

The Funding Possibilities of Basel II to Small and Medium Size Societies and Its Weakness Compared to Basel III

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Abstract

The paper investigates how Basel II has influenced the regulatory capital requirements imposed to the SME according to their classification and to their internal approach. Also, it sheds light on the Basel II's impact on the competitiveness of the banks exhibited as well as the procyclical effects of this accord on the SME financing. Moreover, this research demonstrates the information's transparency manifested by the Basel II between the SME and the bank. Finally, the weakness of the Basel II is highlighted versus the advantages of the Basel III especially in the emerging market economies like Egypt and Tunisia.

Keywords

SME Funding, Basel II, Basel III

1. Introduction

Since 1988, various Basel agreements have defined the regulatory framework of the European financial system, with the aim of better understanding the banking risks. First, the Basel I appeared in 1988, supplemented by Basel II in 2006 which introduced the solvency ratio known as the "Mac Donough ratio", then came the Basel III in 2010 following the financial crisis of 2008; finally came the Basel IV agreements concluded at the end of 2017. Notice that that Basel I is a set of recommendations adopted in 1988 by the Basel Committee which brings together the central bankers of the G-10 countries under the aegis of the Bank for International Settlements to ensure a minimum level of equity and therefore establish a minimum capital ratio in relation to all credits granted. The problem of the Basel I is that it was intended to be applied to a large and international bank, and excluded banks that lacked the necessary materials to cover risk exposures. Moreover, this

accord solely focused on the adequate coverage of credit risk exposure, imposing to banks to keep capital requirements equivalent to 8 percent of risk weighted assets (RWA) that is at least 8 units of equity out of 100 risk assets. The SMEs were thus weighted at 100%, regardless of the quality of the granted credits. This is how the appearance of the Basel II agreement makes the difference, developed in 2006 by the Basel Committee on banking supervision. This latter tries to cover credit, operational and market risk exposures and proposes a capital adequacy system whose essential objective remains strengthening the stability and the security of the banking system, aimed in particular at filling the gaps of the Basel I which does not take into account neither the actual credit risks nor the security measures put in place. However, the Basel II aimed at improving the risk management, which leads to a profound change in the banking environment, having a direct effect on the regulatory capital requirements, consequently affecting the credit granting process for a small and medium-sized society. As **Figure 1** demonstrated; based on three pillars, the Basel II regulations pursue a triple objective:

- Ensuring a minimum capital requirement: to guarantee that banks hold the necessary capital that would safeguard their solvency and resilience to financial shocks.
- A consolidation of the prudential supervision process (supervisory review) of the risks.
- development of a more rigorous market discipline.

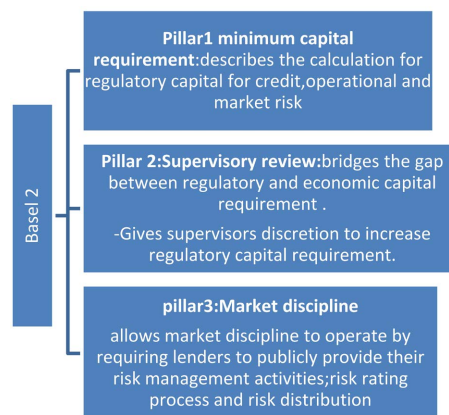


Figure 1. The three pillars of the Basel II.

We opt this subject given the fundamental role played by small and medium sized enterprises (SMEs) in boosting the economy and the considerable attention of the Basel Capital Accord placed on SMEs. Note that capital requirement regulations significantly impact the SMEs as they drive the economic growth and the job creation. Although this is a matter between the banks, the agreement nevertheless has an immediate impact on SMEs: An increase in credit costs or rationing of loans becomes the main concern of the SMEs.

This paper's main contributions are to analyze the effects of the Basel II on SMEs in various aspects, first and foremost, Basel II's impact on the SMEs'

regulatory capital requirements, according to their classification and the rating approach followed.

- The second aspect is the influence on banking competitiveness.
- The third contribution is Basel II's impact on the transparency of financial data exchanged between banks and SMEs.
- Fourth, we investigate the procyclical impacts of Basel II on SMEs' funding.

Finally, we compare between Basel II and Basel III showing the advantages of the latter and their practical impact on SMEs.

We shall structure this paper in the manner suggested below:

The first section investigates how Basel II has changed banks' capital requirements based on the approach followed and the classification of SMEs, taking into consideration the correlation to conjectural risk. This section also treats the effect of the Basel II on the competitiveness of the banks in terms of information 's type. The second section examines how Basel II has affected SMEs' financing, focusing on loan volumes, costs, The study's key issues of this section also include the procyclical implications of Basel II on the SME financing and exhibit the effect of this accord on the financial information transparency between banks and SMEs. The third section compare and contrast Basel II versus Basel III agreements.

2. Literature Review

Numerous studies are available in this field showing the link between the Basle II or III, the banking sector; the notation approach, the procyclicality effect on bank lending, etc. We note for example the study of (Hasan et al., 2021) who investigates syndicated lenders' responses to changes in borrowers' ratings under various regulatory regimes. The authors respond to the question: How do firm credit ratings affect the cost of credit. According to their findings, the downgrades of the corporate notation under Basel II led to increased loan spreads and deteriorating non-price loan terms relative to downgrades that did not affect capital requirements. On the other hand, Afzali et al. (2023) used a dynamic stochastic general equilibrium (DSGE) model to investigate the impact of Basel II and III on the capital requirements regulations changes on the Iranian banking sector as a developing economy. Their finding suggested that if banks operate under the Basel II capital regulations, the money supply may lead to low growth in the economy in the short-run, but in the medium- and long-run, the negative effects will be much larger. Note additionally, that Kim et Katsutoshi (2021) studied the procyclical effect of risk-sensitive capital regulation on bank lending. They found that the risk-sensitive requirements of the Basel II and III regulations have procyclical effects on bank lending in nine European countries and that the sensitivity of bank lending to GDP is very positive under the internal rating-based approach. Yet again the study of Merikas et al. (2020) investigates whether the Greek IRB (internal rating based)-banks performed better compared to the non-IRB banks, during unfavorable economic periods. The authors employed Difference-in-difference (DiD) and spatial DiD methodologies based on annual data from the Athens stock exchange, over the period 2001-2017. The findings explained that the listed Greek

banks suffered from implementing the IRB. The primary reasons for this are the higher expenses involved in using the IRB technique to calculate risk estimates and the severe regulatory measures imposed on Greek banks, which limits the benefits of the IRB transition, particularly during poor economic times. Finally, the research conducted by Ly and Shimizu's (2021) that examine the procyclical effect of risk-sensitive capital regulation on bank lending. They find evidence that the internal rating-based approach significantly enhances the sensitivity of bank lending to GDP. Their findings show that the risk-sensitive requirements of the Basel II and III have a procyclical effect on bank lending in nine European countries. The inclusion of the risk-sensitive capital requirement rule badly impacts lending in these countries. The regulators should place greater priority on building a buffer in advance, which can be used in times of stress rather than for reducing excess cyclicality.

