
ECONOMICS

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Received: June, 2009

1st Revision: September, 2009

Accepted: November, 2009

**LOGISTICAL CAPITAL
MANAGEMENT SOLUTIONS, USING
THE DRAFT – SOLVENCY II**

ABSTRACT. Logistic management of capital can be used as an accurate measure of an insurance company's solvency margins and identification of needs, depending on the characteristics of individual insurance companies, taking a disproportionate risk of dependence on the insurance company's performance. This may be true for the Solvency II project, which aims to determine each individual insurance company's level of risk more accurately. This requires the insurance company's solvency indicators. One unclear logistical advantages of capital management theory in this context is the risk level of the interface compared to the insurance company's size. These interfaces logistical capital confirms the usefulness of developing the theory of the solvency of insurance company's management methodology.

JEL Classification: G22, L85 **Keywords:** insurance, logistics capital, real estate services, Solvency II.

Introduction

The development of the insurance sector and the expansion of the range of services will increase through to insurance company's activities in the broader and more complex forms of risk assessment. This leads to increased risks to insurance companies, determining the solvency opportunities and highlighting the management problem. In 2007 on the 10th of July. the European Commission proposed a fundamental review of EU insurance law (replacing 14 existing directives one). This was done envisaging that the review would set new requirements for insurance companies in the financial market in the light of recent developments in the field of insurance, risk management, financial accounting methodology, and so on. The new system (so-called "Solvency II") would replace the already existing 30-year rulings of the insurance legal framework which did not sufficiently reflect the truer risks of insurance companies.

Under the principle of Solvency II most attention should be paid to the insurance sector in the process of strengthening the supervisory system, the stability of financial markets and greater coherence in the insurance laws, and this would lead to the need to assess all

aspects of the insurance company's solvency and risk, which arises from the risk factors aspects. In order to make more precise readings the insurance company's risk assessment would inevitably have to be use advanced risk measurement techniques and methods to characterize the risk and the solvency of insurance companies under the various factors affecting business. It is worth exploring opportunities to assess the solvency of insurance companies using the logistical management theory of capital. This article attempts to assess the benefits of the capital logistical management theory adapted by the Solvency II project, focusing on the most efficient insurance company's solvency margin requirement settings, depending on the insurance company's risk factors.

Object of this article to show the logistical capital project management theory Solvency II. Aim of the article – to assess the logistical management of the capital theory of the draft Solvency II, and its opportunities and benefits.

The preparation of the article, addresses of the various authors and organizations [2,3,5,9] Publications, including the Solvency II project analysis and criticism of the capital, and logistical management theory adaptation options.

Solvency II project and the relevance of reasonableness

Insurance, which is the risk of transmission (assumption) for a reward, one of the key success factors. are properly evaluating the solvency of insurance companies and the possibilities, depending on the level of risk and the likely scale of risk compensation. Therefore, much attention has been paid to the solvency of the insurance industry. This is in evidence by the broad and complex legal framework from the European Union, which regulates the solvency of insurance companies. Solvency of insurance companies may affect almost all the features of economic life, and the insurance company Executive decisions affecting such areas as tariff setting, reserve evaluation, risk selection, reinsurance, investments, sales efforts, and others. As well as external factors, there are also internal factors such as inflation, the legal framework and changes in both local and international markets. The maintenance of solvency is one of the major problems for management in an insurance company.

An insurance company's reserves depends on the size of the risks incurred, covering the expiration, the expected damage to the flow and other factors [3] In order to determine whether the insurance company is able to meet its obligations, the assets are compared with future obligations, and, based on a calculation, determine how many additional assets must be firm and if it can be kept solvent. In this way, we evaluate the solvency of insurance companies, i.e. cover its potential liabilities, and their variations.

With the Council of the European Union being the first directive, the solvency of insurance companies in question is very important and calculations are made based on the following concept. Each insurance company must have [5]:

- The technical provisions corresponding to the risk assumed under the insurance contract. These reserves shall be determined by the company.
- The solvency reserve – the additional financial security. Directives noted that, in order to objectively evaluate different companies in the commitments made in the light of the insurance company contracts volume, it is necessary to rely on two indices, firstly, the assessment of premiums received; secondly the payment of claims.
- The guarantee Fund, which consists of funds available from the commitment of at least 1/3 of the solvency limits. This fund shall be established so that the solvency margin does not rise to a level that poses a threat to the insurance company's financial stability.

