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Thesis in Law and Economics

The Impact of the Basel (II-III) Accords on SME Credit Provision: a Comparison between European and Italian SMEs.

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I. Introduction

The essential role of banks in the modern economy has long been object of study for academic research. Even if the totality of their ramifications could hardly be summarized in a book, one could safely claim how the great part of their importance lies in a very simple fact: banks are the main credit source for most enterprises throughout the world. This is especially true for Europe, where banks have been playing a significant part in the growth and diffusion of private business throughout the majority of the last two centuries (Levine, R., 1997). It is then only natural to discover how their provision of credit to small and medium enterprises (SMEs), the workhorses of most European economies, has been instrumental for the economic success experienced by those economies over the same period (Berger, A. N. et al., 2006). In particular, due to their reluctance of diluting ownership and difficulties in obtaining financing through equity, SMEs rely on bank credit as their main – oftentimes sole – source of external financing (Berger, A. N. et al., 2006).

Along these lines, the works performed by the Basel Committee on Banking Supervision have often been depicted as ones able to negatively affect the overall provision of credit by banks to enterprises in general, and SMEs in particular (VanHoose, 2007; Cosimano & Hakura, 2011). Originating from prudential purposes following a series of systemic incidents and changes in the nature of banking, the Committee's work has resulted in three separate regulatory frameworks, Basel I, II, and III. The so-called Basel Accords aim at lowering systemic risks for banks by establishing – among other things – a minimum amount of regulatory capital to set aside for each of a bank's exposures, tied to either a pre-determined or a calculated risk of default for the borrower (BCBS, 1988, 2004, 2010). With respect to SMEs, following a number of concerns on the constraints in their access to bank finance introduces by Basel I, the second Basel Accord introduced a dedicated treatment for their credit, able to partly address such concerns and theoretically ease regulatory pressure (BCBS, 2004). Nonetheless, the most recent financial crisis was able to expose all of the limitations of such Accord in terms of both procyclicality and excessive constraints for the private sector, and it did so to such an extent that the Committee had to hastily introduce a new framework: Basel III (BCBS, 2013).

It is in this light that past concerns on the Basel Accords gain new relevance, further reinforced by a consistent body of academic literature able to establish significant causal linkages between Basel II and the exacerbation of the procyclical nature of bank credit on the one hand, and a decrease in credit provision to enterprises in terms of both its reduced availability and increased costs on the other (Gordy & Howells, 2006; Moosa, 2010). This has been especially the case for many European SMEs, as the risk-based approach undertaken by the Basel Accords is able to potentially penalize their credit rating at the eyes of banks, and hence require them to set aside greater amounts of capital for loans to SMEs, with respect to other exposures (Cardone Riportella et al., 2011).

However, the impacts of the Basel Accords on bank credit provision to SMEs are intrinsically tied to the nature of the system in which both banks and SMEs operate. Accordingly, they might vary greatly among European countries, as each provides a different system able to either mitigate them or exacerbate them, or a mix of the two. Among those countries we find one with a different system in Italy, the economy of which greatly relies on a large number of smaller SMEs obtaining credit from several smaller banking institutions, the majority of which presents a relatively lower capitalization compared to the European average (De Socio, 2010). In light of that, and given the peculiar nature of Italian SMEs with respect to their European counterparts in terms of higher debt and less ability to generate revenue (De Socio, 2010), one could expect the Basel Accords to have had an even more significant impact on the provision of bank credit to Italian SMEs. To this end, the paper aims at descriptively assessing the impact of the Basel (II-III) Accords on the provision of bank credit to Italian SMEs vis-à-vis the Eurozone. In order to do so, it poses the following research question:

How did the Basel (II-III) Accords affect the provision of bank credit to SMEs in the Eurozone?

Accompanied by two subquestions:

Has their impact differed between SMEs in Italy and the ones in the Eurozone?
If yes, why did it do so?

With respect to past research, this paper will provide a first comparison of the impacts of the Basel Accord on bank credit between Italy and the Eurozone. Moreover, academic research on the impact of the Basel Accords on credit provision to SMEs is still mostly on the theoretic perspective, so that this paper is also able to grant a different viewpoint by analyzing such aspects descriptively, and possibly provide a meaningful linkage between theory and practice. The paper will be structured in the following way: the first section will provide an introduction to the Basel Accords and the main rationales behind their introduction and update. Following, with the means of a literature review the second section will first treat the importance of bank credit for SMEs, and then illustrate both the theorized and empirical effects of the Basel (II-III) Accords on bank credit provision to enterprises in general, and to SMEs in particular. After that, section three will aim at the answering of the research's problem statement by providing a descriptive analysis of the access to bank finance of SMEs in Italy vis-à-vis the Eurozone following a number of key parameters. Finally, the conclusion will provide the author's conclusive remarks and suggestions for further research.

II. Historical Background

Historical Background and the First Basel Capital Accord

Arguably, globalization from the 1970s has increasingly been pervading many aspects of the economy, finance amongst all. Regulators in this setting were attempting to balance two opposing needs: on the one hand states engaged in banking deregulation processes in order to be competitive at the international level with respect to those financial centers enjoying relatively laxer regulatory regimes such as London, Hong Kong and Singapore. Whereas on the other they had to preserve the pursuit of prudential national objectives such as the preservation of bank safety and soundness (Kapstein, 1989). However, in this conflicting setting, due to the rising level of globalization of financial entities and processes leading to a consistent network of international interbank relations, regulators faced a situation where the boundaries between national and international finance became increasingly blurred, so that the efficacy of their regulatory measures at the national level experienced a decrease in both their scope and strength (idib.).

Furthermore, such increasing globalization of banking practices meant that any problems faced by a foreign bank in terms of its liquidity or solvency could severely undermine the soundness of domestic institutions as well. That is because in such interdependent setting of banking relations domestic banks would rely on their foreign counterparts for a variety of services such as hedging and financing, so that any problem faced by a foreign bank would inevitably affect those domestic banks and firms who relied upon them (Kapstein, 1989).

More in detail, the aforementioned deregulation processes that characterized both the 1970s and 1980s have greatly fostered innovations in financial practices. Such innovations can be summarized in a number of trends: one above all was securitization, the transformation of banks' assets (such as loans and mortgages) into off-books securities that can be sold and purchased by economic agents. As with every innovation, a considerable amount of uncertainty was concealed, something that in fact led to the unclear distinction between investment and commercial banks, thereby disorienting governments on how to respond to such financial changes (Kapstein, 1989;Amel, D. F., & Jacowski, M. J. 1989).

Another relevant trend could be identified in speculatory practices: the newly created global banking system created itself numerous sources of revenue by speculating on the high-volatile and risky foreign exchange market. This meant that international banks increasingly started to 'bet' on currency value fluctuations in order to try and reap incredibly high profits, although often neglecting the high risk of such practices (Kapstein, 1989; Boyd, J. H. & Gertler, M. 1993).

In such globalized setting, although the banking system could find a reinforcing factor in the full diversification of risk provided by the possibility of investing in many different national and international contexts - something that in the past required banks to create new domestic subsidiaries each time they were seeking to exploit a new target or expand their market share - this dense interconnection of banks increased also their interdependency, meaning that for instance if a solvency problem was to arise in a foreign bank, all the banks connected with it would be inevitably affected, oftentimes with major implications for their financial stability. This meant that even if the global banking sector had been reinforcing itself with renewed and competitive practices, its composing interdependent actors became increasingly exposed to the risk of a systemic crisis. (Amel, D. F. & Jacowski, M. J. 1989; Boyd, J. H. & Gertler, M. 1993).

On a factual perspective, after the 1971 collapse of the Bretton Woods system - an international agreement apt to manage monetary policy and in particular fix exchange rates between major industrial powers - exchange rates became free-floating, and international banks worldwide experienced heavy losses: a major example of this can be individuated in the 1974 bankruptcy of the New York based Franklin National Bank due to unsustainable losses caused by unhedged foreign exchange trading. Moreover, the debate on the international interdependency of banks was also emphasized by the ponderous losses experienced by all those banks connected with the German based Bankhaus Herstatt, which saw its banking license revoked in the same year after being found to have foreign-exchange exposures three times its capital (Helleiner, E. 1996; BCBS, 2013).

In such a unique historical setting characterized by an increasing globalized financial market and by the creation of new financial instruments and a high degree of speculation, national banking regulatory authorities seemed to be unable and uncertain on how to find a right way to respond to the fact that the degree of international financial competitiveness and attractiveness of their respective national banking institutions was in great part tied to their past deregulation policies.
Originating from these events, the Basel Committee on Banking Supervision was set up by G10 central bank governors[1] in order to cope with the aforementioned challenges, with the objective of creating worldwide accepted minimum banking supervision standards in order to enhance, strengthen and improve the financial stability of the banks of their member states (Kapstein, E. B. 1989; BCBS, 2013).

[1] France, Germany, Belgium, Italy, Japan, the Netherlands, Sweden, the United Kingdom, the United States, Canada and for a minor extent Switzerland.

Soft and hard law in international financial regulations

However, it is relevant to underline how from its inception the Committee's acts and regulations had no legal force, whereas its decisions were rather recommended best practices, expected to be integrated in the national regulatory system of each member country, at their discretion.
In order to understand how such non-binding measure could ever have an actual effect, it is paramount to shed light on the distinction between different kinds of international law.

In such context, hard law is a typology of law who refers to binding legal instruments and legislations wherein States or international actors are given actual binding responsibilities, as well as rights. This means that in order to constitute in a hard law, a treaty, rule or instrument must be prescriptive and enforceable, as well as actually enforced. Such typology includes self-executing treaties such as the ones of the WTO, as well as common laws.
In contrast, soft law customarily refers to those international legal instruments or treaties without any legally binding force - i.e. those that cannot be traditionally enforced due to their intrinsic non-binding nature - such as codes of conducts, recommendations, cooperation treaties and best practices (Brummer, 2010). In particular, three basic species of informal legislative products in international financial law can be identified:

- Best practices in international financial law aims to enhance and improve sound regulatory surveillance. This is clearly the case of the Basel Committee on Banking Supervision, as its aim was and is to set up minimum standards regarding banking best practices (Brummer, 2010).

- National authorities and policymakers are able to align their regulations and policies to those described by reports. This second type of soft law, helps determine the degree at which national regulatory approaches are appropriate and, in turn, helps to detect potential flaws that need corrective actions (Brummer, 2010).

- Finally, the third sort of soft law agreements, consist of those acts devoted to the enhancement of information-sharing among banking and security markets authorities as well as with national authorities, in order to further promote coordination and strengthen their prudential oversight (Brummer, 2010).

In a sense, soft law can be understood as the product of negotiations between different countries with varying power relations. Partly due to the biasedness associated with the differences of negotiation weights between its various subscribing countries, many international relations scholars have yet to come to accept international financial law as a legal framework in its own right. In fact they believe that due to the non-binding nature of soft law legal frameworks, it is

power - both in its economic and in its more traditional military sense - rather than law who dictates the outcome of negotiations on such international standards (Brummer, 2010).

Nonetheless two explanations have been put forward in order to clarify the popularity of soft law, especially concerning the different nature of its negotiation making and its associated costs with respect to hard law regulations. In detail, the benefits of a soft law legal framework can be depicted in four main points: firstly, due to its informal status, soft law provides a less costly way of negotiating and reaching an agreement. Secondly, the non-binding nature of soft law relaxes all those sovereignty related constraints, those costs associated to the adherence of a member country to its national prerogatives. Thirdly, due to their flexibility with respect to hard law ones, soft law agreements ease the risk of uncertainty related to the outcomes of its dispositions, and fourthly such quasi-legal set of instruments might pave the way to future agreements by enabling their member countries to signal to one another their intentions of taking a particular regulatory action or approach (Slaughter 2000; Brummer, 2010).

To further illustrate the first point, due to its informal nature soft law can be thought as carrying very low bargaining costs. For instance, a soft law treaty hardly ever requires extensive participation or a lengthy ratification procedure by prime ministers or heads of state. Furthermore, as long as agreement exists between member countries or institutions, due to the flexibility provided by their nature, soft law agreements can be amended more easily with respect to hard law ones. Conclusively, due to the extensive nature of the hard law treaty making process - often entailing months if not years of lengthy negotiations and stipulations - soft low offers a quick but cost-effective way to generate a conceivable framework in a less time-consuming and resource expensive fashion (Anne-Marie Slaughter 2000; Brummer, 2010).

In order to characterize the second point, it is key to first depict the concept of sovereignty costs. These are costs related to a nation's intra and international reputation with respect to the adherence to its national policies and prerogatives, legal frameworks included. Concerning this particular point, hard law is oftentimes very restrictive so that it might be very hard for a country to achieve its policy preference after the signing of such a kind of treaty. On the contrary, soft law allows policymakers to set up informal guidelines and prescriptions able to provide on the one hand a comprehensive framework, whereas on the other preempt a full delegation of important economic decisions to external inter or supranational authorities. Finally, within soft law agreements parties can choose to commit to any number of the proposed guidelines and best practices, therefore being able to avoid abiding by measures that do not adhere to their national prerogatives (Anne-Marie Slaughter 2000; Brummer, 2010).

In addition to that, the third point could be explained in the following way: given the considerable uncertainty tied to the outcome of policy measures in areas such as international financial

regulation, together with the lack of complete understanding of the full span of the consequences of any international treaty, states tend to negatively prejudge any particular approach of which they fear the consequences in the case it is of a hard law nature. In comparison, due to its non-binding framework, a soft law treaty might provide both an effective and attractive alternative to hard law by reducing the uncertainty tied to the outcome of its policies. With the avoidance of a formal framework, these parties concerned with an agreement are able to observe the impact of such rules before fully committing to them if they deem so, being then able to assess their benefits while retaining the possibility of avoiding unpleasant surprises. Especially in the financial ambit of regulation, this allows countries to experiment with regulations, and change their direction if need be whenever new information is obtained (Anne-Marie Slaughter 2000; Brummer, 2010).

Furthermore, the fourth point can be expanded as follows: due to the selective regulatory approach taken by countries within international soft law agreements, such platform is able to take the purpose of a communication medium whereby member states can interact by signaling their regulatory intentions to one another. This takes particular relevance when we think of the constantly evolving nature of modern financial markets, wherein well developed networks of countries and institutions need to be on the one hand coordinated, whereas on the other hand responsive to any particular change in the circumstances surrounding their policy areas (Anne-Marie Slaughter 2000; Brummer, 2010).

The Concordat

Hence, although somewhat counterintuitively the lack of legal force of the Committee's regulations is able to encourage convergence among countries towards common banking standards (BSBS, 2013; Brummer, 2010). The earliest effort on this perspective can be traced back to 1975, the year when the Committee - established only one year earlier in 1974 - published its first work: the "Concordat". Such document embraced, among others, two core principles:

- International banks are subject to the regulatory authorities of both the home and foreign countries in which they operate, and together those countries are equally responsible for the proper supervision of such banking subject.

- A continuous exchange of information should flow between the home and host countries, in order to establish a mutual understanding between both regulatory authorities. Moreover, foreign branches and subsidiaries may and should be subject to operational inspection by the country in which they carry on their operations (W.J. Miller, 2013).

Although these principles do not thoroughly describe all the precepts of the Concordat, it can be deducted that the aim of this early work by the Committee was to enhance supervision and

cooperation of banks' subsidiaries and branches between home and host countries, in order to encourage the growth of a sound international banking supervision structure. (W.J. Miller, 2013).

