

Considerations Regarding Operational Risk Management in the Context of the Basel II Agreement

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The main purpose of the present paper is to provide an analysis of the operational risk from the perspective of the financial institutions in Romania exposed to this category of risk in the context of the Basel II Agreement. The first part of the study describes a theoretical background based on the recent specialized literature regarding the concept of the operational risk. The second part presents an analysis of the operational risk under the basic indicator approach, the standardized approach and the advanced measurement approach, suggesting the necessity of adequate capital requirements for the appropriate functioning of the bank's activity. The most relevant results of the analysis insist on the importance of identifying, measuring and modelling operational risk and the benefits of continuously improving the instruments, methodology and technics of operational risk management.

The conclusions of the work are related to the fact that operational risk management is a necessity in the context of the new challenges of the contemporary world and it requires advanced methods in order to effectively contribute to the development of the banking activity.

Key words: operational risk, risk management, Basel II, basic indicator

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approach, standardized approach.

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Introduction

In the last few years changes that took place on the financial markets proved to be a great challenge for the activity of a banking institution and for its management especially due to the development and implementation of new products. In this context, one of the most important transformations refers to the increasing role of the operational risk management and the impact that this particular type of risk has upon the activity of a credit institution.

The concept of operational risk is not a new one, by contrary is one of the oldest types of risks which banking institutions have to face in their activity. Although, there are some new aspects, of great importance, regarding the study of this risk and one of them refers to the perception of the operational risk which in the last period has grown. Another aspect is strictly related to the establishing of a legal framework for the operational risk and the studying of this risk along with the already devoted risks: credit risk and market risk. The new banking risk management includes in its area of activities the operational risk, recognizing the effects, the implications that it has on the activity of a banking institution and the need to monitor and quantify its importance on the overall development of a bank.

From the risk perspective, the banking system undergoes major changes in its approach concerning the evolution until 2008, year that can be considered as reference from the economic point of view. If until now many of the risk approaches were imposed by the control and monitoring organisms established at the central and national level, currently are evaluated those models which although involve bigger costs compared with the traditional ones, will highlight more accurately the probability and the impact of the operational risk. In order to achieve this result, it is necessary to apply these models according with

their construction principles, to harmonize them with the practices developed in this field and with the particularities of the market analyzed.

Literature review

The banking operational risk issue has been the object of several debates in the last years, the specialized literature offering multiple studies and analysis on this subject.

M. Power (Power, 2003, p. 2) has an original approach in what concerns the management of the operational banking risk and comes with the idea of invention of the operational risk. He affirms that is not merely figurative or fanciful to suggest that operational risk has been “invented”. Power examines the rapid emergence of operational risk from Basel II epistemic status to its institutionalization as a key component of global banking regulation. In his paper, the author highlights the three keys domains of operational risk policy as being: definitional issues, data collection and the limits of quantification.

In their research, D. Rowe, D. Jovic and R. Reeves (Rowe et al., 2004, pp. 15-21) study the importance of a financial institution’s capital and suggest that the capital is the key to any financial institution. The main function of capital for banking institutions is to cover unexpected risks losses, because this kind of risks inevitably accompanies a bank’s basic business. From this perspective, the authors explain why it is crucial for financial institutions to own an advanced economic capital framework and what role this has in the context of the recent steps to implement the Basel II Capital Accord.

F. Flores, E. Bonson-Ponte and E. Escobar-Rodriguez (Flores et al., 2006, pp. 383-401) studies the capability of response of the banking sector’s information systems, in what concerns the measurement, monitoring and control of the operational risk accordingly with the new requirements of the Basel II Accord. The authors analyzed the

case of a Spanish medium size saving bank and examined the practices, structures and the ways it should be modified in order to maintain the position among the competitors.

In A.A. Jobst's opinion (2007, pp. 423-449) the operational risk it is more likely to occur in a more negative manner than many other types of risk due to the development of the banking sector. A brief description of the current regulatory framework of operational risk under the New Basel Accord is presented with a challenging discussion regarding the influence of data collection, loss reporting, and model specification on the capital rules and their sensitivity to risk.

The reviewed literature, emphasize and demonstrates the increasing role of the operational risk and its importance for the management of a banking institution especially because they have become aware of the implications and effects that this particular risk has on their daily activity.

Operational risk approaches

The Basel Committee on Banking Supervision is the main regulatory body for banks. According to the Basel II Capital Accord, operational risk is defined as "the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems, and from external events" (Basel Committee on Banking Supervision, 2001). This definition proposed by the Basel Committee includes legal risks but it excludes strategic and reputation risk. Legal risk includes, but is not limited to, exposure to fines, penalties, or punitive damages resulting from supervisory actions, as well as private settlements and for this type of risk banks must allocate extra capital.

