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BANK MONITORING ACTIVITY AND THE CONTRIBUTION TO THE ECONOMIC GROWTH: EMPIRICAL ANALYSES OF THE ITALIAN BANKING SYSTEM

Coordinatore: Ch.mo Prof. Alberto Banfi

Tesi di Dottorato di: Peter Cincinelli

Matricola: 4010933

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CONTENTS PATH

Index of Tables **9**

Index of Graphs **15**

Index of Econometric Models and Formulas **19**

Acknowledgments **23**

First Section **25**

1. Prelude of the Study **25**

1.1) The Research Problem 25

1.2) The Purpose of the Study 27

1.3) The Importance of the Study 29

1.4) The Scope of the Study 30

1.5) Outline of the Study 30

Second Section **33**

CHAPTER 1

The contribution of the Italian Banking System to the Italian Economic and Social Growth **33**

1) Introduction 33

2) Literature Review 34

3) The "*Banking Granular Residual*" in the Italian Banking System 36

4) Does the "*Granularity*" hold in the Italian Banking System? 38

5) The Empirical Model 45

6) Data 47

7) Preliminary Results 50

8) Preliminary Conclusions 57

CHAPTER 2

Bank Monitoring Ability 59

1) Introduction 59

2) Literature Review 63

3) Bank's monitoring ability effort in the Italian Banking System 72

4) Hypothesis & Data 89

5) Methodology 90

6) Empirical Results 93

7) The Assessment of Monitoring Proxies 99

CHAPTER 3

Testing the Efficiency of Bank's Monitoring Ability 115

1) The SFA (Stochastic Frontier Approach) History Path 115

2) Bank Production Process 120

3) Beyond Bank Production Process: The Profit Efficiency Assessment 125

CHAPTER 4

The Role of an Effective Banking Supervision 149

1) *Core Principles*: an overview 149

2) Effective Banking Supervision: preconditions 152

3) The underlying hypothesis and empirical analysis 153

CHAPTER 5

Preliminary Conclusions 159

5.1) The Main Findings 159

5.2) The Advantages of an "*ex-ante*" proxy developed 162

5.3) The Limitations 162

5.4) Direction for Future Research 163

References 165

Appendix 189

Appendix – Chapter 2 189

Appendix – Chapter 3 229

Index of Tables

CHAPTER 1 – The Contribution of the Italian Banking System to the Italian Economic and Social growth

Table n. 1 – Expected Sign Independent Variables……48
Table n. 2 – Descriptive Statistics Banks' Efficiency
(Italian Banking System)……..48
Table n. 3 – Descriptive Statistics Independent Variables
(Italian Banking System)……..49
Table n. 4 – Matrix Correlation……..50
Table n. 5 – Empirical Results I Estimation……...53
Table n. 6 – Empirical Results II Estimation……..54
Table n. 7 – Empirical Results III Estimation……56

CHAPTER 2 – Bank Monitoring Ability

Table n. 8 – Sectional Distribution Loans to Customers
Ante and *Post* IAS……...79
Table n. 9 – Amalgamation among Sectional Distribution Loans to
Customers Items *Ante* and *Post* IAS……...80
Table n. 10 – Descriptive Statistics……94
Table n. 11 – Matrix Correlations……...95
Table n. 12 – Fixed-Effects Salary Expense Equations……..97
Table n. 13 – Loans Quality Components Italian Banking System……..105

Table n. 14 – Loans Quality Components Commercial Banks (S.p.A.)……...106
Table n. 15 – Loans Quality Components Cooperative Banks…….108
Table n. 16 – Loans Quality Components Mutual Banks (BCC)…….109
Table n. 17 – Assessment of Monitoring Proxies…….112

CHAPTER 3 – Testing the Efficiency of Bank's Monitoring Ability

Table n. 18 – Summary of SFA (Stochastic Frontier Approach) studies…….119
Table n. 19 – Statistics Variables Stochastic Frontier Approach (SFA) Italian Banking System……..133
Table n. 20 – Statistics Variables Stochastic Frontier Approach (SFA) by type of Bank…….134
Table n. 21 – Correlation Matrix Variables SFA (Dependent Variable Net Interest Margin)……135
Table n. 22 – Correlation Matrix Variables SFA (Dependent Variable Intermediation Margin)……..135
Table n. 23 – Correlation Matrix Variables SFA (Dependent Variable Financial Outcome)……..136
Table n. 24 – Stochastic Frontier Estimations (SFA) – Exponential Distribution υ……..139
Table n. 25 – Descriptive Statistics Technical Efficiency Coefficients Exponential Distribution υ…….140
Table n. 26 – Correlation Matrix Variables PROFIT EFFICIENCY (Dependent Variable Efficiency Net Interest Margin)……...142
Table n. 27 – Correlation Matrix Variables PROFIT EFFICIENCY (Dependent Variable Efficiency Intermediation Margin)……...143
Table n. 28 – Correlation Matrix Variables PROFIT EFFICIENCY (Dependent Variable Efficiency Financial Outcome)……143
Table n. 29 – Profit Efficiency Estimations Italian Banking System……...144

