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**OPERATIONAL RISK MANAGEMENT IN CREDIT INSTITUTIONS:
AN OVERVIEW AND INSIGHT FROM PRACTICE.
THE CASE OF CROATIA**

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ABSTRACT

The Basel Committee on Banking Supervision introduced operational risk framework in banking starting from 2004. Operational risk is generally defined as the risk of financial loss arising from inadequate or failed internal processes, people, systems or external events. According to the Basel Committee there are seven event types that can cause operational risk and these include: (1) internal fraud, (2) external fraud, (3) employment practices and workplace safety, (4) clients, products and business practice, (5) damage to physical asset, (6) business disruption and systems failure and (7) execution, process and delivery management. Operational risk is immanent to every business process in organisation and can therefore have significant material and even more reputational consequences for organisation. Having in mind the sensitivity of credit institutions to reputational risk it is evident that the impact of operational risk on business activity is significant. There are several aims of this paper. Firstly, authors will give an overview of operational risk management framework and operational risk events that may occur in banking practice will be identified. Secondly, an overview of regulatory requirements regarding operational risk will be presented with special accent put on historical lessons learned in the decade since operational risk regulatory framework has been introduced. Thirdly, operational risk practices in Croatian credit institutions will be analysed based on publicly available data. The last mentioned aspect is of special importance when having in mind the relationship between operational and reputational risk on one hand and principal – agent theory on the other. Expected contributions of this paper are: detailed systematic analysis of operational risk management framework in banking, increased awareness of scientific community about operational risk and an analysis of Croatian credit institutions' exposure to operational risk.

KEY WORDS: operational risk, credit institutions, reputation management, publicly available data

1. INTRODUCTION

Operational risk emerged as one of the last categories of risks banks are exposed to, initially being defined as “all other risks besides credit and market risk”. According to Power (2005) “this marginal conceptual position belied the significance of its role in the architecture of risk management knowledge, a role made more visible with the re-diagnosis of large loss events as operational risk failures”. The emergence of Basel II led to sustainable monitoring and management of operational risk. Power (2005) argues that “the term ‘operations risk’ existed in 1991 as a generic concept (COSO, 1991), but that the category of ‘operational risk’ did not

acquire widespread currency until the mid to late 1990s when the Basel II proposals were developed and published”.

In this paper the authors aim to: (1) give an overview of operational risk management framework and identify operational risk events that may occur in banking practice; (2) give an overview of historical movements related to operational risk management; (3) analyse operational risk practices in Croatian credit institutions based on publicly available data.

The structure of the paper follows its aims so that the paper is divided in seven parts. After the introductory notes, in second section the authors are presenting a short historical overview of operational risk management development and general terms related to operational risk management, such as its definition, main features, event types and methods of calculation of regulatory capital requirements. The third section is related to summarize knowledge on determinants of operational risk. In fourth section authors are presenting why operational risk management is important for banks besides satisfying regulatory requirements. Fifth section relates to risk disclosure as a way of strengthening relationship with clients. In sixth section operational risk practices and public disclosure in Croatian banks are presented. Final section is devoted to presentation of concluding remarks.

2. GENERAL OVERVIEW OF OPERATIONAL RISK

According to Bodur (2012) some of the cases of large banking scandals and operational risk losses encompass cases such as the influence of corruption on banking business (Bank of Credit and Commerce International), deficiencies in internal systems control and unauthorised trading activities (Societe Generale), speculative investing (Barings Bank), illegal trading with government bonds (Daiwa Bank), bomb attacks on bank headquarters (HSBC), the influence of earthquake on banking losses (banks in North-western Turkey). As already mentioned in the introductory notes, the role of operational risk has been marginal until Basel II documents release. With these documents operational risk has been established as risk equal to credit and market risk due to the fact that Basel II requires banks to calculate and allocate certain amount of capital for operational risk.

According to Principles for the Sound Management of Operational Risk (2011) operational risk is defined as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.”