The banking institutions are giving a great importance to the establishment of a well defined profile of operational risk for the internal necessities and to promote specific policies for its administration. Banking operational risks are part of the contemporary banking sys-

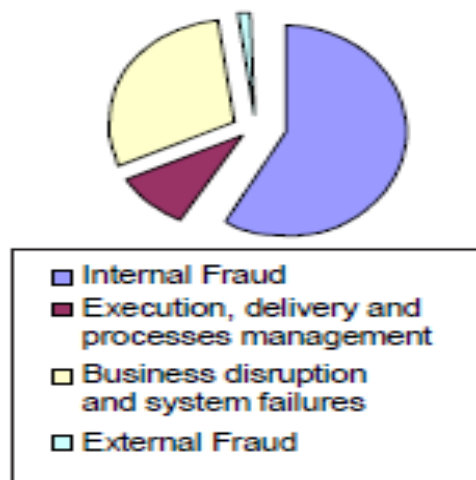
tem and this is way it is of high importance to adopt the correct approach in order to create the prerequisites to an effective management and to avoid bankruptcy.

The operational risks specific for a banking institution can be generated by various types of events as it follows:

- internal fraud (eg, bad faith when reporting positions, theft, closing contracts by employees in their own name);
- external fraud (such as burglary, forgery, breaking codes related to the systems information);
- the process of employment and the security of the working environment (eg. the compensation claims of the staff, complying with the rules of labor protection, promoting discriminatory practices);
- faulty practices related to customers, products and activities (eg. the misuse of confidential information held about customers, money laundering, the unauthorized sale of products, the inadequate use of the products and services related with the „electronic banking” by the customers);
- endanger the physical assets (eg. terrorism or vandalism, fires, earthquakes);
- the interruption of business activity and the malfunction of the systems (eg. the failure of the hardware and software components, telecommunications issues, the development, the implementation and the improper maintenance of the "electronic banking" system);
- the treatment applied at the level of the relationships with the customers and trading counterparties as well as the improper handling of the data related to them (eg. incorrect registration of data entry, the faulty administration of the guarantees, incomplete legal documentation, unauthorized access to the customers accounts, litigations);

- securitization of the „electronic banking” system (eg. commitments of the credit institution resulted from forgery of the electronic money or registering some losses or additional commitments for the customers in the case of faulty access the system).

Figure 1. Probability of occurring an event causing loss



Source: Angelache G., Olteanu, Ana Cornelia, “The operational risk-minimum capital requirements”.

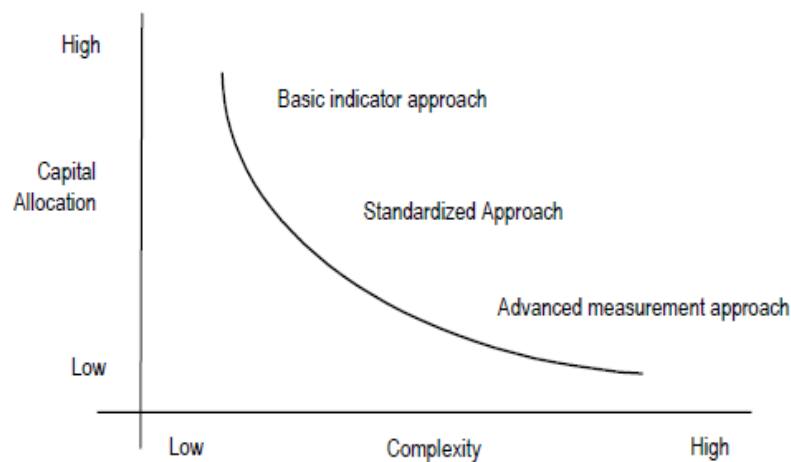
Human error is the most frequent event that generates losses as we can see from figure 1. This is a risk in connection with the negligence or intentional actions of the human resources which tend to carry out unauthorized activities.

According to the Basel II Agreement the banking institutions must accomplish specific capital requirements regarding the total credit, market and operational risk. The capital ratio is calculated using the defini-

tion of regulatory capital and risk-weighted assets and must be no lower than 8% (art.40, Basel II Agreement).

The Basel Committee has recommended three alternative approaches to quantification of an operational risk, representing in fact methods for calculating operational risk capital charges in the context of increasing the risk sensitivity and sophistication. These three alternatives, ranging from the simple to the very sophisticated, are intended to offer institutions of all sizes and complexities a choice of what is right for each. The proposed approaches are: the Basic Indicator Approach, the Standardized Approach and Advanced Measurement Approaches (AMA).