However, it has to be noted how the full implementation of the Concordat has been hampered by the different and often divergent national banking jurisdictions among member countries. For instance, national banking secrecy laws oftentimes prevented local regulatory authorities to adequately supervise foreign banks' subsidiaries and branches of those countries with such particular legal framework. Furthermore, another important divergence between countries' regulatory frameworks could be found in the determinants of what constitutes a bank, as in some countries there are parameters that do not apply to others, and vice versa (W.J. Miller, 2013).
Soon after the promulgation of the Concordat, the Committee realized that capital adequacy should become one of its main concerns. This was in no small part due to the fact that many Latin American countries were experiencing what has later been called their "lost decade", the 1980s. A debt crisis arose because many Latin American countries accumulated increasingly high levels of external debts towards the G10 countries and the US in particular. When their debt crisis arose, interest rates in the G10 countries increased in turn, de facto making it harder for their borrowers to repay their debt by issuing new one. Moreover, their currencies also experienced a substantial devaluation with respect to the US dollar, meaning that not only they were unable to issue more debt, whereas the value of their US dollar denominated debt skyrocketed, bringing to the Committee's attention that a weighted approach to risk measurement had to be undertaken, both with respect to on and off banks' balance sheets (Pastor, R. 1988; BCBS, 2013).

The First Basel Capital Accord

In 1988, both as a logical continuum and adaption of the Concordat and as a response to the heightening of the aforementioned historical trends, the Committee released what has been considered a landmark in international banking regulation: the Basel Capital Accord. With the release of the Accord, the Committee had two essential objectives: first, the international banking system was to be strengthened both in terms of stability and soundness by the framework and second, the application of the Basel Capital Accord would be coherent across banks of different countries and moreover it was to be concerned with the lessening a major source of competitive disparities among international banks (BCBS, 1988). It is safe to claim that such document represented an ambitious and perhaps decisive first step toward a sound and competitive international banking system (BCBS, 1988; Kapstein, E. B. 1989).

With the two aforementioned objectives in mind, the Accord dealt with the separate constituents of bank capital and with the introduction of an according risk weighting system, in order to provide banks and national authorities with guidelines apt to measure and set minimum

standards for capital adequacy. In addition to that, for the first time bank capital was characterized as the sum of two tiers where:

- Tier 1 represented by the so-called core capital, comprising shareholders' equity, disclosed reserves and other surplus- retained earnings, share premiums, retained profit, general reserves and legal reserves.

- Tier 2 embodying all the other elements forming supplementary capital; that is to say undisclosed, asset revaluation and general provisions/general loan-loss reserves, hybrid (debt/equity) capital instruments and subordinated debt. In addition to that, the Accord required that the total amount of such capital tier should never exceed 100% of tier 1 capital (BCBS 1988).

Moving on to the risk weighting system, in order to assess the degree of capital adequacy of a bank, the Committee deemed right to tie different kinds of capital assets with a respective weight according to their riskiness, both on and off-balance sheet exposure. The resulting outcome was the Risk Weighted Asset (RWA): a bank's assets exposure weighted with respect to each asset's proposed credit risk - probability that borrowers will fail to repay their bank obligations – level (BCBS 1988).

The rationale behind the institution of a weighting system and of the RWA could be summarized in three main points: firstly, it would allow an easiest and fairer way to compare banking systems across those member states and institutions who decided to adopt the framework; secondly, off-balance sheet activities would have means of measurement and would thus be able to be included in the Credit Risk Ratio and third, this would encourage banks to hold less risky assets such as cash rather than riskier ones. Furthermore, in order to avoid the creation of an excessively a complex weighting system, the Committee allowed for the use of only five **fixed** risk weight percentages, namely 0%, 10%, 20%, 50% and 100% (BCBS 1988).

Moreover, in order to better address the allocative issue of these weights to different assets, the Accord characterized two main categories of assets: on and off balance sheet. Intuitively this difference lies at the positioning of those assets within a bank's balance sheet: on balance sheet assets can be associated with traditional loans or activities compounding the asset side of a balance sheet, whereas the major example of off balance sheet assets can be identified as securitized loans, disclosed only in the notes of banks financial statement as the credit risk associated with these loans is sold and, thus transferred, to a third party. In other words, on balance sheet assets are those assets that are written up on the balance sheet, whereas off balance sheet assets do not appear in the balance sheet (Poramapojn, P. 2009).

To illustrate, Basel I characterizes as on balance sheet assets such as cash, claims on central banks and central governments, together with claims to the private sector. On the other hand, examples of off balance sheet are - among others - collateralized credits and sales and repurchase agreements, where the bank is unable to transfer credit risk associated with those assets (BCBS, 1988). The risk structure designed by the Accord was individuated in the weighted sum of the various risk percentages associated with each on and off-balance sheet type of asset, with each item assigned a specific risk weight (for instance, a 20% risk weight was attached to collateralized credits).

However, only a few of risk percentages associated with an on-balance sheet type of asset were dictated by the Accord, with the rest to be assigned at the discretion of each central bank.
For instance, the Accord dictates that claims to the private sector have a 100% risk weight, whereas with respect to claims on central banks and OECD governments, the Accord leaves discretion to national regulatory authorities to set the risk weights they consider to be most appropriate (BCBS, 1988). This procedure of weighing banks' assets according to an established percentage of risk was then used to calculate the ratio between bank capital and RWA, in order to determine a minimum standard of capital adequacy. The Committee attested that the capital to RWA should never exceed a limit set at 8%, of which the core capital element would need to be at a level of at least 4% (BCBS, 1988).

Although its worldwide recognition as a milestone in international financial regulation, following its implementation Basel I began to record a number of criticisms, mostly due to the nature of the design of its aforementioned risk weighting structure (Jones, D. 2000; Tarullo, D. K. 2008).
In detail, its major points of criticism can be summarized in five main pitfalls:

- First, if on the one hand the Accord aimed to keep things simple by introducing only five fixed risk weights (0%, 10%, 20%, 50% and 100%), this could on the other hand represents a limitation for banks, now facing an excessively narrow range of risk weights to assign to many different asset categories.

- Secondly, the assumption made by Basel I that a minimum of 8% ratio of capital to RWA should be enough to avoid bankruptcy in the system, the Accord failed to take into account the changing nature of default risk.

- Thirdly, the amount of capital requirement to risk weighted assets was set regardless of their maturity. In other words, capital requirements were fixed and not shaped according to the term-structure of credit risk.

- Fourthly, bank risk judgments could be biased due to the lack of accountancy for portfolio diversification. Such bias could arise because by diversifying risk through a portfolio of different activities, the calculation of default risk could yield a substantially lower outcome when compared to the sum of all individual risk exposures, as it was the case with the computations embodied in Basel I.

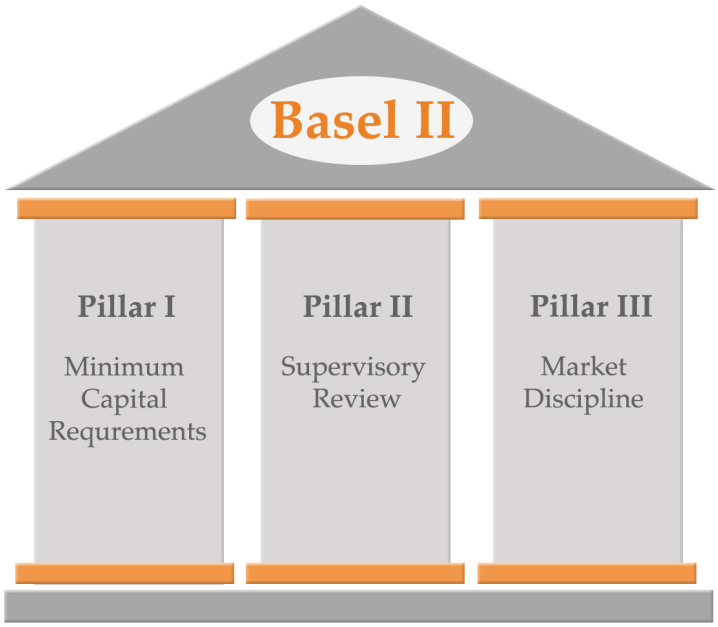
- Fifthly, a major problem with the Accord was that risk weights were fixed regardless of potential changes in macroeconomic conditions, meaning that they were not allowed any range of flexibility in times of changes in the macroeconomic environment, such as in years of economic and hence credit booms or recessions (Kapstein, E. B. 1989; Jones, D. 2000; Tarullo, D. K. 2008).

Conclusively, for the first time in history, the Basel Capital Accord represented an agreement that specifically aimed at the recognition by international authorities of the importance to measure risk in relation to bank capital, thereby helping to pave the way for both a sound and stable banking system, and for an increase in convergence among national banking juridical frameworks. However, given its aforementioned limitations - above all the non-flexibility of risk weights and their oversimplified computation - the need to revise such framework emerged soon after its release, a process that through a 1996 amendment to the first Accord would later result in the Accord of the Committee: Basel II (BCBS, 2004).

From Basel I to Basel II

After six year of intensive preparation, in June 2004, Basel I was officially abandoned and its successor, Basel II, was released. Under this new framework, the Committee intended to further strengthen the risk assessment of banks and to enhance risk management procedures through more sophisticated credit risk approaches, and especially by tying banks' risk management choices to their minimum amount of required regulatory capital. For instance, banks that engage in more than average risky procedures, will see their capital requirements increased (given the minimum capital requirement of 8%), and vice versa (Jörg Hashagen, 2003; BCBS 2004).
Although this was not a new concept for the Committee, one of the major challenges it faced was represented by the need to approve risk management procedures among different jurisdictions. Basel II dealt with this issue by demanding an even greater degree of cooperation between home and host supervisors and by further extending the scope of such approvals.

Table 1: Basel II and its Pillars



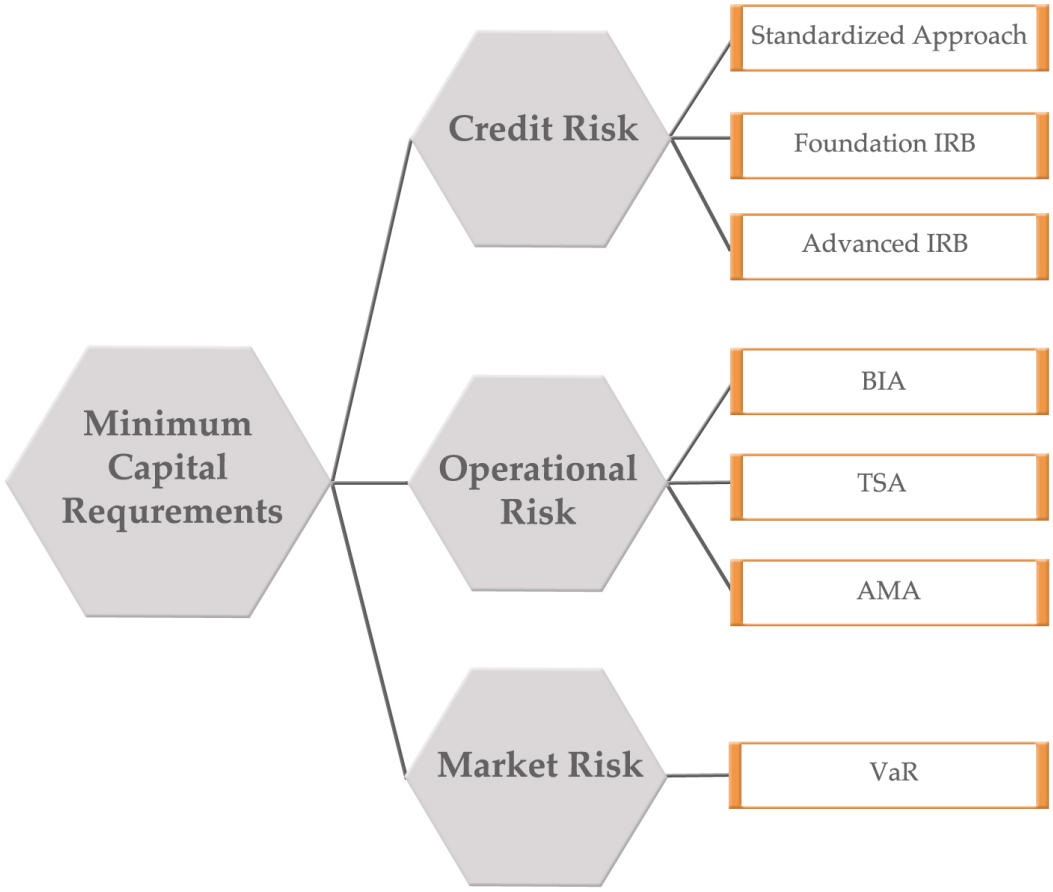
Note 1: Adapted from BCBS (2004) and Härle et al. (2010)

As we can see from table 1, in order to achieve its objectives the updated Basel II framework was designed to be built on three fundamental pillars: 1) minimum capital requirements; 2) supervisory review and 3) market discipline.

Moreover, as depicted in table 2, under the first pillar banks' capital requirements are calculated on three major risk criteria, rather than the two systems - namely credit risk and market risk - on which capital requirements were calculated in Basel I: they are 1) credit risk; 2) operational risk; and 3) market risk (BCBS 2004). The introduction of these criteria by Basel II represented a substantial innovation, as it allowed banks to calculate their regulatory capital levels more flexibly instead of the "one-size-fits-all" method introduced by Basel I. Before describing and analyzing the new techniques for the calculation of capital requirements introduced by Basel II, it should be underlined that the new framework maintained the 8% minimum capital requirements of Basel I, with Tier 1 capital corresponding to at least 50% of this amount.

Starting from credit risk, the first method introduced by the Basel Committee with the second Basel Accord is the Standardized Approach, where banks' capital requirements are quantified from the risk ratings assigned by External Credit Agencies to the different types of assets (BCBS, 2004).

Table 2: Constituents of Minimum Capital Requirements



Note 2: Designed for the specific purpose of this paper. Adapted from BCBS (2004).

The second technique provided by Basel II to measure credit risk and capital adequacy was represented by the introduction of the Foundation Internal Ratings-Based approach (F-IRB), in which the probability of default (PD) of grouped or individual clients is internally calculated by the bank through empirical models subject to the Loss Given Default (LGD) parameter - the percentage of an asset that is lost if the borrower defaults- established by the regulators, and to the parameters used to calculate the RWA.

Then, operational risk is defined as the risk of incurring in losses arising from failed or inadequate internal processes such as systems, people and external events.
Under Basel II all banking institutions are required to set aside capital in order to prevent the occurrence of such losses. The Accord suggested three different approaches to calculate minimum capital requirements (BCBS, 2004):

- Firstly, under the Basic Indicator Approach (BIA) the amount of capital required for operational risk is calculated as an average of a fixed percentage of the positive annual gross income over the three previous years. Moreover, annual gross income amounting to

zero or negative for any relevant year is excluded from the calculation, from both the denominator and numerator. In addition, Basel II signaled how this method better fits banks that are not particularly active at the international level, as its degree of complexity is relatively low compared to the other two techniques to calculate capital requirements for operational risk.

- The second approach lined out by Basel II is the so-called Standardized approach (TSA), in which banks' activities are categorized by eight different activities lines: agency services, asset management, commercial banking, corporate finance, payment & settlement, retail banking, retail brokerage and trading & sales. Instead of calculating capital requirements on annual gross income, this technique attaches each banking category a percentage (called beta) upon which capital requirements for each business activity is calculated. Then, the total amount of capital charge is an average of the summed regulatory capital charges among each bank's line of activity over the last three business years. Moreover, the TSA can be implement only by those banks that satisfy specific requirements such as: an active involvement, by both the board of directors and senior management, regarding the implementation and management of operational risk procedures; their operational risk management and implementation should demonstrate both soundness and integrity; and finally, banks should prove to have sufficient resources for the implementation of TSA at all business activities.