One of main features of operational risk is that it is inherent to all business processes in a bank, i.e. every activity done in a bank in itself carries the risk of operational loss. How operational risk is present in every activity can best be seen when having in mind the classification of events that lead to operational risk. The Regulation 575/2013 (2013) defines following operational risk event types:

1. *Internal fraud* - Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/discrimination events, which involves at least one internal party;
2. *External fraud* - Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party;
3. *Employment Practices and Workplace Safety* - Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity/discrimination events;
4. *Clients, Products and Business practices* - Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product;

5. *Damage to Physical Assets* - Losses arising from loss or damage to physical assets from natural disaster or other events;
6. *Business disruption and system failures* - Losses arising from disruption of business or system failures;
7. *Execution, Delivery and Process Management* - Losses from failed transaction processing or process management, from relations with trade counterparties and vendors.

With establishment of Basel rules and national discretions banks are obliged to follow strict rules and regulatory requirements regarding their risk management. The mentioned Regulation 575/2013 and Principles for the Sound Management of Operational Risk (2011) define general framework for operational risk management, quantitative and qualitative standards banks need to satisfy regarding risk management and the rules for calculation of capital requirement for operational risk. The Regulation 575/2013 (2013) defines three possible approaches to calculation of capital requirements for operational risk, namely:

1. *The basic indicator approach* – the simplest approach to calculation in which the capital requirement for operational risk amounts 15% of the three-year average of relevant indicator.
2. *The standardised approach* – is based on bank's division of its activities into business lines proscribed by the Regulation 575/2013. Further to this, institutions are calculating capital requirement as three-year average of sum of yearly capital requirements for all business lines. The Regulation also allows calculation by use of alternative standardised approach.
3. *The advanced measurement approach* – is based on development of internal system for calculation of capital requirements. Strict qualitative and quantitative criteria need to be fulfilled in order for a bank to receive approval for use of advanced approach.

3. DETERMINANTS OF OPERATIONAL RISK

Li and Moosa (2015) point out that the empirical literature on operational risk and determinants of operational losses is scarce due to following:

- 1) there is a lack of good-quality data (because financial institutions are secretive about their operational risk profile) and
- 2) difficulties in modelling operational risk (because the causes of operational losses are extremely heterogeneous).

According to Li and Moosa (2013) research the determinants of severity and frequency of operational risk losses are:

- 1) people risk depends on corporate governance, corruption, ethical standards, internal controls within firms, transparency and disclosure requirements, and management style;
- 2) process risk depends, inter alia, on regulation, transparency and disclosure requirements, and legal issues such as copyrights and patents;
- 3) system risk depends, inter alia, on the state of technology; and
- 4) external risk is determined by the severity of economic fluctuations, regulation, disclosure requirements, compliance requirements and environmental standards.

In their recent research Li and Moosa (2015) discuss the connection between operational risk, regulatory framework (law) and corporate governance. They state: "Corporate governance is clearly connected to operational risk, simply because it is a control function in the monitoring of operations. As for the rule of law, the connection with operational risk is conspicuous. The rule of law has direct implications for operational losses, resulting from events such as fraud,

copyright infringement, consumer protection and many others. It is also the case that the rule of law determines to a large extent the system of corporate governance.” (Li, Moosa, 2015) Chernobai, Jorion and Yu (2011) investigate the firm-specific and macroeconomic variables connected with the incidence of operational risk events among financial institutions. The variables that are subject to the research are:

- 1) Firm-specific:
 - a. Accounting and market variables,
 - b. Governance and Directors Data,
 - c. Executive Compensation Data.
- 2) Macroeconomic:
 - a. Corporate bond yield spread,
 - b. Growth in personal disposable income,
 - c. S&P return and its standard deviations,
 - d. Rate of growth in gross domestic product,
 - e. Rate of growth in the SEC budget divided by the number of financial institutions.

