

Insurance as Operational Risk Management Tool

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Abstract. The paper focuses on the current topic of operational risk management in financial institutions. Particular attention is given to the possibility of using insurance as a specific tool for managing operational risk. Insurance is analyzed in terms of its relationship to operational risk - the overall operational risk insurability, specific types of insurance the individual categories of operational risk, barriers to a wider usage of insurance, the nature of operational risk and insurance benefits as well as the disadvantages of the use of insurance. Also described is the possibility of considering the insurance when calculating the regulatory capital requirement under Basel II.

Keywords: Operational Risk, Insurance, Basel II, Bank Regulation, Risk Management

1. Introduction

Operational risk (OR) is gaining an increasing interest of financial institutions, both because the Basel II sets the requirements to manage this risk, but also because of the ever-increasing losses from operational risk events. Operational risk is thus reaching the same level as the key banking risks - credit and market risks. BCBS (2006) defines OR as the risk of loss resulting from inadequate or failed processes, people and systems or from external events. This definition includes legal risk but excludes strategic and reputational risk. OR is responsible for 20-30% of total losses in the Czech banking sector. The paper discusses the use of insurance as one of the tools for managing OR.

The work is divided into five chapters. The second chapter defines insurance, the impact of insurance on the size of capital and the basic parameters of insurance (the aspect of time, insurance, liability, net loss, etc.). The third chapter deals with the specifics of OR insurance - this section analyzes the insurability of risks and its operating limits, legislative changes relating to insurance policies that were introduced Basel II. They discussed the advantages and disadvantages of insurance OR. The fourth chapter summarizes the benefits of insurance in OR management and the fifth chapter presents potential problems of this tool

2. Basics of Insurance

From a legal point of view insurance is defined as a contract between two parties where each agrees to meet predetermined financial obligations. The policyholder agrees to pay a predefined amount of the insurance premium to the insurer in exchange for taking a risk, which is subjected to the insurer. The insurer is obliged to provide the policyholder (insured) financial coverage in case of an insurance event. The policyholder is paying the price for the opportunity to exchange an unknown and uncertain financial impact for the known amount of the insurance premium. An insurance contract therefore (1) transfers the impact (from the policyholder to the insurer) and (2) changes in timing (the policyholder does not realize an ex-post loss, but the ex-ante fixed payment in the form of an insurance premium). Insurance is closely connected with risk, which is considered in this context, more like a probability associated with occurrence of insurance events. From this point of view, insurance contract affects (1) the factors (i.e. risk) and (2) the event resulted in reducing the financial impact of losses by insurance reimbursements. Price of insurance coverage is reflected mainly by three parameters: deductibles, maximum coverage and insurance premium:

- Deductibles exists as a result of incomplete compliance with all conditions of risk insurability of risk; In cases where insurance event probability is very low and risk of moral hazard is very high. The form of deductibles may vary depending on the type of insurance (1) a fixed amount independent of the loss amount (2) percentage of the loss amount (3) a combination of both principles. The amount of deductibles is given by (1) the nature of the risk (2) the extent of insurance coverage.

- Maximum coverage is set as another possible measure to eliminate moral hazard. The limits are set in relation to (1) specific events (e.g., robbery of a branch) or (2) the total contract (mugging all branches within a certain fixed time). The existence of maximum coverage limits and deductibles is one of the obstacles to full inclusion of all risks within the insurance cover (risks are covered only in a certain interval).
- Insurance Premium can be viewed as the price of insurance protection provided, fixed costs of risk transfer or payment for the transfer of negative financial consequences of uncertainty. The amount is determined by the insurer based on relevant factors reflecting (1) substance of the risk (quantification, the average loss, etc.), (2) policyholder properties (e.g. its size, past losses suffered due to this risk), and (3) the specific relations between the two entities (such as bonuses for prolongation of contract).

3. Use of Insurance for OR management

The estimated yearly losses in connection with insurance reimbursements paid due to operational risk events amount to several hundred million euros. From this perspective, insurance is definitely not negligible tools for OR management. More or less any general theory of insurance is applicable to the area of operational risk. Generally, in case of a homogeneous insurance portfolio the distribution of insurance claims can be considered as normally distributed, discrete, independent variables. This assumption does not fully hold in case of OR insurance. There arises the problem of imperfect match of homogeneous insurance strains to the risk categories as they are set by Basel II, which creates problems in terms of the existence of insurance gap, insufficient funds, etc.

The ideal situation would occur if the extent of coverage offered for OR exactly copy all the possible OR losses. But this is hardly feasible, for several reasons: (1) the existence of short and vague definition of OR (2) the dynamic nature of OR, with the development of technology and banking products leads to new risks/losses falling under the definition of OR (3) the difficulty to quantify certain types of OR (eg loss of key personnel) (4) co-existence, ceilings and exclusion clauses. Some authors, eg Brandts (2004), attributed the low ratio of insurability operational risk to high levels of deductibles and low maximum limits. Marsch (2003) mentions the existence of insurance for roughly 30% of all risks falling within the definition of OR.

