THE OPERATIONAL RISK MANAGEMENT IN BANKING

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Abstract

Any financial entity has as central objective the obtaining of a profit as high as possible and the determination of the ways of maximizing the banking performances aiming at the knowledge, management, control and insurance of the financial-banking risks. The key factor in making decisions about any banking operation is banking risk. We are currently talking about the era of risk management as an important obligation of banking management. Management is the process of coordinating human, informational, physical and financial resources, in order to achieve the proposed goal.

Risk management is a managerial process that encompasses all the techniques and methods used to assess and analyze the risk, which is materialized by measuring, controlling, reporting and choosing those decisions that lead, as far as possible, to reduce all risks, so as to provide the bank with a the best possible vision of the image of the future, according to which banking policies and strategies will be developed. Informer-PayNet Group Romania offers banks a complete risk management solution for implementing Basel II regulations.

The ultimate goal of any risk management process is to identify and minimize risks as much as possible, which also involves costs that must be closely linked to the benefit, reflecting improved financial performance and insurance against future losses.

Risk factors, assessment, control and mitigation are the main steps in risk analysis and depend on the time period taken into account, the related cost benefits, the credibility of data and information, the possible externalities and the interdependencies between events. In order to improve the management of the institution, indicators should be used to measure the results for each product, service, customer and the entire activity it carries out, which is difficult to implement due to psychological obstacles that may arise by introducing a new control system.

Keywords: risk, management, financial institutions, performance, strategies, losses, factors.

JEL Classification: G20, G40

Introduction

Years ago, the financial institutions did not have the function of risk management as an active component of daily activities, the development occurring following the bankruptcy of Barings Bank (1995), which highlighted the vitality of internal controls and the audit process. Another resounding example came when the Bank for Credit and International Trade became insolvent due to fraud (1991), and there were rumors such as the falsification of financial documents since its inception. The first bankrupt bank in Romania was Credit Bank, which suffered losses due to fraud that led to a decrease in public confidence in the Romanian banking system. Also in Romania, Columna bank went bankrupt due to money laundering operations. Bankcoop also suffered losses of 47 million German marks. Between 1978 and 1983, Spain also went through a crisis due to poor management, fraud, lack of regulations and supervision.

The National Bank of Romania has required banks to improve the risk management systems they face, having the obligation to assess the operations of vulnerable activities and exposure to this risk.

Banking management must assess the institution's exposure to risk and develop methods and techniques for managing and controlling various risk situations. Banking management aims to ensure maximizing profitability, minimizing risk exposure while complying with applicable banking regulations. Reducing risk exposure has positive effects on the behavior of employees who become more rigorous and conscientious in performing their duties, on the psychological effect of discouraging fraudulent activities, on the public image of the bank, customers and shareholders wanting a safe barrier. The situation of an institution can be greatly improved by effective risk management to ensure the prevention of crises or failures that may occur inside it outside the organization, as well as by increasing the performance of operations carried out by understanding the risk to which the organization is subject, by evaluating strategy, business risk, best practice and reputation protection.

The preparation of adequate programs for the prevention and control of banking risks also contributes to the imposition of the institution within the banking community, not infrequently the existence of such programs conditional on the admission or participation of the bank in interbank associations or obtaining higher qualifications from banking authorities.

In order to prevent and limit losses due to banking risks, it is recommended that financial institutions ensure the technological improvement of the IT system to combat security threats, remove panic that would lead to excessive spending with exaggerated and unjustified safeguards, the existence

of internal rules control and security systems, security systems and provisions to ensure good coverage but not a complete elimination of the risks to which the institution concerned is exposed.

The evolution of information systems has also led to an increase in fraud, so in our opinion credit institutions need to pay more attention to the implementation of reliable technologies and advanced methods of managing and monitoring this type of risk. For a good organization of the financial institution it is necessary the existence of a protection and a prevention of frauds, which can be achieved through a feedback to maintain the program.

In order to ensure the protection, bank security and improvement of the reputation, it is necessary to formulate internal regulations aimed at: training the personnel that ensure the prompt detection of suspicious financial operations; systematic identification of customers in order to obtain real information by verifying documentation and establishing reasonable measures; counteracting crimes of manipulation, espionage, sabotage, unauthorized use that may occur in the activity of the financial institution; identifying the causes of risks that may endanger the activity, the assets of the financial institution and limiting, even eliminating damages; drawing up recommendations, circulars and internal rules that facilitate the knowledge and avoidance of suspicious banking operations; centralizing and analyzing information by risk categories to anticipate and prevent events that would cause the institution losses; improving the information exchange system, for the timely detection of operations and suspicious persons.

Literature review

Awdeh et al. (2011) addressed a number of issues regarding the impact of capital requirements on banking risk. Anghel (2015), as well as Anghelache, Anghelache, Anghel and Niţă (2016) analyzed the main banking risks and their management methods. Anghelache, Anghel et al. (2017) and Savic (2008) studied elements of fundamentals related to operational risk. Anghelache and Bodo (2018), as well as Cipovova and Dlaskova (2016) focused on credit risk management methods. A similar topic was addressed by Hakens and Schnabel (2010). Cope (2012) had concerns in the field of operational risk quantification. Iacob (2019) used statistical-econometric tools in economic analyzes. Miller (2014) analyzed the role of risk management.