The findings of the research suggest:

- 1) All of operational risk events could be mitigated by an improvement of internal control and management oversight.
- 2) Firms suffering from different types of operational risk events tend to be younger, more complex, and financially weaker. They have a higher number of antitakeover provisions, and they have CEOs with a larger amount of option and bonus-based compensation relative to salary.
- 3) These results indicate the importance of financial distress, corporate governance and executive compensation in our understanding of the risk in financial institutions.

4. WHY IS OPERATIONAL RISK MANAGEMENT IMPORTANT FOR BANKS?

Cummins, Lewis and Wei (2006) state that “by managing operational risk, financial institutions can maximize future expected cash flows by reducing the expected costs of operational loss events”. According to Koyuncugil and Ozgulbas (2009) “measuring and detecting operational risk is a complicated task fundamental element of business success and as well as hedging financial risk”.

Fiordelisi, Soana and Schwizer (2014) state that “reputation is a key asset for any company whose affairs are based on trust”. The authors have therefore empirically tested in which extent reputational losses are linked with operational risk. The results of their research suggest following:

- 1) Larger reputational losses are not linked to legal or regulatory sanctions, but mainly follow the announcement of ‘pure’ operational losses to the market.
- 2) Regarding the event type generating the operational loss, “external fraud” is the event type that produces the greatest impact in terms of reputation. “Employment practices and workplace safety”, “execution, delivery, and process management” and “clients, products, and business practices” event types are also related to significant reputational losses.
- 3) Regarding the business lines that are most exposed to reputational risk, “trading and sales” and “payment and settlement” activities generate the most substantial reputational losses.
- 4) Investors assign similar reputational penalties to both large and small operational losses and reputational damages in Europe are higher than those in America.

5. RISK DISCLOSURE AS A PATH FOR STRENGTHENING RELATIONSHIP WITH CLIENTS

Information disclosure can be classified as voluntary and mandatory. According to Macchioni and Maffei (2011) voluntary disclosure increases the transparency of information and it is considered to be a signal of management accountability. Same authors state that the agency theory predicts that agency costs vary with different corporate characteristics and that primary variable is related to size – there is an expectation that disclosure cost is decreasing in firm size (Macchioni and Maffei, 2011).

Gillet, Hubner and Plunus (2010) base their research on examination of stock market reactions following the announcement of operational losses in listed financial companies. Authors are primarily focused on firm-specific characteristics. Results obtained by research indicate following:

- 1) Firm-specific characteristic that matters for stock market reaction is the Value/Growth distinction.
- 2) Large PTBV companies suffer more from the reputational consequences of an operational loss event. Authors explain this finding by the fact that market participants may sanction more largest market actors due to anticipated externalities caused by operational risk events.

Willeson (2014) summarizes the results of existing research on disclosure of operational risk management and concludes that “there is weak risk transparency and limited risk disclosure, but there are substantial variations in risk reporting even when disclosure is mandatory”. Willeson (2014) argues that “the information provided in mandatory disclosures is not necessarily as effective as voluntary disclosures as a tool for corporate governance”. Thus, he based his research on voluntary operational risk disclosure of Nordic banks, giving the context regional character. Main conclusion of the research is that “although Basel II has affected overall operational risk disclosures, mainly determined by the bank size, the quality of disclosure is generally low”. As Willeson (2014) points out, from agency theory perspective “in terms of voluntary disclosures, a company elects to disclose information to reduce information asymmetries between the principal and the agent, resulting in reduced capital costs. The “market”, which consists of various stakeholders, can assess a company based on more accurate information and may punish (discipline) companies that fail to disclose a significant amount of accurate information.”

6. RESEARCH: OPERATIONAL RISK MANAGEMENT IN CROATIAN BANKS

In this section the authors will analyse operational risk practices in Croatian banks based on publicly available data.

Firstly, the authors are presenting last available data from European Banking Authority (EBA) for the year 2013 related to the allocation of capital for operational risk for credit institutions in Croatia. Observed data are related to: (1) the percentage of institutions using certain method for calculation of operational risk capital requirements and (2) percentage of own funds requirements in own funds requirements on operational risk.

