

## ERM for an Insurer: Challenges and Prospects

E P Morgunova<sup>1</sup>, G I Bolkina<sup>1</sup>

<sup>1</sup>REU named after G.V. Plekhanova

E-mail: morgunova@yandex.ru

**Abstract.** The paper presents analytical and practical study of implementing ERM at an insurance provider; such providers are institutional investors and constitute a major force in the global investment market. The paper dwells upon the key challengers and prospects of this aspect of management. It identifies the core trends of ERM implementation at insurance providers. The paper further defines the core components of ERM, organization and management, strategic planning and risk tolerance, risk identification and presentation, as well as the main steps of implementing a risk management system for an insurance provider. It also proposes a mechanism for implementing an insurance provider's risk management system. A comprehensive and holistic mechanism is presented herein for the analysis and comprehension of ERM-related challenges; the mechanism could be of use for insurance businesses.

### 1. Introduction

Today, many companies learn the importance of enterprise risk management, ERM, a field of management that helps businesses find an additional booster instead of getting stuck. Insurance providers are institutional investors; as such, they constitute a major force in the global investment market. This makes it safe to say that such a powerful player might exert certain influence on the global financial markets; as such, it can influence the external environment, thus becoming responsible for appropriate ERM implementation.

In recent years, risks related to market liquidity, concentration of counterparties, and a number of other aspects of investment have drawn significant attention, which might be due to the volatility of stock markets and to the write-off of a significant portion of assets. This made clear a need for an effective and responsible approach to the management of risks associated with insurers' investments.

Notably, it is the popular unwillingness to use insurance services that constitutes the core external problem. There are internal problems, too. A significant one of them is that Russian insurers are usually not the real risk carriers. [1]

The limited capital resources and the shift towards risk capital management have forced insurers to switch to efficiency-based investment strategies. Many companies are now trying to implement progressive methods for capital model computing; they also show interest in innovative risk transfer and capital release methods.

The basic theoretical aspects of implementing ERM at an insurance provider are as follows:

1. Investment strategies are determined by the company's Board. The number of investment committees concerned with various financial instruments grows no longer.

General insurance providers use simpler investment strategies that are approved by the Board.

Companies engaged in life insurance use more complex investment instruments and prefer to establish specialized committees for strategy-making. However, their strategies are still subject to the Board's approval.

2. Companies started switching to a more formalized approach to investment organization and management. Using this approach, companies try to proactively control the investment risks instead of controlling them reactively, as it used to be.

50% of companies use investment portfolio benchmarks set by their investment committees; in another 20% of companies, such benchmarks are set by the Investment Director; in 12%, by the Board.

Ever more companies decide to formalize and refer to their investment committees any request to change this or that limit.

3. The following changes have been observed with respect to managing the core investment risks:

### 3.1. Equity.

3.1.1. Although the market indices remain fundamental to investment management/valuation, a shift towards more complex approaches is under way. 74% of companies have switched to beta coefficients; 40% of companies now use factor models.

3.1.2. Different methods are employed for risk aggregation. The vast majority of companies use stress-testing and/or market value addition. Over three fifths of the respondents apply VaR to equity risks.

3.1.3. Most companies use formal concentration limits based on either sectoral division or capitalization. Some 20% of the respondents do not use any limits at all.

### 3.2. Fixed-income instruments.

3.2.1. More than 80% of the respondents use durations and/or convexities to assess the risks related to fixed-income instruments. As embedded options are on the rise, ever more companies come to rely on convexity.

3.2.2. Risk aggregation mainly uses market value addition. Portfolio duration is also an actively used approach. Other popular methods are Monte Carlo and stress testing.

3.2.3. A popular solution is to set concentration limits for different parts of the portfolio; however, insurers mainly rely on international agencies' ratings, which has been shown to carry significant risks.

### 3.3. Real estate.

Concentration limits are set for property types as well as for locations. Nearly a third of companies do not use any limits at all.

4. Companies now more actively use hedging strategies and derivative financial instruments, which effectively takes some risks off the balance sheet. Various legislative and market restrictions only boost this trend further.

Hedging is mainly applied to interest risks. US companies prefer to hedge their currency risks mostly by over-the-counter instruments.