Methodology, data, results and discussions

The capital is a key factor in the valuation and operation of a financial institution, its activity being directly or indirectly influenced by the availability and / or cost of capital that affects the competitive position of the bank, but cannot be considered a substitute for proper management. Adequate capital

is a safeguard against the risks to which the organization may be exposed, absorbing possible losses and thus increasing the confidence of depositors, being considered the most important determinant of lending capacity.

The main purpose of capital is to ensure the stability and absorption of losses. The capital that the bank is obliged to set up to cover losses that may occur in the activity, also known as venture capital, must be calculated according to future potential losses and must not exceed the threshold set by the management of the institution.

After 1990, many economies developed with traditional banking systems experienced significant banking bankruptcies or banking crises, which led to the creation of regulations of legislation designed to reduce their probability and actual cost. To encourage prudent risk management, in the 1980s, the Basel Committee created a risk-based capital adequacy standard that aims to: increase the international banking system and the competitive equality of banks. The level of capital of financial institutions is considered a buffer in times of economic instability, and its correlation with banking risks should help stabilize the system.

The studies conducted on a sample of 117 financial institutions from 17 countries reported as difficulties encountered the manifestations of problems related to credit risk and operational risk, the significant factors in their occurrence being errors and weaknesses of management and control bodies. Dziobek and Pazarbasioglu conducted a study of 24 banking systems for developing markets which found that the bank's management and control deficiencies were responsible for the crises, and Caprio and Klingebiel decided that a combination of macroeconomic factors and microeconomic factors are the cause of negative results.

The mediated losses incurred by financial institutions in the last period of time, in our opinion, were mainly due to the non-existence of the operational risk management system which resulted in very large losses of money, decreases in the value of shares by damaging the reputation.

The aim of operational risk management is to prevent or reduce: errors or inappropriate deliveries with a visible impact on the institution's customers; financial losses; violation of agreements; destroying the institution's reputation.

Leippold considers that in order to obtain a profitable operational risk management, a definition of operational risk in the form of the risk faced by a financial institution in the production of goods and services for its customers is necessary, so it bears a transformation risk, being considered a factor. risk that arises at the level of the institution's activity.

Several theories on operational risk management have been presented in the literature. Modern risk management theories argue that institutions can

record gains through risk management due to factors such as: the convex shape of taxes, the costs of financial losses, the information asymmetry between managers and investors, agent costs. Opponents of the capital requirement for operational risk according to Basel believe that this type of risk is not systematic and can be easily diversified by investors. Unlike other types of risks, this risk is asymmetric and is almost always related to losses and not gains.

The institutions may manage operational risk to the extent that marginal expenditure is equal to the marginal reduction in losses arising from operating losses. Froot, Scharfstein and Stein argued that the information asymmetry between institutions and investors leads to more expensive external capital than domestic capital, as banks have more information about the quality of the loan portfolio than investors, and insurers have more information about exposure distribution and adequacy. reserve for losses than investors. Some theories believe that operational risk events may signal poor quality of primary market management and control to reduce future estimates of cash flows.

Seeing the losses suffered in recent years, financial institutions have revised their operational risk management, and among the main objectives we can list: improving capital profitability, operational efficiency, control, investment evaluation, quality of services provided to customers; better allocation of capital; avoiding large unanticipated losses and frequent but insignificant losses in terms of value; increasing the attention paid to operational risk in banking management; efficient management of information and human resources within the bank.

We find that operational risk is idiosyncratic and situational. The risk management system that works very well in one institution, industry or sector is not required to work as well in others.

We specify that operational risk management includes: operational integrity regarding adequacy, operational controls and operational transfer that requires the organization's ability to conduct business processes (management capacity, supplier management, services, human resources, project risk, crisis).

One problem that operational risk management has faced is the validity of data, especially unexpected and very large data, because they have not appeared frequently or have not been analyzed and collected. The size of the operational risk was realized only at the level of the financial institution without taking into account the experience of the other market participants, based on a vision and an insufficient statistical sample. Operational risk management has not been given enough attention, as it does not add value to an institution, but it has been shown that its lack can be very costly.

We recommend that financial institutions have restrictive operational risk management processes, assessment data and systems, quantification

systems to measure this risk and determine adequate capital, a process for identifying, measuring, monitoring and managing products, activities, processes and systems. This operational risk management must be independent of the management of the business line, being responsible for the design, implementation and monitoring of data and evaluation systems, and quantification of processes.

The operational risk management is an investment through the optimal allocation of economic capital using Risk Adjusted Return On Capital (RAROC), a correct assessment of the cost of risk and a better knowledge of customers and their behavior, organization and processes, thus supporting general management and the functional one.

