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Leonardo Zonello

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Introduction

The recent financial crisis has strongly hit the European banking sector, causing a reduction of its dimension: the number of Euro area institutions decreased from 6.062 in 2008 to 4.385 in 2016, while the number of bank employees has fallen by about 300.000 units during the same period (Nouy, 2017). In spite of this reduction, the European banking market seems to be still too large if compared with the other ones: for example, total assets of the US banking sector are equal to the 88% of US GDP, while total assets of European banks are equal to 280% of EU GDP. As pointed out by Danièle Nouy during her speech at the Financial Forum in Madrid on 27th September 2017, these numbers are useful to understand an important phenomenon we are going to observe during the next years, which is the consolidation process of the European banking industry.

Today, in the European banking market, there are too many banks competing one with the others, and a lot of them (in particular the smallest ones) do not cover their cost of capital: this is due to the fact that they didn't react to the ongoing digitalisation process, to the decline of interest rates and to the new regulation asking stricter requirements for capital adequacy. What banks need is to revise their business models, in order to react to the change of the environment where they operate: this would lead to a reduction of banks size thanks to deleveraging, for example, but also to a reduction of their number, given that competition means that someone in the market loses and goes out from the market.

There are two ways by which banks can exit the market: they can fail, or they can merge with another institution. Given that the recent financial crisis started with the failure of a bank and it spread all over the world through a contagion effect due to the interconnections between banking systems, mergers would be the best way to eliminate inefficient institutions from the market. During the crisis, however, many countries helped failing banks with taxpayers' money, creating a sort of cost-free public insurance (which created wrong incentives for bad managed banks) and preventing non-efficient banks from exiting the market. It took some time before the regulator understood the problem and fixed it with the Single Resolution Mechanism, which should allow banks to fail without affecting the entire market.

With the creation of the European Banking Union in 2014, the regulator created the basis for a continental banking market, which is similar to the US one in terms of size. In the medium run, the European banking market is going to become even more integrated, with the possibility for banks to manage their balance sheet at an aggregate level under the supervision of the European Central Bank. This is going to facilitate bank mergers, in particular cross border ones, which

are an important tool to reduce the excess capacity and to improve the efficiency of the whole banking sector; in addition, bank mergers are going to further increase the level of integration of single banking systems, with the consequence that the improvement in risk-sharing will enhance, consequently, the stability and the efficiency of the whole European banking system, while banks would benefit from economies of scale and risk-diversification, increasing their profitability and their efficiency.

Even though bank's consolidation seems to be something that banks, and the regulator should seek for its positive effect, during the crisis the number of M&As declined, so that in 2016 the market registered the lowest level of transactions in terms of value and in terms of number of deals (European Central Bank, 2017). There are many reasons for this decline (Nouy, 2017): first, banks are unsure about the value they are going to generate with acquisitions, in particular when the target's assets quality is low or when the target has a lot of non-performing loans. Second, banks are facing important structural issues: the digitalisation process is speeding up and Fintechs are expanding their business, reducing even more banks' revenues. Finally, banks' uncertainty is generated also by changes in regulation (see, for example, the introduction of Basel III), which require banks to consider even more carefully the possible consequences generated by acquisitions on the compliance of rules.

This work would like to provide a criterion with which banks should choose their target in case they want to perform an M&A operation to maximise their value creation. In fact, even though managers are often requested by shareholders to perform M&As to generate value, acquisition are risky and, in case they are performed without rationality, they may destroy value and they may even lead to the failure of a bank. To minimise risks and to maximise the post-merger performance, we think that bank's acquisitions should be driven by strategic similarities: to prove this hypothesis, we will analyse the performance of post-acquisition entities to understand what has determined profitable and unprofitable mergers, and we will show how some differences in banks' strategies negatively influenced performances, while some others produced an increase in banks' profitability.

The present work is organised as follows. In Chapter 1 we will perform an analysis about the profitability of the main European banking systems, comparing the current situation of the Italian banking industry with the other European ones: our analysis will not focus only on profitability, but it will also concentrate on efficiency. In doing so we will decompose the financial statements of European banks with the aim to identify, with the use of financial ratios, which are the main determinants of the bad performances that characterised Italian banks during the recent years. In Chapter 2 we will analyse which are the reasons to perform bank M&As:

first, we will understand whether there is room for consolidation in the European countries of our sample, and then, after having illustrated the different forms of acquisitions that firms may adopt, we will analyse which are the benefits and the risks associated to each type of transaction. Finally, in Chapter 3, we will study what are the factors that determine whether an acquisition is going to be successful or not: starting from the literature review, we will build our model to analyse how pre-merger strategic similarities affect post-merger performances and we will test it with a sample of US banks.

Chapter 1

Profitability of banks

In this Chapter we will investigate the current situation of the Italian banking system in terms of profitability. To do that, we will first briefly recall which are the main determinants of bank's profitability and then we will investigate, with the use of Bank of Italy data, which factors have affected the profitability of Italian banks during the last decade. Finally, we will make a comparison between the Italian banking system and some other European ones.

1.1 The determinants of profitability

In the banking sector, profitability is an important condition both from a shareholder's and regulator's point of view. From an investor's perspective, profitability is important to generate a return (in the present and in the future) from investments, while from a regulatory point of view it is important to guarantee good solvency ratios even in the case of a risky business environment, which in turn guarantees stability for the banking system and allows to avoid problems in the real economy (European Central Bank, 2010). To investigate the current situation of Italian banks we need first of all to understand which factors affect their profitability. In this first section of the Chapter we briefly recall which are the main determinants of bank's profitability (which will be analysed quantitatively in the next sections). In doing so we analyse first the main aggregates that lead to the determination of profits in the income statement, using the reclassification scheme provided by the Bank of Italy (2018b) in its annual reports; then, to complete the analysis, we consider even some other determinants that are not directly showed in the income statement, but which are strongly connected with the generation of profits.

The first aggregate used by stakeholders to evaluate the profitability of a bank is the net interest income (NII) which consists in the difference between the interests that are received by a bank for lending money, for example as payments for loans, and the ones that the bank pays for receiving money, for example the ones paid to depositors. In 2017 the NII of Italian banks was equal to 0.9% on total assets (Banca d'Italia, 2018b) and it is still the most important source of revenues for banks. The NII can be seen as the income generated from the most traditional activity of banks and it is generally considered the most important source of revenues for banks, even though when interest rates are low like in the recent years of crisis, their relevance reduces in favour of non-interest income.

The second important aggregate in the income statement of banks is non-interest income, which includes revenues arising from negotiation and valuation at fair value, services and dividends. In fact, in addition to the traditional lending and deposit-taking activities, banks perform many other activities like checking and cash management, investment services and securities brokerage. All these components have different relevance in the income statement of each bank, depending on which activities an institution performs the most; the relevance of these components varies consistently even from country to country, meaning that there is even an influence arising from the different regulations (Albertazzi *et al.*, 2014). An important consideration which should be done about non-interest sources of income is about the consequences of them on the global profitability of banks (Stiroh, 2004; European Central Bank, 2010): on one hand these revenues tend to be quite high since they come from complex and sophisticated activities, therefore improving the overall profitability of banks; on the other hand they increase the level of risk for the bank since the income generated from them tends to be volatile, not diversifying that much the comprehensive profitability of banks. If we look at the whole Italian banking sector in 2017, the services component is the most important one among the ones generating the non-interest income, being equal to 0.76% on total assets, while the others are less relevant (0.1% and 0.9% respectively). The sum of NII and non-interest income leads to the so-called intermediation margin.

The next item analysts investigate in a bank's income statement are the operating costs. This aggregate includes a lot of costs which are associated with the administration of a bank, but the most important ones are the costs associated with personnel. In 2017, operating costs were equal to 1.45% on total assets, while personnel costs amounted to half of this value (0.73%). The ratio between operating costs and the intermediation margin is the cost-to-income ratio, which is a very important indicator of efficiency for banks: in fact, it represents the ability of a banks to transform resources in revenues. The sum of the intermediation margin and operating expenses is the operating result.

The sum between operating result and non-recurring revenues, impairments on goodwill and provisions on credits leads to the aggregate of pre-tax income. Among these last items, the most important ones in 2017 (and during the whole last decade) were provisions on credit, which were equal to 0.57% on total assets, and impairments on goodwill which, as we will see later on, heavily affected the profitability of banks during the financial crisis.

Finally, to get profits we must deduct taxes. As shown by Albertazzi *et al.* (2016), the different level of taxes in European countries is able to explain, in part, the different level of profitability and own capital accumulation of banks in the various nations. In particular, before the crisis,

the profitability of Italian banks was heavily affected by taxes (-0.28% in 2005-2007), while after the crisis the burden of taxes decreased due to the reduction in pre-tax income. In the next years, when the Italian banking system will fully recover from the crisis, taxes will affect less the profitability of Italian banks thanks to the new tax reforms, as highlighted by De Vincenzo and Ricotti (2014), even though they will still have an important impact on profits.

Thus far we have analysed only a part of all the components which affect bank's profits. The European Central Bank (2010) identifies four main drivers that are required to generate sustainable profitability, which is defined as the capacity to maintain profits overtime: earnings, efficiency, risk-taking and leverage, which are discussed below.

1. The composition and the volatility of earnings are important elements that influence the probability of profits to be recurring. If a source of revenues is highly volatile or if it is generated by an extraordinary component, it is very unlikely that the profitability of a bank in a year will be replicated in the following income statements. That is the reason why analysts investigate bank's sources of income: they want to understand whether the performance of a bank is an extraordinary event or whether the bank is going to replicate it in the future. In addition, a persistent level of profitability should alarm about the possibility of an excess of risk undertaken by the bank. To analyse the composition of profits, analysts look at the main aggregates of the income statement and at their relative contribution in generating the global profitability.
2. Efficiency is about the ability of a bank to generate profits from a group of assets or from a source of revenues. In fact, producing revenues is not a synonym of producing profits: the main difference is that costs must be deducted from revenues to get profits. It is possible to talk about efficiency even relating costs and revenues, like we have done with the cost-to-income ratio: in this case the ratio describes the ability of a bank to transform resources into revenues. An important consideration is that the degree of efficiency is strictly connected with the business model of a bank since each business model implies a different use of resources: this means that efficiency comparisons are meaningful only among banks with similar business models. The most important efficiency ratios used by analysts are ROE, ROE on tangible equity, ROA and cost-to-income ratio.
3. Risk-taking refers to the amount of risk banks undertake in performing their activities. This impacts the profitability of banks in two ways: on one hand, the more the undertaken risk, the higher can be the profitability in a good scenario case; on the other hand, risk affects profitability due to the adjustments that must be done on earnings

because of it (like the provisions associated to the credit risk). In this sense, it is important that the risk appetite of a bank is aligned with its strategy and its business structure not to damage the ability to generate profits in the future. In fact, as stated by Kimball (1998), a bank must find a balance in the trade-off between risk, growth and return to be profitable. The most used credit-risk indicators are the coverage ratio, the non-performing loans ratio and impairment charges as a percentage of total loans.

4. Leverage is about the use of borrowed capital as a source of funding to increase the bank's assets. The aim is to invest more to generate higher returns on capital, therefore boosting some profitability indicators like ROE: in this sense it can be seen as a multiplier of performance. But, at the same time, the higher is the leverage of the bank and the higher is the solvency risk for the institution, which is the risk not to meet its obligations. As reminded by the European Central Bank (2010), leverage should be seen as a warning indicator: in particular, when its value increases for more subsequent years and when it overcomes a level of 30, the bank is considered "non-sound".

The aim of the European Central Bank (2010) is to point out that to produce a meaningful analysis about the profitability of banks it is not enough to look at their income statements and at ratios made on it, but there is the need to perform a sum of the part analysis, focusing not only to performance depictions but even on profitability drivers. This new scheme of analysis is a consequence produced by the recent crisis, which has completely changed the way analysts investigate the profitability of banks. Today, the focus is not merely on the short-term performance, but it includes even a complementary analysis on risk, assets quality, capital adequacy and leverage. The aim is to analyse key business drivers to understand whether the business model adopted by banks is producing a sustainable profitability, which means that banks will be able to maintain their performance in the long term and that they will be able to absorb unexpected losses due to shocks in the future.

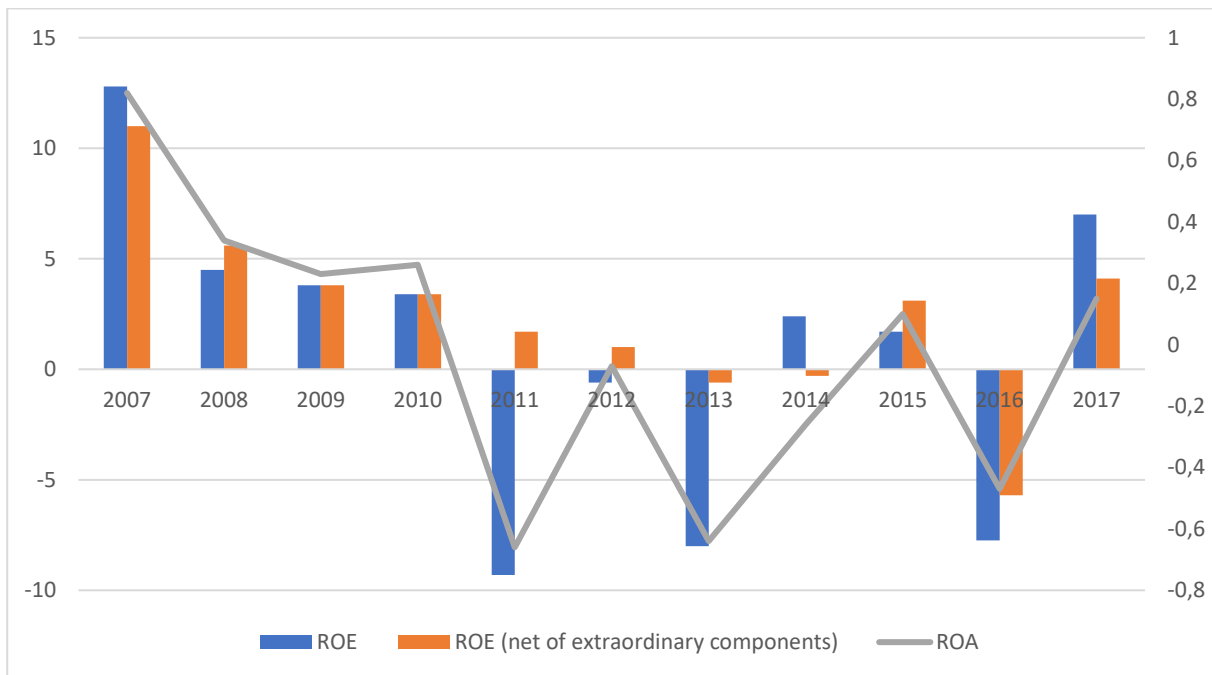
To conclude, the profitability of a bank depends on a lot of factors. Some of them are related to the income statement of banks and they can be internal to the banking system, like operating costs, or external, like taxes. This implies that the profitability of banks is not only affected by how the banking activities are managed, but it depends even on some macroeconomic factors and on the tax regime, which are affected by economic institutions and by the regulator. At the same time profitability depends even on well identified drivers, which must be carefully analysed with the business model of the bank to assess whether the return obtained by the financial institution is sustainable, which means that it was generated by recurring components and so that it is replicable in the future.

1.2 The Italian banking system: an analysis

In this second paragraph, to understand the current situation of the Italian banking system and to identify the causes of its weak profitability during the last ten years, we will investigate quantitatively (using the Bank of Italy data) the performance of Italian banks. The analysis will follow this pattern: we will start looking at some ratios that summarize the overall profitability of Italian banks to have a general idea about their performance: in doing so, we will consider only domestic banking groups and stand-alone banks since the performance of the foreign ones may be heavily influenced by the different regulation and by the different macroeconomic situation in extra EU countries; then we will decompose these ratios to study the drivers of profitability we have described in the paragraph above to illustrate their dynamics and to show how they have affected the performance of Italian banks during the last decade.

The first summary indicator of profitability we use to analyse the Italian banking system is ROE, which is the ratio between the net income and average shareholder's equity of the year. ROE is a very popular measure of profitability and shareholder's value creation since it needs a little public information to be derived, it allows for fast comparisons between firms and it tells the return an investor gets from his investment. In particular, with regard to this last point, for a bank it is important to have a ROE bigger than its cost of capital to produce value for shareholders, since the main goal of a firm is to create wealth for its owners. Figure 1 shows the level of ROE, adjusted ROE (net of extraordinary components like goodwill, public subsidies for aggregations and impairments on goodwill) and ROA of Italian banks for the period 2007 – 2017.

Figure 1 – ROE, adjusted ROE and ROA of Italian banks



Source: own elaboration on Banca d'Italia (2018) and European Banking Federation (2018) data. ROA is measured in the right-hand scale.

As we can see from [Figure 1](#), Italian banks experienced a strong reduction in their profitability during the financial crisis. For what concerns the ROE, it started decreasing immediately after the beginning of the crisis in 2007 (when it was equal to 12,8%) reaching a negative value for the first time in 2011 (-9,3%); then it remained negative for two years, with a new negative peak in 2013 (-8%), while in 2014 and 2015 the profitability of Italian banks became positive again, even if it was quite low. Finally, in 2016 there was again a negative peak, while in 2017, for the first time after ten years, the level of ROE was above 5%, reaching a value of 7%. From these numbers it seems that after the strong reduction in profitability during the last decade due to the crisis and after the strong negative peaks reached in the recent years, the Italian banking system has started recovering in 2017, moving toward the pre-crisis level of profitability.

As reminded even by the European Central Bank (2010), ROE is a very popular indicator of performance, but it tells almost nothing about the sources of bank's profitability. This is due to the intrinsic nature of this ratio, which leads to some shortcomings:

- ROE doesn't tell anything about the nature of the determinants of bank's profitability. Looking at ROE, we are not able to tell if profits were generated by the bank's traditional activities or if they were the result of extraordinary operations. In other terms, ROE doesn't tell anything about the sustainability of profits, defined as the capacity to

maintain results overtime, which is related to the composition and to the volatility of earnings. The more profits are generated from extraordinary and volatile revenues, the lower the probability of profits to be recurring and the lower the probability that the level of ROE will be high in the future.

- ROE doesn't provide any information about the future performances of a bank since it provides a snapshot of the current situation (it is a short-term indicator), so we are not able to understand whether a reduction of the index is due to actions (like restructuring or consolidation) to boost future performances or whether it depends on the decline of recurring revenues.
- ROE can be manipulated, in the sense that assets can be classified in different portfolios producing different effects on the ratio, leading to non-significant comparisons among banks. In addition, given the differences between the various accounting standards, it is very hard to make meaningful cross-border comparisons using ROE exclusively.

Given the highlighted ROE's shortcomings, we will use some other tools to integrate the study about the profitability of Italian banks. First of all, we try to overcome the problem related to the presence of non-recurring revenues in order to study the sustainability of bank's profits, therefore removing from the numerator of the ratio the amount of revenues arising from extraordinary operations, like goodwill, public subsidies for aggregations and impairment on goodwill: in this way we obtain the adjusted ROE (data are provided by the Bank of Italy, 2010). As we have already highlighted in the first paragraph, a part of volatile revenues is included even in non-interest income: therefore, removing those elements from the numerator of the ratio solves only partially the problem of the influence of non-recurring items in the analysis of bank's profitability. We will overcome definitively this problem in the subsequent parts of the analysis.

By looking at the adjusted ROE represented in [Figure 1](#) we can see how the variability on profitability was considerably lower, in particular in 2011, 2012 and 2014, when the value of adjusted ROE has the opposite sign than the one registered by the simple ROE. This means that during those years the profitability of Italian banks was heavily affected by the consequences of the financial crisis which led not only to a decrease of the main determinants of the net income (like the NII, as we will investigate below) but also to the presence of negative extraordinary components of income. In addition, another important information that we can anticipate from the adjusted ROE is that the profitability arising from the core business of banks is still far from the complete recovery: before the crisis its level was above 11%, while after 2008 Italian banks were not able to generate returns on their capital above 5% without

extraordinary components. This clearly shows how the profitability of the Italian banking system was affected by the crisis and how much the system is still far from the full recovery.

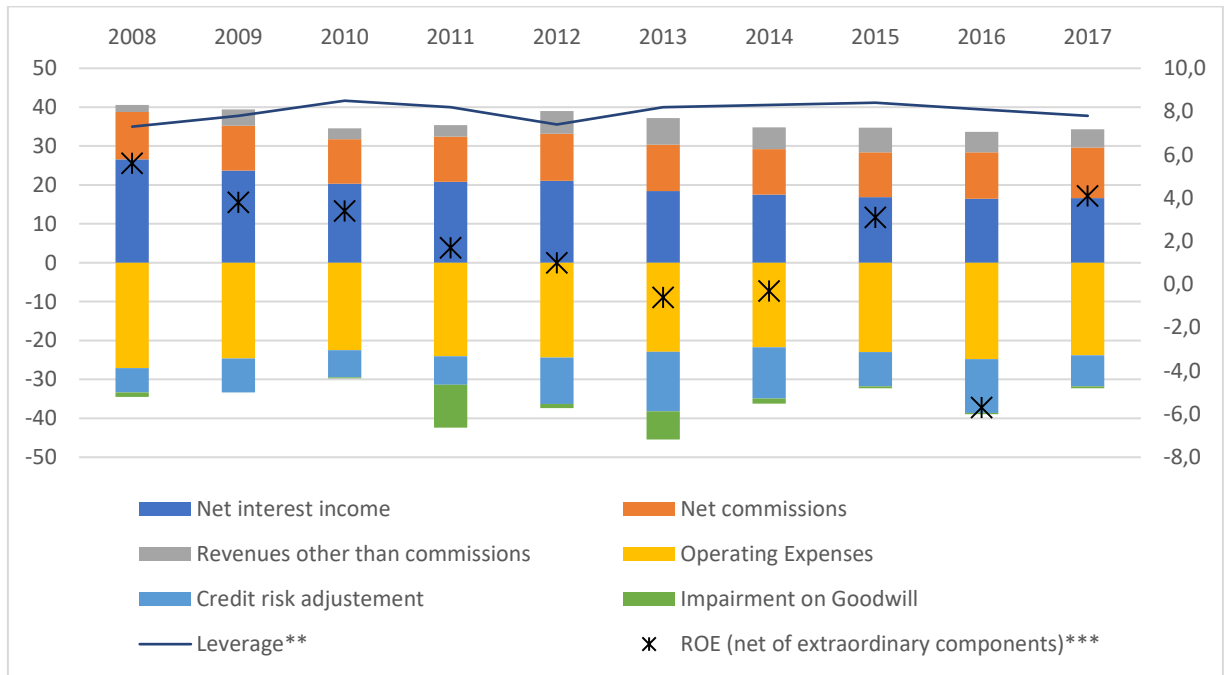
Another indicator we can use to study the Italian bank's profitability is ROA, which is defined as the ratio between the net income and the average value of total assets of the year. Figure 1 shows the level of ROA of Italian banks during the last decade: in 2007, the ROA of Italian banks was equal to 0.82%. With the crisis, its level strongly decreased until it became negative for the first time in 2011 (-0.66%) and it remained below zero until 2015, when its value was 0.1%. In 2016 there has been a new decrease which brought ROA to -0.47%, while in 2017 the value raised to 0.15%. As we can see from the graph, given that the numerator is the same, the values of ROA tend to have the same dynamic of the ones of ROE and adjusted ROE, but since banks have a very high leverage, a little difference in ROA can imply a big difference in ROE: this is due to the fact that ROE does not include debt in its denominator, so an increase in profits originated by an investment financed with debt is intercepted in the numerator, while the denominator remains the same, therefore boosting the value of the ratio.

What we can say from Figure 1 is that the financial crisis heavily affected the profitability of Italian banks during the last decade: on one hand it affected the core business of banks, as shown by the strong decline in the adjusted ROE during the whole crisis, while on the other hand the profitability was strongly hit even by some extraordinary components arising in some specific moments of the financial crisis, in particular impairments on goodwill during the second phase of the crisis (in 2011 and 2013), which were necessary in order to align book values with market ones.

The next step to deepen the analysis about the profitability of Italian banks during the last decade is to decompose the numerator of ROE and ROA to understand the dynamic of profitability drivers, in particular the one of earnings. This analysis is important to study how the crisis hit the different activities performed by banks to identify which are the main problems of Italian bank's profitability today and to understand, with our analysis, whether a consolidation in the Italian banking sector can be a solution to these problems.

Figure 2 represents (following the scheme provided by the Bank of Italy) the decomposition of earnings of Italian banks into the most important aggregates of the income statement for the years 2008 - 2017 (Bank of Italy, 2018).