In 1995, An EU working group was created to examine the insurance company's capital adequacy assessment. Thus was born the draft Solvency I, focusing on ensuring the

solvency of insurance companies, and placing the problem of guidance and directives of validity, indicating the solvency of insurance companies, and management techniques. Subsequently, the development and the development of the insurance sectors have highlighted the deficiencies in the draft Solvency I, of whom the most emphasis is on the fact that it, does not take into account all the insurance company's activities entailing the risk factors. As a result, the European Commission launched a comprehensive insurance company's solvency management reorganization, therefore developing the draft Solvency II. By default, the Solvency II framework should be similar to the banking system of the Basel 2 three-pillar structure, and include the following key elements [9]:

- Risk assessment based on enterprise management and capital calculation.
- Harmonization on a European level.
- Changing the rules-based system of principles-based system.
- Disclosure of information in accordance with IAS, and (or) the requirements of IFRS.

In order to realize its goals, a reorganization of the existing legislative framework, the determination of such basic terms and conditions [4]:

- more risk-sensitive solvency requirements necessary to improve the financial soundness of insurers. It is expected that these requirements will ensure that insurers have adequate reserves for potential disasters (such as storms, accidents, etc.). And increase the insurers' financial strength;
- insurers' capital will be assessed in the light of all the risks under the "Own risk and solvency assessment";
- monitoring system will be based on the evaluation process, insurers and risk management and risk management systems;
- insurance groups will be transferred to the "supervisory authority in groups, which work together with the national supervisory authority. Such cooperation will improve the security risk assessment and will help to better manage those risks;
- insurers have to hold a certain amount of capital that could withstand the potential market risk, credit risk and operational risk. The risk management is not provided for existing laws.

Risk management, using the Solvency II project, highlighted the need to assess each insurance company versus the solvency margin, thereby ensuring that the insurance company's potential to function was effective, regardless of the short-term market changes. As the Insurance Supervisory Commission [4], Lithuania, as in other EU Member States, the insurance company's available solvency margin represents the insurance company's assets free of any foreseeable liabilities. Since Lithuania's available solvency margin is equal to the guarantee fund, it must constantly be not less than:

- The required solvency margin.
- The minimum guarantee fund.

Solvency I, is the existing system for monitoring the insurance risk but Solvency II will evaluate not only security, but also market, credit and operational risks, and risk management including the entire insurer's balance sheet.

One of the improvements of Solvency II accents the objectives of insurance companies and individual risk assessment. The aim is to move away from the existing "averages" or "universal" solvency of insurance companies using the same rules and principles, but personalize insurance companies, reducing the risk of each insurance company to determine the required solvency margin. Therefore there is the need to use advanced scientific risk and solvency assessment methods that allow insurance companies to identify the differences within the various aspects of each insurance company to determine the required solvency indicators, independently of the other insurance company's performance. One of the solutions, the value of integration in the Solvency II project, identifies the logistical management theory of the capital.

Logistical management of the capital theory of integration in the draft copy of the Solvency II

The insurance company's main business – is risk-taking. The insurance company, taking over the risk from the policyholders, undertakes to compensate for losses related to the expression of risk. This activity is associated with certain costs, which are seen as a medium of expression and the likelihood of a loss. The insurance company requires financial compensation for taking that risk which is regarded as the second component in the principal insurance premium structure [8].

Risk management, in a broad sense, can be defined as a tool, which makes it possible to insure against future plans being disrupted [2]. More specifically, in assessing the risks, countries and companies assess how these risks could affect their future cash flow and long-term plans, and decide how best to insure against such risks. The more variable factors, the higher their influence on the balance of payments, export earnings and the various cash flows. Risk management is the instrument with which the planning process will ensure the need to even out these fluctuations. Risk management of topical financial sector, which is extremely high risk and performance of the interface.

Risk management is one of the most important activities of an insurance company. Risks associated with the benefits and contributions to the variation in the likelihood ratio [1], is an integral part of the security services, because insurance companies income is received as part compensation for risk-taking and the provision of risk reduction services to clients. Therefore, the risk management decisions can be crucial to the success of the insurance company and its very existence. Risk management is treated as a complex process consisting of risk identification, evaluation, monitoring and control / mitigation phases.

Although the practice of consensus contains many different definitions of risk, all of them are characterized by two elements: uncertainty and loss. Uncertainty - the uncertainty of certain events, actions, or possession of the results. There is uncertainty on four levels [2]:

- There is no uncertainty - you can provide accurate results.
- The first level of uncertainty - when the results are known, and the results expected.
- The second level of uncertainty - when the results are known, but these results, the likelihood of unknown (the probability of fire in a car accident, investment).
- Third level of uncertainty - the results are not entirely clear, and the likelihood of these results is also unknown (space exploration, disaster, genetic testing).

