

The Specifics of Operational Risk Assessment Methodology Recommended by Basel II

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Operational risk management is a relatively new process in most of the banks. The need for managing this type of risk arose in the context of recommendations for bank supervision formed by the Basel Committee on Banking Supervision. The Basel Committee took into consideration the growing importance of operational risk in the field of finances and emphasized the risk management and management supervision. The Basel Committee connects the operational risk with the risk arising from unsuitable or unsuccessful internal processes, people, systems or external incidents. In the banking sector, this type of risk was compared to credit and market risks, which are treated as most important bank risk, generating the main part of risk events in banks sector. In the sector of finances, distinctive frameworks for supervision of operational risk management are beginning to form. The goal of these frameworks is to ensure an effective supervision of operational risk management in banks. In its recommendations on risk assessment methods, the Basel Committee pays a lot of attention to the measurement of the risk level and to the administration of the risk management. The position that the Basel Committee is taking reflects the importance of operational risk management supervision in the process of establishing a structural base for operational risk management. This enables the formation of close ties between operational risk management and management supervision frameworks. These ties have to be assessed correctly before any implementation of operational risk management methods in banks; therefore there is a need for the analysis of recommendations of the Basel Committee on the specifics of operational risk assessment methods within the context of operational risk management supervision. Depending on the character of bank activities, the focal attention in forming the system of bank supervision is normally paid to the management of the risk of bank credit as to the biggest focus of disorders of bank activities. However the modern conditions of the activity of financial sector members determine the growing attention of banks for the security of effectiveness of inner processes. The more complex procedures of bank activity and more intensive internal processes create preconditions to higher quantity of mistakes in internal bank systems. Therefore there is a threat of frustration of bank activity which can become the reason of crisis of bank activity. These reasons force bank managers to pay more attention to the management of operational risk, the efficiency of which has the big influence on bank competitiveness and its success in the market. In this context it is important to state that before the

adaptation of approaches of an estimation of operational risk in bank activity, recommended by the Basel Committee, it is necessary to investigate the specificity and applicability of these approaches in the activity of a particular bank and to analyse the properties of the use of approaches of an estimation of operational risk in the context of supervision of management of operational risk.

Keywords: *operational risk, the Basel Committee, bank supervision, the Basic Indicator Approach, the Standardized Approach, the Advanced Measurement Approaches.*

Introduction

Operational risk assessment is a new banking activity, which is getting increasing attention. During the last decade of the previous century, operational risk was considered one of the many secondary types of risk. In the twenty first century, it is becoming one of the most important risks affecting banking activity; therefore it inevitably has to be managed.

The increasing attention to operational risk management in banks is brought on by a positive standpoint on formalized and expedient operational risk management expressed by various international financial institutions, including the Basel Committee. It can increase bank's effectiveness and decrease the probability of an occurrence of major losses. The significance of operational risk will probably continue to grow in the future. This type of risk is likely to get increasing attention.

Subject and relevance. One of the most important banking supervisory bodies on an international scale is the Basel Committee on Bank Supervision of the Bank of International Settlements. Its activity concentrates on the analysis of possible regulations of banking activity and search for optimal solutions. The formulation of the standards of Basel II of the Basel Committee on Bank Supervision started in 1999. At the moment these standards are gaining an increasing significance for the banking sector. The analysis of these standards enables the correct assessment of recommendations on banking supervision propagated on an international scale. New recommendations (so called Capital Agreement) were issued in June of 2004, following three consultations with the parties involved. The basics of the agreement has not changed from the first agreement, but its structure was supplemented with new elements that expand the scope of recommendations and give a more precise definition of separate elements in banking supervision.

One of the most important aspects of this agreement, in comparison with the agreement of 1988, is a new risk factor: operational risk, which is treated on the same terms as credit and market risks. In the new Capital Agreement, the Basel Committee gives an extensive description of the methodology that is recommended to be used for operational risk assessment. The analysis of the given description is an important stage in the implementation of operational risk management framework in banks.

Before adapting any of the operational risk management methods recommended by the Basel Committee, it is necessary to research the specifications of these methods and their adaptability to an activity of a specific bank. It is also important to analyze application features of operational assessment methods within the context of operational risk management supervision. A need for this research arises from the fact that operational risk management is inseparable from the system of banking supervision. Supervisory system ensures the efficiency of risk management process. This raises the significance of the analysis regarding the importance of bank supervisory systems applied to various sectors of financing within the field of operational risk management. This should be related to the analysis of operational risk management methodology recommended by the Basel Committee because recommendations on operational risk management in banks were based on this methodology.

Object of the research is operational risk assessment methodology recommended by Basel II.

Goal of the research is to determine the specifications of operational risk management methodology recommended by Basel II within the context of operational risk management supervision.

Method of the research is systematic, logical and comparative analysis of scientific literature.

The article analyzes operational risk assessment approaches recommended by the Basel Committee (2002-2004) and the views on the adapting expediency of operational risk assessment approaches recommended by the Basel Committee and on their relation to the process of operational risk management supervision expressed by Anders (2004), Leippold (2005), Schmitz (2001), Van den Brink (2002), Herring (2002), and other scholars.

Considerations on Operational Risk Management Supervision in the Financial Sector

Various factors related to the particularities of the financial sector, including the instability of its processes, the diversity of the forms of activity in this sector, value-added intangibles, constant fluctuation of the value of funds circulating in the sector, etc., generate a need for an establishment of supervisory bodies for financial institutions. The purpose of these bodies would be to ensure stable development of the financial sector.

Supervisory bodies for financial institutions are limited to the financial sector. This is usually not practiced in other business sectors. The fact proves the exclusiveness of the financial sector related to the level of its stability

(Briault, 2002; Whittaker, 2001; John, 2000). The supervision is carried out on all members of the financial sector. The specifics and the scope of their activity determine the supervision approach adapted with regard to a certain sector. Thus, in this case it would be inaccurate to limit the analysis to banking supervision without considering the existence of other financial institutions.

