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SUMMARY OF THE PHD THESIS
„*RISK MANAGEMENT IN BANKING*"

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Key Words: Basel II, globalization, banking risk, scoring models, stress tests, validation, trend analysis, Pearson correlation, regression statistics, banking performance, rating system, financial crisis.

The PhD thesis entitled **"Risk Management in Banking"** is the result of research in the broad area of banking risks. Without claiming that the present paper deals with all aspects of risk issues, I proposed to decode issues that I considered to be less subject to the attention of specialists in the field.

I started doing the risk analysis from bank motto: "If something bad can happen, it will happen", since the random elements are difficult to predict and quantify. But I would like to make an addition to the law proposed by Murphy and to continue such idea: "*If something bad can happen, it will happen, but what counts is to be always ready*". In this context, it can be said that, although many involve unknown risks, knowing reduction measures and protection against risks, losses you may have are much lower.

Therefore, I considered appropriate that this thesis to be structured into five chapters, in turn divided into several subchapters at which I examined in detail the theoretical issues that were intertwined with the practice and on which I made personal views to a point of departure in creating new frontiers in the field of banking risks.

After treating theoretical issues on how management of banking risks entangle with practical studies completed, thesis title "Risk management in banking" is proving to be a natural choice because I believe that an effective risk management significantly influences the reputation of a credit institution. Inefficient and inappropriate management of some banks may also adversely influence the reputation of the other banks. Thus, the risks are resident in banking activity and the main objective of risk management is not disposal, but their management. Credit institutions which manage the risks and accept them as conscious, can anticipate the future developments of events.

In this context, *the first three chapters* of the thesis focuses on *fundamental aspects* of banking risks, while *the last two chapters* are devoted to *analysis and interpretation of the obtained results*. Studies in Chapters four and five have allowed showing the general risk assessment at the banking system and then customizing banking risk management at SC Bancpost S.A.

But before going into the depth of banking risk management, we considered it necessary to begin our presentation by identifying the particularities of contemporary banking systems and challenges that the future holds for them **in the first chapter, *"Contemporary Banking Systems - The Challenges Of The Future" (pag. 4-59)*.** In this context, we analyzed the structure of banking systems in the European Union, USA and Japan.

Thus, in terms of European banks, structural developments in the banking sector, which are produced, usually during some periods of time, may have important consequences on the stability of the financial system. The main long-term trends at the level of consolidation and intermediation continued to manifest in 2007.

Analyzing the U.S. banking system, we concluded that the American banking system, bearing the mark of the country's federal structure and legislation resulting from the crisis of 1929 - 1933, is characterized by a strong dispersion and a strong expertise between commercial banks and investment banks.

On the other hand, the Japanese banking system was developed by the U.S. banking system image, with such a rigorous training. There are three types of normal commercial banks: banks or big city banks, regional banks (regional banks I and II) and other banks, such as Shinkin banks branches.

On the international front, we considered important to highlight the following aspects:

- large U.S. banks that have dominated the world market a long time after World War II and saw dethrone Japanese banks during the'80, have returned in force and have advanced competing Japanese banks, but not those UK, France and Germany, which occupies the first six places in the hierarchy;
- globally, there is a return to the foreground of Japanese banks, which are on the way to overcome problems that have faced lately, especially in terms of bad loans;
- Chinese banks are also present in the top;
- German banks have lost last year important places, positions held in previous years.

Regarding the banking system in Romania, we found that the expansion of banking network is supported by the fact that banks in Romania have focused quickly when they found mutations in the normal client behavior and transformed him into a sophisticated customer. Also, the involvement of foreign capital in the Romanian banking system is one of the most powerful trends that will affect the activity of commercial banks in all its forms.

Analyzing the phenomenon of globalization, banks are facing with numerous challenges, especially with increased competition and reduce the danger of market share, in the context which requires new ways of action.

In the context of globalization, we were unable to continue my research without my eyes lean on some theoretical foundations on the New Basel Agreement. Thus, the Basel II should provide the premises and assess the sizing of the minimum capital bank depending on the key elements of risk related activities. By its structure, it enables banks to adopt approaches that best suit their level of complexity and risk from simple models to the advanced ones of risk quantification in determining the adequacy of the capital. Besides pillar envisaged under the Basel I, regarding the minimum capital requirements, by the new configuration there are taken into consideration two additional masts in principle, that should support, on the one hand, a more analysis and prudential supervision, and on the other hand, promoting a more effective market discipline.