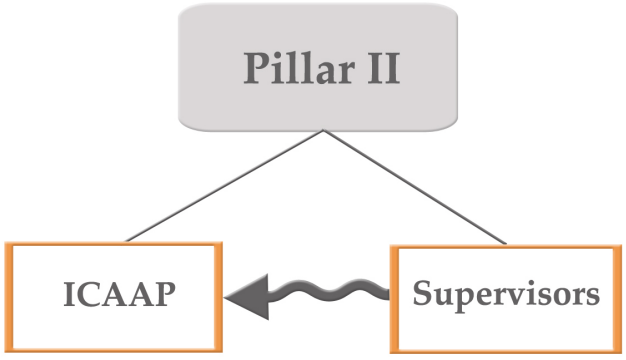
- Finally the last method is the Advanced Measurement Approach (AMA), in which banks are allowed to develop their own model to quantify capital charges for operational risk. Although Basel II not specified any model for this technique, banks must include in their models the following elements: Business Environment and Internal Control Factors (BEICFs) such as employees turnover and rate of growth; External Data (ED), such as public data or industry data; and Internal Loss Data (ILD) and a Scenario Analysis (SBA) in which ED and ILD are combined in order to capture events that may occur in the future.

Conclusively, the assessment of capital requirements for potential losses arising from market prices volatility, namely market risk, should be evaluated by banks according to the Value at Risk (VaR) technique. VaR is a statistical model that aims to calculate the highest possible amount of losses that may occur to a portfolio in a specific timeframe period.
As will later be discussed in the paper, this technique played, among a myriad of factors, a key negative role in the 2008 financial crisis and thus represents one of the main flaws in Basel II (BCBS, 2004).

Moving on to the second pillar, namely the Supervisory Review, aims to support the first pillar by enabling banks to better comply with minimum capital requirements described above, and to

foster risk management procedures and supervision both at an internal bank level, and for banking and supervising authorities (BCBS, 2004; E. Roberts 2008).
With the framework provided by the second pillar, supervisors are supposed to be able to intervene in the early stages if a bank shows insufficient capital buffer according to its risk. Hence, pillar II aims to efficiently and effectively link the evaluation of minimum capital requirements to risk management procedures, in order to ensure the lowest possible biasedness in their calculations (BCBS, 2004; E. Roberts 2008).

Table 3: Constituents of Pillar II



Note 3: Designed for the specific purpose of this paper. Adapted from BCBS (2004).

As shown by table 3, pillar II outlines that each bank should perform an Internal Capital Adequacy Assessment Process (ICAAP), in which capital requirements are calculated according to their risk profile - as described by pillar I - and that banks should undertake sound strategies to keep those capital levels consistent with possible changes their risk profiles. Moreover during and after this process, banks are subject to the monitoring of supervisors (BCBS, 2004; E. Roberts 2008).

Under Basel II, the ICAAP is a mean through which banks could become proactive rather than reactive to changes in risk, whichever its nature. This process is undertaken by clearly outlining preferred capital levels, aiming to allow a bank to comprehend the present and to forecast and adapt to future changes (BCBS, 2004; Roberts 2008).
Moreover, during the ICAAP process supervisors should review and examine its development and outcomes as well as promptly intervene if compliance with regulatory standards is not met or not completely satisfied. In order to let supervisors accomplish appropriate monitoring activities, banks are required to periodically report their ICAAP; are subject to both off and on-site examinations; and their work is reviewed by internal and external auditors and periodic meetings should be scheduled with supervisors (BCBS, 2004; Roberts 2008).

In addition, supervisors expect banks to perform their activities above minimum regulatory standards. The rationale behind this statement can be summarized in a number of reasons: first, an additional capital buffer may act as a cushion as the capital ratio may fluctuate even in the normal course of business; secondly, if bank specific risks or macroeconomic factors are accidentally not

taken into account in the calculations outlined by pillar I, this buffer helps preventing a bank to fall below minimum standards (BCBS, 2004; Roberts 2008).
Straightforwardly, the only way to prevent a potential erosion of a bank's capital and thus limiting risks for both depositors and financial system is one where supervisors must intervene as early as possible if such potential is spotted. Beyond intervention procedures described by law and national policies, supervisors are entitled to pursue additional intervention actions such as requiring the bank to improve its ICAAP, disposing restrictions on bank activities as well as limiting dividend payments (BCBS, 2004; Roberts 2008).

Furthermore pillar III acts as a complement to the first two pillars in order to strengthen the whole framework. According to such pillar, a greater stability in the financial system will be achieved with a consistently higher degree of information disclosure by lenders that in turn are required to publicly provide their capitalization procedures, risk rating processes, risk management activities and risk distributions to third parties as well as to supervisors. This way as soon as the marketplace has a sufficient understanding of banks' activities and has the tools necessary in case of the need for corrective actions, it will be able to reward those lenders who manage their risk prudently and penalize risk lovers. This penalty-reward system in turn, will stimulate banks to exploit good corporate governance, strengthened by the fact that market discipline should supports regulation by a thorough sharing of information regarding bank assessment by third parties, such as customers, rating agencies, investors and analysts.
Summarizing, pillar III underlines the need for higher degree of information transparency among market participants, with such information needing to be contextualized to be meaningful (Greenspan, 2003; BCBS, 2004).

Conclusively, with Basel II the Committee designed a more risk sensitive framework compared to Basel I, characterized by the objective to corroborate a soundness international banking system while maintaining inequality-free capital adequacy regulation among jurisdictions.
Moreover, through the aforementioned three pillars, Basel II has been considered to be a more forward looking and flexible approach to capital adequacy requirements and supervision, allowing the framework to be able to keep pace with both market developments and innovations in risk management practices (Greenspan, 2003).

The need for a new framework: the failure(s) of Basel II

However, the Basel II Accord cannot be exempted from a number of criticisms not only on the actual fulfillment of its declared intentions, whereas also with respect to the means by which such intentions are to be put in action. In order to shed light on the latter aspect, a detailed overview of the theorized shortcomings associated with each credit risk measurement system first proposed by Basel I and then updated in Basel II is presented by Saunders & Allen (2010). To this end, they

provide an assessment on the efficacy of each of the proposed methods of risk measurement, namely the Standardized Approach (TSA), the Foundations IRB, and the Advanced IRB.

Concerning the so-called Standardized Approach, with respect to the first Accord Basel II represents an improvement by adding risk sensitivity to those capital requirements apt at the absorption of possible credit losses. However, the risk sensitivity (i.e. the weights) associated to corporate loans risk buckets are found to be inefficient both in the sense that they are too high for highly rated corporations, and in the sense that they are too low for extremely low rated ones (i.e. below BB-). In fact, whereas the first two risk bucket are too high, with the first one (AAA to AA- rating) associated to a 1.6% capital charge (composed of a 20% risk weight times the 8% minimum requirements) in front of a 0% historical unexpected loss, and the second one (A+ to A- rating) associated to a 4% capital charge in front of a 2.1% historical unexpected loss; the last risk bucket (below BB-) in fact due to a relatively low risk weight of 150% requires a capital charge around three times smaller than the historical capital losses on loans to such corporations (12% charge versus 35.4% historical losses) (Saunders & Allen, 2010:28-29). Additionally, the risk weight associated to those loans contracted by unrated corporation has also been focus of criticism. This is because in front of a risk weight of 'only' 100%, those unrated corporations represent more than the majority of total bank credit exposure, thus threatening the solidity of the whole approach. Specifically, empirical data on the average default risk of the unrated bucket suggests how in fact its associated risk weight should rather be similar to the 150% one associated to the last bucket. This makes so that those borrowers that if rated would most likely receive a rating below BB- have strong incentives to elude rating in order to get 'cheaper' loans (Saunders & Allen, 2010:29-30).

Moreover, the whole idea of linking capital requirements to ratings provided by external agencies has been source of more than a concern. The main points of criticism on such approach are manifold: firstly, ratings are unable to capture the credit quality of a borrower due to their intrinsic one-fits-all nature where a single grade represents various dimensions of risk. Secondly, due to prudential practices by rating agencies in which they avoid extreme changes of rating classifications over a short time, such rating might in fact be a lagging rather than a forecast indicator. Thirdly, due to the changing nature of ratings over time, financial instruments may change risk buckets along their course, thereby generating unnecessary degrees of volatility in capital requirements. Furthermore, considering the pro-cyclical behavior of credit agencies (i.e. downgrading during financial crises) banks might find themselves in a situation where their capital requirements are higher while revenues are lower, thus not only contributing to systemic risk, whereas making rating agencies subject to pressures not to downgrade in times of recession, possibly endangering their independence and credibility at the eye of investors and lenders (Saunders & Allen, 2010:30). Additionally, due to the lack of a universal credit rating standard, ratings might not be comparable not only between agencies, whereas between countries as well. Conclusively, the concept of delegating the banks' credit monitoring function to external rating

agencies makes so that the incentives for banks to monitor creditors are greatly reduced, possibly undermining the stability of the whole system as well as greatly reducing the amount of information available in the credit market (Saunders & Allen, 2010:31).

Finally, with respect to both F-IRB and A-IRB, the individual nature of ratings might in fact hinder the consideration of the aggregate risk across all assets, whereas the concerns on systemic risk make so that cross-asset correlations are not fully taken into considerations, making capital requirements higher than they would be if they were. Moreover, the A-IRB approach is characterized by possible distortive incentives with respect to credit risk exposure. In detail, the maturity adjustment introduced by the A-IRB system is such that loans with maturities higher than three years are adjusted according to a perverse factor making their risk weights decrease as credit ratings decrease, instead of the other way around (Saunders & Allen, 2010:40-41). With respect to pro-cyclicality, both IRB approaches are designed in such a way that an increase either in PD, LGD, or EAD corresponds to one in capital requirements. However, all three parameters are estimated with respect to each of the bank's borrowers, so that they are prone to rise in times of macroeconomic downturns. Compared to Basel I this represents a step in the wrong direction, as in times of recession not only such parameters are bound to increase capital requirements, whereas via the increase in capital requirements they are also able to severely affect credit supply in contractive terms. Along the same lines, in times of expansion the smaller value taken such parameters lowers capital requirements, possibly favoring the creation of speculative bubbles through irresponsible bank behavior (Repullo et al., 2010).

More generally, Basel II was designed in such a way that riskier credit would be associated with a higher risk weight, and hence a higher capital charge. However, this apparently logical feature proved to be time inconsistent: due to the fixedness of capital requirements with respect to macroeconomic conditions, they are too strict in times of expansion and too stringent in times of recession, thus greatly contributing to the pro-cyclicality of the second Basel Accord (Hellwig, 2009; Repullo et al., 2010). Furthermore, the Accord contributes to pro-cyclicality in two more ways: firstly, the often negligible amount of regulatory capital buffers held in excess of minimum requirements makes so that banks have very restricted margins for the absorption of shocks, and thus have to perform corrective actions almost immediately after such shocks take place; and secondly, the relatively small amount of required capital in a more general dimension contributes to solvency soon becoming a relevant issue once a shock is in place (Hellwig, 2009). In detail, the most recent financial crisis proved how from the burst of a speculative bubble in a relatively unimportant sector such as subprime mortgages, the whole banking system could be put on the brink of collapse by a positive feedback loop that was in fact exacerbated by bank capital regulations (Hellwig, 2009; Repullo et al., 2010).

Conclusively, with respect to such regulatory failure Hellwig (2009) highlights how the whole regulatory effort lacked a clear and coherent conceptual framework of action. Additionally, the same source argues how such unstable foundations are further weakened by the lack of neither empirical nor theoretical work on the systemic and macroeconomic effects of any typology of regulatory efforts establishing capital requirements. Specifically, in front of an ultimate objective of preserving the safety and soundness of the banking system, the first two Basel Accords present three main theoretical shortcomings:

- Firstly, the purpose of regulating capital is unclear. In Hellwig (2009) three reasons are associated with bank capital regulation: providing a cushion against insolvency, de-incentivize risk taking, and making space for supervisory intervention prior to insolvency. Even if such nuances lose relevance in the case where the regulatory framework is able to serve all three purposes, the very foundations of each framework – i.e. the designed system of capital requirements – are bound to be different depending on which of the three reasons one has in mind. For instance, if capital requirements are determined along the first reason risk weights should only be a mean to calculate total risk along their contribution to the total exposure; whereas when they are determined along the second reason, one should rather set weights according to the marginal impact of an increase in exposure in their associated asset (Hellwig, 2009). Conclusively, when one is thinking of the third reason weights lose relevance compared to the setup of a threshold beyond which regulatory intervention would irrevocably take place. However, such conflict has never been addressed by the Committee (ibid.).

- Secondly, the multi-period effects of regulating capital are not taken into account. This is because the impact of regulatory capital framework is generally thought of over a simple two-period framework. However, in the real worlds banks operate over a much more complicated multiple timeframe in which they repeatedly face decisions on both investing and the distribution of returns from previous investments in each period. To this end, one should rather think of regulatory impacts not only in the first period, whereas throughout subsequent periods as well. For instance, a policy such as the one introduced by Basel II in which capital requirements are automatically enforced for each period regardless of the macroeconomic conditions might severely contribute to a bank's risk of insolvency in the case where such policy obligates banks to sell assets at market prices much below the value associated with their future returns (Hellwig, 2009).

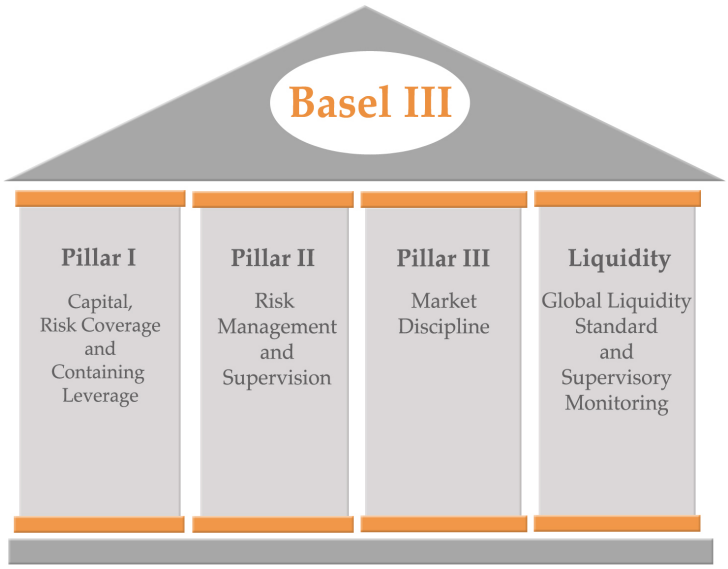
- Thirdly, the systemic repercussions of regulating capital are ignored. In spite of its stated intentions, in the actual Basel I and II frameworks systemic risk is not addressed in detail. This is because regulators seem to believe that addressing the individual solvency of all banks is enough to prevent the emergence of systemic risk. However, such view is rather optimistic in the sense that if the regulatory framework was actually able to preserve the viability of each banking institution, then systemic risk would be no problem at all. But this is not the case, for a number of reasons. Firstly, given the interdependent nature of systemic risk, the risk exposure of an

individual bank cannot be determined by only considering its own assets and liabilities, be it off or on balance sheet. Secondly, depending on the nature of the risk at hand, a bank's ability to fulfill its obligations might be tied either to third parties, in the case the risk is hedged, or to the number of similar risky assets a bank might hold, in the case of macroeconomic risk. Moreover, if in the second case the risk is hedged, the chance of facing multiple obligations over a short time due to risk correlations might on its own be able to compromise the viability of the hedger, and thus the one of the bank (Hellwig, 2009).

