

# SOLVENCY II - RISK ASSESSMENT AND ACCOUNTING

**Assoc. Professor Nadya Velinova-Sokolova, PhD**

*Sofia University "St.Kliment Ohridski", Faculty of Economics and Business Administration*

*e-mail: nadya.sokolova2009@gmail.com*

**Abstract:** *Solvency II is a new risk-based framework for setting the capital requirements of European insurance companies, in force since January 2016. The solvency capital requirement (SCR) is set such that the insurer can meet its obligations over the next 12 months with a probability of at least 99.5%. Project Solvency II is aimed to create a system of solvency taking into account the profile of risk which insurance companies and reinsurance companies are exposed to on account of their activity. It will turn out to be necessary to build risk assessment models taking into account risks which have not been taken into account when assessing capital requirements for insurance companies so far. This paper discusses the risk assessment and accounting in the practice of insurance companies.*

**Key words:** *Solvency II, Risk, Insurance company, Accounting in Insurance Companies*

In early 2011, the work concentrated on Pillar 2 of Solvency II, which required companies to challenge their own risk culture, define – or redefine as needed – risk governance and strategy and consider the operational implementation of the risk management function. As the keystone of the Directive is based on risk control, Pillar 2 compliance therefore raises many questions for insurance companies. These tough questions often strike at the heart of business management processes.

One of the main lessons learnt from the financial crisis is that efficient risk management requires coherent and consistent operational coordination between:

- ✓ the definition of major risk policies and processes (primarily by the risk department), and
- ✓ the appropriate application of these policies and processes by the relevant entities (operational functions, internal control, etc.).

## 1. New Framework Solvency II

Solvency II, the new regulatory framework for insurance companies in the European Economic Area (EEA), has come into full force in 31 European countries as of January 1, 2016.

The Solvency II rules have been under development since 2000, involving a long consultation process with national regulators and the European insurance industry. The new framework, prescribes risk-based capital requirements, in combination with market-based valuation of the assets and the insurance liabilities. The aim of the solvency capital requirement is that the insurance company has sufficient funds to cover losses over a 1-year horizon with 99.5% probability. The implementation of the *Solvency II* Directive will oblige insurance companies to run effective management systems that will execute a substantial amount of their tasks via appropriate control mechanisms, both qualitative, as part of the corporate culture, and those based on corporate control mechanisms.

To recap, the Directive:

- ✓ presents the risk management function (hereinafter referred to as the ‘risk Function’) as an efficient, mandatory function integrated into the organisation;
- ✓ limits the scope of risks covered – notably risks used to calculate SCR, but not necessarily limited to just these risks
- ✓ describes the specific responsibilities of this function, acting as the overall ‘conductor’ for the system and ‘pilot’ for the internal model, if applicable.

The Solvency II provisions concerning the organisation and risk governance system are based solely on the guiding principles. The regulators want each organisation to be responsible for determining its own organisational structure, and have therefore defined only key functions and very general requirements.

Insurance and reinsurance companies are required to maintain written rules of risk management, internal controls, internal audits and outsourcing, to be reviewed annually, mainly in the framework of new risks identified by insurers that may affect their adequate financial standing.

## 2. Risk Assessment and Accounting

All companies which are subject to Solvency II must demonstrate that, in line with these principles, they have an operational system for managing and overseeing its risks which guarantees:

✓ a true understanding of the risks to which the company is exposed (risk profile) and a reasonable assessment of its exposure at any given time

✓ a real operational risk management mechanism, i.e., key components are in place, and each component can do what it is supposed to do

✓ reporting of required information and the ability of the regulatory authorities to make the necessary decisions.

Managing risk is important for all companies. The primary benefits of successful risk management relate to the costs of financial distress and income taxes. For insurers, successful risk management also reduces the likelihood and extent of costly regulatory interventions and dividend restrictions.

Financial distress costs include not just the direct cost of bankruptcy but more importantly the impact of actual and potential financial distress on the value of operations. The financial viability of a company affects the likelihood and terms of transactions with customers and suppliers. This is especially true for insurers, whose perceived financial stability affects their ability to sell insurance and the implicit discount rate that policyholders apply to the promised contractual or contingent cash flows. The likelihood of financial distress also impacts the value of intangibles, including franchise value, which have low or no value in bankruptcy.

