

Capital Regulation and Italian Banking System: Theory and Empirical Evidence

Enzo Scannella

Department of Economics, Business and Finance, University of Palermo

Viale delle Scienze, Edificio n. 13, Cap. 90128 Palermo, Italy

Tel: 39-091-2389-5305 E-mail: enzo.scannella@unipa.it

Received: October 26, 2011

Accepted: November 10, 2011

Published: February 1, 2012

doi:10.5539/ijef.v4n2p31

URL: <http://dx.doi.org/10.5539/ijef.v4n2p31>

Abstract

This paper aims to investigate the role of capital for banking institutions and provide an empirical analysis on large Italian banks' capital adequacy. The paper is organized as follows. The first section introduces to the issue of the paper. The second section explains why the capital is important in the economics of banking firm. The paper reviews the theoretical literature on bank capital regulation. Empirical results on large Italian banks are reported on the third section. The final section contains summary and concluding comments.

Keywords: Bank capital, Regulation, Basel Accord, Capital adequacy, Financial stability

1. Introduction

In the finance literature, the theoretical debate on bank capital started with the Modigliani and Miller's "irrelevance proposition" (1958), the idea that corporate financing decisions do not affect firm value under certain conditions. In a perfect market, financing and investment decisions are separable and independent activities. Financing structures do not matter. They are not value relevant and financing decisions do not affect investment decisions. In a frictionless world of full information and complete markets, a firm's capital structure can not affect its value. When we take into account the imperfections of the market – taxes, transaction costs, asymmetry of information, bounded rationality, costs of financial distress, imperfect competition – our conclusions are quite different. The value of the banking firm is dependent from its capital structure. Contrary to Modigliani and Miller's "irrelevance proposition" banking firms do business with a higher financial leverage than non banking firms. In banking industry the debt/equity ratio is higher than other industries, in sharp contrast to the implications of the Modigliani and Miller's proposition. So the irrelevance hypothesis of financial structure is not applicable to banking firms. Such difference is due to the unique role played by banking firms as financial intermediaries. They transfer financial resources across time and space. They are "asset transformer" (Gurley and Shaw, 1960) because they transform securities issued by firms (bonds and shares) into securities demanded by investors (bank deposits). They connect surplus units to deficit units through the creation of financial assets and liabilities. Banks are financial intermediaries that take in deposits, which they then use to make loans and to invest in securities and other financial assets.

Modern theories of finance have removed the perfect market conditions and have highlighted the different role of bank capital adequacy for the existence of financial intermediaries (Santos, 2001). The incompleteness of financial markets raises doubts on bank's ability to determine an optimal level of capital adequacy, and an optimal amount of financial leverage. It increases the role of banking authorities to impose a bank capital regulation and minimum capital requirements. The form of these regulatory requirements is getting more and more standardized across countries and industries. Banks are subject to internationally coordinated capital regulation. Banks are different from other firms by the very nature of their activities. Therefore, some kind of regulation and supervision is justified.

2. A Theoretical Perspective on Bank Capital Regulation

The bank capital regulation is one of the most prominent aspects of banking regulation. It recognizes the strategic importance of capital in bank management, coherently to the Italian banking literature. In this research field Italian scholars have played a role of forerunners. Caprara (1954) and Dell'Amore (1969) proposed the double function of bank capital: to support investments and to insure deposits. Dell'Amore (1969) and Saraceno (1949) highlighted the importance of capital to enhance the safety and soundness of banks, and the need to link the bank capital adequacy to bank risks. Also Bianchi (1969, 1981, 1991) suggested a micro-economic perspective (note 1) – based on an

integrated framework of analysis – to study the role of capital in the economics of banking firms. Based on this starting point, the determinants of a bank's capital structure are related to the functions performed by banks: financial intermediation, managing payment system, monetary policy transmission, managing risks. Along these research trajectories numerous Italian theoretical studies have been published during the last decades (note 2).

Bank capital has an investment function (covering long-term investment) and an insurance function (stabilizing the financial and economic results of banks). These two aspects are intertwined. Consequently they have a considerable impact on bank soundness and stability, bank liquidity creation and size of financial intermediation. Few examples can clarify these relations. If bank capital is not adequate to cover bank risk exposure it will increase the risk premium to be paid to bank liabilities subscribers. It will have a negative impact on expected economic performances. Another example: The bank capital inadequacy may force banks to reduce the amount of assets or their riskiness. The adequate amount of bank capital represents a prerequisite for a sound and prudent bank management. It impacts on many aspects of banking activities, such as bank growth and competitive dynamics of banking industry, strategic decision processes, market positioning, risk profiles of investments, assets and liabilities structure, expected profitability, etc.

The adoption of bank capital standards at international level focuses on risk measurement and definition of capital standards for different types of risk exposure. Since the original Basel Accord on capital standards (1988) the bank regulation has widely proposed risk-based capital ratios both as measures of the strength of banks and as trigger devices for supervisors' intervention. The Basel Accord requires that banks meet a minimum capital ratio that must be equal to at least 8% of total risk-weighted assets. In this prudential supervisory and regulatory framework banks can choose the risk/performance profile of their investments, taking into account that the bank capital is a buffer to absorb risks. Bank capital serves as a buffer that protects bank deposits in case of losses on the asset side. Bank capital is recognized by the regulation as investment and insurance function. It represents a stabilization tool for the single banking firm and for the entire financial system. It has a "residual claim" nature because it absorbs losses arising from bank's risk exposures and reduces the probability of bank bankruptcy.

