

CAPITAL REQUIREMENT FOR OPERATIONAL RISK

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ABSTRACT

Over time it was concluded that the risk associated is a vital component of all economic activities, which can not only manage the fight, considering that if they do not assume any risk you may lose opportunities to win, which means that the risk assumed under established can bring value to the institution, representing a process of risk management becomes competitive advantage. Increased operational risk in recent years has been enhanced by the creation of products and services ever more complex financial innovations, increased competition, etc.. That required an adequate operational risk management and included in the internal capital estimation and allocation. Due to its novelty and importance of operational risk treatment I chose this theme, showing how to calculate the capital requirement needed to cover operational risk for a institution in Romania using both simple methods and advanced methods, in order to highlight the approach best.

Keywords: *Operational Risk, BIA, SA, AMA, LDA, EL, UL*

1. INTRODUCTION

Risk is a future and uncertain event that could not be disregarded but only manage (ensure minimizing the likelihood and potential effects for the entity to obtain maximum profit), considering that if they do not assume any risk you may lose opportunities to win. Over time many opinions have been formulated on operational risk and its management methods, but the complete definition in terms of causes, can be adopted by any institution is formulated by the Committee on Banking Supervision Basel to consider operational risk as "risk of direct or indirect loss resulting from deficiencies or failures of procedures, personnel, internal systems or external events". Thus this definition is the main component of legal risk - "manifestation" of potential operational risk, representing an indirect question arising from one or more reasons (personnel, processes, systems or events outside the organization), but excludes: strategic risk (because is difficult to determine the financial loss incurred) and reputational risk (because although it can identify the consequences appear to be diffuse and pre-calculated data).

Basel Committee proposed three methods to quantify operational risk with varying degrees of difficulty, namely: the basic indicator approach, standardized method and advanced method. The first two approaches are considered rather security measures and not measures of determining exposures. In the advanced methods are part of the loss Distribution Approach, Internal Assessment Approach Scorecard approach, thereby providing institutions flexibility in design approaches based on internal models database and included in the operational risk management. About these approaches in the literature two views have emerged: practitioners who recommended approaches are complex since they offer advantages and practitioners who consider these methods too expensive prefer a simple approach.

2. DETERMINING THE CAPITAL REQUIREMENT

Determining the capital requirement in the following using econometric study were determined capital requirements for institutions in Romania, using the methodologies proposed by the Committee on Banking Supervision in Basel. Losses incurred due to operational risk have been identified and related international standards:- The eight business lines: corporate finance, trading and sales, retail Banking, Commercial Banking, Payments and settlement, agency services, retail brokerage, asset management- And seven types of events: internal fraud, external fraud, risks arising from relationships with customers, products and business practices, damage to physical assets, business interruption and performance, execution, delivery and management processes related to employment conditions and job security staff labor. Thus the determination of capital for operational risk under the Basic Indicator Approach apply factor 15% of average gross income obtained during three consecutive years.

In Figure 1 presents the evolution of the gross income of the institution analyzed.

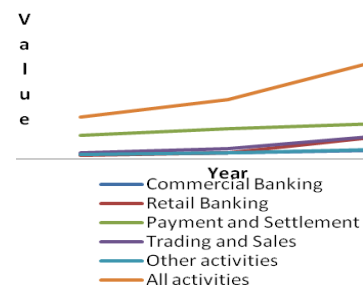


Figure 1 Evolution of gross income of the institution analyzed

Obtain high values for a particular business line gross income shows size and intensity of activity in

those industries institutions, departments involved providing information about potential losses that may occur and the amount necessary to cover losses related to operational risk. As remarked in Figure 1 most active lines of business in terms of income are activities to obtain payment and settlement, trading and sales respectively. To determine capital requirements for operational risk under the Standardised Approach is the first step of allocating gross income for each business line and it will apply the appropriate risk weight (12% for Retail Banking, Retail Brokerage, 15 % for commercial banking Services, agent, asset management and 18% for corporate finance, trading and sales, payments and settlements).



Figure 2 The capital requirement under the standardized approach to business lines

Thus as shown in Figure 2 and increasing proportion of the capital requirement is allocated to payment and settlement business lines, followed by trading and sales business line consistent with results obtained and the information revealed by Figure 1.

Advanced method for considering the information provided by the institution on which analysis was done was presented individually Loss Distribution Approach was applied. Risk profile was originally developed and built operational risk matrix types of events and business lines, with the starting point for developing sources of risk - as you may have different statistical properties for the distribution frequency and severity of losses for each cell the risk matrix.

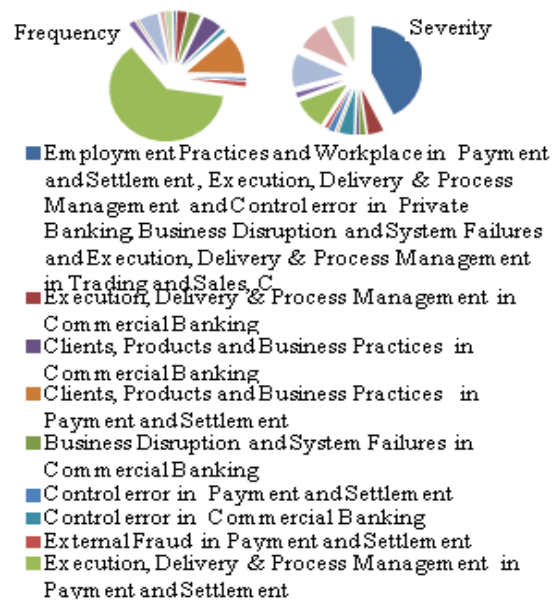


Figure 3 Allocation of number of losses and distribution of the losses on each cell of the matrix

Next to each cell of operational risk matrix observations were modeled in terms of severity and distribution of the frequency distribution Frequency distribution was modeled with the Poisson distribution parameter is set to represent the average value of loss arising for each cell of the matrix of operational risk. For modeling the severity distribution parameters were estimated gamma distributions, Exponential, Normal, Pareto, Weibull for each cell of the matrix of operational risk and reliability tests by: chi-square, Kolmogorov-Smirnov, Anderson-Darling plan Quantile-quantum were selected Exponential distribution as the empirical distribution close.