3. The Consequences of Basel II on Banking Capital Requirements and the Loans Granted to SMEs

Basel II takes into account the cyclical risk¹ which is a set of economic, monetary, financial and/or psychological factors that have a direct or indirect impact on the performance of the economic agents. These advantages favor how SME credits are handled.

3.1. The Link between the Correlation to Cyclical Risk Taken into Account by Basel II and the Credits Granted to SMEs

Note that to reduce the overall risk and the regulatory capital, a portfolio of credit should be poorly correlated with the cyclical risk². Given that an SME taken individually presents a probability of failure or not honoring its commitment to the bank on average greater than a large company, the first version and impact simulation of Basel II (2001) showed that the application of the new Mc Donough ratio led to a very high capital charges compared to large companies. The McDonough ratio is a bank solvency ratio, its main purpose is to limit the risks that could result from the multiplication of financial instruments, their dematerialization and their globalization. Banks are required to set a limit on the weighted amount of loans granted, based on their equity. In other words, banks ensure their financial stability by setting a minimum loan-to-equity ratio of 8%. Credit, market, and operational risk percentages are fixed at 85%, 5%, and 10%, respectively. This yields the ratio:

$$\text{The Mac Donough ratio (prudential ratio)} = \text{equity of the bank} > 8\% \text{ of credit risks (85\%)} + \text{market risk (5\%)}^3 + \text{operational risks (10\%)}^4 \quad (1)$$

Due to numerous fears and multiple criticisms, the Basel committee are urged

¹Anticipation of an increase or a decrease in economic activity.

²An anticipation of an increase or a decrease in an economic activity.

³interest and commissions associated with credits granted.

⁴risk of loss that may result from inadequate internal procedures, such as failures or human errors, systems or unexpected external events such as (computer failure). These failures can affect financial losses to a bank.

to reduce these charges as much as possible by amending the formulas allowing, on the contrary, favorable treatment of small and medium-sized businesses. Basel II's focus on cyclical risk that significantly influences the credit treatment of SMEs. To reduce the overall risk and the regulatory capital, a portfolio of credit should be poorly correlated with the cyclical risk⁵. Taking into account the cyclical risk and the size of the company into the calculation can be considered as a source of this amelioration. Indeed, the correlation to cyclical risk is now considered as a decreasing function of the probability of failure (PD) resulting from a counterparty default and an increasing function of the size of the company. In fact, the evidence of Lopez (2004) confirmed this relationship. This proved the existence of an inverse relationship between the "R" correlation to cyclical risk and the probability of failure (PD). His results suggested that the deterioration of small and medium-sized enterprises in difficulty is mainly due to idiosyncratic (specific)⁶risks rather than cyclical risks. Although other studies such as (Dietsch & Petty, 2004; Dullmann & Scheule, 2003). have not found support this relationship between the "R" correlation to cyclical risk and the probability of failure (PD). They found a positive relation between the two variables. It was accepted by the Basel committee, in particular in order to reduce the potential procyclical effects (which reinforce the effects of the economic cycle, namely recession and expansion) that the Basel II would generate. This specific treatment is a precautionary measure to avoid penalizing the small companies too heavily and thus compensate for the biases of the Basel II formula (Fabi, Laviola, & Reedzt, 2005). Unlike large companies, which are largely influenced by the general economic conditions, SMEs are relatively less sensitive to macroeconomic events. As a result, the credits provided to SMEs are largely connected to specific risks ensuring a diversification of the individual risks in the credit portfolio, making it possible to reduce the overall risk. Consequently, relative to debts to large companies with comparable probability of default (PD) and LGD (losses in the event of default)⁷, the exposures of the SME debts (i.e., "retail banking activity" and "SME "businesses") will benefit from a reduction in regulatory capital on average of around 30% and 15 to 20% respectively (See Figure 2).

3.2. The Impact of Basel II on the Bank's Capital Regulatory Requirements in Terms of the Classification of SMEs and the Approach Followed

Compared to Basel I, which does not take into account the actual credit risks⁸ nor the security put in place, the Basel II, that focus on a more precise measurement of the risks ,stipulate that the amount of capital required is defined according to

⁵An anticipation of an increase or a decrease in an economic activity.

⁶results from a particular element that affects an asset such as a poor management of the company, fire that destroys the company, technological intervention that renders its main product line obsolete.

⁷The loss rate in the case of default on the credit line which is applied to the outstanding amount. The loss that a bank support when a borrower goes on bankrupt.

⁸Refers to borrower defaults: risk that the borrower cannot repay the credit and interest.

the risk and the criteria discriminating between small and large companies proposing to the credit institutions several approaches from the simplest to the most sophisticated. Note that the banks worldwide could opt for Internal Ratings-Based (IRB) models, in order to evaluate the components of their Capital Adequacy Ratio (CAR). According to Merikas et al, (2020) in 2017 the IRB approach was also introduced into the Basel III Framework. In particular, the credit risk is assessed using the two approaches described below:

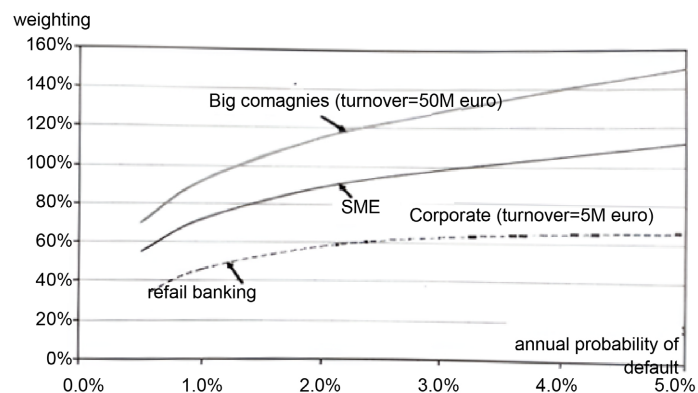


Figure 2. The weighting according to the probability of default.

