**University "Babeș-Bolyai" from Cluj'Napoca**
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**ABSTRACT OF**
**Ph.D THESIS**

# Approaches on the model of evaluation of the systemic bank position in the current international banking context

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## The structure of the PhD thesis

**CHAPTER 3. MODEL FOR THE ASSESSMENT OF SYSTEMICALLY IMPORTANT BANKS – A CURRENT APPROACH**



Key words:
systemic risk, macro-prudentiality, systemically important bank, GSIB, minimum capital requirements, prudential regulations

## Introduction

While the financial crises can have common elements, they come in various forms. A financial crisis is often associated with one or more of the following phenomena: major changes in the lending volume and asset prices, severe financial interruption, as well as the amount of external funding for different actors in the economy; large-scale balance issues (companies, households, financial intermediaries, state entities), respectively the large-scale government support. As a result, financial crises usually appear as multidimensional events and it would be difficult to characterize them with a single indicator.

From a historical point of view, the speculative bubbles, the financial crises appear regularly. There is evidence of economic bubbles and crises in all the ages for which we have financial data. Moreover, the economic bubbles and crises emerged in all the financial markets, regardless of the stage of their development: both on developed financial markets, and on emerging and developing market economies. In the light of these financial realities, it is desirable to include and define the concept of a systemic bank, as well as the assessment of possible impacts, both in the financial and in the real activity.

We often ask ourselves how to define the connection between the financial crisis and moral hazard. Are there two dimensions that evolve in parallel, or the hazard precedes the financial crisis or the financial crisis precedes the moral hazard?

The two-way relevance of these two factors reflects only the events of the past few years to date and only confirms the fact that there is a cyclicality in the emergence of financial crises, which you can meet in all their forms. But in particular, if the concept of financial crisis is subjected to a much more detailed analysis, it is the same theory, just presented in a more modern, more evolved outfit.

Why should the financial crisis concept not evolve, if we, as mankind or as a person, evolve over time, why would the characteristics of a financial crisis not evolve over time?! This makes us wonder if we could get into the market faster to change anything from all the events.

As a premise, I ask myself, and leave as the next point of discussion, if we have reached a saturation level in defining the financial crisis? As easy as the question would seem, as difficult

the answer is. The financial crisis has highlighted the need for a more transparent, simpler banking system, as if we were to return to the genesis of the banking system. This statement brings a challenge with it: would it mean that a new financial crisis would be more predictable? To try to give an answer to the challenge presented above, I often think about the criticisms made in the specialty literature about the statistical models used, criticized as pure mathematical models, without taking into account any human intervention.

Leaving the above-mentioned challenge as an open point, the three structured chapters of the paper are about to outline the layout of a financial crisis, the systemic impact on the financial market, highlighting the good practice solutions used in the prudential regulation of the systemic risk, recommendations coming to confirm the premise that a simpler, more transparent banking system is desired.

*The motivation of the thesis* comes from the need for a more detailed analysis of the systemic bank concept, both from the point of view of the existing regulations and the new regulations in progress, as well as the assessment of the model proposed by the Basel framework.

Many studies have been drafted on the presentation of the model proposed by BCBS (Basel Committee on Banking Supervision), but few studies have stopped to assess the impact of these new proposed regulations on banks determined by BCBS as being of systemic importance, especially if the model is suitable for all banks included in the list produced by BCBS.

The thesis is structured in 3 chapters, which will also aim at presenting in detail the latest news / elements regarding the systemic bank concept and the assessment methods regarding the systemic bank position in the international banking context.

*The ultimate goal* of the paper is to present improvements on the prudential supervision measures, at both European and international level as well as at specialty literature level, analyzing in the end whether the model proposed by BCBS is adjustable and appropriate for all the banks included in the list as determined to be of systemic importance and also to analyze the new regulations in place.

## Chapter 1 Synthesis

## The importance and role of systemic risk and of financial stability - microprudential and macroprudential approaches

The first chapter deals, according to the existing regulations, with the notions of systemic risk and financial stability, as well as the most recent assessments of the concept of macro-prudence and measures for its implementation.

The concept of financial stability has often been encountered in the specialty literature, but there is no concrete definition of it, financial stability being understood as a whole system in which all the actors who are active in the financial market can withstand the possible improbable shocks that can appear in the day-to-day economy.