After repeating the process for each cell of the matrix Monte Carlo simulation is used to aggregate distribution frequency and severity of losses, using VaR methodology, commonly used for distribution of aggregate losses, such as fixed capital requirement (value at risk) in each group events. Average aggregate loss distribution is determined as the product between the media and media distribution Poisson distribution Severity (exponential or normal) level resulting such provision (expected loss) Capital reserve to cover unexpected losses are determined as the distribution function of aggregate loss distribution (VaR) and the expected loss

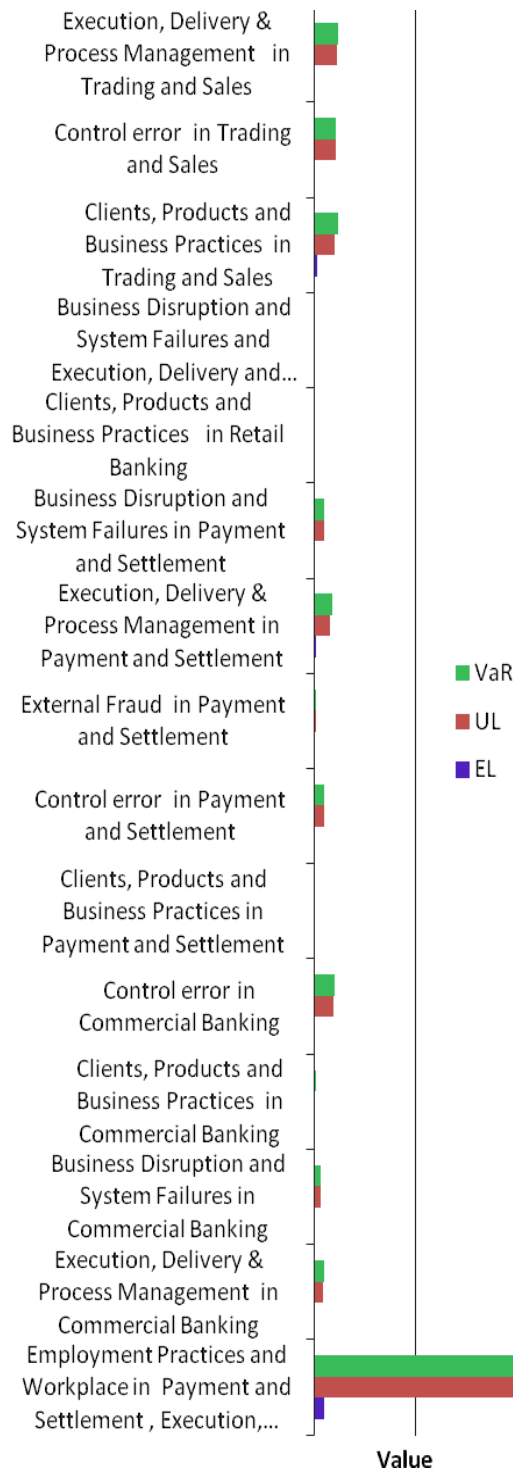


Figure 4: The expected loss, unexpected loss and total loss of business lines and event types for the institution

To cover the average loss should be a provision for expected loss, and if it wants to protect the stability of the activity must constitute a serious additional capital against potential losses related to unexpected loss.

If the institution fails to create reserves above may occur losses equal to the sum of expected and unexpected losses that affect profitability and thus will affect the outcome of the shareholders. Capital

requirement is the total risk value for each cell of the matrix risk, confidence interval was set at 99.9%. Thus in Figure 5 was synthesized methods for determining operational risk capital requirements related to the institution.

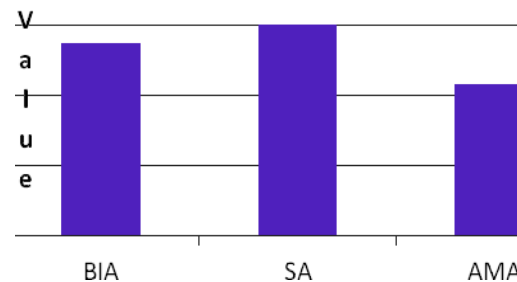


Figure 5 Synthesized methods for the institution

Analyzing the first two approaches (basic indicator method and standardized method) find an increase in capital requirements is explained by the fact that the main line of business is sales and trading and settlement payments for which $\alpha = 15\%$ and $\beta = 18\%$. Minimum capital is allocated using the Distribution loss approach because it can identify, measure and manage operational risk more effectively - achieving a consistent economic capital needed to cover this risk.

3. CONCLUSIONS

With the increasing complexity approach, equity decreased significantly explained by the fact that by using advanced approaches can identify measure and manage operational risk more effectively achieving a consistent economic capital for operational risk.

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