Raškinis (2002) defines supervision of financial institutions as a sum of services provided to the customers of financial institutions, other financial institutions, and community. According to Goodhart (1998), supervision of financial institutions encompasses regulation of their activity (establishment of certain rules), monitoring of their activity (surveillance whether the established rules are complied with), and control (general supervision of bank activity). Thus, a conclusion can be drawn that the main goal of supervision of financial institutions is to ensure that all members of the financial sector comply with domestic and international requirements for financial activity. This ensures the safety of members and customers of the financial sector. Vaškeļaitis (2003) notes that this statement invokes the following universal (i.e. occurring irrespective of the differences of financial sectors) goals of supervision in financial institutions:

- *Protection of depositors and debtors*, which helps financial institutions and their services, gain the trust of depositors and debtors. Certain means should be employed to achieve this (e.g. deposit insurance system) that would minimize the risk of losses for the customers of financial institutions.
- *Monetary and financial stability*, which has to ensure the required optimal amount of money and to keep up a stable payment system. This will prevent issuing of money surplus and inflation related to it.
- *Establishment of regulatory systems, promoting efficiency and competition*; this will increase the effectiveness of the activities of the financial sector, which in turn will condition the increase in benefits for consumers and faster development of the financial sector.
- *Protection of consumer rights* strives to ensure that depositor and debtor groups are not discriminated.

Raškinis (2002) and Goodhart (1998) give a similar definition of the goals for supervision of financial institutions. They distinguish two major goals for supervision of financial institutions (table 1):

- A wish to ensure the stability of the financial system.
- Protection of the customers of financial institutions.

After an analysis of various views on the goals of institutional supervision, two major trends in opinions on supervision of financial institutions can be clearly distinguished. One of them is directed towards ensuring the stability and effectiveness of the activity of financial institutions in order to achieve fast development of the financial sector and protection against financial crises. The other trend in the supervision of financial institutions is directed towards customer relations in financial institutions. It helps protect consumer rights and makes financial institution services more available to all residents of the state because the percentage of customers for finan-

cial institution services in a state influences the stability of the whole financial system and affects customer confidence (Carmichael, 1998; Goodhart, 1998).

Table 1

Goals, Objects, and Types of Banking Supervision
(Raškinis, 2002; Goodhart, 1998)

Goal of supervision	Object of supervision	Type of supervision
Stability of the financial system	Financial state of financial institutions	Systematic supervision
Protection of interests of financial clients	Financial state of financial institutions	Regulations restricting risks
	Customer service in a financial institution	Supervision of customer service

Various supervision methods of financial institutions (table 2) are adapted to each sector of finances in order to meet the aforementioned goals for supervision of financial institutions. The existence of a wide variety of approaches speaks for the absence of a unified supervision approach in the financial sector. Together with the development of financial markets, supervision institutions are faced with a need for a modification. According to Deltuaitė (2003), the recent changes in supervision of financial market were brought on by the growing integration of financial markets; elimination of restrictions on merchandise, services, and capital movement; business growth; emergence of new derivative financial tools; and the growth of their applicability. The changes manifested themselves in a decreasing number of single-purposed supervisory bodies for financial institutions and a growing number of common supervisory bodies responsible for supervision of all types of financial institutions.

Separate supervision systems for financial institutions in different states reduce the credibility of the global financial sector because, as Davies (2001) and Merton (1993) point out, separate supervision approaches for financial sector do not ensure effective cooperation of the supervision systems of financial sectors. It only ensures supervision of a single sector, which cannot be integrated into a global net of supervision.

Due to the negative aspects of separated supervision approaches of the financial sector discussed above, a need for unified supervision principles of financial systems emerges. It will also strengthen the supervision of individual financial sectors, which are closely related to the global financial system. Crises of individual sectors can have a negative effect on the economy of the state and the whole region. The Basel Committee on Bank Supervision of the Bank of International Settlements performs the aforementioned unifying function. In addition to national requirements regarding supervision of financial sector, it provides recommendations regarding formation of a supervisory system for the financial sector and its elements.

After an analysis of the need for supervision of financial institutions and the features of this supervision, a conclusion can be drawn that the tendencies of prevailing changes in the principles of supervision of the financial sector condition the increasing uniformity of these principles in all financial sectors and increasing attention paid

to the stability of financial institutions.

Table 2

Models of Supervision of Financial Institutions
(Deltuaitė, 2003; Raškinis, 2002; Llewellyn, 1999)

Model of supervision	Number of countries that adapted the model
Common supervisory body	13
Central bank	3
Other supervisory body	10
Separate supervisory bodies for credit establishments, insurance companies, and members of stock exchange	35
A separate supervisory body for credit establishments, common supervisory bodies for insurance companies and members of stock exchange	3
A separate supervisory body for insurance companies, common supervisory bodies for credit establishments and members of stock exchange	9
A separate supervisory body for members of stock exchange, common supervisory bodies for insurance companies and credit establishments	13
Total	73

In the analysis of the features of supervision of financial sector, special attention was paid to banking. Banks are the largest and the most important institutions in the financial sector; therefore they get a lot of attention from supervisory institutions. The formation of supervision system for the financial sector starts from the formation of supervision principles for the banking sector. Supervision requirements for banking stability and protection of bank customers are formulated first. In later stages, they are modified and adapted to other members of the financial sector (insurance companies, members of stock exchange, etc.).

The analysis of the impact of the activity of supervisory institutions should note that the evaluation of this impact can be ambivalent. First off, it should be stressed that the most important reason for the establishment of supervisory institutions is ensuring the stability of financial sector. The stability is useful to all members of the financial sector. However, the negative effect of the institutions supervising the activity of the members of the financial sector should also be taken into consideration. According to Vaškelaitis (2003), the supervision of financial institutions, the directive elements, and sanctions create a certain environment for the financial institutions. The environment in a sense restricts the freedom of banking activity because financial institutions are subjects of economics. These restrictions are manifested through the set framework of activity for financial institutions imposed by supervisory institutions. The set framework is mandatory to all members of the financial sector operating in the same field (e.g. commercial banks, life insurance companies, etc.), irrespective of the specifics of their activity (size, strategy, etc.).

Under the specifics of banking, during the formation of a banking supervisory system, the biggest attention should be paid to bank credit risk management because it is the most common source of banking problems. Credit

risk dominates the directives for banking activity of most of the supervisory bodies of financial sector. In Basel I (1988), this form of risk helps determining the minimum capital requirement.