3.2.1. The Standard Approach

According to the credit risk exposure category, this approach is offering fixed weights. This approach is based on the risk classification obtained from the external ratings that are provided by the specialized agencies. To calculate equity capital, banks must divide their credits into various categories such as corporate, mortgage or cash credit. The risks generated by each category are determined by a specialized agency of external rating. The capital that banks must hold in equity is computed using the following formula:

$$\begin{aligned} \text{Equity} &= 8\% * R \\ R &= \text{the external rating in\%} \end{aligned} \quad (2)$$

3.2.2. Internal Rating-Based (IRB) Approaches

in which the measurement of the exposure to credit risk is done by the banks themselves through the use of four prudential parameters determining the regulatory capital, namely: the probability of default (PD), the exposure in case of default (EDF)⁹, the loss case of default (LGD) and the residual duration of the credit or “maturity” (M).

The credit institutions utilize two methods of the IRB approaches:

- *The method using “internal foundation ratings”* (F-IRB: IRB foundation approach) where the credit institution estimates itself the probability of default for each risk exposure, the other parameters are fixed by the national supervisory

⁹EDF: (expected default frequency): reflects the possibility that a company goes bankrupt during the year.

authority.

- *The method using advanced internal ratings* (A-IRB: IRB advanced approach) where the establishment must itself estimate all the parameters which are involved in the regulatory capital formula or the formula of the minimum capital requirements. (Basel Committee on Banking Supervision, 2004).

Given that all minimum capital ratios are calculated as a percentage of risk-weighted assets. These two approaches are used to determine SMEs' regulatory capital requirements.

These practices revolution was linked not only to the quantitative risk assessment techniques (financial statements, market data, etc.) taken into account during the credit agreement decisions, the interest rate setting, but also linked to the qualitative data on market developments, the nature of the guarantees provided, the economic situation, etc.

Also, from the beginning of 1999, the Basle committee pay a big attention to the SME so as to make a better assessment of the level of requirements and start the capital adequacy reform process. The Basel committee approved the companies' classification based on the criterion of annual turnover and the amount of credits provided (Basel Committee on Bank Supervision, 2004).

Thus, an SME that generates fewer than 50 million euros in sales per year can be classified either as a retail banking portfolio (SME retail) when its credits amount is less than 1 million Euros or to the business credit portfolio (SME corporate) when its credit amount exceeds 1 million Euros. (Basel Committee on Bank Supervision, June 2004). As a result, the standard approach is the one that would be adopted by most of the small banks given its simplicity and its relatively low cost. This one affects a more favorable weighting of debtors (retail) of 75% instead of the current 100% (Basel I). This allows banks that adopt the standard approach to reduce their capital requirements by a quarter (25%) for the "SME retail" portfolio. Similarly, the IRB internal rating approach criteria requirements have been significantly reduced. Numerous studies have confirmed the fact that the share of SMEs classified as (retail) would benefit from lower requirements than those classified as (corporate). Indeed, Altman and Sabato (2005) demonstrated in their studies that if banks, particularly those which adopt the internal ratings approach, classify all of their SME portfolios as "corporate", will face higher capital requirements (See Table 1).

Table 1. Impact of Basel II on SME (Summary Results).

	Italy	US	Australia
SME as retail	4.88%	4.65%	4.62%
SME as corporate	8.45%	8.61%	8.81%
Corporate-Large firms	n. a	6.645	7.83%

Source: Altman et Sabato, 2005.

This table shows the capital requirements for all our countries when the A-IRB approach is applied. In each column, all the countries are listed. Each row shows

the different possibilities of considering all SMEs as retail or corporate. The requirements for the large corporate segment are presented in the last row. Thus, for the three countries studied (US, Italy, and Australia), the results pointed out that if the bank's objective was to maintain the requirements at a minimum of the current level, i.e., 8%, it should classify at least 20% of SMEs as "retail" whereas if the objective was to benefit from lower requirements, then the percentage of SMEs considered as "retail" should be at least 40%. In the same context, [Fabi, Laviola, and Reedtz \(2004\)](#) and [Altman and Sabato \(2005\)](#) also concluded that loans classified as "retail" will benefit from a considerable reduction in requirements, whatever the approach chosen. According to [Altman and Sabato \(2005\)](#), one of the main results of Basel II would be to motivate banks to update their internal systems and procedures to manage SMEs better. In fact, the large, well-diversified banks would realize the maximum profit if they were the first to implement the internal rating approach causing a decline or eliminating the competitive advantages of small banks ([Berger, 2006](#)). This choice came to the favor of SME financing. It is vital to note that thanks to the new, most advanced credit risk discrimination techniques, the firms of exceptional quality will benefit from better treatment and a much lower loan price¹⁰. However, at the start of the implementation of these rating approaches, the credit cost for SMEs may rise. Note that, in the short term the banks will face higher costs when following these approaches, but in the long term they will enhance their profitability and reduce the transaction costs ([Altman & Sabato, 2005](#)). Depending on the degree of sophistication of the approach used, generally speaking, merging a small- and medium-sized company's portfolio's as "corporate" and "retail" reduces prudential requirements, favoring a low weighting rate. Calculated over the entire French banking system, [Figure 3](#) reveals why Basel II should not lead to a capital requirement's tightening for loans granted to small and medium-sized businesses. In other terms, the goal of Basel II is to improve the weightings of the portfolio's company compared to the weighting rate of 100% fixed by Basel I. This is done through taking into account delicately the credit risk.

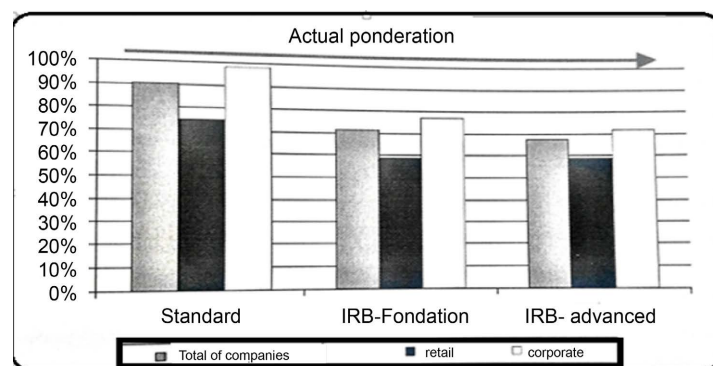


Figure 3. The weighting of the company portfolio and its subdivisions, depending on the method used. Source: Banking Commission Bulletin N 30 April 2004.

¹⁰Interest and commissions associated with credits granted.