The bank financial leverage is increasingly regulated through the definition of an "adequate" level of capital in order to avoid any risk exposure without sufficient bank capital. The definition of a bank capital adequacy is made by an outsider stakeholder, the banking authority, which sets risk and capital measurements. The 1988 Basel Accord was established with two fundamental objectives: to strengthen the soundness and stability of the international banking system and to obtain "a high degree of consistency in its application to banks in different countries with a view to diminishing an existing source of competitive inequality among international banks" (Basel Committee on Banking Supervision, 1988).

The capital adequacy issue has generated an academic and professional debate in the search of the best institution – between market and banking authority – to design the optimal capital requirements for banks. Regulatory requirements differ substantially from market-generated capital requirements. Two different views are prominent on this subject. The first one suggests the market is in a better position to define the adequate level of bank capital and provide a good mix of incentives to banks to better evaluate risks. The market can determine a bank's capital requirement as the capital ratio that maximizes the value of the bank in the absence of regulatory capital requirements. This market requirement may differ for each bank. It is affected by the market's perceptions of the risks taken by banks. This view criticizes the Basel Capital Accord and any regulatory capital requirements. Abandoning the perfect world of Modigliani and Miller may help explain market capital requirements for banks.

The opposite one, otherwise, supports the idea that the bank regulation and the banking authority is in a better position to set adequate bank capital requirements and provide incentives to correctly evaluate bank risks. Negative externalities, systemic risk, agency problems, bank bankruptcy, and costs of financial distress are the main arguments in defense of the second view. Regulators require capital to protect the safety and soundness of banks, and the stability of the entire financial system. Financial instability and negative externalities associated with financial intermediation may inflict heavy social costs. Concerns about these social costs lead regulators to require bank capital ratios. However, capital regulation involves a tradeoff between the marginal social benefit of reducing the risk of the negative externalities from bank failures and the marginal social cost of diminishing the quantity of financial intermediation (Gorton and Winton; 1995; Santomero and Watson, 1977).

From the market capital requirement perspective, equity capital is the residual claim on the bank and it depends on how banks' assets and liabilities are valued by the market. In order to reflect a market value of assets and liabilities this perspective suggests the adoption of a market value accounting system. On the contrary, from the regulatory perspective, banks' assets and liabilities are not perfectly tradeable. They lack of an efficient secondary market.

Their value is affected by asymmetric information problems. In addition, this perspective does not require a market value measure of the bank capital.

Since the 1988 Basel Capital Accord the debate has focused on the effectiveness and opportunities for a capital adequacy regulation and its impacts on bank's investment portfolios. Kahane (1977), Koehn and Santomero (1980), Kim and Santomero (1988) show that an increase of equity-to-asset ratios may lead to an increase of risky assets in the portfolio chosen by a bank. Banks may respond to binding regulatory constraints on equity capital by increasing their risk exposure. They may choose a portfolio with higher risk and higher expected return.

Possible justifications for this are that bankers are risk-averse, the access to equity market is expensive, agency costs affect the relations between shareholders and management. In a perspective of maximization of an utility function, the introduction of minimum capital ratios may lead bankers to maximize the return on investments, choosing an higher risk-expected return frontier. Koehn and Santomero (1980, p. 1235) assume that "for the system as a whole, the results of a higher required capital-asset ratio in terms of the average probability of failure are ambiguous, while the intra-industry dispersion of the probability of failure unambiguously increases. This result leads us to question the viability of regulating commercial banks in terms of a capital requirement". Capital ratios may be ineffective instruments to induce bankers to limit risk exposures in their portfolio allocation. Other instruments, such as asset restrictions, may be more effective to reduce the probability of bank bankruptcy. Crouhy and Galai (1986, p. 239) also show that "in competitive markets capital adequacy requirements may be of no economic significance".

Gennotte and Pyle (1991) assume that an increase in capital requirements has an ambiguous effect on the probability of failure when banks invest in low return asset portfolios, like those characterized by high information asymmetry, lending relationships, non-marketable loans, and a high degree of competitiveness in the market. The induced decrease of return on such asset portfolios may be outweighed by investing funds in assets with high return and high risk. Besanko and Kanatas (1996) also show that in the presence of moral hazard problems in the portfolio allocation and monitoring, an increase of capital standards may not induce bank to lower its risk.

In contrast with the previous literature, other theoretical and empirical studies (Furlong and Keeley, 1989; Keeley and Furlong, 1990; Avery and Berger, 1991) find that capital requirements lower bank risks when banks have diversified asset portfolios. Unfortunately this result has not a predictive value because it is not true all the time. Rochet (1992) shows that the relation between capital requirements and bank's risk-taking is ambiguous. Blum (1999) also highlights that the effects of capital requirements in the economics of banking firms could be counterintuitive when we shift from a static perspective of analysis to a dynamic one. If it is expensive for the bank to raise equity to meet higher capital requirements in the future, an alternative could be to increase risk today. In addition, other studies (Jacques and Nigro, 1997; Shrieves and Dahl, 1992; Thakor, 1996) point out that the introduction of capital requirements and risk measurement standards have adverse effects on asset allocation and asset substitution.

Over time, a vast literature has used the regulatory arbitrage framework to evaluate the complex relations between capital adequacy and bank investment decisions. The bank capital regulation seems a form of external constraints that creates incentives and opportunities for financial innovation and regulatory capital arbitrage, with prominent effects on the asset allocation and the growth of off-balance sheet banking (Jagtiani, Saunders e Udell, 1995). The introduction of a minimum equity-ratio is a form of regulatory taxation that stimulates banks to find innovative ways to allocate resources and minimize borrowing costs. The regulatory capital arbitrage reduces the effectiveness of capital regulation. Concerns have emerged about the Capital Accord because financial innovation and regulatory arbitrage may exploit the differences between the real level of asset riskiness and the rule-based risk measurements (Mottura, 2008). Bank capital regulation has provided a way to reduce capital requirements by shifting from asset categories with high risk weights to assets category with low risk weights. This has created incentives to substitute from loans to government bonds which are theoretically risk-free, so they require no capital or a lower risk weight. Such limitations have contributed to the growth of asset securitization, and the contraction in bank lending (*credit crunch*). Regulatory capital requirements gave incentives for some banks to shrink their loan portfolios. Notwithstanding, there is not much agreement regarding this conclusion, leaving wide room for additional research.

