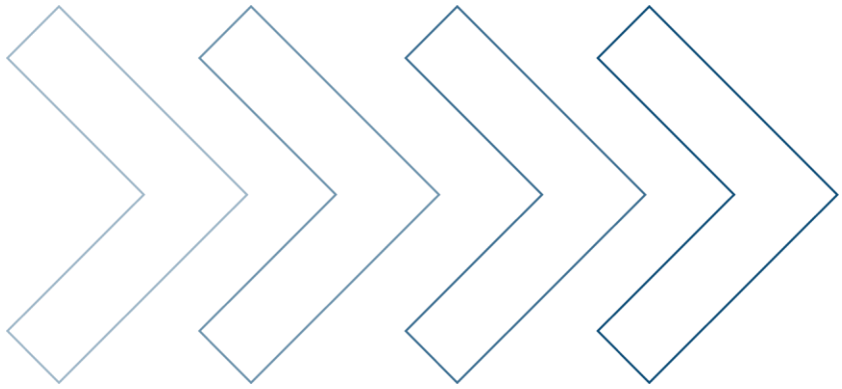
SOCIETY OF ACTUARIES



Life Insurance Regulatory Structures and Strategy

EU Compared with US

September 2015

SOCIETY OF ACTUARIES

Life Insurance Regulatory Structures and Strategy
EU Compared to US

SPONSOR Committee on Finance Research

AUTHORS Mary Bahna-Nolan, FSA, MAAA, CERA
James Isherwood, FIA
Brian Paton, FFA, MAAA
David Scheinerman, FSA, MAAA
Jeffrey Schlinsog, FSA, MAAA
Sunil Sen, FSA, MAAA

Caveat and Disclaimer

The opinions expressed and conclusions reached by the authors are their own and do not represent any official position or opinion of the Society of Actuaries or its members. The Society of Actuaries makes not representation or warranty to the accuracy of the information.

1 TABLE OF CONTENTS

Revisions to September 2015 paper

This paper was originally written in June 2013 to reflect the status of the solvency regimes as at end-December 2012. The paper was subsequently updated in September 2015 to reflect regulatory and industry developments to end-2014. While there are some minor revisions throughout the paper, the substantive revisions are highlighted below. These updates have been highlighted in the page margin of the relevant sections in the paper.

	Description of update
Section 3.1	Updated to reflect global regulatory developments in ComFrame (in particular the development of the ICS and BCR to meet HLA requirements for G-SIIs), the IASB and FASB Insurance Contract Standard projects, and the Federal Reserve supervision for Banks and SIFIs.
Section 3.2	Updated for the July 2014 paper from the EU-US Insurance Project.
Section 4.2.1	Updated for the August 2013 white paper on regulation and SMI.
Section 4.2.2	Updated to reflect developments in the Solvency II regime (including the LTG package, transitional measures, recovery period and equivalence), and the CRR developments impacting structured securitizations.
Section 5.1	Updated for the recovery period of insurers under the Solvency II regime.
Section 5.6	Updated to reflect the Solvency II developments on equivalence.
Appendix A	Updated to reflect developments in the SMI and Solvency implementation timetables and the discount rate under Solvency II.
Appendix C	Updated for new acronyms introduced within the paper.
Appendix E	Updated for the status of the EU and G20 countries.

2 Introduction

The US and EU are each pursuing modernization of their regulatory frameworks. These modernization efforts have elements that are both evolutionary and fundamental redesign. The paths taken by the US and EU are each impacted by historical contexts, environmental influences and legal frameworks. Both reflect a strong interest in ongoing improvement as well as a need to respond to the recent financial crisis. While there may be advantages of a single converged framework, either absolutely or in practice, there also are potential disadvantages and hurdles as discussed within this paper. Meanwhile, the outlook for full convergence appears unlikely in the near term. Accordingly, one can expect these frameworks to have disparate elements in key areas such as valuation (meaning reserving for life insurance), capital requirements and the approach to supervision.

The purpose of this paper is to provide a discussion of the emerging developments, the historical contexts or drivers of each, and potential implications for insurers.