Table n. 30 – Profit Efficiency Estimations
(Italian Banking System & Commercial Banks – S.p.A.)……..146
Table n. 31 – Profit Efficiency Estimations
(Italian Banking System & Cooperative Banks)…….147
Table n. 32 – Profit Efficiency Estimations
(Italian Banking System & Mutual Banks - BCC)…….148

CHAPTER 4 – The Role of an Effective Banking Supervision

Table n. 33 – Correlation Matrix Variables Efficiency & Banking
Supervision (Dependent Variable Net Interest Margin)……155
Table n. 34 – Correlation Matrix Variables Efficiency & Banking
Supervision (Dependent Variable Intermediation Margin)……155
Table n. 35 – Correlation Matrix Variables Efficiency & Banking
Supervision (Dependent Variable Financial Outcome)……..156
Table n. 36 – Profit Efficiency & Banking Supervision
(Dependent Variable Net Interest Margin)…….157
Table n. 37 – Profit Efficiency & Banking Supervision
(Dependent Variable Intermediation Margin)……158
Table n. 38 – Profit Efficiency & Banking Supervision
(Dependent Variable Financial Outcome)……..158

Appendix

Appendix – Chapter 2

Table n. 39 – Descriptive Statistics – Year 2000……..189
Table n. 40 – Descriptive Statistics – Year 2001……..190
Table n. 41 – Descriptive Statistics – Year 2002……..192
Table n. 42 – Descriptive Statistics – Year 2003……..193
Table n. 43 – Descriptive Statistics – Year 2004……..195
Table n. 44 – Descriptive Statistics – Year 2005……..196
Table n. 45 – Descriptive Statistics – Year 2006……..198
Table n. 46 – Descriptive Statistics – Year 2007……..199
Table n. 47 – Descriptive Statistics – Year 2008……..201
Table n. 48 – Descriptive Statistics – Year 2009……..202
Table n. 49 – Descriptive Statistics – Year 2010……..204
Table n. 50 – Descriptive Statistics – Year 2011……..205
Table n. 51 – Fixed – Effects Salary Expense Equations…….206

Appendix – Chapter 3

Table n. 52 – Stochastic Frontier Estimations (SFA)
Half-Normal Distribution υ……229
Table n. 53 – Stochastic Frontier Estimations (SFA)
Truncated-Normal Distribution υ……...230
Table n. 54 – Technical Efficiency Coefficients
Exponential Distribution υ……..231
Table n. 55 – Descriptive Statistics Technical Efficiency Coefficients
Half-Normal Distribution υ……241
Table n. 56 – Technical Efficiency Coefficients
Half-Normal Distribution υ……242
Table n. 57 – Descriptive Statistics Technical Efficiency Coefficients

Truncated-Normal Distribution υ……...252
Table n. 58 – Technical Efficiency Coefficients
Truncated-Normal Distribution υ……...253

Index of Graphs

CHAPTER 1 – The Contribution of the Italian Banking System to the Italian Economic and Social growth

Graph n. 1 – Bank Size Distribution……..39
Graph n. 2 – Bank Size Distribution associated with Normal Distribution…….40
Graph n. 3 – Bank Size Distribution associated with Normal Distribution……41

CHAPTER 2 – Bank Monitoring Ability

Graph n. 4 – Credit to small firms and credit standards to firms (net percentages)…….73
Graph n. 5 – Credit to small firms and long term credit to firms (net percentages)…….73
Graph n. 6 – Loans to Customers Growth Italian Banking System (growth percentages)……..76
Graph n. 7 – Total loans to customer, total assets and total non performing loans Italian Banking System (EUR thousands)……...77
Graph n. 8 – Total loans to customer, total assets and total non performing loans Commercial Banks – S.p.A. (EUR thousands)……...78
Graph n. 9 – Total loans to customer, total assets and total non performing loans Cooperative Banks – Popolari (EUR thousands)……78

