THE NECESSITY OF OPERATIONAL RISK MANAGEMENT AND QUANTIFICATION

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Beginning with the fact that performant strategies of the financial institutions have programmes and management procedures for the banking risks, which have as main objective to minimize the probability of risk generation and the bank's potential exposure, this paper wants to present the operational risk management and quantification methods. Also it presents the modality of minimum capital requirement for the operational risk. Therefore, the first part presents the conceptual approach of the operational risks through the point of view of the financial institutions exposed to this type of risk. The second part describes the management and evaluation methods for the operational risk. The final part of this article presents the approach assumed by a financial institution with a precise purpose: the quantification of the minimum capital requirements of the operational risk.

Key words: Operational risk, operational risk profile, standard approach, gross income, administrative general expenses

Operational risk conceptual approach

In the last period of time the changes that took place on the financial market, because of the development of new activities and implementation of new products, generate new types of risks, more complex and bigger. A recent category is represented by the relative operational risk, for which the Basel Committee elaborated standards and regulations. In this way it was recognized the impact of this risk for the activity of the credit institution.

The past experiences indicated that in the case in which the financial institution has not an adequate risk management, it is exposed to jeopardis which can transform into important losses. These losses can generate even the cessation of the institution activity.

The Basel Committee considers the operational risk a distinct category, as the credit risk or the market risk. It defines the operational risks as „the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events". It also takes into consideration the legal risk, but excludes categorical the strategic and reputational risks.

According to Merrill Lynch, this definition does not explain clearly how should be interpreted the nature and the measure of the indirect losses. This determines the financial institutions to have their own definitions, but this will create unsubstantiality. Because of the fact the Basel Committee wanted to underline only the minimum standards for all the financial institutions, as well as the non-existence of a concrete definition of this risk, in practice were adopted the list of risk categories and the analyse of each one. The separation was made in order to cover all the possible operational risks and to concentrate the most significant causes of the loss severity met day by day.

The specialized literature presents the opinions of more authors regarding the operational risk area. Therefore in 2001, The PNC Financial Services Group recommended a more concise definition for the operational risk, a definition that should be based more on direct losses and which exclude categorical the business risk, the strategic risk and the reputational risk: „the operational risk is the risk of the income direct loss, which results from internal events connected to inadequate personal, important errors or ilegal behaviour because of the errors or the systems and processes inadequation, or from external events where the risks are not cover by the credit, market or interest rate risk ". Thus the operational risk can be interpreted as a vulnerability of the financial institution, that can be reduced or eliminated though an increased control.

The important increase of the operational risk is due to organisational, infrastructure, business environment or improvment changes. These changes were materialezed in: the development of the technology, the increase of the attention to the transparency, the increase of the electronic commerce, the increase of the operations for the natural person and small economic agents, deregulation, the incompatibility of the systems, the increase use of the authomatic technologies, globalization, the increase use of the external sources and the complicated technologies to reduce the credit and market risks. All these determined a healthy management of the operational risk and the inclusion in the internal process of a bank. Thus, the financial institutions considers that this risk appears in the departments called „Operations" and are concretized into potential losses generated by errors and controls, systems and processes omissions. That is why it is not necessary to have a special department for the operational risk. Also, the risk management is made by a global risk committee. But there are some institutions that consider the operational risk as the risk that not harmonise with the credit or market risks and which incorporates all the risks, except the credit risk and the market risk, in order to take into consideration all the potential influences over the profit and losses account. This thing brought some problems and thus the financial institutions decided to limit themselves to things that can be measured easily.

For a banking-financial institution we can mention a series of main operational risk factors, as: internal fraud, external fraud, employment practices, the job safety, clients, products and business practices, bank's products and operation practices, the technic infrastructure deficiency, activity disturbances and system defections. For a good management of the operational risk there are six steps that have to be followed: identification of the risk type, identification of the risk factors, the exposure to the risk rank evaluation, the risks estimation, the loss and profile estimation and source explanation, the comparison of the risk with the profitability of each risk type, being complusory to know the potential loss or the causes that generated this type of risk.