The paper discusses (in section 3) some of the global, wider financial services, and insurance specific activities underway that are influencing solvency developments for life insurers. Section 4 provides an overview of the differences in the current US and EU regimes and the regulatory changes underway. The paper then identifies key valuation implications in section 5, the impact on pricing and product design in section 6 and risk management implications in section 7.

Although we recognize that these regime changes will have far reaching consequences, we focus in this paper on the implications for life insurance companies. In addition, although we include some discussion of other relevant areas, the main focus is on the differing regime requirements in assessing the capital requirements of life insurance companies.

The intention is to assist the reader in understanding the developments and, accordingly, support business (and technical) planning. A glossary is provided in Appendix C to assist the reader with the many acronyms used in this report.

The authors wish to thank the Society of Actuaries and its Committee on Finance Research for sponsoring this paper. In particular, the authors thank the Project Oversight Group for their assistance in preparing this paper. The original Project Oversight Group was composed of Thomas Herget, Nancy Bennett, Elizabeth Brill, Dale Hall, Allan Kaufman and Jim Reiskytl. The Project Oversight Group for the 2015 update comprised Thomas Herget, Bonnie Gerst, Erik Anderson, Mark Yu, and Jim Reiskytl.

2.1 Historical context

The US has a long-established system of state-based supervision of insurers with a centralized process for developing common laws and regulation. Companies are domiciled in a single state and often operate in many states by license. While exceptions exist, the National Association of Insurance Commissioners (NAIC)'s regulatory development process and accreditation program has supported uniformity of reporting, valuation and capital requirements.

US risk-based capital was introduced in the early 1990's, and the overall valuation and capital requirements are generally viewed as having been effective in avoiding company insolvencies. The US regulatory, legal and tax framework has generally led to a preference for the use of prescriptive rules and regulations combined with overall asset adequacy analysis, with relatively recent inclusion

of certain principle-based requirements (see section 4.1.1) to reflect certain complex products and risks. Overall, the current US framework can be summarized as a system of:

1. Legal entity based supervision, led by the state of domicile;
2. Formula based minimum valuation and capital requirements (with some recent exceptions such as stochastic analysis – see section 4.1.1) partially reflective of unique company characteristics, be they product specific, or relating to the interaction of the company's assets and liabilities; and
3. Actuarial asset adequacy analysis.

Historically, each country in Europe had separate regulatory frameworks with the need for cross territory groups to meet the requirements of multiple regulators. Approaches to reserving differ across the country's regulatory regimes albeit there are high level principles and a common minimum capital requirement in place. Companies could enter another country by setting up a separate subsidiary subject to that country's regime or a branch to provide cross border insurance coverage. With the advent of the EU, companies gained access to other member territories (without setting up a separate subsidiary) through free provision of services or "passporting". The current EU regulatory framework can be described as a system of disparate regulatory regimes with a recognized and partially implemented need to converge to a single regulatory framework, and address the supervision of groups.

2.2 Environmental influences

The US and EU have been influenced by a number of environmental issues as they pursue regulatory modernization.

In the case of the US, there is generally much comfort with the framework of the current system, but a recognized need to respond to:

1. Changing (and increasingly complex) products, benefits and consequent risks that can vary significantly by company;
2. The recent economic crisis, and the call for more supervisory oversight of risk management that goes beyond the legal insurance entity;
3. Increased globalization of the insurance market and insurance regulation, and the goal of harmonized supervision by, in part, meeting the requirements of the International Association of Insurance Supervisors ("IAIS") insurance core principles ("ICPs"); and
4. Potentially emerging federal oversight, especially oversight of insurance companies deemed to be systemically important.

In the case of the EU, there is limited legacy regulatory framework for the EU as a whole; rather, each country has, to a large extent, had its own framework. The EU is working to construct a modern framework (Solvency II) to replace the existing frameworks, taking into account current views on reporting, valuation, capital, and risk management. As a result, the EU framework appears to be moving in a direction to:

1. Introduce a common regulatory framework[1] for the entire community, and incorporate group supervision to address the cross border groups that have emerged.
2. Incorporate current views on insurance contract reporting and valuation, as expressed by the emerging developments of International Financial Reporting Standards ("IFRS"). This system uses current estimates that reflect all available information at the measurement date, takes account of the perspective of the entity but, for market variables, should be consistent with observable market prices.
3. Incorporate company-specific risk characteristics in capital requirements as expressed by Solvency II. These company-specific risks will generally be quantified using internal models unique to each company.