The next point of attention should be directed towards the assessment and monitoring of the systemic risk that is particularly found in macro-prudential policies. Many factors, such as the increased lending volume present in the financial market, anticipated the possibility of a financial crisis, and the combination of the credit risk with other endogenous / exogenous factors present in the system can only cause the increase of the systemic risk.

Macro-prudential policies are assigned a key role, as the primary objective is to reduce the systemic risk without generating repercussions across the entire economic system. Various views have been presented on the status of macro-prudential policies that inevitably come in correlation with other policies to achieve the primary objective of financial stability, and systemic risk mitigation.

The macro-prudential policies may seem more restrictive, impacting both nationally and globally, but together with the micro-prudential policies, they can provide stability in the financial market. Developing an effective framework of the macro-prudential policy requires identification and development of a set of tools and operational guides to this policy, including for their calibration.

For the time being, there is still no comprehensive and unanimously accepted theoretical framework for choosing and calibrating macro-prudential policy instruments. Even if progress has

been made, it is still too early, in our view, to be able to provide a decisive assessment of the set of macro-prudential tools that will prove to be most effective over time - partly because the financial innovation within the financial system will generate new risks at the appropriate time. That is why there is a need for flexibility in the national law and regulation to allow for this process of study - of course, being aware that it is possible that the optimal solutions may be partly country-specific and context-specific.

The authorities should monitor the migration of activities outside the competence area of the macro-prudential instruments, and should close the regulatory gaps. The authorities must monitor and assess the degree of such migration and must respond appropriately by extending the competence area of the macro-prudential actions.

The extension of macro-prudential instruments to non-bank activities and to the market should be guided rather by economic functions than by legal forms and must be related to those risks to the financial stability which such activity represents (FSB, Financial Stability Board, 2012).

The identification and availability of relevant data is extremely important for the implementation of the macro-prudential policy framework. The crisis has revealed major gaps in the information at the disposal of the authorities for the assessment and monitoring of systemic risk, and these gaps must be covered.

To cover the information gaps, it is important to ensure the homogeneity and comparability of data at international level as well as to support the existing official databases, such as those developed by IMF (the International Monetary Fund) and BIS (Bank for International Settlements).

One of the lessons learned from the crisis is that the biggest taint happens when countries fail to promptly launch problem-solving actions - given the global banking system's interconnectivity, the risk of a country's system may soon become a problem for other countries as well.

Coordination in other areas supporting macro-prudential policy objectives, such as strengthening the financial infrastructure, is equally important in ensuring international coherence and avoiding cross-border regulatory arbitrage. Continuing the international orientation towards macro-prudential policies will support international coherence.

As previously stated, there is much to be learnt about the design and implementation of macro-prudential tools, having as purpose the management of the systemic stress in a national context.

At international level, these challenges arise from the need to better understand the international transmission channels of financial risk and instability, as well as the interaction between the domestic and global stability.

There is a need for further research into the interaction between macro-prudential policies and other policies (especially the monetary policy) and on the effect of exchange rate agreements, fiscal provisions and different levels of international financial integration, or on the optimal level of cross-border coordination.

## Chapter 2 Synthesis

## Identification and regulation of the activity of the systemically important financial institutions

In the second chapter, we aimed at presenting modalities of identifying and evaluating the systemic financial institutions present in the specialty literature, in the European and international regulations with local and global impact. The 2007 crisis has clearly determined the need to define and manage the micro-prudential risks to limit the systemic risk. When questioned about identifying the institutions of the highest systemic importance, most central banks identified the banks as entity, followed by the insurance companies and the pension funds.

The Banking Supervision Committee in Basel initially focused on bank entities for which a series of regulations published in July 2011, subsequently revised and republished in July 2013, have been adopted.

The starting point for determining important systemic financial institutions depends on the imbalance created at the financial system level through its insolvency. A second approach focuses on the degree of replacement of the institution: the more easily replaceable the financial institution, the less systematically important.

The Supervisory Committee in Basel has developed a methodology for determining financial institutions of global systemic importance, an approach that is based on indicators. The various determined indicator support the setting of multiple sizes of the systemic risk. The systemic importance should be measured by the effect that the bankruptcy of one of the financial institutions may have at global level; the model should be seen as reflecting the probability of non-payment representing the risk and total loss in the case of non-reimbursement.