The operational risk management and evaluation

In the last period of time more and more authors were interested by the operational risks, especially because of the fact that operational risk can appear not only for banks. Until now, most of the banks considered operational risk through the past events. Therefore, because they hadn't an operational risk management they pointed out more the effects and less the causes. But recently, the Basel Committee proposed the responsabilities share between the risk management and the operational risk management. For an adequate operational risk management it has to be respected the second pillar of the Basel Agreement. This pillar follows the set up of the capital minimum level, the minimum funds used to cover the unexpected loss that can appear unexpectedly during the activity of a financial institution.

For the operational risk management are followed the next elements:

- the analyse of the operational risk profile. This point starts from the identification of all operational risk types to which the institution is exposed. This identification follows: the portfolio composition of the institution and the characteristics of each entity; the methods and the producs used for the issurance(design, processes); the competition; the market structure; the business environment; sources for clients; distribution channels; human resources management; the transaction complexity and volume; the behavior and the attitude to risk;
- the assignement of the operational risk type accepted or rejected by the institution;
- the methods of identification, evaluation, monitoring and control of the operational risk. These evidence the processes, the systems and the people involved in the activities and generate information that in the past were given by the internal control department: operational loss that took place in the past, events that could have generated losses, but were avoided, evaluation of the essential risk; the characteristics of the insurance operations; the control strictness that provides the efficient quantification of the operational risk and the identification of the diminuation solutions of this risk: autoevaluation, sensitivity tests, limit

scenarios; other souces that generate operational risk: clients dissatisfaction, employees migration, a high number of operation, incapacity of the system, high degree of manual intervention in the IT system, external loss and operational risk exposure report; changes suffered by the business environment.

as an option we can describe the manner operational risk is incorporated in the methodology of determination of the necessary capital to control this risk.

Taking into consideration the fact that this risk is a new risk on the market, today there are a few institutions that make an adequate management of this type of risk. Therefore, the affirmation that there is a optimum solution, is false, because we can follow at the most the components of the operational risk: operational risk instruments. These changes from one institution to another and include: the estimation of the necessary capital to cover the operational risk, the scenarios against the exposure, the adjustment of the statistic distribution, the connection cause-effect, the distribution into risk category; a data base to create all that we mention before. The data base has information regarding the transactions, the events, control and reference points, exceptions, variants, process maps; reports regarding management. These reports are different and can have information as broken interfaces, confirmation lack, incomplete transactions, correlations, trends, capital at risk.

Taking into account the data limited character and the lack of flexible informational system, the quantification of this type of risk is very difficult to be made and sometimes even impossible. Therefore the financial institutions are in the situation of spending a lot of money with the specialised employees, technological process or specialised institution in this area.

During the time, there were a lot of opinions regarding this type of risk, but the most important quantification methods of the operational risk and constitution of the mandatory reserves to cover the risk, are the one presented by the Basel Committee: Basic Indicator Approach, Standard Approach and Advanced Approach: Scorecard Approach, Internal Evaluation Approach and Loss Distribution Approach.

The implementation of the Basel Agreement II in Romania involves both the development of the rating agencies and the statistics data basis and econometric methods to substantiate the internal models of the bank. The preference of the Romanian banks for the models that determine the capital requirements for the operational risks was in 2007 81% for the Basic Indicator Approach and 1% for the Advanced Approach. According to a study made by the National Bank of Romania for the 2008 are the next anticipations: 68,75% of the financial institutions are going to use Basic Indicator Approach in order to evaluate the operational risk and only 3,12% are going to use advanced models. This trend is due to some factors as the capital value, which is bigger that the legal one, non-existence of the stimulus to make the institutions to reduce the capital value through advance approaches, high expences for the implementation and use of the internal evaluation approaches of the operational risk.