Basel III and the current legal framework

Following the onset of the 2008 financial crisis, in December 2010 the Basel Committee released a new regulatory framework with the aim of strengthening the principles outlined by Basel II as well as introducing new reforms. The Basel III Accord was designed to manage those market and systemic failures unveiled by the 2008 financial crisis, and in particular to improve the ability of the banking sector to absorb whichever shock arising from situations of both financial and economic stress. This in turn, should reduce the risk of spillovers arising from the financial sector to the real economy. Moreover, as a further mechanism Basel III interrelates both micro and macroprudential supervision approaches to increase bank-level resilience in periods of stress and to deal with systemic risks associated to the banking sector as well as with their positive feedback loop in terms of self-augmenting procyclicality (BCBS, 2010; KPMG, 2011).
As illustrated by table 4, other than a more extensive and in depth analysis of the three pillars underlined by Basel II the new framework introduces the concept of regulating liquidity, as liquidity risk management proved to be a relevant factor in banking conduct in situations of financial distress.

Table 4: Basel III and its Pillars

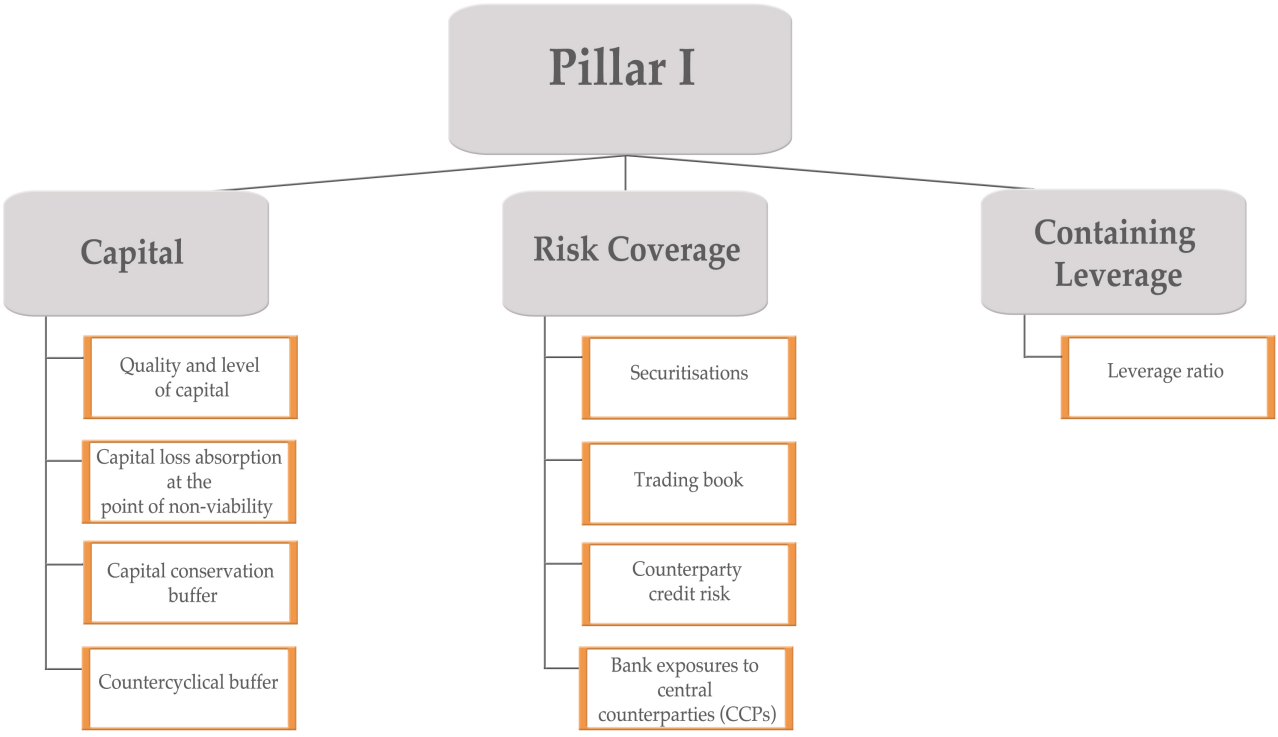


Note 4: Designed for the purpose of this paper. Adapted from Härle et al. (2010) and BCBS (2010).

Straightforwardly, as we can see from table 5 the first pillar of Basel III shows a more complex structure with respect the previous framework, as it now entails three dimensions upon which banks are required to comply with (BCBS, 2010; KPMG, 2011).

Firstly, in order to improve a bank's possibility of absorbing capital losses bank capital requirements are to increase both in terms of quantity and quality: Tier 1 capital will be predominantly composed by common equity and retained earnings and will increase from a minimum of 2% (as in Basel II) to 4.5% of RWA to be phased in from 2013 to 2019. Requirements for supplementary capital (Tier 2), will be harmonized and simplified also with the introduction of a specific target for this kind of capital (BCBS, 2010; KPMG, 2011).

Table 5: Constituents of Pillar I



Note 5: Designed for the purpose of this paper. Adapted from BCBS (2010).

Moreover, two additional measures to increase required capital levels are introduced: namely, a capital conservation buffer and a countercyclical buffer. The former is a mandatory 2.5 percentage of capital to RWA and the latter represents a discretionary measure with which national regulators can require banks to further increase their capital level up to 2.5% of RWA, for example in during periods of high credit growth.

Therefore, according to Basel III, in 2019 minimum total capital requirements will amount to 10.5% of RWA, and will be composed by 7% of common equity, 1% of Tier 2 capital and 2.5% of conservation buffer (BCBS, 2010; KPMG, 2011). Additionally, the Committee has proposed the insertion of a contractual clause in all capital instruments apt at the writing off through conversion to common shares of such liabilities in the case where the regulatory authority deems that a bank

would be unable to remain viable in the case where such conversions were not made (BCBS, 2010; KPMG, 2011).

In addition, concerning risk coverage issues the first pillar focuses on four main concepts (BCBS, 2010):

1. Basel III aims to strengthen capital requirements for complex securitization, and banks are required to adopt a more stringent credit analysis from externally rated securitisation exposures.

2. Moreover, a significantly higher amount of required capital is devoted to trading book and derivatives activities and also to complex securitizations held in the trading book. In addition, procyclicality will be mitigated through the introduction of a stressed value-at-risk framework, consisting in an additional capital charge deriving from the incremental risk estimated from the probability of default and migration risks of un-securitised credit products, also taking into account liquidity.

3. Then, regarding counterparty credit risk, the framework underlines higher requirements for measuring exposure as well as to incentivize banks to use central counterparties for derivatives. Moreover, inter-financial sector exposure claims higher capital buffer.

4. Finally, concerning bank exposures to central counterparties, the Committee introduced that trade exposures to a qualifying CCP - a licensed entity that acts as an intermediary between counterparties to contracts traded in one or more financial markets - will be attached a 2% risk weight and default fund exposures will be calculated with a risk based method estimating risk arising from such default fund (BCBS, 2010; KPMG, 2011).

Moving on to the last constituent of pillar I, Basel III introduces a non-risk based supplementary measure, the leverage ratio, calculated by dividing total assets (including on and off balance sheet assets) by shareholders' equity. According to the framework, total assets must not exceed three times of shareholders' equity or in other words, leverage ratio can reach a maximum value of 3. This new measure, even if does not involve risk in its calculations, has the aim of reducing the risk of a build-up of excessive leverage in the institution - as it was the case of Lehman Brothers, with a leverage ratio of 30.7 in November 2007[2] - and in the whole financial system (BCBS, 2010; KPMG, 2011).

With respect to the principles outlined by pillar 2, they move along with those described by Basel II with the aim to further enhance the link among a bank's risk profile, its risk mitigation systems,

[2] Lehman Brothers Holdings Inc Annual Report of the 30th November 2007.

its risk management, and its capital planning. Similarly, as in Basel II banks are required to set sound and consistent risk management procedures, as well as to minimize the probability of bias in capital to risk calculations through their ICAAP. Moreover, the second major component of pillar II is the so called SREP - Supervisory Review and Evaluation Process - a process that has the main purpose to ensure that institutions are able to engage in a sound and consistent management and coverage of their risks even in scenarios in which the financial system is at stress. In order to be able to achieve this objective, banks are required to have adequate arrangements, processes, mechanisms and strategies, including the availability of enough capital and liquidity for the fulfillment of such purposes (BCBS, 2010; EBA, 2013).

During the most recent financial crisis, it has been recognized that another relevant flaw in the financial system consisted in the lack of clarity on the quality of capital, in turn contributing to an increase in uncertainty, especially regarding the effectiveness of the interventions performed by regulatory authorities. It has been argued, that if banks capital positions were stated in a clearer way, than authorities might have reacted more promptly and perhaps a number of bankruptcies might have been avoided. Straightforwardly, the third pillar has the purpose to deal with higher transparency and disclosure requirements of regulatory capital in order to reinforce market discipline both within and among jurisdictions.
Hence, it is fundamental that banks thoroughly disclose their regulatory capital items and regulatory adjustments. In addition, Basel III member countries have agreed that internationally active banks within their jurisdictions are required to publish their capital positions according to common templates, in order to both increase consistency among formats and reduce the risk that inconsistent formats might undermine the soundness of the pillar in its entirety.

However, the real innovation in international financial regulation introduced by Basel III concerns the introduction of regulatory measures apt at preserving liquidity, the lack of which was a fundamental determinant in the onset and self-augmentation process of the 2008 financial crisis.
To strengthen its liquidity framework, Basel III developed two minimum standards:

1. The first is a short-term measure, the Liquidity Coverage Ratio (LCR), to be introduced in 2015. According to the LCR, banks are required to hold high-quality liquid assets to withstand expected cash outflows over a period of at least 30-days. The metric is derived from the quotient of stock of high quality liquid assets by net cash outflow over a 30-day time period and must be equal or greater than 100% (BCBS, 2010). Note how cash outflows are calculated by assigning each of a bank's funding sources a *run-off* rate according to the percent of those funding sources that will be due to be repaid over the aforementioned 30 days, for the purpose of mimicking a severe-stress scenario (BCBS, 2010).
   Those assets that in case of need can be quickly and easily sold without consistent losses on their value are considered as liquid assets. For instance the most liquid asset is cash, as it

can be immediately sold with no trade-off between its value and speed of its sale. To determine the quality of a liquid asset, each asset is attached a liquidity-based weight, similar to the risk-weight assigned for the capital adequacy requirements. Then assets are classified upon their liquidity in order to constitute the LCR and thus make banks able to comply with this newly introduced requirement, To illustrate, a weight of 100% is attached to cash and government bonds, so that they are considered completely liquid assets, whereas corporate bonds have a liquidity weight ranging from 0 to 50%, so that they are rather illiquid (BCBS, 2010). The rationale behind this new measure is to improve the stability of the financial sector by attempting to reduce the risk of bank-runs, as high-quality liquid assets are considered as a defense in highly distressed scenarios.

This was also strengthened by the fact that the most recent financial crisis highlighted the need to remain "liquid" in times of stress (BCBS, 2010; KPMG, 2011). However, it should be recognized that high-liquid assets, intrinsically yield lower rates of return compared to less-liquid ones, and this may affect the profitability of a bank as normally it would hold less-liquid but high-yielding assets to increase its profits rather than those outlined by the LCR (BCBS, 2010; KPMG, 2011). Moreover, such liquidity constraints might also affect the funding profile of banks by making them rely on longer-term financing, in a situation where many large providers of long term funding such as institutional investors are seeking to reduce their participations in the banking sector (KPMG, 2011). Finally, as the runoff rates associated to each funding allow for a degree of interpretation by national regulators, the level playing field between banks of different countries might be in jeopardy (KPMG, 2011).

2. The second measure proposed by Basel III is the Net Stable Funding Ratio (NSFR), to be introduced in 2018. It aims to reduce banks dependency on short-term funding by encouraging them to use stable (long-term) sources to fund their activities. Additionally, the NSFR intends to counterbalance and offset the potential cliff-effects arising from LCR metrics, as accordingly institutions may have incentives to finance themselves with assets maturing just outside the 30 days range adopted by the LCR (BCBS, 2010; KPMG, 2011). More in detail, the NSFR has been designed to require that the amount of available stable funding (AFS) exceeds the amount of required stable funding (RSF) over a one-year period of distress. To comply with it banks must hold at least a 100% amount of the quotient of stable funding over weighted long-term assets. In order to better understand the separate components of the NSFR, AFS is defined as the total amount of a bank's: i) capital, including both Tier 1 and Tier 2; ii) preferred stocks not included in Tier 2, with a maturity greater or equal to one year; iii) liabilities with maturity of more than one year; vi) that part of term deposits and/or non-maturity deposits that are expected to stay in the balance sheet of the institution in a period of stress even if their maturity is lower than one year.

In order to determine the total amount of Available Stable Funding, each of these categories is attached a factor weighted according to their stability (BCBS, 2010; KPMG, 2011). To illustrate, if on the one hand the total amount of capital has an ASF factor of 100%, meaning that it is considered the highest source of stability for an institution, on the other hand a lower source of stability are perceived, for example, by non-maturity deposits provided by non-financial corporate customers that have a residual maturity of less than one year. On the other hand the Required Stable Funding (RSF), is measured through supervisory assumptions on the broad nature of liquidity risk profiles associated respectively to an institution's assets and off-balance sheet exposures, among other things. Accordingly, the RSF is calculated by summing the values of all assets either held or funded by the institution and then multiplying them with a specific pre-assigned factor on the basis of each asset's typology, added to the overall institution's off-balance sheet activity multiplied by its respectively assigned factor.

With respect to RSF factors, they are dependent on the amount of each asset or off-balance sheet exposure that should be covered by stable funding, according to supervisors. In detail, liquid assets receive lower factors due to their easily convertible nature in times of distress, thus needing less stable funding, whereas more illiquid assets who need more stable funding for the opposite reasons are assigned higher factors (BCBS, 2010; KPMG, 2011). Therefore, the RSF factors associated with each type of asset aim to approximate the amount of such assets that would not be monetized through sale or collateralized during a liquidity drain event lasting one year. For instance, while cash and money market instruments have 0% RSF, meaning that in such assets there is not an amount that cannot be monetized in case of necessity of liquidity; whereas gold and loans to nonfinancial corporate clients having a residual maturity of less than one year are assigned a 50% RSF, thus describing the degree at which a banks may found difficulties to sell these assets in stressful conditions (BCBS, 2010; KPMG, 2011). Another relevant point of the RSF is that such system has a specific focus on Off-Balance Sheet activities, as even if they generally require little funding, in times of market stress they can significantly drain liquidity buffers.

As a result, off-balance sheet exposures are tied a RSF factor in order to determine the NSFR metric. For instance, Basel III attached a 10% RSF factor on conditionally revocable and irrevocable credit and liquidity facilities, while regarding other contingent funding obligations such as guarantees or letters of credit, the percentage of the RSF factor is delegated to national authorities (BCBS, 2010; KPMG, 2011). However, the NSFR is not exempt from a number of possible shortcomings. In detail, such system is bound to incentivize banks to increase the stability of their funding portfolio by reducing their incentives to rely on short-term funding. In practice, this means that banks will most likely be required to increase deposits with maturities over one year in a situation where demand for longer term debt is very limited. This might in turn lead banks to experience higher

financing costs (KPMG, 2011). Moreover, given the requirement for banks to hold a certain amount of liquid assets, most banks are likely to see their yield reduced. Finally, banks with a higher NSFR would find themselves in a position of strength with respect to their competitors with a lower NSFR, possibly undermining the competitive environment of the banking system (ibid.).