Efficient operational risk management ensures that the value of shares increases, which has a long-term effect because it turns savings into risk management expenses and also improves the prioritization and direction of resources, pricing, quality and stability of income, the probability of survival of the credit institution. Given that the probability of losses decreases, of exposure to rare losses, but with high impact, there is implicitly a decrease in the capital requirement, the regulated capital being sensitive to the risk profile of the organization. Adequate operational risk management can provide senior management as well as members of the information audit committee on the methodology used in risk assessment, problem identification and resolution and follow-up mechanisms. Risk mitigation plans are being developed to assess the benefits of mitigation costs. Monitoring achieves a continuous process of improvement, creating performance and risk indicators.

As benefits of operational risk management we can list: reducing the insurance premium, financing and operating costs, identifying accounting and extra-accounting losses, risks and their taxonomy, increasing the efficiency of the institution's processes, ensuring the consolidation of corporate culture and competitive position.

Operational risk data has become very important for business line management and business levels for many financial firms, as most managers are adept at collecting, analyzing and presenting relevant risk information by balancing with a risk mitigation measure.

The operational risk structure includes: risk management strategy, risk policy, risk management process, management operations and culture.

Risk management involves determining all the strategies of the institutions' objectives and the secondary goals related to each line of business, products and identifying the risks associated with the strategy and objectives, taking into account risk and opportunities. The institution is able to select its

appetite for risk or tolerance, being able to determine the risk it understands and assumes.

The risk strategy involves a discussion with the organization as a whole about the operational risk management approach, which includes defining risk, organizational approach, roles and responsibilities, key management keys, and a high-level discussion of information and technology.

Risk management involves defining the procedure and includes control, assessment, measurement, reporting and risk mitigation.

Managerial culture includes aspects such as: communication, performance measures that help set expectations for healthy decisions to be made.

We specify that the governance ensures the definition of the institution's objectives and supervises the processes for achieving them, the definition of the culture following the implementation and execution of the operational risk management strategy, establishes the priorities for strategy, structure and execution. The structure should be built in accordance with risk scenarios, such as hierarchical structures that capitalize on current risk processes, the development of risk measurement models to assess regulated and economic capital, the allocation of economic capital according to real risk. Implementation is ensured by appropriate procedures that must be designed and implemented.

Effective management of operational risk cannot be achieved on the basis of the above indicators, but there must be quantitative and qualitative warnings.

Operational risk management influences: teamwork between business lines and operational risk management for the development of new products and services; positive and negative stimulation to impose appropriate behavior; corporate policies for restricting or performing certain activities; economic capital adjustments based on performance and operational risk mitigation strategies and risk plan solutions based on operational risk management indicators.

The operational risk management framework

Table 1

<table>
<tr><th>Culture</th><th>Qualitative management</th><th>Quantitative management</th></tr>
<tr><td>Awareness of the importance of operational risk</td><td>Defining the organizational and political structure</td><td>Data capture and maintenance</td></tr>
<tr><td rowspan="4">Reasons for administration: regulatory pressures, understanding the impact of operational risk; the need to manage information on the causes and consequences of operational risk; the allocation of capital according to the risks assumed; the need for new information to Improve operational risk reduction decisions; remuneration taking into account the profitability and the operational risk assumed.</td><td>Risk identification, risk map and results</td><td>Development of quantification models</td></tr>
<tr><td>Development of indicators and self-assessments</td><td>Determination of capital using advanced models</td></tr>
<tr><td rowspan="2">It involves three aspects: risk identification, organizational model and management tools. Development of processes that serve to identify existing and control risks, as well as to assess in terms of the severity and frequency of loss events. Creation of an independent entity responsible for operational risk management</td><td>Integration of quantitative and qualitative management</td></tr>
<tr><td>The relationships between the collected data, indicators, hazard study, controls and capital measurement are designed and established, which involves large investments of time, money and human resources.</td></tr>
</table>

Note: Synthesized and organized by the authors

This ensures proper communication within the organization and the overall vision of operational risk, developing procedures for effective operational risk management in all products, processes and systems, assigning authorities, responsibilities and reporting relationships. The manager's attitude in implementing the operational risk management system involves: developing the mission, the vision of organizational value; leading and communicating the system throughout the organization; assuming the success of the system; establishing appropriate levels of recognition, reward, approval and sanctions for risk-related actions; defining policy and objectives; reviewing organizational performance; allocating adequate resources and supporting system activities. In most banks a manager of operational risk management is responsible for the function of this management with a formal status within the organization, ie it deals with the collection of data on losses and incidents and prepares reports for the general manager, and in some banks is responsible for risk indicators.

Ensuring operational risk management has gone through many stages of evolution, initially considering that it has always existed, being managed through internal control, the responsibility belonging to managers, there is no formal management framework. The awareness stage followed, through

which senior management helps to a much better understanding of this risk within the organization, the evaluation starting with the formulation of the operational risk policy, the definition and development of common tools, such as determining the risk capital to be allocated to this type. risk adjustment, adjustment of statistical distributions, creation of scenarios against exposure, realization of the cause-effect relationship, division into risk classes according to qualitative criteria. The monitoring stage attaches particular importance to business implications, and an operational risk program can be introduced. Then a new stage is the quantification, which involves the existence of analytical tools based on current data aimed at determining the financial impact of operational risk on the organization. Finally, the integration stage involved making comparisons of the business with the value of the association, qualitatively versus quantitatively, and the different levels of management needs.