3.3. Effect of Basel II on the Competitiveness of Banks When Adopting the Internal Approach

The literature expresses the existence of different comparative advantages between small and large banking organizations. Indeed, according to Stein (2002), Berger et al. (2005), Cole et al. (2004), small banks have a comparative advantage in “relationship lending” based on qualitative information that is challenging to quantify (such as the character and reliability of the owner, the company’s history with its suppliers, customers, local environment, etc.), while large banks have a comparative advantage in “transaction lending” which is based more on quantitative information (such as financial ratios). The huge bank grant loans to the largest SMEs, the most mature and the most financially stable (Haynes et al., 1999). This competitive advantage would be more important if the SMEs are relatively risk-free. Thus, thanks to a better assessment of risks, most large banks would be encouraged to promote the integration of the SMEs into their credit portfolios and facilitate their financing. However, the change in capital requirements for loans granted to SMEs due to Basel II could affect the competitive position of large banking organizations able to adopt the internal ratings approach. Indeed, this approach favoring a better treatment and a better appreciation of SMEs, allows banks which adopt it, unlike those which do not adopt it, to benefit from lower capital requirements and therefore, lower marginal financing costs, which would encourage them to reduce their prices and or increase the quantity’s loans to SME. Although Berger & Gregory (2006) analysis elucidated that implementing the rating approach would have a minimal impact on the competitive position of small banks, he nevertheless exhibited that this impact would be significant on large banks which did not adopt it. This competitive advantage would be more important if the SMEs are relatively risk-free. Thus, thanks to a better assessment of risks, most large banks would be encouraged to promote the integration of the SMEs into their credit portfolios and facilitate their financing.

4. Impact of Basel II on SMEs financing

Basel II constitutes a prudential system that not only better evaluates banking risks, mainly credit or counterparty risks, but also compensates the Cooke ratio’s weakness. This ratio is first established in 1988 by the Basel Commission. The Cooke ratio is the ratio of commitments (assets weighed by the risk of default) to total assets.

$$\text{Cooke ratio} = \frac{\text{Total capital}}{\text{risk weighted asset}} < 8\% \quad (3)$$

It is also called the total capital ratio or the capital adequacy ratio. The minimum requirement for the Cooke ratio is 8%. This ratio penalizes access to credit for small and medium-sized enterprises. These changes directly impact business relations between loan takers and their banks. If the consequences for large companies are relatively limited since they are used to be rated, many SMEs will see their situation change more radically. Basel II has thus raised many concerns, particularly among SMEs. Being dependent on credit institutions, they fear that

access to credit will become more complex.

4.1. The Impact of Basel II on the Costs and Volume of Credits Granted to SMEs

Basel II offers a framework to assess the credit risk in a more differentiated and more objective manner, resulting in a more advantageous credit cost for companies that receive a favorable rating from their banker compared to the Basel I. Indeed, with Basel II, the minimum required capital level goes down or at most remains generally stable. These changes should not reduce the volume of credit granted to SMEs (Saurina & Trucharte, 2004; Fabi et al., 2004). On the contrary, most banks consider lending to SMEs as a strategic activity.

The preferential treatment of these loans to SMEs has been entirely justified thanks to the diversification effects of the loan portfolio, which reduce the bank's risk (Dietsch & Petey, 2004). Effectively, the presence of a given credit portfolio poorly correlated with cyclical risk induces a diversification effect, which makes it possible to reduce the overall risk and, therefore, the associated regulatory capital. In sum, the regulatory capital associated with portfolios of credits to SMEs should diminish following an improvement in the weightings of these credits, facilitating the SME's financing of in general. Particularly in an economic context characterized by a low risk, banks could achieve significant capital savings on credits granted to these firms, especially for those that adopt internal rating approaches.

Studies of impact carried out under the aegis of the Basel committee, mainly the last one realized under the international banking industry published in 2006, as well as the simulations carried out by the general secretariat of the banking commission (Golitin, 2007) revealed that the regulatory framework (Basel II) should positively impact the access conditions to finance small and medium-sized businesses. Thus, the new prudential regulation criteria should not cause an increase in the average interest rate on SME loans. The evaluation of the company would now be based on a data collection approach and on relatively standardized analysis procedures and a structured methodology which do not penalize SMEs, on the contrary, enabling the financement of these latter. Generally speaking, banks will benefit from better capital allocation thanks to the advanced risk management techniques. Therefore, the SME will access easier and cheaper to financing (Price Waterhouse Report, 2004). However, due to the fact that the credit cost¹¹ depends largely on the counterparty's quality and on the better assessment of individual risk, some less healthy SMEs would be penalized. Furthermore, given the structural cost's amortization generated by the implementation of the bank's measures, the adoption of Basel II, especially in its early phases, may penalize certain PME and give rise to the fears on this subject.

4.2. Effects of Basel II on the Financial Information's Transparency between Banks and SMEs

The new prudential rules improve the existing relationship between banks and

¹¹i.e., the interest and commissions associated with the credits granted.

SMEs. The quality and objectivity of the evaluation reinforce the information's transparency (informational intermediation) between companies and credit institutions (Altman & Sabato, 2005). Companies should therefore expect the introduction of new rating systems and are therefore urged to follow the new analysis criteria and adapt themselves to the new conditions of access to capital to improve as much as possible their image towards banks. The company should, therefore, understand that when establishing an internal rating, there are generally two types of factors, namely:

4.2.1. The Quantitative Factors

Such as the financial information contained in debtors' annual accounts, which are related in particular to the profitability, the financing structure, equity, turnover, the information contained in the budget and the analysis of the "cash flows" including an analysis of the customers' late payments as well as the debt recovery (See Figure 4).

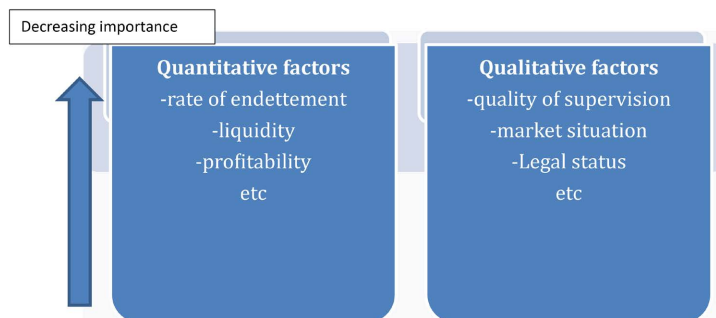


Figure 4. The quantitative and qualitative factors of the companies when establishing an internal rating. Source: European Commission (2005).

4.2.2. The Qualitative Factors

Include the quality of the company's management, staff stability, invoicing, internal control, technological materials, and the economic environment in which the company operates (position in the market, growth prospects). It is noted that approximately 50% of the medium and large banks, questioned during a study carried out by the European Commission in 2005, give high or very high importance to the quality of the staff supervision of the SMEs in the framework of the rating (see the following diagram).

The survey carried out by the European Commission (2005) indicates that the qualitative factors are, on average, assigned a weighting of 20% to 30% when assigning a rating to an SME. On the other hand, these factors contribute, on average, to 60% in the rating of companies during the start-up phase because they cannot provide sufficient general historical information. As these factors play a considerable part in the rating, paying attention to them and presenting them in sufficient detail to convince the bank that they are correctly managing their company's risks. SMEs must, therefore, provide a clear and complete documentation of their business processes, showing their good intentions towards the credit

institutions through an appropriate management and control.