The last instrument introduced by Basel III regarding liquidity measures is represented by the "Principles for Sound Liquidity Risk Management and Supervision", with the objective to effectively complement and strengthen the aforementioned liquidity requirements. Taking into account the lessons learned from the financial crisis, these principles emphasize that a sound liquidity risk management must be well integrated with bank-wide risk management processes (BCBS, 2010). With respect to their applicability, the guidance principles are suitable for all types of banks, with a particular focus on medium and large complex banks. Moreover, the Committee has decided to let both banks and supervisors tailor the optimal implementation strategy for each lender, in order to allow key variables such as size, nature of business, complexity and the bank's role in the financial sector, to vary according to a lender's characteristics. In addition, the monitoring activities of supervisors will be guided by pre-established common monitoring metrics aimed to assist them identifying and analyzing trends in liquidity both at the bank and at a system-wide level. As a result, the Committee will actively monitor the implementation and the going concern of the guidance principles (BCBS, 2010).

Although Basel III is an ongoing process, given how banks and supervisory authorities have time until 2019 to gradually implement its requirements, some questions arise regarding its effectiveness and most of all if it is able to prevent and "cure" and the deficiencies in the financial sector showed by the financial crisis. Firstly, it is argued that the buy side of the market - institutions that deal with the sale of investment services, such as pension, mutual and hedge funds - has not been taken sufficiently into account, although those institutions play a key role in providing banks long term funding to support their balance sheets (Allen, 2012). Moreover, as described by an OECD study, the estimated medium and long-term effects of the implementation of Basel III on GDP growth ranges from -0.05 to -0.15. This negative effect can be attributed to an increase in bank funding costs and capital requirements, which in turn will affect customers due to higher lending spreads (OECD, 2011; Allen, 2012). Moreover, according to Allen (2012) there are relevant risks that the implementation of Basel III will disrupt the supply of credit to the economy, thereby adversely affecting the aforementioned long-run growth rate, as riskier borrowers such as small businesses will not be able to adequately access to finance.

III. Literature Review

The Nature of Bank Credit Provisioning for European SMEs

With respect to external credit provisioning, the literature is undoubtedly univocal in voicing its importance for the viability and potential growth of SMEs. Historically speaking, a comprehensive background able to describe and contextualize the modal evolution of credit provisioning to SMEs is provided by Cull et al. (2006). In particular, they highlight how in the European and North American credit markets a number of local institutions have emerged endogenously through the last century, for the purpose of providing credit to those SMEs in need of financing that would not have obtained it otherwise from more traditional larger financial institutions. A number of strengths are associated to those local institutions, such as the capacity of exploiting local information too costly to be exploited by their larger counterparts, or such as increasing local households' returns on savings, thus granting a positive feedback loop able to provide them with more deposits to be invested in the form of credit to SME. However, the same source underlines how such intermediaries are not exempt from shortcomings in terms of their restricted sectorial and geographic scope, as well as from discriminatory practices unrelated to the expected return on the investment, shortcomings that might put them in major distress in times of systemic crises (Cull et al., 2006).

In particular, such local institutions are able to gather information on their SME borrowers through the practice of relationship lending (Baas & Schrooten, 2006). With respect to such lending instrument, Baas & Schrooten (2006) illustrate how given the very costly nature of information gathering on SMEs makes so that relationship lending is considered a key technique for the purpose of collecting such SME information. Following this practice, a SME and a bank enter a long-term relationship able to on the one hand provide the SME with access to bank financing, whereas on the other provide the banking institution with valuable information on the SME (ibid.). The availability of bank credit and the size of risk premiums for a SME are then related to the soft information gathered by a bank through its past experience with the lender SME (ibid.).
In order to carefully treat the importance of an adequate level of bank credit provisioning for SMEs, it is key to underline a few of their differences with respect to larger firms. Firstly, as reported by Cressy & Olofsson (1997), it would be wrong to think of SMEs as 'miniature' versions of their larger counterparts. This is no nuance at all when we think how such evolutionary distinction is able to greatly affect the way and the degree to which SMEs obtain finance from external sources. In particular, due to their tendency of having a higher proportion of current liabilities to total assets, SMEs rely on predominantly short-term bank credit and trade debt in order to both fund their investments and finance their assets in excess of retained profits (Evans, 1987; Cressy & Olofsson, 1997; Hall & al., 2004). Additionally, such businesses have also proved to

be financially riskier than larger enterprises, as observed from empirical data on bankruptcy as well as in their generally higher debt-equity ratio (Evans, 1987; Cressy & Olofsson, 1997; Dietsch & Petey, 2004; Cull et al., 2006).

Cressy & Olofsson (1997) suggest how a possible explanation for the aforementioned phenomena could be found in the Pecking Order hypothesis, by which SMEs are expected to seek finance in order to minimize any forms of interference or ownership dilution. Proof of this is also provided by López-Gracia & Sogorb-Mira (2008), who also found that an alternative model for SMEs financial policy, namely the trade-off model, is becoming increasingly popular in the SME choice behind different financing sources.[3] A SME-side overview of the different capital structures and their determinants across EU countries is also provided by Hall et al. (2004), who found how among the most industrialized EU members, Italian SMEs are the ones relying more on short-term financing whereas German ones are the ones relying more on long-term debt. Conclusively, Cressy & Olofsson (1997) also provide a number of alternative explanations for the observed financing structure of SMEs. Firstly, a cause behind SMEs reliance on short-term debt provided by local institutions could be found in their lower bargaining power at the borrowing stage with respect to their larger counterparts. Moreover, the high reliance of SMEs on short-term debt could also be explained by their lack of scale advantages in terms of financing sources, debt collection and tax avoidance. Finally, the short-term nature of their trade debt is also consistent with a lack of bargaining power when negotiating timeframes for repaying credits to their suppliers.

With an alternative approach, Beck et al. (2008) have surveyed 91 banks across 45 countries in order to provide a characterization of the supply-side of bank lending to SMEs. They found that SMEs are often perceived by banks as highly profitable clients, that almost all banks have at least one SME client in their loan portfolios, and that a number of locally focused branches and departments such as the local intermediaries depicted by Cull et al. (2004) have been established in order for banks to supply the credit demanded by more local entities such as the average SME. However, the approval, risk management and recovery of such loans still remains a centralized process, so that those local branches factually act as discriminatory entities for the obtaining of centralized funding (Cull et al., 2004; Beck et al., 2008). Furthermore, through the aforementioned survey they found that with respect to larger enterprises, banks are less exposed to SMEs. Moreover, given the higher number of non-performing loans to SMEs with respect to larger enterprises, SMEs also experience higher interest rates and fees at the borrowing stage, a finding theoretically suggested by sources such as Berger & Udell (2006), who are also able to provide a detailed framework for the various borrowing practices and modalities characterizing SMEs finance, although by their admission the high detail of their depiction is somewhat unpractical at

[3] This latter policy could be summarized as one driving companies to seek an optimal capital structure by weighing the different advantages and disadvantages associated to any additional unit of debt (López-Gracia & Sogorb-Mira, 2008)

the empirical testing stage. Conclusively, there seems to be no difference in the amount of lending to SMEs between national and foreign banks, although the latter tend to rely on more verifiable information prior to their lending decisions, with real estate as preferred collateral (Beck et al., 2008).

Along the same supply-side lines, the literature suggests how SMEs might also be subject to bank credit rationing, a practice in which they are unable to obtain additional credit even if they were willing to pay higher interest rates (Cressey & Olofsson, 1997, Canales & Nanda, 2012). The intrinsic economic inefficiency of credit rationing has long been described by the literature as possibly constituting a determining supply-side constraint to SME growth and viability, other than surely undermining their financial efficiency (ibid.). Conclusively, with respect to the impacts of insufficient bank credit provision to SMEs, sources such as Vagenvoort (2003), Beck et al. (2004), and Beck & Demirguc-Kunt (2006) underline how the limited nature of SMEs access to finance represents a major constraint on their growth potential. In particular, although representing a significant part of total employment and GDP for a large number of European countries, their contribution to a country's growth might be severely undermined by a number of obstacles, with the aforementioned one representing one of its most relevant examples.
Moreover, according to the same sources legal institutions might have a key role in easing such constraint, as shown by empirical evidence on countries where such institutions are better developed. However, even in those countries where such institutions are established and usually considered of a higher level, the overall potential for further easing the aforementioned constraint is yet to be reaped (Vagenvoort, 2003; Beck et al. 2004; Beck & Demirguc-Kunt, 2006).

Finally, a number of sources such as Altman & Sabato (2005), Catarineu-Rabell et al. (2005), Drumond (2009), Cosimano & Hakura (2011) and Dainelli et al. (2012) show how even prudentially-designed legal and financial institutional frameworks such as the Basel Accords might also in fact contribute to the lack of adequate bank credit provision to SMEs, especially in times of recession, all aspects that will be analyzed in detail in the coming section. Conclusively, the intrinsic pro-cyclical nature of bank credit provisioning to SMEs is extensively treated in sources such as Bikker & Metzemakers (2005).

The Impact of the Basel (II-III) Accords on Bank Credit Provision to SMEs

Starting from an overview on the general framework in which banks operate whenever providing credit to SMEs, Chionsini et al. (2010) underline how one of the main differences in Basel II with respect to its predecessor lies in the specific treatment reserved to exposures to SMEs. In particular, also with respect to its 2001 consultative presentation, the finalized version of the second Basel Accord provides on the one hand slightly lessened requirements for both unrated and SME retail loans following the Standardized Approach, with both categories comprising the great majority of

exposures to SMEs; whereas on the other it establishes dedicated means to distinguish SME borrowers whenever banks are using any of the two IRB approaches (Chionsini et al., 2010). In particular Basel II introduces a dedicated asset category for loans to SMEs with respect to larger firms, enjoying a lower risk weight. In detail, such category comprises all firms with annual sales below 50 million euros, and its risk weight is assigned going from a value of 0 whenever a SME presents 50 million euros in annual sales and linearly increasing up to 20% whenever a SME presents 5 million euros in annual sales (or less). Moreover, whenever banks manage their SME exposures similarly to their retail ones they are allowed to categorize loans to SMEs as retail in the IRB approaches, given that the exposure is less than 1 million euros (ibid.).

With regard to the potential effects of the Basel Accords on bank credit provision to SMEs, through a meta-analysis of previous literature VanHoose (2007) signals how widespread academic agreement exists on the theoretical implications of tighter capital requirements for banking institutions. In detail, he depicts such capital requirements are theorized to have an immediate effect on banks in terms of reducing total lending, paralleled by an increase in market loan rates and by a tendency to hold alternative assets (to lending). However, in front of an initial reduction, the same source depicts how in the long run total lending may or may not increase, depending on the theoretical model of choice (VanHoose, 2007).

Along the same lines, Altman & Sabato (2005) addressed the possible effects of the new modes of credit-risk evaluation introduced by Basel II on bank credit provision to SMEs. Given how with both new risk calculation methods introduced by Basel II (F-IRB and A-IRB) banks are allowed discretion in the classification of loans to SMEs between retail and corporate credit, Altman & Sabato (2005) found that whenever banks classify loans to SMEs as retail, they enjoy sensibly lower capital requirements with respect to loans to SMEs classified as corporate. However, they also underlined how higher organizational costs are involved with the classification of SME loans as retail, so that a trade-off is present for banks between lower capital requirements and higher organizational costs (Altman & Sabato, 2005). From the perspective of SMEs this means that access to bank credit should become easier and possibly cheaper in the long run with respect to Basel I under the Standardized Approach, an impact that could be further enhanced by the adoption of any of the IRB approaches (ibid.). However, Altman & Sabato (2005) also describe how worries about higher borrowing costs for SMEs brought upon by the costs incurred by banks in implementing Basel II are valid, although only in the short run, and primarily towards SMEs with a lower perceived quality of business.
The aforementioned special treatment devoted by Basel II to SMEs is also analyzed by Cardone Riportella et al. (2011). In particular, they found how in front of a regulatory objective of reducing the detrimental effects of bank capital requirements on credit provision to SMEs, the increased sensitivity to risk of regulatory capital brought upon by Basel II was responsible for an increase in the risk premiums charged by banks on SMEs, thus increasing costs faced by SMEs at the

borrowing stage. Furthermore, according to Hernández-Cánovas & Koëter-Kant (2008) Basel II will limit the amount of soft information that banks can use, the key feature of relationship lending. In turn this might affect the chances of SMEs to have access to long-term debt in settings where banks rely on the relationship-lending instrument, such as many European countries (Baas & Schrooten, 2006).
Conclusively, the procyclical implications of Basel II are first theorized by sources such as Gordy & Howells (2006), and then empirically analyzed by literature such as Moosa (2010). They found how with respect to the Second Accord, procyclical concerns are present in terms of banks' lending behavior in general, and that such concerns were theorized and proved to have been exacerbated by the Basel regulatory framework. In practice, this meant that the adverse effects of the financial crisis on bank credit provision to enterprises, and among those SMEs, have been in fact augmented by Basel II in a number of ways such as via its lack of counter-cyclical measures, or by its fixed capital requirements regardless of the macroeconomic conditions (Gordy & Howells, 2006; Moosa, 2010).

With respect to the changes introduced by Basel III, given how its full implementation is to be performed by 2019, the literature provides mainly studies on the possible effects of the new Accord on bank credit provision for SMEs. Among those, Angelkort & Stuwe (2011) theorize how the Basel III regulatory framework might jeopardize the stability of those SME relying on more traditional financing such as credit provided by local banking institutions. This is because such institutions rarely have the same capital accumulation capabilities as large financial institutions, so that the new liquidity constraints introduced by Basel III might make it more costly for such local institutions to provide credit to SMEs. In addition to that, Blundell-Wignall & Atkinson (2010) signal how the LCR – to be introduced by Basel III in 2015 – is biased towards government bonds with respect to private sector lending. In particular, they explain how even if this might be beneficial from the standpoint of interest rate risks, it is bound to negatively impact lending to private enterprises, and in particular lending to SMEs.

Another study performed by Elliott (2010) underlines how the possible impacts of Basel III are subject to a considerable degree of disagreement among the academic literature. In particular, they depict how on the one hand the literature is unanimous in depicting how the enhanced degree of systemic safety that would be brought by the new Accord is surely to come at a cost of slower growth due to the increase in lending rates and to a reduction in the provision of credit; whereas on the other hand the literature disagrees on the magnitude of such costs. For instance, Elliot (2010) cites a study performed by an industry group, the IIF, calculating that Basel III would have a 3% negative impact on the five years composite growth of large economies since its implementation. Moreover, the same author also cites a study performed by the French banking association suggesting a figure of 6% when such impacts are calculated on the French economy alone (Elliott, 2010). However, Elliott (2010) also mentions how more disinterested studies found much smaller impacts of Basel III on the economy in terms of increased rates and decreased

availability of bank lending. For instance, his study performed on the US predicts an increase in lending rates of only 0.2%, with a negligible effect on lending availability. However, the study does not take into account the introduction of neither LCR nor NSFR, due to their implementation scheduled respectively for 2015 and 2018 (ibid.).