After a review of the implementation of Basel II in different countries around the world, we've reached some conclusions. Banks in the countries mentioned are subject to multiple pressures. But it is clear that Basel II is a reality and will become an important barometer for the financial system in coming years. Obtaining approval for implementing different models does not mean that the mission was accomplished. Many banks have already received approval have yet enough elements uncertified remaining to be resolved in the immediately following. Therefore, banks need to resolve all issues and implement a combination from which it also results performance and to comply with the provisions in force. "Vision of risk" developed and improved by the Basel II should be combined with the "vision of profitability", which should provide banks a long-term profitability through a" single view of risk and profitability". In Romania, it is useful to develop a strategy for implementation of the Basel II aimed at particular aspects of quality of supervision.

In the same context, we consider that the implementation of the Basel II implies greater efforts from both central bank and credit institutions, which should allocate increased resources to this end. To a certain extent, the approach is in Romania, but relieved that almost the entire banking sector is owned by powerful banks on international markets, which have already passed this test and therefore will facilitate the transition to the new subsidiaries capital requirement and in some cases, parent banks can even provide their own internal models for risk assessment.

Moving boundaries of analysis in the context of the **second chapter**, ***”Typology And Nature Of The Banking Risks”, (pag.60-77),*** I addressed the issue of the nature of complex banking risks starting from concept of the risk banking, to the analysis of genesis and particular banking risk. Thus, in my opinion, the banking risk is a phenomenon present in all sphere of activity of the banks and it represents the uncertainty of achieving a certain level of profit or even the likelihood of a loss.

However, we considered it appropriate to mention that the banking risk has two components:

- uncertainty on the production of an event in the future;
- exposure to loss.

Once we have identified several criteria for the classification of banking risks, I consider that the criterion that best highlights the different types of risk is the one that classifies them according to feature bank. In this context, risks are classified as financial risks, risks of supply and environmental risks.

On the other hand, the occurrence of banking risks are determined by the manifestation of a complex of factors which depend on: the evolution of the overall economy, changes related to the bank's structure and financial decisions, political and economic conditions and production of banking risks has as a result the reduction of revenues and profits to shareholders or, ultimately, leaving the business of the bank, either by taking them by a stronger bank, either through bankruptcy, according to banking theory, banking risk types differentiated by the intensity of action and consequences that they generate.

In the third chapter, ***”Banking Risk Administration Methods”, (pag. 78-159),*** I stressed the fact that any bank should adopt decisions related to the results and the risks it wishes to take to achieve such levels, knowledge and application of measures for key decisions on future profit relationship risk-together as a central objective of bank management.

One aspect worthy to note is that there is no clear line between management methods and tools for monitoring banking risks, in principle, by monitoring banking risks is the identification, evaluation and control policies and practices of bank risk management, which allow detection of problems faced by a bank, and bank risk management consists of all methods of banking risk management in order to eliminate, avoid, division, funding and reduce exposure to risk of each bank.

Analyzing methods for monitoring risk, we identified groups of indicators by which they may be estimated main types of banking risks. As regards methods of management of banking risks, I am referring primarily to systemic risk which can be assessed through systems of warning time (CAMEL in the U.S. and CAAMPL in Romania), systems analysis of the financial indicators the prudential standards, comprehensive model analysis for risk assessment of banks and statistical models. Credit risk management involves the use of statistical and econometric models that I proposed to analyze in this chapter, namely: statistical models, rating models, credit scoring models, probit- logit regression problems, econometric techniques and neural networks techniques.

I put in question the usefulness and internal rating systems but also their need for validation. Thus, we concluded that the establishment and validation of internal rating systems is a difficult task and requires a considerable degree of accuracy. The analysis started by comparing the more difficult situation of the availability of data and private information to measure the credit risk of bank debtors in a structured manner and which includes further validation. Advantages of structured assessment of credit risk when applying an automated process of rating, is its objectivity. This is true in the case of rating method for selecting the risk factors in the rating model, including their effectiveness in generating a proposal rating. Integration final assessment of credit quality, based on a subjective decision of the loan officer, is more difficult in structured assessment.

On the other hand, I addressed separately scoring models used for assessing loan portfolio of individual clients and rating models used to assess solvency ratio of legal clients. In this context, this chapter has highlighted the specific difficulties that are encountered when develop internal rating models for corporate exposures.

One aspect that I found interesting was the approach of developing stress tests and their importance in measuring the impact of certain shocks on loan portfolios. In this context, the stress test is a management method for estimating the impact on a portfolio of a specific event, an economic situation or a drastic change in the input parameters of the relevant risk, which are exceptional, even abnormal, but plausible and which can cause large losses. It can be seen both as an amendment and as a complement to risk assessment based on VaR. It allows combining statistical analysis and expert advice to generate relevant predictions and useful to the limits for unexpected losses.