Any sensitive method that measures the need of capital for the operational risk follows the estimation of real loss, potential on a probability basis for each business line or at the level of the all bank, as:

- the evaluation of the risk on the basis of a correlation between the risk and an indicator, the case of Basic Indicator Approach, Standard Approach and Internal Evaluation Approach;
- the risk evaluation on the basis of loss distribution, the case of Loss Distribution Approach;
- the risk measurement on the basis of the scenarios made by the experts

The advantages of the quantification of the operational risk are:

- the banks can identify the operational loss to which they are exposed and for which they don’t have the necessary experience, for exemple: the low impact of the events, the high number of the events with high frequencies;
- it promotes a frame to model extreme events: the analise of the scenarios with low frequencies, the high impact of the events; for exemple: the business stop;
- potential high pay-off for banks: it helps to incorporate the risk reduction quantification in the process of making a decision regarding a private investment; the banks that administrate and measure this risk can reduce their costs and they are less sensitive to the systemic problems.

The quantification of the minimum capital requirements of the operational risk

In order to apply the II Pillar of the Basel Agreement, regarding the minimum requirements to cover the operational risk, the financial institution X, we can not mention the name, used from 2007 the Standard

Approach, although its group uses an internal model. The group uses an internal model because it has not hystorical data in order to make proper scenarios or to measure some relevant indexes to determine loss liquidation. It proposes 2 years until the group would use the advanced approach.

The Standard Approach supposes the organisation of the financial institution into eight standard business lines, that use as a common index, as a substitute for the bank general exposure to the operational risk, the gross income. Also the Basel Committee recommends the use of this index. But this index was criticized in a recent german study: the increased of the gross income supposes an increase of the capital needed to cover the operational risk and therefore we have a decrease of the bank income and this is oposite to the bank strategy; this method is not sensitive because there is no strong correlation between the income level and the operational risk exposure; the institutions can not influence the capital requirements through a prudential management or a reduced operational risk; we have a negative correlation between losses and the capital need; a reduced capital is needed in case of more loses; the capital need is not adjusted to the real value of the operational risk and this generates a non-efficient risk control and an incentive management. As an alternative for the gross income, the majority of the ZKA[228] Association recomends the use of the „General administrative expenses" index, because it can used by all the banks, no matter the business lines and can produce distortions in the case of the banks organised in a different way.

Though the Standard Approach presents some limits:

the results are not connected directly to loss data

the operational risk profile varies from one event to another even in the same business line.

Therefore, in the case of the Standard Approach, the capital requirements are determined as a product between the relevant index for each business line and a percentage comprised between 12 and 18. In the case we have for one of the three financial exercices a negative requirement, this will be equalised with the positive requirements from the other business lines, from the same financial exercise. In the case in which the total capital requirement is negative, in the formula used to determine the capital need for the financial institution, it will be considered zero. So, we can conclude that the capital need can be determined as:

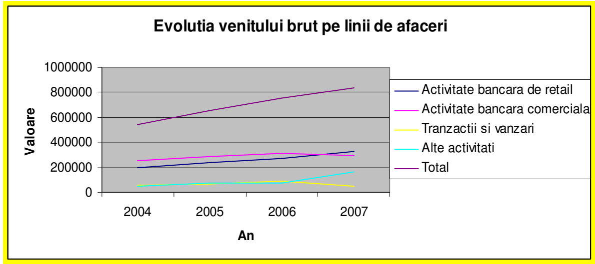
$$\mathrm{Capital}_{SA} = \frac{\sum_{t=1}^{3}(\max[\sum_{i=1}^{8}\beta_i \cdot \mathrm{Ir}_i, 0])}{3}$$

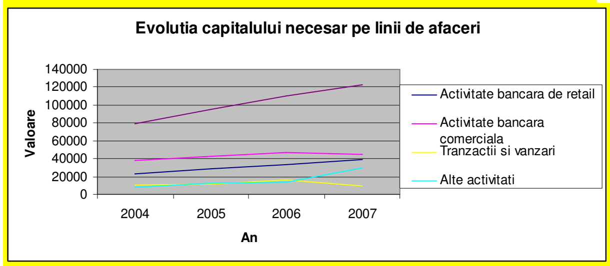
For the analysed financial institution, the relevant index is called „gross income". Also, in the group view this index represents the sum of the values from the profit and loss account. These values are results from interests, incomes from shares and other income bonds, commission results, financial operation result and other operation incomes.