4.3. The Procyclical Effects of the Basel II on Financing the SME

Although the new Basel II guidelines encourage banks to allocate their resources more efficiently through better risk management, one of the main concerns of numerous studies is whether the Basel II procyclical effect will limit the credit's provision to specific types of borrowers, particularly the (SMEs). The procyclical-ity of regulatory capital may lead to an increase in default rates. In theory, the Basel II formulas could enhance the volatility of the prudential ratio as well as the procyclical nature of the capital requirements due to its sensitivity to the economic situation compared to Basel I. In fact, the denominator of the new prudential ratio (credit risk + risk market + operational risk) is sensitive to the economic situation. Indeed, when the loan losses exceed loan loss reserves, the banks will push up the costs and reduce the availability of funds until their capital position is reconstituted. The credit must be severely rationed and the economic progress must be delayed until the banks can be recapitalized (Jacques, 2008). Basel II aggravates this trend by varying the capital requirements with the macroeconomic cycle. The probability of default given by the loss tends to expand, implying a rise in the financial costs during a recession. Reciprocally, during an economic recovery, the probability of failure tends to decline, implying a reduction in the financial costs (Herring, 2005). Therefore, the main problem surrounding the Basel II is that it may encourage the bank's cyclical return volatility. Since the measured credit risk tends to depreciate during the period of progression and surge during recessions, the weighting of credit risk capital under Basel II is likely to undergo countercyclical fluctuations, so that banks become more restrictive in terms of capital during recessions and less stringent during the period of progression (Zicchino, 2006). The capital needs can thus worsen during the economic downturn by limiting the banks' ability to lend. Indeed, the study carried out by Frank Heid (2007) examining the procyclical effects of loans on the macroeconomy shows that a change in the macroeconomic conditions can significantly affect credit supply. However, a loan provision reduction is likely to have a significant effect on SMEs' investments and production processes which are almost totally dependent on the bank financing (Tanaka, 2003). In addition, the capital requirements tend to be less expensive during expansions and more expensive during recessions. Therefore, banks subject to Basel II expand their lending aggressively during economic expansions while reduce them sharply during periods of recession. Such lending behavior can exacerbate cyclical return volatility. Consequently, if the development in the procyclical-ity of regulatory capital affects the procyclical-ity of credit supply, it is to be feared that the credits to SMEs will be particularly affected. In the case of default conjuncture, the probability of default is supposed to boost, thereby leading to a peak in asset weightings¹². This situation cannot otherwise be

¹²Asset weighting simply means allocating a certain percentage of your portfolio to a given asset.

partially compensated by reducing the supply of credit. If this situation occurs, SMEs would be the first to suffer, as they are very vulnerable to the macroeconomic crises. These occurrences would directly affect their funding sources. Effectively, following an economic downturn (recession), the probability of business failure would improve significantly due to a limited capacity to withstand to a shock. Banks will boost their costs while limiting the supply of credit. So, the SMEs will have more difficulty to access to the bank loans, which would threaten their sustainability. Despite the fact that the intended objective of the Basel II is positive, the impacts of its proposed measures on the banking sector and the economy as a whole deserve to be rigorously taken into account. Therefore, the potential of the Basel II to act as an amplifier of the economic cycle by restraining lending during the periods of recession and allowing it during the periods of growth, should be carefully considered. Even if the risk-reduction statements are accepted, monitoring the consequences of Basel II in this field is still necessary.

5. The Weakness of the Basel II versus the Basel III Accord from the Perspective of Emerging Market Economies

5.1. The Advantages of the Basel III over the Basel II

The main important question that poses itself: If Basel I and II did not adequately protect the global economy, what guarantees that Basel III will? Basel III was introduced to address the shortcomings of Basel II, especially in light of the 2008 global financial crisis, which exposed vulnerabilities in the banking system. Let's take the example of Lehman Brothers. This latter had high credit ratings and seemed to be well-capitalized under Basel II. However, they had big exposure to risky mortgage-backed securities. So, when the housing market collapsed, Lehman Brothers didn't have enough capital to face their losses, leading to their bankruptcy in 2008. This was a clear sign that Basel II's reliance on credit ratings and complex models failed¹³. Below are the key advantages that Basel III offers:

5.1.1. Stronger Capital Requirements

The Basel III Framework covers both micro-prudential and macro-prudential elements, setting out better-quality capital as well as wider risk coverage.

This framework introduced higher minimum capital requirements to ensure that banks are better equipped to absorb losses during financial crises. This new accord emphasizes high-quality capital, primarily common equity, to absorb this losses.¹⁴ While Basel II focused primarily on risk-weighted assets, Basel III mandates that banks hold a higher proportion of their capital in high-quality, loss-absorbing assets (Tier 1 capital). For example: The minimum common equity Tier 1 (CET1) capital ratio increased from 2% under Basel II to 4.5% under Basel III, with an additional 2.5% capital conservation buffer. So, Basel III increased the

¹³<https://redcliffetraining.com/blog/why-basel-ii-failed>

¹⁴Source: Wall Street Oasis.

minimum common equity Tier 1 (CET1) ratio¹⁵.

Tier (1) assets include cash, central bank reserves and high-quality sovereign debt.

Tier (2) assets include high-quality corporate and covered bonds, with a minimum AA-credit-rating, and non-zero-risk-weighted sovereign debt. As it is mentioned, the new proposals address the quality, and transparency of the capital base, placing more emphasis and regulatory adjustments to Tier 1 Capital, increasing risk coverage requirements, and enhancing transparency. In this context, **Table 2** shows the minimum capital requirements phased in starting 2013 and fully installed on January 1, 2019. So, all minimum capital ratios are calculated as a percentage of risk-weighted assets.

For the Emerging Market Economies (EMEs), the banking industry would need to boost its current Tier 1 capital base by 40 to 50 percent, or some €400 billion, and €460 billion including of the leverage ratio (Liste et al. 2012).

5.1.2. Introduction of Leverage Ratio

Unlike Basel II, which primarily relied on risk-weighted capital adequacy ratios, Basel III introduced a non-risk-based leverage ratio.¹⁶ This measure limits the extent to which banks can use leverage, reducing the risk of insolvency during downturns. It acts as a safeguard against the manipulation of risk weights, a shortcoming of Basel II, and ensures that banks maintain a minimum level of

Table 2. Timeline of phasing in the minimum capital requirement.