Along the same lines, Cosimano & Hakura (2011) examine past banking behavior across a number of developed countries in order to calculate the impact of the increased capital requirements brought by Basel III on loan rates and loan availability. They find that in order to comply with the regulatory capital measures outlined by Basel III, lending rates are estimated to increase on average by 0.16%, an increase which is in turn predicted to negatively affect the total amount of bank loans by 1.3% in the long run (Cosimano & Hakura, 2011). Moreover, they underline how such changes in banking behavior might vary considerably between countries depending on each country's banks' capital constraints, cost of raising equity, and elasticity of loan demand (ibid).

Furthermore, through the development of an own model, Sutorova & Teply (2013) provide interesting evidence on the expected magnitude of the aforementioned costs associated with the implementation of Basel III. In particular, they illustrate how even if the worries of increased loan rates and decreased loan availability are right, their magnitude are often overestimated: in fact through their model they predict that an increase of 1% in required regulatory capital would translate in an increase in lending rates of 0.18%, with the overall effects of the implementation of Basel III estimated to decrease overall bank lending of about 2% (Sutorova & Telpy, 2013). Their explanation of such relatively small impact is twofold: on the one hand they associate it with the notion that most banks already comply with tighter capital requirements even if they are not yet compulsory, whereas on the other they attribute it to a rather small reported elasticity of loans demand for Europe.

Conclusively, with respect to Italian banks and their lending to SMEs Carosio (2010) is able to illustrate how the impact that the third Basel Accord might have on credit provision to Italian SMEs should not be neglected. In detail, given how on average Italian banks show a lower capitalization than their European counterparts, they might face larger constraints at the borrowing stage, especially with respect to SMEs. This is reinforced by the financial support provided to many of banks of the Eurozone during the financial crisis, a support that Italian banks did not receive (Carosio, 2010). Moreover, given how Italian SMEs will be facing the implementation of Basel III from a relatively disadvantaged position, their exposures generally require banks to set aside a larger amount of regulatory capital with respect to the average of the European SMEs. However the reliance of Italian SMEs on smaller banks, the majority of which is already complying with the Basel III requirements, is somewhat able to mitigate the aforementioned adverse effects (ibid.).

VI. Impact of the Basel framework on SME credit provision in Italy vs. the European Union

Introduction

According to the European Commission, an enterprise, irrespectively of its legal form, is an entity that engages in an economic activity. Within this definition are included self-employed persons and family businesses (European Commission, Art. 1, L 124/36, 2003). Moreover, an enterprise is classified as a SME (Micro, Small and Medium-sized Enterprise) according to two criteria, namely the number of employees and annual turnover or balance sheet total (European Commission, Art. 2, L 124/36, 2003). In general the Commission defines a SME as an enterprise which employs more than 10 but fewer than 250 employees and that has an annual turnover lower than 50 million EUR. As depicted by table 6, within the category of SME we can further identify micro enterprises, which are defined all those entities employing less than ten employees and with an annual turnover or a balance sheet total lower than EUR 2 million; small enterprises with a maximum of 49 employee and with an annual turnover and balance sheet total not exceeding EUR 10 million; and medium-sized enterprises employing less than 250 employees and with an annual turnover of maximum EUR 50 million or a balance sheet total amounting no more than EUR 43 million (European Commission, Art. 2, L 124/36, 2003).

Table 6: Definition of SME

Enterprise Category	Employees	Turnover	(or)	Balance Sheet Total
Micro	< 10	≤ € 2 mln		≤ € 2 mln
Small	< 50	≤ € 10 mln		≤ € 10 mln
Medium-sized	< 250	≤ € 50 mln		≤ € 43 mln

Note 6: Designed for the specific purpose of this paper. Adapted from European Commission, Commission Recommendation, concerning the definition of micro, small and medium-sized enterprises, L 124/36, 2003.

To understand the importance of SME[4] within the European Union and in particular in the Eurozone Countries[5] it is important to assess the amount of SMEs compared to the totality of enterprises. Strikingly enough, as shown by table 7, SMEs represent the 99,8% of the total number of enterprises in the Eurozone, demonstrating their substantial relevance within each member state's economic system, a finding also supported by literature such as Saurina & Trucharte (2004), or such as Altman & Sabato (2005).

[4] The research focuses on non-financial SME, therefore whenever mentioned, it refers to non-financial ones.

[5] Namely, Austria, Belgium, Cyprus, Estonia, Finland, France, Greece, Germany, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia and Spain. (Latvia has been purposely not taken into account as it joined the euro area the 1st of January 2014 and this paper analyzes data until 31/!2/2013).

Table 7: SMEs and Total Enterprises

SMEs as a share of Total Enterprises in the Eurozone, 2013		
SMEs	Total Enterprises	SME share to Total Enterprises
Unit: Number	Unit: Number	Unit: Percentage
14.129.704	14.157.793	**99,80%**

Note 7: Designed for the specific purpose of the paper. Adapted from the database of the "Annual Report on European SMEs", European Commission, 2013.

Additionally, from table 8 we can see how in 2013 there were nearly 14 million SMEs in the Eurozone, resulting in a Eurozone average of 43 SMEs every 1000 inhabitants.
As we can see, Italy ranks first in number of SMEs within the Eurozone, with nearly 3 million SMEs totaling a 26% share of SMEs with respect to the Eurozone total, in front of hosting only 19% of its population. Moreover, with 61 SMEs each 1000 Inhabitants, Italy is overall in third position with respect to such metric in the Eurozone.

Moreover, in order to assess how much SMEs contribute to the wealth of member states, and to illustrate the value added of the goods and services produced by SMEs in each Eurozone state, table 9 will illustrate the Gross Value Added (GVA) by all SMEs in each Eurozone state. From it we can see how the GVA of SMEs represent about the almost 60% of the total value added by all enterprises, with an astonishing amount of nearly three thousands billions of euros of GVA within the Eurozone only in 2013. Not surprisingly, this is one of the main reasons why national and international authorities pay so much attention in studying SMEs, and especially their access to finance (ECB & EC, 2009, 2011, and 2013).

Table 9: Gross Value Added of SMEs as a share of all Enterprises

GVA of SMEs as a share of all Enterprises in the Eurozone, 2013		
SMEs	Total Enterprises	SME share to Total Enterprises
Unit: Million of €	Unit: Million of €	Unit: Percentage
2.577.551	4.306.316	**59,9%**

Note 9: Designed for the specific purpose of the paper. Adapted from the database of the "Annual Report on European SMEs", European Commission, 2013.

Table 8: SMEs per Eurozone Inhabitant, 2013

SMEs per Eurozone Inhabitant, 2013			
Country	SMEs	Population	SME per 1000 Inhabitants
	Unit: Number	Unit: Million	Unit: Number
	2013	**2013**	**2013**
Austria	308.513	8.354	37
Belgium	526.234	11.125	47
Cyprus	42.440	850	50
Estonia	55.113	1.316	42
Finland	229.470	5.418	42
France	2.517.725	62.220	40
Germany	2.201.715	81.179	27
Greece	139.529	10.999	13
Ireland	142.618	4.602	31
Italy	3.688.347	60.668	61
Luxembourg	30.433	517	59
Malta	27.304	423	65
Netherlands	681.047	16.622	41
Portugal	798.480	10.499	76
Slovakia	391.382	5.411	72
Slovenia	106.236	2.059	52
Spain	2.243.120	45.650	49
Eurozone	14.129.704	327.912	43
Italy as a % of Eurozone	**26%**	**19%**	

Note 8: Designed for the specific purpose of the paper. Adapted from the database of the "Annual Report on European SMEs", European Commission, 2013 Population values retried from Eurostat, "Population, activity and inactivity - annual averages", 2013.

Furthermore, the following table provides an insight regarding the GVA per SME employee, where the total amount of GVA produced by each Eurozone state has been summed and then divided by the total number of SME's employees of each country.

Table 10: SME's Gross Value Added as a share of Persons Employed

SME's Gross Value Added as a share of Persons Employed in the Eurozone, 2013			
Country	Gross Value Added	Number of persons employed in SMEs	GVA per SME employee
	Unit: Million of €	Unit: Number	Unit: € per employee
	2013	**2013**	**2013**
Austria	95.582	1.799.977	53.102
Belgium	109.535	1.806.902	60.620
Cyprus	6.187	180.161	34.342
Estonia	5.938	311.237	19.079
Finland	49.293	907.392	54.324
France	505.196	9.327.510	54.162
Germany	764.582	16.426.604	46.545
Greece	10.524	430.119	24.468
Ireland	39.242	758.639	51.726
Italy	421.616	11.953.844	35.270
Luxembourg	13.130	167.694	78.298
Malta	2.144	95.156	22.534
Netherlands	191.329	3.560.733	53.733
Portugal	49.285	2.358.845	20.894
Slovakia	18.323	1.008.084	18.176
Slovenia	10.761	408.177	26.363
Spain	284.885	7.995.514	35.631
Eurozone	2.577.551	59.496.588	43.323
Italy as a % of Eurozone	**16,4%**	**20,1%**	

Note 10: Designed for the specific purpose of the paper. Adapted from the database of the "Annual Report on European SMEs", European Commission, 2013.

As we can see, among the Eurozone members in 2013, each employee on average contributed to about EUR 43 thousands of GVA. Italy is far below this value, amounting at about EUR 35 thousands of GVA per employee. Moreover, the GVA by Italian SMEs is about 16% of the total GVA by SMEs in the Eurozone, in front of employing 20% of all SMEs employees for the Eurozone.

Thus, there may be the possibility of a certain degree of inefficiency and/or ineffectiveness by Italian SME employees during their working hours, hampering their productivity and reflecting itself in a lower GVA with respect to the Eurozone average.

Additionally, table 10 below depicts what has been considered the most important characteristic of SMEs: their contribution in the total employment of Eurozone member states (Eurostat, 2011).

Table 11: Number of persons employed in SMEs as a share of Active Population

Number of persons employed in SMEs as a share of Active Population across the Eurozone, 2013			
Country	Persons employed in SMEs	Active Population	Persons employed in SMEs as a share of Active Population
	Unit: Number	Unit: Million	Unit: Percentage
	2013	**2013**	**2013**
Austria	1.799.977	4.081	44%
Belgium	1.806.902	5.461	33%
Cyprus	180.161	408	44%
Estonia	311.237	613	51%
Finland	907.392	2.653	34%
France	9.327.510	30.153	31%
Germany	16.426.604	40.028	41%
Greece	430.119	5.420	8%
Ireland	758.639	2.279	33%
Italy	11.953.844	29.488	41%
Luxembourg	167.694	259	65%
Malta	95.156	210	45%
Netherlands	3.560.733	8.252	43%
Portugal	2.358.845	5.062	47%
Slovakia	1.008.084	2.636	38%
Slovenia	408.177	1.019	40%
Spain	7.995.514	22.398	36%
Eurozone	59.496.588	160.420	37%

Note 11: Designed for the specific purpose of the paper. Adapted from the database of the "Annual Report on European SMEs", European Commission, 2013.
Active population values retrieved from Eurostat, "Population, activity and inactivity - annual averages", 2013.

Once again these facts are striking, with almost 60 million people being employed by SMEs in the Eurozone in 2013, representing a share of 37% of the active population. As we can notice, Italy slightly exceeds the Eurozone average, thereby strengthening the fact that SMEs represent an integral and fundamental factor for the economy of the country.

Methodology

In order to provide an empirical description of bank credit provision for SMEs within the Eurozone, and in particular address the problem statement by comparing the Italian trend with the Eurozone one, it is key to first provide a methodological description of the sources and steps of the analysis that will be performed in this section.

The research is based upon four main indicators, two that can be attached to the influence of the regulatory frameworks (Basel II and III) and the other two aiming to represent the changes in access to finance for SMEs:

I. Capital to Asset Ratio. Even though this indicator is not the one defined by the Basel Accords, as minimum regulatory capital is calculated as a percentage of risk weighted assets, it could give us a raw indication of the trends following the implementation of the Accords, and possibly provide additional proof for a causal linkage. The data is retrieved from the World Bank[6] and Capital is defined as tier 1 and total regulatory capital, while total assets comprehend all financial and non-financial assets.

II. Lending Rates: the interest rates on loans to SMEs retrieved from the ECB Statistical Data Warehouse. They are calculated by the ECB as the value of one-year interest rate on loans other than revolving loans and overdrafts, convenience and extended credit card debt, for the years 2007[7], 2010, 2011 and 2013. As the literature individuates an increase in lending rates as a possible effect of complying with the Basel Accords, this is a key indicator for the purpose of this section's analysis. In detail, as a proxy for loans to SME two different indicators will be provided: lending rates for loans up to EUR 250 thousands and EUR 1 million respectively. The rationale behind this twofold choice is to reflect the fact that among institutions there is an heterogeneous concept of the amount that should be used as a proxy for loans to SMEs: to illustrate according to the ECB and EC[8] up to EUR 250 thousands are loans associated with SMEs, while for the OECD and IFC[9] consider a standard to use loans up to EUR 1 million for SMEs.

III. Success in obtaining access to finance, representing the percentage of SMEs that have applied for and then obtained the full amount of a bank loan. This indicator aims to show if access to finance for SMEs is changed over the timeframe and, together with the other indicators, can strengthen the possible causal relationship between the Basel Accords and changes in credit provision for SMEs the paper is investigating. For the years 2007 and 2010, data from a survey on about 32 thousands SMEs conducted by Eurostat will be used. Concerning 2011 and 2013, data is retrieved from question 7B[10], concerning the Access to Finance survey conducted by the European Central Bank and the European Commission on nearly 24 thousands SMEs.

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[6] http://data.worldbank.org/indicator/FB.BNK.CAPA.ZS/countries

[7] Although Basel II was published in 2004, only in 2007 the OCC approved the final rule for the implementation of the IRB and AMA approaches. http://www.occ.gov/news-issuances/news-releases/2007/nr-occ-2007-123.html

[8] http://ec.europa.eu/europe2020/pdf/themes/09_sme_access_to_finance_02.pdf

[9] OECD (2013), OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth, OECD Publishing and;
http://www.ifc.org/wps/wcm/connect/635f64804efbe2b18ef5cf3eac88a2f8/IFC_Factsheet_SME_Loan+Size+Proxy_Brief.pdf?MOD=AJPERES

[10] If you applied and tried to negotiate for this type (bank loan) of financing over the past 6 months, did you: receive all the financing you requested; receive only part of the financing you requested; refuse to proceed because of unacceptable costs or terms and conditions; or have you not received anything at all? (ECB and EC, 2011, 2013)

IV. Conclusively the fourth indicator, named for the purpose of this paper as Limiting Factor, aims to discover which are the most relevant and limiting factors for a SME in obtaining a bank loan. Data is retrieved from Eurostat for 2007 and 2010, while for the remaining two years answers from question 22A[11] of the Access to Finance survey conducted by the European Central Bank and the European Commission have been collected and provided in the following section.

Descriptive analysis of changes in bank capital and lending rates as well as the success in access to finance to Eurozone and Italian SMEs

This section presents the analysis of the aforementioned indicators over the chosen timeframe. Starting from changes in capital to asset ratio, we will then analyze the trend in lending rates to SMEs, in order to check for similarities. After that, the analysis will focus on the success for SMEs in obtaining access to bank finance, and on the most limiting factors in getting bank financing for SMEs, in order to possibly find a relationship between all the indicators.

