending if the phase of the cycle.
- NPL market liquidity: in order to obtain the best bid/ask spread, having extremely liquid NPL markets, should help banks to find counterparties available for trades at the right prices. The development of these markets is significant when the bank is trying to implement off-balance sheet strategies. Indeed, when there are several possible buyers, the bank has more possibilities to sell its exposure at higher prices.
- Legal framework efficiency: reducing the length of recovery processes and the facilitating of out-of-court agreements are a crucial point when choosing the resolution strategies. In chapter one, it has been mentioned that one of the biggest problems affecting the Italian market are bureaucratic delays. Indeed, when choosing between a on profitable on-balance sheet strategy and a loosing off-balance sheet strategy many times banks are forced to choose the second one because of the length of the recovery processes. Moreover, having well-oiled mechanism, will drive to an improvement of recovery performances, lowering, consequently, the investors' uncertainty about future cash flows. This enhancement will lead to higher bid prices form the investors and higher and, therefore, higher results for the resolution strategy.
- Servicing industry maturity: this sector is crucial when choosing among the possible viable strategies. Indeed, the servicing industry is decisive to provide to the banks and to investors advanced statistics about the recovery rates of different asset classes, "focused on the elaboration and execution of the proper individual collection

[125] Martino, P. (2019): "Non-Performing loans in European banks: Management and Resolution"

strategy"[126]. The more developed this sector will be, the more precise business plans and NPL estimation will be. These functions are important in both on-balance sheet strategies, where they support the bank in manage internally large quantities of non-performing exposures, and for off-balance sheet where they give indication about the current valuation of NPLs.

4.5 – The Economic Impact of NPL Reduction Strategies

Recently, many researches have been done to understand the impact of macroeconomic policies on NPL and how they influenced their reduction. Balgova et Al. (2017), studied how the combination of specific macroeconomic policies, granting public funds for recapitalisation, the creation of Asset Management Companies and the development of on-balance sheet and off-balance sheet strategies, impact not only in the banking system but in the whole economy. Indeed, following their results, they found that NPL reduction strategies are more effective if assisted by NPL reduction macroeconomic policies. Policy assisted NPL reduction episodes studied specifically in the paper shows the same trend: indeed, they observed that the NPL stock had an initial drop due to the policies adoption, while later one the decline of the NPL ratio is associable to revived credit growth.

In their paper, the authors built up a panel dataset of NPL ratios matching them with another dataset taking in consideration specific targeted policies with the main aim to reduce NPLs from 1990. They identified episodes of high NPL and NPL reductions during that period, trying, in their analysis, to understand the anatomy of a single episode of high NPL and how and when a specific policy was effective to reduce the total stock of non-performing exposures. Moreover, they analysed the impact of the sharp drops in NPL ratio on the economic growth and other economic outcomes. In their analysis they found out that, episodes of high NPLs were not just the final products of crises, but this high stock were also caused by a situation of distress in the banking system, alongside with currency and sovereign debt crisis. Indeed, confronted with other historically moments, NPLs levels seen the last two decades, are not exceptional. The difference between the today's ones and the NPLs levels of the past is that the today malaise is more chronical, with NPLs that grows slowly and constantly.

In these situations, countries and lately international organization, started to face these crises with specific packages of measures with the main aim to reduce the high stock of NPLs. According to the authors, and to what *Belgova et Al. (2017)* described before, "what appear to work best is a combination of availability of public funds (bailouts) and establishment of

[126] PWC (2017): "Market vision: The Italian NPL servicing market"

specialised Asset Management Companies (a market-based solution)."[127] They found out that this set of measures is twice more effective than any other measures, especially if resolution strategies and macroeconomic policies are considered from a stand-alone point of view.

Following the results obtained in their paper, the researcher stated that typically, the NPL reduction episodes are driven mainly by the decreasing of NPL stocks. Instead, the reduction of NPL ratio is less frequently driven by credit expansions even if they are more present in situations where the financial sector is not strong enough. Moreover, in their paper they established that a performant NPL reduction strategy will impact the economic growth by more than 1.5 percentage point a year for several years.

In addition to what they previously found, they studied the prospective of the impact of macroeconomic policies and NPL reduction strategies in the long time. In their results they established that the return in the medium-long period are high. These high returns are faced by higher costs: indeed, as confirmed also by *Belgova et Al. (2017)* "high upfront fiscal costs combined with the delayed onset of benefits may take the proposition insufficiently attractive to politicians with short electoral horizons. In other cases, administrative capacity required to implement a coordinated policy package and develop a secondary market for NPLs may be a binding constraint."[128]

Finally, their findings took into consideration good and bad news for the economic systems with high NPLs stocks. The good news could be resumed with the fact that policies package, alongside with efficient NPL reduction strategies, are effective instruments in reducing high level NPLs situations. Moreover, they computed significant economic benefits, especially in the medium-long horizon. Indeed, backward looking to the past episodes of high stocks ho NPLs they asserted that these measures should help banks and credit institutions to reduce the impact of NPLs in their balance sheets. The bad news are that a successfully NPL decrease may represent a heavy challenge, especially for those banks or credit institutions which are affected by a chronical distress situation, where the det levels are particularly high, there is not the possibility to appeal to funds for recapitalisation due to short political horizons.