The risk management process and the level of detail by the author may be more or less, highlighting the difference in the number of stages, but in any case, the structure of the risk management process is similar to the risk management solutions delivered by the order, so, regardless of the risk management process details, the risk management process can be adapted to the base of risk management solutions, or modifications (for example, the risk of loss accounting procedures, the potential risk of identification and elimination of fireplaces, etc.). The risk management process allows the treatment to evaluate the risk management objectives and a measure giving a more detailed understanding of the concept of risk assessment - the perception is necessary for effective risk management process.

Effective risk management can be achieved only by using the risk characterizing methods. Given the need to assess the risk and scale, depending on the different aspects of the insurance company, it is assumed that the assessment of risk, and solvency, is appropriate to adapt the logistical capital management solutions.

Logistical management of capital theory is based on the assumption that the real world capital is usually not a long-term increase at a similar pace. Growing capital not only agrees to the external resistance, but also to itself in competition. This is particularly evident in a closed system, which has given the capital needed to sustain the growth of limited resources.

The initial capital in such a system allows the growth rate to decline gradually, until finally, the severely retarded, and all stops, i.e. operate under a marginal decline of capital law [10].

Classical logistical functions of the expression describe the trend of capital growth, which enables precise identification of the upper and lower limits for the amount of capital [11]

$$K(x) = \frac{K}{1 + e^{-\lambda x}} \quad (1)$$

Here,

x – capital accumulation time,

K – the maximum (upper) limit the growth of capital,

K (x) - accumulated capital at the time of the value of x,

- capital growth rate.

Graphical logistical functions Expression submitted in Figure 1 shows that logistical capital Theory refers to the provision that capital, whatever its origin or Accumulation nature evolves indefinitely i.e. dependent various capital growth determinants, capital growth pace, increasing accumulated capital hand certain point starts to decrease, while reaching maximum possible value. This maximum threshold is more of a theoretical nature but allows identification of capital growth rates deceleration.

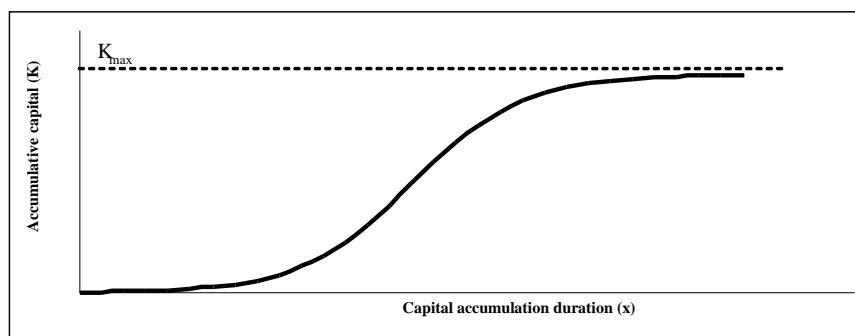


Figure 1. Capital accumulation of logistical functions of schedule (according to the author concluded: Girdzijauskas, [11])

Questions logistical function of the growth of capital, as the Girdzijauskas S. [11] the real meaning of the whole number of heap and changing the range (0, K). Over the period of capital accumulation, this feature (given the case – the capital) is drawing to a constant value K.

Presented logistical capital theory of growth can be adapted for assessing the solvency of insurance companies need to, depending on their level of risk incurred.

Logistical capital theory in assessing the usefulness of the insurance risk and the solvency of enterprises can be illustrated by a study showing the evolution of the risk of financial institutions and the exchange of its size (the size of financial institutions in this case relates to the general financial institutions, income).

Logistical capital corresponding to the principles of the theory of financial institutions and the size of the risk for addiction confirms that Yu Shih [6] would carry out empirical studies, which examined how financial institutions indirect risk level, increased its revenue. Indirect risk, in this case, is treated as a risk which is not directly defined by the individual transaction level. Insurance firms eliminate that risk, for which the insurance company is directly responsible for, by creating insurance premiums, i.e. eliminated from the client for a fee and therefore taking the risk. In this case the insurance company's transaction-related risks

are operational, market, interest rates, the strategy and so forth. Therefore the author, on the basis of their research results, made the following conclusions:

- Financial institutions risk losing a very small amount, (about 5 percent.) Risk of loss equals the amount of variability.
- Financial institutions are closely associated with the size of the amount of absolute terms, but this relationship is not direct.
- There is a clear deceleration of growth in the size of the trend growth in the financial institutions involved.