Graph n. 10 – Total loans to customer, total assets and total non performing loans Mutual Banks – Banche di Credito Cooperativo (EUR thousands)……...79
Graph n. 11 – Sectional Distribution Loans to Customers Italian Banking System (EUR thousands)……81
Graph n. 12 – Sectional Distribution Loans to Customers Commercial Banks (EUR thousands)……...81
Graph n. 13 – Sectional Distribution Loans to Customers Cooperative Banks (EUR thousands)……..82
Graph n. 14 – Sectional Distribution Loans to Customers Mutual Banks (EUR thousands)……..82
Graph n. 15 – Intermediation Margin, Net Interest Income, Operative Profit, Net Income, Return on Assets Italian Banking System (left-hand scale: EUR thousands; right-hand scale: percentage change)……...83
Graph n. 16 – Intermediation Margin, Net Interest Income, Operative Profit, Net Income, Return on Assets Commercial Banks (left-hand scale: EUR thousands; right-hand scale: percentage change)……...84
Graph n. 17 – Intermediation Margin, Net Interest Income, Operative Profit, Net Income, Return on Assets Cooperative Banks (left-hand scale: EUR thousands; right-hand scale: percentage change)……...85
Graph n. 18 – Intermediation Margin, Net Interest Income, Operative Profit, Net Income, Return on Assets Mutual Banks (left-hand scale: EUR thousands; right-hand scale: percentage change)……...85
Graph n. 19 – Operative Profit, Intermediation Margin, Personnel, Non Interest Expense Italian Banking System (left-hand scale: percentage change; right-hand scale: EUR thousands)……86
Graph n. 20 – Operative Profit, Intermediation Margin, Personnel,

Non Interest Expense Commercial Banks
(left-hand scale: percentage change; right-hand
scale: EUR thousands)…….87
Graph n. 21 – Operative Profit, Intermediation Margin, Personnel,
Non Interest Expense Cooperative Banks
(left-hand scale: percentage change; right-hand
scale: EUR thousands)……88
Graph n. 22 – Operative Profit, Intermediation Margin, Personnel,
Non Interest Expense Mutual Banks
(left-hand scale: percentage change; right-hand
scale: EUR thousands)……...88
Graph n. 23 – Loans to Customers Quality Italian Banking System
(left-hand scale EUR thousands; right-hand
scale percentage change)…….99
Graph n. 24 – Non Performing Loans Components Italian Banking System
(left-hand scale percentage change; right-hand
scale EUR thousands)……...101
Graph n. 25 – Problem Loan Components Italian Banking System
(left-hand scale percentage change; right-hand
scale EUR thousands)……...102
Graph n. 26 – Restructured Loans Components Italian Banking System
(left-hand scale percentage change; right-hand
scale EUR thousands)……...103
Graph n. 27 – Due Loans Components Italian Banking System
(left-hand scale percentage change; right-hand
scale EUR thousands)……...104

CHAPTER 3 – Testing the Efficiency of Bank's Monitoring Ability

Graph n. 28 – Technical Efficiency Coefficients
(Italian Banking System & type of Bank)…….140
Graph n. 29 – Technical Efficiency Coefficients
(Italian Banking System)……...141

Index of Econometric Models and Formulas

CHAPTER 1 – The Contribution of the Italian Banking System to the Italian Economic and Social growth

$$g_{i,t+1} = \frac{\Delta S_{i,t+1}}{S_{i,t}} = \frac{S_{i,t+1} - S_{i,t}}{S_{i,t}} = \sigma_i \varepsilon_{i,t+1} \quad \text{.....41}$$

$$\sigma_{GDP} = \sigma \sqrt{\sum_{i=1}^{N} \left(\frac{S_{i,t}}{Y_t} \right)^2} = \sigma h \quad \text{.....42}$$

$$GR_t = \left(\sum_{i=1}^{K} S_{i,t-1} \right)^{-1} \left(\sum_{i=1}^{K} S_{i,t-1} (g_{i,t} - \bar{g}_t) \right) = \left(\sum_{i=1}^{K} S_{i,t-1} \right)^{-1} \left(\sum_{i=1}^{K} S_{i,t-1} \varepsilon_{i,t} \right) \quad \text{.....42}$$

$$Y_{i,t} = \alpha_i + \beta_1 BGR_{i,t} + \beta_2 X_{i,t} + u_{i,t} \quad \text{.....47}$$

CHAPTER 2 – Bank Monitoring Ability

$$Salary_{i,t} = \eta_i MonitoringEffort_i + \beta_1 NonMonEffort_{i,t} + \beta_2 Control_{i,t} + \varepsilon_{i,t} \quad \text{.....91}$$

$$Loan\ Quality_i = \alpha_i + \beta_1 Monitoring\ Effort_i + \beta_2 Control_i + \varepsilon_i \quad \text{.....111}$$