2.3 Current developments

The US legal framework and a general comfort/acceptance with the current system suggest that changes to modernize the US system will generally be evolutionary and these are described in section 4.2.1 below. In the EU, the lack of an integrated current approach and general desire to fully modernize the solvency requirements has necessitated a more sweeping redesign as described in section 4.2.2. In addition, other global and country specific regulatory initiatives, described in section 3.1, are also influencing the shape of supervision.

So while attempts at globalization of the regulatory framework are underway, we expect that practical realities will make full convergence unlikely. Accordingly, disparate outcomes on the method of supervision, design and pricing of products, capital requirements and risk management practices are likely to persist. Some of the differences identified and discussed, in more detail later in this paper include:

- While the regulatory capital requirements have similar purposes the focus of the US capital requirements is on identifying weakly capitalized companies whereas the EU capital requirements intend a greater level of security. Nevertheless, other aspects of the US regime (such as annual solvency reviews by regulators, risk-focused exams, asset adequacy and scenario testing) serve to ensure adequate additional capitalization.
- The policy reserves are calculated using different methods and assumptions.
- The scope and use of regulatory/internal models is quite different between the regimes.
- The point at which supervisors have legal authority to act and the powers they have are different.
- The approach to group solvency assessment is likely to differ.
- The responsiveness to risk and level of calibration to the life insurers own portfolio of risks and controls is different.

We will highlight potential implications in the areas of reserve and capital valuation, product pricing and risk management in this paper. These include:

[1] As described within, country-specific regulatory oversight appears likely to have some variation, resulting in less uniformity than conceptually one might expect.

- A US company with a European parent or a US parent company with European operations may (depending on equivalence considerations) be subject to additional regulatory capital restrictions.
- There may continue to be a potential for regulatory arbitrage.
- Revised reserving and capital requirements (particularly under Solvency II) may cause companies to revisit their investment and product strategies. Of particular concern is the viability of continuing to offer products with long-term guarantees.
- There could be increased incentives to find ways of mitigating capital needs or reducing capital requirements.
- EU life insurance companies subject to Solvency II are likely to have increased volatility of their statutory results compared with US companies.
- US RBC partially incents companies to improve risk management. The Solvency II Solvency Capital Requirement ("SCR") is likely to engender a greater linkage between risk management activities and regulatory capital requirements. Nevertheless both regimes can, in some specific instances, result in lower capital as a result of actions that may not be aligned with effective management of risk.
- The ORSA processes in the US and Europe are expected to be fundamental drivers (or complement existing efforts) in embedding ERM into the business.

We have attempted to make the comments in this paper as "lasting" as possible. However, due to the pace of change, at least some information will become out of date as the regimes are further refined and developed.

The information in this paper has been updated to reflect developments as of December 31st 2014. For EU Solvency II, the information in this report is based on the Solvency II Directive, the Omnibus II Directive and technical rules specified in the Delegated Acts.

This paper describes Solvency II as contemplated as of December 31st 2014. The expected implementation date of Solvency II is January 1, 2016. Unlike the US regulatory system, including RBC, which has been in place and functioning for many years, Solvency II has little practical track record and technical clarification on some of the more detailed aspects of the regulation are ongoing. We expect that these technical clarifications will be final prior to the go-live date.

3 Market Context

To put the regulatory changes in context, we first consider some of the regulatory initiatives currently underway. We will also briefly consider some of the features of the insurance environments in the US and EU which provide some context for the differences and similarities in the developments of the regimes.

3.1 Global and wider financial sector activities

Updated

Regulators, policy makers, and the industry are actively contributing to the development of global solvency requirements for life insurance companies. In addition, the Joint Forum of the Committee on Banking Supervision ("BCBS"), the International Organization of Securities Commissions ("IOSCO") and the IAIS support the various supervisors in meeting their regulatory objectives and contributes to the international regulatory agenda of the wider financial services sector. A key objective is a desire for a greater level of global consistency to reduce opportunity for regulatory arbitrage and competitive disadvantages, and to improve the overall supervision of global groups.