5. VaR models have found greater use in recent years, still far from being bread-and-butter. Companies actively use risk-adjusted indicators in their businesses, which helps improve return on capital and creates a stronger link between investment risk management and risk management systems/economic capital models on the enterprise level.

The core components of ERM are as follows:

Organization and management imply:

1. The Board's and top management's active involvement in comprehensive risk management;

2. A coordinated structure of a specially set-up committee comprising Board members and line managers;

3. A corresponding division to be spearheaded by the Chief Risk Officer (CRO) reporting directly to the Chief Executive Officer (CEO);

4. Clearly defined and assigned roles and responsibilities of the company's personnel;

5. Personnel's clear understanding of the objectives, significance, and responsibilities associated with the comprehensive risk management system;

6. Regular monitoring of major and/or complex transactions.

Strategic planning and risk tolerance are implemented by means of:

1. clearly linking business objectives and risk tolerance;

2. clearly linking risk capital modeling and strategic planning;

3. Ensuring the officers understand, correctly perform, and actually use the economic capital estimates in business processes.

Policies and procedures should feature:

1. Ability to express and translate general risk tolerance into tangible risk preferences and risk tolerance levels in operations;

2. Introduction of company-wide limits on certain risks;

3. Proper, well-understood, and effective policies and procedures;

4. Documentation of policies and procedures for clearer understanding and convenient use.

Risk identification and presentation is a combination of:

1. Portfolio-based approach to risk analysis;

2. Well-established process of risk identification, monitoring, and measurement for different operating segments and risk classes;

3. Systematic procedures for tracking and responding to newly emerging risks.

Risk measurement and reporting should feature:

1. A well-defined risk measurement process (VaR method);

2. Common metrics for financial and risk factors;

3. Regular analysis of risk positions and exposure to risk;

4. Regular monitoring of changes in the risk profile.

Risk management communications comprise:

1. Timely reporting to the Board/top management;

2. Systematic monitoring of limits;

3. Monitoring the management and risk model monitoring;

4. Measuring risk-adjusted performance indicators;

5. Risk event analysis and identification of the necessary response as part of a systematic risk learning process;

6. Regular testing of control nodes.

Infrastructure:

1. Ensuring appropriate data quality and accessibility to internal and external users;

2. Developing a viable risk management architecture;

3. Trainings and talent management in the appropriate field.

Thus, insurers clearly tend to pay greater attention to investment risk management. Companies may differ significantly in terms of methodological 'advancement'. Accordingly, the need for such effort is also due to the rating agencies' ever greater interest in insurers' risk management.

**Practical Significance of ERM**

A comprehensive risk management system can only have a positive effect if it is properly organized and managed. Such organization and management covers an agreement on how much risk a company is willing to take for profit (risk appetite) and how that translates into operational risk tolerance. This requires an integrated approach to planning portfolio metrics, which should combine financial and non-financial risks by means of universal risk and income indicators; another requirement is a well-established comprehensive methodology for risk identification, monitoring, and management.

An important part of risk management is translating risk appetite into the guidelines and risk tolerances for operational use. This is why it is extremely important that the divisions involved in the core business as well as the risk management divisions speak the same language and use the same indicators. This helps cultivate a risk-oriented culture and risk/income-governed thinking in the

company. It can also link the nature and scale of risk management efforts to risk tolerance, enabling both the risk management divisions and the core business divisions to focus on priority risks and their related issues.

The main steps of implementing a risk management system are as follows.

1. Cultivating a risk culture in the company.

All employees of the company should be informed that the company's activities are associated with a certain set of risks, as well as on how these risks directly affect this or that employee's responsibilities.

Staff needs to learn the basics of risk management and to comply with all the risk tolerance requirements.

- It becomes vital to develop training modules to help personnel learn the company's risk management systems;

- A module like that should be available on a network medium that all the employees can access.

2. Support from the company's management.

The company's managers should support the Risk Management Department's initiatives so that other divisions give proper consideration to the risk management process. Managers should explain clearly to the business divisions their responsibility for covering the needs of risk management.

- Pre-scheduled periodic meetings with business officers are a must.

- Such meetings should be attended by top managers, who in turn are expected to contribute to explaining the importance of the process.

3. Keeping in touch with current procedures that are related to the risk management process. Since risk management in insurance still has a long way to go, it is important to quickly integrate all the innovations and trends in the current models.