The OR itself is determined by two factors, and that is (1) loss frequency (2) loss severity. Based on those two factors, the OR events are divided into the following groups:

- Events with high frequency and low severity are usually absorbed by capital set aside to cover expected losses. They are more easily predictable and their impact is usually already included in the cost of the product itself.
- Events with low frequency and high severity, on the other hand, are much more suitable for insurance coverage. Insurance Working Group (2001) comes up with the idea that "insurance should specifically be used to transfer risk for those events." The problem is that these events are often difficult to quantify. Due to that, the corresponding insurance contract is characterized by (1) higher level of participation/deductibles and higher level of insurance premium and (2) limited offer. In this group are included as well so-called catastrophic losses, or losses that exceed the value of capital held by bank, and which may endanger the existence of the bank. For those events a co-insurance or horizontal transfer of risks across multiple insurers is often used.

3.1. Insurance as OR Management Tool within Basel II Framework

According to BCBS (2003) an operational risk events that are subject to insurance should satisfy three properties:

- Law of large numbers
- The loss event should cause unexpected damage, ie the risk should be random
- Loss should be objectively measurable and quantifiable

For studying a problematic of insurability of operational risk, it is first crucial to identify the relationship between capital and insurance, especially whether it is a substitution relationship or not. The revised Basel II document admitted only a limited possibility of substitution of capital by insurance. Although it is allowed to deduct a part of the regulatory capital charge that is covered by insurance from the total capital charge, the

Basel II at the same time sets (1) maximum level of deduction equal to 20% of capital charge and (2) mandatory conditions for the possible use of insurance in this calculation.

For calculation of capital requirement, insurance may be taken into account in the following two ways:

- Aggregate method - separate valuation of insurance coverage and the subsequent deduction from the total loss.
- Loss specific method - considering the effect of insurance for each individual loss.

Both approaches lead to a reduction of capital requirement compared with the method without insurance. Study of Insurance Companies (2001) proved using an empirical case that the greater extend of capital savings will be achieved by the of the aggregated method. The advantage of the first approach is its simplicity, it approximates the amount of risk transferred from banks to insurance companies. However, the second method is more realistic. Under this method, the amount of insurance coverage is considered while calculation the total loss L using the Monte-Carlo simulation. The incorporation of insurance coverage changes the amount of each loss (variable x_i); frequency of losses is not affected. By changing the amount of the total loss L , insurance affects the expected VaR and the actual value of the capital requirement as well. This approach was used by Brandts (2004).

The values determined by both approaches may differ, because in the first case inefficiencies of insurance are included; second method takes into account the specifics of a particular event, such as participation and maximum size limits. Insurance deduction should be higher in the first case, which is empirically confirmed by the Insurance Group study from 2001.

3.2. Types of Insurance Contracts for OR

There are various types of insurance contracts offered for insuring against OR loss events. However, they do not match to the distribution of OR events to the seven risk categories defined by Basel II. Conversely, those insurance contracts can cover more categories of risk. The most common insurance contract for OR is the insurance-specific risks (specific peril) contract, which covers certain causally related to risk. The disadvantage of this approach is possible inefficiency caused by existence of gaps in insurance coverage or, conversely, the possibility of overlapping of individual contracts.

The following are the most common types of insurance contracts for OR and their content coverage:

BBB insurance (Bankers Blanket Bond) - this is a specific bank insurance type. The scope of this type of insurance is quite broad and covers damage to property of a third-party or a bank itself caused by fraud of an internal employee or an external person. Specifically, this insurance cover applies to the direct damage caused by: (1) employee fraud (2) material damage to equipment resulting from the bank robbery, robbery or destruction (3) fakes legal tenders (4) fraudulent falsification of documents and bank instruments (5) alteration, falsification, loss or theft securities (6) damage caused by extortion (7) loss or destruction of property not owned by these persons have transferred the bank.

Electronic crime – this insurance type covers direct damage to the financial assets of the bank or third parties caused by electronic crime or fraudulent manipulation of information systems. Specifically, insurance provides protection against (1) infection of bank IT systems by a computer virus (2) fraudulent, theft or modification of electronic data (3) an external computer-phishing, pharming, etc. (4) of a hacker attack (5) making a false statement by the client electronic communication.

Professional Indemnity - this insurance covers the bank's potential claims against third parties, mostly clients in respect of claims arising from negligence, error or breach of duties of the employee within the specific services provided by the banking entity (eg investment banking).

Directors and Officers - this type of insurance covers damage to the assets of the bank or third parties caused by unintentional errors of executives of the bank.

