ANALYSYS OF GROSS LOANS AND RESERVES FOR IMPAIRED LOANS OF ITALIAN LISTED BANKS

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Abstract

This study aims at monitoring the role of Net loans for banks in terms of impact on total assets and, consequently, the trend of gross loans and the reserves for impaired loans in the period between 2005 and 2013. We also investigate the correlation between loans and their related Reserves for impaired loans, by using the Pearson correlation ratio. Data were extracted from Bankscope, a database containing comprehensive information on financial companies in Italy. Our findings raise important issues on the administrative supervision of banks and the financial system in general. A strong concern regarding the steady increase of impaired loans emerged and consequently the possibility of mergers has become one of the solutions for pursuing a more efficient risk policy.

Keywords: Gross loans; Assets; Reserves; Impairment; Banks; Italian Stock Exchange; Correlation.

1. Introduction

Banks, like any other business, have been changing continuously with the surrounding environment. In fact, there are several inputs, such as production factors, constraints and conditions that, through a process of transformation, generate a series of outputs (Brusa, 2013). Along with insurance, financial intermediaries, banks are part of the so-called "financial system" (Giovando and Venuti, 2014). The financial system connects the entire economic system through the financial reports.

The financial statements of banks present peculiarities of composition, exposure and content that make it suitable for the specific type of business (Bocchino, 2013).

Indeed the bank balance sheet follows an order of presentation of the items, essentially based on a policy of decreasing liquidity, with cash and cash equivalents reported as the first entry (Bank of Italy, Circular no. 262, 22 December 2005).

Our empirical study bases its theoretical rationale on the necessity to strengthen with further demonstrations the importance and the strategic role of loans and the several implications of a specific loan policy on the profitability of each bank.

In fact loans are an essential item of the balance sheet of banks, as being one of the most representative items heavily influencing both stability and profitability of this system.

The International Accounting Standards aim at giving a true and fair representation of the above-mentioned item. In accordance to IAS 39, the procedure of *impairment* requires to divide the credits into two large groups: exposures (the so-called "non-performing loans") and those who have not brought individually to objective evidence of impairment (performing loans or "performing").

In this connection there is a specific provision for doubtful accounts in order to show a true and fair view of the same.

Moreover, in order to define the adjustment and the associated value loss, we proceed by deleting the receivables for which the impairment is considered complete and definitive or devaluing (individually or collectively, depending on the method applied) claims for which it is made necessary rectification.

The sample chosen is that of all the banks listed on the Italian stock market in the period between 2005 and 2013.

Consequently we have formulated two different hypotheses and in order to start analysing the results we used the Pearson correlation ratio.

This research differs from previous studies, proposed in the following literature review, in terms of empirical analysis. First of all, the current sample is particularly representative as it includes all the banks listed on the Italian stock Exchange. In addition, this study was conducted on the financial statements of those banks and the analysis covers a very long period.

This analysis allowed us to monitor the changes in balance sheet items considered and the evolution that occurred in the surrounding environment in that period. Moreover, we try to evaluate the effects caused by the global financial crisis that has particularly affected the financial sector and consequently those companies operating in our market.

This last element can help us introduce the limits of this research. First of all we should underline that it is the first phase of a far deeper analysis on the banking system. Therefore we carried out a simple empirical analysis in order to create the groundwork for further research. Moreover Bankscope, the database from which we took the data, did not provide all the information required for each bank. This is the reason why we decided to use the mean of each item.

The remainder of this study is organised as follows. In Section 2, we provide the literature review of the topic presented. The definition of the sample of companies and the methodology are described in Section 3. In this section, we also include the presentation of the research questions and of the phases of analysis. Our findings are presented in Section 4. Discussions are in Section 5 and conclusions in the last part of the research.

2. Literature review

Many analyses have been conducted to study the bank in its entirety (Koch and MacDonald, 2007). Over the years many scholars have studied the bank account (Bocchino et al 2013), its performance (Barros et al 2007; Berger, 2005; Boubakri et al., 2005) and its financial analysis (Hartvigsen, G., 1992). Some researchers have analyzed the performance of the banks

belonging to individual countries (Faisal et al 2015; Iqbal, and Raza, 2009; Ali and Ansari, 2007; Barros Ferreira and Williams, 2007). Recent studies have analyzed the bank in terms of international accounting standards (Dezzani et al 2014) and other specific studies are focused on a thorough analysis of the assets and liabilities of the balance transfer.