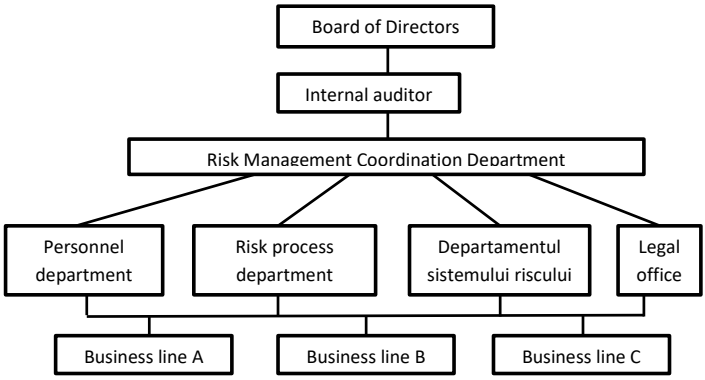
Operational risk management techniques include: internal data collection and monitoring of solutions, external databases on operational risk, operational risk measurement and operations management solutions.

The initial technology is based on the collection of internal control data, built by auditors for auditors and is used to a limited extent in the overall operational risk management process.

The business reporting model of operational risk management is provided by: the department responsible for coordinating, implementing and monitoring operational risk management and reporting results to managers; the department responsible for quality risk management at the level of the entire institution and internal and external auditors to ensure the proper functioning of operational risk management.

Business reporting model for operational risk management

Figure 1

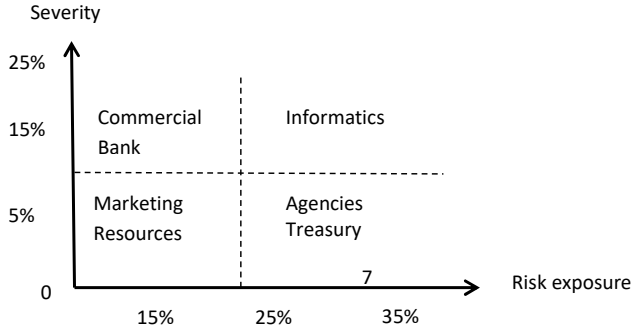


Starting from the difficulty of measuring operational risk in order to achieve a complete picture of risk, it is necessary to use quantitative and qualitative approaches, and as a third component we can mention ORMIS (operational risk management information system) which uses qualitative and quantitative information on different types of variables and risk indicators related to people, technology, loss incidents or even losses themselves.

Qualitative risk management starts from building a robust database, analyzing the causes of unwanted events and evaluating past and potential losses, which are grouped by business lines and types of risk, then prioritizing operational risk management. Unexpected operational risk losses require protection using effective measures to improve the business process and robust crisis management, based on priority objectives, the adequacy of economic capital and the transfer of risk through insurance. Banks can prioritize risk control objectively by using methods to reduce the frequency of occurrence of the event based on the analysis of the causes of events or reduce the impact of the loss once the loss has occurred. In the following we will present an example regarding the qualitative methodologies of frequency and severity.

Risk scheme

Figure 2



In the case of qualitative operational risk management, it has a number of advantages, among which we can list: the implementation of the risk scheme in the absence of statistical data, the provision of important information by the working group, the identification of market weaknesses, but also the disadvantage of allocation subjective frequency and severity.

Quantitative risk management supplements the qualitative one, being a transparent and objective process ensured by statistical measurement and analysis of scenarios. This starts from creating a robust database and measuring risk at the level of each line of business and risk category, later developing and using sophisticated models taking into account the existing correlations

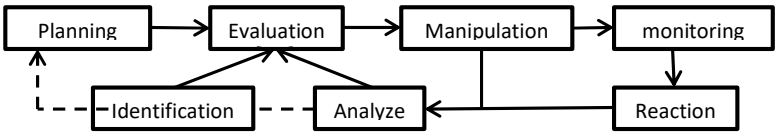
between events. Statistical measures determine the maximum loss that can result from operational risk using simulation methods or analytical solutions.

In the analysis of scenarios, banks analyze both past and potential events, related to operational risk, estimating the frequencies and severity of events, analyzing the causes and factors that led to losses and increasing the value of loss, preferring this management in case of events characterized by frequency low and high severity.

Internal and external auditors should verify the consistency of quantitative and qualitative risk management and whether the previous one is supplemented by the future one.

Risk management

Figure 3



The operational risk analysis is performed by studying the consequences borne by the organization materialized in direct financial losses from non-fulfillment of an obligation, direct financial losses attributed to lack of income and statutory or regulatory penalties.

Modern management aims to manage risks, measure operational risk and aggregate results. Traditional management aims to prevent losses, risk sizing is achieved by multiplying the impact with the probability for each type of risk, being considered a consumer of resources.