Employment Practices Liability Insurance - this insurance covers potential employees' rights to an entity related to the violation of labor law such as discrimination, harassment, breach of contract, tortious interruption of employment, etc.

Unauthorized Trading – this insurance covers damages resulting from unauthorized trading of staff on the bank account. Although unauthorized trading in recent years caused catastrophic bank losses (eg

SocieteGe) or even a bank failures (such as Barings), this type of insurance is seldom used due to the high premium rates and deductibles.

Property insurance (business and industrial risks) - property insurance include a relatively diverse group of assets. These include risks whose realization leads to damage to tangible property, such as natural, water risk, theft and vandalism, accident insurance, etc.

Business interruption insurance - provides compensation for direct damages arising as a result of business interruption due to damage to property.

Liability insurance - covers damage to property of third parties caused by the operation or unintentional errors caused by the entity. These losses are not caused by a specific activity of the policyholder (eg investment advice).

4. Benefits of Using Insurance as OR Management Tool

One of the key benefits of using insurance as OR management tool is the improvement of control mechanisms through the monitoring role of the insurer. Theory of "agency costs" indicates that for most stakeholders the monitoring of the effectiveness of management of OR is expensive, but the entities might face a risk if the OR is not sufficiently monitored. Bena (2006) sees the benefits of insurance in the elimination of information asymmetry between shareholders. For insurers themselves, who have extensive experience in monitoring roles, is not so expensive to obtain relevant information. The insurer is also equipped with a means by which you can provide a sufficient level of OR management and compliance controls, for example through financial penalties in the form of increased premiums, reduced the maximum limit of insurance or the threat of termination of insurance contracts.

Insurance Working Group (2001) sees one of the major benefits of using insurance in the ability of risk pooling and subsequent use of the law of large numbers (LLN), which creates positives for both sides of the contractual relationship. The insurer incorporate a larger number of risks within a homogeneous portfolio uses LLN to determine the realistic prediction of the frequency and amount of losses, and thus more accurate calculation of the insurance premium, giving the policyholder in average a lower premium rate. The logic of LLN shows theoretically that the insurer receives sufficient funds for the payment of any potential insurance claims, which reduces uncertainty regarding compensation for the policyholder as well.

Another advantage of insurance can be derived from the definition of insurance as "exchange of uncertainty for certainty." Specifically, the exchange of risk associated with the existence of an uncertain financial impact of potential risks by pre-known financial implications in the form of premiums. From this perspective, insurance can therefore be understood as a means of settlement and stabilization of cash flow. Insurance Working Group (2001) empirically confirms the positive impact of insurance to offset the excess cash flow volatility.

Among other generally accepted insurance benefits can be included (1) tax incentives for the system with increasing marginal tax rate (2) legal and administrative assistance in the implementation of the insurer's risk, and possibly help with the valuation of damages due to the larger experience of the insurer (3) elimination of the financial impact of catastrophic losses which may lead to a reduction in the total value of the or growth of confidence among customers, suppliers and other stakeholders (4) reduction of the moral hazard arising by insurance of deposits.

5. Potential problems of Using Insurance as OR Management Tool

BCBS (2003) sees the fundamental problems in potential counterparty risk, liquidity risk, legal and basis risk. The study also mentions a negative way of the definition of insurance for OR as a mere transfer of operational risk to the other above mentioned risks.

Payment uncertainty - is defined as the possibility that the insurer does not pay such amount of insurance compensation, which the policyholder is expected on the basis of the contract, ie. Insurer will not recognize the right of the policyholder or the insurance claim is accepted only in part. This may be caused by (1) misinterpretation of the insurance contract (2) failure to comply with the conditions prescribed by the policyholder or (3) disagreement between the parties on (a) cause the insured event (eg, whether an

intentional act) or (b) the size of insurance coverage. The rate of payment uncertainty can be estimated using the ratio of compensation, which is defined as the ratio of the total amount of claims rejected by the insurer and the total amount of all claims required by the policyholder for a specified time period. Brandts (2004) states that about 20% of insurance claims are not accepted by the insurer.

The risk of counterparty failure - counterparty risk arises from the transfer of operational risk in insurance, in which operational risk is transformed into credit risk. The risk in this case is understood as the possibility of full or partial failure of the insurer's ability to fulfill the conditions agreed by the insurance contract because of his financial difficulties. The concept of Basel II is therefore allowed to use insurance deduction only in respect of insurance with an insurer with a minimum rating of A.

Liquidity risk - the risk relates to the timing of payment of insurance compensation from the insurer. A significant time discrepancy between the date of receipt of compensation for damage may cause a liquidity issues to the bank subject and the potential extra costs on borrowings due to the need of external capital. The reason for the delay can be seen in (1) investigation of the conditions of the insurance contract by insurer (2) investigation of external events. Marsch (2003) calculates the average time of processing insurance claim to be about 100 days.

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