In addition other researchers have recently analyzed the impacts of the new capital requirements under Basel III on bank lending rates and loan growth. As a result higher capital requirements, raising the marginal cost of bank funding, have been leading to higher rates (Cosimano, et al., 2011; Elliott, 2009; Laeven and Valencia, 2008).

Some studies focused on how some banking entities have faced this moment of global crisis (Crowley, 2015; Costa and Thegeya, 2013; Avdjie et al 2012; Caprio et al, 2011). Many studies have concentrated on this period of financial crisis, highlighting the crucial role played by the liquidity risk in the stability of a bank, and more generally in the financial system. Some have tried to locate the perimeter within which identify the financial risk and study of methods for good management, in accordance with the requirements of Basel (Álvarez and Rossignolo 2015; Angelini, et al. 2011, Strahanb and Cebenoyan, 2004).

A major study found that the systemically important banks Eurozone during the period 2007 and 2013 are well capitalized with respect to market risks, but what about the risks undercapitalized credit and counterparty (Kahlert et al, 2015).

The accumulation of reserves in the banking system of the United States during the financial crisis increased concerns that the policies of the Federal Reserve may have failed to stimulate the flow of credit to the economy: banks, apparently, are accumulating funds instead of loan out (Keister and McAndrews, 2009).

Although credit risk is an important factor that financial institutions must cope with the determinants of bank problem, loans have been little studied.

A smaller proportion of studies focused on loans in the bank balance sheets. In particular some scholars employ Granger-causality techniques to test four hypotheses regarding the relationships among loan quality, cost efficiency, and bank capital (Berger and De Young, 1997). Other studies analyzed the trade-off between (loan portfolio) focus and diversification using a unique data set that is able to identify individual bank loan exposures to different industries, to different sectors, and to different geographical regions (Acharya et al, 2003). Some studies have analyzed the types of loans to customers and the different types of credit between different regions (Salas and Saurina, 2002).

Important studies analysed in depth how loan growth affect the riskiness of individual banks in many countries (Foos et al, 2010; Bushman and Williams, 2012). The study notes that the loan growth leads to an increase in provisions for credit losses over the next three years, to a decrease in interest income related, and lower capital ratios. Further analysis shows that lending growth has also a negative impact on net interest income risk-adjusted. All this leads to the conclusion that the growth of loans is an important driver of the riskiness of banks.

El Sood (2012) focused his analysis on the relationships between loan growth and tier 1 capital ratio, loan growth with the tier 1 capital component, loan loss provisions and the change in nonperforming loans and loan loss provisions and the change in securities to loans.

Beccalli, Casu and Gilardone (2006) investigated the determinants of bank performance and their relationship with share prices. This paper extends the literature on market-based accounting to examine the relationship between stock prices and efficiency. Specifically, it monitors if the changes in stock performance can be explained by changes in operating efficiency, derived by parametric and non-parametric methods.

However, none of these types of analyses concentrated on Italian banking firms in the period considered. More specifically, our research considers the period between 2005 and 2013, a very long period that allows to overcome the cyclical trends in the short term, on a large sample of Italian banks, generating incremental results than existing literature from an empirical point of view. Moreover our research monitors the correlation between gross loans and reserves for impaired loans over a very long period. We aim at analysing how and if reserves have the same trend of loans and, consequently, if they have a huge impact on them.

Consequently, the results provide a "snapshot" of the economic situation of the Italian banks.

3. Methodology

The following paragraphs describe the sample and the data, research questions and phases of analysis and the statistical techniques used to conduct our research.

3.1. Sample and Data

This analysis focuses on the group of banks listed on the Italian Stock Exchange. In particular, we have chosen those listed on the sectoral index called FTSE Banks.

We focused on the analysis of the Gross loans and the related Reserves for impaired loans in the period between 2005 and 2013. Moreover this study can help us understand the context and the main business in which banks operate.

Data were extracted from Bankscope, which is a database containing comprehensive information on financial companies (banks and insurance companies) in Italy. We used the consolidated balance sheets of all companies and we focused on information about Gross loans, Reserves for impaired loans and Total Assets of the balance sheet of the groups of banks companies. We want to specify that data provided in our figures all refer to the mean of the single element analyzed for the specific sector.

Table 1 shows all the Italian banks of the sample analyzed.