In order to move to a modern operational risk management, financial institutions must redefine their concept of risk as a quantitative representation of uncertainty, analyzing the frequency and severity of losses, adopt a risk architecture, a more robust taxonomy, considering that the most The sea is given by the rarest events, but with significant impact.

The issue of operational risk management is an economic necessity of reducing loss errors and supporting compliance with regulatory requirements. This risk depends on the individual structure, operations, strategies, management decisions, markets and employees.

The implementation of operational risk management measures presupposes the existence of policies, risk identification and assessment measures, procedures, business resumption plans, legal risk and reputational risk assessment.

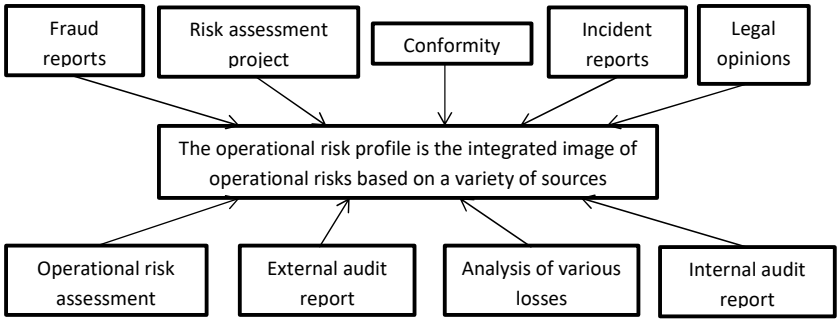
Operational risk management takes into account the following categories of events generating this risk: internal fraud; external fraud; conditions related to staffing and job security; impairment of tangible assets; improper techniques related to services, products or customers; improper use of systems and even cessation of activity; incorrect data processing and the use of inappropriate behavior related to customers and other business partners; electronic banking system security.

The identification and assessment of operational risk concerns the assessment of operations and activities for the sizing of vulnerabilities to operational risk, the establishment of indicators for determining the position of the institution affected by operational risk, the permanent assessment of exposures to operational risk.

We recommend that the procedures for managing operational risk include assessing, monitoring, reducing risk internally by collecting detected errors, using appropriate processing techniques and ensuring information security and by transferring risk to other areas of activity. Re-establishment plans must be established in the event of unexpected events. The identification of the legal and the reputational risk is made taking into account the legislative framework following the training of the clientele regarding the novelties related to services, products, commissions, the vulnerabilities that can intervene and their resolution. In general, the operational risk management system and the rest of the risk management systems are intertwined, but the systems used in operational risk management must be identified to analyze the risk profile, determine the type of risk accepted or not accepted by the institution, ways to identify, evaluate, its monitoring and control, describing also the way of incorporating the operational risk in the methodology for determining the level of capital necessary to combat this risk. It is necessary to identify as many types of operational risks as the institution is exposed to and thus to be able to start from the attributes and characteristics of customers, products offered and related activities, customer sources, distribution channels, complexity and volume of transactions, awareness, human resource management practice, risk behavior and attitude, competition, business environment, including political, legal, socio-demographic, technological and economic factors.

Structural profile of operational risk

Figure 4



Using the methods of identification, assessment, monitoring and control of operational risk, the processes, systems, personnel involved in these activities are highlighted, which will include information related to what was recently provided by the internal audit department, namely : operational losses that have occurred in the past; events that could have caused losses but were avoided; essential risk assessment; the characteristics of insurance operations; the rigor of the control that ensures the efficient quantification of the identification risk of the mitigation solutions; other sources of operational risks; external reporting of losses and exposures; changes in the business environment.

The following methodologies are used in the management of operational risk: self-assessment of risks and associated controls, collection of information on losses and risk indicators.

Risk assessment and associated controls is a structured approach, providing prevention that ensures the identification and assessment of risks and also the implementation of actions to prevent risks considered unacceptable. This is an internal coordinated process, which includes checklists and / or workshops to identify the strengths and weaknesses of the operational risk environment, providing a detailed subjective view of risks and control, continuously assessing which areas of the institution may be more exposed to operational risk. The strategy presented is not effective in the case of long questionnaires, in which the questions must be specific and related to the activity carried out by users.

The identification of information on losses is a methodology for the systematic collection of operational risk losses that exceed a certain threshold and their reporting to senior management. Thus, risk indicators are used to indicate possible adverse changes in the operational risk profile and to trigger appropriate actions.

Risk indicators by risk category

Table 2

Risk category	Risk indicator
Risk of account reconciliation	The number of accounts opened above a certain threshold. Differences in reconciliation: the total gross value of accounts opened above a certain threshold
Exchange risk	Number of regulatory changes in a given period. Substantially increasing or decreasing volume per product
Risk of compliance	External audit points: late arrival, exaggerated or not yet completed. Number of new products, substantially modified compared to existing products and in a period.
Risk of non-payment	Number of non-conformities per unit or products, customers, etc. Influences of compliance: high number of external professional bodies. Policies and procedures: revised number within the set threshold.
Risk of fraud	Number of new claims considered overdue
Information security risk	Number of credit policy exceptions (by type, person, area and / or division). Percentage of receivables not fulfilled early. Percentage of applications from outside (from agents, brokers and so on). Number of sales of creditors, units that exceed targets as a predefined percentage.