The adoption of a regulatory framework that is based on bank risk charges associated with each bank asset category and standard risk measurements, has boosted regulatory arbitrage practices. Regulatory measures of risk exposure may be subject to manipulation by bank management in order to reduce capital requirements without reducing the actual risk exposure (Merton, 1995). The most common arbitrage practices are cherry-picking, securitization, remote origination, and indirect credit enhancements. Jones (2000, p. 42) specifies that "cherry-picking is perhaps the most common of all regulatory capital arbitrage techniques. It involves unbundling and repackaging a loan pool's cash

flows through securitization or other means so that the vast bulk of the credit risk is concentrated within financial instruments having a much smaller capital charge”.

Growing evidence on these limitations prompted the development of a new capital adequacy framework with alternative approaches to bank asset category for setting capital standards. It has overcome the previous “one-size-fits all” approach and has adopted a more “firm-specific” approach, based on the idea that banks have better information on their risky assets than banking authorities. The original Basel Accord is based on the use of arbitrary weights that bear no relation to default rates. It also assumes that all assets within one category are equally risky.

Under the new approach, risk charges are not associated with bank asset buckets but with the rating of each borrower. It is an internal rating-based approach where banks are able to estimate the probability of default for each borrower. The new Capital Accord should align regulatory capital requirements more closely with underlying risks and to provide banks and their supervisors with several options for the assessment of capital adequacy. The new approach gives banks the incentive to distinguish riskier assets from less risky assets in order to save on capital. But this incentive-compatible scheme is not always effective. It depends on the existence of information asymmetry and opportunistic behaviour at the bank-authority relationship level, and on an effective coordination among capital adequacy standards and other regulatory instruments, such as the deposit insurance scheme.

In brief, the New Basel Capital Accord incorporates some positive aspects that are highlighted by the *optimal bank regulation* literature, such as the banking authority’s monitoring function, the designing of incentive-compatible capital standards, the definition of risk buckets based on a risk measure rather than on the asset category, the implementation of a standardized approach and an internal rating-based approach to better measure bank risk exposure. The new capital adequacy framework is based on three mutually reinforcing pillars: minimum capital standards, a supervisory review, and a market discipline. In June 2006, the Basel Committee released the final proposal of the *International Convergence of Capital Measurement and Capital Standards*. It does not change the definition of regulatory capital. It deeply changes the capital charge scheme, aiming at making capital charges more correlated with the credit, market and operational risks of the banking activity (table 1). The denominator of the regulatory risk-based capital ratio measures the bank’s risk exposure using a building block approach. The greater the risk exposure, the higher bank capital must be. The New Capital Accord introduces three options to measure credit risk: a standardized approach, and two internal rating-based approaches (foundation and advanced). With the standardized approach, risk weights are determined by the rating of the borrower, as defined by a rating agency. With the internal rating-based approaches, banks are able to internally evaluate the rating of the borrower. Risk components of the two approaches are: probability of default, loss given default, maturity, exposure at default. A function to convert these risk components into risk weighting and required capital standards is defined by the Basel Committee.

The New Capital Accord incorporated also other types of risk. Basel 2 adds a new charge for operational risk. The denominator of the regulatory risk-based capital ratio focuses not only on credit risk, but also on market and operational risks. The new regulatory framework develops a measurement of bank’s risk exposure that can be uniformly applied across banks and countries. Unfortunately, as suggested by Berger, Herring and Szego (1995, p. 418) “imperfections in setting the level of required capital and the relative risk weights may lead to allocative inefficiencies if capital requirements distort relative prices both among banks and between banks and non-bank competitors, and divert financial resources from their most productive uses”.

The New Basel Capital Accord contains most of the elements that potentially aim to improve the effectiveness of the risk-based capital regulation. It defines the concept of capital adequacy, making it possible to specify an explicit criterion by which regulators and markets can judge whether bank capital is adequate or not. Basel 2 allows some banks to use their internal risk-measurement models to determine capital requirements. It recognises the market-based innovation in risk management practices. The new risk weights, which are assigned to the different asset classes, should be strictly related to the risk of the underlying assets. It appears as a more risk-sensitive framework that incorporates the innovations in the risk management field. This is a necessary condition, albeit not a sufficient one, for the well-functioning of the risk-based capital requirements. As we pointed out above, the quality of the capital regulation cannot be evaluated only with regard to the sophistication and complexity of risk measurement methodologies, but also taking into account the behaviour and the objective functions of different stakeholders. This is an important area for future research. We lack clear evidence about such connection.

The importance of the first condition (the availability and implementation of statistically and mathematically well-founded methodologies) has recently emerged with the financial crisis. Shortcomings have emerged on risk measurement and evaluation of the following items:

- Structured financial instruments, illiquid assets, and complex credit securitization;
- Credit exposures to off-balance sheet vehicles;
- Systemic risk of asset portfolios;
- Liquidity risk, concentration risk, and reputation risk.