The model identified the following five indicators:

- Size;
- Interconnectivity;
- Activity in jurisdictions;
- The substitutability of the financial institutions' infrastructure;

- Complexity;

At a high level, the methodology is built on an equal 20% share to each indicator, which in turn equally assigns values to individual determined indicators. Banks with a score based on the indicators approach and exceeding the critical level set by the Commission will be classified as GSIB (Global Systemically Important Banks) (BCBS,2011,2013).

GSIB will initially be distributed in four equal sized buckets based on systemic importance scores, the magnitude of the absorption level of the losses varying according to the installments to which this criterion is applied (BCBS,2011,2013).

It is also important that these regulations are also transposed to other systemic financial entities, such as the national financial institutions. The individual principles for the national financial institutions come to reflect the local conditions that can be created by a bank bankruptcy at national economy level.

The main regulations and methodologies are determined by the national banks considering the following factors:

- size;
- interconnectivity;
- substitutability;
- complexity.

The methodologies implemented at the local level should be correlated with the global regulatory requirements for GSIBs and revised implementation criteria if one of the banking institutions is identifiable both at the DSIB level (Domestic Systemically Important Banks), as well as GSIB.

Before the crisis, it was clear that banks were the main institutions for which the national authorities were concerned because they were considered to have systemic potential. The pension funds, insurance companies, and the state-owned financial institutions were considered to have the

largest systemic impact after the banks. Until the end, the hedge funds have made the difference because the interconnectivity, leverage and opacity / complexity were considered to be more important factors.

Since the onset of the financial crisis ("post-crisis"), the assessment of factors contributing to the systemic importance of financial institutions has changed to some extent. Currently, fewer specialists consider size as the primary risk factor; many believe that interconnectivity, leverage, or maturity mismatch are the main risk factors. Case studies presented in the chapter, such as Northen Rock or Lehman Brothers, come to highlight and confirm the features listed above.

Preliminary conclusions

The final conclusion on the above discussed issues is that we know for certain to what cellular level the problems have gotten: the answer being up to the contributors.

Can we answer the question if an institution is too big to fail or can we have a real and viable solution after a list of regulations and settlement plans that has been proposed? It is difficult to answer in our opinion. We have to understand that no solution comes without side effects and the side effects are generally negative, so for a concrete case, the effects will be more or less assessed from the point of view of economic costs and the limitation of the moral hazard.

## Chapter 3 Synthesis
## Model of evaluation of the systemic bank position– an up-to-date approach

Chapter III which is also the last chapter – contains an empirical study meant to answer the question whether the proposed BCBS model for the classification of systemic bank is adequate for all the banks included in the list determined by GSIB. By the evaluation of the existing regulations, as well as of the determined sample of GSIB banks, the aforementioned question will be answered relying on the evaluation of the financial indicators of the banks in the GSIB list, highlighting in the end the future of the regulatory policies regarding the systemically important banks.

A first step in the analysis consisted of the evaluation of the collection practices regarding the systemically important banks.

Indeed, the recent crisis reconfirmed an old lesson– good data and good analyses represent the key element for the efficient supervision and for answers to policies at both national and international level. Several such inconsistencies affected the crisis dynamics, since the markets and the deliberative bodies were taken by surprise by the events occurring in the fields insufficiently covered by the existing information sources, as well as those resulting following the exposure due to complex instruments of off-balance sheet entities, as well as following the cross-border interconnectivity of financial institutions.

One of the key conclusions of the crisis was the recognition of the fact that the interconnectivity of the systemically important financial institutions presents significant implications in terms of global and national financial stability.

More efforts are required for the monitoring of such interconnectivity and to assess the implications to implement the modality in which they are understood, as well as to allow a closer monitoring of international risks distribution. For those running analyses on global stability, understanding the connections of the global network and of risk exposures is vital to be able to assess the occurring vulnerabilities.

For those bearing responsibility for the financial stability at national level (or regional level, i.e. at EU level), it is vital to know the modality in which are connected financial institutions, respectively the markets based in their country of origin to these important global institutions.

It is clear and we may draw the conclusion that the authorities' capacity of acting collectively, in an adequate manner, has been seriously limited by the lack of the relevant high quality data, see the table below.