Credit institutions: distribution by approach	% number	BIA	68,57%
		SA	25,71%
		AMA	5,71%
		TOTAL	100,00%
	Own funds requirements % of Own Funds requirements on OpRisk	BIA	13,67%
		SA	47,43%
		AMA	38,90%
		TOTAL	100,00%

Table 1. Distribution of Croatian credit institutions by operational risk capital requirement calculation approach. Adjusted according to: <http://www.eba.europa.eu/supervisory-convergence/supervisory-disclosure/aggregate-statistical-data>

As can be seen from Table 1, in year 2013 most of credit institutions in Croatia have been using the simplest, basic indicator approach, for calculation of operational risk capital requirements, followed by the standardised approach, while only 5,71% of credit institutions have developed internal model for calculation, i.e. have been using the advanced measurement approach. As for the share of own funds requirements on operational risk in total own funds requirements, the distribution differs in sense that the most funds are allocated under the standardised approach followed by the advanced measurement approach. At the same time the basic indicator approach carries the least share of requirements. Unfortunately, there are no underlying data available for these data on EBA, but it would be interesting to know the determinants of banks using certain approach. When having in mind the regulatory requirements that need to be satisfied in order for a bank to receive approval to use the advanced measurement approach, it is reasonable to suppose that larger banks that have more sophisticated material resources on their disposal are users of the advanced measurement approach. This would also explain the allocation of requirements, i.e. the fact that less banks that are using the advanced measurement approach versus the basic indicator approach, are accounting for greater share of requirements.

In order to investigate the operational risk practices in Croatian banks in more detail, the authors analysed yearly financial reports of four largest (in term of particular banks assets share in total assets of all banks; these banks all together account for more than 70% of total banking assets) Croatian banks in period 2008-2015. The analysis of reports indicates following:

1. All of the banks from sample have been disclosing mostly qualitative information rather than quantitative in their financial reports in selected period.
2. The share of qualitative information in financial reports is showing increasing dynamics from year 2008 onward on yearly basis.
3. Qualitative information that banks are revealing in their yearly financial statements consist of several elements: general definitions of operational risk (according to Basel committee), naming internal acts that are related to operational risk management, managerial structure (hierarchy and obligations) in the operational risk management process, naming the calculation approach used for regulatory requirement calculation, list of methods used in the operational risk management process.
4. All banks are using (by Basel documents) standardised definition for operational risk.
5. All banks report existence of internal Board that is in charge for operational risk management.

6. Two banks have been using the advanced measurement approach for calculation of regulatory requirement for operational risk. One bank is using the standardised approach on individual basis and the advanced measurement approach on consolidated basis (Group level). One bank is using the standardised approach.
7. As for quantitative information, most banks are announcing only one obligatory information: the amount of operational risk capital requirement.
8. Only one bank has been announcing voluntary quantitative information: the percentage of event types that have led to operational risk loss events in certain financial year, with main category of event leading to operational loss being Clients, products and business practice.

Main conclusion of this research related to Croatian banks' operational risk practice conducted on the sample of leading banks is that these banks have adopted regulatory requirements related to operational risk, but as for disclosure of information, most banks are remaining in the area of obligatory disclosure and are not keen to reporting voluntary information. This indicates that operational risk management events remain rather secretive and that banks are not so transparent in communication with clients regarding operational risk.

7. CONCLUSION

In this paper authors have defined general operational risk management terms, definitions, events leading to operational losses and short historical background of operational risk management. The importance of public disclosure of operational risk management from the agency theory perspective has been pointed out. The authors conducted research on the sample of Croatian largest banks in period 2008-2015 based on yearly financial reports. Main conclusions of research are listed in the above section and indicate satisfaction of obligatory requirements related to operational risk management disclosure, but avoidance of voluntary disclosure on the topic. One of limitations of the research is that only large banks were included. Guidelines for future research include: encompassing banks of all sizes in the research, comparison of subsidiary banks with practices of mother banks and comparison with banks located in the region.

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