For the loss analyse, the financial institution considered as main business lines: corporations financing, payments and discounts, retail brokerage(although there is not the case from our country, because the company has such activities the institution included them as a business line, but for the capital need formula it was considered zero), tranzactions and sales, retail activity, commercial activity, agent services and assets management. These operations were made taking into consideration specific norms and policies, part of the internal procedures.

For all the business lines, the financial institution used as relevant index „the gross income". According to Basel Committee, this index is a transparent index, present in all the financial reports and used to make easily calculations and national and international comparisons. Also, it is easily audited and reflects very good the operational risk sensitivity.

[228] Zentralerkreditausschuss (2001) „Comments of the Zentraler Kreditausschuss on the Basel Committee's Consultative Document of 16 January 2001 on a New Capital Adequacy Framework for Banks ("Basel II")" Berlin





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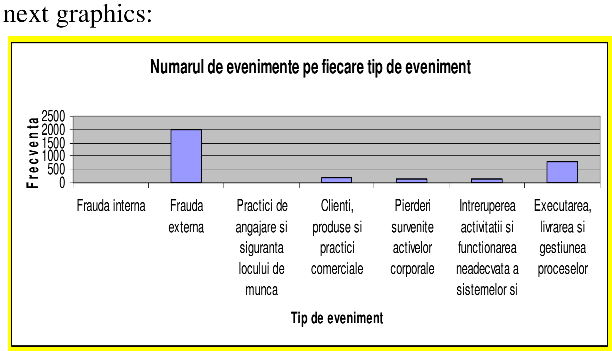
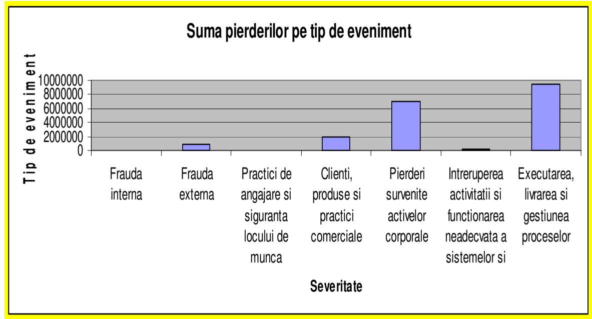
For some business lines we can observe high values. These values reflects the gross income dimension and the intensity of the institution activity for all the activity sectors. Also they offer to other departments involved, information regarding the potential loss that can appear and the necessary value to cover the operational risk loss for all the business lines. Analysing the graphic, we can conclude that the most risky business lines are the commercial and the retail banking activity and they are due to trading and processing errors that can appear during the time. The most are connected to the open account operation, as follow: the wrong introduction of the general data; incomplete documentation; the signature absence; errors in the pay office: non checked signatures, the issue of discordant documents in the case of foreign exchange; errors at the payment: un-authorized payments, the payments delay, the wrong choice of the currency in the payment process, the payment orders transmission delay, the multiple transmission of the same order, the incorrect introduction of data in the system, the loss of checks, compensation of the false debit instruments; errors in the foreign exchange process: disrespect of the foreign regulations; IT errors: the incorrect data transfer, nonfunctioning of the systems; frauds in the credit process: the acceptance of the incomplete files, the information distorsion, the use of false IDs; errors regarding complaints: the delay of the reports for other authorized departments, the delay of the complainets responses.