Table 3.1 Informational gaps and their effects

| Concentration risk | Market risk | Financing risk | Contamination risk | Sovereign risk |
|---|---|---|---|---|
| The lack of official statistics not granular enough to determine the level of such exposure | Uncertainty regarding the exposure to structured products reduced the liquidity existing on the market | Uncertainty on reduced liquidity means reduced financing | The lack of information on inter-connectivity incremented the contamination risk | To lower the uncertainty, the collection and publishing of sovereign risk exposure |

*Source*: Author's processing

We will further seek to answer the question whether the methodology adopted by BCBS is adequate for all the banks deemed systemically important, „Does a single model /one size fit all banks?" aligned with the methodology proposed by Małgorzata Iwanicz-Drozdowska şi Iwona Schab (2014). The analysis envisages the assessment of banks in terms of two dimensions - risk exposure and profitability, where the analysis is focused on the core indicators adjacent to these dimensions, the contribution of each factor and the interpretation are on the same line as the results presented by Drozdowska & Schab. Estimation was made through exploratory factorial analysis applied directly to the variables determined for the model. The motivation for choosing this methodology is due to the fact that it can determine the patterns of interdependencies regarding the financial indicators associated with the banks included in the model.

Previously, the financial data of the banks deemed systemically important have been analyzed (between November 2011 and November 2013), meaning a total of 30 banks.

The banks will subsequently be reclassified, as follows:

· GSIB L – financial institutions the activity of which focuses more on the local market in terms of assets as well as revenue;

· GSIB E – financial institutions focusing on the European market in terms of assets and revenue;

· GSIB G –global financial institutions in terms of assets and revenue.

The empirical analysis was developed on a set of data for the 30 banks classified as systemically important between 2008 and 2014. The data base was extracted from the public financial statements submitted by the banks (the official websites) checked against the Morningstar website. The analysis implies the evaluation of the banks considering two dimensions – risk exposure and profitability, due to which the analysis focuses on the basic indicators adjacent to these dimensions. The contribution of each factor and the interpretation was determined using the methodology proposed by Małgorzata Iwanicz-Drozdowska and Iwona Schab (2014).

Also, in order to be able to evaluate banks at macroeconomic level, the selected indicators as well as the PIB were taken over from the available public databases.

Further, we will define the variables included in the model as follows (variables aligned with the methodology proposed by Małgorzata Iwanicz-Drozdowska and Iwona Schab (2014)):

- Information regarding the identification of the financial institution (name, business area, the type and modality of financial data reporting);
- Basic information in the financial statements (assets, liabilities, capital, P/L account, off-balance sheet position);
- Information regarding the basic activities of banks (credits, deposits, provisions, interest);
- Macroeconomic information (such as GDP);
- Information regarding the structure of the operations;
- capital adequacy indicators (CAR, CAR 1, credits financial leverage);
- risk exposure indicators (RWA, provisions);
- profitability indicators (ROE, ROA, margins).

The selected methodology allows us to determine interdependences for multivariate observations. The exploring factorial analysis was employed that can determine the *pattern*s of the interdependences regarding the financial indicators associated to the banks included in the model.

A secondary reason for which this methodology was selected was to allow the analysis of those sociological and psychological factors on which certain decisions may rely, rather anticipated and stipulated in the current specialty literature.

The factorial analysis, especially the analysis into main components, was introduced with the purpose of solving the following situations:

- reduction of data complexity – the question could we replace large volume of data with smaller data and volumes;
- defining and highlighting patterns related to potential correlations between the variables;
- identification of the latent variables that may exist in the measured variables – one can make a simple comparison with a puppets theater scene where the puppets manipulation could be compared to the latent variables that influence the variance of the calculated variables.

The latent variables were identified as factors, consequently the term of factor analysis is associated to the method used. Originally, this method was met in psychological surveys meant to understand for instance if it is possible to assess intelligence. The underlying question was how is it possible to interpret qualities such as the ability of perception or reaction? The existence of a hidden quality that may determine such abilities is questioned.