Minimum capital requirements	2013	2014	2015	2016	2017	2018	1jan 2019
CE (Common equity)	3.5%	4%	4.5%	4.5%	4.5%	4.5%	4.5%
CET1 (Common equity Tier 1 capital)	4.5%	5.5	6%	6%	6%	6%	6%
CCB	.	.	.	0.625%	1.25%	1.875%	2.5%
CcB (Counter-cyclical buffer)	Depending	on the	severity	0 - 0.25 and stage	of the	business	cycle
CE + CCB + CcB	3.5%	4% - 6.5%	4.5% - 7%	5.125% - 7.625%	5.75% - 8.25%	6.375% - 8.875%	7% - 9.5%
Total capital	4.5% - 7%	5.5% - 8%	6% - 8.5%	6.625% - 9.125%	7.25% - 9.75%	7.875% - 10.375%	8.5% - 11%

*Capital Conservation Buffer (CCB) is a fund the bank can draw on during times of economic stress; **CcB is used when excess aggregate credit growth is judged to be associated with systemic risk. The Basel Committee stipulates that it should be infrequently used, once every 10 - 20 years. Source: BCBS (2010b) Results of the Comprehensive Quantitative Impact Study, Bank for International Settlements, Basel.

¹⁵Source: Basel Committee on Banking Supervision documents on Basel III reforms, Bank for International Settlements.

¹⁶Source: Basel Committee's revised framework for more resilient banks; Bank for International Settlements.

capital relative to their total exposure¹⁷. This leverage ratio is introduced to inhibit the exposures to derivatives and off-balance sheet (OBS) activities that represent an additional risk (Liste et al. 2012).

5.1.3. Liquidity Requirements to Address Liquidity Risk

Basel III introduced two key liquidity ratios to address systemic liquidity risks and liquidity buffers in the banking system, which were largely neglected under Basel II:

Liquidity Coverage Ratio (LCR) introduced in 2013-2014: Ensures banks have enough high-quality liquid assets (HQLA) to cover their short-term obligations during a 30-day stress scenario. The LCR is intended to ensure that banks can survive in a severe stress situation lasting approximately one month, even attributed to a specific institution or a systemic shock. To face their liquidity needs for a 30-day time horizon in times of stress, banks are required to maintain two tiers of high-quality liquid assets that can be converted into cash (Liste et al. 2012).

Net Stable Funding Ratio (NSFR) introduced in 2015: Encourages banks to rely on more stable, long-term funding sources to reduce liquidity mismatches and promote financial stability over the medium term so address short-term and long-term liquidity risks¹⁸. The NSFR ratio provides banks with reliable sources of funds over a one-year horizon under extended idiosyncratic stress.

For more explanation, one can refer to **Table 3** that exhibits the time-line required for phasing-in all requirements of Basel III.

Table 3. Basel III regulatory measures.

	2013	2014	2015	2016	2017	2018	1jan2019
• Capital requirements							
• Capital	8%	8%	8%	8%	8%	8%	8%
• CCB				0.625%	1.25%	1.825%	2.5%
• Liquidity requirements							
• LCR*	Introduction		←		Full implementation		→
• NSFR**	Introduction		←		Full implementation		→
• Leverage ratio				Parallel run period		Pillar1(3%)	

*The Liquidity Coverage Ratio (LCR) ensures that banks survive a severe stress situation lasting around 30 days; **Net Stable Funding Ratio (NSFR) provides sources of funds over one year under extended idiosyncratic stress. Source: [Basel Committee on Banking Supervision \(2010a\)](#) A Global Regulatory Framework for More Resilient Banks and Banking Systems, BIS, Basel.

¹⁷Source: Wall Street Oasis, Bank for International Settlements.

¹⁸Sources: Detailed in Basel III's framework by the Basel Committee, Bank for International Settlements. Investopedia's summary of Basel III requirements; Wall Street Oasis.

5.1.4. Countercyclical Capital Buffer

Basel III includes a countercyclical capital buffer, which was absent in Basel II. This buffer requires banks to hold extra capital during periods of excessive credit growth to protect it against losses during economic downturns. So reduces the procyclicality of capital requirements, which was a major weakness of Basel II.¹⁹

5.1.5. Systemic Risk and Too-Big-to-Fail Banks

The capital market liberalization causes a significant risk inherent in financial market liberalization. This problematic is reshaping many policies, especially toward the problem of the efficacy of capital requirements in avoiding systemic risks and enhancing macroeconomic management. Basel III introduced additional capital requirements for systemically important financial institutions (SIFIs) to mitigate the risks posed by “too-big-to-fail” banks (systemic risks). These measures ensure that large, interconnected institutions hold extra capital to prevent their collapse from destabilizing the global financial system²⁰.

5.1.6. Focus on Corporate Governance and Risk Management

Another privilege of Basel III is that today, the Basel Committee on Banking Supervision requires banks and financial institutions to put prudent internal supervision and corporate governance (CG) requirements, so emphasizes stricter corporate governance, including better oversight of risk management practices compared to Basel II. This is a significant improvement over Basel II, which placed less emphasis on qualitative governance measures and left risk management primarily to banks' discretion²¹. In fact, it will be the role of central banks to regularly evaluate the corporate governance policies of banks and their prudent implementation of the Basel Committee's principles (BCBS, 2010a). Note that the concept of CG is new to Tunisia and the transparency requirements on societies have been recently introduced by the Law of Financial Transparency in 2005. The authorities adopted the new Banking Law for Promoting Good Governance and Improving Credit Culture in 2006 to strengthen financial supervision (Liste et al., 2012).

5.1.7. Addressing Procyclicality

The main reason behind the failure of Basel II is that this accord fails to protect the banks; it ignored the risks inherent from the pro-cyclical nature of the economies that are related to highly leveraged firms and from the complex financial instruments. Basel III tackles the procyclical effects of capital requirements that were inherent in Basel II. By introducing countercyclical buffers and more conservative risk assessments, Basel III reduces the tendency of banks to restrict lending during downturns and expand it excessively during booms(procyclicality)²².

¹⁹Source: Basel III's macroprudential reforms to reduce systemic risks, Bank for International Settlements.

²⁰Source: Bank for International Settlements' documentation on reforms targeting interconnectedness of large institutions, Bank for International Settlements, Wall Street Oasis.

²¹Source: Highlights in financial governance reforms under Basel III, Wall Street Oasis.

²²Source: Basel III's principles as outlined in BIS documents, Bank for International Settlements.

5.1.8. Reduction of Arbitrage Opportunities

Under Basel II, banks exploited inconsistencies in risk-weighted models to lower their capital requirements, leading to undercapitalization in many cases. To prevent undercapitalization Basel III mitigates this issue and strengthens internal risk models by introducing standardized measures like the leverage ratio²³.