CHAPTER 3 – Testing the Efficiency of Bank's Monitoring Ability

$$y_i=\alpha_0+\sum_{j=1}^{k}\beta_j x_{ji}+v_i-sv_i \quad \text{.....117}$$

$$ln(\pi+\theta)=f(w,p,z,v)+ln(\upsilon_\pi)+ln(\varepsilon_\pi) \quad \text{.....125}$$

$$Std\ \pi\ EFF^b=\frac{\hat{\pi}^b}{\hat{\pi}^{max}}=\frac{\{exp[\hat{f}(w^b,p^b,z^b,v^b)]\times exp[ln\hat{\upsilon}_\pi^b]\}-\theta}{\{exp[\hat{f}(w^b,p^b,z^b,v^b)]\times exp[ln\hat{\upsilon}_\pi^{max}]\}-\theta} \quad \text{.....126}$$

$$ln(\pi+\theta)=f(w,y,z,v)+ln(\upsilon_{a\pi})+ln(\varepsilon_{a\pi}) \quad \text{.....126}$$

$$Alt\ \pi\ EFF^b=\frac{\hat{\pi}^b}{\hat{\pi}^{max}}=\frac{\{exp[\hat{f}(w^b,y^b,z^b,v^b)]\times exp[ln\hat{\upsilon}_{a\pi}^b]\}-\theta}{\{exp[\hat{f}(w^b,y^b,z^b,v^b)]\times exp[ln\hat{\upsilon}_{a\pi}^{max}]\}-\theta} \quad \text{.....127}$$

$$Y_{i,t}=exp\left(x_{i,t}\beta+v_{i,t}-\upsilon_{i,t}\right) \quad \text{.....130}$$

$$\upsilon_{i,t}=z_{i,t}\delta+W_{i,t} \quad \text{.....130}$$

$$ln\ y_i=\alpha_0+\beta_1 Ln\ OutputVariables_i+\gamma_1 Ln\ InputVariables_i+v_i+\upsilon_i \quad \text{.....130}$$

$$\upsilon_{i,t}=\delta_1+\delta_2(NPL)_{i,t}+\delta_3(Cost\ to\ Income)_{i,t}+W_{i,t} \quad \text{.....131}$$

$$TE_{i,t}=exp\left(-\upsilon_{i,t}\right)=exp\left(-z_{i,t}\delta-W_{i,t}\right) \quad \text{.....131}$$

$$TE_i=\frac{E\left(Y_{i,t}^*|\upsilon_i,x_{i,t}\right)}{E\left(Y_{i,t}^*|\upsilon_i=0,x_{i,t}\right)} \quad \text{.....131}$$

$$Profit\ Efficiency_i=\alpha_i+\beta_1 MonitoringEffort_i+\beta_2 Control_i+\varepsilon_i \quad \text{.....142}$$

CHAPTER 4 – The Role of an effective Banking Supervision

$$Profit\ Efficiency_i = \alpha_i + \beta_1 Economic\ Sanctions_i + \beta_2 Control_i + \varepsilon_i \quad \text{.....154}$$

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First Section

1. Prelude of the Study

1.1) The Research Problem

In banking environment, competition and efficiency could be considered, in many ways, two side of the same coin.

In banking industry, competition threat leads to a few remarkable points about its peculiar effects.

Competition has a very damaging side effect if banks pay more attention and dedicate more resources to their core area of loans and deposits. In order to compete for their business, banks must lower loan rates and, or alternatively, raise deposit rates, and, in so doing, negatively influence their margin and profitability. Lower profit, naturally, reduces equity value and lower equity value imperils the bank when the economy is on a down. Either that, or the bank increases leverage to boost return on equity to offset the fall in margin, and excessive leverage imperils the bank.

Since banks get into trouble, the taxpayer is then called on to bail the banks out. More capital, therefore, ought not to be necessarily the answer, as investors will desert the industry if returns are too low, which will reduce competition. Moreover, if banks are required to raise equity capital at a price higher than the interest rate on deposits, an increase in capital requirements may discourage banks willingness to screen borrowers and lend (Thakor, 1996; Gorton and Winton, 2000). In so doing, banks need to restore their risk appetite, having spent several years preferring to build their capital buffers rather than lending to risky small businesses.[1]

Competition is a threat to stability, this applies to any economic context, as it is the fear of being left behind by competitors and going broke that drives businesses to survive, innovate and thrive.

[1] Speech by Vitor Constâncio, Vice-President of the ECB, at the 2nd Frankfurt Conference on Financial Market Policy: "*Banking Beyond Banks, organised by the SAFE Policy Center of Goethe University*", Frankfurt am Main, 17 October 2014.

The main difference is that, unlike almost any other industry sectors, when a bank goes bust there is a sort of systemic implication. In contrast, the impact of an industrial company going bust is largely limited to those directly involved.