Note: Synthesized and organized by the authors

The level of any risk indicator depends on those who monitor them and their place in the organization; the ease of collection; the mode of control applied, the influences of the individual or the organization to the real benefit of risk indicators is systemic and sophisticated reporting, reporting of effective and concentrated exceptions; early reporting to allow corrective action to be taken; collecting consistent data to enable analysis, the study of the link between risk and potential causal factors, and for effective action plans. The preferred risk indicators are those that most institutions collect, as banks have experienced a number of losses or a number of reports have been reported in this area.

Data collection is a real challenge, the indicators need to be defined, calculated and calibrated to the unit so as to ensure true comparability. The choice of thresholds is difficult to achieve when taking into account the absolute values and not percentages or other forms relevant to different business volumes.

Among the benefits brought by the calculated indicators we mention: monitoring the important indicators in correlation with the risk; setting maximum and alert limits; improving the quality of negotiations. The indicators presented above are only an indication or an access to a possible problem or risk, with little information on the size or correlation with real historical events or financial consequences, not being sufficient as unique indicators. Being

non-additive they cannot be aggregated to provide consistent and comparable profiles at the enterprise level. The choice of indicators can be subjective and they do not carry financial values; not expressing value in order to be able to correlate with the current losses.

Risk highlighting must be the basis for the development of viable operational risk monitoring and control systems, starting with the definition of risk in order to identify the main components and describe the generating events, delimiting the risk from other risks occurring in the bank's activity. Both internal and external factors must be taken into account when considering risks. For this you can choose one of the methods: questionnaires / risk lists; on-site inspections; generating damage scenarios; penetration tests; organization chart analysis; analysis of operations flows; contract analysis; historical records of losses; interactions with the outside.

Thus, the aim is to identify the operations and activities vulnerable to this risk as well as to identify the manifestations of the operational risk considering the impact on the financial results of the bank. Credit firms need to classify operational risk by events such as human factors and process factors because this classification is objective and unique. Studying the causes of events helps to understand the level of exposure as well as the level of risk management.

The risk quantification is based on the information obtained previously, to determine the root causes and establish the levels of risk, in order to use the risk assessment matrix in order to rank the risks in terms of importance, as well as assessing the bank's ability to cope and respond the risks they face.

Risk assessment matrix

Figure 5

Severity	Probability of occurrence				
	Frequency >20%	Random 10-20%	Occasional 2-10%	Rare 0,1-2%	not accidental <0,1%
Catastrophic	Extremely				
Critical					
Moderate		Medium		Low	
Negligible					

When assessing operational risk, we recommend using the identification and calculation of risk indicators or tracking of recorded losses.

Establishing the value of operational risks at the bank level involves the linear aggregation of individual risks, taking into account the correlations

with the rest of the risks, because it can determine the manifestation of other risks. Traditional scoring-based assessment can be subjective depending on the experience and ability of internal and external auditors.

Monitoring involves the systematic evaluation of the mission oriented towards the efficient results of the operational risk management determined in real time and valid data for future applications. A good assessment must be based on a direct measure of risk and a feedback mechanism.

The supervision of operational risk may lead to the monitoring of compliance with the limits on the bank's exposure to operational risk and to the monitoring of risk indicators that allow the analysis of the evolution of the risk.

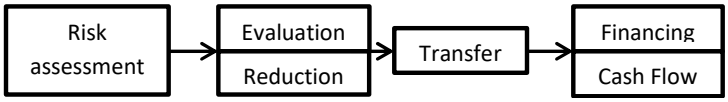
Bank managers must have information on the conduct of the risk management process, the bank's exposure to operational risk and how the risk management procedures are implemented. Monitoring involves regular reporting to the levels of management of operational exposures, adverse events, deviations from the risk strategy and initiation of risk strategy exceptions such as unapproved deviations from the risk strategy, non-compliance with predefined exposure limits increases in exposures or changes in the risk profile. Credit institutions should pay close attention to the control of risk that can be achieved by the method of detecting the occurrence of events that involve finding a method of reducing the frequency of occurrence of events or by the method of detecting the spread of losses from events that involve determining a method of minimizing or reducing the impact of losses as events occur.

The analysis of risk control measures must be done so that their development has as a consequence the development of the management of each risk. Knowing the risk must change the exposure, severity or probability of the incident. The result of the risk control involves the implementation of strategies developed according to the culture that define the individual responsibilities, accounting and involvement of each, having as an effect a positive impact on the mission and the existence of several support packages.

Operational risk must ensure that decisions are taken to take, reduce, transfer, eliminate, cover risks, impartiality or combinations of past actions so as to ensure optimum security and cost, avoid problems of preventive measures and take into account new improvements.