Successful risk management may reduce the present value of income taxes by reducing the volatility of taxable income. The present value of income taxes increases with the volatility of taxable income due to the following features of the tax code: (1) progressive tax schedules, (2) provisions of the alternative minimum tax, and (3) the asymmetry in the tax treatment of income and losses (delays in obtaining the tax benefits associated with losses and the expiration of unexploited tax losses). Therefore, risk management activities that smooth taxable income over time may reduce the present value of income taxes.

To be managed successfully, risk has to be properly measured. I next discuss the primary methods used for measuring risk and then turn to a

discussion of risk mitigation activities, including internal mechanisms, reinsurance, financial market solutions, letters of credit, and capital solutions.

Risk management strategy must be clearly defined and well documented. This strategy must set risk management objectives and key risk management principles, define the organisation's risk appetite and finally describe the roles and responsibilities of the risk management function across the company and in accordance with its business strategy.

Risk management policies must be put in writing and adapted. They include naming and defining the risks to which the organisation is exposed, classifying them by type and limits of acceptability. The risk management system must apply strategy, facilitate the implementation of control mechanisms and take into account the nature, scope and time horizon of the business and the associated risks.

Risk management processes must be appropriate and procedures adapted in order to identify, assess, manage, monitor and report risks. (see the figure 1)

Risk reporting procedures must be appropriate as must the feedback loops that ensure reporting. These procedures are coordinated and challenged by the risk management function and are actively controlled and managed by all relevant staff. Reporting documents submitted to the above-mentioned bodies by the risk management function refer to the risks (potential or actual) associated with the business of the company and the operational efficiency of the risk management system.

Solvency II places the risk function at the core of the risk management system. The risk function must also bear in mind that this risk profile is not merely an inventory of all the potential or actual risks:

- ✓ Based on its analyses and the points of view covered, it prioritises the risks that must be monitored.

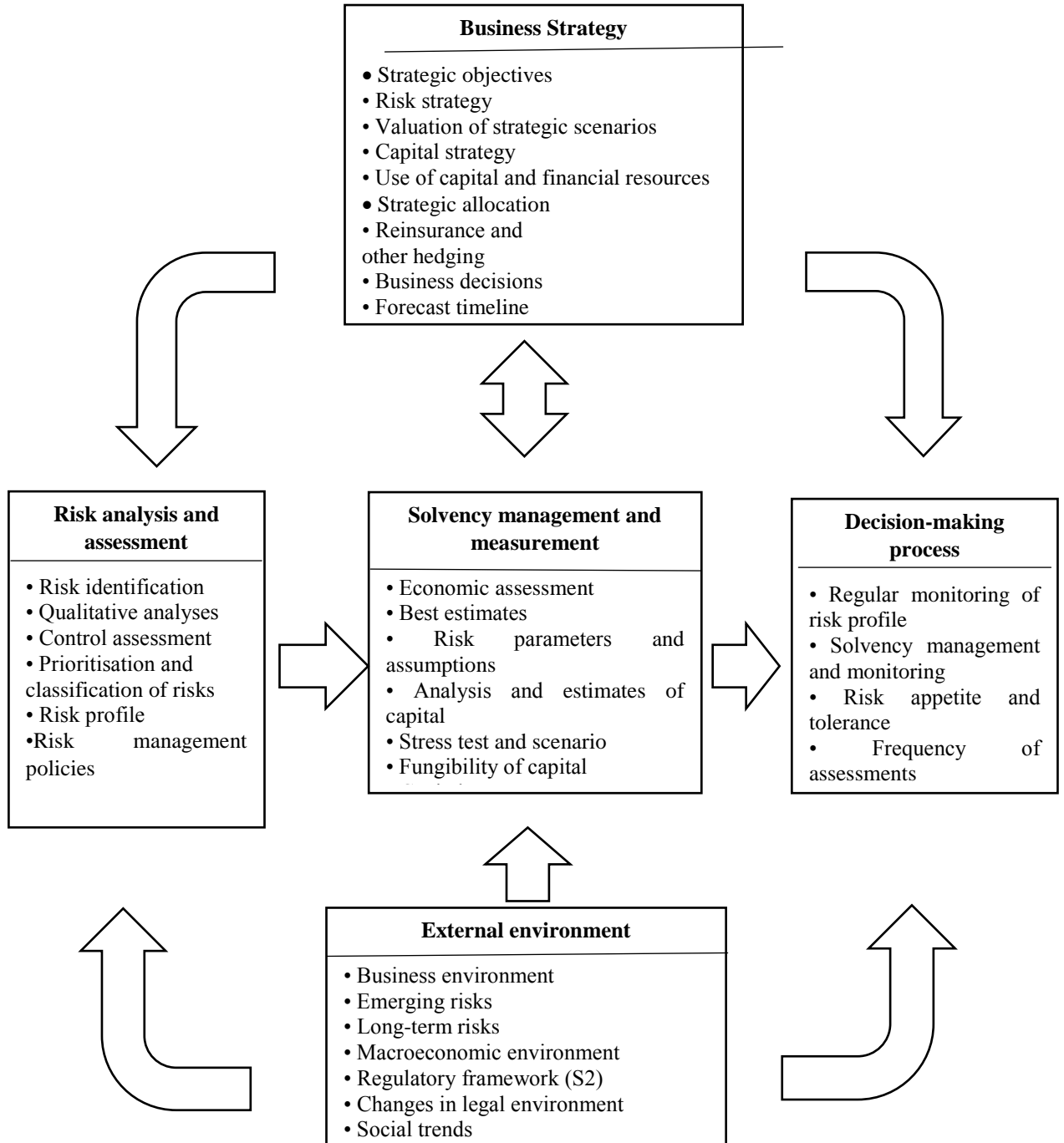
- ✓ Its added value lies in its ability to provide a 'shortlist' of risks that justify investing in measurement, monitoring and permanent supervision, based on the company's business objectives.