Staff should always be aware of the new initiatives and trends in the industry, in risk management in general.

- It is necessary to establish special divisions to handle appropriate risk management; such divisions will be responsible for continuous monitoring and enhancement of systems; ongoing education and training for their personnel is mandatory.

- Such key staff is also expected to report to their colleagues.

4. Most efficient use of the data available on the company's servers. The company should publish all the necessary materials on its internal network to avoid doubling this or that initiative as well as to spread the best practices.

The Risk Management Department should on a forward-going basis monitor the processes the company implements and check the local practices for being in line with the global trends.

- It is necessary to have staff in place that will keep the company's network media up-to-date;

- It is also necessary to enable identifying the relevant information and communicating it to all the Risk Management Department's officers during related meetings.

5. Ongoing training for the Head of the Risk Management Department. The top manager concerned with risks should have cutting-edge knowledge on that matter.

- Regular identification of possible or necessary improvements in risk management is a must,

- and so are workshops/meetings on identified failures;

- it is necessary to document and maintain a series of trainings for the management of the Risk Management Department. Solutions invented as part of such trainings are subject to mandatory documentation as well.

6. A mentor from outside the Risk Management Department for junior staff. Given the role of junior staff and the sheer scale of their communication with other divisions of the company, support and leadership outside the staff's specific chain of command is welcome.

Of use will be junior staff's engagement with the various ideas and views of the issues the company is facing on a daily basis.

- It is therefore necessary to identify the staff in need of mentoring,

- and to find a mentor outside the chain of command;
- the mentor will need continuous training to be efficient in this role;
- progress of mentorship is subject to tracking.

7. Establishing and applying the best practices. Best practices should be identified and made available to support employees in their work.

All the core activities of the Risk Management Department should be documented for continuous and complete reproduction in work as well as to further the best practices.

- It is necessary to document the Department's operations using the pre-established templates;
- It is also necessary to identify who is responsible for which function, which should be recorded in a single document.
- The Guidelines and Policies are subject to publication on the company's server.

8. Keeping the Policies and Procedures up-to-date. The policies and procedures in place should be kept up-to-date. There should be a well-established process in place to track, monitor, and update the outdated procedures.

- There should also be a mechanism to identify all the procedures the Risk Management Department is responsible for.
- Another necessary mechanism will provide regular (annual) review of such procedures.
- Finally, it is necessary to document all the procedures relating to the newly emerging functions as the risk management process evolves.

9. Staff interchangeability. An officer of the Risk Management Department might be unavailable for any reason; for that case, the Department should have an interchangeability diagram.

Staff of the Department must be made 'redundant' to cover the core functions if need be.

- It's therefore necessary to identify each officer's core activities;
- Absence is subject to scheduling to ensure there's a deputy available.
- Whoever provides a deputy should be fully qualified and ready to do so.
- When the temporarily absent officer is back in office, they should be briefed on the state of the art.

10. Risk management failure identification and corrective action.

To optimize the process, any failure of the adopted risk management practice are subject to identification and correction.

Key aspects of all procedures should feature identifiable control indicators capable of being evaluated. Failure requires appropriate corrective action.

- Thus, it is necessary to enumerate the control requests and to synchronize it with the system in place;
- Regular policy analysis and overview should be in place;
- It is crucial to have a mechanism to inform the persons in charge and to take urgent action if a failure has occurred.

11. Internal audit system. The Internal Audit Service should be aware of the company's risk management approaches.

Well-drafted reporting forms should be in place to inform the Service on whatever it has to know of.

- In turn, the Service should specify what kind of information they would like to receive on a regular basis.

12. Monitoring the time spent. The Risk Management Department should understand where and how time is spent to minimize the procedures that generate no added value and to maximize those that make the company more valuable.

Time control systems should be developed, analyzed, and kept up-to-date. Whatever is time-consuming and low in value is subject to review.

- A standardized timekeeping system has to be established;
- Staff should be trained to use the system;

- There should be analysis criteria and reporting policies in place.

13. Monitoring the performance of the Risk Management Department. The Department’s work is subject to monitoring, evaluation, and necessary adjustments.

The company should establish an opinion collection process.