These shortcomings have produced some useful insight to redesign them in the next International Capital Accord (Basel 3). In order to fully evaluate the quality of the risk-based capital regulation we should take into account many other aspects, as follows:

- The bank management's objective function;
- The effectiveness of incentive-compatible schemes to prompt bankers to correctly measure risks;
- The bank governance system and its relations with risk control and capital allocation;
- The management remuneration system and incentive schemes, and the orientation of management to pursue short-term or long-term performance;
- The ability of banking authorities to reduce information asymmetry and agency costs in regulator-bank relationship. It is due to the opaque nature of banks to outsiders;
- The ability of banking authorities to measure and evaluate the entire bank risk exposure, control bank risk-taking, evaluate the adequacy and reliability of internal risk measurements. The risk exposure measurements may be subject to significant manipulation by bank management. Regulators may access to confidential bank information;
- The ability of banking authorities to apply sanctions to banks for capital regulation violations;
- The ability of banking authorities to encourage banks to disclose information in order to enhance the role of market participants in monitoring banks.

Some of these issues are consistent with the supervisory review process (pillar 2 of the New Basel Capital Accord) that intendeds to ensure that a bank's capital position is consistent with its overall risk profile and to enable early intervention. The quality of bank structures and processes, that are in charge of risk measurement and management, are as important as the capital adequacy.

The recent financial crisis has also highlighted some shortcomings in the above mentioned qualitative aspects of capital regulation. Also the recent Basel Committee's Enhancing Corporate Governance for Banking Organizations (2006), and the Financial Stability Forum's Enhancing Market and Institutional Resilience (2008) have put under pressure some shortcomings in bank risk management and control. The Financial Stability Forum proposes concrete actions in the following areas: strengthened prudential oversight of capital, liquidity and risk management; enhancing transparency and valuation; changes in the role and uses of credit ratings; strengthening the authorities' responsiveness to risks; robust arrangements for dealing with stress in the financial system. It implies a wider governance view in the risk management field and shows that capital adequacy has a strategic relevance in bank management (Sironi and Resti, 2008). Regulators and supervisory authorities, at national and international level, play an important role in pursuing a level playing field among financial intermediaries.

The recent financial crisis brings a new banking regulation to overcome the previous mentioned shortcomings (Acharya and Richardson, 2009; Adrian and Shin, 2010). The theoretical studies developed during the last decades on capital regulation provide a useful methodological framework to improve the current banking regulation (Birindelli, Ferretti, and Tutino, 2011). Unfortunately the pursuit of an optimal capital structure in the economics of banking firms remains an open question. Whether the amount of capital required by the regulators is greater than that required by the financial market, and whether regulators are very effective in controlling banks' capital adequacy, are fundamental theoretical and empirical questions.

The bank capital adequacy has been becoming a global issue in relation to the rapid transformation of financial and banking industries. The elimination of geographic restrictions, the revolution in information technology, and the huge number of mergers and acquisitions has created large and complex financial institutions with a global character. It has increasingly led to overcome a prudential regulation and supervision based on national borders and national supervisory authorities (Gualandri, 2008). An international capital standard that prevents regulatory competition among countries is the complex tool that many developed countries have chosen to pursue the global financial stability. Unfortunately, in some cases the Basel Accord has moved banking systems in the opposite direction.

3. An Empirical Analysis of Large Italian Banks' Capital Adequacy

In this section on the paper I will conduct an empirical analysis (using Bankscope data) on Italian banks' capital adequacy in comparison with large European banks. I will also examine some of the implications of the theoretical

analysis. Changes in capital ratios are investigated because that is what is examined in capital regulation studies. First of all I will focus the analysis on the major Italian banks with reference to the amount of total assets on their balance sheet (Figure 1). This analysis focuses on large banks because they are more likely to be subject to market discipline. The total assets ratio may be a better measure of scale.

In order to correctly evaluate the capital adequacy we need to distinguish the different quality of each component of bank regulatory capital. The regulatory capital is split into different layers as follows:

- *Tier 1 Capital*

It is composed of common stock, retained earnings, and innovative capital instruments that are subject to Basel Committee's stringent conditions. The core tier 1 capital is composed of common stock and retained earnings only;

- *Tier 2 Capital*

It is composed of revaluation reserves, subordinated debt, undisclosed reserves, and hybrid debt/capital financial instruments. It is also called "supplementary capital";

- *Tier 3 Capital*

It is composed of short-term subordinated debt that is not included in the tier 2 capital.

The capital ratio of a bank is the ratio of a bank's regulatory capital to its total risk-weighted assets (table 1). The total capital ratio of the large Italian banks is always above the minimum level that is fixed at 8% (figure 2). Also the tier 1 capital ratio (tier 1 capital/total risk-weighted assets) is above the minimum level required by the Basel 2 (4%). The capital ratios of many large Italian banks have increased during the last years (figure 3). It shows that large Italian banks are well-capitalized. The data show a rate of rise of capital ratios following 2007, consistent with the beginning of the financial crisis. It is important to note that it is not known a priori whether the observed level of capital adequacy is determined only by regulators or markets. It is likely affected by both of them. Market pressure would increase capital requirements because more capital was needed to protect against the risk of financial distress. Banking authorities also increased pressure to enhance safety and soundness of banking system because banks were incurring losses from the distress sale of assets to meet liquidity needs. Although market requirements have risen in the last years because of concerns about financial crisis in the banking system, it seems plausible that the banking authorities' pressure and expected regulatory changes (Basel III) also accounted for the raise of capital ratios. Regulators have some indirect means of pressuring banks to increase capital ratios.

During the last years the supplementary capital and the tier 3 capital registered a raising trend, except for Mediobanca and Unicredit that have decreased the weight of tier 2 capital and tier 3 capital on their total risk-weighted assets (figure 4). If we compare the Italian bank ratios to the large European banks we will find that the European banks have an higher level of tier 2 and tier 3 capital. In the last three years the Italian capital ratios are almost equal to European ones (figure 5).