Current environment of the members of the financial sector determines the growing interest of banks in the effectiveness of internal processes (Grossman, 2001; Khambata, 2003; Anders, 2004). Kudinska (2004) and Stein (2000) note that the increased complexity of banking procedures and intensiveness of internal processes precondition a growing number of mistakes in the internal banking systems. This might interrupt banking activity and might possibly lead to a banking crisis. The aforementioned reasons force bank managers to pay an increasing attention to operational risk management. According to Kuhn (2003), effective operational risk management has a great impact on bank's competitive ability and success within the market.

In addition to the efforts of bank managers to control operational risk, supervisory bodies for financial institutions start to pay increasing attention to the establishment of requirements for operational risk management. The need for operational risk management and the necessity for an establishment of its supervision principles are illustrated by data provided in table 3, which shows the size of the largest losses related to operational risk over the period of 1994-1998. Please note that during the four years the losses of over 100 million USD were suffered by 6 financial institutions as a result of inadequate operational risk prevention. The largest losses related to operational risk amounted to 2.6 billion USD (Japanese financial institution Sumitomo).

Table 3

The Largest Losses Related to Operational Risk
(Kancerevyčius, 2004)

Year	Financial institution	Losses in billions, USD
1994	Kidder Peabody	1.69
1995	Salomon	0.13
1995	Barings	2.20
1995	Daiwa	1.10
1997	Natwest Markets	0.13
1998	Sumitomo	2.60

The provided data illustrates the threat imposed by operational risk and its grave results. It proves that supervisory bodies of financial institutions have to acknowledge operational risk as one of the most important types of risks within the banking sector. Supervisory bodies should consider the danger arising from the fact that operational risk management is underestimated; therefore losses related to the lack of attention to operational risk management in banks are likely to occur. Banking supervision should include operational risk management control, which has to get the same treatment as credit risk control.

The need to increase the interest in operational risk management and management supervision is grounded by a statement of PricewaterhouseCoopers expert Schmitz (2001). He states that operational losses are unacceptable in weak economic environment. This statement reflects

the nature of the occurrences of operational risk. Irrespective of economic environment, operational risk can be avoided by properly following banking procedures. The losses that occur due to insufficient supervision of separate banking processes or mistakes made during a certain procedure and might serve as a pretext for bank bankruptcy should not be acceptable within the financial sector because of close interdependence of all members within the financial sector.

Based on the analysis of the nature and management of operational risk, Schmitz (2001) enumerated the main problems arising from an increasing attention to the need for operational risk management. He also distinguished the advantages of active operational risk management (table 4). They support the position taken by the authors of this article in the field of operational risk management and supervision: *the attention paid to operational risk management is insufficient; therefore supervision of operational risk management should get more consideration in the form of establishment of specific requirements for operational risk management in the field of banking.* Only adequate consideration of the supervision of operational risk management can form a substantial protection of the financial sector against crises caused by the sources of operational risk.

Table 4

Problems and Advantages of Supervision of Operational Risk Management (Schmitz, 2001)

Problems of Operational Risk Management and its Supervision	
<ul style="list-style-type: none"> Operational risk management does not get sufficient attention Operational risk management is not treated as a procedure that adds value to a bank Unmanaged operational risk can be very expensive due to unpredictability and possible significant losses 	
Advantages of Operational Risk Management and its Supervision	
<ul style="list-style-type: none"> Proper operational risk management has a long term effect because in the long term it translates into savings on risk management expenses Operational risk management not only decreases the probability and the scope of losses, but also increases the effectiveness of banking processes, which has a positive effect on successful banking Attention to operational risk management will increase the appeal of a bank to the other parties, including clients, suppliers, etc. 	

At the end of the last decade of the 20th century the significance of operational risk management was acknowledged by the Basel Committee, which started to work on a new Capital Agreement in 1999. Operational risk is included in it on the same terms as the most important types of risk: credit and market. This article gives an in-depth analysis of approaches for operational risk management recommended by the Basel Committee.

Analysis of Operational Risk Management Approaches Recommended by Basel II

The Basel Committee defined operational risk as the risk arising from inadequate or failed internal processes, people or systems, and from external events. Based on this definition the recommendations of operational risk management name seven possible groups of operational risk sources (Basel Committee, 2003a):

- *Internal fraud*: losses related to fraud, illegal appropriation of assets or rights; and violations of regulatory acts or company provisions, with the exception of discrimination claims, caused by an insider party (employee, management, etc.).
- *External fraud*: losses related to fraud or violations of legal acts caused by a third party.
- *Employment practices and work place safety*: losses caused by inconsistencies in employment practices, in employee health insurance, and in safety supervision processes; also losses caused by employee work injury claims and discrimination claims.
- *Clients, products, and business practices*: losses caused by unintentional mistakes or neglect of specific obligations of clients or by certain peculiarities of a product.
- *Damage to physical assets*: losses related to damages or loss of physical assets in the event natural disasters or in other cases.
- *Business disruption and system failures*: losses related to business disruption or failures of information, telecommunication, or other systems.
- *Execution, delivery, and process management*: losses caused by interruptions in operational or process management with relation to business partners and merchants.

This classification helps us identify the sources of operational risk. It also enables us to make a quantitative assessment of damages related to operational risk. The Basel Committee recommends three approaches used for accurate assessment of potential losses and determination of the minimum capital requirement (Basel Committee, 2004):

- The Basic Indicator Approach
- The Standardised Approach
- The Advanced Measurement Approaches (AMA)

The Basic Indicator Approach. It is the least complicated method to determine minimum capital required for operational risk coverage. It requires the least effort. (Ebnoether, 2003; Van den Brink, 2002; Schmitz, 2001). Under the Basic Indicator Approach, the amount of the minimum capital requirement is a fixed percentage of bank's gross income (Basel Committee, 2004):

$$K_{BIA} = \frac{\sum (GI_{1..n} \cdot \alpha)}{n} \quad (1)$$

Where,

- K_{BIA} – minimum bank capital for operational risk coverage;
- $GI_{1..n}$ – annual gross income of a bank (when positive, over the last three years);
- α – capital requirement coefficient (the Basel Committee recommends a value of 15 percent);
- n – number of the years of which gross income is included.