Regarding risk management of interest rate, I used as management tools: asset management, management of liabilities and integrated management. And on the foreign exchange risk, I insisted on: the correlation of exposures, surrogate protection, strategic decisions for options reduction, forward transactions, the currency swap, futures options and currency transactions.

Among measures to reduce operational risk, I stopped at: appropriate sharing of responsibilities, an effective system of control, through carefully looking at the system procedures and security and identifying security weaknesses that could be a risk of fraud; communication and clear information of procedures to be applied in certain situations.

Fourth chapter, *" Risk Management in Banking at S.C. Bancpost S.A.", (pag.160-198),* is focused on the bank that I submitted to review, namely SC Bancpost S.A. for which I considered appropriate to emphasize some aspects of the genesis and development and the configuration of his recent activities.

A paragraph of this chapter focused on the types of banking risks for theory and practice of banking in Romania thus catching particular aspects worthy to note. To counteract any adverse track of bank risk, it is underlined the importance of prudential supervision and steps to improve procedures for risk based supervision.

The conclusions that we made in the analysis methods of risk management in banking the Romanian banking system revealed the following aspects:

- thus by the promoted policy, the central bank has created a sector composed of banks becoming more powerful, able to provide financial intermediation based on efficiency, the private banking segment becomes predominant. Increase the share of banks with majority foreign capital is beneficial consisting in the form of increased competition in the banking system, with a possible positive impact on interest rates on loans, but can occur adverse effects, whereas, by accessing external funding or grant credit in foreign policy promoted by the central bank money are those segments less effective;
- also risk exposure to the banking system may be highlighted and the evolution of the main financial indicators and caution that bank reveals the following aspects:
  - substantial improvement of the two indicators of profitability ROA and ROE, during 2004 to 2008. In 2004 and 2005 return on assets was much lower than in the previous year, profit is generated by an exogenous factor, the intervention rate of the NBR. Also increase banks' profitability has been boosted by a capitalization process that allowed

the aggressive expansion of business segments (including the sheet) and treasury products and providing solutions to modern risk management for customers;

- solvency experienced a slight decrease since 2004, but does not mitigate the problem of credit, but: reduced oscillation around 20% were due to the influence that could NBR rules determine the banks to be more careful in lending to population;
- during the period 2004 -2007, the “bad loans reported to total assets”, is maintained at normal levels, sub unitary, specific to any banking system. But in 2008, based on the financial crisis, the recorded values were over the unit;
- liquidity risk in Romania is high, well above minimum required levels (in 2007 was 2.15). Financial institutions sector non-banking (IFN) is underdeveloped, but has a considerable potential for growth. Systemic risks are low, given the small size of the sector;

- dynamic business lending and credit quality indicators - high solvency rate, manageable level of bad loans (less than 1% of loan portfolio of banks) - indicating a reduced credit risk to the banking system and a considerable resistance of the shock up to 2007. In 2008, the credit risk increases under the influence mortgage crisis in the U.S.;
- operational risk has always been in the attention of banks, being generated in particular by the gaps of information system, monitoring the loss of customers, large fluctuations of personnel, information on suspicious transactions with possible repercussions on the image bank in question;
- currency risk is relatively minor when the short-term loans are prevailing, while the medium and long term are provided with a variable interest rate. Meanwhile, interest rates charged by banks is funding risk rate in the event's production. We believe that modifying loans granted in favor of medium and long term and reduce the spread of interest will lead to another dimension of this type of risk;
- risk of contamination on the interbank placements is insignificant whereas the interbank market were oriented central bank and the adjacent risks (currency risk, risk of interest rate and credit risk) record low. However, it can be said that Romanian banking system vulnerability to financial risks has been tested by models of stress tests, tests that have stressed the stability of the banking system, an adequate liquidity and adequate capitalization;
- gradual improvement of prudential banking indicators is the result of concentration on the side of the central bank supervision quality and sustained growth since 2000. Positive trends were sustained and increased capitalization of the banking system and strengthening the position of banks with foreign capital in the banking sector, although the profitability of assets was in 2004, 2005, 2006 and 2007 much smaller than previous year, profit is generated by an exogenous factor - the interest rate of BNR intervention.

After I examined ways to quantify risk banking based on specific indicators system for the Romanian banking system, I tried to capture the peculiarities of risk management at the bank Bancpost.