- ✓ As such, this management tool is developed by combining the 'risk philosophy/vision' of operational staff (a bottom-up approach to risk management based on the comprehensive identification of risks) with that of management (a top-down approach whereby investment in risk management is justified and prioritised).

## Risk measurement

Risk measurement is a crucial element of risk management programs, and is therefore an important activity for insurance companies. In addition, outsiders—including regulators, rating agencies, investors, policyholders and

Figure 1: Risk management system



Source: PwC

other parties—have strong interest in monitoring the risk profile of insurers and their solvency. Research on risk measurement has focused on outsiders' evaluation of solvency risk and the prediction of financial distress.

The most popular metrics used in measuring and managing financial risk are Value at Risk (**VaR**) and Expected Shortfall (**ES**). VaR is the loss during an N day period that at a confidence level of X% will not be exceeded. ES (also called tail conditional VaR or tail loss) is the expected loss conditional on incurring a loss greater than VaR. VaR and ES measures are employed not just in measuring investment risks but also in the determination of economic capital (and thus capital reserves), the setting of insurance deductibles, the setting of reinsurance cedance levels, and the estimation of expected claims and expected losses.

The use of VaR measures has increased significantly over the past decade due to the adoption of economic capital models by insurers. These models are used to supplement the factor-based approach to capital adequacy and to aid in the allocation of capital to specific products. **Economic capital** is the amount of capital required to absorb potential losses which may occur at a given confidence interval and time horizon. This threshold is measured using VaR or other stochastic models. Unlike traditional ratio models, the economic capital approach is flexible enough to allow correlations between risks to be incorporated into the model. An important milestone for economic capital has been the European Union's adoption of Solvency II, which will encourage insurers to use internal models to determine their solvency capital. As discussed above, S&P and Moody's have also broadened their review of companies to supplement static risk-based capital ratios with economic capital models.