Figure 2 –Main components of Italian banks’ profitability (percentage points*)

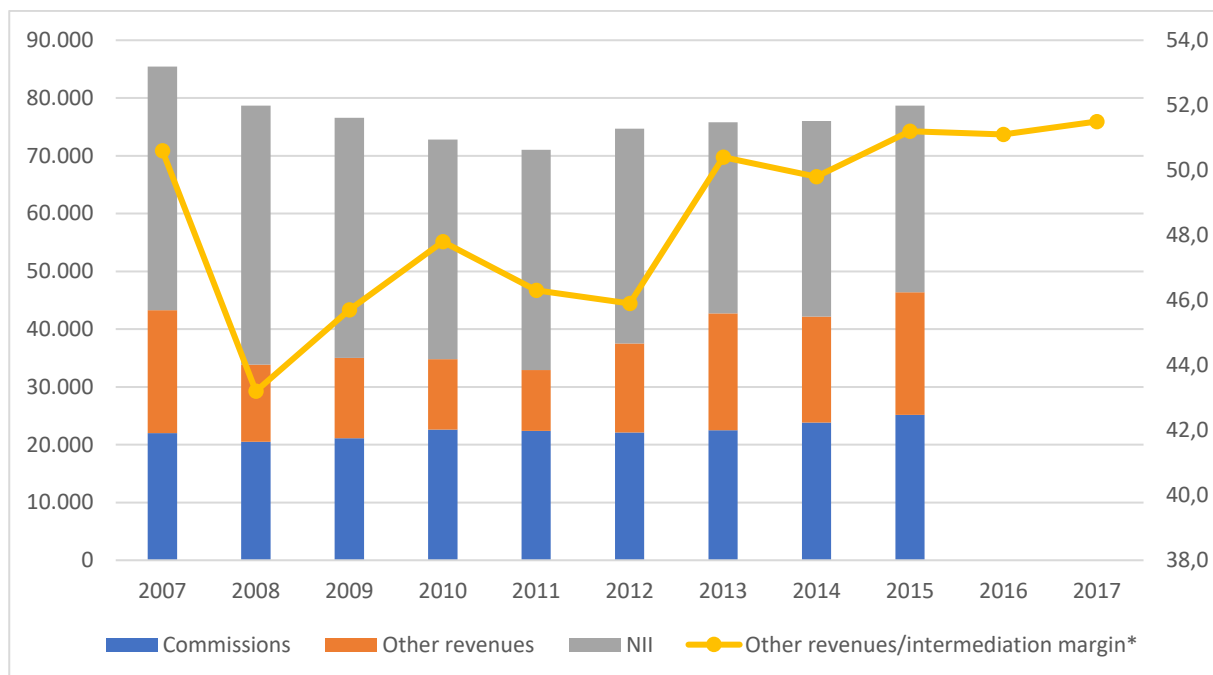


Source: own elaboration on Bank of Italy data. *Percentage points on average total capital of the year. **Leverage measured in the right-hand scale. ***Average capital of the year on total asset at the end of the year, right-hand scale.

Figure 2 provides a general view about the profitability of Italian banks during the crisis and it allows to perform a first analysis about it looking at the dynamic of its determinants. First of all, during the last decade the NII registered a slow but continuous decrease, and its value on the average capital of the year moved from 27% in 2008 to 17% in 2017, which means that banks, after 2008, were no more able to generate the same amount of revenues with their most traditional activity of lending money. This result is confirmed even by Figure 3, where there is a representation of the volumes of NII during the last decade: in 2007 the amount of revenues generated by NII was equal to 42.175 million of Euro; ten years later, after a slow but persistent decrease, it was equal to 32.309 million of Euro. It is quite simple to explain the reason for this decrease: in fact, before the crisis (2003-2008), the difference between the lending rate and the rate that banks paid to depositors was on average 4%, while after the crisis (2009-2013) it was on average 3.1% (Emiliani, 2014). This is the result of two different components: on one hand, in 2009-2010 there was a reduction in interest rates on loans (due to the reduction in market interest rates) which in turn produced a strong reduction in the NII, given the big amount of variable interest rate loans in the balance sheet of Italian banks; on the other hand, starting 2011, with the crisis of sovereign debt, the cost of funding for banks increased due to different reasons (a reduction in the source of funding in international markets, the perceived high risk of bank’s assets and capital adequacy requirements) and it was only partially compensated by an increase

in the interest rate paid by customers for the higher risk. Given that, before the crisis, NII represented the biggest part of Italian banks' profitability, we can say that Italian banks suffered a lot during the last ten years due to their business model, which is characterised by a strong focus on lending money to families and firms and by a very low exposure to structured securities.

Figure 3 – Intermediation margin analysis (in millions of Euro)



Sources: own elaborations on Bank of Italy data. *Other revenues/intermediation margin measured in the right-hand scale.

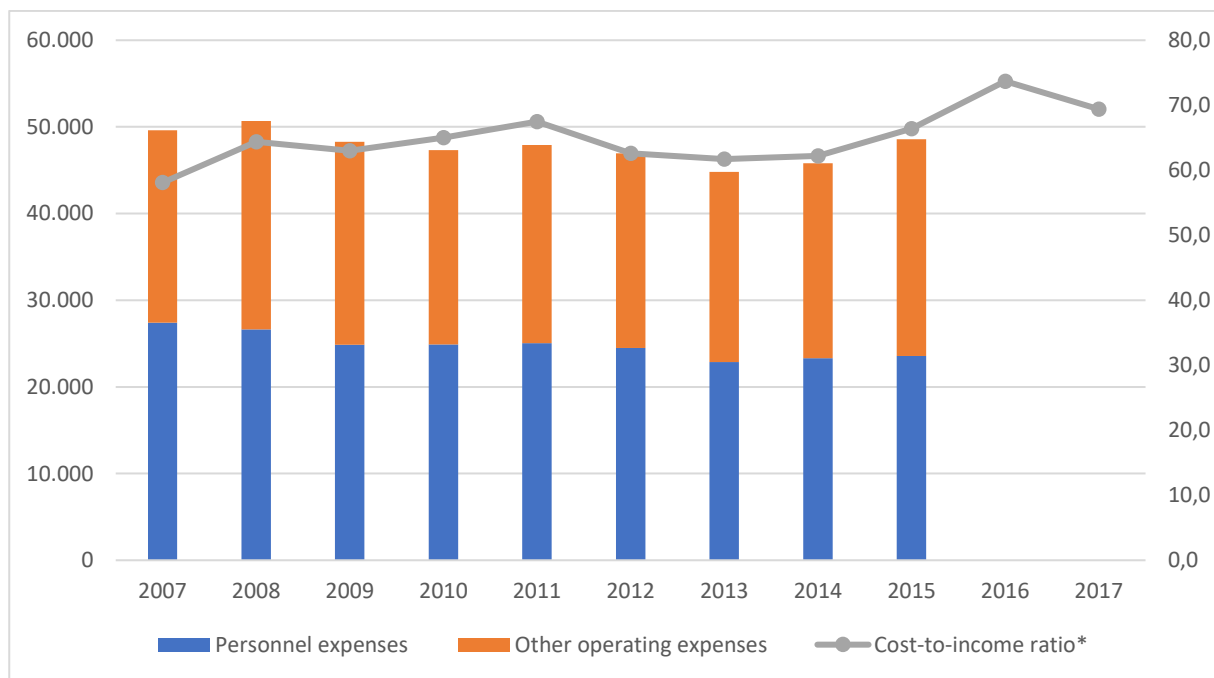
The second important thing we can say looking at [Figure 2](#) is that while the weight of net commissions on total assets remains stable at 12% during the decade, the weight of other revenues different from commissions increased visibly, passing from the 2% in 2008 to the 5% in 2017 (with a peak of 7% in 2013). The representation of the ratio between other revenues and intermediation margin in [Figure 3](#) confirms this trend: after the crisis, the relevance of other revenues in the composition of the intermediation margin has increased overtime, passing from 43.2% in 2008 to 51.5% in 2017. This is the reflection of a diversification in the sources of revenues which was adopted by Italian banks not to suffer for the low interest rate environment and the consequent reduction of the NII (Goracci, 2016). In particular, some banks (e.g.: Intesa San Paolo), decided to modify the composition of their revenues: even with an increase of interest rates and so with a recovery of the intermediation margin generated by a surge in the NII, the overall profitability of Italian banks would still suffer due to other external factors like the pressure on payments of Fintechs and digital apps, which already reduced a lot the volume

of commissions on payments (Visco, 2018); so, in the recent years, banks decided to differentiate their sources of revenues performing activities like insurance, asset management and asset gathering, which can be sold directly to customers with their already existent and wide spread branches (Chakraborty, 2016). In addition, we can see in the [Figure 3](#) that even the stand-alone volume of commissions has increased during the crisis as a consequence of the diversification strategy of banks: in 2015, the volume of commissions was 14% bigger than the one registered in 2007, and in 2015 the increase in volume with respect to 2014 was equal to 5.6%. What is important to point out is that the diversification of the sources of revenues was not able to completely compensate the reduction of the NII: summing up the three components plotted in the graph, we can see how the intermediation margin reduced during the crisis and how it hasn't completely recovered yet. In addition, we can see how there is a certain degree of variability in commissions and other revenues components: this supports the idea that even though these sources partially compensate the reduction of profitability due to lower interest rates and even though they are an interesting source of income for banks given they don't absorb capital (in contrast to loans and mortgages), they do not reduce the overall volatility of bank's profits since they tend to be non-recurring in time.

Looking back at [Figure 2](#), we can see how another important determinant of low bank's profitability were operating expenses. During the last decade, their percentage value on total assets was quite volatile: in 2008 it was equal to 27%, then it decreased reaching 23% in 2010 and it remained almost stable until 2014 when it reached its minimum at 22%; finally, it increased a bit reaching a new peak of 25% in 2016. To have a clearer view about the dynamic of operating costs we should look at their absolute values reported in [Figure 4](#). As we can see, during the crisis, banks tried to reduce the weight of operating costs to compensate the reduction of revenues: in particular, in doing so, banks reduced their presence in the territory, therefore diminishing the number of employees and branches. This is clearly visible in the graph which shows that for the first time in 2015 the expenses for the personnel are less than the remaining operating costs. If we look, instead, at the cost-to-income ratio, plotted again in [Figure 4](#), we can see how it increased overtime (with raise and falls), moving from the 58.1% of 2008 to the 69.4% of 2017, with a peak of 73.7% in 2016. The increase in the cost-to-income ratio in 2011 was due to the strong reduction of banks' income due to the sovereign crisis, while the increase in 2015 and 2016 was due to a surge in operating costs to implement a structural turnaround to optimize the distribution and the business model of banks (Romeo, 2017; KPMG, 2018a), which has started producing its effect in 2017, when there was a considerable decrease of the burden of operating expenses. As we have pointed out in the first paragraph, the cost-to-income

ratio is an important indicator of efficiency and it is strictly influenced by the business model of banks: in this sense we can say Italian banks need to improve their business model to enhance the productivity of the resources they use in performing their activities. This translates in investing in digitization and technology and adjusting the cost structure to the new business model.

Figure 4 – Operating expenses (in millions)

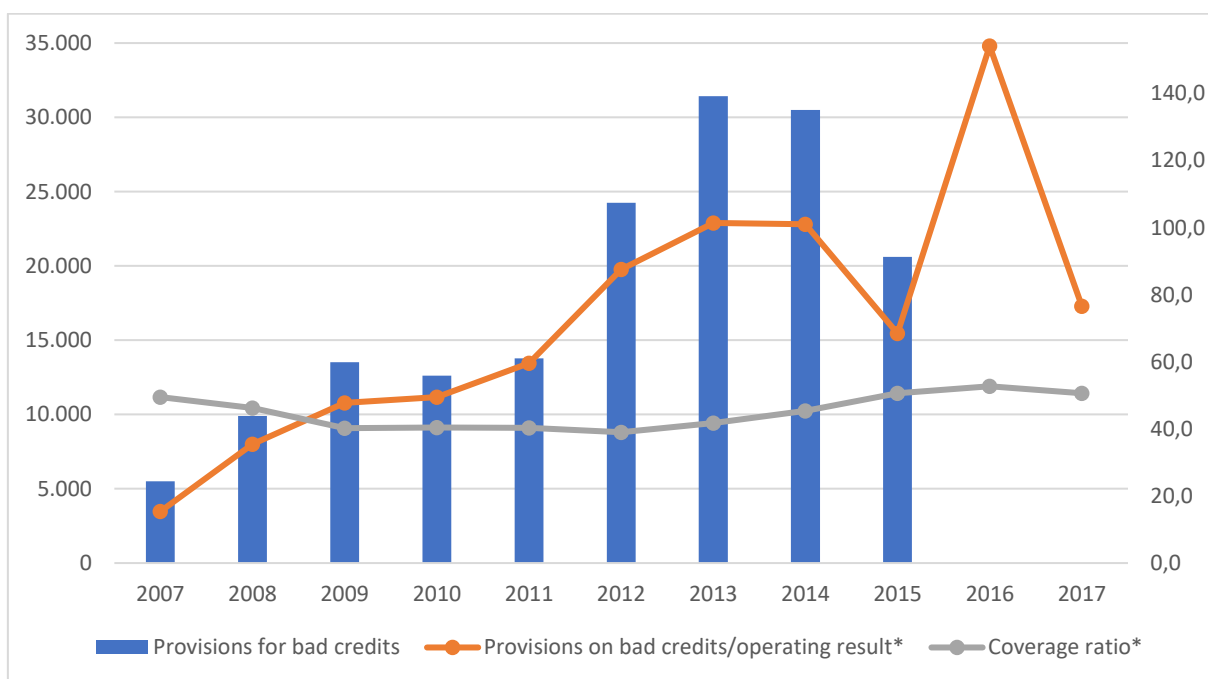


Sources: own elaboration on Bank of Italy data. *Cost-to-income ratio measured in the right-hand scale.

Finally, we analyse the remaining determinants of bank’s profitability. Looking back at [Figure 2](#) we can see how credit risk adjustments impacted on the profitability of banks over the last decade. The ratio between adjustments and total assets changed a lot during the observed period: it was equal to 6% in 2008, then it raised during the crisis, reaching some peaks in 2012-2014 (15%) and in 2016 (14%). This delay with respect to the beginning of the crisis is due to the fact that the deterioration of credit is a process that takes time to emerge and to the fact that at some points in time some banks decided to clean bad debts from their balance sheet voluntarily, to improve their performance, or because the regulator asked for more provisions to reduce the risk of default in the banking sector. If we examine the [Figure 5](#) we can see how the nominal value of provisions for bad loans increased during the crisis, in particular after 2012, heavily affecting the profitability of Italian banks. This is showed by the ratio between provisions on bad debts and the operating result: in 2007, before the crisis, the volume of provisions was equal to 15.4%, while two years after the volume was equal to 47.8%. After that, the ratio remained almost stable until 2012, when it exploded to 87.5%, and it continued

to raise even in the following years, when provisions completely overcame the operating result of banks. In the last three years the volume of provisions decreased, reaching values slightly above 70%, with the exception of 2016, when some intermediaries decided to increase their coverage on bad loans to clean their balance sheet. The rapid increase in the volume of provisions during the crisis was due to the deterioration of credits, which increased overtime due to the crisis which caused a worsening of the macroeconomic situation of Italy (in particular because of a lack of growth), but also due to the requirements set by the supervisor and by the legislator (Lauriola, 2017). In fact, if we consider the coverage ratio (on credits other than *in bonis*) of Italian banks in [Figure 5](#), we can see how it strengthened in the last decade: it was equal to 49.5% in 2007 and it constantly decreased during the crisis until 2012, when it was equal to 39%. Then it started increasing reaching a peak of 52.7 in 2016. Finally, in 2017 the ratio slightly decreased, being equal to 50.6%. Coverage ratio is an important indicator of risk since it measures the ability of a bank to absorb potential losses on non-performing loans. The main reason for the strong decrease of the coverage ratio at the beginning of the crisis was the strong increase of non-performing loans, which was bigger than the increase in provisions during the same years. At the same time, the main reason for the increase of the ratio after 2012 was the strong increase in the volume of provisions, as it is possible to observe in [Figure 5](#), which grew faster than the increase of NPLs.

Figure 5 – Provisions (in millions)



Sources: own elaboration on Bank of Italy data. *Provisions on bad debts/operating results and coverage ratio measured in the right-hand scale.

The last thing we need to analyse to understand the current situation of Italian banks is their leverage, defined as the ratio between Tier 1 capital and bank's average total consolidated assets. From [Figure 2](#) we can see how the value of leverage of Italian banks changed during the last ten years: in 2007 it was equal to 7.3%, then it increased reaching a peak of 8.5% in 2010 and later there was a fast decrease in the ratio which led to a value of 7.4% in 2012. After that there was a new raise to 8.4% in 2015, while during the last two years the leverage ratio of Italian banks slightly decrease to a value of 7.8% in 2017. Under the Basel III regulation, banks are required to have a leverage ratio equal at least to 3%: the aim of the leverage ratio is to discourage banks from underestimating risk and so to improve the stability of the financial system. Given that the higher is the ratio and the higher is the part of assets that is financed by own capital, the higher is the leverage ratio of a bank and the better is for the banking system: in fact, in case of impairment on assets, the bank has more capital available to absorb losses before the default. The volatility of the leverage ratio during the last decade could be explained considering that the reductions were in large part the results of impairments on credits while increases were mainly due to capital requirements set by the supervisor to guarantee the stability of the banking system.

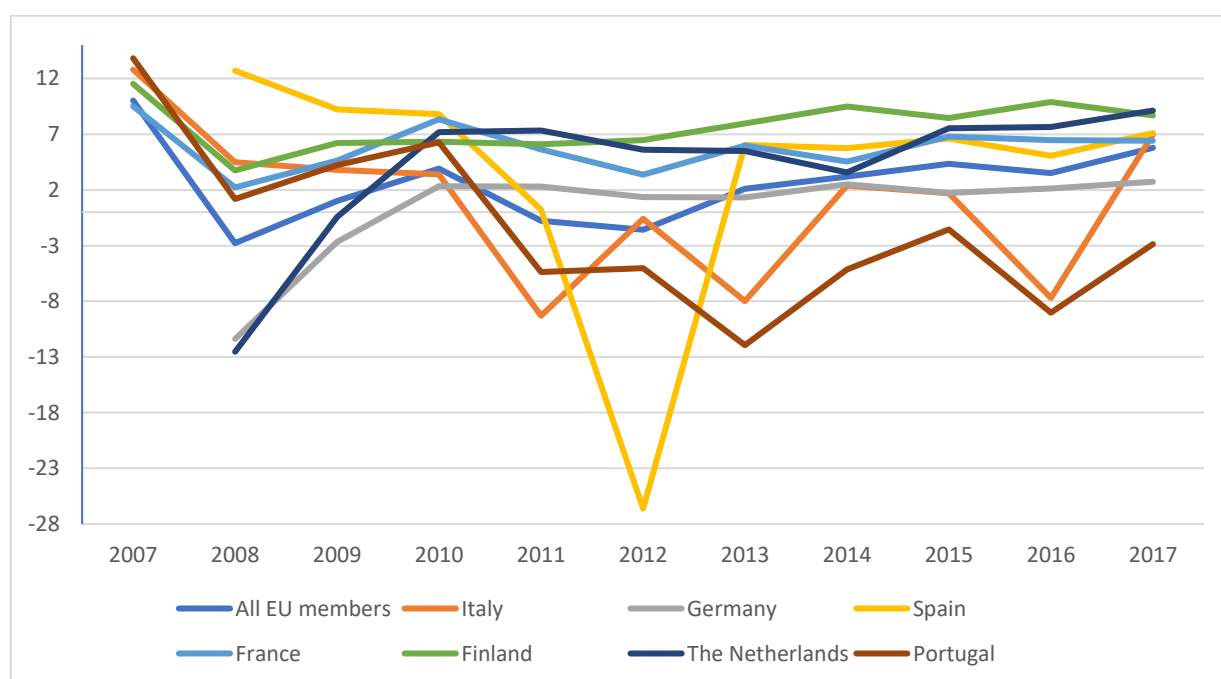
We can conclude that the profitability of the Italian banking system is affected by some critical factors: the business model of banks, which is still focused on lending and deposit-taking activities. Italian banks need to change their business model, investing in new technologies and in digitization to diversify their sources of revenues and not to suffer the competition of Fintechs. In addition, this would strengthen their profitability and their competitive position, providing new sources of revenues which could be used to make new investments and, also, to reduce costs. Another issue is related with the incidence of operating costs on profitability, in particular the ones related to the personnel, which is still very high. In the last few years, banks started implementing structural turnarounds (which are expected to produce their effect in the medium run) to reduce the burden of operating costs and therefore to improve their operating efficiency. Finally, the last problem is the one related to provisions on credits: the financial crisis and the consequent macroeconomic situation in which banks operate led to the deterioration of a lot of credits and this, in combination with the supervisor requirement, produced heavy consequences in the income statement of banks. The costs associated to the credit risk are still one of the main negative components that affect negatively the profitability of the Italian banking system, and they are forecasted to do so for a while. In this sense, we can say there is a circularity: capital consistency is required to clean bad assets from the balance sheet of banks, while at the same time bad assets prevent banks from producing earnings which,

if retained, could be used to strengthen the capital position and to improve the future profitability making new investments.

1.3 European banking systems comparison

To better understand the current situation of the Italian banking system, in this last paragraph we will make a comparison between Italian banks and the ones operating in the main European countries, using the most important ratios we have already seen in the previous analysis. The decision to limit our analysis only to European banks was taken to highlight the differences among banking sectors other than the ones generated by the regulation (for example capital requirements) and by the macroeconomic environment (like the consequences of different interest rates) and to limit the consequences caused by differences in the various markets (like in the labour one). For our investigation, we will consider banks operating in Germany, France, Spain, Finland, Netherlands and Portugal: these countries belong to the European Union and all of them use the Euro as national currency, so that the results of the comparison do not depend on monetary policy; in addition, we will consider even the weighted average value of all European countries to make a comparison with the banking sector of the continent. For our analysis we will use data coming from the European Central Bank Statistical Data Warehouse and we will consider only domestic banking groups and stand-alone banks of any size of each country not to influence the investigation with third countries players' performance.

Figure 6 – ROE of European countries (in percentage)



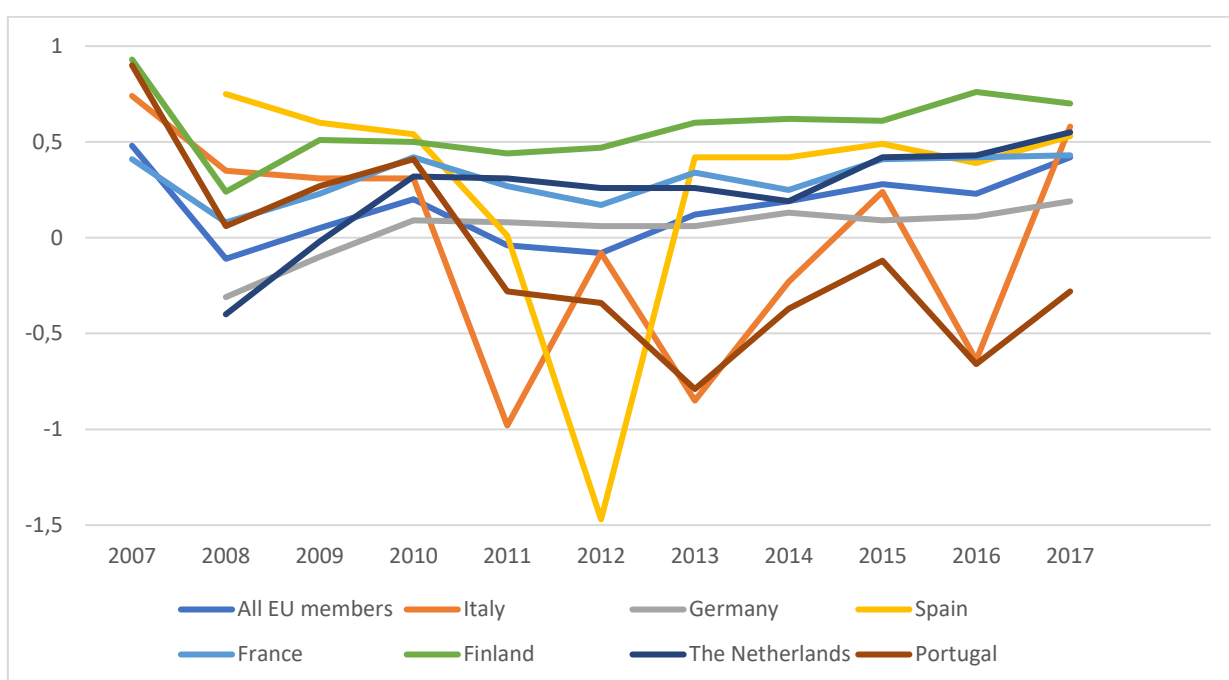
Sources: own elaboration on Statistical Data Warehouse, European Central Bank.

The first indicator is ROE. [Figure 6](#) shows the levels of ROE of the European banking sectors we decided to compare with the Italian one. Almost all the countries (with the only exception of Germany and the Netherlands) had a lower ROE in 2017 than the one they had in 2007: this was clearly an effect of the financial crisis which has hit the profitability of the whole European banking sector. In particular, the double-digit return on equity era seems to be a distant memory: while in 2007 the ROE of the European banking sector was 10.02%, with the beginning of the crisis the profitability strongly declined, reaching its minimum in 2008 (-2.78%) and, with an alternation between (small) positive and negative values, it remained below 5% until 2017, when it was equal to 5.79%. What is relevant is the different pattern followed by each country: for example, Germany's and the Netherlands' profitability lagged behind at the beginning of the crisis (2008), and their ROE was even negative, while all the other countries in the sample had positive returns during the same year. If we look at the values of the ratio in 2010, instead, we can see how the profitability of German and Dutch banks recovered and turned positive, even outperforming the average return, while all the other banking systems experienced a decline. Another important thing we can see from the graph is how there are three countries which were hit the most by the crisis and whose performances were almost constantly below the average: Italy, Portugal and Spain. Their profitability was strongly affected by the consequences of the financial crisis in the real economy, which in turn produced difficulties for householders and firms which led to a deterioration of the activities performed by banks, in particular in the market of loans and mortgages. An example is clearly visible in the ROE of the Spanish banking system in 2012: Royal Decree-Laws required extraordinary provisions to write down loans for real estate activities (McKinsey, 2016). Finally, looking at the graph we can see how during the last decade there was a reduction in the volatility of ROE, and the profitability of the different banking systems converged toward the average European value. Some countries (like Italy, Spain and Portugal) experienced a strong volatility in the return on equity of their banking systems, which was mainly due to the provisions requirements for bad loans that were asked by the supervisor and which strongly affected the net income of banks, while some other countries (like France and Finland) experienced less volatile returns thanks to more stable profits.