- It is necessary to set forth the critical factors of success and the key performance indicators for the Department;
- It is also critical to develop a mechanism to collect control data and map them to the key performance indicators;
- Reporting these figures to the company’s management is mandatory.

**Experiment Results**

In general, a vital investment risk management process can be visualized as the idealized diagram shown below.

When implementing a risk management system, identifying the most important risks is apparently an early step. Some of them will relate to investment.

Step 1 is to assess the initial risks; such assessment combines the risk occurrence metrics and the losses they could result in, see Table 1.

**Table 1.** Initial Risks Assessment.

Occurrence rate	Possible losses				
	Minor	Low	Medium	Significant	Critical
High	Moderate risk	High risk	High risk	Maximum risk	Maximum risk
Above-average	Moderate risk	Moderate risk	High risk	Maximum risk	Maximum risk
Average	Minimum	Moderate risk	Moderate risk	High risk	Maximum risk
Below-average	Minimum	Minimum	Moderate risk	High risk	High risk
Low	Minimum	Minimum	Minimum	Moderate risk	High risk

It is necessary to clearly define the scale of possible losses and occurrence rates. Applicably to occurrence rates, there must be specified an interval, within which the risk will occur at least once. The magnitude of possible losses could be measured in a variety of ways, each of them being preferable for quantifiable or qualifiable risks. Scaling factors may include the effects on financial performance, business reputation, doing business, or persons.

Step 1 essentially identified priority risks on the basis of the company’s predefined tolerance to each or that risk.

Step 2 is to describe the existing risk optimization efforts.

Step 3 is to evaluate the optimization efforts. Such efforts are also evaluated on a specific scale adjusted to the failure rate, the consistency, and the timeliness of such efforts.

Residual risk assessment follows the evaluations made at Steps 1 and 3, see Table 2.

**Table 2.** Residual risk assessment.

Initial risk assessment	Evaluated effectiveness of optimization efforts				
	NA	Low	Adequate	High	Maximum
Maximum risk	Maximum risk	Maximum risk	High risk	Moderate risk	Moderate risk
High risk	High risk	High risk	Moderate risk	Moderate risk	Minimum
Moderate risk	Moderate risk	Moderate risk	Moderate risk	Minimum	Minimum
Minimum	Minimum	Minimum	Minimum	Minimum	Minimum

Step 4 is to suggest a risk target.

Step 5 is to propose new or adjusted risk optimization efforts.

Completing all these steps produces the company's risk map, which is a basic and highly visual risk management tool.

As an investor, an insurance provider must rely on a holistic approach based on the documented Investment Policy. This document should be produced by all the stakeholders in cooperation. The yearly updateable document is to give due consideration to the interests of owners and legislatures, to the specifics of the company's business processes, etc. If the company uses a trustee's services, the Investment Policy should also apply to the assets in trust.

The first phase of creating an Investment Policy is to approve a planned budget in a process that directly involves the company's managers and owners. The budget specifies the planned return on investment separated for the life insurance portfolio vs other types of insurance.

After the annual budget has been approved, top managers outline the investment strategy to generate the planned return on investment. At this level, the meeting (say, of the Finance Committee) should involve at least the CFO and the Head of the Risk Management Department. Fundamental analysis of the economic situation in general, research into the profitability of various instruments, analysis of the company's portfolio structure, and overview of its cash flows in the context of risk appetite will all contribute to preliminary strategic structuring of the investment portfolio.

The structure itself should be presented in a breakdown by core instruments. For a Russian company whose investment strategy is conservative, the core instruments are:

- Corporate bonds;
- Non-corporate bonds (national, sub-federal, and municipal);
- Shares (in a very limited amount);
- Deposits;
- Cash.

The last two instruments can be merged for the purposes of this analysis, as they are rather mobile with respect to each other. A well-organized deposit portfolio is itself a constant source of extra liquidity; if necessary, it translates into cash.

The strategic breakdown of these instruments in the portfolio should also set forth the tactical maximum of deviations from the pre-determined distributions.

This analysis should cover the current status of the portfolio, a pros/cons assessment in the context of the current economic situation, as well as ways to bring the current portfolio in line with the strategy, beside the associated costs analysis.

Final decisions of the Finance Committee are subject to detailed documenting. They will further be used to draft the company's Investment Policy. The Policy will reflect the core principles of investment, specify the preferred instruments, and describe them in terms of currency, duration, and issuer's rating.