Risk measurement methodologies are covered by Pillar 1 of Solvency II in the standard formula that defines the modelling principles for technical provisions using best estimates and requirements for calculating SCR (risk module, shocks to be applied, correlation matrix). A robust risk identification system must be able to predict all risks and align them with the company's major risks in order to understand the causes and interdependencies. It must be regularly updated following any significant change in the risk profile. Companies may also use an internal model that best reflects their specific risk profile. An internal model can apply the same base to a number of uses, ranging from solvency requirements to embedded value, asset-liability management. The internal model is more than just a calculation tool. It is used to measure, control, manage and report on risks. It is at the core of risk strategy and risk management.

A governance system is a set of principles and rules established to monitor and manage risks based on a clear, shared decision-making process and adapted tools. It generally features the following components:

- **A set of rules:** best practices (industry standards or companyspecific practices), tolerated practices, prohibited practices.
- **Delegation of authority procedures:** any decision that could significantly engage the company must be approved by at least two people at management levels that correspond to the level of commitment.
- **Pricing and provisioning:** profitability target, technical bases used, pricing and provisioning methodology.
- **Risk monitoring:** risk indicators, specific risks requiring specific monitoring, stress tests.
- **Tools:** documentation, standard and non-standard tools.

Using risk measurement tools and processes, the risk management system must produce all the information necessary to the relevant managers to ensure appropriate and hands-on oversight. Internal and external reporting structures must be put in place.

### **Risk accounting**

Accounting quality is affected by many factors. Three primary ones are the **complexity** of the underlying transactions and related accounting treatment, the **uncertainty** associated with the transactions and reported amounts, and the extent of managerial **discretion** involved in measuring and reporting transactions. Complexity and uncertainty could cause mistakes in financial reporting and, similar to managerial discretion, could provide managers with opportunities to manage earnings. From a user's perspective, these factors reduce the understandability and reliability of financial information.

In the meantime, insurance accounting under IFRS is prescribed by IFRS 4, which was issued in 2004 as an interim standard pending completion of the comprehensive project. IFRS 4 addresses recognition and measurement of rights and obligations under insurance contracts in only a limited way, and it permits a wide variety of accounting practices for insurance contracts. IFRS 4 permits a wide variety of accounting practices for insurance

contracts. In effect, it allows companies to continue to use the previous (country-specific) accounting principles, subject to some adjustments.

The value of any financial claim is the present value of expected net flows to the owners of that claim. Accordingly, the value of common equity

(Equity Value or EV) is the present value of expected net flows to common equity holders (Net Equity Flow or NEF).

When valuing non-financial service firms, most analysts first estimate the value of operations and then subtract the value of net debt, often estimated using its book value. The value of operations is calculated using either relative or fundamental valuation models which focus on flow measures such as free cash flow or EBITDA, with little attention paid to the book values of operating assets and liabilities. In contrast, when valuing financial service firms such as insurance companies, analysts often value the equity directly and focus on book values.

These differences in valuation approach are due to the following unique characteristics of insurers:

- Insurers, especially life insurers, have high leverage ratios and earn a substantial portion of their profits from the spread between the return on invested assets and the cost of liabilities. Thus, a valuation approach that focuses on operating activities would omit a major part of value creation for insurers.

- The book values of major assets and liabilities of insurers are often close to fair values. Accordingly, balance sheet amounts can be used to value those assets and liabilities, or at least serve as a reasonable starting point for valuation.

- Due to regulation, insurers' ability to write premiums is directly related to their surplus, which is a regulatory proxy for equity capital. Also, insurers are required by regulators to maintain minimum equity capital at levels commensurate with the scope and riskiness of their activities. These regulatory effects make book equity a relatively useful measure of the scale of operations.

In contrast, non-financial service firms generate value primarily in operations, and the fair values of most of their assets and liabilities are substantially different from book values. In addition, while average leverage ratios are relatively small outside the financial sector, for many nonfinancial firms the book value of equity is small or even negative and is hardly related to market value.

The most common fundamental method for valuing non-financial companies involves discounting projected "free cash flows" to obtain an estimate of the value of net capital (net debt plus equity), and then subtracting an estimate of the value of net debt to obtain an estimate of equity value. Net debt is debt minus financial assets, where financial assets are financial instruments unrelated to operations. The value of debt is estimated using either its book value,

disclosed fair value (under SFAS 107), or book value adjusted for the value effects of changes in interest rates or the company's credit profile since the issuance of the debt instruments. Similarly, the value of financial assets is measured using their book value, disclosed fair value.