Operational risk management options

Figure 6



The risk management requires the provision of resources and policies by management, a risk policy involving the entire organization, understanding the risk and obligations of all, risk analysis at all organizational levels, monitoring the effectiveness of actions taken to maintain risk control, recognition and application of a clear methodology. risk management, risk management in all organizational processes, risk communication throughout the organization, establishing risk responsibilities and reviewing risk management within the organization.

In the correct management of the operational risk, six steps must be completed for each type of risk, the knowledge of the potential losses or the causes that determined the occurrence of this type of risk. It starts from identifying the type of risk and risk factors, assessing the exposure to the degree of risk that is achieved through the use of information capacity, the volume of transactions, failed settlements, the level of failed confirmations, irreconciled work and the degree of aging of tasks.

The determination of risks will be performed by the VaR method for operational risk as a product between probability values and the generation of loss distribution for a specified confidence interval, and the measurement of unexpected loss will be performed. The determination of profit as well as loss and explanation of sources will be made by the volatility of residual gains after removing the effect of market, credit and strategic risk, and comparing risk with profitability will determine the effect of this type of risk on profitability.

Stages of development of the operational risk management system

Table 3

Steps	Substeps	Actions
Evaluation, planning	Gaps analysis	Risk management (tasks and responsibilities)
	Implementation of methodology and models	Review the structure, content, methodology of current risk assessment
Implementation of the framework plan		Frequency review, expectations, reporting structure
		Analysis of data collection processes
Design, implementation	Creating teams and plans to address specific aspects of risk	Creating teams and plans to address specific aspects of risk
	The organizational structure	
	Operational information	
	Definitions, Links, Strategies, Loss Information	
	Risk evaluation	
	The main risk indicators	
	Reduction	
	Definition of capital	
	Information technology	
Development of the plan		
Testing and approval	Pilot testing and approval	The project can be tested and reviewed based on the results and then communicated to the entire organization
Monitoring, control	Ongoing operational risk management	

Note: Synthesized and organized by the authors

In order to estimate the probability of occurrence of the operational risk, the system of evaluation of qualitative indicators is used. A possible indicator of unexpected losses due to operational risk is the cost-income ratio, ie the expenses incurred in carrying out the activity in relation to the net interest income and the income from commissions from the activity and any income other than interest. This cost-to-income ratio can be an indicator for unexpected loss due to operational risk, being considered an efficiency index, as it measures costs in generating revenue. The downward trend in the ratio is considered favorable, but there must be a critical threshold at which the cost-revenue relationship cannot be sustained without the bank bearing an increase in operational risk.

The ratio can be improved by investing in non-interest-bearing businesses, such as fund management, insurance, but this involves increasing operational risk due to poor understanding of products by staff, poor integrated systems requirements, etc. A safety threshold has been set, ie the turning point at which the efficiency gains associated with the decrease in the ratio offset the increase in operational risk associated with the decrease in excessive costs or alternative sources of income. The volatility of the cost-income ratio is an important indicator for the operational risk that may arise in the activity of a financial institution and may increase due to asset depreciation, instability or unpredictability of the cost structure or volatility of revenue sources.

Credit companies can develop sound risk management systems by using non-financial indicators related to operational risk and thus replace the database of historical losses due to operational risk (scorecard approach), being much easier to achieve because it is a cheaper method. than a statistical tool.

The use of non-financial indicators depends on the risk profile of the institution, the vulnerabilities of a loss event and the quality of the identification of weaknesses. Among these non-financial indicators we can list the share of back office staff compared to front office staff, the daily number of transactions executed by an employee, the level of training expenses of an employee, the share of remuneration, staff turnover, the number of employees who do not have ten days consecutive rest leave, the volume of transactions and the number of complaints received from customers.

A bank must have sufficient resources in the back office to ensure compliance with internal policies. A small number may reflect an increase in the probability of errors in back office processes, and a high ratio may reflect a waste of resources in correlation with a vague distribution of responsibilities, favoring the occurrence of operational risk. An optimal threshold of this report must be established in correlation with other indicators such as the level of training and the purpose of the operations carried out in the front office.

The volume of transactions executed by an employee per day is used to detect excessive trading behavior or taking an additional risk, being considered rather a mechanism for early warning of changes in trading behavior. The variables considered may be the value and type of transaction, so that the volume of transactions may register a significant increase which translates into an almost imperceptible increase in net trading income.

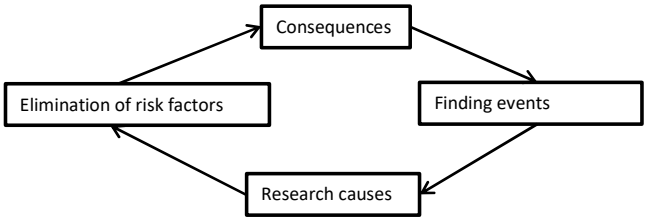
In order to eliminate the dangers of lack of experience, ignorance of products and the market, it is not only necessary to increase the costs of employee training, but also to make continuous preparations for individual needs, in order to be able to carry out their tasks. diligent service.

Remuneration as a basis for incentives must also take into account the maintenance of the level of risk assumed within the limits set by the credit institution, as the employee's desire to earn as much as possible will lead to increased risk appetite and inappropriate behavior.