[Figure 7](#) shows the values of return on assets of the European banking systems in our sample. The considerations we have done about the ROE holds true even for the ROA: even using this indicator we can see how the crisis hit the profitability of European banks during the last decade. The average ROA passed from 0.48% in 2007 to 0.42% in 2017 (we remind that given the ROA

is not influenced by the leverage, a small change in ROA may lead to big changes in ROE, as we have seen), but during these ten years the average profitability of European banks became negative three times (in 2008, 2011 and 2012): this data provides a clear view about the strength of the crisis in the banking sectors of the continent. Even looking at this ratio we can see how the German and the Dutch banking systems registered lower (negative) values in 2008 and then they recovered, while the Spanish, the Portuguese and the Italian ones were the most affected countries and they experienced the most volatile returns. Finally, even the values of ROA tend to converge to the European average in the most recent years, although less markedly than ROE does.

Figure 7 – ROA of European countries (in percentage)

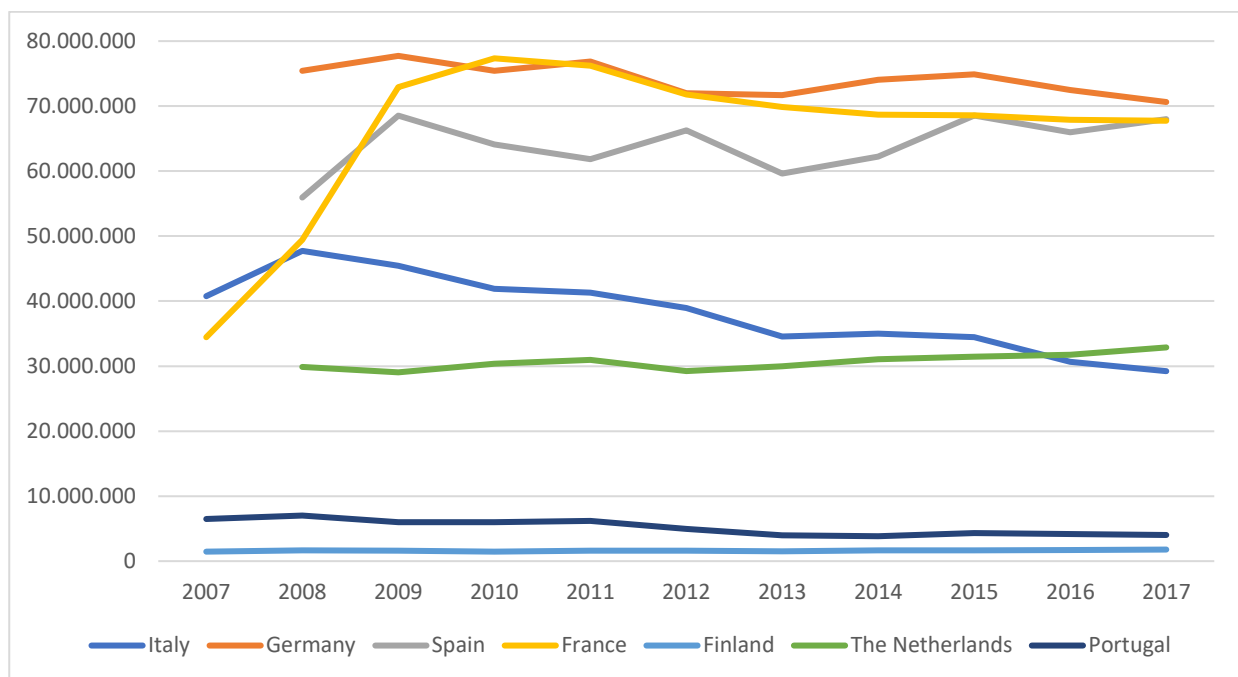


Sources: own elaboration on Statistical Data Warehouse, European Central Bank.

As we have done for the Italian banking system, now we focus on the first driver of bank's profitability, which is the analysis related to the composition and the volatility of earnings. Figure 8 represents the volume of NII for all the countries in our sample. As we can see from the graph, during the first years of the crisis (2008-2009) almost all the countries benefitted from the reduction of interest rates generated by the monetary policy of the European Central Bank, which in turn produced a decrease of bank's cost of financing and therefore generated an increase in the NII. This increment had different sizes in the different banking systems: in France, for example, it was very huge thanks to the EUR 111 billion support measures taken by the government which were vehiculated to the economy through the *Société de Financement de l'Économie Française* (Autorité de contrôle prudentiel, 2009); in Germany the increase was

only moderated, while in Finland and Portugal the situation remained almost the same. If we look at the remaining years (2010-2017), instead, we can see the different patterns followed by each banking system: some of them, like the German and the Portuguese ones, registered a slightly decreases in their NII, while the Dutch banking system was the only one that experienced an increase. Italian and French banks were the ones who suffered the most for the reduction of interest rates in the long run, while the Spanish one was the only one who maintained its volume of NII (even though with strong fluctuations during the years). Given these results, we can say that the reduction in interest rates produced a decrease in revenues generated by the lending and deposit-taking activity of banks, therefore we can say that a part of the overall decrease in profitability of banks registered by ROA and ROE is attributable to the reduction of the NII. Until now we have analysed only the profitability generated by the most traditional activity of banks, which is even the more stable and recurring component of income, but to have a comprehensive view about the profitability of banks we need to look even at the other components of revenues.

Figure 8 – Net interest income (in thousands of Euro)

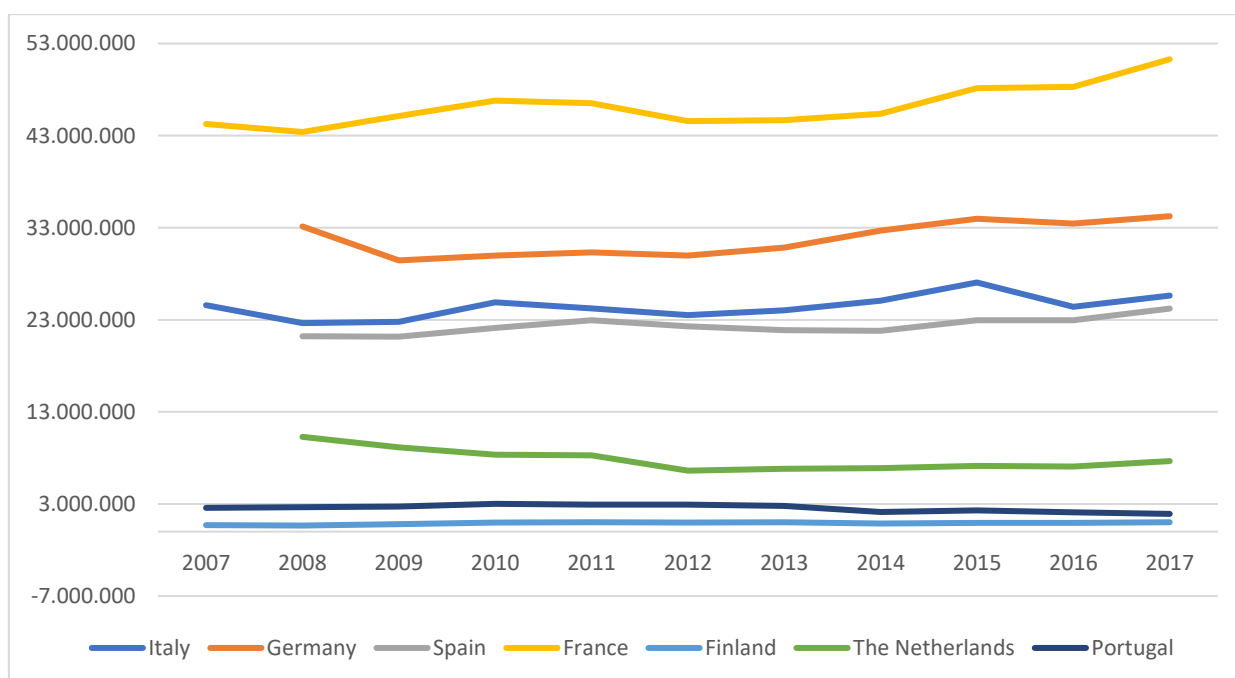


Sources: own elaboration on Statistical Data Warehouse, European Central Bank.

Figure 9 shows the volume of net fee and commission income of the countries in our sample during the last decade. As we can see from the graph, all the countries (with the exception of Netherlands and Portugal) registered in 2017 an increase in the volume of fees and commissions with respect to 2007: in some countries, like France and Spain, the increase was very strong,

while in some others, like Italy and Germany, the increase was significant but lower. As we have already pointed out in the analysis of the Italian banking system, the increase in this aggregate of the income statement is important since it demonstrates banks tried to retrieve the income they have lost due to the reduction in the NII by strengthening fee and commission generating activities. What is important to notice is the degree of volatility of these sources of income: in fact, looking at the graph we can see how in almost all the countries (excluding Finland and Portugal) the volume of commissions and fees doesn't follow a trend but tends to have quite substantial fluctuations. So not only Italian banks but even the other European ones tried to balance the reduction of the NII with commissions and fees: this is a way to diversify their sources of revenues and to contrast the worsening of their profitability, even though the variability of fees and commissions does not reduce the overall volatility of bank's profitability.

Figure 9 – Net fee and commission income (in thousands of Euro)

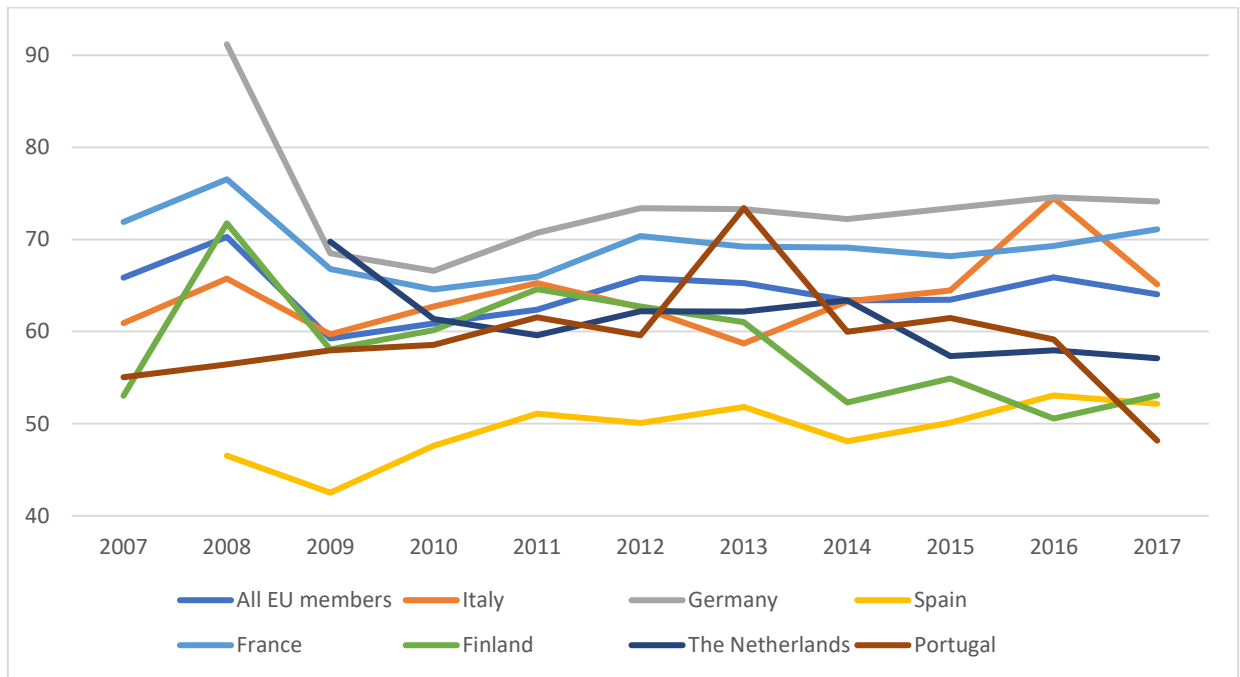


Sources: own elaboration on Statistical Data Warehouse, European Central Bank.

The next issue we will consider is the efficiency of the banking systems of the countries in our sample. [Figure 10](#) represents the cost-to-income ratio of the main European banking sectors during the last decade. As we can see from the graph, there was a lot of volatility during the observed period and today there is a lot of heterogeneity among countries in terms of efficiency. At the beginning of the crisis, in 2007-2008, the countries with the lowest cost-to-income ratio (with values below 60%) were Finland, Portugal and Spain, while the European average was 68.07%; Germany and the Netherlands, instead, were the less efficient countries, with ratios far over 80%. In the subsequent years, in particular in 2011, almost all the countries (with the

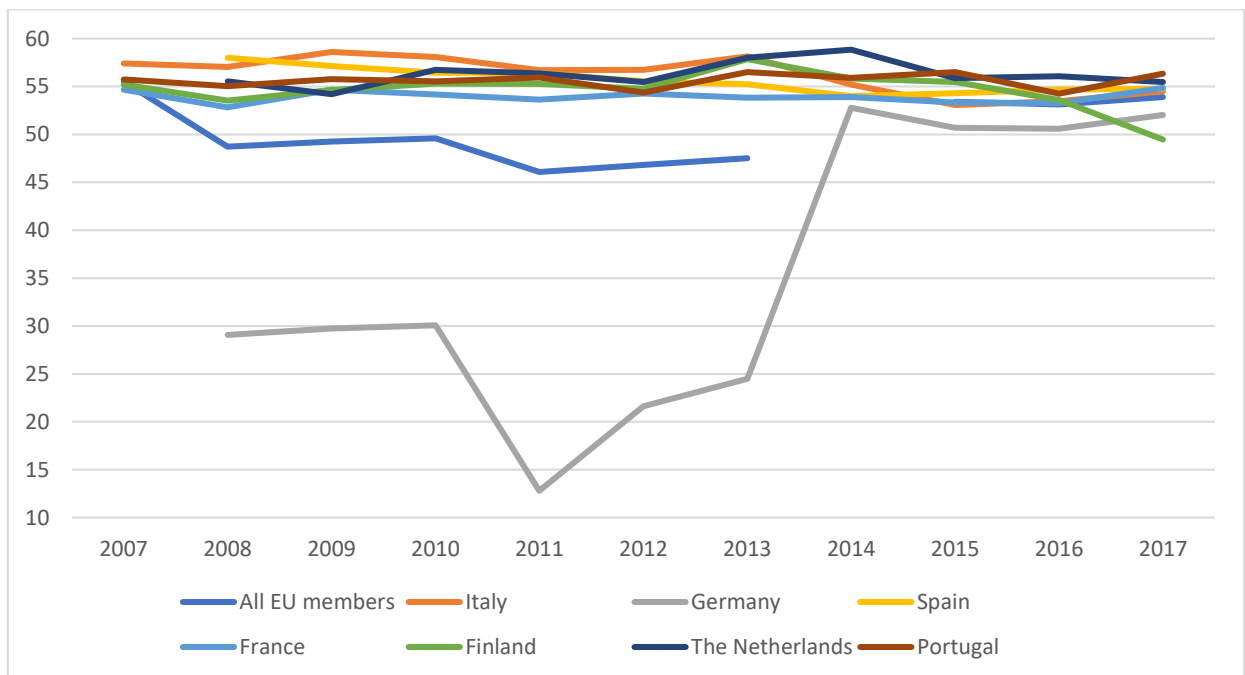
exceptions of Germany and the Netherlands, which improved their efficiency) registered an increase in their values of the ratio: this was mainly due to the reduction of the income of banks, which led to a decrease of the denominator and so to an increase of the ratio. From 2012 onwards, the average European value of the ratio was stable at around 65%: some countries like Finland, Portugal and the Netherlands experienced an increase of their efficiency which were due both to a reduction of operating costs and to an increase of their profitability, while some other countries (like France and Germany) maintained their values or they even suffered an increase (like Italy). To better understand the composition of bank's operating expenses we can look at [Figure 11](#), which represents the ratio between the total cost for staff and total operating expenses during the last decade. As we can see from the graph, each country followed a different pattern: Germany had the highest volatility in the sample due to the very high volume of operating expenses other than the administrative ones and depreciation during the period 2007-2014, while in the years later the situation was in line with the other countries in the sample. Other banking systems, instead, like the French and the Dutch ones, experienced almost stable values of the ratio during the observed period, while Italy, Spain and Finland registered a moderate but significant decrease in their ratios. In fact, due to the difficulties which may arise because of the laws connected with the legal systems of the different countries, even low reductions in the ratio represent huge steps forward to increase the operational efficiency of banks, but just as long as reductions are not the results of an increase in the denominator, so when they are not due to an increase of the overall costs of banks. The incidence of personnel expenses on total operating costs is an important indicator for banks to understand whether to take action in the company's organization to increase their operational efficiency: as pointed out even by Visco (2018), in fact, the profitability of Italian banks (but also of European ones) is still affected by the high impact of personnel costs. For banks it is very important to try to limit this impact since the other operating costs are forecasted to increase in the next years due to investments in new technologies which may not be extended anymore: by limiting the impact of personnel expenses, banks would have the possibility to make these investments without compromising their operational efficiency. As we have seen, for example, with the Italian case, some banking systems have already started working on that, while some others, like Germany, have still too high costs which must be reduced in the near future not to hinder new investments: given that reducing operating costs (in particular the ones connected with the personnel) is a process that takes time to bear fruits, it is important to make long-term planning and to start working immediately to achieve the result of a slow but continuous improvement of efficiency in the next years.

Figure 10 – Cost-to-income ratio (in percentage)



Sources: own elaboration on Statistical Data Warehouse, European Central Bank. Netherlands in 2008 equal to 203.4.

Figure 11 – Staff expenses (% of total expenses)



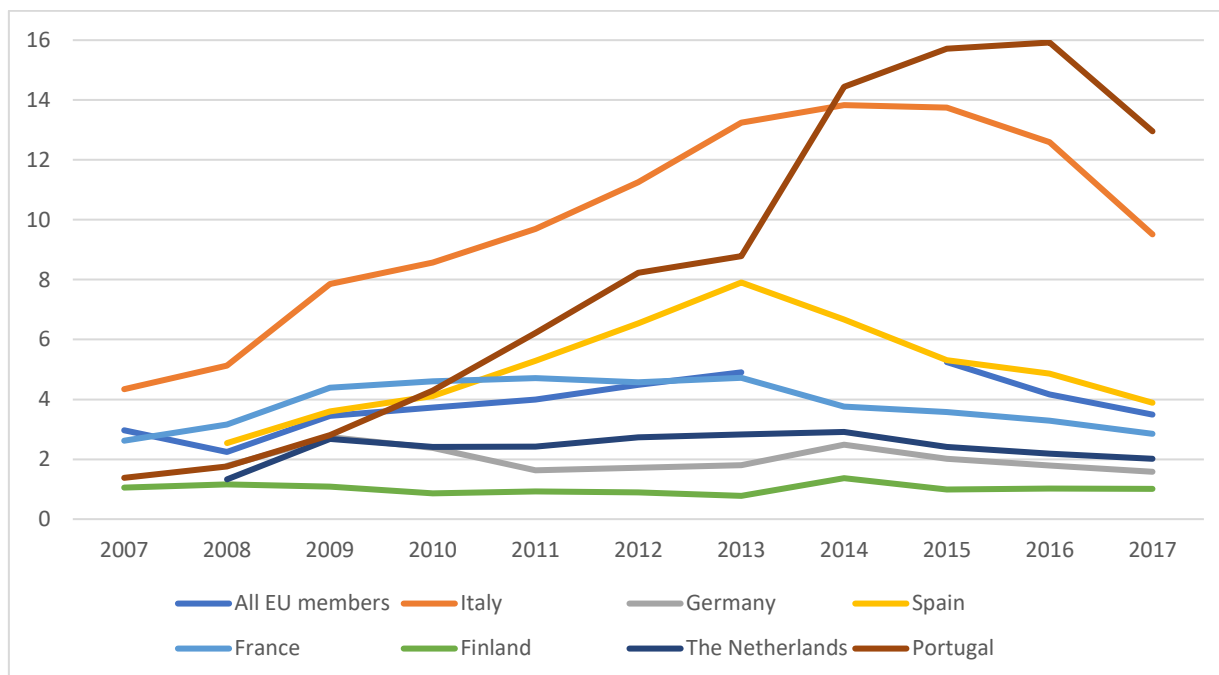
Sources: own elaboration on Statistical Data Warehouse, European Central Bank. All institutions and domestic banking groups and stand-alone banks.

The next issue we analyse is how the credit risk affected the profitability of European banks during the crisis. Unfortunately, there are no data available related to the amount of provisions

for non-performing loans for all the countries in our sample, therefore to perform our analysis we will consider the ratio between gross non-performing debt instruments and total gross debt instruments (whose values in the last decade are displayed in [Figure 12](#)), which can be used to guess the amount of provisions in the income statement of banks in each country and therefore their impact on profitability. As we can see, at the beginning of the crisis the values of this ratio were quite low and the percentage of non-performing instruments was on average 2.97%; in 2007, Italy was the only country above the European average, with a value of 4.34%. Years after years, when the financial crisis started affecting the real economy and the macroeconomic environment worsened, the number of non-performing loans started increasing everywhere and the countries who suffered the most for the crisis (like Italy, Spain and Portugal) experienced an important boost in their ratio: Italy reached a peak of 13.83% in 2014, Spain 7.91% in 2013 and Portugal 15.92% in 2016, while the EU average reached its maximum value of 5.25% in 2015; some other countries, like Finland and the Netherlands, instead, maintained a ratio below 4%. This translated in a dramatic increase of provisions for bad loans (even due to the requirement of the supervisor and regulators, as in the Spanish case) which heavily affected the net income of European banks, therefore reducing their profitability. In the last years, with the (moderate and not widespread) recovery and thanks to the cleaning of bank's balance sheet, the number of NPLs has reduced (this is visible looking at [Figure 12](#)), but they are still affecting the profitability of the banking sector (see for example the effect of provisions on the profitability of Italian banks in 2016) and they are forecasted to do so at least for a while.

Finally, in this Chapter we analyse the leverage of the European banking systems included in our sample. [Figure 13](#) shows the values of the equity multiplier ratio, which is defined as the ratio between the financial assets of banks belonging to a certain banking sector and their amount of equity. As we can see from the graph, in 2007 the values of the ratio of all the countries were below 15; with the beginning of the crisis in 2008, these values immediately increased all over the Europe, with some countries (like Germany, France, Netherlands and Italy) that reached values bigger than 20: this increase was due mainly to the negative performances of European banks (as already shown with the ROE analysis in [Figure 6](#)) which reduced the amount of equity of banks, therefore increasing their leverage. This phenomenon repeated in 2011 during the crisis of sovereign debts, when the level of Italian bank's leverage reached a value of 39.93 (which was a very alarming value, given that the threshold for a dangerous situation is at 30); in the subsequent years the value reduced thanks to capital injections and (small) positive returns, and in 2017 the equity multiplier ratio of the Italian banking system was equal to 18.14.

Figure 12 – Gross non-performing debt instruments (% of total gross debt instruments)

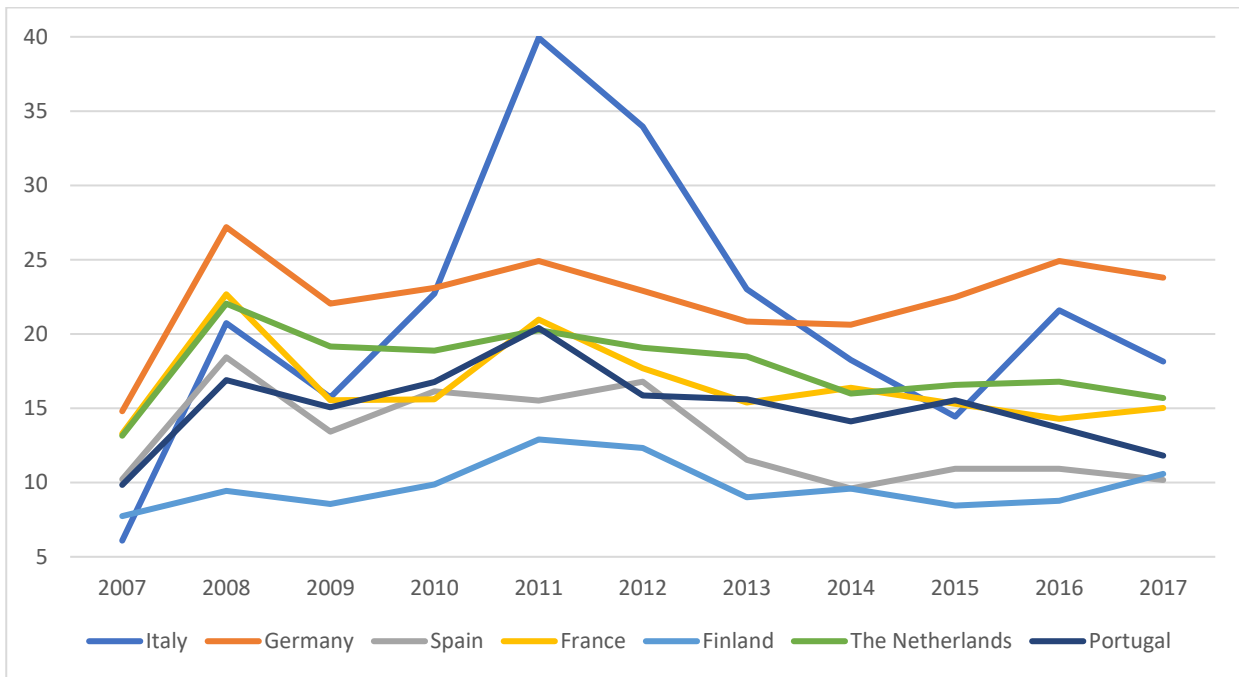


Sources: own elaboration on Statistical Data Warehouse, European Central Bank. Figures prior to 2014 reflect the national definition of non-performing exposures.