In Italy, Unicredit and Intesa Sanpaolo are the two banks that have issued a large amount of subordinated debts (figure 6). But the weight of subordinated debts on total assets has decreased during the last years almost for all banks (figure 7). On the contrary, large European banks have increased the amount of subordinated debts (figures 8, 9). They were primarily influenced by market pressure. On average, the European issues are greater than Italian ones. Subordinated debt is a sort of "patient money" that helps provide stable funds to banks. It typically has a long maturity and it is junior to all claims other than equity. Subordinated debt is an effective market mechanisms for relaying information about bank's risk profile. Subordinated debt holders do not take advantage of bank's risky investments. They should have a very strong incentive to monitor closely the activities of banks. In addition, the interests paid on subordinated debt provide the financial market's assessment of the risks taken by banks.

Requiring different leverage ratios would improve the correspondence between risk and the regulatory capital standards. Multiple bank capital ratios may have independent value in capturing risks. Useful ways to calculate the leverage ratios are the followings: total assets to tier 1 capital ratio, and total assets to total regulatory capital ratio. In comparison with large European banks, Italian banks have lower leverage ratios (figures 10, 11, 12). From 2007 European banks' leverage ratios have decreased, and Italian banks' leverage ratios have remained substantially steady. These results confirm that leverage ratios are inversely related to the size of the banking organizations.

The five largest Italian banks (Banco Popolare, Intesa Sanpaolo, Monte dei Paschi di Siena, UBI Banca, Unicredit) participated in the first stress test, which was held in 2010. The stress test was carried out by the European Banking Authority (EBA) and national supervisory authorities, in close cooperation with the European Central Bank. The test has been conducted on a sample of 91 European banks, representing 65% of the European market in terms of total assets. The aim of the test was to assess the solidity of European banks and the ability to absorb credit and market

risks, including sovereign risks. Overall the results confirm Italian banks' ability to absorb the impact of a significant deterioration in macroeconomic and market conditions. Although the capital ratios of the large Italian banks are well above the regulatory minimums, on average they are low by comparison with other European banks. The gap reflects Italian prudential regulation, which sets more stringent limits on the inclusion of certain instruments, and large-scale public recapitalization operations that benefited some large European banks (Banca d'Italia, 2010).

The financial crisis has strengthened the importance of holding capital in providing protection against unexpected losses. Banks and financial authorities have undervalued the firm-level effects and systemic-level effects of financial leverage. The bank capital has increased importance not only on a micro-prudential perspective but also on a macro-prudential supervision. Otherwise, the financial crisis has highlighted a critical issue. The bank capital adequacy should be assessed not only from a quantitative but also from a qualitative point of view because concerns about the solvency of a financial institution usually lead to systemic risk problems. Bank capital should be the cushion to maintain a financial institution viable. Nevertheless, empirical evidence has confirmed that many financial institutions that got in trouble had shown comfortable regulatory capital (IMF, 2009).

The new Basel III proposal (June 2010) emphasizes capital cushion and liquidity risk during a potential financial crisis or crisis-contagion. The level and quality of banks' capital base has been gradually eroded by the financial crisis. At the same time many banks were holding insufficient liquidity buffers. The new proposal aims to raise the quality of capital by focusing on common equity, stricter criteria for tier 1 capital, new forms of contingent capital, harmonized deduction from capital, and capital conservation buffers. New financial ratios (liquidity coverage ratio and the net stable funding ratio) for liquidity risk management will be implemented to increase the soundness of financial institutions. The Basel II revision aims to raise capital requirements, enhance capital base, reduce intrinsic regulation pro-cyclicality, and adopt more robust requirements in terms of liquidity risk.

4. Final Remarks

In this paper I reviewed the theoretical literature on capital adequacy. I argued that bank capital adequacy is influenced by special factors that are unique to banking firms, such as capital regulation. Given theoretical evidence that regulatory control over bank capital is essential to improve the effectiveness of capital adequacy and banking stability, the empirical results do not show whether the increase or decrease of capital ratios is due to regulatory or market pressure. Theoretical literature offers contradictory results as to the optimal design of capital adequacy regulation and to the risk-taking incentives of capital requirements.

The paper focuses on capital regulation. Capital in the banking industry is a key resource, scarce and even more highly contended. The financial crisis has put under pressure Basel II and raised new regulatory problems. The Basel Committee has published its proposal for the redefinition of the Basel II Accord, by trying to cope with the main challenges posed by the financial crisis. In particular, the definition of capital will have to be harmonized across jurisdictions, appropriate implementation standards will have to be developed, capital surcharge will be necessary to mitigate risk of systemic banks (SIFIs), and more responsive risk systems will have to be adopted. The bank capital adequacy and the risk-based capital requirements are the core instruments for the banking regulation. Adaptations are however necessary for both SIFIs and non-SIFIs to improve the current capital standard. Therefore, the understanding of the new proposals is fundamental to assess the new banking scenarios in the coming years.

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Acknowledgement

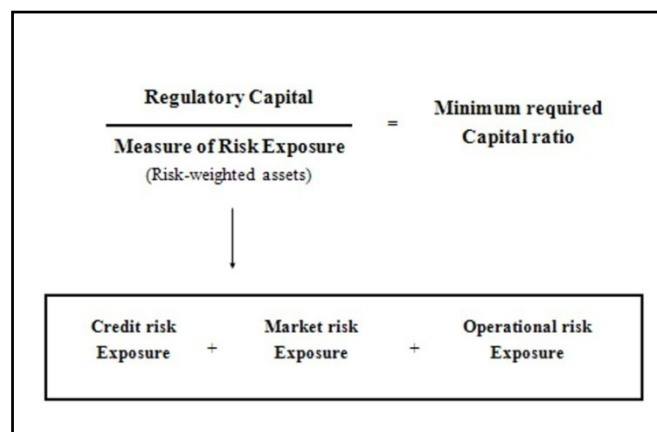
The author acknowledges Dr. Benedetto La Torre for research assistance.