On the other hand, a general consensus in the academic literature relies on the benefits of financial liberalization. Particularly, the latter motivates competition and promotes economic growth (Cetorelli and Gambera, 2001; Claessens and Laeven, 2004). In addition, the impact of deregulation on bank efficiency is still inconclusive (Deng et al., 2014). Although prudential regulation is primarily designed to strengthen systemic stability and improve the function of banking markets, there is a lively debate about the effects of regulatory policies on financial intermediation. A recent and increasing interest in evaluating the impact of prudential regulation of banks on efficiency shows mixed conclusions. In particular, there is remarkable evidence indicating that the current regulatory and supervisory frameworks hamper the efficient operation of banks (Chortareas et al., 2012).

Moreover, banking has the peculiarity that its product is a commodity, i.e., money, leading to a price competition. Therefore, within this framework, an authentic innovation is quite impossible with a commodity, and most banking "innovation" simply turn one type of risk into another, obscuring reality in the process. As a result, competition must either reduce margins or lead to risk transformation, both of which imperil the system.

"*Lest we forget, the crisis of 2008 was preceded by inadequate margins, risk transformation and leverage*."[2]

The *condicio sine qua non* banking industry is stable and profitable relying on the need to have appropriate margins, which means, in some sense, the need to have limited competition. The alternative, the legislation could keep banks small and "modest" and restricting their interconnections, limiting, therefore, the impact of failure, or to move to some form of mutual fund banking model. Within such a banking environment, it is possible to have stability or competition, but not both.

The financial crisis has shown the drawbacks of over-reliance on a bank-centred lending model. In such an environment, there is the need to find new ways to channel non-bank finance to businesses and infrastructure projects, which will require big

[2] "*In banking, too much competition is as bad as too little*", Financial Times, 22nd July, 2014.

changes to Europe's market plumbing and policy makers' approach markets. These reasons lead to urgent action which needs to be taken to turn the slogan of capital markets union into a workable programme of initiatives.[3]

1.2) The Purpose of the Study

In the last decade, the Italian economic environment has undergone, albeit keeping intact its main underlying characteristics, a deep evolution with respect to the relations and the interactions among financial and economic agents.
Among the economic agents, it becomes interesting to broaden out the analysis to the role played by the financial intermediaries during the crisis, interpreting the latter with respect to its double perspective, i.e., analysing firstly the financial aspect, and afterwards, investigating the economic and social aspect.
Within this framework, the role played by the financial intermediaries, during the crisis and how they could contribute to the economic growth, is analysed through the following research questions:

1. with respect to the Italian banking system, what proxies could explain the impact of the financial crisis on it, and how the Italian banks (considering: commercial, cooperative and mutual banks) have stood up to it, analysing how a shock originating in the banking system could have an effect on the real economic growth?
2. ways of capturing the "intangible relationship" between the banking system and the real economy, and how, despite the financial crisis, the Italian banking system has contributed to the economic growth investigating moreover, which types of banks have shown a more strong and sustainable relationship with the economic and social Italian environment?

Moreover, the financial crisis has shed light on a twofold pivotal role played by governance and internal audit inside financial intermediaries. The lack of them could

[3] "*Bank stress tests need to be catalyst for policy shifts in Europe*", Financial Times, 23rd October, 2014.

compromise banks' prudential soundness and financial stability in the financial markets. In keeping this picture, the Basel Committee on Banking Supervision has submitted to the G20 (along their 2009 Pittsburgh summit) some key elements regarding the resilience of banks and the global banking system. The Committee has emphasised both the depth and severity of the crisis, which has been amplified by weaknesses in the banking sector and the interconnectedness of systemically important financial institutions.

This advice spurs the necessity to intensify and to investigate the resources that banks devote to monitoring risk activity, in order to increase their risk awareness related both to their businesses and to structured credit products.

Furthermore, the crisis has also highlighted the insufficient attention to risk management structures, such as a dedicated risk committee and the little financial industry experience belonging to the board directors as well. On the reasoning, so far outlined, the research aims, in addition, to:

1. estimate bank's monitoring ability for the Italian banking system (composed of commercial, cooperative and mutual banks) as proxy for its monitoring effort through fixed-effects regressions;
2. test the influence of the bank's monitoring ability on loans quality and its predictive aptitude in finding out anticipatory signals of credit quality worsening;
3. analyse, through the stochastic frontier approach, whether bank's monitoring ability and effort are efficient both for the entire Italian banking system and for each type of bank;
4. analyse the relationship between the effective system of banking supervision, i.e. expressed in terms of economic sanctions inflicted by the Bank of Italy, and the efficiency of bank production process estimated through the stochastic frontier approach.