The dynamic of the ratio was different from country to country: some countries, like Germany, France and the Netherlands experienced strong increases in their leverage, while some other like Finland and Portugal suffered remarkable but lower surges. What is important to notice is that in 2017 the banking systems of all the countries in the sample (except for Spain) had a higher leverage with respect to the one they had in 2007, therefore increasing their solvency risk.

To conclude, after this cross-country analysis we can say that the Italian banking system suffered a lot during the crisis, and it experienced a strong reduction in its profitability: the three main problems we have identified in the previous paragraph were common to all the countries in our sample, but they hit the Italian banking sector more than they did with the other European ones. This happened basically due to two reasons: the first one is the business model adopted by Italian banks, which, as we have already said, focuses on money lending and deposit-taking activities and which relies poorly on digital resources. This, in turn, on one hand made Italian banks more vulnerable than the other ones to the effects of a decrease in the NII due to the reduction of market interest rates, while on the other hand the poor digitization and the high number of branches and employees determines a high volume of operating costs that heavily affects the efficiency of Italian banks.

Figure 13 – Equity multiplier ratio



Sources: own elaboration on OECD database. The ratio is computed as selected assets (including currency, deposits, debt securities and loans) to total equity (shares and other equity other than mutual fund shares).

The second reason why Italian banks suffered more than the other ones in the sample is related to macroeconomic country-specific factors like the GDP growth rate, the unemployment rate and the inflation rate. During the last decade, the Italian GDP growth rate was one of the lowest compared to the rate at which the economy of the other countries grew and this lack of wealth creation made more difficult for firms and householders to pay back their debts, increasing the volume of NPLs; in addition, the burden of financial debts increased due to the low inflation rate registered. This created a sort of circularity: the financial crisis affected the real economy, worsening the GDP growth, while the stagnation in the real economy affected the profitability of Italian banks because of the increase in the number of NPLs, therefore reducing the amount of credit provided by banks to the economy and so limiting the GDP growth rate. The situation of the other European countries is heterogeneous: even though all of them suffered due to the crisis, the effects were different. Some countries, like Spain and Portugal, were heavily affected by the consequences of the increase in number of NPLs, while some others, like Germany, suffered more because of their volumes of operating costs. Given these results, we can say that the problems that affect Italian banks are common to the other ones in Europe, but what differs is their impact on profitability and the way banks reacted to these problems. What is important to point out is that while the banking sectors of the other countries were helped with public aid (in particular the German one), the Italian one received just a small amount of money from the

State: this should be borne in mind when the results of the investigation are analysed. In the next Chapter we will investigate whether consolidation can be at least a partial solution to the problems that affect the Italian banking system.

Chapter 2

Why to perform bank's M&A

This Chapter will briefly analyse the recent M&A activities that were performed in Europe during the last decade; in addition, a focus will be dedicated to the consequences that these operations had on the concentration levels in the European countries belonging to our sample, trying to estimate also the impact on competition. Finally, we will analyse the different forms of M&As, investigating the benefits and the different risks associated with each transaction type.

2.1 Recent M&A activities in Europe

Given their impact on the market structure, M&A activities are an important phenomenon that must be considered when performing an analysis of the European banking sector. In particular, to understand the current situation of European banks and to formulate realistic hypothesis about the future events that will occur in the European banking industries in the future, analysts must consider the trends, the number and the types of transactions, but also the countries involved during the recent M&A waves. Before starting the analysis, it is important to point out that even though M&As typically produce important effects in the structure of the market where they occur, they are not reasons for change themselves, but they are responses to other changes in the market and to other driving forces, like evolutions in information technology, disintermediation processes and the integration of international markets (European Central Bank, 2000). In addition, the consequences produced by M&A activities in the market are typically considered positive by regulators and supervisors: banks may respond in different ways to competitive changes and, to survive, they must find the most adequate response, therefore increasing the overall efficiency of the market.

Until the 80s, the European financial industries were characterised by the strong presence of the State in the economy, which produced highly regulated markets and made government ownership a common tool of supervision and control, with the consequence that the market for corporate control was underdeveloped (European Central Bank, 2000). In addition, during this period, banking services were mainly local; therefore M&As were rarely the most efficient way to improve the efficiency of banks by changing their strategy or by consolidating the market. Starting the 80s and until the beginning of the 90s, a series of M&A activities occurred in the market of small European countries, like the Netherlands, leading to the creation of large

national banks ready to compete on a regional or national basis, greatly changing the banking market structure: this first M&A wave involved mainly institutions operating in the same financial sector, while universal banks and conglomerates will be born later on (Altunbas and Marqués, 2008). In particular, during this period, there were some privatisation waves in many European countries, so that many publicly owned banks were sold to private investors; at the same time, in some countries, like Germany, there was even a demutualisation process, so many institutions (and therefore many banks) converted from this organisational form to other private legal ones. The consequence of these two phenomena was an increase in the number of legal entities that, according to national laws, could take part to M&A deals (European Central Bank, 2000). Finally, there was even a geographical expansion toward emerging markets by countries that had historical connections with those territories: for example, Italian, Portuguese and Spanish banks expanded in Latin America, while banks located in eastern Europe were not very considered for M&A deals.

The financial integration of European countries has experienced an acceleration after the introduction of the Euro in 1999 and after the lowering of legal barriers, which had the aim to sustain the European banking unification (Deloitte, 2018). This, in turn, produced an acceleration in the number of M&A activities performed in the European banking sector, which was very high until the beginning of the financial crisis in 2007. [Figure 14](#) shows the number of operations performed in Europe during the period 2005-2016, divided into categories (Deloitte, 2018): domestic (M&As between Euro area countries); cross border, which involves a Euro area target and a non-Euro area acquirer; outward, which means a Euro area acquirer buys a non-Euro area target (inside or outside the EU); inward, when a non-Euro area acquirer (inside or outside the EU) buys a Euro area target. Considering the graph, we can see how in the period 2005-2007 the number of M&As was much larger than in the subsequent period of crisis (2008-2016): in fact, during the first three years, the average number of all types of M&As that were carried out was 63, while from 2008 onwards the average was 32. This means that one of the effects produced by the crisis was a slowdown in the bank's consolidation process: in particular, this was related mainly to M&As other than domestic operations, which have been the ones that were affected the least by the crisis during the entire period (even though they were characterized by huge volatility). Starting 2008 there was a reduction in the number of outward non-Euro area M&As, while from 2012 onwards the same happened for the number of cross border operations. There are different reasons which could explain this decline:

- After the collapse of Lehman Brothers, the regulatory framework aimed at avoiding concerns related to “too big to fail” institutions in the European banking system and

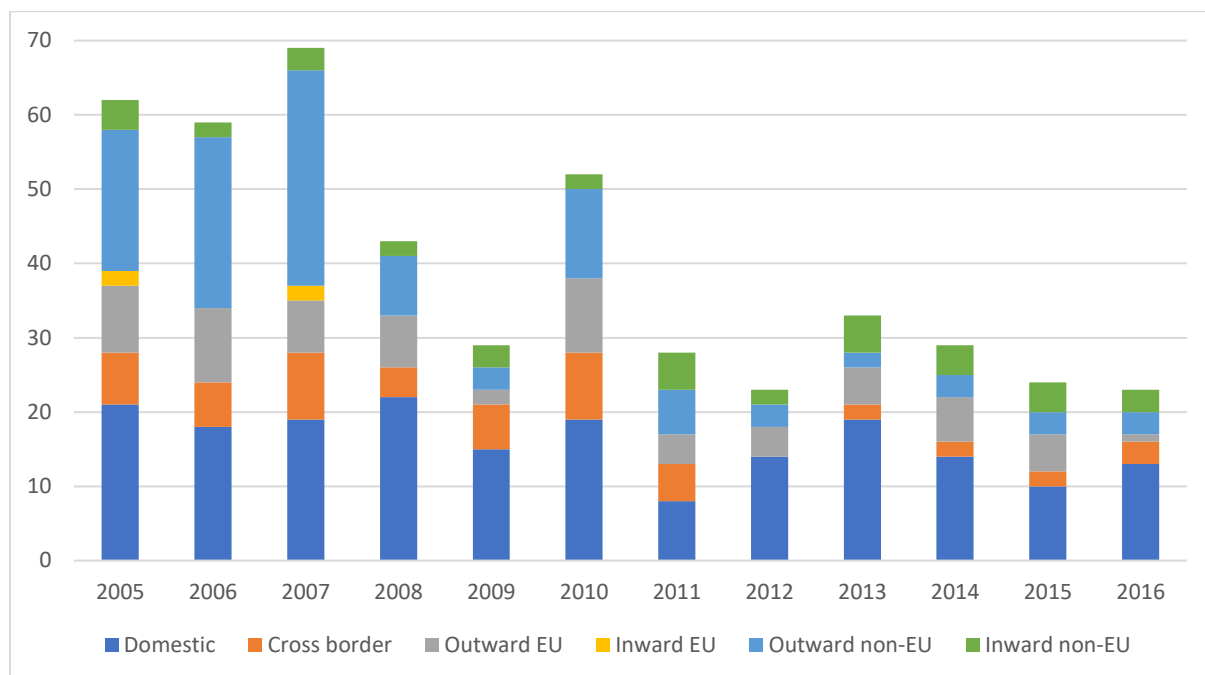
this, in turn, facilitated the maintenance of a fragmentation in the European banking market. In addition, a lack of integrated regulatory and supervisory structures at European level has hampered M&As among Euro and non-Euro area European banks: if, on one hand, the Banking Union and the Single Rulebook aim at creating a unified European banking market by harmonising and standardising the national ones, on the other hand there are still various and important differences between the single national regulations and supervisory mechanisms which prevent banks from performing M&As, like, for example, discrepancies in insolvency laws and in deposit guarantee schemes: therefore, investing in multiple jurisdiction represents a risk for banks due to regulatory obstacles and stringent compliance rules (Deloitte, 2018).

- During the crisis, CEOs had defensive mindsets, so they were not interested in M&As as an alternative to expand their business but only as a way to defend their market position. This was shown even by CEOs' and CFOs' confidence indexes, which has started increasing only after 2014; although this increase, in 2017 they were still lower than the ones registered before the crisis (PWC, 2018). Expansion by acquisitions or expansion to new countries became a priority of European CFOs only starting 2018 (Deloitte, 2018).
- The crisis produced strong effects on bank's profitability, as showed in the previous Chapter, therefore banks were more careful about performing M&A operations and more concerned about the sustainability and the risks of these kind of activities. In addition, even though the financial crisis could represent a good opportunity for healthy banks to acquire assets from institutions which needed to strengthen their liquidity or capital indicators, during that period acquirers had to face even stricter regulatory controls which have prevented banks from proceeding with acquisitions (Beltratti and Paladino, 2013). In fact, policy makers were worried about the impact of bank's consolidation in the economy: on one hand, there is an effect generated by M&As in the transmission mechanism of monetary policy (an increase in concentration is associated with an increase of loan interest rates in local markets, so hampering the pass-through from market to bank lending rates) while, on the other hand, there are no significant effect in the volume of loan supply to small and medium firms (Altunbas and Ibañez, 2004).

The consequence was that domestic M&A operations (even though they were relatively few in number) became the most diffused ones, in particular at a national level, between small regional banks. This widespread downturn in the number of M&A activities all over Europe during the

crisis produced an important effect on the degree of concentration in the European banking sector, which will be analysed in the next paragraph.

Figure 14 – Bank’s M&As in Europe (number of transactions)



Source: own elaboration on Deloitte (2018). M&As refers to transactions where the acquired stake of the target is more than the 20%. Transactions for which the amount paid is not reported are excluded. Cross border operations involve Euro area targets and non-Euro area acquirers. Inward refers to operations by non-EU or non-euro area EU banks in the Euro area. Outward refers to operations carried out by Euro area banks outside the Euro area.

2.2 Concentration in the European banking system

Two methods are usually applied to measure the degree of concentration in an industry: the concentration ratio and the Herfindahl-Hirschman index. The concentration ratio (CR_n) is defined as the percentage market share of the n biggest firms in an industry (the size is typically measured in terms of total assets): for example, in the case of CR_4 , the ratio measures the market share of the four biggest firms in the industry. The concentration ratio is an important indicator for the regulator and for firm’s managers since, by describing the competitive structure of the market, it allows them to take optimal decisions respectively related to the market regulation and to the corporate strategy: in fact, depending on the degree of concentration, the regulator may decide to remove legal barriers to encourage new entrants or not to authorise an acquisition that would reduce too much the competition in the market, while managers may change their pricing policy depending on their market share. The ratio may range from values close to 0% (zero excluded, and in this case there is perfect competition in the market – this happens only in case of a large number of firms in the industry) to 100% (which means there is a monopoly).

Depending on the value of the CR_n , analysts can assume that the market has a different competitive structure: for $0% < CR_n < 40%$, the market ranges from perfect competition to a weak oligopoly; for $40% < CR_n < 70%$, the industry is an oligopoly; for $70% < CR_n < 100%$ the market ranges from a concentrated oligopoly to a monopoly.

Even though the concentration ratio is simple to be used and it provides useful information, there are some shortcomings that must be kept in mind: first, the ratio does not provide any information about the size of the companies under analysis. When an analyst uses the CR_n , he doesn't know how the market shares are allocated among the n biggest firms, so he doesn't know whether there are more oligopolistic firms or just one monopolist. In addition, the concentration ratio does not provide any information about the competitive behaviour of the firms in an industry: there is the possibility that an industry with a low concentration ratio is less competitive than another one with a bigger value. This is due to the fact that companies may decide to behave differently depending on the regulation and on the characteristics of the market; therefore, analysts must be careful when they study the degree of competition in an industry: they should perform some other complementary analysis to correctly estimate the structure of the market. Furthermore, the concentration ratio does not describe the reason for a change in its value: for example, in case of a decrease of the ratio, an analyst is not able to understand whether the reduction was due to a drop in the amount of the biggest firms' assets or to an increase of the overall number of firms in the industry (so due to new entrants). Finally, the concentration ratio is generally used at a national level, but depending on the industry and on the regulation, firms may decide to sell their products in the national country market or to export them. Given that the market power of a monopolist is bigger in the case it sells its products in the local market rather than in the national or in global ones, same concentration ratios may not indicate the same monopoly power (Pavic *et al.*, 2016).

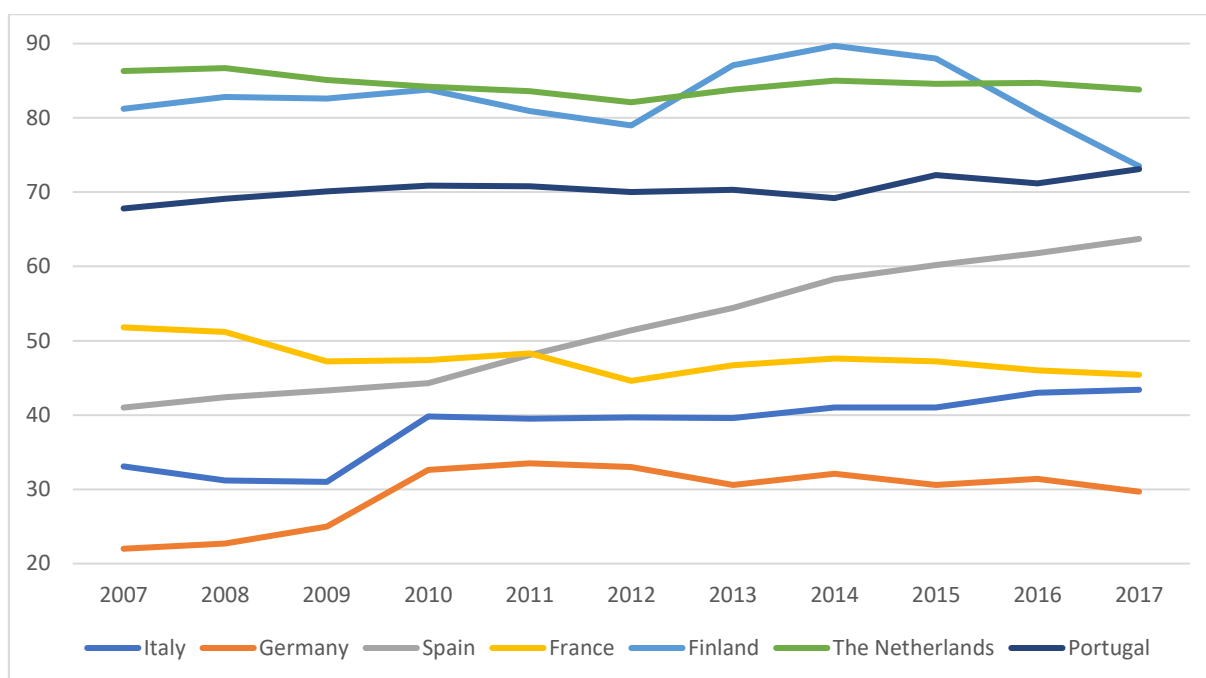
Figure 15 shows the values of the concentration ratio for the countries in the sample we have used in Chapter 1. The ratio was calculated considering the market shares of the five biggest domestic credit institutions (CR_5 , measured on total assets) for the period 2007-2017. Given the objective of our analysis, data are unconsolidated, which implies that only banking assets are considered, while consolidated statement of a financial group include also assets of non-banking subsidiaries of the credit institution: this means that by using consolidated data, so considering all the assets of banking groups, results would probably be quite different. As we can see from the graph, the situation of European banking industries was very heterogeneous and there were huge differences from country to country. The German and the Italian banking sectors were the less concentrated ones before the crisis, with values equal respectively to 22%

and 33.1%, and they still are, even though they experienced an increase up to 29.7% and 43.4% in 2017. The Dutch, the Finnish and the Portuguese banking industries, instead, are still the most concentrated ones, as they were ten years ago, with values above 70%; in particular, while the Portugal's and the Netherlands' dynamics were stable, Finland's one reached a peak in 2014, with a concentration equal to 89.7%, and then it gradually reduced, reaching a value of 73.5% in 2017. In the middle, there are the French and the Spanish banking sectors, which followed opposite trends: the French one is becoming less concentrated, moving from 51.8% of 2007 to 45.4% of 2017, while the Spanish one experienced a rapid increase in concentration, passing from a value of 41% in 2007 to 63.7% in 2017. From this analysis, we can see how, during the last ten years, the countries with the lowest values of concentration ratio (including Italy) were characterised by a consolidation process in their banking sectors, which was the result of M&A activities that were performed mainly by the biggest national banking groups: with respect to 2007, the five biggest credit institutions increased their market share by 22.7% in Spain, by 10.3% in Italy, by 7.7% in Germany and by 5.3% in Portugal. Pagano and Langfield (2014) explained that this increase was also driven by the way European authorities decided to face the problem of distressed banks during the years of the crisis: their solution was not to resolve these institutions, but to rescue them by encouraging mergers or acquisitions with the biggest domestic banks, without considering the effects on competition due to an excessive concentration.

The information provided by the concentration ratio is useful not only to understand the dynamic of banking market's concentration in a country, but also to predict what is going to happen in the next years: given the recent acquisitions performed by the biggest banking groups in Italy, for example, it is very unlikely that in the future they will perform new acquisitions since they have already employed a huge amount of resources, not only monetary ones. In fact, even though the price paid by the acquirer is usually very large, performing acquisitions is not only costly from a financial point of view, but also from an organizational one since, in order to be wealth generating, an acquisition must be followed by a complete integration of the target in the acquirer's group to eliminate redundant costs and so to generate economies of scale. Therefore, given the low level of concentration in the Italian banking system, we can expect that future consolidation processes in Italy will be related to smaller banking groups, as expected by Oliver Wyman (2017) and KPMG (2018b), even because none of the Italian biggest banking groups has enough resources to acquire one of its peers. The same reasoning holds for Germany and France, while it is very unlikely that countries like the Netherlands,

Finland and Portugal will experience any national M&A activity in the near future, given their high concentration ratios.

Figure 15 – CR₅ of sample (percentage points)



Source: own elaboration on Statistical Data Warehouse, European Central Bank. Based on total assets.

The second indicator used to assess the degree of concentration in an industry is the Herfindahl-Hirschman index, also known as HHI or HHI-score, which measures the size of all the firms in an industry and it provides information about the degree of competition within that market. It is defined as the sum of the squares of all companies' market shares, as follows:

$$HHI = \sum_{i=1}^n (MS_i)^2$$

where MS_i is the market share of the i^{th} firm and n is the total number of firms in the industry. HHI values range from 0 to 10,000, if market shares are expressed as percentages, or from 0 to 1, in case market shares are expressed in fractions: for values lower 100 (or 0.01) the industry is highly competitive, so not concentrated; for values between 100 (or 0.01) to 1,500 (or 0.15) the industry is considered to be not concentrated; for values between 1,500 (or 0.15) to 2,500 (or 0.25) the industry is moderately concentrated; for values above 2,500 (or 0.25) there is high concentration in the market. A general tendency is that smaller countries tend to have higher level of concentration ratios and vice versa. The Herfindahl index is generally preferred to the concentration ratio since it considers the distribution of all the companies' market shares and

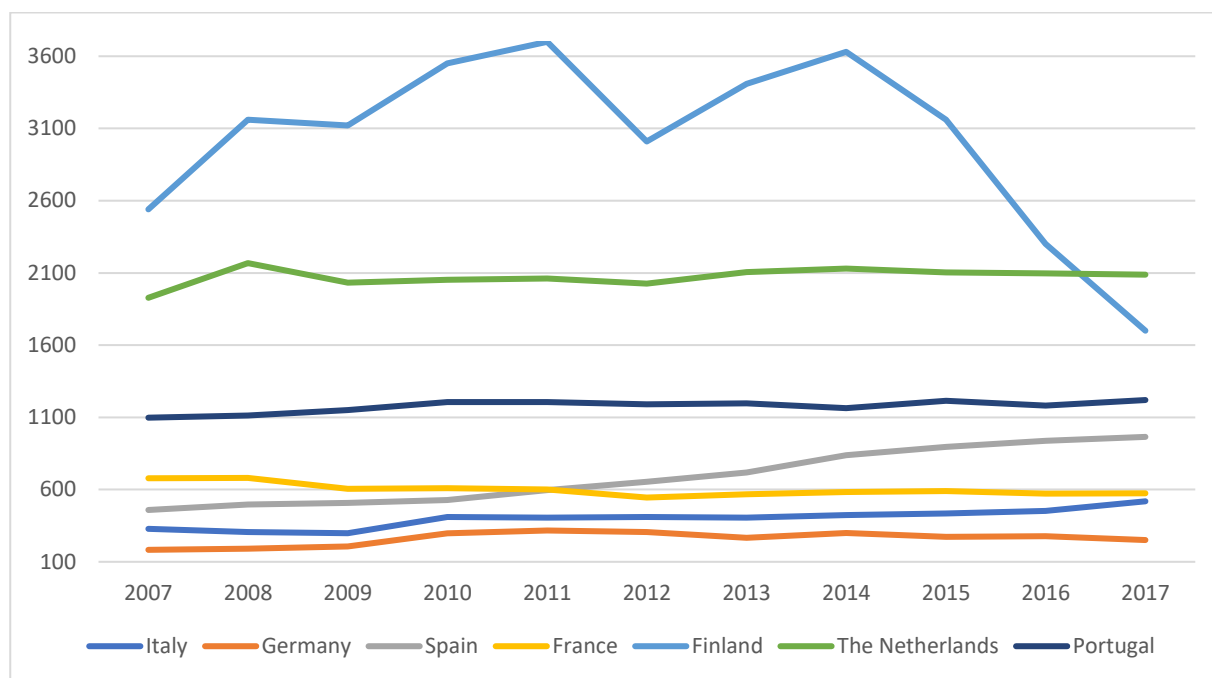
not only the ones of the first n biggest firms in the industry, as the CR_n does. In addition, it doesn't capture only the dispersion of market shares but also the number of firms in the market, therefore it is size-sensitive with respect to the number of firms (Belleflamme and Peitz, 2015). Another shortcoming of the CR_n ratio is that the decision about how many n largest banks to consider is arbitrary, while in the HHI there is not this problem since it considers the market shares of all the institutions. At the same time, the HHI seems to be more difficult to read, while the CR_n is easier to be interpreted. For all these reasons, the HHI is used by supervisors, like the U.S. Department of Justice, during the scrutiny to decide whether a transaction breaches antitrust rules: in particular, if a transaction produces an increase in the HHI of more than 200 points, deal makers have to prove that the acquisition/horizontal merger does not lead the industry toward a monopolistic scenario.

The main shortcoming related to the use of the HHI is to define properly the market under analysis, both from a substitutability and from a geographical point of view: for what concerns the first problem, analysts should pay attention when they analyse firms that may offer more services, like banks. They should bear in mind that, using the same sample of institutions, they may get different results depending on which product/service market shares they consider and, at the same time, they should remember that commercial banks and investment ones are not substitutable for customers; therefore, in doing their analysis, analysts must consider which product they are studying and its substitutability with other ones to correctly draw their conclusions. For what concerns the second shortcoming, instead, analysts should choose a geographic scope when they define which market to analyse: for example, using the HHI, an industry may result to be an oligopoly on a national scale, but if the territory under analysis is restricted to a single region, it may result to be a monopoly. This depends on the importance to be local for the business: the more a product/service is regional, the more there is the possibility for its producer to be a monopolist on a regional basis.