The application of the model generated the following results:

Table 3.2: general- factor model

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---|---|---|---|---|
| | | | | |
| Net interest margin | -0,266 | 0,839 | 0,033 | 0,051 |
| | | | | |
| RWA / Assets | -0,158 | 0,259 | 0,515 | -0,333 |
| | | | | |
| Provisions/ Credits | -0,190 | -0,115 | 0,635 | 0,244 |
| | | | | |
| Deposits/Assets | 0,000 | 0,297 | 0,644 | -0,045 |
| | | | | |
| CAR | 0,094 | -0,024 | -0,043 | 0,859 |
| | | | | |
| CAR 1 | 0,029 | 0,071 | -0,038 | 0,832 |
| | | | | |
| Revenue from income/ Provisions | -0,072 | -0,112 | 0,744 | 0,009 |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Credit/Assets | 0,118 | 0,131 | 0,574 | -0,293 |
| | | | | |
| ROE | 0,381 | 0,797 | 0,019 | -0,048 |
| | | | | |
| ROA | 0,171 | 0,877 | 0,142 | 0,002 |
| | | | | |
| Leverage | 0,846 | -0,056 | -0,228 | 0,043 |
| | | | | |
| Deposits-PIB | 0,861 | 0,204 | -0,011 | 0,056 |
| | | | | |
| Assets-PIB | 0,932 | 0,029 | 0,010 | 0,060 |

Note: Factor 1 high leverage rate dimension (size); Factor 2 – return; Factor 3 – credit and risk; Factor 4– capital adequacy.

The first latent variable (F1, representing 22,7% of the variance) is particularly linked to the dimension in connection to the financial leverage ratio. Factor F2 is represented by the return closely linked to profitability (F2 represents 20,8% of total variance).
F3 (covering in addition 12,4% of the variance) represents the high level of deposits and RWA, vs the assets and the high level of provisions.

The high values of F3 correspond to the rather high credit risk with high deposits level as major source of financing. F3 manages both sides of credit risk: exposure (influencing the RWA for assets) and the effects (provisions). It also highlights a high level of credits as compared to assets and a high level of revenue from interests as compared to provisions. Factor F4 represents capital adequacy, with a sound capital base.

On the other hand, the results achieved on individual models as shown below support the idea that the analysis should be applied separately by different types of GSIBs (global/european or local). With a view to acquiring comparable results, the same estimation and rotation method was employed. As expected, we agree with the results anticipated by Małgorzata Iwanicz-Drozdowska and Iwona Schab (2014), individual models have detected distinct latent factors affecting a group of GSIBs and influences the financial capacity in a different manner.

Table 3.3: European - factor model

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---|---|---|---|---|
| | | | | |

| | | | | |
|---|---|---|---|---|
| Net interest margin | -0,114 | -0,233 | 0,900 | 0,023 |
| | | | | |
| RWA/Assets | 0,760 | -0,062 | -0,089 | -0,420 |
| | | | | |
| Provisions/ Credits | -0,862 | -0,112 | -0,148 | -0,141 |
| Deposits/ Assets | 0,751 | 0,011 | -0,202 | -0,088 |
| | | | | |
| CAR | -0,115 | 0,154 | -0,159 | 0,771 |
| | | | | |
| CAR 1 | 0,026 | 0,034 | 0,028 | 0,861 |
| | | | | |
| Revenue from income/ Provisions | -0,747 | -0,154 | -0,124 | -0,391 |
| | | | | |
| Credit/Assets | 0,766 | -0,043 | 0,083 | -0,142 |
| | | | | |
| ROE | 0,150 | 0,329 | 0,670 | -0,138 |
| | | | | |
| ROA | 0,029 | -0,004 | 0,931 | -0,025 |
| | | | | |
| Leverage | -0,185 | 0,889 | 0,251 | 0,039 |
| | | | | |
| Deposits-GDP | 0,101 | 0,919 | -0,155 | 0,160 |
| | | | | |
| Assets - GDP | 0,158 | 0,947 | -0,062 | 0,078 |

Note: Factor 1 the high leverage dimension (size); Factor 2 – return; Factor 3 – credit and risk; Factor 4– capital adequacy.

The individual model for the European GSIBs explains even more variability. Nevertheless, it fails to render a more clear image. All the 4 latent factors are present and cover 77% of the total variance. Yet the largest part of the variance is covered by Factor F3 (covering 25% of the variance) representing the high level of deposits and RWA vs assets. The high levels of F3 match the rather high level of credit risk with high level of deposits as major source of financing. It also highlights a high level of credits vs assets and having a strong negative link to provisions.

The individual model estimated for global GSIBs reveals a more clear structure of the interdependences with the general model. F1 is determined as significant latent factor covering 27% of the original data. It thus creates a size representing the concept „TBTF[1]", representing the high debtness global GSIBs, with lower credit activity efficiency. Low RWA and low deposits level.