While free cash flow valuation is the primary fundamental valuation approach used to value non-financial companies, it is rarely used to value financial service companies. This is due to the differences between financial and non-financial companies. Instead, financial service companies are typically valued by discounting expected

cash flows or earnings that flow to or accrue to equity-holders. Three types of models are used: (a) discounted dividend per share, (b) discounted net equity flows, and (c) the residual income model. Although these models are analytically equivalent, in practice their implementation involves different assumptions and hence results in different value estimates. I discuss these models in turn.

The IASB's standard objectives are to ensure high-quality, understandable, enforceable and globally accepted principles which will improve transparency and comparability of insurers' financial statements regardless of sector, geography or products. Solvency II's goal is to establish a single common regulatory framework to maintain capital adequacy and risk management standards for those who underwrite insurance contracts within the European Economic Area. The aim under IFRS and Solvency II is to facilitate comparability and transparency from a regulatory and accounting perspective to external stakeholders, in contrast to the current divergent practices and measures which characterise insurance reporting. Whilst there is no requirement for consistency between regulatory and financial reporting, there are significant overlaps in both the measurement and disclosure requirements between the Phase II and Solvency II frameworks. (see the figure 2)

The primary focus for Solvency II is capital adequacy rather than profitability management. Given the similarities in the measures, companies will need to improve their understanding of the differences between IFRS and Solvency II in order to effectively manage the business. Finance can help the business negotiate this challenge by presenting a clear reconciliation, with explanations of major differences, between the Phase II summarised margins approach and the Solvency II profit and loss attribution.

Significant work will be required to revise and update policies and promulgate guidance for implementation. This will include policies for setting discount rates and risk margins and any deviations from Solvency II. Accounting policies and manuals must be updated to reflect the new standard. For example, under Phase I, each entity within an insurance group retained its

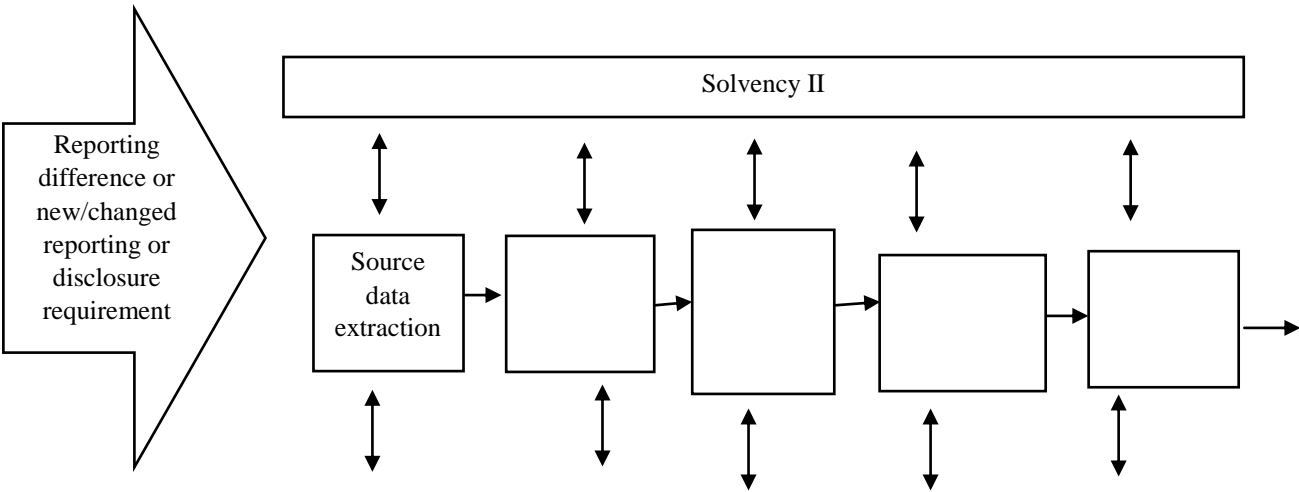
local GAAP for measuring insurance liabilities; however, under Phase II, policies will be standardised across international insurance groups.