Table 1 – Italian banks listed on the bank sectoral index of the Italian Stock Exchange

Banks
Banca Finnat Euramerica SpA
Banca popolare dell'Etruria e del Lazio Soc. coop.
Banca Popolare di Milano SCaRL
Banca Popolare di Sondrio Societa Cooperativa per Azioni
Banca popolare dell'Emilia Romagna
Banca Profilo SpA
Banco di Desio e della Brianza SpA-Banco Desio
Banco di Sardegna SpA
Banco Popolare - Società Cooperativa-Banco Popolare
Banca Carige SpA
Credito Emiliano SpA
Banca Piccolo Credito Valtellinese - Credito Valtellinese Soc Coop
FinecoBank Banca FinEco SpA-Banca FinEco SpA
Intesa Sanpaolo SpA
Mediobanca SpA - Banca di Credito Finanziario Società per Azioni
Banca Monte dei Paschi di Siena SpA - Gruppo Monte dei Paschi di Siena
Unione di Banche Italiane Scpa- UBI Banca
UniCredit SpA

3.2. Research questions and phases of analysis

The present research is based on the following main hypothesis: the assets of banks listed on the sectoral index called FTSE banks are mainly represented by loans.
To reach the goals of this study, we need to formulate two research questions:

> *RQ1: What is the role of Net loans for banks in terms of impact on total assets? And, consequently, what is the trend of the reserves for impaired loans?*
>
> *RQ2: Is there a correlation between the credits and their related Reserves of impaired loans?*

The research methodology followed three phases:

Phase 1: Definition of the items monitored. As we analyse the annual financial reporting standards of a group of Italian listed companies, we refer to the IAS-IFRS principles (Dezzani et al, 2014), and in particular to IAS 1, *Presentation of Financial Statement*, IAS 39 *Financial Instruments. Recognition and Measurement*.

Phase 2: Empirical analysis and findings. It involves an analysis of the information derived from the sample. The research only uses the information provided in the consolidated financial statements because it is sufficient to answer the research questions.

With reference to *RQ1*, we firstly want to demonstrate that the amount of net loans is particularly significant in the bank balance sheets. Afterwards we want to monitor their evolution and we make a comparison with the percentage of Reserves of impaired loans to the total gross loans in the period considered.

With reference to *RQ2*, we calculate the Pearson correlation ratio between Gross Loans and Reserves for impaired loans. Thanks to this ratio, we can analyse the impact of gross loans on the reserves for impaired loans in order to evaluate the effects of a specific gross loans policy.

As mentioned above, the Pearson correlation ratio (p) is used to identify a positive or negative correlation between the gross loans and the reserves for impaired loans. For this, it is necessary to underline the following conditions:

- if $p > 0$ there is a direct correlation;
- if $p = 0$ there is no correlation;
- if $p < 0$ there is a indirect correlation;
- if $0 < p < 0.3$ the correlation is weak;
- if $0.3 < p < 0.7$ the correlation is moderate;
- if $p > 0.7$ the correlation is strong.

Phase 3: Conclusions and limitations of the research.

3.3. Statistical Techniques

In phase 2, after a brief analysis of the data obtained, we focused our empirical work on the analysis of the Pearson product-moment correlation coefficient, which is a measure of the linear correlation between two variables X and Y, giving a value between +1 and −1 inclusive, where 1 is total positive correlation, 0 is no correlation, and −1 is total negative correlation.

Pearson's correlation ratio is the covariance of the two variables divided by the product of their standard deviations. The form of the definition involves a "product moment", that is, the mean of the product of the mean-adjusted random variables.

The correlation coefficient ranges from −1 to 1. A value of 1 implies that a linear equation describes the relationship between X and Y perfectly, with all data points lying on a line for

which Y increases as X increases. A value of −1 implies that all data points lie on a line for which Y decreases as X increases. A value of 0 implies that there is no linear correlation between the variables.

More generally, (Xi − X)(Yi − Y) is positive if and only if Xi and Yi lie on the same side of their respective means. Thus the correlation coefficient is positive if Xi and Yi tend to be simultaneously greater than, or simultaneously less than, their respective means. The correlation coefficient is negative if Xi and Yi tend to lie on opposite sides of their respective means. Moreover, the stronger is either tendency, the larger is the absolute value of the correlation coefficient.

This ratio was developed by Karl Pearson (1895) from a related idea introduced by Francis Galton in the 1880s (1877; 1855; 1886). Early work on the distribution of the sample correlation coefficient was carried out by Gayen (1951) and Fisher (1915; 1921) from the University of Cambridge.

As regards the topic of this research, the Pearson correlation ratio was used by Bushman and Williams (2012), who examined banks across 27 countries, estimating two measures of the forward-looking orientation reflected in discretionary loan provisioning practices within a country. They used this parametric correlation between their two measures of discretionary provisioning and measures of countries' bank regulatory regimes and other country-level institutions.