Figure 16 shows the values of the Herfindahl-Hirschman index for the banking sectors of European countries during the last ten years. The HHI tends to follow the same dynamic of the CR_5 , leading to similar conclusions: Finland and the Netherlands are the countries in which the concentration of the banking sector is higher. Starting 2007, the Finnish banking industry experienced a huge increase in its concentration (with a peak of 3.700 in 2011) which lasted until 2014; from 2015 onwards, Finland experienced a reduction in the value of the ratio, reaching a value of 1.700 in 2017. For what concerns the Netherlands, instead, the value of their ratio was almost stable during the last ten years, even though it was quite high (around 2.100), signalling that even in this country the concentration in the banking industry was (and still is)

high, so that we can say it is an oligopoly. Italy, Germany, and France registered the lowest values among the countries in the sample. In particular, France experienced a slight reduction of its already low index during the decade: the concentration ratio and the Herfindahl index of the French banking industry are low also due to the so called “popular savings products”, which form a large part of national deposits and which are sold by a limited distribution network (such as *Crédit mutuel* and savings banks). What influenced the extraordinary success of these savings products was a specific favourable fiscal treatment and the fact that their interest rate is determined directly by the government; in addition, the coverage of the territory by mutual banks (like *Crédit Agricole*) is very large in France, and this represents a clearly large advantage in the collection of deposits (European Central Bank, 2000). For what concerns the HHI of Italy and Germany, they registered a modest increase in the observed period: both these two trends were detected also by the concentration ratio. For what concerns the Spanish banking sector, during the decade it registered an important increase (+500 points) in its concentration: the reason of this surge were the domestic M&A activities that took place in the recent years, like the takeover of Banco Popular performed by Banco Santander (KPMG, 2018b). Finally, a relevant case is the Portuguese one: even though using the concentration ratio the Portuguese banking sector seemed to be very concentrated, looking at the HHI values related to the same period we can see how its level of concentration is not that high. This difference is easy to explain: on one hand, the assets of the four biggest banking institutions amount to about the 70% of total assets in the Portuguese market, but on the other hand these banks have more or less the same market share, so the HHI detects a lower degree of competition in the industry. In fact, as the CR_5 , even the HHI takes the biggest institution mostly into account, since the importance of the market share of the biggest institutions is emphasized through the calculation of the index (the largest the market share of a company, the largest is its square and so the bigger its weight in the final ratio); the main difference, instead, relies on the fact that while the HHI studies the whole structure of the banking market, the CR_5 considers only the market shares of the five biggest institutions in the industry: this is due to the fact that the HHI takes into account also the tail of the distribution, while the CR_5 disregards all the institutions other than the five largest in the market.

Figure 16 – Herfindahl-Hirschman index



Source: own elaboration on Statistical Data Warehouse, European Central Bank. Based on total assets.

This analysis showed the heterogeneity in terms of banking concentration among the European countries: some of them, like Portugal, Finland and the Netherlands, registered a high level of concentration in their market, which will likely discourage further national acquisitions during the next years, while the other ones, like Germany, Italy and France, are still fragmented and they are forecasted to experience new acquisitions among mid-tier banks. As highlighted by the European Central Bank (2000), there seems to exist a relationship between the size of the country, the level of concentration in its banking system and M&A activity: the smaller the size of the country, the higher tend to be the concentration ratio and the Herfindahl index and the lower tend to be M&A activities.

2.3 Types of M&A deals

When two institutions are going to perform an M&A operation, the pattern they are going to follow depends on a lot of factors: the market sector in which they operate (as pointed out by literature, mutual banks, universal banks and publicly owned banks typically perform different types of transactions), the target's and the acquirer's size, but there are also some tax related issues that play an important role in the final decision. In addition, there are relevant differences not only from country to country, but even between the choices made by the different types of institutions (like conglomerates or groups) that operate within the same country. All these

factors affect not only the type of deal that institutions decide to perform, but also the legal form that is going to be adopted by the new entity after the operation. Many decisions can be taken in accordance with the strategy that the acquirer is going to follow: for example, as reported by supervisory authorities, many times the initial acquisition performed by a credit institution tends to be followed by a merger at a later stage, in particular when there is an overlap in terms of geographical or business areas; another possibility is the adoption of an holding structure, which is a relatively recent phenomenon, quite common in some countries like Finland and the Netherlands. Finding the best legal and organisational structure is probably one of the most important issues in a deal: in fact, it is very hard for managers and the other governing bodies to direct and control the processes and the activities of the group and to comply with legal requirements and rules when the organisational structure is not in line with the legal one, with the risk to destroy value for shareholders and to be castigated by authorities with fines and penalties.

Supervisory authorities play a very important role during all the phases of the transaction process, in particular at the beginning of the operation: in fact, authorities have to ensure that, during the whole process, rules are respected and that a certain degree of transparency toward the market is guaranteed (both at a single company and at a consolidated level), but the most important role they have is to authorise M&A operations. The impact of M&As on the market structure (in terms of distortion of market competition and capacity – measured as the number of branches and employees) in which M&As occur is bigger the larger is the size of the institutions involved: this means that supervisory authorities consider M&As between small regional banks less critical than M&As between large national or international institutions (European Central Bank, 2000). In particular, in forecasting the possible consequences produced by M&A activities, authorities must consider that the degree of market concentration and the capacity of the industry are influenced by different factors and, therefore, the timing of consequences produced on them by deals is different: concentration is immediately affected by M&A transactions (since the concentration ratio and the Herfindahl index immediately capture the effect of a change in market shares), while capacity depends on the setting-up of new companies, on technology and labour market conditions, and all these factors produce their effect on it typically with a time lapse of two years, which is the time required by banks to rationalise their organisation after the operation (European Central Bank, 2000). In relation to these criticalities, institutions involved in the transactions need to receive, depending on the country, an explicit authorisation or a quasi-authorisation (in other terms an absence of veto by authorities) to proceed with the operation: to avoid possible problems after the announcement

of the deal, there are usually contacts between the institutions involved and supervisory authorities at an earlier stage, so that the compliance with the rules is previously assessed (in particular, requirements for the stability of shareholders, liquidity capital and large exposures issues are checked). For what concerns the structure adopted by the group after the transaction, instead, supervisory authorities typically require only a match between the legal and the organisational structure to guarantee an adequate exercise of the supervision and also to check the legal correctness of decision-making processes inside the company. Additional concerns for authorities, finally, are the position of minorities and the legal correctness of shareholders' agreements, the correct treatment of goodwill and the consistency of resources to fund the acquisition.

To provide a general but exhaustive view about the different types of M&A transactions we can use a matrix that considers as dimensions the industrial sector in which the two institutions operate and the number of countries involved in the transaction, as shown in Figure 17:

Figure 17 – types of M&A deals

	Domestic	International
Between credit institutions	Domestic bank M&As	International bank M&As
Across sectors	Domestic conglomeration	International conglomeration

Source: European Central Bank (2000).

As we can see from Figure 17, we can identify four main types of transactions: domestic bank M&As involve credit institutions that operate in the same country, while international bank M&As are transactions that involve a European credit institution with one located outside Europe. Domestic conglomerations, instead, are M&As between a credit institution and a different financial institution (the typical case is the one with an insurance company) that are located in the same country, while international conglomerations are transactions between a European credit institution and a financial one located outside Europe, and they follow typically an international bank M&A which produced the benefit of extending the range of products sold in foreign markets to take advantages of cross selling possibilities. In case banks are located in different countries (international bank M&As) or in case they operate within the same country but they serve different regions or business areas (domestic bank M&As), it is less likely that a merger follows an initial acquisition; the same decision can be taken to maintain and exploit a recognised brand name, but in this case a partial solution can be to perform a merger only at a holding company level.

An important phenomenon that has rapidly increase in the banking sector during the last twenty years is the one of conglomerates, which consists “[...] in the process leading to the creation of groups of financial companies operating in different sectors of the financial industry” (European Central Bank, 2000, p.7). With this type of transaction, many banks expanded their business into investment management and assets management, which revealed to be very important activities during the recent financial crisis thanks to their revenue diversification component. Banks started expanding toward asset management during the late 90s: the fact that banks expanded toward other financial activities more than the other financial institutions did toward the banking activity can be explained considering the high barriers to entry of the banking industry, which are stronger than in the other financial activities like insurance; in addition, during the late 90s, the banking industry was already quite developed, more than the other financial sectors were. Today the most diffused type of conglomerates are the ones that involve the banking activities and the life insurance ones, with the benefit of linking institutions that are characterised by short-term liabilities and long-term assets (banks) with institutions that have an inverse term transformation (insurance companies); in addition, many times these kind of bank-driven operations are performed to optimise the use of different distribution networks and to acquire technologies or other relevant skills (European Central Bank, 2000). The degree of conglomeration depends on the size and the importance of the individual companies: the bigger the companies involved in this type of transaction and their relevance, the larger is the degree of conglomeration of the group. There are different ways by which banks may create a conglomerate (through M&As or by setting up a company in a different financial sector) and there are also different organisational forms that can be adopted (for example, the leading company, so the one that coordinates the others, can be a credit institution, a holding company or a different financial institution). In case the target of the bank is to offer different financial services, it may be achieved even exploiting other jointly organised ways:

- Cooperation agreements, the less integrated forms, which are typically used in the case when banks sell insurance products labelled with the insurance company name;
- Joint ventures, which are typically created by savings banks and cooperative ones with insurance companies to provide asset management, stock-broking and settlement activities together with insurance products, exploiting even marketing and distributional opportunities;
- Banks may establish new subsidiaries to develop the insurance business and the products generated in this way are distributed through the bank’s network;

- A bank and an insurance company merge at a holding level or a bank acquires an insurance company, which becomes one of its subsidiaries; this is the most integrated form.

The last two cases are particular types of conglomerates. In addition, many times these kinds of agreements are steps anticipating further integration that will involve ownership elements. In fact, many times the consolidation process in conglomerates is quite long and complicated, involving more steps: typically, the structure generated by the initial consolidation is very intricate due to information asymmetry and due to the difficulties in planning which double resources to eliminate; then, in a second moment, the organisational structure is simplified and managerial procedures are streamlined, simplifying the organisational and the supervisory lines, to eliminate market inefficiencies, so that the acquirer's management obtains the approval of its shareholders and the resulting group complies with taxation and regulation restrictions (as we have already pointed out, supervisory authorities play an important role during the whole acquisition process). When groups are big and complex, the structure that is typically adopted is the one characterised by a holding company (European Central Bank, 2000).

2.4 Benefits from M&A

The fact that a market is characterised by M&A activities represents a health indicator of how the industry reacts to changing pressures and companies adapt to them; in addition, the possibility to perform acquisitions in the market represents a good opportunity for managers to increase the efficiency of their institutions (not only through acquisitions but also through divestitures) to boost shareholder's value, which should be their ultimate goal. The rationale of M&A activities tends to be different according to the type of deal, the size of the institutions involved and the target region (European Central Bank, 2000). According to managers, the main reason to perform bank M&As is to increase profitability (European Central Bank, 2000): for what concerns domestic operations, this should be obtained through cost reduction benefits generated by economies of scale, while international conglomerates should increase the level of profitability through revenues-related benefits generated by economies of scope. What is important to notice is that, while forecasts on cost reduction are made looking at the combined historical annual costs, expected benefits in terms of revenues are estimated on the basis of cross-selling possibilities and expectations on market development: therefore, cost saving benefits tend to be more realistic and accurate than revenue improving ones. In fact, also for this reason, there seem to be quite big differences between the findings in the economic literature and the opinions expressed by banking managers: the latter expect higher benefits

from economies of scale than the ones register by researchers. There are different ways to explain this discrepancy: the first one is that banks, in performing their M&As, react to market changes rather than on the findings of econometric studies; this means that while M&As tend to be quasi-immediate reactions to changes in market conditions, econometric studies register these changes with a certain time lag, since they use past data and since it takes time (from two to three years) to complete the implementation of the acquisition, and so to measure that final returns on a quantitative basis. In particular, cost-related benefits seem to take more time to be achieved than cross selling ones, given that they require a higher degree of implementation between the two entities involved in the transaction to produce their effects. In addition, it is quite hard for econometrics to correctly estimate economies of scale generated by post-acquisitions restructuring processes. The same discrepancy exists even in relation to economies of scope: even though it seems to be appealing to use an already existent wider distribution network to distribute a deeper range of products, econometric studies have failed to find the benefits that managers expect to achieve through M&A operations. What the literature supports, instead, is that domestic M&As among equally sized banks tend to improve significantly inefficiencies that are typical in the banking sector, leading to achieve the so-called X-efficiency, which means that banks use the latest technology available in the market to transform inputs into outputs, minimising therefore the amount of waste produced during the process (European Central Bank, 2000). To achieve this result, it is not enough to focus diligently on the usage of inputs and outputs, but there is the need to revise and to reorganise the processes and the activities performed by the bank: for this reason, M&As represent a good moment to perform these kinds of operations and so efficiency seems to be an M&A driver better than economies of scale and economies of scope are.

As we have already said, M&As are not driving forces themselves, but they are consequences produced by other driving forces and events that occur in the market: the most important ones are technological changes and improvements. In fact, technological changes, in combination with new outsourcing opportunities, alter the cost structure and the capacity of banks, requiring them to rationalise their production function (European Central Bank, 2000). Other important reasons that led (and continue to lead) banks to perform M&As are the disintermediation and internationalisation processes that took place in the recent years, together with the establishment of the European monetary union and the ongoing creation of the European banking union: all these happenings rapidly changed the market structure in which banks operated, requiring them to perform M&As to adapt preventively to the new market conditions. Typically, these operations are conducted on a voluntary basis to reduce the excess capacity but, in some cases,

they can also be promoted by governments and regulators (see Visco, 2018) as market-based rescue operations for institutions in financial distress: in this case, M&As tend to reflect the existing relations between the institutions involved. This kind of operations are generally preferred to the ones that involve authorities (and so taxpayers' money) or deposit insurance schemes (bail in) since the market trust in the sector is not affected and market competition is not distorted, given that the market itself was eliminating the less efficient firms in the industry (European Central Bank, 2000).

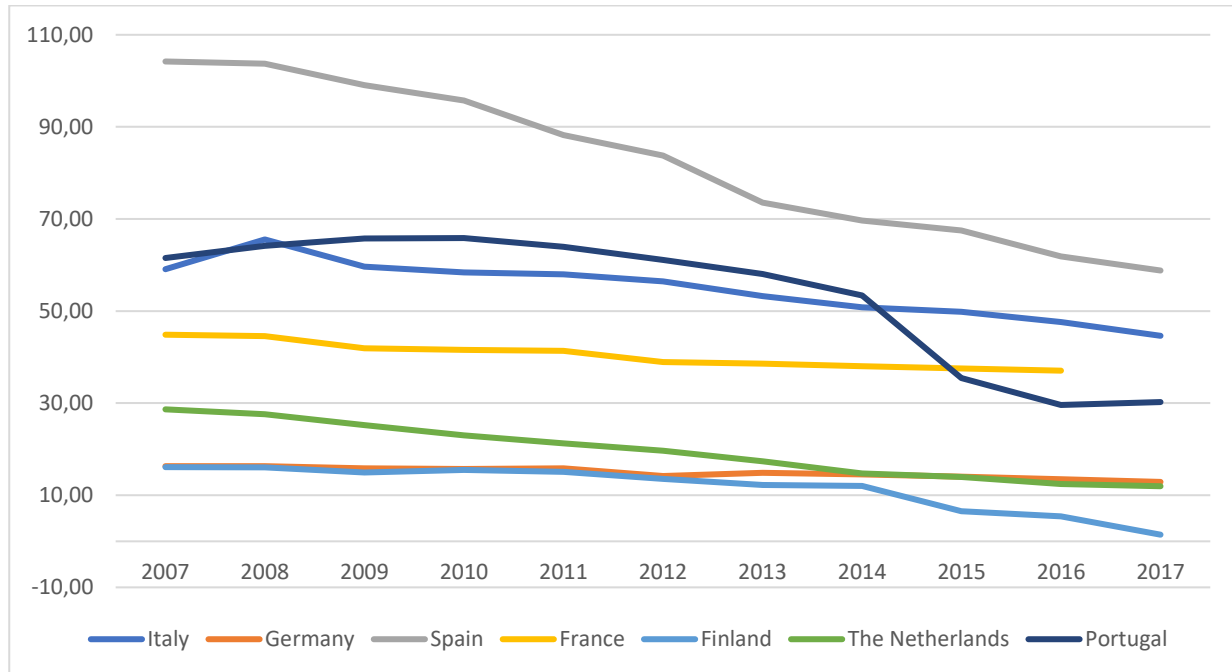
For what concerns the reduction of the excess capacity, banks tend to perform it by reducing the number of branches and employees. As we have already said, while the market concentration is immediately affected by M&As, it takes time to have visible consequences on banks' capacity. [Figure 20](#) and [Table 1](#) show, respectively, the dynamic in the number of branches (per 1,000 adults) and the number of employees of the European banking industries belonging to our sample during the last decade. As we can see in [Figure 20](#), there was a meaningful heterogeneity among the different countries, both in terms of the dynamic followed overtime and for what concerns the number of branches, but all the countries had a lower number of subsidiaries in 2017 than they had in 2007. Finland, Germany and the Netherlands are characterised by the lowest numbers of branches per 1,000 adults, with Finland and the Netherlands that experienced a reduction of about 15 branches during the last ten years, while in Germany the situation was almost stable. A reduction of the same amount occurred even in Italy, where the number of branches passed from 59 to 44, while in France it passed from 45 to 37. The largest reductions were operated in Portugal and in Spain, where the number of subsidiaries was reduced by a half (from 62 to 30 and from 104 to 59 respectively). For what concerns the number of employees, [Figure 21](#) shows the number of employees of each European banking sector in relation to the number of branches, to the number of private customers and to the number of firms they served in 2016. As we can see, even in this case there is a certain heterogeneity among countries, and the situation is even different depending on the way by which we measure the number of employees: if we consider the number of employees per branch, we can see how the Netherlands had the highest value, with 51 people working on a single branch on average, followed by Finland and Germany (19 and 18 respectively), France, Italy and Portugal (11, 10 and 9), while Spain registered the lowest value (6). If we consider, instead, the number of private customers per employee, we can see how the situation is different: Finnish and Spanish employees managed the highest number of customers (248 and 231 respectively), followed by Italian, Portuguese and Dutch ones (203, 193 and 179), while French and German employees are the less efficient (160 and 125). Finally, if we consider

the number of firms served by each employee, we can see how Portuguese and Italian employees managed the highest number of firms (14 and 13 respectively), followed by the Spanish and the Dutch ones (12 and 11), while French and German employees served the lowest number of companies (7 and 3 respectively).

In this case, it is harder to perform comparisons among the different banking sectors: in fact, given the same population size (and so an equal number of private customers to be served), due to the different level of industrialization, some countries are characterised by a larger number of firms that require more employees to be processed. Although the presence of this shortcoming, we can try to draw some conclusions: first, during the last decade, there was a general tendency all over Europe to reduce the number of branches. Given the crisis and the strong consequences that it had on banks' profitability, considering the attempt of banks in trying to improve their efficiency through a reduction of costs and taking into account also the fact that (as described by [Figure 14](#)) the number of M&As has progressively reduced during the last ten years, we can say that the reduction of excess capacity (in terms of branches) was mainly driven by an attempt of reducing costs rather than by a consolidation process. In parallel, even though not displayed here, during the last ten years banks reduced also the number of employees: the reason for this trend can be extrapolated by the analysis of [Table 1](#). Some countries, in particular Germany and France, are characterised by low number of customers (people and firms) per employee, meaning that there are too many workers in their banking industry: this leads to a low level of efficiency, given that to reach the same number of customers served, they have to pay a higher amount of salaries, therefore we can expect future actions to reduce the number of people employed in these banking sectors. The biggest reduction in the number of branches (and also of employees) was registered in the countries with the highest level of concentration, and so of competition, like Spain, Italy and France (the only exception was Germany), which are the countries that suffered the most for the reduction of interest rates. In addition, the need to reduce the number of branches and employees comes from technological changes: with the expansion of online services, like home banking ones, and with the increasing competition of Fintechs, banks need not only to revise their cost structure to find additional resources to be invested in their technological systems, but they need also to completely revise their organizational structure (their activities, their processes, their information flows) to provide the best products to their customers in the most efficient way. In this sense, M&As, in particular domestic ones, represent a good opportunity to operate these kind of activities: they can be seen as tools to perform a reduction of the excess capacity and to reach the X-efficiency, but the driving force that pushes banks toward this direction is a change

in market condition, in particular the development of new internet-related technologies. Even international M&As may have positive effects in reducing excess capacity but, as we will see, they produce larger effects in terms of risk diversification.

Figure 20 – Commercial bank branches per 1,000 adults



Source: own elaboration on World Bank database.

Table 1 – Number of employees in 2016

	Employees per branch	Customers per employee	Firms per employee
Italy	9.8	203	12.58
Germany	18.3	125	3.38
Spain	6.3	231	11.68
France	10.9	160	7.34
Finland	18.5	248	N.A.
The Netherlands	50.7	179	10.95
Portugal	9.1	193	14.41

Source: own elaboration on World Bank data.

Considering the classification of M&As described in [Figure 17](#), we can make a summary of the benefits originated by each kind of transaction. These benefits are showed in [Figure 18](#) and they are subsequently analysed:

Figure 18 – M&A benefits

	Within one country	In different countries
Between credit institutions	<ul style="list-style-type: none"> • Economies of scale (cost reduction) 	<ul style="list-style-type: none"> • Reaching the critical mass • Rationalisation of administrative functions
Across different sectors	<ul style="list-style-type: none"> • Economies of scope (cross-selling) • Risk and revenue diversification • Economies of scale (cost reduction) 	<ul style="list-style-type: none"> • Economies of scope (cross-selling) • Reaching the critical mass

Source: European Central Bank (2000).

- **Domestic M&As** among small banks are performed with the aim to achieve the critical mass that allows survival and to explore synergies arising from size and diversification, therefore to exploit economies of scale operated mainly by costs reduction, which are typically realised through cutting the number of branches, the staff and overheads in central head-office functions such as information technology, macroeconomic and legal department. In some cases, these kinds of operations are performed even to avoid hostile takeovers. For what concerns, instead, domestic M&As between large banks, they are typically made to reach the critical size to survive in the market, but also to strategically reposition the institutions involved. Even in this case, costs savings generated by economies of scale may be an important objective, but in this type of transactions banks aim at increasing their market power and their capital base, therefore focusing more on increasing their revenues rather than reducing their costs. In fact, by increasing the concentration in the market (and so by reducing the competition on a regional basis), banks can charge higher interest rates on loans to small businesses and families and they can pay lower interest rates on deposits, therefore increasing an important source of revenues in their income statement. However, this was particularly true in the past: today, the development of new delivery channels and the competition of Fintechs are transforming financial products in commodities, increasing the competition on a local basis and therefore making local market more contestable by new players. In addition, as showed by recent econometric studies, the threshold to achieve the critical mass to be big enough for the domestic market is continuously increasing (European Central Bank, 2000). A decisive factor for success is achieving the possible rationalisations which, in some markets, have been limited due to labour market rigidities.

- **Cross border M&As** produce diversification benefits in terms of income sources and risk: *ceteris paribus*, given that the business cycle is not synchronized across euro-area countries (leading to divergent country patterns of credit risk), operating in more countries makes an institution less vulnerable to shocks occurring in a single market (Schoenmaker, 2015). These transactions are performed also to reduce the excess capacity and for size reasons: in this case we are not referring only to the size of the institution itself, but also to the size of clients. Operating in more countries increases the value of the brand and the reputation of the institution, allowing the bank to find new and bigger customers to which charge higher fees and commissions: again, cross border M&As can be seen as a way to strategically reposition the bank to have access to new and larger markets. In addition, if a bank operates in more countries, it can follow and accompany the internationalisation and the consolidation of their clients, minimising the possibility of losing customers. Other reasons to perform cross border M&As are economies of scale and economies of scope: the formers are associated to cost reductions, even though in this case rationalizations are less simple than for credit institutions operating in the same market due to different regulatory requirements and/or market structures, and they are mainly related to the overlapping of administrative and back-office costs, but they are also related to an increase in revenues thanks to the new larger customer base; the latter, instead, are related to the distribution of the different financial products in the different countries, exploiting the pre-existent distribution network. In case of acquisitions in emerging markets, the bank operating in it has the possibility to benefit from the knowledge and capabilities of the bank operating in developed countries, increasing its cost and revenue efficiency. Finally, banks operating in concentrated markets may decide to perform cross border M&As because of the expectations that further national consolidation of already large institutions would trigger opposition from the supervisor, while, on the other hand, these kinds of acquisitions may be hampered by political reasons in host countries (but this is not very common).
- **Domestic conglomerates** are mainly driven by economies of scope: with these operations, institutions want to exploit cross selling possibilities to sell their products to a larger customer base. Therefore, the main benefits are expected on the revenues side, implying an efficient use of the existing distribution channels, which are usually maintained separated to maximise benefits. In addition, by bringing together skills from two different sectors, the group expects to reach two objectives: to solve the disintermediation process with a solution internal to the conglomerate, capturing the

business that would otherwise be lost in the process, and to achieve income and risk diversification, which is achieved through a wider product range: because of the decline in interest margin and to the increase in competition, banks have entered into new businesses during the last decade. The typical example is the once of bancassurance with an ownership element, but banks are also moving toward long-term savings due to changes in the demography and favourable fiscal treatment that encourages investments in personal pensions. The European regulatory framework allows banks' management to immediately react to changes in market conditions: in fact, managers may decide to enter into new industries that offer larger growth potential through M&As or even by setting up a new company and, if they succeed thanks to their caution and diligence, the whole group will benefit from the acquisition.