Early in drafting the Investment Policy, there must be defined the core principles of investment. Those may include:

- Return, collectibility, diversification, and liquidity of investment;
- Consistency of assets and liabilities in terms of currency and duration;
- Collegiality in defining the investment policy and strategizing the path to the set targets;
- Four-eyes principle for any individual investment decision;
- Regular monitoring of the investment portfolio for compliance with the Investment Policy;
- A procedure for reviewing the Investment Policy if necessary.

When drafting the Investment Policy, it's necessary to apply the results of capital modeling. The model is first of all applied to set the counterparty risk limit expressed as a maximum total investment in the instruments issued by this economic actor. It's also extremely important to use the model to analyze the effects of increasing the share of instruments issued by a party of this or that reliability rating, as well as that of instruments of certain duration. Depending of which rating the company

emphasizes, it can use the model to determine the need in extra capital for this or that structure in its portfolio.

After the limits have been set with respect to issuers, issue ratings and duration, it's necessary to determine the minimum required level of liquidity the company undertakes to maintain for its business processes to run smoothly. The most reasonable way is to base that level on the retrospective cash flow data. Setting forth that level minimizes the probability of immobilizing the excess funds on the company's current accounts; it also helps prevent the deficit of liquidity as long as the business develops normally.

The investment parameters (various limits, etc.) should be tested quarterly against the capital model and verified for adequacy to the current situation.

All the limits set forth in this declaration are subject to monthly monitoring for compliance.

Procedures should be in place to handle deviations in the current portfolio characteristics from the approved Policy.

For each of the aspects above, there should be deadlines and responsible officers.

The investment portfolio management process should be supported by the necessary controls at the operational level.

The next important component of controlling the current placements is a tool that will be used to keep assets and liabilities consistent in terms of currency and duration. Duration consistency is of utmost importance for life insurance providers.

Any other type of insurance prioritizes currency consistency. In this case, the assets and liabilities in operation have low duration, making currency risks more important. For such analysis, it is advisable to break down the assets and liabilities line in a single table by currency. Excess liabilities in this or that currency will manifest in the value of the open currency position. If such deviations are significant, they call for the investment specialist's action.

Approval and implementation of the Investment Policy drafted per these guidelines will result in establishing an investment process tailored to market and credit financial risks. The Policy should also set forth the mandatory nature of collegial fundamental investment decisions, regular reporting to the CFO, and assignment of responsibility for any deviation from the Policy; such measures help minimize operational risks.

Such definition helps introduce Investment Regulations aligned with, for instance, the Payment Regulations. Consider a company that makes weekly payment plants. By a certain date, the Investment Portfolio Manager should have exhaustive information on the amounts, urgency, and currency of payments planned for the next week. It is in the context of the Manager's investment repayment schedule and of the incoming payments data (i.e. the increase in assets data) that they decide on the amounts, areas, and timing of investment for the next week.

## 2. Conclusions

Insurance is a risk-based business. No profits could be expected without taking a certain degree of risk. The primary goal and purpose of a comprehensive risk management system is to create the necessary controls and communications, as well as to establish a decision-making process based on risk awareness to adequately balance risks and profits. A better understanding of risks not only helps insurers better manage their exposure to risk; it also enables them to improve profits and performance indicators, which will increase the company's value in the long term.

Investment has always been of paramount importance to insurance providers. Investment, which is fundamental to insurance as a business, involves many risks. Should a risk occur, it may have profound adverse effects on the insurer's business or very existence.

A risk management system in place is a necessity that is made natural and inevitable by to the essence of insurance. However, today's insurance providers face challengers implementing a risk management system, which is due to lack of staff training and too rigid business processes that prevent any restructuring.



When insurance business converts to the risk capital model, and popular thinking is reshaped in risk capital terms, ERM will truly become a reality. For the transition period, it seems advisable to get a risk control process in place. The process can be established by the Board in cooperation with specialized departments. Establishing the process in various aspects of the company's business will in the long term transform these control nodes into points of growth for a full-fledged risk management process.

Once such 'loci' of risk control become familiar to every staff member and turn into a natural part of the decision-making process, every attempt to create or improve a comprehensive risk management system at an insurance provider will have ground to stand upon, making it faster and easier.

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