El Sood (2012) instead used this ratio between his sample of data. In particular he focused his analysis between loan growth and tier 1 capital ratio, loan growth with the tier 1 capital component, loan loss provisions and the change in nonperforming loans and loan loss provisions and the change in securities to loans.

Beccalli, Casu and Gilardone (2006) used the Pearson correlation ratio in their research in which they investigated the determinants of bank performance and their relationship with share prices. This paper extends the literature on market-based accounting to examine the relationship between stock prices and efficiency. Specifically, it monitors if the changes in stock performance can be explained by changes in operating efficiency, derived by parametric and non-parametric methods.

Our research instead differs from previous studies because it monitors the correlation between gross loans and reserves for impaired loans over a very long period. We aim at analysing how and if reserves have the same trend of loans and, consequently, if they have a huge impact on them.

4. Findings

4.1. Results

First of all, before analysing the data obtained, we want to give further details and definitions.

The gross loans include loans, finance leases, factoring transactions, debt securities, the variation margins with clearing in front of derivative transactions and operating receivables associated with the provision of financial services. The gross loans are initially recognised at fair value which corresponds to the amount disbursed, or subscription price, plus any transaction costs and revenues directly attributable.

At the end of each accounting period an assessment is made regarding the loss of value of the entire loan portfolio. The amount of the loss is recognised in the income statement. The evaluation of the impairment loss on the entire loan portfolio is made taking into account these distinctions:

- Non-performing loans (non-performing): this category includes the sufferings, substandard loans, restructured loans, loans past due/overdue (Past due), as defined by the applicable regulatory reporting;
- Performing loans (or performing): as for non-performing loans (Excluding past due) assessment, analytically attributed to each individual position, is performed, for loans that exceed the threshold of significance, determining the expected cash flows and the relative timing of receipts.

Starting with *RQ1*, Figure 1 emphasises the weight of net loans to total assets of bank balance sheets in the period between 2005 and 2013. The data refer to the average of the sample for each year.

The figure confirms our main hypothesis, therefore, in the sample of banking firms considered, it can be noted that gross loans were a significant part of the total assets. Moreover there was a direct correlation between the two. In fact when gross loans went up, total assets increased too. Obviously, the trend of total assets was also influenced by other items such as financial assets, classified as *AFS* (Available for Sale) or *HFT* (Held for Trading). Moreover, despite the initial phase of the financial crisis in the period between 2007 and 2009, the sample of Italian banks increased its gross loans, in opposition to what happened on the sample of American banks (Keister and McAndrews, 2009).