5.1.9. The Recognition of Systemic Liquidity Risk

Basel III explicitly addresses systemic liquidity risks that Basel II failed to consider. The introduction of liquidity and funding ratios, neglected under Basel II, ensures that banks maintain enough cash or cash-equivalent assets to withstand liquidity shocks, improving the resilience of the banking system as a whole. So, Basel III adds a liquidity requirement to avoid and mitigate systemic liquidity risks.²⁴

5.1.10. Enhanced Stress Testing

Basel III places greater emphasis on stress testing to assess banks' ability to withstand adverse scenarios, a requirement not emphasized in Basel II. This ensures that banks are better prepared for economic or financial disruptions.

5.1.11. Encouragement of Long-Term Stability

While the Basel II introduced risk-sensitive capital requirements that influenced SME credit availability, the Basel III builds upon this framework with stricter regulations to ensure systemic financial stability. This is manifested by incorporating measures like the NSFR and countercyclical buffers, Basel III promotes banks to focus on long-term financial stability rather than short-term gains. This creates a more sustainable financial system and reduces the likelihood of future crises²⁵.

5.2. How the Differences between Basel II and III Affect the SMEs in a Tangible Way

5.2.1. Cost and Availability of Credit

To illustrate the difference between Basel II and III in details in terms of credit supply and the loans cost as well as other aspects such as the risk weights for SME loans and the liquidity requirements to the banks we refer to **Table 4**.

5.2.2. Procyclicality and Access to Credit in Economic Downturns

Table 5 highlighted the difference between the two accords in terms of procyclicality and credit supply during recession as well as other criteria like the IRB approaches, stress testing impacts...

5.2.3. Financial Transparency and Preparedness

Table 6 determine the difference between the two accords in terms of financial literacy for SMEs, financial information transparency, the need of better financial management and governance and the practical impact for the SME.

²³Source: Basel Committee discussions on risk models and arbitrage prevention, Bank for International Settlements.

²⁴Sources: Official Basel III framework documentation, Bank for International Settlements. (Financial institution summaries on the role of liquidity ratios, Wall Street Oasis)

²⁵Source: BIS's focus on long-term stability in the Basel III reforms, Bank for International Settlements.

Table 4. The cost of lending, the credit availability and the risk weight loan under Basel II and III and their practical impact.

Under Basel II	Under Basel III	Practical impact
<p><i>-Risk-Weight Adjustments for SMEs:</i> Basel II introduced preferential risk weights for SME loans (especially those classified as “retail”). This lowered capital requirements for banks’ lending to SMEs, resulting in more affordable credit and greater loan availability²⁶. For SMEs, this meant that their smaller scale and diverse risk profiles were explicitly recognized as benefiting banks through portfolio diversification. (Basel Committee on Banking Supervision (BCBS) (2004)).</p> <p><i>Challenges with Internal Ratings Models:</i> Basel II encouraged banks to use internal ratings-based (IRB) approaches for risk assessment. While large firms had the resources to demonstrate creditworthiness through financial transparency, SMEs often struggled to meet the data and reporting requirements, which sometimes resulted in higher interest rates or loan denials (Dietsch & Petey, 2004).</p>	<p><i>-Increased Cost of Compliance for Banks:</i> Basel III introduced higher capital and liquidity requirements for banks, increasing the cost of lending for SME. (BCBS, 2010a).</p> <p>As a result, banks may pass these costs on to borrowers in the form of higher interest rates or fees. For SMEs—already considered riskier borrowers—this translates to increased borrowing costs and potentially fewer loans being approved.</p> <p><i>-Liquidity Requirements Tighten Credit Supply:</i> Basel III’s Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) require banks to hold more liquid assets and maintain stable funding sources. Loans to SMEs, which are less liquid and riskier than larger corporate loans, may become less attractive to banks. This could lead to stricter lending conditions or reduced credit availability for SMEs. (McKinsey & Company, 2013).</p>	<p>While Basel II created an environment that often-encouraged SME lending, Basel III’s increased regulatory burden for banks might lead to tighter credit conditions. SMEs may face higher costs of capital or reduced loan access, especially in economic downturns when liquidity constraints tighten further.</p>

Table 5. The difference between Basel II and III in terms of procyclicality issue and credit supply during economic downturn and their practical impact on SME.

Under Basel II:	Under Basel III:	Practical Impact:
<p><i>-Procyclical Capital Requirements:</i> Basel II’s risk-sensitive framework made lending to SMEs more volatile. During economic downturns, SMEs were perceived as higher-risk borrowers, which increased the capital banks needed to hold against these loans. As a result, credit supply to SMEs often contracted during recessions, when these businesses needed it most. (Carbó-Valverde et al., 2009)</p> <p><i>-Over-Reliance on Ratings:</i> Many SMEs lacked formal credit ratings or the ability to produce the detailed financial data banks required under Basel II’s IRB approach. In downturns, this created a bias against SME borrowers, further reducing their access to finance. (Dietsch & Petey, 2004).</p>	<p><i>-Countercyclical Capital Buffers:</i> Basel III attempts to address the procyclicality issue by introducing countercyclical capital buffers. These require banks to build up capital reserves during periods of economic growth, which can then be drawn down in downturns. In theory, this should allow banks to maintain lending capacity during recessions, offering SMEs a more stable source of credit. (BCBS, 2010a)</p> <p><i>-Stress Testing Impacts:</i> Basel III’s emphasis on rigorous stress testing might make banks more conservative in their SME lending, particularly if stress tests identify SME portfolios as vulnerable during economic crises. (McKinsey & Company, 2013)</p>	<p>Basel III provides a framework for reducing the volatility of credit supply, which should benefit SMEs during economic downturns. However, in practice, the stricter requirements could lead to risk aversion, especially for smaller banks that traditionally serve SMEs, limiting the effectiveness of this safeguard.</p>

²⁶Basel Committee on Banking Supervision (BCBS) (2004).

5.2.4. Impact on Small vs. Large Banks Serving SMEs

Table 7 considers the advantages and disadvantage of Basel II and III on the small and larger banks and the practical impact they have towards the SME.

5.2.5. SMEs in Emerging Markets

Table 8 considers the difficulties that address both of the SME and the banks in emerging markets under Basel II and III.

Table 6. The expectation of financial transparency, the financial literacy under Basel II and III and their practical impact on SME.