Notes

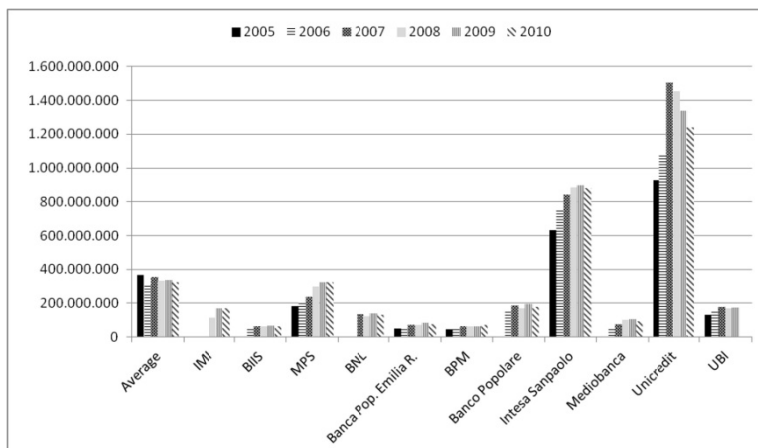
Note 1. In the Italian Literature this perspective of analysis is precisely called “economico-aziendale”.

Note 2. See, for example: Biffis (1974); Bioni (1988); Caprara (1985); Comana (1990); Ferretti (1995); Masini (1990); Mottura (1986); Onado (1983); Rossignoli (1991).

Table 1. Basel Capital Accord: the New Risk-based Capital Ratio



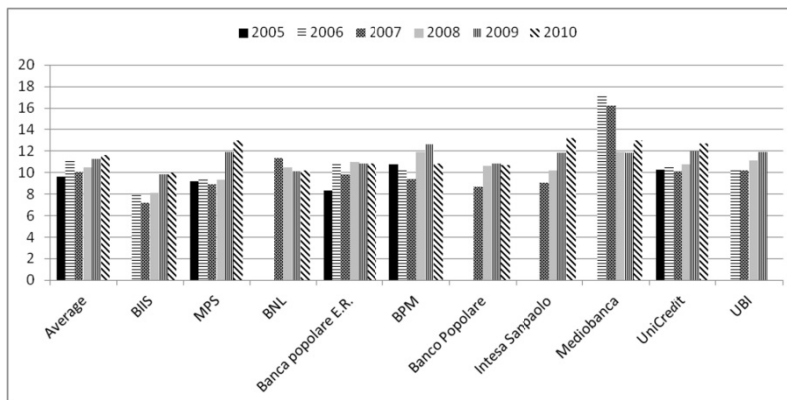
The minimum capital ratio must be equal to at least 8% of total risk-weighted assets.



Amount of total assets of large Italian banks.

Source: Bankscope

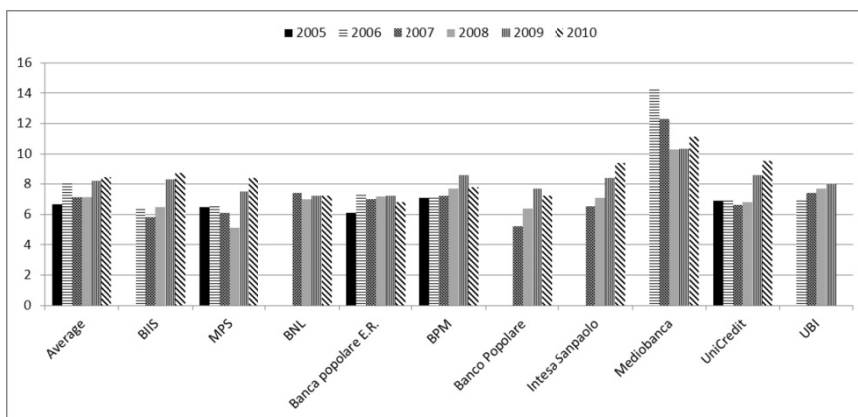
Figure 1. Large Italian Banks: total assets (TH USD)



The total capital ratio of the large Italian banks is always above the minimum level that is fixed at 8%.

Source: Bankscope.

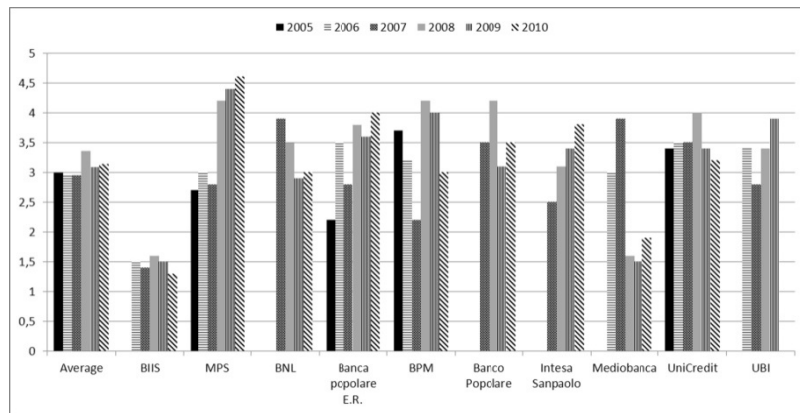
Figure 2. Total capital ratio



The capital ratios of many large Italian banks have increased during the last years.