Table 12: Bank Capital to Assets Ratio

Bank Capital to Assets Ratio				
Country	Unit: Percentage	Unit: Percentage	Unit: Percentage	Unit: Percentage
	2007	**2010**	**2011**	**2013**
Austria	6,50	7,50	7,20	8,00
Belgium	4,30	5,00	4,60	6,20
Cyprus		5,90	4,90	8,60
Germany	4,30	4,30	4,40	5,50
Estonia	8,60	9,30	8,90	11,30
Finland	8,00	5,50	4,40	4,90
France		4,90	4,80	5,40
Greece	6,80	7,30	7,30	8,30
Ireland	4,40	5,50	6,44	8,07
Italy	4,60	5,00	5,40	5,50
Luxembourg	5,00	5,20	5,00	6,40
Malta	6,00	6,40	6,50	7,30
Portugal	6,50	6,70	5,30	6,90
Slovenia	8,40	8,20		
Netherlands	3,30	4,40	4,30	4,80
Slovakia	8,00	9,70	10,80	12,10
Spain	6,70	6,10	5,90	6,30
Eurozone	6,09	6,29	6,01	7,22

Note 12: Designed for the specific purpose of the paper. Adapted from the database of the World Bank

[11] What do you see as the most important limiting factor to get bank financing? (ECB and EC, 2011, 2013)

As we can see from table 12, with respect to banks' capital to assets ratio, both the Eurozone and Italy followed the same increasing trend (except for 2011, where the Eurozone average decreased a little, maybe due to the fact that data were unavailable for Slovenia). However, for Italian banks the ratio was below the average one of the Eurozone for the whole timeframe.
As already mentioned in the methodology, this ratio does not fully represent the ratio of minimum capital requirements as stated by the Accords. However it is able to provide a second-best indicator for the individuation of the effects of the tighter capital requirements introduced by the Basel (I-II) Accords. As the literature illustrates how such higher capital requirements may also lead to higher lending rates, especially with respect to SMEs, the next two tables will provide an overview of the lending rates experienced by SMEs for the relevant timeframe.

Table 13: One year Interest Rate on Loan up to EUR 250 thousands

One year interest rate on loans up to EUR 250 thousands, other than revolving loans and overdrafts, convenience and extended credit card debt			
Country	Interest Rate	Interest Rate	Interest Rate
	Unit: Percentage	Unit: Percentage	Unit: Percentage
	2010	**2011**	**2013**
Austria	2,81	3,20	2,76
Belgium	2,72	3,03	2,27
Cyprus	6,59	7,05	6,85
Germany	4,62	4,63	3,74
Estonia	no data	5,19	3,54
Greece	6,84	7,38	7,12
Spain	3,75	4,68	5,37
Finland	2,99	3,30	3,06
France	2,66	3,12	2,13
Ireland	4,70	5,46	5,34
Italy	3,50	4,21	4,87
Luxembourg	3,41	2,34	2,19
Malta	no data	no data	5,48
Netherlands	3,91	4,19	3,81
Portugal	6,16	7,40	6,84
Slovenia	5,94	6,11	6,04
Slovak Republic	4,54	5,09	5,03
Eurozone	4,34	4,77	4,50

Note 13: Designed for the specific purpose of the paper. Adapted from the ECB Statistical Data Warehouse

As depicted in the above table, the interest rate on loans up to EUR 250 thousands followed a different trend between Italy and the Eurozone: starting from 4,34% in 2010, average lending rates in the Eurozone increased in 2011, reaching 4,77%, and then decreased to 4,50% by the end of 2013.

On the contrary, with respect to Italy, lending rates always followed an increasing trend: they started from 3,50% in 2010, almost one percentage point below the Eurozone average, then in 2011 they increased up to 4,21% in line with the trend of the Eurozone, and then in 2013 they increased again up to 4,87% surpassing the average value for the Eurozone. This trend is somewhat atypical, as if we take a closer look on the changes in lending rates between 2011 and 2013, all the Eurozone members show a decrease except for Italy and Spain.

Table 14: One year Interest Rate on Loan up to EUR 1 million

One year interest rate on loans up to EUR 1 mln, other than revolving loans and overdrafts, convenience and extended credit card debt				
Country	Interest Rate Unit: Percentage	Interest Rate Unit: Percentage	Interest Rate Unit: Percentage	Interest Rate Unit: Percentage
	2007	**2010**	**2011**	**2013**
Austria	5,13	2,36	2,86	2,23
Belgium	5,45	2,51	2,88	2,06
Cyprus		6,16	6,95	6,55
Germany	6,09	3,47	3,81	2,93
Estonia			4,61	3,42
Greece	6,57	5,53	6,77	6,51
Spain	5,43	3,64	4,54	5,08
Finland	5,36	2,67	3,18	2,75
France	5,45	2,52	2,99	2,13
Ireland	6,23	3,88	4,68	4,30
Italy	5,52	3,04	3,90	4,36
Luxembourg	5,49	2,42	2,64	2,05
Malta	10,27	5,16	4,79	5,27
Netherlands	5,13	3,27	3,69	3,17
Portugal	7,05	5,42	6,90	6,39
Slovenia	5,91	5,68	5,82	5,68
Slovak Republic	6,06	3,89	4,45	3,88
Eurozone	6,08	3,85	4,44	4,05

Note 14: Designed for the specific purpose of the paper. Adapted from the ECB Statistical Data Warehouse

Moreover, from table 14, showing the lending rates for loans up to EUR 1 million, we can see that the same trend described in the previous table both for Italy and the Eurozone is also present for this category of loans. However, in light of the monetary policy followed by the ECB during the analyzed years, the trends could be partially explained by the parallel trends in ECB interest rates for its Main Refinancing Operations (MRO)[12], the key indicator for signaling the interest rates

[12] All values are retrieved from https://www.ecb.europa.eu/stats/monetary/rates/html/index.en.html

faced by banks when borrowing money from the ECB. In detail, as of 2007 the average MRO rate was 3.88%, whereas for 2010 it was 1%, meaning that between 2007 and 2010 interest rates faced by banks in the Eurozone decreased by 2.88%. This is able to explain how, in spite of the macroeconomic distress brought upon by the financial crisis, between 2007 and 2010 lending rates for SME bank loans up to EUR 1 million decreased from 6.08% to 3.85%, a decrease comparable to the cut in ECB interest rates for both Italy and the Eurozone. Moreover, between 2010 and 2011, MRO rates increased from 1% to 1.25%, with peaks up to 1.50%. This is also reflected in the trends for both Italy and the Eurozone in both types of SME loans. However, from 2011 to 2013 Italy and the Eurozone do not follow the same trend. We can see that with respect to the ECB MRO rates, only the general trend of the Eurozone seems to follow its cut from 1.25% to 0.5% with respect to both SME loans categories. On the contrary, Italy showed an increase in lending rates in both loan categories, with an increase in rates of 0.66 percentage points with respect to loans up to EUR 250 thousand, and of 0.46 percentage points with respect to loans up to EUR 1 million.
Therefore, we can notice how among Eurozone countries, there is a sort of heterogeneity in the impact of the ECB interventions to banks within the Eurozone. To strengthen this fact, the literature suggests how "the transmission of monetary policy through credit channels may differ according to the heterogeneity of borrowers and lenders, notably in the firm and bank size. In particular, monetary policy shocks should affect more the credit granted by smaller banks to smaller firms, typically more financially constrained" (Ciccarelli et al., 2013). Accordingly, given the reliance of Italian SMEs on local credit institutions and their generally higher bank exposures, we could hypothesize that monetary policy was not able to effectively decrease cost of borrowing for Italian SMEs with respect to their Eurozone counterparts (Bank of Italy, 2010; Ciccarelli et al., 2013).

Shifting our attention on the viewpoint of SMEs, we will now analyze their success rate in obtaining bank finance. This metric is calculated as the percentage of SMEs that have applied for a bank loan, and got all of the sum they applied for. From the table below we can see how, Starting from 2007, the average success rate for the Eurozone was almost 90%, with peaks of 96% and 98% in Ireland and Finland respectively; as of Italy, it attested itself at 86,60%, slightly below Eurozone average. It is interesting to note how from 2007 to 2010, average success rates decreased substantially, experiencing a decline of nearly 15 percentage points from 2007, down to 75%. Straightforwardly, this decline has been attributed to the financial crisis (Eurostat, 2011) and it is able signals how much the worsened economic conditions have affected access to finance for SMEs, especially in countries such as Greece, Cyprus, Spain, Portugal and Malta. On the other hand, although experiencing a decline in success rate from 2007, Italy performed better than the Eurozone average, with banks granting the full amount of 78% of loans requested by Italian SMEs. (Eurostat, Access to Finance Survey, 2007, 2010).

Table 15: Success Rate in Obtaining Bank Finance for SMEs

Success Rate in Obtaining Bank Finance for SMEs		
Country	Unit: Percentage	Unit: Percentage
	2007	**2010**
Belgium	92,40	83,10
Germany	85,30	75,90
Ireland	96,90	53,20
Greece	87,60	59,60
Spain	87,30	59,10
France	94,50	83,30
Italy	86,60	78,40
Luxembourg	78,80	76,70
Malta	94,30	68,40
Netherlands	84,30	91,30
Slovakia	89,30	76,10
Finland	98,10	95,90
Eurozone	89,62	75,08

Note 15: Designed for the specific purpose of the paper. Adapted from "Success rate in obtaining loan finance by sources, type of enterprise and NACE" from Eurostat Database.

The two following tables will provide an overview of the main limiting factors in access to bank finance for SMEs for 2007 and 2010. As we can see from the table below, in 2007 the most limiting factor in access to finance for SMEs was poor credit rating for both Italy and Eurozone, even if Italy presented a value slightly above Eurozone average. Additionally, other factors such as lack of own capital, insufficient collateral or guarantee and already having too much debt narrowed Eurozone SMEs access to bank finance in 2007, with their rates respectively corresponding to 10,8%, 8,4% and 9,6%. Apart from a somewhat above average value for poor credit rating, Italy accomplished better results for all the aforementioned factors (Eurostat, Access to Finance Survey, 2007, 2010).

With respect to the most limiting factors for SMEs access to finance in 2010, from the above table we can see how most of the aforementioned reasons showed a declining trend for both Italy the Eurozone. Also, Italy was again consistently below the Eurozone average, in particular for what concerns lack of own capital, insufficient collateral or guarantee and too much debt, with a respective difference from the Eurozone average of approximately 4, 7 and 6 percentage points (Eurostat, Access to Finance Survey, 2007, 2010).

Table 16: Most important Limiting Factors to Obtain Bank Loans for SMEs, 2007

Most Important Limiting Factors to Obtain Bank Loans for SMEs, 2007									
Country	Poor credit rating	Lack of own capital	Insufficient collateral or guarantee	Insufficient or risky potential (project)	Already too many loans or too much debt	No loan history	Poor loan history	No reason given	Interest rates too high
	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %
Belgium	6,0	13,1	7,0	4,0	7,6	1,7	0,0	6,9	-
Germany	14,2	12,5	15,7	2,2	6,3	0,0	0,2	4,7	-
Ireland	6,6	16,5	2,2	17,7	2,8	0,0	0,0	7,3	-
Greece	15,4	7,7	9,0	5,1	3,8	5,1	0,0	21,8	-
Spain	11,9	6,5	10,4	1,9	11,7	0,5	0,0	8,4	-
France	16,5	15,4	10,3	10,9	3,6	1,2	0,4	10,3	-
Italy	12,5	9,4	6,1	2,7	6,6	0,1	0,4	6,6	-
Cyprus	13,9	0,0	3,2	0,0	13,9	0,0	0,0	0,0	-
Luxembourg	7,4	13,6	10,5	1,9	5,6	0,0	3,1	7,4	-
Malta	12,5	12,5	12,5	12,5	37,5	0,0	0,0	0,0	-
Slovakia	8,7	11,7	5,9	3,2	6,2	2,3	0,0	7,8	-
Eurozone	11,4	10,8	8,4	5,6	9,6	1,0	0,4	7,4	-

Note 16: Designed for the specific purpose of the paper. Adapted from "reasons for lack of success in obtaining bank finance", Eurostat Database

Table 17: Most important Limiting Factors to Obtain Bank Loans for SMEs, 2010

Most Important Limiting Factors to Obtain Bank Loans for SMEs, 2010									
Country	Poor credit rating	Lack of own capital	Insufficient collateral or guarantee	Insufficient or risky potential (project)	Already too many loans or too much debt	No loan history	Poor loan history	No reason given	Interest rates too high
	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %
Belgium	7,3	12,4	5,8	4,7	8,3	2,8	0,0	3,9	_
Germany	13,6	13,1	13,4	5,2	6,2	0,0	2,1	9,4	_
Ireland	2,6	8,6	12,0	5,8	19,4	0,2	0,7	15,9	_
Greece	10,4	7,8	9,9	4,7	9,4	3,6	2,6	13,0	_
Spain	11,8	2,8	12,7	2,8	12,4	0,2	0,0	9,8	_
France	13,3	13,7	9,2	9,9	7,3	0,4	1,6	9,7	_
Italy	6,2	4,4	3,6	1,7	4,3	0,0	0,3	4,1	_
Cyprus	3,7	1,2	15,5	7,8	27,2	0,0	0,0	10,3	_
Luxembourg	7,7	13,4	10,2	5,3	4,5	1,2	0,4	6,9	_
Malta	0,0	8,3	25,0	8,3	25,0	0,0	0,0	0,0	_
Netherlands	5,8	9,2	7,3	5,8	4,6	0,0	0,3	4,3	_
Slovakia	14,0	13,4	6,9	4,5	5,9	0,5	0,7	7,4	_
Finland	2,0	3,8	16,3	0,9	2,3	0,0	0,0	0,9	_
Eurozone	7,6	8,6	11,4	5,2	10,5	0,7	0,7	7,4	_

Note 17: Designed for the specific purpose of the paper. Adapted from "reasons for lack of success in obtaining bank finance", Eurostat Database.

Table 18: Success Rate in Obtaining Bank Financing for SMEs

Success Rate in Obtaining Bank Financing for SMEs				
Country	2011		2013	
	Applied and got everything	Applied and got between 75% and 99%	Applied and got everything	Applied and got between 75% and 99%
	Unit: Percentage	Unit: Percentage	Unit: Percentage	Unit: Percentage
Austria	84,4	4,0	79,5	6,7
Belgium	76,0	7,2	71,3	7,0
Cyprus	72,1	-	40,5	5,5
Estonia	68,3	-	40,7	34,7
Finland	90,7	2,7	81,2	2,3
France	76,4	7,0	71,3	6,6
Germany	71,9	5,7	86,8	5,8
Greece	29,2	9,7	33,3	9,0
Ireland	27,5	15,1	63,6	4,6
Italy	60,6	8,6	51,7	14,4
Luxembourg	86,5	9,1	72,7	23,1
Malta	51,4	14,7	55,6	10,5
Netherlands	40,4	11,5	32,0	7,5
Portugal	48,8	4,1	59,8	16,9
Slovakia	57,2	11,0	53,2	8,2
Slovenia	63,4	10,4	73,0	6,1
Spain	53,7	8,7	51,7	11,8
Eurozone	62,26	8,63	59,9	10,6

Note 18: Designed for the specific purpose of the paper. Adapted from "Access to finance survey", 2011 and 2013, ECB &EC Database

The above table depicts the success rates in obtaining access to finance for SMEs in 2011 and 2013. From a first glance, it is possible to note how success rates in obtaining bank financing reached an Eurozone average of nearly 62%, an astonishing drop of almost 13 percentage points from 2010 (table 18) (ECB & EC, 2011, 2013). With respect to Italy, in spite of above average values for both 2007 and 2010, the success rate for SMEs in obtaining bank financing strikingly fell by nearly 18 percentage points in 2011. Even if such lower value is not far from the Eurozone average, such a drop remains significant. In detail, it might be explained by the fact that one of the reported main limiting factors in obtaining loan financing for 2011 were the too high interest rates. Moreover, note how from the 2011 Access to Finance Survey (ECB & EC), an additional measure has been introduced to determine SMEs access to finance: the success rate for those SMEs who applied for a bank loan and got between 75% and 99% of the amount requested. However, for the sake of consistency all years will be compared according to the original category.