Figure 1 – The impact of net loans to total assets

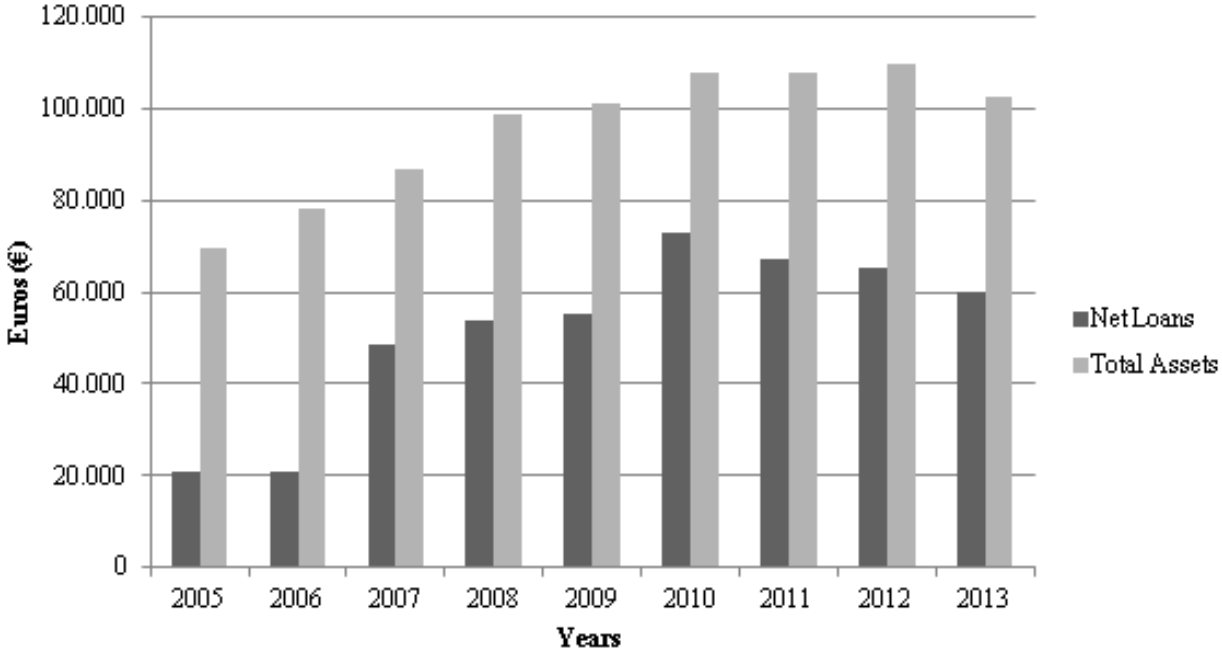
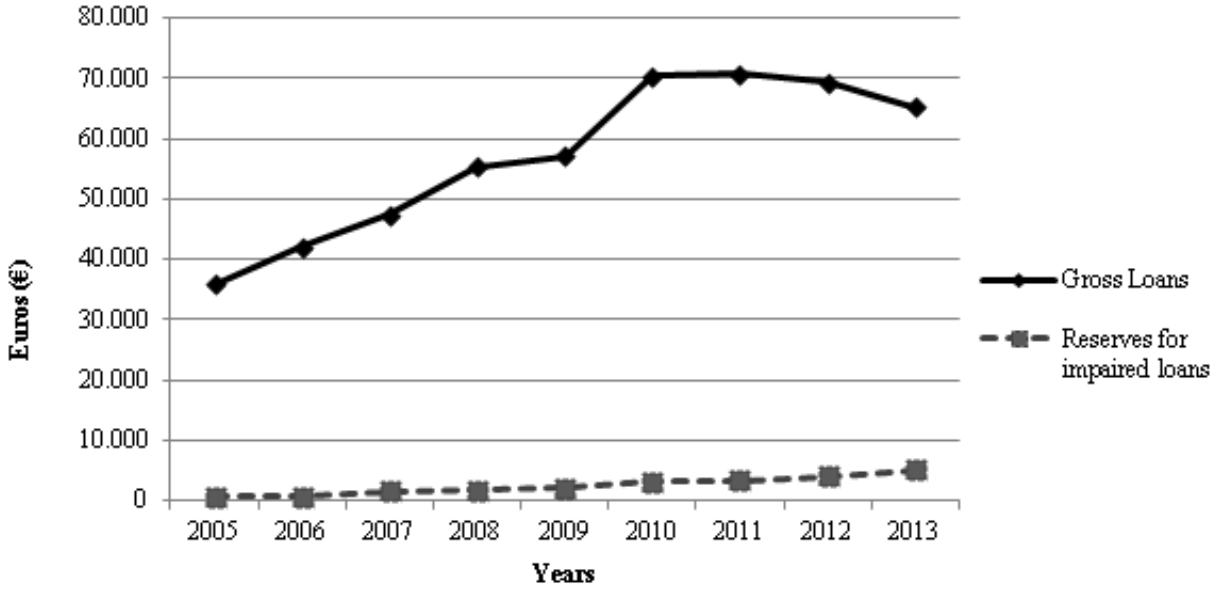


Figure 2 shows the trend of gross loans and reserves for impaired loans during the same period. The data refer to the mean of the sector for each year.

Figure 2 – The trend of gross loans and reserves for impaired loans



The two figures demonstrate that the initial main hypothesis is true. In addition, it is important to understand the relationship in the balance sheets of banks between credits and the related reserves.

This graph introduces the answer to RQ2. In fact, by analysing their evolution, we can affirm that the two items were interrelated in the period considered.

We can notice that the reserves gradually increased between 2005 and 2013, while credits did not have the same plain growth. In 2009 the development stopped and then started increasing again, but in 2011 the amount of gross loans began decreasing. It is therefore clear that in a period of crisis, such as the one that we have been through, banks have increased their reserves for impaired loans and have decided to reduce their risks.

Table 2 shows the percentage of impaired loans to gross loans, referring to the sample analysed. As we can notice, the amount of reserves has increased over the years. In fact it passed from 2.6% in 2005 to 6.4% in 2013. In particular, in 2008 there was a peak, clearly determined by the general situation of crisis of that year.