Source: Bankscope

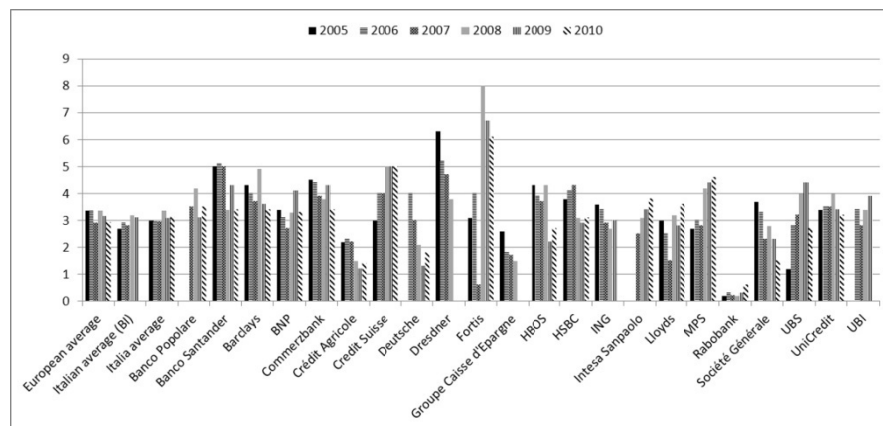
Figure 3. Tier 1 capital ratio



The weight of tier 2 capital and tier 3 capital on large Italian banks' total risk-weighted assets.

Source: Bankscope

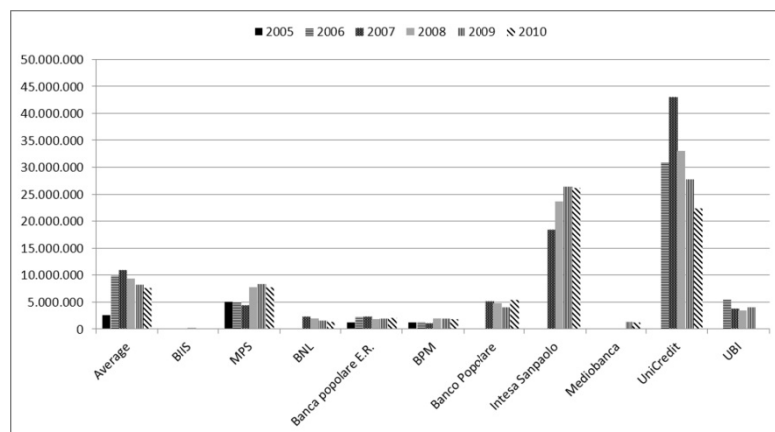
Figure 4. Tier 2 & tier 3 capital ratio



The weight of tier 2 capital and tier 3 capital on large European banks' total risk-weighted assets.

Source: Bankscope

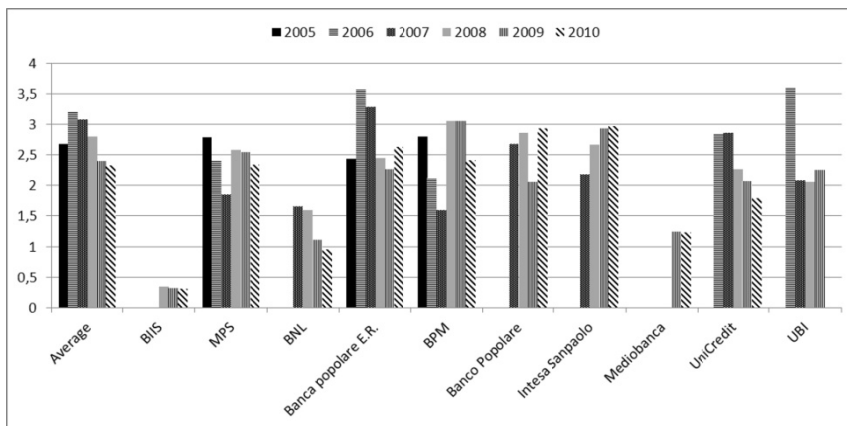
Figure 5. Tier 2 & tier 3 capital ratio of large European Banks



The amount of subordinated debt issued by large Italian banks in the last 6 years.

Source: Bankscope.

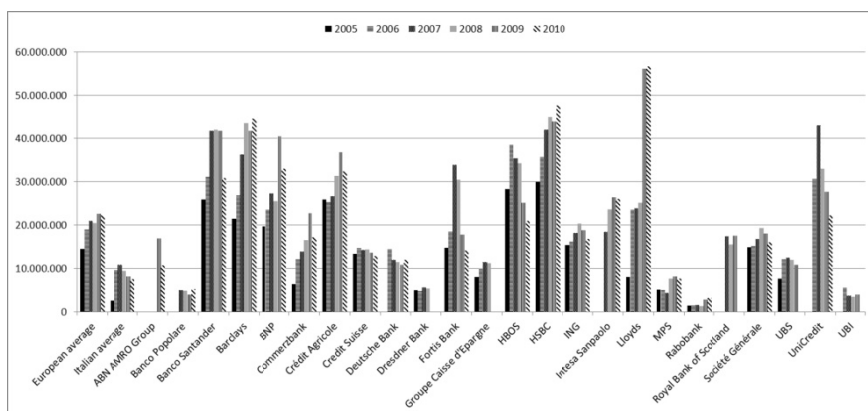
Figure 6. Subordinated debt issued by large Italian banks (TH USD)



The weight of subordinated debts on large Italian banks' total assets.

Source: Bankscope.