- **International conglomerates** are pursued by institutions to reach economies of scope and to increase their size (even in this case the aim is not only to achieve the critical mass, but also to be attractive for large international clients). In addition, these types of conglomerates offer advantages also in terms of income and risk diversification which, in this case, are even larger than the ones of international M&As since they come not only from a different geographical distribution, but also from a broader product range. The aim is to increase revenues through cross-selling of strong brands. In this case, the possibility of costs reduction is really limited since overlaps of the administrative functions and distributive channels are minimal and institutions operate in different countries, with different rules and practices: generally, the only rationalisations are related to administrative functions that can be centralised, like information technology, strategic planning, risk management and marketing. These kinds of M&As are the most challenging for the management, since it's very hard to achieve the efficiency and the improvement forecasted before the acquisition due to the complexity of the organisation.

2.5 Risks

Both the bidder and the target face some risks during M&A operations: the nature and the danger of these risks depends on the complexity of the transaction. There is a sort of spectrum, with domestic M&As among small banks that are the simplest deals, while international conglomerations represent the most complex ones. To avoid them, the management needs to pay attention to a large number of operational issues during all the acquisition process, starting from the moment when managers decide which target to acquire. The list of possible risks is

very long: they may arise during the integration of risk management systems or during the combination of customer and accounting systems, but also from the cultural differences of people working in different geographical regions; others may be generated by differences in terms of regulation and accounting/control procedures between different companies/business lines, which may create difficulties after the combination of institutions (European Central Bank, 2000). Another important risk related to conglomerates is the risk of contagion, the possibility that a shock in an institution of the group affects the group as a whole; finally, a risk that should not be underestimated before M&As is losing key staff or clients. These risks typically affect only the companies that are involved in the transaction, but their relevance should not be underestimated: given the negative effect they may have on institutions' performances, regulators and supervisors must pay attention to the possible consequences that a mismanaged transaction may produce. In case of a bad deal, in fact, the performances of the new entity may be very worse than the previous existent entities and, through a contagion process, they may affect also institutions operating in the same country and, in extreme situations, given the current level of integration of the European banking sectors, even the industry at a continental level. To avoid these problems, there are two levels of control: one at a company level and one at a supervisory one. The control system at a company level is made of multiple elements: to minimise risks and to prevent possible problems, managers should allocate adequate resources to operational and strategic combination, but also to the integration of the two staffs; to avoid, instead, regulatory problems and legal disputes, they should perform friendly acquisitions rather than hostile ones. The control made by supervisors is characterized by a collaboration at an international level, and it mainly consists in limits on large exposures and on intra-group ones; in addition, supervisors tend to encourage the adoption of a holding structure, which may be beneficial in this context.

Another important risk that managers face in a transaction is related to the achievement of the forecasted economies of scale: benefits related to cost saving are more realistic and accurate than the ones related to revenues improvement, given that they are based on historical annual cost analysis. However, these two types of improvements may result to be less successful than anticipated: the complexity of the operation and the subsequent rigid organisational structure of the new group may hinder the achievement of all the efficiency-related objectives, while regulatory issues and cultural clashes may, respectively, slow down the acquisition process (with a consequent waste of time and resources) and complicate the integration of the different organisational structures and company cultures, in some cases even causing a transaction to fail. In addition, typically, M&A operations affect capital adequacy, so that supervisors should

monitor the consistency of the required capital: acquisitions, in particular, are the case where capital adequacy is affected the most (unless fresh capital is injected). In fact, after the transaction, managers usually increase their focus on shareholders' value creation, seeking for higher returns on equity, therefore increasing the capital leverage of the new group: the use of the existing resources and the use of the market to maintain capital adequacy ratios reduce the capital cushion for the withstanding financial difficulties. To avoid similar problems, supervisors prevent the practice of double gearing, so the use of capital to support both the parent company and the subsidiaries, and they impose strict regulations in the accounting treatment of goodwill.

The role of the management is very important during all the phases of M&A operations: many times, the divergence between literature and manager's expectation is due precisely to that. In fact, the management tends to overestimate its capability to successfully manage the difficulties arising from a combination process, like cultural clashes, underestimating the amount of resources (time and money) required to perform a value-creating transaction: domestic M&As involve important managerial challenges due to the increase in the complexity of the organisation, while cross sector and cross border operations, *ceteris paribus*, tend to be even riskier than the ones performed within the same country and sector. Typically, manager's expectations tend to realise in the cases of acquisitions among small banks with the aim to reduce the excess capacity and to improve their cost-efficiency, while large scale deals seem to reach less frequently their performance target (even though a possible explanation can be the difficulty in measuring operational results with econometric tools due to their complexity). Another thing to consider is that there tend to be M&A waves in the market: for this reasons, managers' decisions to perform a transaction may be influenced by the number of operations recently occurred in the market, therefore adopting the so called herding behaviour (which means that following the trend is considered safer than moving against the tide), or by investment bankers' and consultants' willingness to join the wave, with the risk not to take the a rational decision about what to do (in a wave, in fact, the price of target companies tend to be overestimated, increasing the overall risk of the transaction).

The risks banks face in an M&A operation can be divided in two different groups: the ones that affect the companies in the period immediately preceding the operation (*ex-ante* risks) and the ones affecting the companies after the transaction (*ex post* risks). [Figure 19](#) describes these risks for each type of transaction:

Figure 19 – M&As risks

	Within one country	International bank M&As
Between credit institutions	<p><u>Ex ante</u>: pricing of the operation and strategic risk.</p> <p><u>Ex post</u>: operational risk due to the integration, loss of clients and resource allocation risks.</p>	<p><u>Ex ante</u>: pricing of the operation and strategic risk (higher than on the left due to cultural differences), foreign exchange risk.</p> <p><u>Ex post</u>: operational risk due to the integration, loss of clients and resource allocation risks (higher than the left due to different fiscal and accounting treatment and different reporting requirement</p>
Across different sectors	<p><u>Ex ante</u>: pricing of the operation and strategic risk (higher than above), personnel frictions due to different remuneration and rules.</p> <p><u>Ex post</u>: operational risk (due to integration), loss of clients and resource allocation risk (higher than above due to different fiscal and accounting treatment and different reporting requirement), reputation risk in the medium/long term.</p>	<p><u>Ex ante</u>: maximum risk: includes all the risks relating to domestic conglomeration and international bank M&As.</p> <p><u>Ex post</u>: maximum risk: includes all risks relating to domestic conglomeration and international bank M&As. Reputation risk in the medium and long term.</p>

Source: European Central Bank (2000).

- **Domestic bank M&As:** the main ex-ante risk is related to the correct decision about the maximum price the bidder should be willing to pay to conclude the deal: this amount

should correctly take into account the expected future income generated by the target company once integrated with the bidder. In fact, in case these benefits are overestimated and the fixed price does not include a safety cushion for possible errors, the bidder (and so the whole group) risks to incur in a loss that could affect the profitability of the new company for many years, affecting the shareholders' value. The most relevant ex-post risks, instead, are related to operational issues like the integration of personnel, the combination of information and risk management systems and procedures, internal control procedures and the integration of the day-to-day customer and accounting systems; usually these problems are different depending on the type of transaction: in case of a merger there is the need to fully integrate information technology and accounting systems to create a unique platform, while the same is not required in the case of an acquisition. To reduce these types of risk, the management should allocate adequate resources not only to find but also to prevent issues and it should also guarantee a high degree of transparency to detect possible problems: once problems are identified, the management must react to avoid inactivity and malfunctions. Other possible risks can be related to the coexistence of below top-level managers in the new entity: during the reorganisation of the hierarchical structure, battles for responsibility among managers are very usual, and they may lead to a loss of key personnel. In any case, given that in this types of transaction the two institutions operate in the same country and they sell similar or identical products, operational and strategic issues should be known by the management and so they should be manageable: in case the company focuses too much on these types of issues, allocating too many resources, there is a risk of neglecting all the other possible problems because of an exacerbated inward orientation, therefore losing clients and market shares.

- **International bank M&As:** ex-ante risks are the same of domestic bank M&As, but in, this case, it is even harder to deal with them due to the cultural barriers/differences: for example, for what concerns the strategic risk, managers of the bidder company operating in one country usually do not have the same knowledge about the market, regulation, taxation and practices of the country where the target operates, i.e. licensing procedures and documents requested in that connection. In some cases, these different practices may represent an advantage for the company, but such differences are not considered motives for M&As themselves. In addition, in this case fixing the correct price to acquire the counterpart may be even harder, given the additional difficulties in estimating cost-related and revenue-related benefits. In terms of ex-post risks, operational issues of international bank M&As are often greater than the ones of

domestic bank M&As: institutions operating in a foreign country are subject to different fiscal and accounting treatment and may have diverse reporting requirements. Moving to the demand side, consumers, after the transaction, may initially not regard a bank coming from a different European country as “domestic”, and in some cases they may not consider it as a safe institution to which they can entrust their money: only when this resistance disappears, a truly integrated retail banking market emerges. Corporates, in particular the largest ones, tend to adapt faster and to select their main banks looking not only at the services they offer, but also at countries served, since banks may provide an important support in the internationalisation process of firms (Schoenmaker, 2015). Finally, the negative impact of an eventual loss of key personnel due to staff battles may be a larger, given the importance of knowledge and experience when dealing with a different market and a different culture.

- **Domestic conglomerates:** Entering in a new business area through a conglomeration gives rise to new challenges due to many different reasons: differences in corporate culture, in market regulations and in customers’ purchasing behaviours represent important issue that should be faced by managers. Ex ante risks are the same arising in the case of domestic banks M&As, and they are related to the setting of a sustainable price and to strategic risks, but they are amplified because of the entering in an unknown industry. There are not only obvious differences in terms of corporate culture and in the company’s organisation, but many times there are also differences in terms of staff rules and remuneration schemes, which can originate frictions between the two groups of personnel even before the transaction, leading to possible losses in terms of human resources. Ex-post risks of domestic conglomeration are related to managing different business lines and corporate cultures, but also to manage different fiscal and accounting treatments and reporting requirements. An additional issue in conglomeration processes is the reputation risk, which is the risk that a failure in one enterprise may lead to a deterioration in the reputation of the whole conglomerate: in fact, customers may decide to terminate their relationship with the of the conglomerate because of the mistakes or the disagreements they experienced with one of the companies belonging to conglomerate.
- **International conglomerates:** they are the most complicated and the riskiest type of transaction: they suffer all the risks (ex-ante and ex-post) we have analysed in domestic conglomerates and international M&As, since managers must deal with both different business areas and different countries, bringing the strategic and price risks to the maximum level. Due to the two dimensions interested by the transaction, the ex-post

the operational risk increases, given the harder and more complex integration process required to combine the different companies. Even in this case there is a high reputation risk and avoiding losses in terms of key personnel figures is very important to successfully conclude the deal.

Even personal interests of the management play an important role in transactions, and not always a negative one (European Central Bank, 2000): in fact, if the performance, the size and the brand power of the institutions where they work were not considered personal interests by managers, M&As and the other structural changes that occur in the market would be far rarer. The prestige coming from an employment in a bigger institution, the possibility of getting ahead and the reputation of concluding an important deal increase the motivation of the top management which, *ceteris paribus*, raises the probability of concluding the M&A through successful cooperation. This effect can be transferred also to employees which, however, are more interested in their job security rather than on the size and the prestige of their new employer. But personal interests may also have negative effects on the transaction: they can block the M&A to protect their own position that would be otherwise at risk. In addition, turf battles among managers due to their personal interests, which are quite common in areas where responsibilities have not been allocated yet, lead to an inefficient use of resources. In some cases, personal interests of managers may even prevail to the ones of shareholders, leading to an inefficient corporate governance. In M&As between small institutions, typically, managers pursue their own interest of maintaining, at any cost, their position in an independent enterprise, while in the case of an M&A between large institutions the management is usually tempted to close the deal in order to increase the size of the company in which they work, and so to increase their prestige, without considering properly the strategic and the operational fitting of the two institutions: this situation is very risky when the target company is in financial trouble or distress and its owners are interested in cashing in more than in the integration of the two firms. Many times, in these situations, some unsophisticated and unskilled shareholders may add pressure on management to close the deal since they perceive M&As as transactions full of opportunities, underestimating the possible risks they may generate. Finally, we must consider that performing M&As absorbs company's resources during the whole process, in particular acquirer's ones, which should study the acquisition to understand whether it is value generating and then it should perform it properly to maximise the efficiency of the new entity. This may limit the acquirer bank's dynamism during the acquisition period and it could amplify the potential problems generated by a downturn in the business cycle.

M&As and the subsequent consolidation of the market may increase systemic risk, given that the increase in firms' size raises the proportion of firms whose failure may carry potential systemic risk (European Central Bank, 2000). At the same time, systemic risk may also increase due to the enlargement in the scope of firms' activities following consolidation, in particular in the cases of domestic and international conglomerates: in fact, institutions that perform a large variety of activities usually become more complex and so less transparent to markets and regulators, therefore more difficult to be monitored and controlled by shareholders and supervisors. However, although the presence of these systemic risk-related problems, improvements in the internal risk management and control technologies, as well as in risk-monitoring technologies by markets and regulators, may offset them, producing benefits both for the market and for shareholders; in addition, consolidation allows banks to diversify risks thanks to the larger range of activities they perform.

Chapter 3

The role of strategic similarities

We first illustrate the different approaches that can be used to estimate the impact that mergers have on the performances of the institutions involved in a transaction. After the literature review, we will focus on the important role of strategic similarities in bank M&As. Then, with the use of a selected dataset, we will build an econometric model to examine the impact of strategic similarities between the bidder and the target on post-merger performance.

3.1 Introduction

M&A activities are the result of changes in the market structure resulting from improvements in information technology, globalisation of real and financial markets, increased shareholders pressure and financial deregulation (Altunbas and Marqués, 2008): in this sense, we can say that M&As are part of corporates' strategy, which is proactively designed by firms to adapt themselves to the current characteristics of the environment in which they operate (Ramaswamy, 1997). Given that technology is continuously improving, globalisation is an ongoing phenomenon and European countries are still very heterogenous in terms of banking concentration levels, we can say that M&As will continue to affect the European banking market for many years to come (European Central Bank, 2004). Even though M&A operations may generate a lot of benefits for the institutions involved, therefore increasing the value of the group and so the shareholders' wealth, it is important to bear in mind that they bring with them a lot of risks too, which, at the end, may damage the whole industry through a contagion effect. For this reason, it is important to understand how to program and how to implement acquisitions to maximise shareholders' value and, at the same time, to minimise risks.

In the corporate strategy literature there is a general consensus about the fact that product and market relatedness are necessary but not sufficient conditions to perform a value creating acquisition (Lubatkin, 1987): the reason is that this relatedness could lead, with a high probability, to the exploitation of synergies in terms of an increase in revenues or a reduction of costs, without considering other possible sources of synergies like similar organisational structures or the management and the corporate culture (Altunbas and Marqués, 2008). For what concerns, instead, the M&A literature, during the last decades it was characterised by a large number of empirical studies that tried to understand what factors drive the performances of new entities generated by M&A transactions. These studies were performed mainly in the

US banking system, where the process of financial deregulation started earlier and so it has already produced its effects in terms of consolidation. To study the consequences of consolidation processes on banks' performance, researchers developed two different methodologies: the first one is the so called "event study methodology", which is typically based on the study of changes in stock market prices before and after the announcement of a deal, therefore trying to estimate, starting from abnormal stock market returns, the shareholders' value generated by the transaction for the owners of all the companies involved. The assumption that researchers make when they use this approach is that excess returns, measured during a certain period of time including the announcement date, explain the value creation of a market transaction. Following this approach, researchers found that, on average, the operations carried out in the US produced mixed or negative results (see Beitel and Schiereck, 2006; Piloff and Santomero, 1998; Caruso and Palmucci, 2008): typically, target's shareholders are the only ones that gain from the acquisition at the expenses of the bidder's ones (Altunbas and Marqués, 2008).

The second methodology, instead, divides the banks population in sub-samples of institutions that share some characteristics, trying then to estimate the effect of common and non-common peculiarities on the performance of the new post-acquisition entity, therefore estimating the value creation or the value destruction of the different transaction types. This second methodology is based on the evidence provided by corporate finance studies, which sustain that companies focusing on their core business increase their profitability, and so the value creation for their shareholders. By applying this approach in the US banking market, researchers found out that geographic diversification and mergers among banks with different product strategies may destroy shareholder's value (Amihud *et al.*, 2002), while DeLong (2001) and Cornett *et al.* (2003) argue that only the bidder companies which focus on geography and product-relatedness are able to avoid value destruction. Finally, according to the study of Deng and Elyasiani (2005), geographic diversification reduces bank's risk without impacting on profitability.

There is a group of studies which measures the consequences of M&A operations on profitability using accounting ratios, like ROE, and productive efficiency indicators, like economies of scale. Even though one of the main reasons why managers seek for possible M&A opportunities is the increase of profitability through the enhancement of efficiency, some researchers have demonstrated that this improvement is rarely achieved (see Piloff, 1996). A possible explanation to this fail in finding efficiency improvements can be the time required by some efficiency gains to materialize: if some of them, like the ones associated with risk

diversification, are typically visible in the short run, some others, like cost benefits related to economies of scale or revenue increases due to economies of scope, may require a longer time to materialise (Altunbas and Marqués, 2008). Even with the use of this methodology, in the US market profitability seems not to be affected by consolidation (Rhoades, 1994). For what concerns studies related to European banks, researchers found out that M&As increase the stock market valuation and the performances of the firms involved, in particular in the case of products-focused operations (Beitel and Schiereck, 2006; Beitel *et al.*, 2004). What is important to point out is that just few papers studied how the relatedness of the institutions involved in the transaction affects the performance of the new entity: the most important studies of this kind were performed by Ramaswamy (1997), and by Altunbas and Marqués (2008).

3.2 Literature review

Among the most important studies about the consequences of M&As into bank's efficiency and profitability, Harrison *et al.* (1991) contributed in extending the definition of product-relatedness by including different strategic variables in the analysis of similarities. In particular, they used the allocation of resources to measure the R&D intensity, the administrative intensity, the capital and the debt intensity so that, by making comparisons among institutions, they could measure their relatedness. The importance of similarities is related to the possibility of exploiting synergies, but with their study they found out that also some dissimilarities are correlated with positive post-acquisition performances: they explained this result with the possibility that these differences strengthen the bidder's competencies, which could therefore be used to exploit new opportunities offered by the environment. This study was important to overcome the old product-market relatedness approach, redefining the concept of strategic similarity and the way by which it can be measured.

Chatterjee *et al.* (1992), and Datta *et al.* (1991) conducted researches about the relevance of strategic and managerial elements in M&A deals. The first group of researchers focused on the importance of the "cultural fit" between the bidder and the target, finding out that, for example, when two companies involved in a transaction share the same risk-taking attitude and the same innovation and autonomy orientation, shareholders get higher returns than in the case of cultural mismatches. The second group, instead, focused on the role of managerial similarities in M&As: according to their study, for example, when the two managements do not share the same decision-making approach or in case they have different risk propensity, post-acquisition performances tend to be lower since the aggregated management is not able to act as a unique subject, not being able to exploit potential synergies to create shareholders' value.

Piloff and Santomero (1998) analysed both types of methodologies, pointing out their strengths and their drawbacks. They argued that by using accounting data, researchers may estimate, on a quantitative basis, the accounting performances of the institutions involved; in addition, accounting data are easy to be obtained. The users of this method support the use of this method since accounting data measure the current and actual performance of an institution and they are not influenced by investors' expectations. At the same time, however, by providing a picture of the current situation, accounting data are inaccurate in an economic sense, which means they reflect historical values and not the current market valuation. Furthermore, changes in accounting values may not be related only to M&As, and many times it is not that simple to identify the possible sources of their changes. For what concerns the evaluation of a transaction using stock market reactions, Piloff and Santomero (1998) argued that the use of market values better estimates the value generated or destroyed by corporate consolidation. In addition, they promote the use of value-weighted sum of bidder's and target's abnormal returns rather than the study of abnormal returns individually, since in this latter case it is more complex to distinguish between the combined effect on abnormal returns of wealth transfer and consolidation. The main shortcomings in the use of this method are the assumption of perfect information and the decision about the time span during which the study is performed. To conclude, they argued that there seems not to be a statistically relevant increase in value or in performance after M&As, while target's owners tend to gain at the expenses of bidder's ones. Since M&As continue to be performed, probably both these two techniques are not sophisticated enough to appreciate the concrete benefits of deals.

Caruso and Palmucci (2008) used the event study methodology to estimate the effect of M&A deals. In particular, they thought that it was better to use rumours date rather than the announcement day as starting point to measure the effect on value produced by a transaction since part of the change in the stock value is already discounted at the leakage date: this simple change in the calculation method may turn the overall value creation from negative to positive, therefore better explaining the benefits produced by M&As. In addition, from their analysis related to the Italian market, they found out that in our country deals are driven more by personal interests than by value creation.

Fridolfsonn and Stennek (2005) argued that by analysing stock market values few weeks before and after the acquisition, target's shareholders result to benefit from the transaction, while the bidder's ones generally break-even, so that the compounded value generation for all the shareholders involved appear to be positive. By looking at the studies that use accounting data, instead, the entity resulting from the transaction is less profitable than the other companies in

the industry with which it has to compete, which means the new entity produces less value for its shareholders than the other companies do. What Fridolfson and Stennek (2005) pointed out is that these two approaches may lead to opposite conclusions if used to analyse the same transaction: this difference can be explained by the market reaction to the deal. If the transaction was a surprise (so if there were no leakages), the change in market values of shares reflects the change in profitability, while if the transaction was anticipated (it means there was a leakage), the change in price reflects the change in the true value of companies, since the market has time to understand the merge dynamic. For this reason, even though the two methodologies are many times considered to be substitutes, they should be used together since they are complementary.

Beitel *et al.* (2004) tried to identify the drivers of abnormal returns for the target's, the bidder's and the new entity's shareholders analysing the European banking market. Their results showed that many drivers that were previously identified in the US market are valid also for European banks, with the consequence that the stock market reaction to M&A announcement can be, at least partially, forecasted: from their observations, successful bidders tend to choose small inefficient fast-growing targets that experience poor stock returns. In particular, capital markets seem to prefer product-related and focused transactions rather than the ones made with the aim to diversify bank's sources of revenues. In addition, in contrast with the findings of some US-related studies, institutions that perform more M&A operations tend to create less shareholder's value than the ones that perform M&As occasionally, suggesting that European managers pushing for acquisitions are probably motivated by objectives different from shareholders' wealth generation.

DeLong (2001) tried to identify which types of mergers tend to create value for shareholders, according to their abnormal returns. She classified mergers depending on their focus or diversification with respect to the dimensions of activity and geography. She found out that while M&As pursued with a diversification objective do not create value, the ones among similar institutions increase stockholder's value by 3% on average. In addition, some other factors seem to influence the returns of the post-acquisition entity, like the relative size, agency costs and the type of corporate governance. Even though diversification-related M&As seem to be undesirable, the author points out that there can be a possible explanation to this result: stock prices reflect market's expectations about future cash flows, and the increase in future flows generated by diversification strategies may be more difficult to be forecasted, leading to the underestimation of post-acquisition cash flows.

Cornett *et al.* (2003) used abnormal returns to study the consequences of M&As on banks' returns: in particular, they found out that M&A operations performed with the aim to diversify

revenue sources earned negative abnormal returns, while focused bank acquisitions tended to be neutral in terms of value creation. In addition, authors analysed also the influence of corporate governance variables on transactions, and results suggested that they have more consequences on diversifying acquisitions rather than on focusing acquisitions. Even in this case, the main determinant of lower performances in diversified entities seemed to be agency costs at managerial levels: in fact, mechanisms aimed at reducing the conflict between managers and shareholders seemed to be more effective in focusing acquisitions rather than in diversifying ones, with the consequence that, to be value maximising, this type of transactions must be controlled and supervised more by regulators to balance the lower efficacy of corporate governance mechanisms.

Piloff (1996) combined both the accounting data methodology and the event study methodology (related to stock market reaction to M&As announcements) to study how accounting and market data influence the return on acquisitions. In addition, the author studied how some characteristics like the size, the location and the operating performances of the institutions involved influence both accounting results and abnormal returns: low target profitability, high target and acquirer total expenses and big target size are correlated with after-transaction performance improvements and bigger abnormal returns. In particular, improvements in accounting performances are positively correlated with the amount of total expenses, while the increase of abnormal returns, instead, is positively correlated with the difference in total expenses: the fact that there is a correlation between abnormal returns and opportunities for cost reduction is in line with the belief that mergers increase the efficiency of the institutions involved. Finally, the author concluded that the statistically insignificant correlation between abnormal returns and performance indicators signals that market expectations are not positively correlated with post-merger related improvements.