Under Basel II:	Under Basel III:	Practical Impact:
<p><i>-Limited Focus on Financial Literacy for SMEs:</i> Basel II placed the burden of demonstrating creditworthiness on SMEs but offered little in the way of practical support or guidance for meeting these requirements. Many SMEs lacked the financial literacy or resources needed to comply with the increased reporting demands, leaving them at a disadvantage when seeking loans.</p> <p>(Greuning & Bratanovic, 2009)</p> <p><i>-Disadvantage for Informal Enterprises:</i> SMEs operating in emerging markets or informal sectors—where record-keeping and transparency are less developed—struggled under Basel II. This further entrenched disparities in access to finance.</p>	<p><i>-Higher Expectations for Transparency:</i> Basel III's stricter regulations and focus on risk management mean SMEs will need to be more financially transparent and well-prepared when applying for loans. Those unable to present detailed financial statements, credit histories, or robust business plans may find it increasingly difficult to secure favorable loan terms.</p> <p><i>-Encouragement of Professionalization:</i> While this places additional pressure on SMEs, it also incentivizes better financial management and governance. (OECD, 2018).</p> <p>SMEs that invest in improving their financial transparency are more likely to receive favorable lending terms under Basel III. (BCBS, 2010a)</p>	<p>The SMEs need to adopt a more professionalized approach to financing, which might involve hiring accountants, investing in financial software, or undergoing credit training. While this creates short-term costs, it also helps SMEs build resilience and improve their long-term financial stability.</p>

Table 7. The effect of Basel II and III on small and large banks and their practical impact on SME.

Under Basel II:	Under Basel III:	Practical Impact:
<p><i>-Advantages for Small Banks:</i> Basel II created a level playing field for smaller, regional banks that often cater to SMEs by allowing them to use simpler, standardized approaches to capital requirements. These banks could lend to SMEs without the complexities and costs of the IRB approach.</p> <p>(Carbó-Valverde et al., 2009).</p> <p><i>-Competitive Pressure on Large Banks:</i> Larger banks, using IRB approaches, were often incentivized to lend to larger, lower-risk firms instead of SMEs, creating competition imbalances.</p>	<p><i>-Disadvantages for Small Banks:</i> Basel III's stringent liquidity and capital requirements place smaller banks at a disadvantage because they lack the scale and resources to meet these requirements efficiently. This might reduce their ability to serve SME clients, leaving SMEs more dependent on larger institutions. (IMF, 2012)</p> <p><i>-Opportunities Through Internal Ratings:</i> Larger banks may benefit from Basel III's refinements to risk management frameworks, such as the enhanced use of internal ratings models, to assess SME risk more accurately. This could improve loan terms for SMEs with strong financial records, but might exclude less-prepared businesses.</p> <p>(McKinsey & Company, 2013).</p>	<p>SMEs might lose access to credit from small regional banks, which have historically been their primary lenders. However, those with strong financial records could benefit from better rates and conditions when working with larger, more sophisticated banks.</p>

Table 8. The challenges that face the SME and the banks in emerging market under Basel II and their practical impact on SME.

Under Basel II:	Under Basel III:	Practical Impact:
SMEs in emerging markets often faced challenges due to inadequate credit ratings and informal financial practices. Basel II's reliance on internal ratings models made it harder for SMEs in these regions to access financing. (World Bank Group, 2013).	Basel III's tighter requirements might exacerbate these challenges, as banks in emerging markets struggle to implement advanced risk management systems. This could lead to reduced credit availability for SMEs, despite efforts to address global financial stability (IMF, 2012)	Emerging-market SMEs may face even greater barriers to finance, necessitating public or multilateral support (e.g., government guarantees or development bank programs) to counteract Basel III's unintended consequences in these regions.

6. Conclusion

The primary conclusions of this paper illustrate a brief scenario of how Basel II benefits SMEs are presented as follows:

Initially, it is stated that when banks incorporate SMEs into their portfolios to achieve a diversification effect, the capital or regulatory requirements for this portfolio should be reduced or at main remain stable. This improvement stems from the diversification effect that banks gain by including SMEs in their portfolios. The second conclusion implies that if the Basel Committee creates a new classification scheme for SME debt portfolios and a new risk management approach, the banks are allowed to avoid severely penalizing these enterprises. More precisely, the regulatory capital associated to the SMEs debt portfolios, particularly those classified as “retail,” is expected to decline; and that the most attractive alternative for reducing or eliminating the competitive advantages of small banks is to employ an internal ratings-based strategy, compared to other rating systems, to facilitate the SMEs financing. Indeed, the rating approaches established by the Basel committee are becoming more and more sophisticated and the SMEs will have to prepare themselves more to deal with them. Those that wish to obtain a good rating from their banker in order to obtain the best conditions for granting loans, will be interested in presenting themselves positively and transparently. The third finding looked at how Basel II affects SMEs' finances. It demonstrated a depreciation in credit costs and/or an ascension in the volume of loans granted for most SMEs, especially those in the retail portfolio, given the better capital allocation of the banks especially during the first years of the Basel's II implementation. In addition, the fourth result outlined that the procyclical effects on small and medium-sized firms generated by this device (Basel II) remain an important problem to study. If increased procyclicality of regulatory capital affects loan supply to the SME, banks will limit credit lending during recessions and increase it during economic expansions because more outstanding procyclical regulatory capital affects SMEs' financing availability. However, given that it is not up to banks or private companies to practice a cyclical or structural policy²⁷, by aligning the granting of credit with countercyclical or regional considerations, the committee should seek

²⁷Circumstantial policy is all the actions of the public authorities intended to regulate the overall evolution of the economy” (M. et al., 1998). The economic policy is related to the short term through its objectives, whereas, for long-term objectives, we speak about the structural policy.

from an economic perspective to go beyond this issue. Finally, the differences between Basel II and Basel III are highlighted. While Basel II made significant efforts in improving risk management by introducing risk-weighted capital requirements, it provided SMEs with greater access to affordable credit through preferential risk weights capital requirement and a focus on risk-sensitive lending but it failed to address procyclicality, liquidity issues and systemic risks, leaving SMEs weak during economic downturns. In another way, Basel III overcomes the failure of Basel II, strengthens the financial system by proposing many techniques, such as introducing higher capital, more robust capital quality (emphasizing on the regulatory adjustments to the Capital tier 1), adding a liquidity requirement to avoid systemic liquidity risk, countercyclical requirement, enhancing the risk coverage requirements, introducing leverage ratios to inhibit additional risk, proposing a set of standardized quantitative requirements to enhance liquidity buffers in the banking system, pushing the bank to put corporate governance requirements... These advancements together enhance the resilience of the global banking system and minimize the risks that contributed to the financial crisis. However, these measures may inadvertently restrict SME financing, particularly for those unable to meet higher transparency and governance expectations. So, SMEs must adapt to these changes by improving financial literacy, seeking innovative financing options to face to the potential challenges.

As a deficiency of this research, we should acknowledge that the validity of most of the analyzed results here remains theoretical. In future research, we propose an empirical study to concretely assess the impact of Basel III using dynamic stochastic general equilibrium (DSGE), particularly in emerging countries.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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