Following a throughout analysis for the categories of GSIBs identified, we can state the following that the results are on the same line as Małgorzata Iwanicz-Drozdowska and Iwona Schab (2014):

- certainly there are latent factors in the financial field
- according to the model, the number of latent factors ranges between 3 to 4 or 5
- the number of joint factors justified the variance up to 77% for all types of models identified
- if a single model is adequate, it can be rather questionable
- there seem to be common latent factors for all GSIBs. Nevertheless, there are strong differences between the distribution and influence exercised by these factors on various GSIBs. Especially European and global GSIBs proved to be highly differentiated.

The above presented analysis comes as a demonstration that there are significant differences between GSIBs identified using the BCBS methodology. In our opinion, three sub-types of GSIBs can be distinguished – i.e., global level (G GSIBs), those operating on the European market (E GSIBs) and the local ones (L GSIBs). The most distinguished group among the GSIBs is the one globally active. They are different in all dimensions along all the latent factors identified in the general model. The empiric results acquired by the European GSIBs confirm the expectations, supporting the idea that the European GSIBs seek to satisfy the expectations of the investors as well as of the supervisory bodies.

We cannot help but notice that the empirical models confirm the major role of the latent factor TBTF for the globally active GSIBs, factors determined as being closer to the values determined by the general model. Each of these groups may require different regulations, according to the size of the international operations, risk profile, strategy. Nevertheless, the rules may not reflect and may not properly identify the management of the institutions classified as

[1] Too big to fail

GSIBs. Thus, as it was pointed out in Małgorzata Iwanicz-Drozdowska and Iwona Schab (2014), we agree that some gaps in the methodology presented by regulatory bodies that can be analyzed / avoided:

- sources of various information which cannot be brought down to a joint result;
- insufficient qualitative approach;
- lack of in-depth analysis of the GSIBs operations, both at local level, as well as at global level.

Some of these can be anticipated and resolved with the "additional capital required", but the effects may be beneficial or at the same time damaging based on the capital requirements, the ultimate goal of this research is also the analysis of the new regulations under discussion in the current context and underlying the points of attention presented above as well as the pros and cons of the regulations in force.

To support the opinions listed above, further are presented the most recent evolutions in the field of banking recoveries and solutions offered, seeking to present the current banking resolution system within the European Union, especially of the *„bail-in"* instruments, the introduction in the most recent capital standards published, TLAC (Total Loss Absorbing Capacity) and MREL (Minimum Requirement for own funds and Eligible Liabilities) and shaping an image regarding the potential benefits and flaws of these initiatives.

Starting 2019, systemically important global banks will have the obligation to hold minimum mandatory TLAC equivalent to 16% of the value of the risk weighted assets or 6% of total exposure, going up to 18% and to 6,75 % in 2022.

The MREL framework is mandatory for all the banks based in the European Union, inclusively, yet without limiting to same, the systemically important banks. In addition to setting a minimum threshold, MREL is in charge with ensuring the external financing of a bank, especially its debit instruments, are structured so that its resolution plan and „bail-in" arrangements can be implemented.

Financial markets started wondering whether these revisions of the regulations are not merely regular maintenance within the Basel III framework, but rather the base for a new and complex prudential package— a „Basel IV" framework. The rumors regarding this „Basel IV package" grow, and the market expectations seem to suggest that Basel IV will soon arrive.

Considering the critic opinions against the Basel III framework and several proposals of reforms issued in the last years by BCBS, the following elements are likely to be considered a future prudential package:

- the total loss absorption capacity requirements

The core of Basel IV will most likely be the quantitative and qualitative remodeling of the capital requirements for the Global Systemically Important Institutions (G-SII). Banks will have to implement at international level the principles of the „total loss absorption capacity" („TLAC")

- standardized and internal approaches based on a model

The new prudential package is likely to limit the use by banks of internal models to estimate risk variables, preferring instead an augmented standardized approach able to better cover the vast range of exposure risks and improve comparability among banks. Also for this purpose, future proposals will introduce limits for the credit risk parameters to reduce distortions in the determination of EAD (Exposure at Default), LGD (Loss given default) and PD (Probability of Default)

- operational, interest rate and step-in risks

The innovating feature of this proposal consists in the use a single standardized approach, without an underlying model („SMA") for the calculation of the operational risk capital. The newly founded methodology will introduce a Business Indicator (BI) and an Internal Loss Multiplier (ILM), deemed to reflect past operational losses of each company for the operational capital requirement. *Step-in-Risk* is the underlying risk for the relationship between a bank and the banking entities in the shadow, for which the bank can provide financial support beyond or in the absence of any contractual obligations during times of financial struggles.