Ramaswamy (1997) focused his attention on the factors that determine whether an acquisition is going to be successful or not. To do so, he analysed the differences within M&A operations of the same type and, in particular, he focused his attention on acquisitions. He exploited the deregulation that took place in the US banking market during the 80s, which led to a subsequent M&A wave. His methodology was very interesting and, given we have taken a cue from it, we will briefly analyse it. His sample included all the banks that were involved in an M&A operation during the period, but he excluded the ones that were involved in more than a transaction in a time span of three years (this to isolate the consequences of a single operation). To be included in the sample, both the target and the bidder must have been an independent entity at the time of the merger. He then classified the strategic orientation of the organizations

involved looking at resource allocation made by the management: he identified and measured, through the use of some ratios, five different areas that could be considered by managers to achieve a competitive advantage: market coverage, operational efficiency, emphasis on marketing activity, client mix and risk propensity. Following the approach of Drazin and Van de Ven (1985), he built different scores that were used as independent variables, which were regressed one at a time against the change in performance following the merger. Results showed that similarities in resource allocation patterns between the target and the bidder firms (taken as proxy for similar strategies) have a positive influence on post-merger performances, while strategical dissimilarities (in particular on risk propensity, operational efficiency and client mix) negatively affect the post-merger performances. He explained this result in the following way: when the bidder bank imposes different cost control and monitoring systems to its target, it may damage the target's resource allocation pattern necessary to implement its operations, damaging its value creation; serving different client mix doesn't create value for shareholders since the two merged companies are not able to generate enough synergies to increase the new entity performances; finally, mergers between firms with different risk propensity do not generate shareholders' value due to the different corporate and management culture. An ambiguous relationship, instead, was found between performance and market coverage.

Altunbas and Marqués (2008) examined the role of strategic similarities on post-merger performance. They built their model starting from the Ramaswamy's one (1997): they improved it by using accounting data as similarity indicators, assuming therefore that accounting financial reports are, to a reasonable extent, the reflection of corporate strategy decisions. In addition, they performed their analysis studying European banking transactions and they conducted their analysis using two different samples: one included domestic acquisitions and one included only cross border deals. According to their study, in Europe M&As are typically carried out by large efficient banks which tend to acquire relatively smaller and better capitalised institutions with more diversified sources of revenues; in addition, in contrast with the US literature, they found out that post-acquisition performances of bidder companies tend to be better than the pre-acquisition ones, in particular in the case of cross border M&As. For what concerns strategic similarities, they found out that, on average, strategic relatedness tends to be performance improving, in particular in the case of domestic transactions: in detail, relatedness in deposit strategies and in efficiency tends to be value enhancing both in the case of domestic and cross border acquisitions. In addition, for what concerns domestic M&As, dissimilarities in terms of loans, earnings, costs, deposits and size strategies tend to reduce the profitability of the new post-acquisition entity, while, in the case of cross border transactions, they found out that while

dissimilarities in terms of loan and credit risk strategies are correlated with higher post-acquisition performances, differences in capital and cost structure tend to negatively affect the profitability. Therefore, they concluded, integrating institutions with different strategic orientation is usually complicated.

3.3 Research objective

There are a lot of possible forms of acquisitions (horizontal, vertical, conglomerate) among which managers can choose when they perform a deal, and each form of acquisition has different consequences on the new post-acquisition entity, both in terms of efficiency and profitability. The literature is full of works about this issue: in our review we illustrated some of the approaches that have been used in the past, in order to understand what is the acquisition form that maximises the shareholders' value in every situation, while a very little attention was dedicated to the differences within each type of transaction. The work made by Ramaswamy (1997) and the subsequent evolution operated by Altunbas and Marqués (2008) shed some light on the determinants of performing acquisitions within operations of the same type. In particular, they considered the relationship between the pre-merger accounting characteristics of the banks involved in the transaction and their post-acquisition performance to understand the role of strategic similarities in banking M&As: this is very important since banks are firms, and firms are different one with respect the others since each one has its own vision, mission and corporate strategy which are decided by its management. In particular, corporate strategy is very important since, by driving companies during their decision-making process, it determines the failure or the success of a company.

We then decided to focus our attention on the factors that determine whether horizontal acquisitions are going to be successful or not: in doing so, due to some limitations in the use of databases which didn't allow to analyse the European market, we analysed some deals that took place in the US market during the year of the financial crisis (2008-2016), in order to understand whether the determinants of a successful acquisition identified by Altunbas and Marqués (2008) are still valid.

From a theoretical point of view, our model differs from the ones that were previously illustrated in the literature review due to the variables used to study the role played by strategic similarities in M&A operations: the relationship between some of the independent variables we have used in our model, like CFL, and the change in performance ΔROE , was never studied before. For this reason, our work contributes to the literature by offering an alternative set of

independent variables to explain the influence that strategic similarities have on post-merger performances, allowing us to determine which target's characteristics bidder should be interested in when they perform acquisitions.

3.4 Methodology

To perform our analysis, we started from the model of Altunbas and Marqués (2008) which related the changes in performance (due to a merger) to a set of strategic indicators and to a set of control variables. This model was itself an evolution of the one created by Ramaswamy (1997), who studied the same relationship in the US market using less specific and less numerous indicators. The key characteristic of the model created by Altunbas and Marqués (2008) is the way they used accounting data to estimate the corporate strategy followed by the target and the by bidder company: by adopting the approach of corporate strategy researchers (see Dess and Davis, 1984; Zajac and Shortell, 1989), they estimated the strategy followed by each firm in their sample by analysing the resource allocation in their financial statements. The main assumption of Altunbas and Marqués' model is the following: the organization's strategy can be extrapolated looking at its financial statements, since these documents are the result of the decisions taken by the company management. The consequence is that, when two companies have similar or identical resource allocation patterns, they can be considered to have the same corporate strategy. To measure the strategical similarities between the target and the bidder, we use the distance metric proposed by Drazin and Van de Ven (1985), which is the following:

$$SI_{i,k} = \sqrt{(X_{B,i,k} - X_{T,i,k})^2}$$

where $SI_{i,k}$ is the similarity index of the k^{th} variable for the i^{th} merger, while $X_{B,i,t}$ and $X_{T,i,k}$ are scores of the target T_n and the bidder B_n . The larger is the value of $SI_{i,k}$, the more the accounting ratios of the two companies differ and so, based on our assumption, the more the two companies differ in terms of their strategies: the goal of our analysis is to estimate the impact of strategic similarities on the performance of the post-acquisition new entity and, in doing so, we will study the relationship between the change in performance ΔROE and strategic indicators. [Table 2](#) illustrates the indicators of strategic relatedness we will use in our model:

Table 2 – Independent variables: strategic indicators and control variables

Indicator	Symbol	Formula
Revenues diversification	OORTA	Other operating income to average assets
Efficiency	CTIR	Cost-to-income ratio
Capital adequacy	EQTA	Equity to total assets
Loan ratio	NLTA	Net loans to total assets
Credit risk	LLPNIR	Loan loss provision to net interest revenues
Liquidity	LADSTF	Liquid assets to deposit & short-term funding
Liquidity	NLTTDP	Net loans to total deposit and borrowings
Capital structure	CFL	Capital funds to liabilities
Bidder performance	PREROE	2 years weighted average ROE of the bidder
Relative size	RSIZE	Target' total assets on bidder's total assets

The first strategic indicator we use in our analysis is related to earnings diversification: as we have already explained in Chapter 1, the most traditional source of earnings for banks is represented by net interest revenues. If a bank wants to diversify its sources of revenues, which means it wants to offer a wider portfolio of products, it is very likely that its ratio between other operational revenues and total assets (OORTA) increases. This strategic indicator is expected to have a positive relationship with the change in performance (Δ ROE) since it may allow banks to have access to new sources of revenues (Altunbas and Marqués, 2008), and we expect this relationship to be stronger in the case of domestic deals, where the difficulties arising from the integration of the two companies are lower.

The second group of strategic indicators we use is the ratio between loan loss provisions and net interest revenues (a credit risk measure) and the loan to total assets ratio. To measure the credit risk similarity between the two merging institutions we use the first ratio (LLPNIR), while we use the second one (NLTA) to calculate the percentage of institutions' assets financed with loans. In this case, we expect banks' performances to worsen when the merging banks have different portfolio compositions and asset quality, so when they are affected by different credit risk, in particular when the two institutions involved operate in the same country: this is due to the fact that economies of scale and economies of scope are more difficult to be achieved when there are important differences in terms of asset quality between the two institutions, which are also likely to increase the conflict among managers due to the different skills required to manage such different situations. For what concerns cross border M&As, instead, differences in asset composition may be positively correlated with changes in performance, given that these

types of operations are made mainly with the aim to increase revenues through a diversification of their sources (Altunbas and Marqués, 2008).

A possible strategy that banks may pursue is the cost controlling one: in this case the aim of a bank is to minimise its costs to maximise its efficiency. To check whether a bank follows this strategy, we use the most traditional efficiency index, the so-called cost-to-income ratio (CTIR). Given the effort required to maximise efficiency, even through the use of economies of scale and economies of scope, we expect banks characterised by low costs and high operating efficiency to benefit from acquisitions with other efficient institutions, at least in the short run: there can be the case in which, for example, one efficient company acquires a low-efficient one to implement its low-cost strategy and to obtain benefits in the medium run. Typically, this happens in the case of domestic deals, but the same objective can be reached also in cross-border transactions where, even though it is not one of the most traditional goals of this type of deals, it can be one of the resulting outcomes.

The fourth type of strategic indicators is related to capital adequacy and it is calculated with the ratio between equity and total assets (EQTA), which measures the degree of capitalisation of the bank: in particular, this ratio determines the percentage of assets that are held by investors and which are not, therefore, leveraged. The capital adequacy issue has become very important in the recent years when, due to the crisis, regulators and supervisors have increased their requirements to prevent a single bank to affect the whole European banking system through a contagion effect. According to the signalling hypothesis, banks may decide to merge with other institutions that have better capital ratios to suggest a correlation between different capital structures and performances, while some other researchers believe that lower capital ratios signal positive information, given that signalling quality through leverage is less costly for good banks (Altunbas and Marqués, 2008).

Another strategic indicator is related to liquidity risk which, in our model, is measured by two different indexes: the ratio between liquid assets to deposit and short-term funding (LADSTF) and the ratio between net loans to total deposit and borrowings (NLTTDP). Since indicators related to liquidity are expensive to be maintained at good levels, managers focusing on improving liquidity should decide to merge with banks that have good indicators to achieve their goal performance after the deal.

The last strategic indicator we will use is the ratio between capital funds and liabilities (CFL), which measures the percentage of capital funds with respect to total liabilities. This ratio is different from EQTA because it doesn't consider the simple equity but the whole group of

capital funds, therefore measuring the structure of banks' own capital. According to Altunbas and Marqués (2008), the capital structure of the merging banks plays an important role on the post-acquisition entity's performances: in particular, according to them, the more the two capital structures are similar, the larger is going to be the performance change (Δ ROE). This relationship is expected to hold both in the case of domestic deals and cross border ones.

The dependent variable of our analysis is the change in performance, which is indicated in the model as Δ ROE: it refers to the difference between the two years weighted average ROE of the post-acquisition new entity and the two years weighted average bidder and target's ROE before the acquisition (in both cases, weights are represented by total assets of the institutions involved, measured at the end of the year). This approach, which considers the change in performance as dependent variable, was previously used also by other researchers, like Ramaswamy (1997), Chatterjee *et al.* (1992) and Datta *et al.* (1991): the main difference between their models and the one used by Altunbas and Marqués (2008) is the choice of explanatory variables. As we have already explained in the previous paragraph, Altunbas and Marqués were one of the first to use only accounting-based strategic indicators to explain how strategic similarities affect post-acquisition performances while, in the other studies, researchers considered a lot of different information to classify the merging companies from a strategic point of view, like the market share or the operational efficiency (see for example Ramaswamy, 1997). In our model there are two groups of independent variables: the strategic indicators $SI_{i,k}$, which are illustrated in [Table 2](#), and two control variables $X_{i,j}$, which are, respectively, the pre-merger performance of the bidder bank (measured as bidder's two years pre-merger weighted average ROE) and the relative size of the bidder firm with respect to the target (measured as the ratio between the target's and the bidder's total assets at the end of the pre-merger year). From the literature, we expect both these two control variables to determine in a significant way bank's profitability: according to Altunbas and Marqués (2008), the relationship between the control variable of the relative size and Δ ROE is ambiguous: in the case of domestic deals, the smaller the target with respect to the bidder (so the lower the RSIZE), the easier is for the latter to impose a cost restructuring process and therefore to improve the efficiency of the new entity, so we expect a negative sign in this relationship, while we expect a positive relationship in the case of cross border deals, given that in this case the aim is to increase and diversify revenues (the bigger is the target, the more the profitability improves). Even the bidder pre-merger performance (PREROE) is expected to influence the change in profitability (Δ ROE): if the pre-merger bidder performance is high, it is very likely that during the post-merger period the performance of the new entity will be lower than the bidder's pre-merger one. This is due to the fact that by

merging, the bidder consolidates the target's financial statement, which is likely to be "worst" and so the performance of the new entity will be, in the short run, lower than bidder's pre-merger one, while it will improve in the medium run if the bidder is able to create value from the acquisition.

For our analysis we used a hierarchical multiple regression model: this choice was made considering the high level of correlation between the explanatory variables, which is reported in [Table 5](#). In fact, this regression model is particularly indicated in case of relevant correlation since it measures the consequences on the model of overlapping explanatory power of independent variables (Ramaswamy, 1997). This approach measures the importance of each explanatory variable by adding them one at a time into the analysis (moving from the easiest model that includes only control variables to the most complex one, which includes also all the explanatory variables related to strategic indicators), therefore revealing the importance of each independent variable in relation to the others that were previously included in the model. The formula of this regression model is the following:

$$\sum_{i=1}^n \Delta ROE = \sum_{i=1}^n \sum_{j=1}^2 X_{i,j} + \sum_{i=1}^n \sum_{k=1}^8 SI_{i,k}$$

What we expect to find was a statistically relevant relationship between the performance measure ΔROE and the explanatory variables. In particular, we would like to perform two different analysis to understand the differences between domestic and cross border deals: for example, in the case of domestic consolidation, economies of scale related to cost savings are easier to be reached and they represent one of the main reasons why banks decide to merge, since the new entity can improve its efficiency by eliminating redundant costs like the ones of overlapping branches or shared technologies. For what concerns cross border deals, instead, costs savings are more difficult to be operated, and this type of deal is generally pursued with the aim to increase and diversify the sources of revenues.

Before performing the multiple regression analysis, we perform a simple descriptive analysis to briefly illustrate the main characteristics of the banks in our dataset. We present the performances of the institutions involved in the deal, and then we will illustrate the strategic indicators we will obtain from our analysis. After that, we will have a look at the correlation matrix showed in [Table 5](#) and we will try to understand, through visual analysis and simple regression models, if there is a relationship (linear or non-linear) between the single explanatory variables (including the ones that were initially included as control variables) and the change in performance ΔROE .

3.5 Dataset

Our database was built considering the acquisitions that took place in the United States during the years of financial crisis (2007-2017). In particular, starting from a list of the most important acquisitions that were performed during this period, we were able to create a sample of 25 M&A operations that were performed during a period of five years (2008-2016). Given that all the acquisitions were performed in the United States, our analysis is performed on a sample that includes only domestic acquisitions. In building our sample, we put some restrictions on M&As to be included in our dataset: first of all, at the time of the merger, both the bidder and the target had to be independent financial institutions located in a US country; then, the bidder and the target must not have been involved in an M&A operation in the three years prior the acquisition: this is particularly important in order to isolate the effects produced by a single deal and to give time to the acquiring institution to fully integrate the target, allowing therefore the financial statement of the new entity to represent economies of scale, economies of scope and the efficiency achieved by the two institutions after the deal. The accounting information about the institutions that were involved in the M&A operations were obtained from the Database Orbis.

3.6 Results

We start our analysis with a description of the accounting ratios of the companies belonging to our sample: [Table 3](#) shows the mean, the median and the standard deviation of the variables we are going to study.

In the selected sample, bidder companies tend to be about four times larger than their targets (10,842,437.4 vs 37,328,403.08 thousand of \$), but we should also consider that the standard deviation is pretty high, which means that sample is quite heterogeneous. This data is in line with the literature, which has already pointed out that bidders tend to acquire smaller firms, but in our case the ratio between target's and bidder's assets is bigger than in other studies (in the research of Altunbas and Marqués (2008), bidders were seven times larger than their targets).

For what concerns the diversification of the sources of revenues for the companies in our sample, measured using the ratio between other operational revenues to total assets (OORTA), target firms are, on average, more diversified than the bidder ones (1.26% vs 0.92%). This result is in line with the previous findings of researchers about domestic and cross border deals. In fact, as we have explained in Chapter 2, firms tend to perform horizontal acquisitions to diversify their sources of revenues, in particular in the case of cross border deals (which usually have the aim to reduce risks through diversification).

In terms of assets composition (NLTA), bidders and targets tend to be very similar with, on average, more than 60% of their assets employed as loans (65.63% for bidders, 64.08% for targets); in addition, targets seem to have higher quality assets (LLPNIR), as signalled by their lower loan loss provisions to net interest revenues (4.64% for bidders, 3.54% for targets). Even in this case, our results are in line with the literature.

What is interesting to notice is that in our sample target companies are less efficient than bidders, so they have, on average, larger values of CTIR (72.29% vs 61.26%). Even in this case our results are in line with the findings of Altunbas and Marqués, but the difference in efficiency in their sample is much larger than in our dataset (1.8% vs 11.03%): this may signal that during the crisis bidders were even more interested in acquiring less efficient banks to improve their use of resources, in order to benefit, at the aggregate level and in the medium run, from an improvement in terms of profitability. So, looking at these data, we expect to find a significant relationship between Δ ROE and CTIR to corroborate the strategy pursued by managers.

In terms of capital adequacy, measured as equity to total assets (EQTA), we can see how, on average, targets in our sample are slightly better capitalised than bidders (12.04% vs 11.72%): even in this case our results are in line with the findings of Altunbas and Marqués (2008) and, in the two analysis, the post-acquisition entity registers a slight increase in their capitalisation.

In terms of liquidity risk, measured by liquid assets to deposit and short-term funding (LADSTF) and the ratio between net loans to total deposit and borrowings (NLTTDP), we can see how targets have, on average, more liquid assets than bidders if measured with the first indicator (5.40% vs 3.34%), and the same can be said by looking at the second measure (75.11% vs 77.01%), even though, in this case, both the target and the bidder register, on average, good values (a combination of prudence and regulation require banks to have values around 80-90% for this ratio). According to the literature, in the case of domestic acquisitions, targets tend to be slightly less affected by liquidity risk, so our sample results in line with previous studies.

Finally, for what concerns the ratio between capital funds and liabilities (CFL), targets tend to have, on average, a less complex capital structure than bidders (13.64% vs 15.41%): even in this case, our results are in line with the literature.

Table 3 – Descriptive statistics of merging institutions

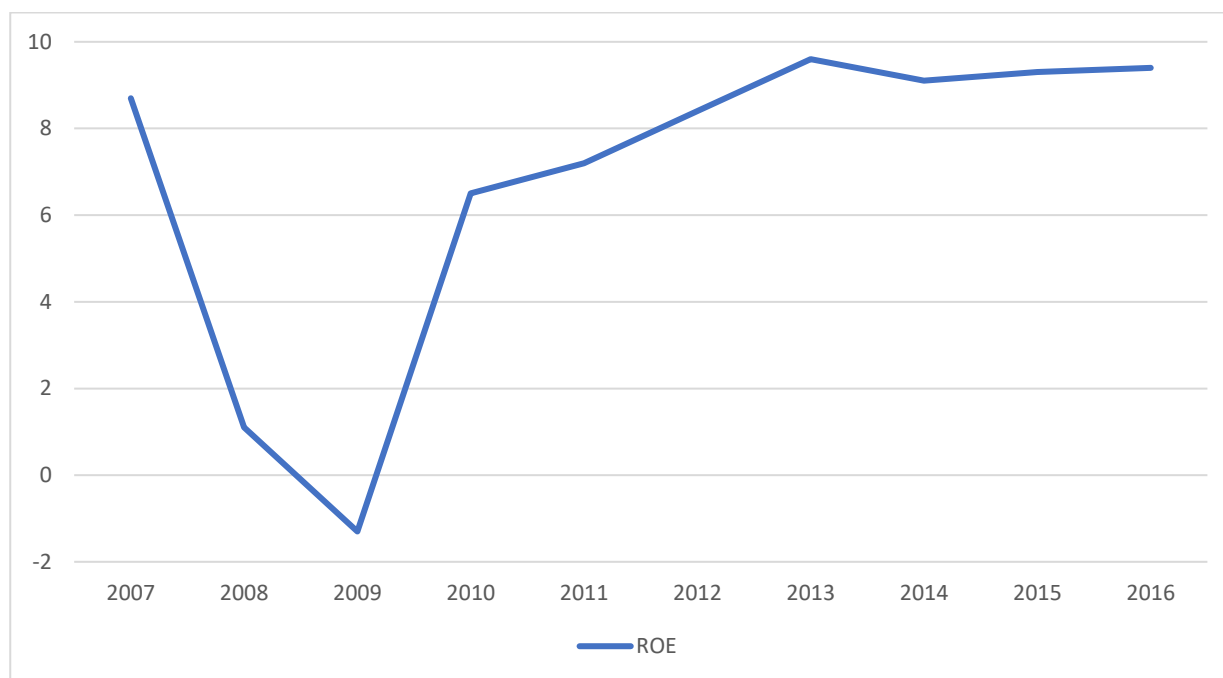
Variables¹	Mean	Median	Standard deviation
Target			
CTIR	71.13	70.26	15.46
EQTA	12.04	11.77	1.83
NLTA	64.08	64.88	9.50
LLPNIR	3.54	4.57	12.33
OORTA	1.26	1.09	0.62
LADSTF	5.40	4.08	3.47
NLTDP	75.11	75.64	11.33
CFL	13.64	12.99	2.70
Total assets ²	10,842,437.4	4,201,859	15,588,751.63
Variables	Mean	Median	Standard deviation
Bidder pre-merger			
CTIR	61.82	63.9	6.03
EQTA	11.72	11.94	1.82
NLTA	65.63	66.54	10.28
LLPNIR	4.64	3.39	3.36
OORTA	0.92	0.96	0.58
LADSTF	3.34	3.02	1.54
NLTDP	77.01	79.82	12.8
CFL	15.41	15.08	4.46
Total assets ²	37,328,403.08	14,601,394	62,774,456.02
Variables	Mean	Median	Standard deviation
Bidder post-merger			
CTIR	65.34	6.71	10.48
EQTA	13.09	13.02	2.61
NLTA	64.94	67.01	8.73
LLPNIR	5.31	4.83	3.57
OORTA	1.09	0.99	0.56
LADSTF	3.28	2.50	1.76
NLTDP	76.3	78.5	10.93
CFL	16.07	16.18	3.98
Total assets ²	47,440,705.28	18,793,855	65,710,013.29

¹In %. See Table 1 for the definition of variables. ² In thousands of USD.

The general picture, therefore, is of generally large, less diversified and more efficient banks acquiring less risky (in terms of credit and liquidity risks) and better capitalised targets.

To further describe the sample, we can look at [Table 4](#): it contains some descriptive statistics about the variables we are going to use in our regression model. We can notice that the mean value of our dependent variable ΔROE (which measures the difference between the two years weighted average ROE of the post-acquisition new entity and the two years weighted average bidder and target's ROE before the acquisition) is negative and equal to -0.72%, confirmed also by the median equal to -1.54%: this value is not in line with the one of Altunbas and Marqués (2008), which instead registered a value of +2.44%. This discrepancy can be explained in two different ways: first, there is an important influence of the time span to which the sample used to perform the analysis refers to. Our dataset includes transactions that were performed in the United States during the years of the financial crisis and immediately after (2008-2016), which produced, as we can see in [Figure 21](#), remarkably negative effects on banks' profitability, while the dataset of Altunbas and Marqués includes transactions that were operated from 1992 to 2001, a period during which the economy expanded (with the exception of 1993, the nominal GDP growth rate was always positive) and so, during that period, banks could benefit from a healthy economic environment. This implies that acquisitions included in our sample, performed when the whole sector experienced a decline in their profitability, have produced a relevant impact on the average ΔROE . But even though the change in performance was, on average, negative, it doesn't mean that banks that operated M&As had negative profitability: in fact, the value of -0.72% comes from the difference between the weighted average ROE of merging banks which was, on average, equal to 7.33%, and the ROE of the merged institutions which was equal to 6.61%. This signals that, probably, our sample is heavily influenced by non-performing acquisitions: in fact, none of the bidder banks in our sample had a negative ROE in the two years before and after the acquisition, while only two targets experienced a negative profitability in one of the two years before the deal, meaning that the banks in our sample that performed acquisitions were not influenced that much from the crisis; in addition, 16 acquisitions of 25 resulted in a decrease of profitability. This is a relevant information which may signal that, during and after the crisis, managers may have performed acquisitions without considering the strategic similarities between their company and the one they were going to buy: to confirm this hypothesis, we must analyse the relationship between the change in performance and the strategic indicators formulated for the analysis.

Figure 21 – US commercial banks' ROE



Source: Klaassen and Van Eaghén, 2016.

Moving on with the description of the variables in [Table 4](#), PREROE refers to the pre-merger two years weighted average ROE of the bidder company: as we can see, the performance of the bidder companies was positive (+7.07% on average). For what concerns, instead, RSIZE, it tells us the relative dimension of targets with respect to bidders: this ratio is equal to 0.44 on average, which means that targets were less than a half with respect to bidders in term of size (measured as total assets).

Finally, for what concerns the other independent variables, [Table 4](#) contains the weighted average of the absolute differences between the target's and the bidder's accounting ratios, calculated using the distance metric proposed by Drazin and Van de Ven (1985). As we can see, the size of these values is very heterogeneous: this depends on the way each ratio is calculated. For this reason, to correctly interpret these data, the reader must look at [Table 4](#) considering the values reported in [Table 3](#): we registered, on average, relevant differences in all the variables we decided to use in our analysis, but the size of standard deviations suggests that the values registered in our sample are quite heterogeneous.