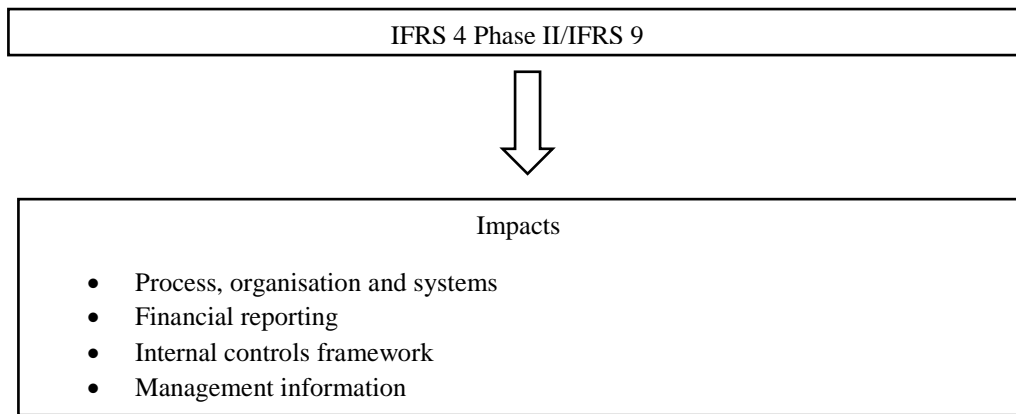
The processes developed to report under the new insurance accounting standard will need to be auditable. Pillar II governance and control frameworks have raised the benchmark in terms of governance and quality of documentation (e.g., policies, assumptions, data sources and calculation methods) required to facilitate a smooth audit sign off.

The move to a market-consistent measurement basis for Solvency II is expected to lead to closer matching between assets and liabilities to reduce capital requirements. The introduction of Phase II is expected to increase the income statement volatility for those companies who are not matching assets and liabilities. Combining asset and liability management strategy for Solvency II with Phase II will provide an opportunity for an insurer to manage volatility both from a balance sheet and profit and loss perspective. An insurer may elect to use the amortised cost basis under IFRS 9 for assets backing those components under Phase II which do not reflect changes in market assumptions (i.e., the residual margin). This needs to be measured against the cost and effort of having the same assets measured at fair value under Solvency II. Uncertainty over the timing for adoption of the new IFRS standard for financial instruments will make IFRS 9 critical for all insurers to avoid a mixed accounting model which will complicate their implementation strategy. Clearly, the cost of implementation, as well as considering the impact on the results, would be managed more effectively if adoption dates are identical. However, assuming different dates, management should be assessing the impacts of adopting an IFRS 9 strategy that will align with the expected

IFRS 4 implementation.

**Figure 2: Identifying the operational impact: IFRS and Solvency II similarities and differences**





Source: Ernst&Young

IFRS measurement requirements are based on the characteristics of the contract, rather than the nature of the legal entity as under Solvency II. Contracts that do not transfer insurance risk will continue to be measured as financial instruments or service contracts under IFRS. The ED introduces mandatory unbundling requirements for components of the insurance contract which are not considered to be 'closely related' to the insurance coverage (i.e., account driven contracts, such as unit-linked contracts and embedded derivatives). This means that the presentation and measurement of all future management fees and charges expected to be earned over the life of the contract will be excluded from the measurement of the investment component. Insurers will need to develop their underlying systems to facilitate a robust reporting process to track, measure and map the different components between Solvency II and Phase II balance sheets.

### **Conclusion**

The primary objectives are to describe the insurance business, discuss and evaluate insurers' financial information and the accounting methods used in preparing financial statements, explain how financial disclosures can be used to analyze the risk, performance, growth prospects and value of insurance companies, and describe the models used in valuing insurance companies.

Finally, the risk function ensures that an operational risk management system is in place and that it covers all the risk profile components. Each risk must be assigned to a risk 'owner' who is the 'subject matter specialist' available in the company: i.e. actuarial department for underwriting, certain counterparty and reinsurance risks, asset management for market and credit

risks, and so on. Assigning a risk owner is the first step in implementing an operational risk management system.

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