1.3) The Importance of the Study

The originality and the importance of this study rely both on the role played by banker/bank employee in loan monitoring and to their in-depth knowledge of customer information. Secondly, the empirical analyses conducted aim to shed light on the "*time-consuming*" process (Rose, 2002) along which the loans monitoring activity is conventionally considered. An "*ex-ante*" loan to customer assessment[4] will be carried out as an attempt at the early detection of problem loans, any further deterioration and severe losses. The analysis aims to argue, that a more robust monitoring activity ought to emphasise its economic benefits rather than the cost estimates and its valuable contribution both to the financial system and to real economy.

The contribution of the current research relies on the possibility to introduce an "*ex-ante*" proxy of monitoring effort based on the resources that a bank devotes to loan screening and monitoring (in terms of labour input into the monitoring process). The total amount of resources, which a bank devotes to monitoring its loans customer, is not reported in the income statement. Besides occupying a remarkable place in the academic literature (Diamond, 1984; Ramakrishnan and Thakor, 1984; Boyd and Prescott, 1986; Rajan, 1992; Boyd and Runkle, 1993; Petersen and Rajan, 1994; 1995), bank monitoring is one of the main sources of value creation.

This new perspective aims to overcome the "*ex-post*" monitoring process (as suggested by Coleman et al., 2006), widely adopted in literature such as: credit rating representing the market's assessment of the lenders (Billett et al., 1995), loan loss provisions and client firm size (Johnson, 1997), lender's credit rating and its size (Cook et al., 2003). A further contribution concerns the data collected (Italian banks) so far not considered by other research. In particular, the sample is composed of 436 different kinds of banks (most of them not publicly traded) belonging to the Italian banking system during the time period 2000-2012 and split up into 68 commercial banks, 25 cooperative banks and 343 mutual banks.

The current work could contribute to the existing literature since other empirical research, involving the monitoring effort, has not considered, as sample of analysis,

[4] In accordance with Coleman et al. (2006).

the Italian banking system. Moreover, the importance of investigating the Italian banking system could also rest, first of all, on its ability to have weathered the financial crisis and turbulence better than many others (Draghi, 2009), and secondly, with respect to its determinant structure as bank – based economy, in which the existence of interbank customer relationship are likely to matter and they become interesting to study (Affinito 2012). On other crucial aspect is related both to the guidelines emphasised in the qualitative analysis impact conducted by the Bank of Italy[5] and, to some revisions enforced in the Circolare n. 263 of Bank of Italy[6].

1.4) The Scope of the Study

The current research emphasises a twofold perspective. The first one aims to shed light on the role and skills of banker/bank employee, already stressed, in some sense, by Schumpeter (1939): "*for the functioning of the system it is important that the banker should know what credit is used for… the banker must not only know what the transaction is which he is asked to finance, but he must also know the customer, his business and even his private habits…*". The second perspective, instead, relies on the "*incomplete*" (under improvement) bank monitoring proxy. Incompleteness related to the preliminary estimates, the latter constantly under improvement to study in depth the characteristics of the Italian banking system.

1.5) Outline of the Study

The current study is set up as follows: chapter n. 1 analyses the contribution of the Italian Banking System to the Italian Economic and Social Growth by implementing a new econometric measure called *Banking Granular Residual*; chapter n. 2 contains the research questions together with the main hypotheses with which the loan

[5] "Qualitative Impact Analysis", Bank of Italy, *Disposizioni di vigilanza prudenziale per le banche in materia di sistema dei controlli interni, sistema informative e continuità operativa. Relazione sull'analisi d'impatto,* (June, 2013).
[6] Circolare n. 263 di Banca d'Italia (Dicembre 2006). In the first issue, the internal audit guidelines were shown in the Title I, Section 4, "*La gestione e il controllo dei rischi. Ruolo degli organi aziendali*", pp. 23-27. These guidelines were abrogated in correspondence with the 15th update of Circolare n. 263.

monitoring proxy is carried out; chapter n. 3 concerns the empirical analyses referred to the bank efficiency estimates obtained through the stochastic frontier approach (SFA) and the assessment of the relationship between profit efficiency and loan monitoring proxy; chapter n. 4 regards the empirical analyses conducted on the relationship between banking supervision and its efficiency, chapter n. 5 summarises the preliminary conclusions.