Table 19: Most important Limiting Factors to Obtain Bank Loans for SMEs, 2011

Most Important Limiting Factors to Obtain Bank Loans for SMEs, 2011							
Country	There are no obstacles	Insufficient collateral or guarantee	Interest rates or price too high	Reduced control over the firm	Financing not available at all	Other	DK/NA
	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %
Austria	56,1	23,4	9,8	1,8	1,4	5,6	1,9
Belgium	51,6	19,2	12,4	2	3,7	9,1	2
Cyprus	7,4	7	77,2	-	3,7	3,5	1,2
Estonia	5,1	38,6	27,5	1,3	1	7,2	19,2
Finland	63,7	17,4	6,4	1,9	0,8	6,2	3,5
France	31,7	21,9	18,1	2,1	4,3	18,6	3,2
Germany	58,4	19,4	5,8	2,5	2,7	7,7	3,7
Greece	7,9	7,4	44,7	0,2	10,8	19	10,1
Ireland	17,9	11,7	18,6	4,4	34,7	9,1	3,6
Italy	27,4	28,2	28,7	0,7	8	4,3	2,7
Luxembourg	50,1	8,4	10,7	4,3	-	21,3	5,1
Malta	41,8	14,4	20,3	4	2	7,7	9,9
Netherlands	31	21,6	13,5	4,1	5,2	19,8	4,8
Portugal	15,5	12,8	44,9	0,5	9,2	7,7	9,5
Slovakia	41,4	19,5	18,2	2,9	3,1	10,4	4,6
Slovenia	22,9	34	13,4	3,1	15,6	4,8	6,3
Spain	15,6	29,4	28	1,4	10,4	9,7	5,5
Eurozone	32,1	19,7	23,4	2,3	7,3	10,1	5,7

Note 19: Designed for the specific purpose of the paper. Adapted from "Access to finance survey", 2011 ECB & EC Database

The above table depicts the most limiting factors for SMEs in obtaining bank finance in 2011. It is worth to notice that for the first time the label "interest rates or price too high" appeared to be an important factor for respondents, and how until 2010 this metric was not seen as a big issue for SMEs loan applications, as none of the surveyees ticked the "too high interest rate" box.

Starting with the Eurozone, in 2011 almost 32% of the surveyees declared that there were no obstacles in obtaining bank financing, while another 19,7% considered as a limiting factor the fact of having an insufficient collateral or guarantee to cope with bank loan requirements. As already mentioned, interest rates proved to be a substantial limiting factor for almost 23% of the

respondents. With respect to the other factors, although we can see that they occupy a minor role in determining the most important limiting factors to get bank loans, it is worth underlying that for the 7,3% of the sample financing was not available at all.
On the other hand Italy shows a different trend for most of these factors. Firstly, even if Italian SMEs loan applicants see the too high interest rates as the most limiting factor in accessing finance, this value for Italy is consistently higher than Eurozone average. Moreover, the second most important factor is represented by having insufficient collaterals or guarantees, with almost 28% of the consensus among Italian surveyees. This result is even more astonishing if compared to the Eurozone average, with a gap of approximately 10 percentage points.
Thirdly the extent to which there are no obstacles in obtaining bank financing is nearly 5 percentage points lower for Italy compared to the Eurozone, thereby further underlining the fact that Italian SMEs loan applicants faced more obstacles in obtaining finance in 2011, with respect to the Eurozone average.

Conclusively, table 20 below depicts the main obstacles in access to finance for SMEs in 2013. Starting from the Eurozone average, we can note how from 2011 to 2013 SMEs faced an overall reduction in obstacles in obtaining bank financing, reflected by an increase of responses for the label "there were no obstacles" of about 3,5 percentage points. Moreover, the perceived limit represented by insufficient collateral and guarantee decreased of nearly two percentage points from 2011 to 2013, together with "interest rate or price too high" which followed a similar trend. On the other hand, it is relevant to underline how there has been an increase in "financing not available at all", factor raised approximately by two and half percentage points.

With respect to Italy, it experienced a decreasing trend for the label "there were no obstacles", showing how Italian SMEs faced on average more obstacles in getting bank financing, with respect to 2011. Moreover, although the Eurozone average showed a decrease for both the insufficient collateral or guarantee and the too high level of interest rates or price of the bank financing, Italy continued to have a consistent and increasingly opposing trend to the one of the Eurozone, with a rise in such label of 2 and 3,8 percentage points respectively from 2011 to 2013. As a result, in 2013 the already existing gap increased further reaching 13 and 12 percentage points for insufficient collateral or guarantee and too high interest rates or prices.
As of the other three apparently minor factors, all follow and remain below the Eurozone trend.

Table 20: Most important Limiting Factors to Obtain Bank Loans for SMEs, 2013

Most Important Limiting Factors to Obtain Bank Loans for SMEs, 2013						
Country	There are no obstacles	Insufficient collateral or guarantee	Interest rates or price too high	Reduced control over the firm	Financing not available at all	Other
	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %	Unit: %
Austria	69,2	11,9	5,5	1,9	0,6	6,6
Belgium	36,7	25,1	10,6	2,7	7,3	13,5
Cyprus	-	5,5	30,6	-	6,6	45,3
Estonia	34,1	20,6	29,1	-	6,3	2,7
Finland	48,3	26,3	9,7	0,6	2,2	6,8
France	39,7	23,1	5,6	3,3	7,7	16,7
Germany	64,9	16,1	5,6	1,2	1,6	5,4
Greece	6,9	14,3	30,8	-	41,9	3,3
Ireland	18,4	13,1	17,1	3,4	30,4	14,6
Italy	21,3	30,3	32,5	1,6	6,9	4
Luxembourg	48,8	9,7	2,6	10,4	1,8	5,8
Malta	36,3	26,4	21	-	7,2	2,8
Netherlands	37,2	8,5	8,6	6,7	16,9	18,9
Portugal	18	6,9	60,7	0,9	6,6	6,2
Slovakia	48	17,7	19,1	1,1	3,7	5,9
Slovenia	28,5	12,8	32,9	2,8	4,8	5,9
Spain	15,5	26,5	31,2	2	12,1	8,1
Eurozone	35,7	17,3	20,8	3,0	9,7	10,1

Note 20: Designed for the specific purpose of the paper. Adapted from "Access to finance survey", 2011 ECB & EC Database

The significance of the Basel (II-III) Accords for the observed changes

Table 21: The Overall Picture of the Four Indicators over the chosen Timeframe

Indicators	2007		2010		2011		2013	
	Italy	**Eurozone**	**Italy**	**Eurozone**	**Italy**	**Eurozone**	**Italy**	**Eurozone**
Capital to Asset Ratio	4,60%	6,09%	5,00%	6,29%	5,40%	6,01%	5,50%	7,22%
Lending rates								
up to EUR 250000			3,50%	4,34%	4,21%	4,77%	4,87%	4,50%
up to Eur 1 mln	5,52%	6,08%	3,04%	3,85%	3,90%	4,44%	4,36%	4,05%
Success Rate in Obtaining Bank Financing	86,60%	89,62%	78,40%	75,08%	60,60%	62,26%	51,70%	59,90%
Most Important Limiting Factor	Poor Credit Rating	Poor Credit Rating	Poor Credit Rating	Insufficient Collateral or Guarantee	Interest Rate or Price too High	No Obstacles	Interest Rate or Price too High	Other

Note 21: Designed for the specific purpose of the paper.

The key indicators of the previous tables are summarized in the table above. By combining empirical findings with the relevant literature, in this subsection section the paper aims to identify the possible significance of the Basel (II-III) Accords for the observed changes in access to finance for SMEs. Following the research will try to provide a possible explanation as to why the aforementioned significant differences arose between Italy and the Eurozone, and try to assess the role that the Basel Accords might have played in such divergences.

When we take into account the indicators for 2007 and 2010, it would be no leap of faith to imagine how many of those values have been biased in their descriptive purpose by the most recent financial crisis. Therefore, it is difficult to attribute any differences between Italy and Eurozone to the Basel Accords. Nonetheless, one could infer that due to its intrinsic procyclicality Basel II could have played a role in exacerbating the procyclical effects of the crisis on bank credit provision to SMEs, and enterprises more generally (Gordy & Howells, 2006; Moosa, 2010).

Coming to the other years of analysis, we build on a study carried out by the Bank of Italy in which Italian SMEs are depicted as more indebted and less profitable compared to their European counterparts (De Socio, 2010). Accordingly one could infer how from 2010 to 2013, due to the recession following the crisis Italian SMEs might have been in need of increased bank financing with respect to their European counterparts, ceteris paribus. In detail, this might have happened for two main reasons:

1) With respect to the risk criteria introduced by the Basel Accords, on average Italian SMEs would experience poorer credit ratings with respect to the average of the Eurozone SMEs. The rationale behind this is twofold: firstly, the fact of having a high degree of indebtedness and lower

profitability increased a SME's probability of default to the regulated eye of a bank. This meant that whenever a bank decided to grant a loan to an Italian SME, the regulatory capital to be put aside for its coverage would have been higher than it would have been on average in the Eurozone (Carosio, 2010).

2) Moreover, it would be mistaken not to take into account the different impacts that the post-crisis monetary policy of the ECB might have had on Italy with respect to other countries in the Eurozone, also partly due to the tighter requirements introduced by the Basel Accords. As previously mentioned, the efficacy of the ECB's transmission mechanism greatly varied across countries following the crisis, with countries characterized by small banks and a prevalence of smaller SMEs such as Italy often unable to translate the ECB's positive stimula into greater access to finance, at a lower cost (De Bonis et al., 2011; Ciccarelli et al., 2013). In detail, this could be able to provide a partial explanation for the difference in trends observed in both access to finance and lending rates between Italy and the Eurozone.

However, it is difficult to clearly assess the magnitude of the aforementioned effects on such differences, especially due to the particularly stressful and unevenly spread macroeconomic impact of the crisis throughout the Eurozone. Nonetheless, one could infer how the two aforementioned reasons have been at least partly responsible for the differences in access to finance for SMEs between Italy and the Eurozone, with Italian SMEs experiencing lower access to finance and higher loan rates than their average Eurozone counterparts also due to the diverse effects of both the Basel Accords and the ECB's monetary policy on each of the Eurozone's economies. Conclusively, with respect to the worsening of the analyzed parameters in Italy vis-a-vis the Eurozone, one should not neglect how during the crisis banks in many of the Eurozone's countries have received large financial contributions in order to preserve their viability, something that has not happened for Italy and that might have affected bank credit provision in later years, an interpretation also supported by literature such as Carosio (2010).

VI. Conclusions

This research aimed assessing the impact of the Basel (II-III) Accords on credit provision for European SMEs, with a focus on analyzing possible differences in such impact between Italian and European (Eurozone) SMEs. To do so, starting from a background characterization of the main rationales leading to the establishment of the Basel Committee on Banking Supervision, the paper described the three Basel Accords by identifying their objectives, challenges, outlined principles and what were their ex-post implications on the banking sector and on the so-called real economy. Then, by means of a literature review the paper illustrated the role and nature of bank credit provision for European SMEs, and secondly identifies the particular rationales behind possible impacts of the Basel (II-III) Accords on bank credit provision to SMEs. Conclusively, through a detailed descriptive analysis the paper tried to assess the overall impact of the Basel Accord on bank credit provision to SMEs across the Eurozone, and then characterize any observed difference in the Accords' effects between Italian SME's and the ones in the Eurozone.

The literature describes how the possible negative impacts of the Basel (II-III) Accords on bank credit provision to European SMEs are intrinsic to their prudential nature. In detail, a tightening of bank capital requirements has been found to be on the one hand able to negatively affect the credit provided by banks to SMEs, and on the other to increase the lending rates charged by banks whenever credit was granted. Moreover, the procyclical nature of Basel II has been found to be at least partly responsible for the exacerbation of the cyclical contraction of credit provision following the most recent financial crisis, again both in terms of reduced access to finance and increased lending rates.

This provided the descriptive analysis with sound theoretical bases in order to answer the paper's problem statement. In particular, both the literature's theorized and observed effects have found confirmation in a descriptive analysis of both the lending rates and the success in obtaining finance experienced by the SMEs of the Eurozone for the 2007-2013 timeframe. More in detail, success in accessing finance has experienced a decreasing trend for SMEs in the Eurozone throughout the whole timeframe of analysis, starting from a pre-crisis situation in 2007 where a SME in the Eurozone would on average get access to the full extent of its requested financing in almost 90% of the cases, to the one in 2013 where the chances of getting such full extent decreased below 60%. Moreover, in spite of the monetary policy of the ECB the trend in lending rates was an increasing one for the Eurozone's SMEs throughout the great totality of the timeframe, with the only decreases associated to a parallel decrease of MRO rates by the ECB.

WIth respect to the particular trends experienced by Italian SMEs, the descriptive analysis served the purpose of highlighting a number of differences from the ones of the Eurozone. In detail, starting from a relatively sounder post-crisis (2010) situation Italian SMEs showed a decisive

decrease in their success in accessing bank finance between that year and 2013, ending in a situation where the value for such metric was almost ten percentage points below the average one of the Eurozone. The same trend is observable with respect to the lending rates, again with Italian SMEs facing a better situation in 2010 with lending rates generally lower than the ones in the Eurozone and ending in one where such rates were significantly higher than the average ones of the Eurozone.

The extent to which the Basel Accords have contributed to such trends is unclear, however their negative impact, especially in terms of procyclicality, has been shown to serve a significant part, as also illustrated by a descriptive analysis of the most limiting factors in accessing finance for SMEs. Moreover, the different trends between Italy and the Eurozone could partly be explained by the different impact that the Basel Accords might have had in the context of bank credit provision to SMEs. Such impacts have differed due to the different nature of the Italian economy and Italian SMEs with respect to the Eurozone average, given how Italian SMEs generally present a higher bank exposure and a lower ability to generate revenue. In light of the Accords, this means that Italian SMEs faced increased constraints both in obtaining finance and in obtaining it at low interest rates with respect to their Eurozone counterparts, given how the risk-based approach undertaken by Basel II is severe in judging such metrics, and given how the peculiarities of the Italian banking system in terms of a large number of smaller local institutions might have particularly suffered from the adoption of harder information in the credit evaluation process. Again, this interpretation could find further significance in an analysis of the most limiting factors in accessing bank finance for SMEs, with Italian SMEs increasingly facing constraints in terms of poor credit ratings and high interest rates, also with respect to the Eurozone's average.

However, the magnitude of the impact of the Basel Accords on such differences is unclear, and it should be kept in mind how the metrics used for the descriptive analysis might have been severely influenced by the financial crisis and the current recession. To this end, further research should be performed in the field both in terms of econometrically analyzing such impacts and in terms of analyzing the causal link between the decrease in SME credit provision and the Basel Accords. Nonetheless, there is enough evidence to infer how the Basel Accords might have played a significant role in decreasing access to finance and increasing lending rates for SMEs in the analyzed timeframe, and how such role might have been exacerbated for Italian SMEs due to their generally frailer financial situation and to the decentralized nature of the Italian banking system.

VI. References

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