In the analysis, we concluded that the bank manages liquidity risk effectively, has a limited market risk, solvency is good but still has problems relating to credit risk. Rapid growth of loans and the high level of foreign currency loans granted to borrowers without collateral, could create problems for quality assets in the future. However, these risks are reduced by the procedures of risk management, implemented in accordance with Eurobank standards. But the deep restructuring that took place in 2006 leads us to believe that the bank is on right track and that in the future it will improve its indicators of banking risk.

The last chapter, *”Interdependence of Risk Management and Maximizing Bank Performance. Case Study on S.C. Bancpost S.A.”, (pag. 199-275),* highlights issues relating to the performance of banking and how to quantify them. But analysis is not relevant if you don't give the presentation a practical aspect. To this end, we examined the impact of global financial crisis on the profitability of banks, and I stopped at evaluating banking performances in Romania.

Thus, based on the global financial crisis in 2007, revenues and profitability of large banking groups have decreased as a result of exposure to mortgage market in the United States and limiting lending activity. Despite these trends, visible in the last two quarters of 2007, indicators of solvency remain beyond the limits imposed by regulatory authorities, reflecting the ability of banks to respond to future shocks. But if we analyze the evolution of these indicators in 2008, we find that it is still marked by a substantial decrease in profitability in the first half of the year, especially for banks with high exposure to U.S. mortgage market, but banks and recognized as having a high performance risk-management. However the banking sector in emerging countries has shown good results, banks operating in those countries showing rising profits, which happened in Romania.

From another point of view, we conducted a comparative analysis of indicators of solvency and financial profitability rate in Great Britain, Italy and France and Romania, and the results obtained on the basis of trend analysis and Pearson correlations established, we found that there is a possibility that the Romanian banking system to adapt quickly to new mutations and Romanian banks to be competitive on the European banking market.

From the analysis we have conducted regarding the Bancpost recorded performances, resulted that the bank revenues have continued to grow rapidly, supported by the advance volume of loans. However, the institution is facing pressure on margins due to increased funding costs. We rally opinion to Fitch analysts who claim that Bancpost efficiency improves, but remains low, and should increase by contribution of economies in the medium term. Increased results achieved by Bancpost are coming after two years in which the bank has invested heavily in restructuring.

However, the results of BCR ERSTE compared with those obtained by Bancpost shows that the evolution of indicators of bank BCR ERSTE examined during 2003 - 2007 is clearly higher than that recorded by Bancpost. Therefore, we can say that BCR ERSTE Bank is well capitalized, the solvency indicator is above the minimum required by the central bank and has a comfortable liquidity, there is a high profitability and has a low credit risk compared to Bancpost.

Also, from interdependence analysis of risk management and performance levels at the two banks have emerged into following:

- in BCR ERSTE case, the financial rate of profitability is influenced by the variation of banking risks, solvency risk having the greatest influence, about 88% and the credit risk has a much smaller influence, only 2% while the risk of liquidity affects ROE trend in the proportion of 76% and interest rate risk in the proportion of 19%;
- in Bancpost case, financial rate of profitability is influenced by the variation of banking risks, but only the credit risk exercises great influence about 97%, the influence of other risks is reduced, by 2% in case of liquidity risk and only 4% for the solvency risk and 22% for interest rate risk.

In conclusion, based on the idea that the strategic objectives of the process of risk management are rooted in economic realities in Romania and on the international front, we believe that if SC Bancpost SA policy, risk management must focus on the following **lines of action**:

- planning resources allocated to complete the implementation of Basel II Agreement so that it respects the proposed program;
- regarding credit risk, to reduce bad loans, the Bank should improve its lending strategy through the following avenues of action:

- a rigorous selection of clients;
- strengthening and broadening the network of local materials in order of proper serving customers;
- marketing strategies related to policy to promote banking products and services;
- use of specific levels of interest rates, bank charges and commissions;
- supporting and strengthening the position and the image that SC Bancpost S.A. enjoys among its customers.

- maintaining good levels of quantification of the indicators of liquidity risk and interest rate risk;
- **further improve of the indicators of solvency by increasing the share of equity in total assets by risk ratio and the decrease in total risky assets;**
- on operational risk, reinforcing the climate of confidence in the seriousness and professionalism of bank employees, the continuation of education and training of bank staff through participation in training programs organized by the bank, increasing permanently the computerization of the bank facilities with new equipment and software products for banking;
- improving profitability indicators by increasing the share of net profit in total assets and total income;
- in the international financial crisis, when the banks - the parent of Western Europe have a reduced capacity to provide funding and financial support to their subsidiaries, the bank should use special loan programs and lines of credit obtained from foreign the major international credit institutions (IMF, IBRD, EBRD) or large commercial banks, communitarian funds.