Figure 2. The link between capital allocation and the complexity of approaches



Source: Andrei Tinca, "The operational risk in the outlook of the Basel II Accord implementation", 2007

We can observe clearly that the capital allocation required by each approach is indirect related with the complexity of the method. In other

terms, the capital allocation decreases as the models use to quantify operational risk become more sophisticated.

Basic Indicator Approach

The Basic Indicator Approach is one of the simplest methods. There are no qualifying criteria associated with this approach, and it involves little change to current practices. In general, only small banks which have a relatively simple portfolio of activities are expected to use this basic approach. Basel II permits that in this case banks use a single indicator of risk in order to calculate their own funds requirements. Banks using this approach should hold own funds for operational risk, corresponding to a percentage of the average annual income of the banking institution in the last years. This proportion, alpha, was set by the Basel Committee at the level of 15%. Credit institutions must own capital for operational risk which equals the average annual gross income in the last three years, multiplied by a percentage alpha, determined by the Basel Committee at 15%

$$K_{BIA} = [(\sum GI_{1,2,3} \times \alpha)] / n,$$

where K_{BIA} represents the capital required by a banking institution for the operational risk under the basic indicator approach and $GI_{1,2,3}$ is the gross income of the last three years.

This approach has the advantage that it can be implemented easily and is applicable to all credit institutions but in the same time it has the disadvantage that it does not correspond to the characteristics and the specific requirements of the banks. Another disadvantage is related with the measures of the operational risk control. From this point of view this method is quite restrictive, because operational risk is calculated as a lump sum and the operational risk management is missing almost entirely, the capital requirement being determined by gross income levels and no existing operational risks.

Standardized Approach

The Standard Approach involves grouping activities into eight business lines. A banking institution that uses this approach must calculate a capital requirement using a risk indicator (such as annual average assets or gross income) for each one of its business lines and not for the whole institution. The savings in reserve charges, compared with the Basic Indicator Approach's proportion (15%), could be important and therefore the incentive for banks to move from the Basic to the Standard approach is clear.

Tabel 1. Business lines of a banking institution

Business Units	Business Lines	Indicator
Investment Banking	Corporate Finance	Gross Income
	Trading and Sales	Gross Income
Banking	Retail Banking	Annual Average Assets
	Commercial Banking	Annual Average Assets
	Payment and Settlement	Annual Settlement Throughput
Others	Retail Brokerage	Gross Income
	Asset Management	Total Funds Under Management

Source: Gabriela Angelache, Ana Cornelia-Olteanu, "The operational risk-minimum capital requirements"

Within each business line, gross income is a broad indicator that serves as a proxy for the scale of business operations and thus the likely scale of operational risk exposure within each of these business

lines. The capital charge for each business line is calculated by multiplying gross income by a factor (denoted beta) assigned to that business line. Beta coefficients are from 12% and 18% (trading and sales – 18%, retail banking – 12%, commercial banking – 15%, payment and settlement – 18%, agency services – 15%, asset management – 12%, retail brokerage – 12%). Minimum bank capital required for this approach can be expressed:

$$K_{SA}^{1-3 \text{ year}} = (\Sigma \max [\Sigma (GI_{1-8} \times \beta_{1-8}), 0]) / 3,$$

where K_{SA} is the capital required by a banking institution for the operational risk under the standardized approach, GI_{1-8} represents the annual gross income in a given year, for each of the eight business lines, β_{1-8} the percentage set by Basel II for the eight types of business lines.

According to the opinion of some experts from the National Bank of Romania, this approach is typical for financial institutions with local or regional market, because the benefits of this models should minimize the costs required, but due to the missing database technology they are not very developed. The lack of incentives for capital creates the conditions for arbitrage and profitability of small opportunities, such as financial institutions with a high risk profile. This means that banks involve themselves in activities whose β is high and because of that they choose to use the basic indicator approach instead of those who have a low risk profile and choose to use the standardized approach.

If we compare it with the previous method, we can observe that standardized approach reflects better the differences in the risk profile of a banking institution and represents an intermediate step towards the implementing the most advanced shape of quantifying the operation banking risk - advanced measurement.

Although, standardized approach presents certain limitations: results are not directly related to data loss and the operational risk profile va-

ries from one event to another, even in the same line of business. Capital requirement using this method is more sensitive to risk than the previous approach, because of the division lines of business activity. Therefore the adequacy of risk is limited due to non-use of data on losses. Thus one can not achieve effective control of operational risks, depending on their causes.