The formula above determines the minimum capital requirement for neutralization of operational risk in bank-

ing activity without any additional efforts or expenses. The Basel Committee recommends using positive gross income of the previous three years and equating the capital requirement to 15 percent of the average value of the aforementioned gross income. The value of coefficient α (15 percent) was determined after a thorough research of the sector, based on estimation of capital requirement for elimination of operational risk in the entire financial sector.

According to the Basel Committee, only small banks, which can not afford a more thorough operational risk assessment approach, should use the Basic Indicator Approach (Basel Committee, 2002). This recommendation is based on the fact that the assessment of capital requirement, as a percentage of gross income, is only an approximate value, which is based on a generalized research of various financial sectors; therefore it is not an accurate reflection of operational risk requirement in a specific market. Large banks that use this approach for assessment of the minimum capital requirement can be faced with capital deficiency in the event of considerable losses and inefficiently used liabilities in the event of oversized capital deferment, given the market of a specific bank has a considerably low threat of operational risk (Rosengren, 2001).

For a more accurate assessment of operational risk and determination of the capital requirement the Basel Committee recommends using the Standardised Approach, which considers operational risk within specific fields of banking activity.

The Standardised Approach. The Standardised Approach for operational risk assessment uses the same method to determine the minimum capital requirement as the Basic Indicator Approach (i.e. as a percentage of gross income). However, in this case, the gross income of certain business lines and not the gross income of an entire bank's activity is used (table 5). A separate capital requirement is determined for each business line. Common minimum capital requirement equals the sum of capital requirements for operational risk coverage of all business lines. This approach of assessment of the capital requirement for operational risk coverage is based on an assumption that every business line has a different level of operational risk because each business line has different business processes, which are not found in other business lines (Peccia, 2004; Baud, 2002).

Under the Standardised Approach, minimum capital requirement is determined with this formula (Basel Committee, 2004):

$$K_{TBA} = \frac{\sum_{i=1}^3 \max(GI_{1-8} \cdot \beta_{1-8}; 0)}{3} \quad (2)$$

Where,

- K_{TBA} – minimum bank capital for operational risk coverage;
- GI_{1-8} – annual gross income of a bank (for each business line);
- β – capital requirement coefficient for each business line;
- I – number of years (can not exceed 3).

As with the Basic Indicator Approach, the minimum capital requirement is calculated by adding annual gross income of each business line over the last three years. Average value of gross income for each business line is multiplied by the capital requirement coefficient, determined by the Basel Committee after an empirical research (table 5). If gross income for the taken period was negative in a certain business line, then a 0 value is used in calculations instead of the negative value. This is a protection against unnatural decrease in the capital requirement due to a losing banking activity.

Table 5

Capital Requirement Coefficients for Each Business Line Recommended by the Basel Committee
(Basel Committee, 2004)

Business lines	Capital requirement coefficients, %
Corporate finance	18
Trading and sales	18
Retail banking	12
Commercial banking	15
Payment and settlement	18
Agency services	15
Asset management	12
Retail brokerage	12

The Basel Committee also foresees a possibility to use the Alternative Standardised Approach. Two business lines, retail banking and commercial banking, replace gross income value with the value of loans and advances. An adjusting value $m = 0.035$ is added to the formula (2). The Basel Committee states that this method should be used only with the consent of supervisory, given a bank is able to substantiate the need for the Alternative Standardised Approach. The Basel Committee names double taxation as one of the reasons for the need to use this method.

The Alternative Standardised Approach is more accurate in determining the capital requirement. However, some financial experts (Moscadelli, 2004; ORIAG, 2003; Herring, 2002, etc.) say that the additional coefficient (m) added to the calculations of minimum capital requirement has a negative impact on the accuracy of calculations; therefore a need for increased accuracy should not be viewed as a substantial reason for the usage of the Alternative Standardised Approach.

The Standardised Approach is more accurate (compared to the Basic Indicator Approach) in determining the minimum capital requirement for each business line. However, this method is not the best choice for banks, which strive to manage their operational risk effectively because the Standardised Approach, like the Basic Indicator Approach, does not take into account the differences of markets in different countries and the specifics of internal processes of each bank. The specifics of internal banking processes are becoming increasingly important. Due to the growth of contemporary banking sector, they are becoming an important factor in managing operational risk.

However, it should be noted that the Standardised Approach is an effective method to assess operational risk exposure for banks that do not have experience in the field of operational risk management and doubt financial expediency of implementation of individual quantitative or qualitative operational risk assessment methods.

The Basel Committee recommends that large banks, which have experience in operational risk management, should not limit themselves to the Basic Indicator Approach or the Standardised Approach and should use the Advanced Measurement Approaches.

The Advanced Measurement Approaches (AMA).

Under the AMA, operational risk technologies used by a bank are adapted to the recommendations of Basel II. Some banks already use operational risk assessment methods adapted to the specifics of their activity. The Basel Committee recommends that these banks should continue using this operational risk management. It should only be adjusted to the recommendations of Basel II. This is an optimal choice for banks who already have implemented innovative operational risk management systems, which do not comply with the recommendations on operational risk management by the Basel Committee because it allows retaining the existing operational risk management. The system only has to be adjusted to the recommendations on the administration of operational risk management provided by the Basel Committee.

Under the Advanced Measurement Approaches, banks use individual methodology for calculation of operational risk exposure, losses, and the minimum capital requirement. The methods are adapted to each banking process. Thus, in this case the Basel Committee does not give a detailed methodology for measurement of the minimum capital requirement, but concentrates on the administrative processes of operational risk management. This position of the Basel Committee can be treated as granting of partial freedom to banks that strive for independence in managing risks (Rowe, 2004; Frachot, 2004; De Fontnouvelle, 2003).

Analysis of recommendations of Basel II shows that all principles of the Basel Committee related to operational risk management process concern banks that are implementing the AMA method. The other two methods (the Basic Indicator Approach and the Standardised Approach) do not require a detailed discussion of operation risk management. The two methods determine minimum capital requirement according to bank's gross income without considering operational risk exposure of a bank. Thus, recommendations of the Basel Committee on operational risk management are to be applied for adapting the AMA method for a bank.