Key activities include:

- The IAIS has set out a series of Insurance Core Principles ("ICPs"), which provide a globally accepted framework for the supervision of the insurance sector. The initial document was published in October 2011 with last revision to date in October 2013.
- The IAIS is also working to reform the approach to group supervision including the development of a common framework for internationally active insurance groups ("IAIGs"), known as ComFrame. ComFrame identifies an IAIG as an insurance group that has total assets of at least $50 billion or gross written premium of at least $10 billion of premiums written in three or more jurisdictions (on a rolling three year average basis), and at least 10% of the group's total gross written premium is written outside the home jurisdiction. ComFrame is divided into three modules: the scope of ComFrame (Module 1); the IAIG (Module 2); and the Supervisor (Module 3). The latest revised ComFrame draft was published in September 2014.
- In November 2014, the IAIS finalized and published a Basic Capital Requirement ("BCR") that will be applicable to the nine global systemically important insurers ("G-SIIs") as specified by the Financial Stability Board ("FSB"). The list of G-SIIs is proposed to be updated annually and as at December 31, 2014 it includes: Allianz SE, American International Group, Inc., Assicurazioni Generali S.p.A., Aviva plc, AXA S.A., MetLife, Inc., Ping An Insurance (Group) Company of China, Ltd., Prudential Financial, Inc., and Prudential plc. The IAIS published a set of policy measures, including recovery and resolution planning requirements that apply to these G-SIIs. In October 2014, the FSB published a consultative document, seeking comments on the Recovery and Resolution Planning for Systemically Important Insurers. Additionally, the BCR will be supported by a Higher Loss Absorbency ("HLA") measure, which targets the activity within the group that is deemed systemically important. The IAIS goal is to ensure that the insurers designated as systemically important hold higher levels of regulatory capital to protect against a market event that would cause a high-loss and adversely affect policyholders and the financial markets. The HLA for G-SII will be different in valuation and approach compared to

non-insurance global systemically important financial institutions ("G-SIFIs"), and it will take time to develop and test. The HLA measure is expected by 2019.

- In December 2014, the IAIS published a consultation document to solicit feedback from stakeholders on the proposed risk-based global Insurance Capital Standard ("ICS"), which will apply to IAIGs and G-SIIs. The ICS is intended to establish minimum standards for setting levels of capital and thereby achieve a greater degree of comparability than now. Once implemented, the ICS would replace the BCR and meet the HLA requirements. The consultation includes feedback on valuation, qualifying capital resources, an example of a standard method for determining the ICS capital requirement as well as exploration of potential other methods for determining the ICS capital requirement. The consultation period closed on February 16th 2015 and non-private feedback has been published on the IAIS website.
- In light of the above developments, in early 2014, the NAIC established the ComFrame Development and Analysis Working Group ("CDAWG") to provide technical and strategic input on the IAIS' ComFrame, including any group capital developments. In this context, the CDAWG is now exploring group capital concepts that would be appropriate for U.S. based IAIGs. There are currently two potential group capital methodologies being explored: 'RBC Plus' (based on selected design features from the existing RBC framework) and 'Cash Flow' (based on the general methodology of asset adequacy testing for insurers).
- While there was substantial activity on evolving insurance company regulation prior to the 2008 financial crisis, that crisis has further increased interest in solvency issues and the focus on capital strength of financial services companies under stressed conditions. The BCBS, IOSCO and the IAIS have published a consultative paper on the Principles on Financial Conglomerate Supervision which provide national authorities, standard setters and supervisors with a set of internationally agreed principles that support consistent and effective supervision of financial conglomerates (any financial holding company, which conducts material financial activities in at least two of the regulated banking, securities or insurance sectors) and, in particular, those financial conglomerates that are active across borders.
- In addition to insurance solvency regulatory changes, the Financial Accounting Standards Board ("FASB") and the International Accounting Standards Board ("IASB") were developing a revised standard of accounting for insurance contracts. In 2014, FASB decided to scale back the scope of its project to targeted improvements to existing U.S. GAAP. The FASB's decisions were in large part due to feedback from U.S. investors and preparers who favored targeted improvements to existing U.S. GAAP in the event that substantial convergence with the IASB's proposed insurance model became unlikely. One of the key unresolved differences was the IASB's support for, and the FASB's rejection of, an explicit risk adjustment in the proposed present value of cash flows model. The FASB deliberations on the targeted enhancements are in their early stages but may include the potential updating of assumptions used in calculating various insurance liabilities, simplifications to deferred acquisition cost amortization models, and reconsideration of the measurement model for minimum death benefits and income