We specify that the operational risk can appear not only in the banking sector and therefore in the last period of time there has been an intense for this type of risk. The vast majority of banking institutions have treated operational risk based on events that have already taken place, focusing on effects and less on causes, and there is no management of this type of risk.

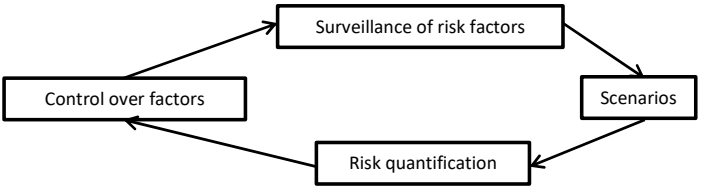
Reactive approach

Figure 7



Proactive approach

Figure 8



The Basel Committee proposed the division of responsibilities between risk management and operational risk management.

Pro-active management shows that it is better to prevent than to find an accomplished fact. The approach is based on identifying and determining operational risk capital such as credit, liquidity and market risk, combining risk types and capital adequacy to aggregate risk, obtaining information on operational risk factors and choosing to hedge or finance operational risk. . In the case of institutions with efficient operational risk management, characterized by a distant time horizon, pro-active management turns into a prospective one, trying to identify in time the exposures to which the entity is vulnerable due to strategic or environmental changes.

Adequate operational risk management requires compliance with the pillar of the Basel Accord, which seeks to establish a minimum capital, minimum funds to cover unexpected losses that may occur in the activity of a financial institution.

Operational risk assessment for better management is used to determine the expected loss from operational failures, to determine the worst case of loss for a confidence interval, to determine the economic capital required for operational risk and to concentrate this risk.

Banks that use the advanced approach have a separate operational risk management function on the risk-generating business lines, which is responsible for the design and implementation of the operational risk framework. In some banking institutions, this management function has direct access to the audit committee. The independence of the operational risk management function implies a formal status, the absence of the influence of the relationship with the business lines in terms of opportunities, the absence of personal interest, direct or channeled access of the management function to the audit committee.

Conclusions

A first conclusion is that banking management aims in particular to maximize banking performance while minimizing risk exposure by complying with applicable regulations and legislation. Therefore, the strategies and policies of any credit institution are developed in line with its vision for the future, so as to minimize the risks involved in measuring, controlling, reporting and making decisions. An efficient risk management ensures the increase of the value of the institution by preventing crises, failures, by protecting the reputation and increasing the performances.

To this end, the Basel Committee for Supporting Vigilant Risk Management has developed a risk-based capital adequacy standard, which has sought to increase the stability, credibility of the banking system and equality of competition. The results of a credit institution largely depend on the availability and / or cost of capital, ensuring stability and absorption of losses and thus increasing the bank's reputation.

The risk capital depends on the expected losses and must be within the limit set by the management of the institution concerned.

Operational risk, although not a new concept, manifesting itself from the moment any institution hires the first people, its management is considered in full development which brings many benefits to the banks that implement it, whose number has increased considerably recently. There is an organizational model whose main role was to develop and implement the operational risk framework and to consult at the business line level. The concept of operational

risk management presents five stages of development that aim to identify priorities containing the set of integrated processes, tools and strategies to reduce this risk.

The use of an operational risk management by a credit institution also involves a multitude of shortcomings, such as the unavailability of historical loss data, which in the past has been given relatively little attention, as it does not bring sufficient value to the institution. The measurement of this type of risk at bank level did not take into account the experience of other entities in the market, but the lack of this procedure implies high costs in case of important events that were not anticipated and for which no precautions were taken.

Operational risk monitoring is an economic need to reduce losses that involves the following related elements: policies and procedures for risk management, measures for risk identification and assessment, legal and reputational risk assessment, business resumption plans in the event of unforeseen situations .

Reporting and analyzing losses due to operational risk is particularly important by providing centralized databases at the level of any credit institution with which the nature, cause and value of operating losses are understood, measures are identified and taken to reduce this type of risk, determining the value the minimum capital required to cover losses due to operational risk.

A final conclusion is that risk indicators are the parameters that ensure early warning of operational risks and weaknesses in the processes that show the changes that may occur in the management of this type of risk, in order to take measures to remedy undesirable situations. . The indicators are determined according to the areas, processes, systems and products of each credit institution, being very closely linked to the daily operational process, their relevance depending on the speed of signaling potential losses. The value of these parameters must be objective, easily verifiable, observing them according to certain thresholds used for both monitoring and control.

Taking into account the many forms of manifestation of operational risk, internal control must be performed at the level of operation, aiming at preventing loss-making events, correct financial reporting, carrying out activities in accordance with regulations and legislation in force, analyzing operations under conditions, efficiency. The monitoring of operational risk management can be formal or informal and is ensured by defining risk policies, identifying risks, developing business processes, establishing the model and methodology for risk quantification, knowledge of exposure management and minimization actions, reduction, avoidance or coverage, the existence of the reporting system and risk analysis.

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