One of the most important qualifying criteria for banks that want to implement the Advanced Measurement Approaches is their ability to prove to the supervisory that a bank meets the following recommendations set out by the Basel Committee (Basel Committee, 2004):

- Bank board or senior management, depending on their functions, is involved in the system of operational risk management.
- Bank has an operational management system, which is conceptually sound and is implemented

with integrity.

- Bank has sufficient resources for the use of the approach in business lines as well as the control and audit procedures.

A bank that meets the aforementioned criteria is qualified to use the AMA method. However, after the method is implemented a bank has to meet detailed operational risk management principles provided by the Basel Committee. Effective operational risk management structure is formed on the basis of these principles. The Basel Committee sets out ten major operational risk management principles that describe recommended duties and functions of bank managers related to operational risk management. Operational risk management is treated like a process, which encompasses identification, monitoring, control, and mitigation of risks.

The analysis of operational risk management principles set out by the Basel Committee shows that the Basel Committee distinguishes three implementation forms for operational risk management procedures: operational risk management policies and detailed descriptions of management processes and procedures. McDonough (2003) states that the integration of these three implementation forms ensures an effective data flow. Data flow is a very important aspect of the operational risk management system.

In addition to the aforementioned operational risk management principles directed towards implementation of the AMA methods in a bank, the Basel Committee provides additional recommendations that ensure the AMA conception is perceived accurately.

In the analysis of additional recommendations for operational risk management provided by Basel II, three basic elements of operational risk management system emphasized by the Basel Committee should be distinguished. The following three elements form the basis of operational risk management framework (Basel Committee, 2003b): 1) firm-wide operational risk management function, 2) oversight of business lines 3) testing and verification function. The three elements are functionally independent components of organization. The cooperation of the three elements is an assumption for a successful functioning of operational risk management system (Beglinger, 2001; Bielski, 2003; Kuritzkes, 2002).

Another important aspect of operational risk management under the AMA method is operational risk measurement, on which the minimum capital requirement is based. Operational risk measurement is related to identification and definition of sources for operational risk, determination of the level of risk exposure, and assessment of possible losses. The results of the risk assessment process are used for calculation of the minimum capital requirement; therefore the results should accurately reflect the operational risk exposure of a bank.

The Basel Committee allows banks to freely choose their tools for operational risk measurement. Irrespective of the tools employed, operational risk should be measured for each business line. According to Basel II, mandatory elements for operational risk measurement are data on internal and external loss events, the results of the scenario analysis used for operational risk assessment and

assessment of internal control processes, and bank environment. An expected annual loss due to operational risk is determined based on these elements. The loss amount is directly related to the minimum capital requirement. During an assessment of the level of operational risk exposure, the following two categories of operational risk losses are included in the measurement process: expected and unexpected losses. The same provision is used in managing other types of risk (credit and market); therefore its efficiency is back by previous experience of risk managers (Hoffman, 2002; Marshall, 2001; Ebnother, 2003; Embrechts, 2002).

Basel II recommends using provided classification of groups of operational risk sources for collecting data on events that occurred due to operational risk exposure. This helps identifying losses assigned to a group of operational risk events. Appendix 1 gives a detailed classification of operational risk events provided by the Basel Committee. The list is extended to secondary events, which specify the forms of the seven groups of risk sources. This classification requires that all selected events, which caused bank losses (i.e. after an exposure to operational risk), should be recorded in a data base. The data base should give detailed information on every event. Basel II recommends including the following information (Basel Committee, 2003b):

- Loss amount.
- Description of a loss event.
- Loss notification and coverage sources.
- Type of a loss event.
- Date of a loss event.
- Date of announcement of a loss event.
- Date of the end of a loss event.
- Actions taken by managers after an announcement of a loss event.
- Insurance and other payments.

Aside from the aforementioned data, other data considered useful to the operational risk management framework can be included. Additional data could record the event more accurately and would help with its analysis. Mathematical methods can be employed to determine the level of operational risk exposure of a bank and calculate the minimum capital requirement for risk coverage with the help of this data. In-depth records on operational loss events allow the usage of quantitative risk measurement methods for operational risk measurement. The variety of these methods enables banks to adapt the most suitable method for determination of the level of risk exposure by taking into consideration activity, expected scope of risk event, and other important factors related to a certain bank. The Basel Committee does not limit the choice of mathematical methods and does not hold a fixed position in relation to this, i.e. banks are commended to independently choose the manner for determination of the level of operational risk exposure. The Basel Committee raises the following main standards for quantitative operational risk measurement (Basel Committee, 2003b, 2004):

- At least 5 years of record keeping on operational loss events. This standard is very important because only a sufficient amount of data collected over a long period of time can guarantee accurate

determination of quantitative level of operational risk exposure. Many operational losses manifest themselves relatively rarely; therefore a short period of record keeping can not assess all operational loss events. An exception can be made when a bank is just starting to use the AMA method and does not have record keeping data for previous five years. In this case, under the consent of a supervisory body, data on a shorter period can be used for quantitative analysis. In case of insufficient data, the Monte-Carlo method, which simulates the statistical distribution of operational risk losses, can be used. However, the exact data on which random distribution of numbers reflects the distribution of operational risk losses in a specific bank most accurately should be held.

- Quantitative analysis of the level of risk exposure has to have 99.9 percent confidence. High level of confidence requires a higher level of calculated operational risk exposure, which, in turn, determines a higher minimum capital requirement. High level of risk assessment confidence is unprofitable for banks. However, the goal of risk measurement (risk is measured in order to determine the minimum capital requirement for a bank; the capital could prevent a bank crisis if any losses occur) and uncertainty surrounding operational risk sources prove that high level of risk measurement confidence is a necessary requirement for the process of operational risk measurement.
- When determining the amount of losses, insurance and other payments, which cover some of the losses, should be considered. Loss amount should be reduced if it is covered by insurance payments, but in this case the loss amount can be reduced only up to 20 percent (Basel Committee, 2004). According to Scott (2002), this provision is based on the fact that insurance against operational risk losses is not a reliable coverage; therefore it can not substitute for the capital requirement for risk coverage and can be used only as a tool to partially reduce the regulatory minimum capital.

A bank can freely choose the most accurate method for determining the level of operational risk exposure as long as it complies with the standards. However, process consistency should be retained, i.e. the level of operational risk exposure should always be measured with the same model. This requirement relates to the principle of integral operational risk management stressed by the Basel Committee.