Figure 2 shows the size of risk of loss to financial institutions for the income from financial institutions belonging to the general revenue of absolute amount of interpretation. According to Yu Shih [6] empirical research leads to the conclusion that there exists a contradiction between the management of feasibility and management needs.

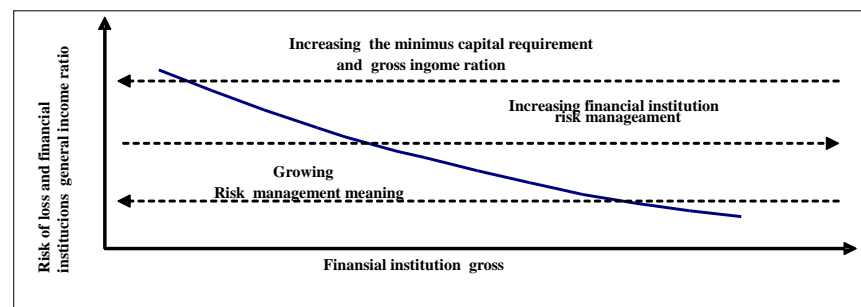


Figure 2. The relationship between financial institutions and the size of risk loss [6].

As the chart shows, the risk management is of greater importance to smaller financial institutions, which have a relatively higher risk, compared to total revenue. This highlights the logistical capital management approach and the relevance of considering the solvency of insurance companies (which directly relates to the amount of risk) management solutions, depending on the size of insurance companies.

In this case, parallels between the discussion of capital logistical principles, relating to capital deceleration growth rates and the risk levels rates form, which allows for adaptation of the traditional logistics functions of the form of the insurance company's indirect risk scale dependence on insurance companies to determine the size:

$$R(P) = \frac{R}{1 + e^{-\lambda P}} \quad (2)$$

Here,

P – the insurance company's size (the total annual income)

R – the maximum (upper) limit the amount of indirect risk,

R (P) – an indirect level of risk incurred in the income of the insurance company's P

λ - a risk factor for growth.

For example, the level of operational risk management, depending on the insurance company's income would be determined in such a common form:

$$R_{op}(P) = \frac{R_{op}}{1 + e^{-\lambda P}} \quad (3)$$

Here:

P – the insurance company's total annual income,

ROP – the maximum (upper) limit the amount of operational risk,

ROP (P) – the operating level of risk incurred in the income of the insurance company's P

λ – operational risk equal to the growth rate.

Operating risks are associated with general insurance business, covering all aspects of the activity; therefore, assessing the level of operational risk, it assesses the extent of the insurance company. What would be the assessment of interest rate risk here? In this case, it is appropriate to evaluate only cash flow which is directly linked to market interest rates, i.e. with the insurance company's investment activities:

$$R_{pn}(P_i) = \frac{R_{pn}}{1 + e^{-\lambda P_i}} \quad (4)$$

Here,

Pi – the insurance company's investment activities in volume (the value of invested assets),

ADI – the maximum (upper) interest rate risk of the size limit,

ADI (P) - interest rate risk at the level of investment activity in the volume of FDI,

λ – interest rate risk is the growth rate.

According to the adaptation of logistical functions of the insurance company's risk-assessment approach, you can personalize the insurance company's risks, regardless of the medium-sized insurance industry standards. This proposal shows that the calculation of the solvency of insurance companies needs to assess the non-insurance company's level of risk incurred in direct relationship with the insurance company's size, which is inherent in the current regulation of the solvency of insurance companies, formulated under Solvency I, the provisions of the draft.

Conclusions

1. An insurance company's reserves depends on the size of the risks incurred, cover of the expiration, the expected damage to the flow and other factors. The Solvency II project highlights the need to assess each insurance company to the solvency margin, depending on the level of risk, resulting in the need to use advanced methods for risk assessment. One of them is a logistical management of capital theory, allowing the characterization of the level of risk, depending on certain insurance company's activity illustrating indicators.
2. The logistical capital theory of growth can be adapted by assessing the solvency of insurance companies depending on their level of risk incurred. Using the logistical management of capital, considering the solvency of insurance companies, we need to assess empirical studies demonstrated by financial institutions inherent logistical levels of risk incurred by an indirect link with the authorities of the level of activity.

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