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Modelling and Measurement Methods of Operational Risk in Banking

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Erich R. Utz

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Introduction

It can be observed that the banking sector is characterised by increasing competition. This process is an expression by the internationalisation and the globalisation in the most powerful economies in the world under the framework of free capital market. Liberalisation and expansion of capital exchange, technology and flow of information are important reasons. Especially less economically developed countries are on the way to improve and increase their economic position. New challenges in the European Union, represented by with their new members, are confirming the change.

Liberalisation of economic markets has a large impact on the financial sector, especially on banks. Increasing exchange of goods and services between countries, commercial banking plays an essential role as arising of financial transactions. Rising competition positively influences the creation of new banking products and services. It can be observed expansion in electronic banking for fast payments, cash management for companies' liquidity control and new instruments like derivatives, such as swaps or mezzanine capital. With respect to this fast change, as described above and fast development in banking, there is an intensive request for risk management in financial institutions.

The main thesis of this work is:

Operational risk is treated as a neglected risk category through banks' management. Modelling, defining, describing the category and estimating by measurement methods and decisions of operational risk in banking improves the whole risk management. This includes processes with positive results by interpretation and judging the importance and reducing the potential of losses and lost money.

At present time, the opinion prevails that investing money in recognition and respect of this risk category, the risk management processes will bring no additional value for the bank. In the following thesis, there is intention to express, prove and convince from the view of strategic management. It contains the proof of management opinion that it is not future oriented and it is important to realise and work on this risk category. It convinces that the failures associated with this type of risk in banking operations have negative effects on bank results. It is shown that operational risk is hard to manage as systems and methods for identifying and measuring are missing or are being misinterpreted by the responsible people. The main goal is to convince banks' management that it is an additional and future increasing value for the bank, by focussing on and managing the operational risk. Management's task should be to improve the overall position in banking, the economy and the sociology, by implementing operational risk management under a holistic bank risk management.

There are five main statements connected with the main thesis:

1. The activities in operational risk decisions will reduce losses and result in an increase of profit.
2. Policies, procedures and processes will become more effective. It will result in an improvement of orientation, lean processes and will support the process of defining strategy.
3. Bank's profit will increase through customers using financial services more intensively if they are more satisfied.
4. Managing operational risk is an economic need to reduce errors, losses and defaults in a structural manner. It strongly supports the fulfilment of regulators' requirements.
5. Operational risk as an essential risk in financial institutions depends on the bank's individual structure, operations, strategy, management decisions, staff and markets. This relates to all individual banks thereby protecting of national and international financial systems.

The main hypothesis is based on the presented important statements above. We expect that the decisions of operational risk in banking have to be an important future discipline. It should include the elements of risk identification and risk measurement methods, based on economic theory as well as legislation and regulators' requirements.

The following hypotheses are supporting the main thesis as listed:

- There is a need of a bank wide risk management including the main risk categories in banking as well as operational risk. It should be done by transformation of economic theory and science of business decisions into bank management's strategic and operational decisions, based on an economic improvement in banks.
- National and international bank wide guidelines and the exact definition of operational risk are still missing. Its interrelation with other risks, the communalities and differences of such risk categories have to be researched and highlighted with the view towards operational risk decisions.
- Defining clear and lean structures during operations in bank activities and processes is a guarantor of reducing errors and defaults and therefore a prevention of losing profit and customer reputation.
- A complete bank-risk-decisions-system supports the transportation of the bank strategy into the operational activity process.
- Operational risk decisions are different and depend on every single bank and on its operational activities and on its operational risk. The operational risk, in comparison with credit or market risk is caused by banks' own or external activities. This is the reason why it cannot be measured by the same assumptions.

The subject of risk management in banking is a crucial and wide field of activity already now and even more in future. The most important risk categories in banking are verified and their management is still a continuing development. The approaches and models are enlarged. There is an ongoing improvement especially regarding the details of implementation. The importance of risk management in intensive developed industrial countries is an essential pivot in a stable national and international financial world.

The need of risk management results in more and more open markets. Reasons are ongoing industrialisation of less developed economic countries and an increasing number of countries on the way to international economic integration. Exchange of goods, respectively currency by cash or cashless payments, credits and fast developing derivative instruments in the international financial society are indicators for the need of managing and limiting risks in banking.

The task of risk management is **prevention** and **protection** of financial risks. Reducing **first** banks' **own** economic crisis and **second** national as well as international economic crisis is a request, concerning stability of financial systems.

Regarding the risk categories, we can observe that operational risk is seen as one of the eldest risks, but up to now rarely under managements focus. Operational risk has been discussed in banking for some time. Unfortunately, no consensus has been reached on a definition. Although banking regulations are pending, no clear understanding of operational risk decisions has emerged.