Table 2 – Percentage of reserves for impaired loans to gross loans of the banks of the sample

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Reserves of impaired loans	2,6%	2,5%	3,3%	4,4%	3,1%	3,4%	3,9%	4,9%	6,4%

As mentioned in previous paragraph, in order to demonstrate the hypothetical correlation between gross loans and their related reserves, we decided to use the Pearson correlation ratio (p) in the period between 2005 and 2013.

Table 3 shows the results deriving from the correlation between gross loans and reserves for impaired loans.

Table 3 – Pearson correlation ratio between gross loans and reserves for impaired loans of the banks of the sample

		Reserves for impaired loans								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Gross Loans	2005	0,94								
	2006		0,93							
	2007			0,96						
	2008				0,98					
	2009					0,99				
	2010						0,99			
	2011							0,98		
	2012								0,99	
	2013									0,98

The table confirms there is a strong positive correlation between the two variables. Every year the correlation overcomes 0.9, rising from 0.94 in 2005 to 0.98 in 2013. Even in this case, the Pearson correlation ratio of each year confirms what we have just commented before.

On the one hand the average of the allocations increases over the years and on the other the correlation is very strong.

4.2. Discussions

Our research and its results confirm what many previous studies have stated before: the gross loans are an essential item of the balance sheet of banks reaching in some years a percentage on average more than 50 percent of total assets (Keister and McAndrews, 2012).

Nowadays the balance sheet of banks is formed mainly by that item. But precisely for these reasons reserves for impaired loans have had an increasing importance. Indeed provisions to reserves for impaired loans reveals that they will be one of the most strategic items of bank balance sheets. Under these provisions, administrators will influence the income statement of these financial institutions.

Our findings raise important bank supervisory policy issue: the use of bank level variables as early warning indicators. Thanks to our study, we realised that in Italy in the period between 2005 and 2013 the gross loans of the group of banks considered comprehensively grew, even if between 2010 and 2013 they slightly decreased. Moreover the related reserves for impaired loans had the same growth in the period considered, but they had a steady and constant positive trend. We have also noticed that the Pearson correlation ratio underlines that the growth of gross loans is strongly positively correlated to the increase reserves for impaired loans.

Especially in the period between 2010 and 2013, the decrease in gross loans and the growth of the related reserves underline that the Italian financial system is blocked.

As a consequence the crisis of recent years has generated strong concern regarding gross loans and their potential loss.

The overall situation and this strong concern in the financial system has also an impact on the topic of bank mergers. Business combination would bring benefits related to the aggregation of credit, liquidity and operational risks and their management. In fact recent

events demonstrated that in some cases the only way to deal with past due and sufferings was to merge with other banks.

5. Conclusions

The present research first concentrates on the analysis of the Gross loans and the related Reserves for impaired loans in the period between 2005 and 2013.

This study aims at monitoring the role of Net loans for banks in terms of impact on total assets and, consequently, the trend of the reserves for impaired loans. Our findings raise important issues on the administrative supervision of banks and on the system in general. A strong concern regarding the steady increase of impaired loans emerged and consequently the possibility of mergers has become one of the solutions for pursuing a more efficient risk policy.

The sample chosen is that of all the banks listed on the Italian stock market in the period between 2005 and 2013 and data were extracted from Bankscope, a database containing comprehensive information on financial companies in Italy.

We have formulated two different hypotheses and, in order to start analysing the results, we used the Pearson correlation ratio between loans and their related Reserves for impaired loans, by using the Pearson correlation.

This research differs from previous studies in terms of empirical analysis. First of all, the current sample is particularly representative as it includes all the banks listed on the Italian stock Exchange. In addition, this study was conducted on the financial statements of those banks and the analysis covers a very long period.

This research allowed us to monitor the changes in balance sheet items considered and the evolution that occurred in the surrounding environment in that period. Moreover, we try to evaluate the effects caused by the global financial crisis that has particularly affected the financial sector and consequently those companies operating in our market.

What we have analyzed also allows us to introduce all the limits of this research. First of all, this study represents the first step of a much deeper analysis that can consider other variables, financial indicators and margins.

We carried out a simple empirical analysis in order to create the groundwork for further research. In addition Bankscope, the database from which we took the data, did not provide all the information required for each bank. This is the reason why we decided to use the mean of each item.

As regards the future developments of this research, it might be interesting to compare and contrast the Italian situation with that of other European countries, such as England, France and Germany.

Moreover, it may be useful to understand the impact of the annual provision to reserves for impaired loans on the operating result. This might help better understand the balance sheets of banks during this period and how performance in the sector have been influenced by the policy linked to these provisions.

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