Quantitative analysis of historical data on operational loss events helps us accurately determine the operational risk exposure of a bank, but this methodology is unreliable unless future changes are considered. It is not accurate if it reflects only the dynamics of operational losses for previous years (Jameson, 2002; Hiwatashi, 2002; Leippold, 2005). Therefore Basel II recommends implementing an element for determining potential future. This element adds expected future fluctuations possibly affecting operational risk exposure and the amount of the minimum capital requirement to the process of opera-

tional risk measurement. The Basel Committee (2003b) states that the scenario analysis is the best method to determine the effects of future changes. This analysis is also recommended for measurement of the effects of external environment.

The scenario analysis gives a generalization of subjective views of bank managers on the external effects on operational risk of a bank and future changes related to fluctuations of the level of the operational risk exposure (Crouhy, 2000; Newman, 2005; Barbara, 2003). This method supplements to the quantitative measurement of operational risk by providing additional data on the sources of operational risk, which were not included in the quantitative risk assessment methods, (Powojowski, 2002). The Basel Committee recommends using the scenario analysis in addition to quantitative risk measurement or implementing the scenario analysis as the main method for risk measurement if the recorded data is insufficient to carry out qualitative analysis.

Summing up the analysis of the recommendations of Basel II for operational risk management, it should be stated that the Basel Committee did not limit itself to the structures of risk measurement procedures, but gave a detailed description of other elements related to risk management, including administration of operational risk management and procedures for management, control, and mitigation of operational risk.

It should be noted that, in the analysis of operational risk management, the focus is put on the recommendations for implementation and utilization of the Advanced Measurement Approaches. This proves that, the new Capital Agreement of the Basel Committee views this method as the most important method for operational risk assessment. It is recommended to all banks that are capable of implementing complicated operational risk management frameworks. It can be stated that this position of the Basel Committee illustrates that operational risk management is primarily related to adaptation of the Advanced Measurement Approaches for managing banking risks; therefore it is possible that this approach will develop in the future and will be considered as the standard approach for operational risk management. The Basic Indicator Approach and the Standardised Approach will lose their significance because they are unable to meet the requirements of operational risk management. However, at the moment when a relatively small number of banks has implemented operational risk management frameworks, the Basic Indicator Approach and the Standardised Approach are the most attractive methods of operational risk assessment in terms of economy because they require the smallest amount of investments for the process of risk management.

Conclusion

1. Bank supervision system is a necessary element of safe and effective financial market. It ensures the reliability of financial market with regard to its members and customers. The existence of banking supervisory body (a phenomenon found only in the financial sector) is attributed to the instability of the financial sector, creation of intangible assets in the

sector, close relations among the members of the sector, and other factors that contribute to systematic threat. This calls for a bank supervision system in all financial sectors that should cover all fields of banking, including operational risk management.

2. Operational risk management supervision has a positive impact on operational risk management because the efficiency of this process can only be achieved with the help of properly carried out supervision of operational risk management. A conclusion can be made that the growing interest in operational risk management increases the impact of bank supervision system on operational risk management. This two-way monitoring of operational risk management ensures formal, rational, and well functioning operational risk management in every bank.
3. In the description of recommended methods for risk assessment, the Basel Committee focuses not only on the risk measurement, but also on the administration of risk management. This position of the Basel Committee illustrates its interest in the formation of structures encompassing operational risk management. According to the recommendations of Basel II, banks should consider the principles of the procedures for management and measurement of operational risk and the existence of the procedures for monitoring and control of operational risk. Only an in-depth analysis of the recommendations of the Basel Committee on operational risk management can ensure successful functioning of operational risk management in a bank. It can also ensure the compatibility of this process with the requirements of banking supervisory bodies that oversee operational risk management and formation of the regulatory minimum capital requirement for coverage of operational risk losses.
4. The recommendations of the Basel Committee on operational risk management focus on the implementation of the Advanced Measurement Approaches in banks. Under this method, the banks can freely choose the method for the measurement of operational risk exposure. It has to comply with recommendations of the Basel Committee on the identification, measurement, monitoring, control, and mitigation procedures for operational risk. The following are some of the most important procedures: 1) sufficient data collected over a long period of time, which ensures the accuracy of operational risk measurement; 2) 99.9 percent accuracy in measurement of risk exposure, which is an obligatory provision that ensures effective operational risk measurement; and 3) restrictions on coverage of operational risk losses by insurance or other payments; this requirement is based on the lack of reliability of insurance in case of operational risk losses, which is attributed to the uncertainties within the market of the insurance companies.
5. Summarizing the research of the specifics of operational risk assessment methodology recommended by Basel II within the context of supervi-

sion of operational risk management, an assumption can be made that the Advanced Measurement Approaches will get the most attention from large banks because it enables a bank to formulate its operational risk management framework independently. This has a positive impact on bank's independence and its expenses. The Advanced Measurement Approaches are likely to become the main operational risk management method in banks. The provisions of supervisory bodies on operational risk management will be formulated according to this approach.

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Basel II rekomenduojamų operacinės rizikos vertinimo metodų specifika

Santrauka

Operacinės rizikos vertinimas yra nauja bankų veiklos sritis, kuriai pastaruoju metu skiriama vis daugiau dėmesio. Praėjusio amžiaus paskutiniame dešimtmetyje laikyta viena iš daugelio antraeilės rizikos formų, XXI amžiuje operacinė rizika pradeda traktuoti kaip viena svarbiausių banko veiklai įtakos turinčių rizikų, kurios valdymas yra neišvengiamas.

Dėmesį operacinės rizikos valdymui bankuose skatina tarptautinių finansinių institucijų, pirmiausia – Bazelio komiteto – teigiamas požiūris į formalizuotą ir racionalų operacinės rizikos valdymą, galintį padidinti banko veiklos efektyvumą ir sumažinti kritinių nuostolių tikimybę.