benefits. The IASB now expects completion of its insurance project and a final standard sometime after 2015.

- The Financial Stability Board ("FSB") was created in April 2009 by the G20 in response to the 2008 global financial crisis to strengthen international prudential standards. It includes the G20 countries, Spain and the European Commission ("EC") and is intended to identify significant problems in the financial system and oversee action to address them. The FSB has developed a policy framework to address the systemic and moral hazard risks associated with systemically important financial institutions ("SIFIs"). A SIFI is any financial institution whose collapse would pose a serious risk to the economy. The risk may arise due to size, complexity and systemic interconnectedness. The policy framework imposes additional capital assessment and loss absorbing requirements on these institutions along with the requirement to have in place recovery and resolution plans.
- The Dodd-Frank Act (formally the Dodd-Frank Wall Street Reform and Consumer Protection Act) was enacted in 2010 to reduce the risk of another financial crisis and places additional regulation of the financial services sector in the hands of the federal government. A key objective of the Dodd-Frank Act is to subject SIFIs to enhanced prudential standards to limit any impact their distress may have on financial stability. The Dodd-Frank Act will mean that insurance companies operating in the US that are classified as systemically important (nonbank) financial institutions will also be supervised by the Federal Reserve and be subject to the enhanced supervisory requirements. Also, of relevance for insurance companies which own a bank, is the inclusion of Bank Holding Companies ("BHCs") under the Dodd Frank Act and this may cause such insurers to reconsider their banking operations.
- Under the Dodd-Frank Act, the Board of Governors of the Federal Reserve System has the responsibility for the supervision of SIFIs, including BHCs with consolidated assets of $50 billion or more, the U.S. operations of certain foreign banking organizations and non-bank financial companies that are designated by the Financial Stability Oversight Council ("FSOC") for supervision by the Board of Governors. To fulfil this responsibility, the Federal Reserve created the Large Institution Supervision Coordinating Committee ("LISCC"). The LISCC is a committee that is responsible for overseeing the supervision of the largest, most systemically important financial institutions in the United States. As at December 31, 2014, the LISCC portfolio contains 16 firms. For an updated list refer to: http://www.federalreserve.gov/bankinforeg/large-institution-supervision.htm
- The Federal Reserve's annual Comprehensive Capital Analysis and Review ("CCAR") is an assessment of the capital adequacy of large U.S. BHCs and of the practices they use to manage their capital. In November 2011, the Federal Reserve adopted the capital plan rule, which requires BHCs with consolidated assets of $50 billion or more to submit annual capital plans to the Federal Reserve for review. These capital plans must include detailed descriptions of the BHC's internal processes for assessing capital adequacy, the policies governing capital actions such as common stock issuance, dividends, and share repurchases and all planned capital actions over a nine-quarter planning horizon. Each BHC must also report to the Federal Reserve

the results of stress tests the BHC conducts that assess the sources and uses of capital under baseline and stressed economic and financial conditions. The first CCAR test was conducted in 2011 and the last (in 2014) incorporated the transition arrangements and minimum capital requirements from the revised regulatory capital framework implementing the Basel III regulatory capital reforms. 30 BHCs participated in CCAR in 2014, including 12 BHCs that did not participate in previous CCAR exercises. The Federal Reserve approved the capital plans for 25 of the participants, objecting to the plans of the remaining five – four based on qualitative concerns and one because it did not meet a minimum post-stress capital requirement.