CHAPTER 5 – Preliminary Conclusions

5.1) The Main Findings

In the current research, the role played by the financial intermediaries during the crisis and how they could contribute to the economic growth was investigated.
Using an "innovative measure", i.e. *Granular Residual* (Gabaix 2011) presents in literature, the research shows how the lending growth in the Italian banking system could be related to the economic environment. In particular, the results show the existence of a relationship between the contributions of each bank (in term of loans growth) to the economic environment. This contribution, without taking into account any banks' control variables, explains how a variation of one unit in terms of loans growth could improve, approximately, 1,9% the banks' efficiency and 2,5% both the banks' efficiency and GDP growth. Moreover, splitting up the analysis with respect to the types of banks present in the Italian banking system, their contributions are characterised by a negative relationship for commercial banks (Banche S.p.A.) and a positive relationship for mutual banks (Banche diCredito Cooperativo).
All in all, the economic interpretations, given in the current chapter, are only partials, since, firstly, this kind of analysis is only at its first stage, and secondly, because the current research uses only a few variables, reducing therefore the likelihood to find other and more interesting empirical results.
However, the role played by financial institutions during the whole financial crisis and the role they will play in the future, represents the starting point of several hypotheses and empirical evidences, in order to find, evermore, links between the financial environment and real and social economy, since the financial sector constitutes the main link between monetary policy and the real economy (Draghi 2013).
In addition, the advice, about "*how bankers should behave or be made to behave*" (Schumpeter, 1939), mirrors the necessity to intensify and to investigate the resources that banks devote to the monitoring activity. Bank monitoring, in addition, is considered, in academic literature, as one of the primary sources of value creation (Diamond, 1984; Ramakrishnan and Thakor, 1984; Boyd and Prescott, 1986; Rajan,

1992; Boyd and Runkle, 1993; Petersen and Rajan, 1994; 1995). On the other hand, loan losses are considered as a remarkable determinant of bank profitability. Therefore, bank monitoring, together with bank profitability, shed light on bankers' awareness about the relationship between loan losses and net income. In so doing, the effort to avoid significant and unexpected losses, spurs the necessity on assuming one of the largest commitments of employee resources for the lending function: i.e. salaries expressed in terms of "highly educated and high-salaried employees" (Akhigbe and McNulty, 2011).

This research develops a preliminary proxy variables based on labour input into the monitoring process in order to investigate the resources devoted by banks to their monitoring activity of loans. The monitoring proxy, estimated through fixed-effects regressions on 436 Italian banks from 2000 to 2011, shows that a superior monitoring effort improves future loan losses experience through the early detection and management of problem loans. In greater detail, this relation suggests how superior monitoring effort has a positive influence on the future loans quality. In particular, a more robust monitoring activity ought to emphaise its economic benefits. In accordance with Coleman et al. (2006) and Akhigbe and McNulty (2011), the relationship is negative, as would be expected, and it is significant at the 1% level.

Furthermore, in order to broaden out the analysis, the relationship between *Monitoring Effort* and the variation occurred in the loans' quality regarding each kind of bank present in the Italian banking system (commercial, cooperative and mutual banks) has been conducted. By taking the value of unity for the 68 commercial, 25 cooperative and 343 mutual banks respectively, cooperative banks, together with mutual ones, it emphasises a negative and statistical significant, at 1% level, with the loans' quality variation.

In order to investigate whether increased monitoring effort affects efficiency, the monitoring proxies are inserted into a standard linear regression equation, this latter estimated through a Tobit regression in which, the dependent variable is the profit efficiency coefficient determined by the stochastic frontier approach. The monitoring proxies are positive and statistically significant at the 1% level, which supports the hypothesis that monitoring increases profit efficiency. Particularly, regarding the

Italian banking system as a whole, if the monitoring effort increases by 1%, then it would expect profit efficiency to increase by 81,68% in terms of net interest margin, and by 97,63% in terms of financial outcome. In greater detail, the monitoring effort of commercial banks, would seem to decrease by 6,76% the financial outcome efficiency components. Cooperative banks show the same relationship, the latter characterised by 4,72% decrease in terms of financial intermediation efficiency components. Completely different are the estimations obtained with regard to mutual banks. The latter, besides keeping the relationship with the entire banking system, increasing by 1% their monitoring activities, would expect to increase by 4,63 net interest margin efficiency component and to increase by 8,84% financial outcome efficiency component.

Although these results are confirmed in academic literature by other authors (Coleman et al. 2006; Akhigbe and McNulty 2011), their economic interpretation must be considered as preliminary and under development.

Moreover, by estimating the effect of economic sanctions on profit efficiency, the latter expressed as net interest margin, intermediation margin and financial outcome, the results have emphasised that, the more economic sanctions are inflicted, the less the efficiency of the production process will be. In particular, the coefficients estimated emphasise that if economic sanctions increase by one unit, then it would expect profit efficiency to decrease by 0,38% and 0,43% in 2012 and 2011 respectively, regarding the net interest margin; by 0,28% and 0,27% in 2012 and 2011 respectively, regarding the intermediation margin; by 0,3% and 0,27% in 2012 and 2011 respectively, regarding the financial outcome.