- sovereign risk

The Basel IV framework is also likely to reflect the outcomes of the political discussions on the special prudential treatment of the sovereign bonds. In particular, several domestic deliberative bodies request BCBS to waive the exemptions weighted to risk zero for the sovereign exposures currently allowed under Basel III.

- large exposures and high concentration

These new provisions are meant to secure a minimum joint standard for containing and reducing risk concentration, including an overall limit of single counterparties exposures set at 25% of Tier 1 capital of the bank. For G-SII, such limit is set at 15% for exposures to other G-SII

- enhanced communication requirements

Last but not least, with a view to reflecting regulatory changes proposed under the Basel IV package, the Basel III communication framework will probably amend consequently. The new communication requirements are expected to provide a deeper insight on capital rate and liquidity to inform the market on the risk profile of any bank.

**Conclusions and proposals**

Through the empirical study performed, we wanted to answer the question whether the proposed BCBS model for systemic bank identification is appropriate to all GSIB determined banks, also by assessing the existing regulations as well as the sample of GSIB banks it is evident that there are considerable differences between GSIBs identified using the BCBS methodology.

The assessment and opinions on the future of prudential regulation for systemically important banks as well as the pros and cons in relation to the new regulatory frameworks lead us to wonder if all these proposals would be implemented, what would remain of Basel III? Not much in our opinion. The adoption of these proposals as prudential standards of supplementation would replace the core components of Basel III, preparing the field for a drastic reformulation of bank laws worldwide. If this scenario becomes truth, the players on the market should weight the implications of these regulatory reforms in the overall banking field.

The compliance with Basel III implied substantial costs for the credit institutions. The regulatory changes brought by BCBS in 2011 forced the banks to adjust not only their capital and liquidity structure but also their business models, governance structure and investment strategies. Although the compliance with these requirements provides certain benefits in what regards the elasticity and stability of the financial system, the related regulatory costs, they have also certainly weakened the credit capacity of individual banks. And, together with an environment of low interest rates, the low credit capacity may have had adverse contagion effects on banks profitability.

In this evolving scenario, the implications of a future package Basel IV can be overwhelming. On the other hand, the probable simplification of the parameters and weight to risk calculations may provide savings of compliance costs to the banks. On the other hand, the

limitations on the use of the internal risk models for the purpose of capital requirements, jointly with the overall increase of prudential buffers, could reduce in the future the viability of bank business.

We are concerned especially of the following aspects, as presented also by EBA.

A restrictive limits framework could remove the risk management consolidation incentives. The proposed approach seems to focus firstly on the Standardized Approach only to provide a new limit. The construction of a modeling system with this approach does not overlap with the risk management improved practices.

The addition of a dimension of the limit may create the illusion of comparability, yet it will not increase the understanding of the stakeholders.

The concern regarding the introduction of a complex frame of limits is represented by the fact that this already existing regulation already includes several limits difficult to measure.

Setting limits after limits will affect the already limited numbers of the values of the underlying parameters, such as the probability of default and the default due to loss. The final result could differ from reality without possibility of determining the result of pure risk modeling and finding the additions to every sequential limit in the process of calculating the capital requirements.

In conclusion, the old Basel I limit should be interrupted and the implementation of a type of alternative limit should be considered.

The important thing is to assess the contribution of the frame of capital limits to the objectives sought and to the consequences they may have on the reaching of more vast economic objectives.

If yet a limit will be introduced, its framework should be simple. For this purpose, an agreed limit would allow an easier interpretation by all the stakeholders and an easier implementation.

We conclude by emphasizing that it is important to calibrate the new framework only after defining the new standardized approaches in order to provide a more accurate assessment of the impact and to emphasize also that the final aim of the thesis was achieved by presenting improvements on the prudential supervision, both at European and international level, as well as at the level of literature,

analyzing in the end whether the model proposed by BCBS is adjustable and appropriate to all listed banks as of systemic significance as well as the evaluation of the new regulatory norms .

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