Advanced Measurement Approach

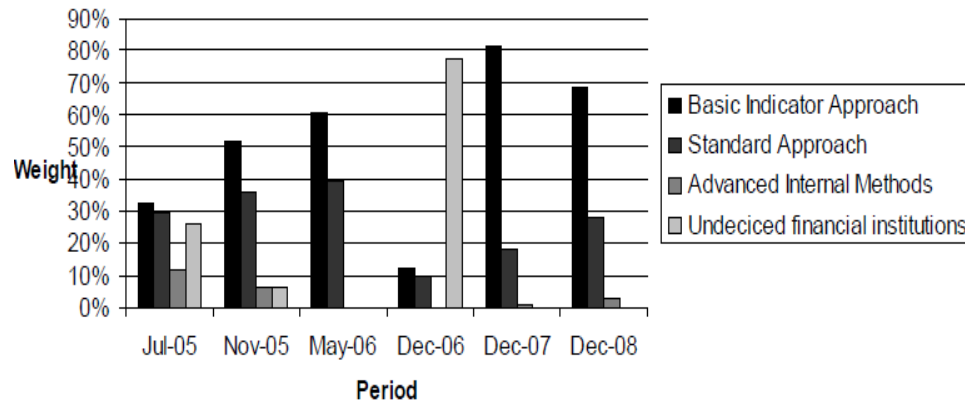
This approach offers the most flexibility and self-discipline. This involves the collection of historical data on losses, the analysis of this data, and the use of models to derive a probability of loss. It is extremely important to outline that the collection of the data is a much more difficult part than the implementation of the models, because of the uncertainty regarding the available data for every type of risk. Banking institutions need supervisory approval in order to use AMA and in the same time they need to classify transaction incidents according to their impact on business. In general, banks must first integrate an internal risk measurement methodology directly in their day-to-day operational procedures and decision-making processes but this can be very expensive to implement, and usually involves change in a lot of processes. With the AMA, the banks can use their internal loss data to demonstrate to regulators that they should qualify for reduced capital reserves. This is important because banks can innovate and implement sets of internal controls rather than single internal controls. These sets of controls can work together and reduce the operational risks, and therefore the banks should be evaluated on the historical losses rather than the choice of controls they chose to implement.

The procedures that a banking institution should use under the Internal Measurement Approach, in order to determine the capital charge for the operational risk consists in:

- A bank's activities are categorized into a number of business lines, and a broad set of operational loss types is defined and applied across business lines;
- Within each business line/loss type combination, the supervisor specifies an exposure indicator (EI) which is a proxy for the size (or amount of risk) of each business line's operational risk exposure;
- In addition to the exposure indicator, for each business line/loss type combination, banks measure, based on their internal loss data, a parameter representing the probability of loss event (PE) as well as a parameter representing the loss given that event (LGE). The product of $EI \times PE \times LGE$ is used to calculate the Expected Loss (EL) for each business line/loss type combination;
- The supervisor supplies a factor (the "gamma term") for each business line/loss type combination, which translates the expected loss (EL) into a capital charge. The overall capital charge for a particular bank is the simple sum of all the resulting products;
- To facilitate the process of supervisor validation, banks supply their supervisors with the individual components of the expected loss calculation (i.e. EI, PE, LGE) instead of just the product EL. Based on this information, supervisors calculate EL and then adjust for unexpected loss through the gamma term to achieve the desired soundness standard.

Regarding the case of Romanian banks and their preference for models to be used to calculate *their* capital requirements for operational risk is presented in the following figure.

Figure 3. The banking institutions preferences for the models used to determine the capital requirements



Source: Florin Georgescu, „Stadiul pregătirii pentru aplicarea reglementarilor Basel II in sistemul bancar romanesc”, 2007

Conclusions

In the last years, banking institutions were interested in the expansion of the retail and corporate segments, regarding the operational and credit area and in their rush for profits and market share failed or were less interested in an efficient risk management. Nowadays, the strategy of a credit institutions has changed from a process in which the conditions for credits were permissive to a process in which the credits are granted with greater caution. In this context, the banking institutions have reoriented their points of interest and market share in the operational area through attractive packages for current account and benefits for transactions. Although the income from operations is less risky than from credit transactions, the operational risk management must use advanced methods in order to monitor these operations. In other words, the process of attracting resources requires a careful management from the operational perspective. Two decades ago attempted

bank fraud was at a lower level than it is today and that means that now banking institutions have to protect themselves from internal fraud attempts and attacks on their current accounts and ATMs. This risk increased along with the continuous development of informatic software worldwide, and banks should be able to implement and use reliable technologies and advanced methods of management and monitoring the risk.

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