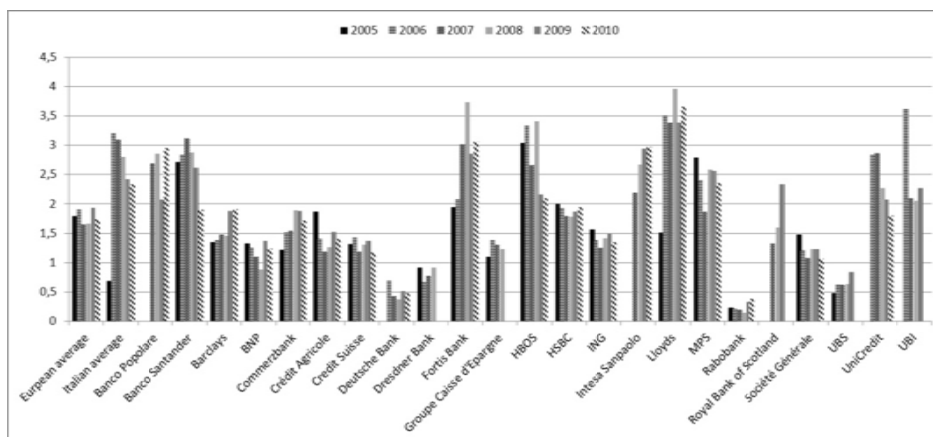
Figure 7. Italian banks: Subordinated debt/total assets



The amount of subordinated debt issued by large European banks.

Source: Bankscope

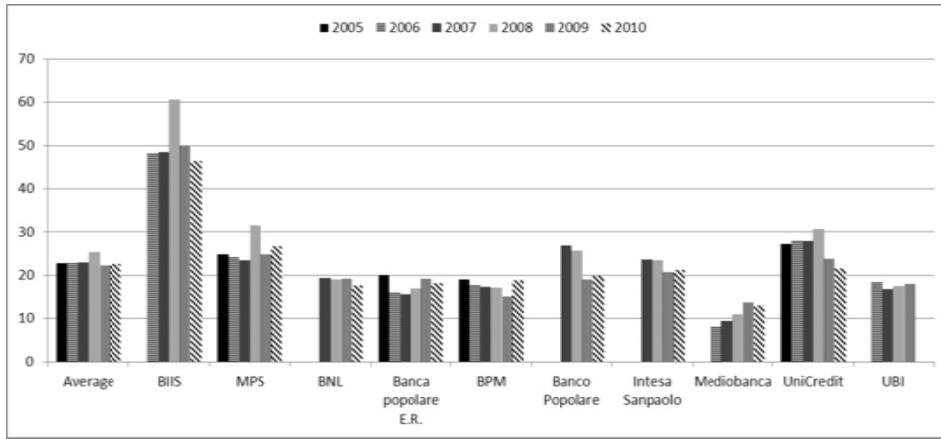
Figure 8. Subordinated debt of large European banks (TH USD)



The weight of subordinated debts on large European banks' total assets.

Source: Bankscope.

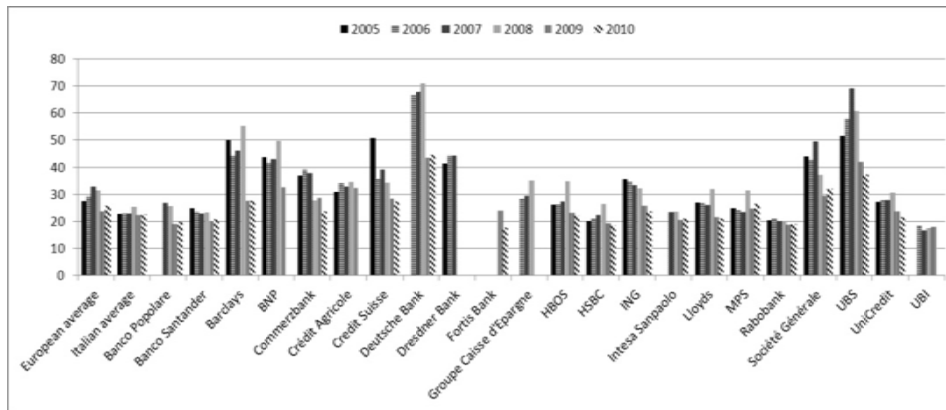
Figure 9. European banks: Subordinated debt/total assets



Leverage ratio of large Italian banks.

Source: Bankscope.

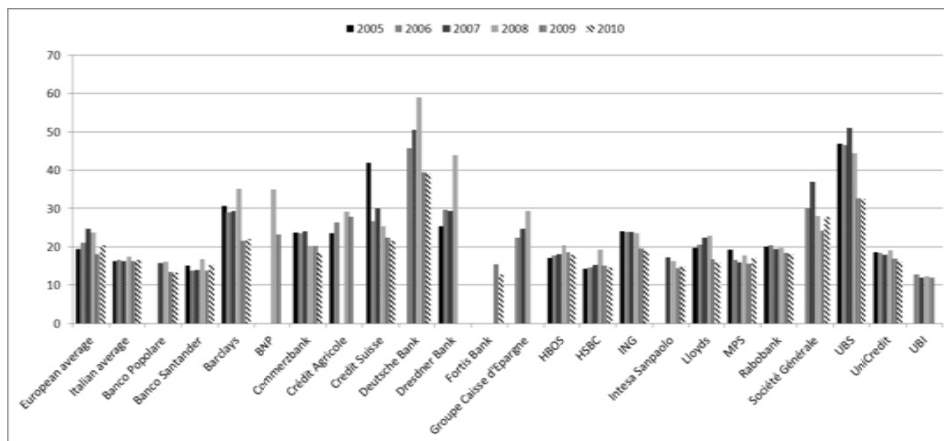
Figure 10. Large Italian Banks: total assets/tier 1 capital



Leverage ratio of large European banks.

Source: Bankscope

Figure 11. Large European banks: total assets/tier 1 capital



Leverage ratio of large European banks.

Source: Bankscope.

Figure 12. Large European banks: total assets/total regulatory capital