- In December 2014, U.S. Senate bill 2270: The Insurance Capital Standards Clarification Act of 2014 was enacted into law. Often, SIFIs have an insurance component and a bank component to them and the bill amends the Dodd-Frank Act to allow the Federal Reserve to apply insurance-based standards to the insurance portion of SIFIs while applying banking capital standards to the banking portion.
- The Dodd-Frank Act also gave the Federal Reserve supervisory authority over savings and loan holding companies ("SLHCs" or "thrift holding companies") previously supervised by the Office of Thrift Supervision ("OTS"). This change is intended to make reporting requirements uniform across all holding companies supervised by the Federal Reserve and will mean that SLHCs (which include some insurers) are expected to be subject to bank-like supervision and reporting requirements. This change has also, at least partly, been responsible for the sale of some insurance owned banks in an effort to avoid additional regulation.

3.2 The life insurance environment in the US and EU

This section discusses key aspects of the life insurance environments in the US and EU in order to provide insights into underlying drivers of solvency regime differences.

Updated

The NAIC and U.S. state insurance regulators are in regular dialogue with the EU insurance regulators on various issues related to mutual regulatory concern. In January 2012, NAIC, Federal Insurance Office ("FIO"), the European Insurance and Occupational Pensions Authority ("EIOPA") and the European Commission ("EC") agreed to participate in a U.S.-EU Dialogue Project. Its objective is to deepen insight into the overall design, function and objectives of the key aspects of the insurance regulatory regimes in the U.S. and EU and to identify important characteristics of both regimes. In September 2012, a draft report comparing the jurisdictions in key areas of supervision was released for public comment. After a period of public consultation, a revised final report was released in December 2012 titled "EU-U.S. Dialogue Project Technical Committee Reports Comparing Certain Aspects of the Insurance Supervisory and Regulatory Regimes in the European Union and the United States". Based on the report, the Steering Committee agreed on a "Way Forward" plan, which outlines common objectives and initiatives for the parties, for the next five years, (through 2017). In July 2014, an update to the Way Forward outlined progress to date on the project and reaffirmed the commitment to it. The update reaffirmed a set of objectives and initiatives to be pursued through 2017 in the following categories: Professional Secrecy/Confidentiality; Group Supervision; Solvency and Capital Requirements; Reinsurance and

Collateral Requirements; Supervisory Reporting, Data Collection and Analysis; Peer Reviews; and Independent Third Party Review and Supervisory on-site Examinations.

The insurance needs of consumers in the US and EU are similar. Both wish to cover the risks of early death, longevity and other insurable events as well providing the opportunity to invest and build retirement savings. The design and manner in which companies provide products to address these needs is impacted by the environment – particularly the regulatory and legal frameworks - in which they operate.

- The products sold by insurance companies across the US and EU are broadly similar in their objectives and function. However, due to the different social, cultural, legal and tax environments, there are differences in the benefit design, structure, the way charges are levied and in policy terms. Perhaps the most significant difference is the strong prevalence of "with-profits" (where policyholders participate in profits of the fund) business in some European countries versus the market share of general account crediting rate (where an amount is credited to the policy each year often with minimum guarantees) and dividend paying business (where non-guaranteed dividends are paid) in the US.

  These differences in the products have at least some impact on solvency regime developments, as rules are developed to address specific product features, and ensure liability valuations deal with these features appropriately.

  As products are commonly developed to be capital and tax efficient with respect to local regulation, design features often reflect areas where rules permit varying practice.

  Where regulation is developed in response to particular product features or benefits, or to address regulatory concerns with existing market practices, the products sold in a regime will drive further local developments. A recent example of this is the developments related to Actuarial Guideline ("AG") 38, which sets out the requirements for universal life products that offer secondary guarantees. The NAIC Life Actuarial Task Force ("LATF") performed work in 2011 and 2012 to address certain perceived concerns with the application of AG 38, which, in turn, has led some companies to at least assess significant repricing and/or revisions to such products.