In so doing, the underlying hypothesis, with which economic sanctions inflicted by the Bank of Italy could negatively affect the efficiency level of bank production process, has implemented in the Italian banking system.[89]

[89] However, these results ought to be considered preliminary and under development.

5.2) The Advantages of an "*ex-ante*" proxy developed

The contribution of the current research relies on the possibility to introduce an "*ex-ante*" proxy of the monitoring effort based on the resources that a bank devotes to loan screening and monitoring (in terms of labour input into the monitoring process). The total amount of resources, which a bank devotes to monitoring its loans customer, is not reported in the income statement. Besides occupying a remarkable place in the academic literature (Diamond, 1984; Ramakrishnan and Thakor, 1984; Boyd and Prescott, 1986; Rajan, 1992; Boyd and Runkle, 1993; Petersen and Rajan, 1994; 1995), bank monitoring is one of the main sources of value creation.

Therefore, a preliminary advantage of the current study relies on the *ex-ante* proxy of the monitoring ability rather than *ex-post* measures such as credit ratings, loan losses or, alternatively, bank size (Billett et al. 1995; Cook et al. 2003). In so doing, as the monitoring ability of a bank is not directly observable, an *ex-ante* proxy of monitoring was developed by taking into account the quantity and quality of the bank staff, i.e. the ratio of salary expense to total non-interest expense (Coleman et al. 2006; Akhigbe and McNulty, 2011). The aim of this ratio is to capture both the quantity and quality of staff employed in monitoring and to provide an overall measure of the monitoring effort.

5.3) The Limitations

The main weaknesses, in the current research, could be related to the "*ex-ante*" approach to determining the bank monitoring proxy, the peculiar sample adopted (i.e. Italian banking system) and the time period (2012-cross section[90]) taken into account to developing the profit efficiency function.

The "*ex-ante*" approach, together with the econometric analysis, could not be objective concerning the explanatory variables (i.e. the independent variables chosen in the fixed-effects regression) and the different characteristics among banks (i.e. commercial banks (S.p.A.), cooperative banks (Popolari) and mutual banks (Banche

[90] The restricted time period (year 2012) depends on the information published by ABI Banking Data. The latter, in particular, during the research activities, made the 2012 balance sheets and income statements as latest year available for the entire Italian banking system.

di Credito Cooperativo)). In order to overcome them, control variables, together with robust standard error and interactive variables were introduced in each econometric model.

Moreover, the time period, considered for the efficiency estimates, is rather restricted. A deeper analysis, with more years, could consider the stochastic frontier approach through panel data, in order to take into account the decay inefficient component along the years. In addition, a wider time period could lead to a more meticulous analysis and to a more robust empirical investigation.

5.4) Direction for Future Research

The current research, regarding the role of the bank monitoring effort into the Italian banking system, highlights the need for additional research and suggests some directions in which this research might proceed.

Within Schumpeter's (1939) perspective, financing of enterprise has been assigned logical priority, in the sense that, this is the only case in which lending and the *ad hoc* creation of means of payment are essential elements of an economic process. On the other hand, within bank perspective, the lending process needs to rely on a remarkable commitment of employee resources. In particular, this commitment (i.e. personnel expense) mirrors the high educated and high-salaried employees to the bank lending process (Akhigbe and McNulty, 2011). Moreover, the idea, which loans to entrepreneurs need not be repaid, but can be, and often are, renewed in such a way as to make the corresponding amount of means of payment permanently part of the circulating medium (Schumpeter, 1939), sheds light on the remarkable human capital monitoring effort. The series of activities employed by staff in the lending *iter*, such as credit analysts, requires *ad hoc* skills together with a well-defined job description since their jobs demand in depth knowledge and experience.

In so doing, a direction for future research ought to consider the parallel between the policies applied in the euro area with the idea of "*creative destruction*"[91] driving innovation and productivity growth. In a disequilibria environment, caused by innovation, other firms will have to undertake investments, which cannot be financed

[91] Joseph Schumpeter.

from current receipts, and become borrowers also. Furthermore, whenever the evolutionary process is in full swing, the bulk of bank credit, outstanding at any time, finances what has become current business and has lost it original contact with innovation or with the adaptive operations induced by innovations, although the history of every loan must lead back to one or the other.[92]

A well-functioning financial sector for the efficient allocation of capital and credit together with the Schumpeterian notion of "*creative destruction*" represent the necessary resources to flow to the firms that use them most productively (Draghi, 2014).[93]

[92] *Ibidem* note 91.

[93] Speech by Mario Draghi, President of the European Central Bank, at the presentation ceremony of the Schumpeter Award, Central Bank of the Republic of Austria, Vienna, 13th March 2014.

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