A holistic risk management in banking, an implementation of operational risk management, is the request and therefore necessary for every bank management. However, in future there will be an intensive increase and development in this risk category. The following **main drivers** for this development are caused by the requirements of national and international regulators:

- Legal requirements, based on the public law, the commercial code and in the annual report. This involves an essential part in risk management and is enlarged by operational risk decisions.
- Its scope and development as well as the economic point of view of this risk are causes.
- An enlargement and increasing intensity of competition in banking can be observed.

The first chapter describes the categories of risks in banking. It illuminates the necessity of risk management in banks and represents an analysis of the legal regulations. As a framework for management in banks and the Basel Committee's recommendations as international guidelines for risk management the research of risk management as an essential part of banks' economics is shown.

The second chapter presents the operational risk as the scope of bank activity projection. There operational risk is defined through analysis of different banks and theoretical definitions. After that, the contents of operational risks, elements and features are discussed. In connection with this result, models and measurement methods of operational risk are presented. Concerning the interpretation of operational risk in banking obstacles are described.

Within chapter three, the internal structures of operational activity processes are presented. It is done by identifying the main areas of operational activities and by deriving from frames of processing approach to risks in relation with operational management. Furthermore, the procedures covering operational management and the impact of human dimensions of taking operational decisions are described. Procedures as the essential factors of influence are basis of the research and are demonstrated with examples and proposals.

The fourth chapter covers the interrelations between the operational risk measurement and operational decisions quantification. It is processed by using the data base collection. A methodology of calculation and analysis processing operational risk is proposed by presenting a measurement approach for operational risk. It is based on a limit escalation trigger and on an analysis of credit events in a commercial bank under the former researched aspects. Regarding the interrelations, there will be an evidence of the social communications with the frames of interpretation. At this stage, this is an important point in the area of operational risk decisions quantification. In addition, a new approach to calculation of bank services involving operational risk is demonstrated. The possibilities of operational risk decisions by application of operational risk evaluation into operational decisions by the approach of **accepting, reducing, avoiding and transforming the risk** are illuminated**.**

Concerning the structure of operational risk and operational management, the fifth chapter examines the adaptation of operational risk analysis to operational decisions. Concerning aspects of the processive approach to operational decision taking in a bank, a risk control loop is generated. It is presented its development, each operational process and its decision. Then the necessity of medium management involvement in operational risk control is highlighted and a proposal of integrating the staff into this risk management is presented. The influence of staff education on bank management is researched. Concerning the Basel Committee’s proposals of respecting operational risk streams of an adaptation, based on the Committees' suggestions are shown.

The sixth chapter examines the modelling of bank decisions system respecting operational risk. The analysis is in finding and defining the requirements and elements of modern operational decision system with respect to streams of information in the frames of the system. It is emphasised that there is the need of monitoring the system's efficiency. At this stage, the common and different goals and objectives of operational risk versus financial reports in commercial banking are discussed.

The last chapter analyses the tendencies of operational management practice in commercial banks in Germany. The characteristics of the present economic position of commercial banking in Germany are shown. It is based on main economic bank figures and ratios. In this context, an analysis of the influence of market situation on operational management with respect to banking institution competitors in Germany is presented. The proposals of obligatory risk report focus on the risk sustainability and present a holistic risk management report. It involves the important bank risks and the driving power and obstacles in improvement of bank operational management in commercial banking. Those are discussed, based on the methodology of micro and macro environment analysis including the theory of the model of intensity of rivalry, based on Michael Porter.

In addition, the following specific theories are involved: the Shareholder Value approach, based on Alfred Rappaport and the Competitive Strategy by Michael Porter as one of the most important strategies.

The research work is based on national and international source research such as scientific handbooks, laws and regulations, journals, publications of the Basel Committee as well as others. In addition, lectures and conferences on risk management, empirical analyses of statistical data and practical experience in bank risk management as well as historical events in banking are used. In this thesis, the application of the theory used in the manufacturing industry will be transformed to the commercial banking industry.

Dr. Erich R. Utz is professionally experienced in banking more than twenty-five years, extensively over fifteen years in bank risk management as a head of the asset and liability department.
Since 2000 he is a lecturer concerning risk management in financial institutions at the Frankfurt School of Finance & Management. Referring to the subjects of risk-, asset- and liability management and as well legal supervisory affairs in banking he has been a consultant. Presently, he is the head of consultancy including the competence centres credit, risk management, asset and liability management, supervisory requirements, sales management and process management in banking.