[127]Balgova, M., Plekhanov A. and Skrzypinska M. (2017): "Reducing non-performing loans: Stylized facts and economic impact"

[128] Balgova, M., Plekhanov A. and Skrzypinska M. (2017): "Reducing non-performing loans: Stylized facts and economic impact"

CONCLUSIONS

The thematic of non-performing loans has become, in the recent years, one of the most treated banking topics. These topics are central and relevant for banking activity due to the strong link with political and economic environments. Indeed, for their importance, they have been treated by the regulator and from vigilance authorities, both at national and international levels, trying to develop technical standards to give a specific and common address to NPLs issue and to reduce their impact on banks' balance sheets.

The role of this thesis is to understand these regulations, the definitions they gave and the common approach they established in order to tackle down NPLs. For these purposes, the thesis studied the impact of the IFRS 9 accounting principles and the possible strategies that banks should adopt to reduce NPLs.

The new accounting principle as studied in the thesis, produced a facilitation on the classification of Non-performing loans. Moreover, IFRS 9 introduced the concept of Expected Credit Losses. It is important to understand the role of this normative change, because it will change the way banks will analyse the market. The forward-looking analysis will be implemented even more in the next years in order to produce more precise estimates of expected losses, keeping more into consideration borrower's creditworthiness. With these considerations, it will be important to implement internal information on credit risk and to monitor them with the main aim to evaluate patrimonial consistency of the counterparty. These investigations on credit risk and the constant monitoring actions, will support banks to identify the right stage to which the credit belongs. In this new impairment mode, credit quality and its possible deterioration will be differentiated in three different stages: the first stage which contains all these credits that have not seen a worsening in their conditions from the origination moment , the second stage will contain those credit that are underperforming for a short period of time, while in the third stage there are credits that suffered a considerable increase in credit risk and for which the possibilities to recover the entire value are relatively low.

On the normative level, it is useful to precise that there is not a unique and common definition of non-performing loans. Indeed, both European Central Bank and European Banking Authority do not give a mandatory definition: they produced guidelines which banks are strongly recommended to follow. In the most general definition of Non-performing loans it is possible to embed all those credits which their full or partial reimbursement is in doubt due to financial difficulties of the borrower that is no more able to repay at the pre-established deadlines. Following the Italian legislation, these exposures are classified in three different classes: bad

loans (sofferenze), unlikely-to-pay exposures (inadempienze probabili) and overdrawn and/or past-due exposures (esposizioni scadute e/o sconfinanti deteriorate). Associated to these categories there are the so-called forborne exposures: these exposures are subjected to processes of restructuring and/or renegotiations to allow debtors to repay debts with different schedules, according to their needs. In these years, at European level, there is a process (still in progress) of harmonisation in the classification and identification of non-performing loans, fundamental not only to promote a common management through different national frameworks but also to allow vigilance authorities to provide solid and correct Asset Quality Reviews.

In has been discussed in the thesis that the high level of credit deterioration and the high stocks of NPLs are problematics that found their origins in the 2008 financial crisis. Since that historical moment, NPLs reached in the highest peak 2015. Indeed, the Italian ratio of NPLs to total gross loans in that year was near to 18%. Analysing the Italian and other south European countries, it is possible to easily identify the principal reasons: worsening of financial situation of borrowers due to an extended distressed situation of the real economy, the high level of unemployment rate and bureaucratic delays due to slow legislative systems in the credit recovery proceeds.

As a result of the strong correlation between NPLs and society problems, the reasons why public governments and European vigilance authorities started to take care of this problem are easily identifiable. From a reduction of the high stocks of NPLs in banks' balance sheets, we can verify several positive aspects: the first one and most important is a reduction of credit risk, then it is possible to estimate a consistent capital and assets strengthening and, in addition, a restatement of a financial equilibrium indispensable to promote a safe and sound banking activity.

With the main objective to reduce the total amount of NPLs in banks' portfolios several strategies have been adopted. It is possible to distinguish among two different categories of strategies: on-balance sheet strategies and off-balance sheet strategies. In the first one, banks are requested to organize particular sectors in which they choose the most viable solutions in order to identify, monitor and manage NPLs. In the second one, banks are less interested in creating such internal proceeds and they delegate the management of NPLs to external and specified firms or banks in secondary markets. The development of internal strategies to reduce NPLs is what is suggested by BCE guidelines, in order to develop a system inside banks that is able to perform adequate computations and prevent the growth of non-performing stocks of exposures in banks' balance sheets. When taking into consideration the external strategies the most used instrument to reduce NPLs is to use Asset Management Companies, that are often

called bad banks. This name is due to the fact that their main role is to clean up the originator banks' balance sheets, through the sale of non-performing exposures to AMCs, trying to recover as much value as they can. There is a possible distinction between centralised AMCs and decentralised AMC on the basis which they approach the market. Indeed, in one case these AMCs can be present on a determined market, while in the other, AMCs are institutions specialised to treat with a specific bank.

Each of the strategies involved in NPLs resolution presents advantages and disadvantages: on one hand, on-balance sheets solutions can bring to more standardised practices and to a qualitative transmission of relevant information as regard the estimates of NPLs. On the other hand, off-balance sheet solutions can reflect a higher degree of expertise and specialisation focusing mainly on particular firms, having more detailed information on borrower and allowing to streamline procedures of selection and treatment of non-performing loans.

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