The losses generated by the operational risk are identified and connected in accordance with the international standards for the seven events types, as: internal fraud, external fraud, employment practices and the safety of the working place, the clients, the products and the commercial practices; the tangible assets loss, the activity rupture and the unadequate systems functionment and the process execution, the delivery and management. Therefore, on the basis of the information generated by the back office department, internal audit, IT and risk management department, the Operational Risk Department can present the loss situation for each event that can cause demages for the financial institution. The events status is presented in the next graphics:

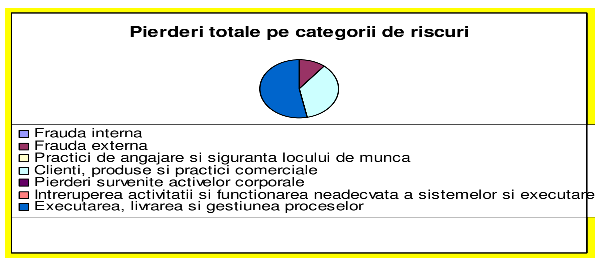


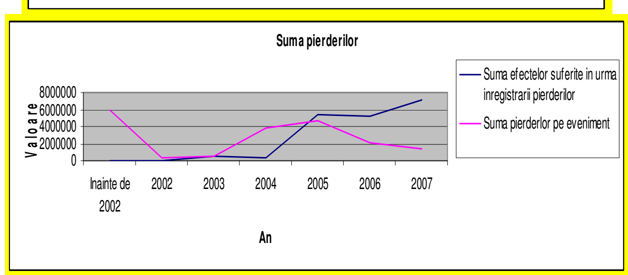


Source: personal process

As we can see the most frecquent losses are generated by the external frauds, especially the cards frauds, as: unproper protection systems, „chargeback" situations, thefts, duplicating. On the second place we have the losses generated by the bad execution, delivery and management of the processes that appeared in the transactions.

From the point of view of the events severity the first place is taken by the events generated by the execution, delivery and management of the processes caused by: incorrect communications, disfunction of the models or systems, the incorrect safe-keeping of the data base; introduction, operating, keeping and updating errors; not keeping the deadlines; processes externalisation; the documentation missing; losses; processes externalisation followed by the clients category, commercial products and practices, that includes losses because of the: unproper products, neglect, low preparation or unprofesionalism, agresive sale of the products, disrespect of the behaviour rules, confidential information un-proper use and incorrect analyse of clients need.



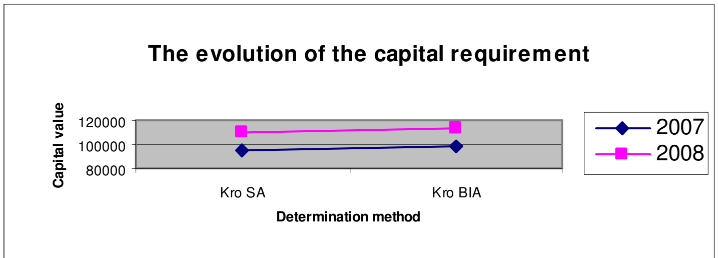


Source: personal process

As we can see from these graphics, the non-existence of the internal frauds and the employment safety can be explained by an efficient management of the financial institution.

The key indicators can identify at the right moment the appearence of a loss generator event if they are used at the proper time. The Administration Council decided to make a very strict control of all the departments exposed to the identification of the operational risk and make a report for the Operational Risk Department of the financial institution, which was responsible with the trainings for all the other departments, in order to identify and report corectly this type of risk. The implementation of this type of risk needs a very high cost in order to adopt the risk policy, to train the employees and to adopt the informational system. Also there were analysed the trends of the loss events and the effects of these losses for the institution; The Operational Risk Department monitored the risk profile and the material exposures to losses, based on key indicators. These indicators prevent the risk increase, through the identification of un-expected events signals and allow a transparent scheme of the operational risk, using some criteria: the analyse of the operational risk events, of the external data, of the internal audit reports, others experience.

In conclusion the dinamic approach of the capital need for the operational risk demonstrates the frequency increase of the events that generate this type of risk. This idea is supported both by the Basic Indicator Approach and the Standard Approach.



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