Prieš adaptuojant bankų veikloje Bazelio komiteto rekomenduojamus operacinės rizikos vertinimo metodus, būtina iširti šių metodų specifika ir pritaikomumą konkreto banko veikloje bei išanalizuoti operacinės rizikos vertinimo metodų naudojimo ypatybes operacinės rizikos valdymo priežiūros kontekste. Tokio tyrimo poreikis grindžiamas tuo, kad operacinės rizikos valdymo procesas neatsiejamas nuo bankų priežiūros sistemos, skirtos rizikos valdymo proceso efektyvumui užtikrinti. Iš to kyla bankų priežiūros sistemų, taikomų skirtinguose finansų sektoriuose, pozicijos operacinės rizikos valdymo srityje analizės aktualumas, kurį tikslinga susieti su Bazelio komiteto rekomenduojamų operacinės rizikos valdymo metodų analize, kadangi šie metodai gali būti traktuojami kaip operacinės rizikos valdymo bankuose rekomendacijų pagrindas.

Finansų institucijų priežiūros tarnybos yra išskirtinis finansų sektoriaus reiškiny, paprastai nepraktikuojamas kituose verslo sektoriuose. Tai rodo finansų sektoriaus išskirtinumą jo stabilumo atžvilgiu. Priežiūra vykdoma visiems finansų sektoriaus dalyviams, atsižvelgiant į jų veiklos specifika ir veiklos apimtį, kurios lemia skirtingų priežiūros modelių adaptavimą sektoriuje, todėl šiuo atveju netikslinga apsiriboti tik bankų priežiūros analize, neatsižvelgiant į kitų finansų institucijų egzistavimą. Pagrindiniai finansų institucijų priežiūros tikslai yra: 1) siekis užtikrinti finansų sistemos stabilumą ir 2) finansų institucijų klientų interesų apsauga.

Atsižvelgiant į bankų veiklos pobūdį, daugiausia dėmesio formuojant bankų priežiūros sistemą paprastai skiriama banko kredito rizikos valdymui, kaip didžiausiam banko veiklos sutrikimų židiniui. Kredito rizika dominuoja daugelio finansų sektorių priežiūros tarnybų direktyvinuose nuostatuose bankų veiklai, ši rizikos forma yra ir Basel I (1988) minimalaus kapitalo formavimo poreikio nustatymo pagrindas.

Tačiau šiuolaikinės finansų sektoriaus dalyvių veiklos sąlygos lemia didėjantį bankų dėmesį vidinių procesų efektyvumui užtikrinti. Vis sudėtingesnės bankų veiklos procedūros ir intensyvesnis vidinių procesų vyksmas sukuria prielaidas gausnėms klaidoms vidinėse banko sistemose, dėl ko kyla banko veiklos sutrikimo grėsmė, galinti išsirutulioti į banko veiklos krizę. Šios priežastys bankų vadybininkus verčia vis daugiau dėmesio skirti operacinės rizikos valdymui, kurio efektyvumas daro didelę įtaką banko konkurencingumui ir sėkmei rinkoje.

Lygiagrečiai su bankų vadybininkų pastangomis valdyti operacinę riziką finansų institucijų priežiūros tarnybos pradeda vis daugiau dėmesio skirti reikalavimų operacinės rizikos valdymo procesui formuoti. Įvertinus galimų operacinės rizikos nuostolių dydį ir jų pasireiškimo tikimybę, galima teigti, kad finansų institucijų priežiūros tarnybos, atsižvelgdamos į pavojų, kylantį dėl netinkamo operacinės rizikos traktavimo ir galimų nuostolių neatitinkamo dėmesio operacinės rizikos valdymui bankuose, turi pripažinti operacinę riziką kaip vieną svarbiausių rizikos formų, veikiančių bankų sektoriuje, ir vyk-

dant bankų veiklos priežiūrą operacinės rizikos valdymo kontrolei skirti tokį dėmesį kaip ir kredito rizikos kontrolei.

Pagrindinės problemos, kylančios dėl didėjančio dėmesio operacinės rizikos valdymui poreikio, sąlygoja teiginį, kad dėmesys operacinės rizikos valdymui yra nepakankamas, todėl būtina daugiau dėmesio skirti operacinės rizikos valdymo priežiūrai, suformuluoti tikslus reikalavimus operacinei rizikai bankuose valdyti. Tik galiams nuostoliams adekvatus dėmesys operacinės rizikos valdymo priežiūrai gali sukurti realią finansų sektoriaus apsaugą nuo krizės, galinčios kilti iš operacinės rizikos šaltinių.

Bazelio komitetas operacinę riziką susieja su rizika, kylančia iš netinkamų ar nesėkmingų vidinių procesų, žmonių ar sistemų, arba dėl išorinių įvykių. Remiantis šiuo apibrėžimu, operacinės rizikos valdymo rekomendacijose išskiriamos septynios galimos operacinės rizikos šaltinių grupės: vidinės apgavystės; išorinės apgavystės; įdarbinimo praktika ir darbo vietų saugumas; klientai, produktai ir verslo praktika; fizinio turto sugadinimas; veiklos žlugimas ir sistemų sutrikimai; atlikimas, pristatymas ir procesų valdymas. Remiantis šia klasifikacija, galima tiksliai identifikuoti operacinės rizikos židinius ir kiekybiškai įvertinti operacinės rizikos formai priklausančius nuostolius. Tiksliai potencialius nuostolius vertinti ir minimalaus kapitalo poreikį nustatyti Bazelio komitetas rekomenduoja naudojant tris metodus: 1) bazinio indikatorius metodą, kuris apibūdinamas kaip paprasčiausias ir mažiausiai pastangų reikalaujantis minimalaus kapitalo, reikalingo operacinei rizikai padengti, nustatymo metodas; 2) standartizuotą metodą, kuris rekomenduojamas siekiant tiksliau įvertinti operacinę riziką nustatyti ir kapitalo poreikį, ir yra pagrįstas banko procesų išskaidymu į Bazelio komiteto detalizuotas aštuonias verslo linijas; 3) išsamaus operacinės rizikos vertinimo metodą (AMA), kuris traktuojamas kaip pagrindinis operacinės rizikos vertinimo metodas, rekomenduojamas visiems bankams, turintiems pakankamai išteklių sudėtingoms operacinės rizikos valdymo sistemoms diegti.