Table 4 – Descriptive statistics of the main determinants of performance

Variables	Mean	Median	Standard deviation
Dependent:			
Δ ROE ¹	-0.72	-1.54	3.56
Independent:			
PREROE	7.07	8.22	3.23
RSIZE	0.44	0.40	0.30
CTIR	13.00	9.4	12.96
EQTA	2.03	1.54	1.86
NLTA	10.31	7.58	8.56
LLPNIR	6.15	3.28	9.34
OORTA	0.68	0.58	0.57
LADSTF	2.78	1.69	3.07
NLTDP	11.19	7.30	12.47
CFL	3.68	2.38	4.36

¹ Measured in percentage points.

We deepen the statistical analysis looking at the correlation among the explanatory variables included in the model, as showed in [Table 5](#). As we expected, some explanatory variables are correlated each other, in particular the ones that share the same accounting information in the numerator or in the denominator, like, for example, net loans to total assets (NLTA) and net loans to deposit and short-term funding (NLTDP), which resulted to be strongly positively correlated. This is a serious problem if we use a multiple regression model, since a multicollinearity problem would probably arise: to overcome this shortcoming, he should use a hierarchical multiple regression model, looking, in addition, for warning signs of multicollinearity. For example, we must pay attention to multicollinearity in case the addition of an explanatory variable produces a remarkable change of regression coefficients, or in case an independent variable results to be strongly correlated with the dependent one but the regression model provides a non-significant regression coefficient or, again, when the sign of the regression coefficient is the opposite than expected.

Given that the first step of our analysis is to study the relationship between each explanatory variable and the dependent one, now we will focus on the first column of [Table 5](#), which represents the correlation between Δ ROE and the independent variables.

The variable ΔROE has a relevant negative correlation with PREROE and EQTA, while it has a positive significant correlation with OORTA and CFL; less relevant correlations exist with CTIR (positive) and LLPNIR (negative). These results are in line with the findings in the literature and with our expectations. The correlation between ΔROE and the other explanatory variables are, instead, in line with the results of Altunbas and Marqués, except for OORTA: in this case, in fact, while their study signals a negative correlation between other operational revenues to total assets and the change in performance, our analysis suggests a significant positive correlation between these two variables. We will discuss this issue later, when we will comment the results of our regression models.

Table 5 – Correlation matrix

	ΔROE	PREROE	RSIZE	CTIR	EQTA	NLTA	LLPNIR	OORTA	LADSTF	NLTDP	CFL
ΔROE	1										
PREROE	-0.41	1									
RSIZE	-0.13	-0.4	1								
CTIR	-0.05	0.30	-0.22	1							
EQTA	-0.46	0.52	-0.19	0.03	1						
NLTA	-0.03	0.18	-0.28	-0.16	0.51	1					
LLPNIR	-0.19	0.18	-0.32	0.47	0.06	0.09	1				
OORTA	0.44	-0.04	-0.25	0.32	-0.40	-0.10	0.05	1			
LADSTF	-0.11	0.12	-0.18	0.66	0.13	0.01	0.16	0.20	1		
NLTDP	-0.16	0.20	-0.32	-0.15	0.48	0.93	0.18	-0.21	-0.01	1	
CFL	0.40	-0.24	-0.24	-0.12	0.17	0.45	0.09	0.07	-0.16	0.51	1

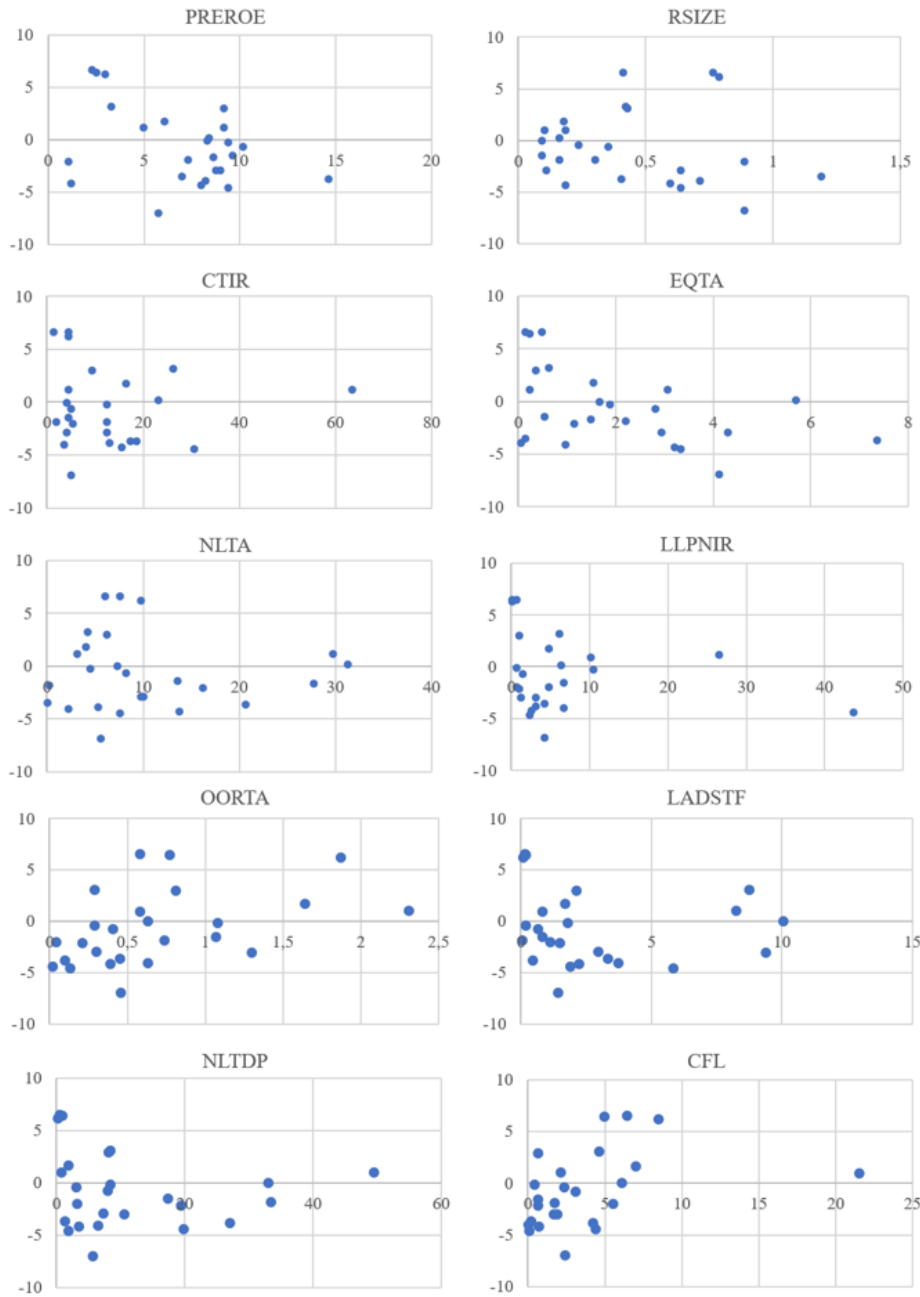
Before starting with the regression analysis, we deepen our descriptive analysis looking at correlation charts showed in [Figure 21](#): in all graphs the dependent variable ΔROE is represented in the y-axis (in percentage), while independent variables are represented in the x-axis (PREROE in percentage, the rest are absolute values). With those graphs we are trying to understand what kind of relationship there exists between each explanatory variable and the dependent one: we know there can be linear and non-linear relationships, like exponential forms, quadratic forms, and so on, but what we expect from this analysis is to find linear relationships (if a relationship exists) since, in the literature, there are no evidences of non-linear relationships between strategic indicators and performance. Therefore, we use correlation charts to test whether our small sample provides results which can be considered plausible and in line with the previous findings in the literature. Looking at the representations, we can see how all the graphs describe strong or weak linear relationships: of course, the most evident relationships are among ΔROE and PREROE, EQTA, OORTA and CFL (being this last the most evident one: apart for an observation, the other ones are distributed in a very small portion of the graph), which are the ones indicated also by the correlation matrix; on the other hand, the representation of the relationship between ΔROE and CTIR, NLTA and LADSTF seems not to follow any pattern in the distribution.

We then use simple regression models to investigate the relationship between single explanatory variables and the dependent variable ΔROE . The limits of this approach are inherent with the difference between simple and multiple regression models: to explain them, we will make an example using some variables we will use in our analysis. By doing simple regressions, for example between ΔROE and PREROE and between ΔROE and RSIZE, we estimate the effect that PREROE and RSIZE have on ΔROE , but in case PREROE and RSIZE are statistically related, as it seems to be in our case, by making simple regressions we produce erroneous estimates of the effect that each of the two explanatory variables have on the dependent one since, by estimating PREROE, for example, we erroneously attribute part of the effect that RSIZE produces to ΔROE , to PREROE. In other words, by using a simple regression model, we force one explanatory variable to explain as much of the variation of the dependent variable as possible, therefore producing worse estimates of the coefficients than would have been produced by a multiple regression model.

Nonetheless, the reason why we decided to use this approach is the size of our sample. With only 25 observations, we can use simple regression models to produce statistically relevant results since, following the rule of thumb which requires at least 10 observations per estimated coefficient, we obtain consistent estimates of the coefficient and of the intercept, given that each of them is obtained by 12 observations.

Starting from the results of the correlation matrix and considering the size of the sample, we don't expect to find many statistically relevant coefficients from the simple regression analysis. Table 6 shows the results of the simple regression models describing the relationship between the dependent variable ΔROE and each explanatory variable: there are four coefficients that are statistically relevant with a p-value lower than 0.05, which are PREROE, EQTA, OORTA and CFL. Apart for PREROE, in the other cases intercepts resulted to be statistically significant too, but we are not particularly interested in them, since the aim of our analysis is to study the relationship between the change in performance and the difference in strategic indicators. For this reason, considering the limited size of our sample, now we focus on the sign of the coefficient of each explanatory variable, ignoring intercepts and not giving importance to the magnitude of coefficients. PREROE resulted negative (-0.4472), and this result is in line with our expectations and with the findings of Altunbas and Marqués (2008) and of Ramaswamy (1997).

Figure 22 – Correlation charts



This means that also in our sample, the higher the pre-merger performance of the bidder company, the higher is the probability that the post-merger performance is going to be relatively low, producing a negative value in ΔROE . This is the so called “floor/ceiling” effect, which refers to the fact that in the short term, post-merger profitability is more likely to decrease the higher is the pre-merger profitability of the bidder.

The second statistically relevant coefficient is EQTA: even in this case it is negative (-0.8800) and it resulted to be coherent with our expectations and with literature findings. This negative

relationship shows that the higher the differences in capitalisation (measured as the ratio between equity and total assets) between the target and the bidder, the higher tends to be the value of the strategic indicator EQTA, the more the post-merger performance is going to reduce: this result suggests that it is harder to integrate institutions with different capitalisations.

An interesting result is the one related to OORTA: from our analysis, there is a positive relationship between the post-acquisition performance Δ ROE and the difference in terms of revenue composition between the two merging institutions (the coefficient is equal to 2.736). In other words, the more two institutions have different sources of revenues (measured as other operating revenues to total assets), the more the post-acquisition entity is going to be profitable: this result is not in line with the findings of Altunbas and Marqués, who obtained a negative coefficient for the same relationship in the case of domestic deals. To explain this discrepancy, we consider that there is a substantial difference between the two analysis: the time span to which the two sample refer to. While the dataset of Altunbas and Marqués refers to a period during which the business cycle was expanding, our sample refers to the post-financial crisis period: as illustrated in Chapter 1, due to the reduction of interest rates, banks have experienced a reduction in their NII, registering a fall in their most traditional source of revenues which strongly affected their profitability. To contrast this phenomenon, banks decided to diversify their sources of revenues, widening their range of products: this explains why we registered a positive relationship between the difference in the sources of revenues and the change in performance. This result suggests that when interest rates are low, it becomes less costly, and so more profitable, to integrate banks with different product ranges.

Finally, the last statistically relevant coefficient is CFL: our analysis suggests a positive relationship between differences in terms of capital fund compositions and changes in performance (the coefficient is equal to 0.3263). Even in this case, our results are in line with the findings of Altunbas and Marqués: even though they used a different strategic indicator to measure the degree of capitalisation (total capital to total assets), our results are identical. So, what we can say is that, from this analysis, differences in capital fund strategies between the target and the bidder resulted in better post-merger performances.

As we have seen using simple regression models, there seems to exist a statistically relevant relationship between some explanatory variables and our dependent variable Δ ROE. Given the small size of our sample, this kind of analysis is the best one since, for each analysis, we respect the rule of thumb of at least ten observations for each predictor.

Table 6 – Regression results

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
PREROE	-0.4472*									
	(0.2101)									
RSIZE		-1.5577								
		(2.4569)								
CTIR			-0.0146							
			(0.0572)							
EQTA				-0.8800*						
				(0.3552)						
NLTA					-0.01112					
					(0.0868)					
LLPNIR						-0.0717				
						(0.0781)				
OORTA							2.736*			
							(1.169)			
LADSTF								-0.1302		
								(0.2406)		
NLTD									-0.0445	
									(0.0588)	
CFL										0.3263*
										(0.1563)
Intercept	2.4444	-0.0343	-0.5296	1.0651	-0.6037	-0.27812	-2.591*	-0.3576	-0.2214	-1.9216*
	(1.6338)	(1.3074)	(1.0509)	(0.9770)	(1.1629)	(0.8737)	(1.042)	(0.9955)	(0.9858)	(0.8921)

Standard errors in parenthesis.

* p < 0.05

On the other hand, however, the sign, and in particular the size, of each coefficient obtained using simple regression models may be wrong: this because the change in performance ΔROE is affected by all the explanatory variables simultaneously, while by performing a simple regression analysis, we force one explanatory variable to explain as much of the variation of the dependent variable as possible. To overcome this shortcoming, we try to perform a multiple regression model, bearing in mind that, given our small sample, results will be not statistically relevant.

Table 7 shows the results of the hierarchical multiple regression analysis obtained with the sample of 25 acquisitions: in the first regression model (the one that includes only control variables) the intercept and PREROE coefficients resulted to be significant (the p-value is lower than 0.05), while the coefficient related to RSIZE is not (even though its p-value is lower than 0.1). By adding one more explanatory variable, PREROE and the intercept continue to be statistically significant, while the p-value of RSIZE increases above 0.1. In model 3, with two explanatory variables, the only significant coefficient is the one of the intercepts. All the coefficients resulting from the 3rd to the 8th model are not significant, while the addition of the

last explanatory variable CFL to the regression determines a huge improvement in results: EQTA, NLTA, LADSTF and NLTDTP resulted to be statistically significant (EQTA with a p-value of 0.05, the other ones with a p-value of 0.01). Even in this case, given the small size of the sample, we are more interested in the sign of each coefficient rather than on their size, and we ignore the value of the intercept coefficient: our results tend to be in line with the ones in the literature, with the only exception of OORTA and NLTA, which have the opposite sign than the one found by Altunbas and Marqués.

Even though results are not statistically significant, we could try to draw some conclusions. In domestic acquisitions, a high pre-merger profitability of the bidder company determines a negative performance change, as measured by Δ ROE: this result has already been explained by researchers (see Ramaswamy, 1997, and Altunbas and Marqués, 2008), who defined this as “floor/ceiling” effect, which means that a well-performing bidder have a high probability not to improve its profitability after the acquisition of a target company due to the lower possibilities to further improve its operating performance with respect to a non-performing bidder. A negative relationship exists also between Δ ROE and RSIZE: this means that the bigger is the target with respect to the bidder, the lower is going to be the improvement in performance for the new entity. Altunbas and Marqués explained this negative relationship with the difficulty to integrate two different companies: the differences in organisations’ culture, in the range of product sold and the contrasts between the two management are going to be harder to be overcome, the bigger is the size of the target.

For what concerns the coefficients related to strategic indicators, we can say that differences in efficiency (CTIR) and in capitalisation (EQTA) negatively affect the post-acquisition performance. The difference in efficiency is expected to produce its effect mainly in the short run, since the integration of the less-efficient company worsens the efficiency of the whole new entity, while it is expected to reduce (but not to disappear) in the medium run, when the cost-control systems of the more efficient bank will be integrated in the less efficient one. In fact, according to the literature, usually there is little improvement after a merger (Rhoades, 1994). Differences in capitalisation, instead, seem to be related to negative performance because weaker capital structure tend to reflect a lower asset quality. Even in this case, results are in line with the literature.

Differences in both liquidity risk indicators are related to a decrease in post-acquisition performance: this result is in line with the literature, and it can be explained with the difficulty to maintain good liquidity indicators. Since generally the aim of the pre-merger bidder is to maintain (or to improve) its liquidity ratios after the deal, if the target has worse indicators, the

bidder must use a lot of resources to improve them, therefore affecting its profitability, not to signal to the market that the deal has increased its liquidity risk.

Differences in the sources of revenues (OORTA) are, instead, positively correlated with an increase in post-merger performances: this result is in contrast with the literature, as already mentioned in the simple regression analysis, and this discrepancy may be due to the different environment in which the banks in our sample operated with respect to the sample of Altunbas and Marqués (2008). In fact, as we have explained in Chapter 1, during the crisis interest rates were reduced by central banks, with the consequence that the contribution of net interest revenues to the profitability of banks reduced a lot. To try to recover their profitability and to react also to other changes in the environment in which they operate (see the raise of Fintechs), banks started widening their range of products and services: many times to offer new products and services requires specific capabilities and technologies, therefore it may be easier, faster and less risky to directly acquire a competitor which has already entered in new markets than to develop their own technologies. Another way to read this result is the following: banks which focused on traditional businesses (so which were not diversified in their sources of revenues) have suffered a reduction in their profitability when interest rates were reduced. If they merged with other traditional banks, their profitability would have not benefitted as much as in case they diversified their sources of revenues by merging with a diversified bank. The negative coefficient between differences in loan strategy (NLTA) and Δ ROE seems to confirm this: if a traditional bank (with a high loan to total assets ratio) merges with a diversified one (with a lower ratio), it benefits more than in case the two banks have the same loan strategy.

Differences in credit risk (LLPNIR) tend to be associated with negative changes in performance, while the opposite holds in case of differences in capital fund strategies (CFL). In the first case, according to the literature, the main difficulty is the complexity in integrating banks with different types of businesses: in fact, differences in credit risk may signal a difference in the business models followed by the two banks, in particular regarding the type and the riskiness of the customers to which they lend money. In the second case, differences in capital fund strategies seem to benefit the post-merger performance thanks to the increase in capital funds carried out by one of the two institutions.

Finally, looking at [Table 8](#), we can see the results of the ANOVA test: as we can see, the addition of explanatory variables produces relevant changes in the p-value of the model: in particular, the 9th model is the most statistically significant one, with a p-value lower than 0.01, which allows to refuse the hypothesis that all the coefficients are equal to zero.

Table 7 – Hierarchical regression results

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
PREROE	-0.6016* (0.2195)	-0.6124* (0.2312)	-0.4070 (0.2604)	-0.3764 (0.2661)	-0.3917 (0.2579)	-0.3990 (0.2573)	-0.4723§ (0.2630)	-0.4498§ (0.2500)	-0.0182 (0.2552)
RSIZE	-4.1551§ (2.3672)	-4.1022 (2.4356)	-4.0585 (2.3593)	-3.34733 (2.5030)	-4.2706 (2.4802)	-3.5121 (2.5793)	-3.9444 (2.5839)	-4.9768§ (2.5305)	-3.3110 (2.1177)
CTIR		0.0106 (0.0541)	-0.0017 (0.0530)	0.0075 (0.0548)	0.0471 (0.0593)	0.0207 (0.0644)	0.0873 (0.0864)	0.0862 (0.0820)	-0.0346 (0.0684)
EQTA			-0.6336 (0.4103)	-0.8167 (0.4783)	-0.8426§ (0.4634)	-0.5909 (0.5216)	-0.5091 (0.5218)	-0.6759 (0.5055)	-1.2257* (0.4475)
NLTA				0.0728 (0.0949)	0.0907 (0.0926)	-0.0725 (0.0940)	0.0840 (0.0938)	0.4174§ (0.2196)	0.5535** (0.1831)
LLPNIR					-0.1202 (0.0798)	-0.1001 (0.0819)	-0.1274 (0.0846)	-0.1039 (0.0815)	-0.0808 (0.0663)
OORTA						1.4687 (1.4099)	1.4059 (1.3984)	0.4165 (1.4551)	0.8131 (1.2446)
LADSTF							-0.3357 (0.2934)	-0.3368 (0.2785)	-0.0407 (0.2456)
NLTDP								-0.2480 (0.1494)	-0.4111** (0.1337)
CFL									0.5157** (0.1719)
Intercept	5.3629* (2.2830)	5.2778* (2.3744)	5.2500* (2.2998)	4.2775 (2.6471)	4.8285§ (2.5886)	3.4399 (2.9063)	4.1394 (2.9444)	4.6594 (2.8125)	0.9105 (2.5924)
R ² -adj									0.5689
F-value									4.167

Standard error in parenthesis.

§ p < 0.1, * p < 0.05, ** p < 0.01

Table 8 – ANOVA results

Model	Res. DF	RSS	DF	Sum of squares	F	Pr (>F)
1	22	232.548	1			
2	21	232.121	1	0.427	0.0749	0.788324
3	20	207.390	1	24.730	4.3384	0.056079§
4	19	201.158	1	6.232	1.0933	0.313463
5	18	178.607	1	22.552	3.9562	0.066607§
6	17	167.890	1	10.716	1.8800	0.191918
7	16	155.190	1	12.701	2.2280	0.157715
8	15	131.107	1	24.083	4.2248	0.058988§
9	14	79.805	1	51.303	9.0000	0.009552**

§ p < 0.1, * p < 0.05, ** p < 0.01

Conclusions

The aim of this work was to study the factors that determine whether horizontal acquisitions among banks are going to be successful or not. From the literature, we know that geographic and product relatedness play an important role in post-merger bidder's performance, but just few studies focused their attention on the influence that strategic similarities may have on a deal. Since banks are firms, and firms have their own strategy and organisational structures, we believe that a strategic and organisational fit between the target and the bidder companies may have a relevant impact on M&As, determining the failure or the success of a transaction: our research question, therefore, was "Is there a relationship between strategic similarities and post-acquisition performances?". To answer this question, we developed different econometric models.

We started from the study of Altunbas and Marqués (2008) and we built a model with eight different strategic indicators which, starting from accounting data, were able to quantify the differences in the two strategies followed by bidders and targets. Then we used a hierarchical multiple regression model, as suggested by the literature, to test whether differences in banks' strategy have a positive or a negative impact on post-merger performances. From a theoretical point of view, our model differs from the previous ones due to the variables used to study the role played by strategic similarities in M&A operations: even though we used different strategic indicators with respect to the ones used in the previous studies, our results are in line with the ones in the literature, with the only exception of the relationship between post-merger performances and differences in the sources of revenues. Therefore, our work has contributed to the literature by offering an alternative set of independent variables which explain the relationship between strategic similarities and post-acquisition performances, allowing us to determine which target's characteristics bidders should be interested in when they perform acquisitions. The discrepancy we registered with respect to the literature may be due to the banks' need for diversification arising from a reduction in interest rates operated by central banks: this caused a reduction of banks' net interest income, the most traditional source of revenues for banks, reducing the overall profitability of banking systems.

According to the results produced with our sample, during the crisis large, less diversified and more efficient banks acquired less risky (in terms of credit and liquidity risks) and better capitalised targets. For what concerns strategic indicators, we found that differences in efficiency, in capitalisation, in credit and in liquidity risk, were negatively correlated with post-merger performance, while differences in diversification of revenues, in loan strategy and in

capital fund strategy were positively correlated with post-acquisition profitability. In addition, a high pre-merger performance of the bidder and a relatively big size of the target with respect to the bidder, negatively affected the acquirer's post-merger profitability. From these results we can get some policy and managerial implications: for what concerns managers, when they decide to perform M&As, they should consider which is the strategy of their bank and which is the one of the institutions they are going to acquire. In fact, according to the literature and to our studies, to create value for their shareholders, the two institutions must be compatible from a strategic and an organisational point of view. In terms of policy implications, instead, from our analysis we can say that in Europe there is room for further banking consolidation: the policy maker should encourage banks to perform M&As, creating ideal conditions (in particular in terms of political and regulatory uncertainty) to make the market work in the best possible way. An efficient banks' consolidation process would improve banks' efficiency and profitability and would prepare banks in facing the future challenges (like the digitisation process and the competition of Fintech companies) by strengthening their capital adequacy, therefore making the banking sector and the whole economy less exposed to banking system crisis and contagion risks.

To conclude, we sum up the limits of our analysis and we give some suggestions for further research. The main limit of our model is the size of the sample used to perform the statistical analysis: as we have already explained, we know from the literature that the dataset must include at least 200 observations to produce consistent results, so the small sample of 25 observations we have used to perform our multiple regression model didn't allow us to produce statistically relevant results. As a second limit, our model studied only domestic acquisitions, but we know there can be relevant differences in results in the case of cross border deals, therefore it would be interesting to perform a cross border analysis to understand how they differ from domestic ones. Finally, our sample included commercial banks operating in the United States, but it is possible that results would be different using the same model with a dataset of European banks: in fact, even though our findings are in line with the ones of Altunbas and Marqués, we must remember that their study refers to a different continent and to a different period of time, and things in Europe may have changed during the crisis. Future researches should use a larger sample to produce statistically relevant results, they should investigate the possibility of having different outcomes in the case of cross border deals and they should replicate this analysis with a sample of European commercial banks, to check whether our results are country-specific or they are valid for both the continents. Finally, it

would be interesting to replicate the analysis even with other types of banks, like investment and universal ones.

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