Bankai, pasirinkę išsamaus operacinės rizikos vertinimo metodą, operacinės rizikos nuostolių tikimybės ir dydžio bei minimalaus kapitalo poreikio apskaičiavimams naudoja individualius metodus, adaptuotus konkrečiam banko verslo procesams. Todėl Bazelio komitetas šiuo atveju nedetalizuoja minimalaus kapitalo poreikio apskaičiavimo metodikos, o sutelkia dėmesį į administracinius operacinės rizikos valdymo procesus. Tokia Bazelio komiteto pozicija gali būti traktuojama kaip dalinės laisvės suteikimas bankams, siekiantiems savarankiškumo valdant rizikas.

Analizuojant Basel II rekomendacijas operacinei rizikai valdyti, galima pastebėti, kad iš esmės visos Bazelio komiteto principinės nuostatos, susijusios su operacinės rizikos valdymo procesu, yra skirtos bankams, diegiantiems AMA metodą, nes kiti du metodai (bazinio indikatorius ir standartizuotas metodai) nereikalauja detalios operacinės rizikos valdymo aptarimo, kadangi jie pagrįsti minimalaus kapitalo poreikio nustatymu pagal banko grynąsias pajamas, neatsižvelgiant į operacinės rizikos lygį banke. Vadinas, Bazelio komiteto pateikiamos rekomendacijos operacinei rizikai valdyti yra orientuotos į AMA metodo adaptavimą banke.

Vienas svarbiausių reikalavimų bankams, siekiantiems įdiegti išsamaus operacinės rizikos vertinimo metodą, yra įrodyti priežiūros tarnybai, kad bankas tenkina šias Bazelio komiteto rekomendacijas: 1) banko taryba ar valdyba, priklausomai nuo funkcijų paskirstymo, yra įtraukta į operacinės rizikos valdymo sistemą; 2) banke yra ope-

racinės rizikos valdymo sistema, kuri konceptualiai pagrįsta ir vientisai diegiama; 3) bankas turi pakankamai išteklių pasirinktam metodui naudoti pagal verslo linijas bei kontrolės ir audito procedūroms.

Išvardytus kriterijus atitinkantis bankas gali savo veikloje naudoti AMA metodą, tačiau, įdiegęs šį metodą, bankas turi tenkinti Bazelio komiteto išsamiai apibrėžtus operacinės rizikos valdymo principus, kurių pagrindu Bazelio komitetas formuoja efektyvaus operacinės rizikos valdymo struktūrą. Bazelio komitetas pateikia dešimt pagrindinių operacinės rizikos valdymo principų, nusakančių rekomenduojamas banko valdytojų pareigas ir funkcijas, orientuotas į operacinės rizikos valdymą, kuris traktuojamas kaip procesas, apimantis rizikos identifikavimą, vertinimą, monitoringą ir kontrolę / mažinimą.

Analizuojant Bazelio komiteto teikiamas operacinės rizikos valdymo rekomendacijas, daugiausia dėmesio turi būti skiriama išsamaus operacinės rizikos vertinimo metodo diegimui bankuose. Šio metodo pagrindą sudaro galimybė laisvai pasirinkti operacinės rizikos lygio matavimo metodą, kuris turi būti suderintas su Bazelio komiteto rekomendacijomis operacinės rizikos identifikavimui, matavimui, monitoringui ir kontrolės / mažinimo procedūroms, iš kurių kaip svarbiausios gali būti išskirtos šios: 1) ganėtinai daug duomenų, sukauptų per palyginti ilgą laikotarpį, kuris leidžia užtikrinti operacinės rizikos matavimo tikslumą; 2) 99,9 proc. rizikos lygio matavimo tikslumo užtikrinimas, kuris yra būtina efektyvaus operacinės rizikos matavimo proceso sąlyga bei 3) ribotos operacinės rizikos nuostolių dengimo draudimo ar analogiškoms išmokoms galimybės, šį reikalavimą grindžiant nepakankamu draudimo nuo operacinės rizikos atveju patiriamų nuostolių patikimumu, kurį sąlygoja draudimo rinkos dalyvių veiklos neapibrėžtumas.

Bazelio komitetas bankams leidžia laisvai pasirinkti operacinės rizikos matavimo priemones. Nepriklausomai nuo pasirinktos priemonės, operacinė rizika turi būti matuojama banko veiklą detalizuojant pagal verslo linijas. Operacinės rizikos matavimo būtini elementai, remiantis Basel II, yra vidinius ar išorinius nuostolius sukėlusį įvykių apskaitos duomenys, operacinės rizikos vertinimui rekomenduojamos naudoti scenarijaus analizės rezultatai ir banko aplinkos ir vidinių valdymo procesų vertinimas. Šių elementų pagrindu nustatomas tikėtinas metinis nuostolių dėl operacinės rizikos dydis, tiesiogiai susiejamas su minimalaus kapitalo poreikiu. Nustatant operacinės rizikos lygį, į matavimo procesą įtraukiamos dvi operacinės rizikos nuostolių kategorijos: tikėtini ir netikėtini nuostoliai. Ši nuostata naudojama valdant ir kitas rizikos formas (kredito ar rinkos), todėl jos tikslingumas gali būti grindžiamas rizikos valdytojų turima patirtimi.

Apibendrinant atliktą Basel II rekomenduojamų operacinės rizikos vertinimo metodų specifikos tyrimą operacinės rizikos valdymo priežiūros kontekste, galima teigti, kad labiausiai tikėtinas yra didelis bankų dėmesys išsamaus operacinės rizikos vertinimo metodui, kuris įgalina banką savarankiškai formuoti operacinės rizikos valdymo sistemą, o tai gali būti traktuojama kaip teigiamas veiksnys banko savarankiškumui ir kaštams. Todėl tikėtina, kad išsamaus operacinės rizikos vertinimo metodas taps pagrindiniu operacinės rizikos valdymo metodu bankuose, ir jo pagrindu formuosis bankų priežiūros tarnybų nuostatai operacinės rizikos valdymo reikalavimams.

Raktažodžiai: *operacinė rizika, Bazelio komitetas, bankų priežiūra, bazinio indikatorius metodas, standartizuotas metodas, išsamaus rizikos vertinimo metodas.*

The article has been reviewed.

Received in February 2006; accepted in June, 2006.

DOI: 10.5755/j01.ee.48.3.11361