- In valuing general purpose insurance liabilities, the use of "current" accounting methods (valuation based on current prices, market variables and assumptions) is more common in Europe than in the US. The IASB Insurance Contract Standard, when introduced, will serve to increase adoption of "current" accounting measures that reflect observable market assumptions. In the EU the parallel development of the accounting approach and Solvency II has served to engender a greater alignment of the approaches. The US statutory regime is not anticipated to move towards a market-consistent framework. This is perhaps one of the most fundamental differences between the US and EU solvency regimes, and will result in significant differences in the expected impact on companies and products.

- The legal environment, in which regulators and insurance companies operate, has at least some influence on the design of solvency standards. The appetite for legal action in the two regions

appears to have, over time, influenced the development of solvency rules and is one reason why the US approach to capital assessment is focused on a clear, objective, minimum supervisory action level that is less subject to legal challenge than other approaches. Also the different ways in which supervisors are granted their legal rights and the legal point at which supervisors have the power to influence, act or take control of a company to safeguard the interests of the policyholders are important areas of divergence.

- The distribution strategies of European and US life insurance business have certain key differences, although the impact on solvency regime developments from such differences appears relatively modest. Distribution strategies also vary significantly within Europe. Bancassurance (products sold through bank branches and bank employed agents) is the main distribution channel for many European countries, particularly in the southern European countries. This channel has grown significantly throughout Europe from its introduction in the 1980s. Agents (who primarily represent one company) and brokers (not affiliated with a particular company) are also significant channels with the former the more popular in most countries (notably different in the UK & Ireland where brokers, also known as independent financial intermediaries, are more common). Lastly, direct sales (direct marketing, mail and internet) is also used although this tends to be smaller in most countries.

  In the US, the main distribution channels are career (dedicated agents), brokerage (not affiliated with a particular company) and Personal Producing General Agents (contracted with one or more insurance companies to sell their products). Of less significance is direct sales and lastly bancassurance which has not historically been a significant channel in the US.

  The different distribution strategies employed have an impact on product design. For example, in Europe products sold through the bancassurance channel tend to be kept simple and focused on lower premiums and policy charges. However, products sold through brokers commonly include many features and options to allow the advisor to tailor the product to the customer need.

  The different products that arise impact regulation (to the extent it is introduced to clarify how product features should be allowed for when performing a reserve valuation) and vice versa, but the distribution strategies themselves have less clear impact on the design of solvency and capital standards.

- In both Europe and the US, investment portfolio mix is largely a function of the underlying products sold. EU separate account (also known as unit-linked) policies tend to be predominantly equity based. EU participating (or with-profits) business historically has had a large equity component although the allocation has been reduced in favor of bonds, particularly where guarantees have been costly and valuation techniques require a realistic cost of guarantees. Annuities and other general account liabilities tend to be backed largely by debt securities. There is a clear tendency to invest in debt and equity from local markets or at least local currency denominated securities. While the portfolio mix may differ, the underlying asset classes (such as equities, treasuries, corporate bonds, property, cash and mortgages) that

life companies invest in tend to be similar and, as a result, the assets held have not, in general, driven significant differences between US and EU regulation.

4 Overview of Life Insurance Regulatory Regime Change

4.1 Current reserving & capital

4.1.1 United States

The NAIC is the standard setting and regulatory support organization created and governed by the chief insurance regulators from the states. Although the standards (or model laws) are promulgated by the NAIC, the adoption of these and subsequent regulation is on a state by state basis. The model law process is designed to ensure that the standards developed have a high chance of being implemented on a consistent basis by the states.

The NAIC Standard Valuation Law ("SVL") defines the methodologies used to calculate minimum reserves. These approaches are generally prescriptive and, for life insurance, broadly require a modified net level premium approach (where the reserve is the present value of benefits less the present value of net level premiums, with a first year expense allowance) or a greatest present value of benefits approach for annuities. Exceptions, though, include products valued under Actuarial Guidelines 38 and 43 where gross premium and stochastic valuations are required. There are minimum standards for the assumptions used such as mortality, morbidity and interest rates. Generally, no lapses are to be assumed. Over time, there have been a number of updates to the SVL to address certain product features and innovations within the market - for example the requirement of a stochastic assessment of the cost of guaranteed death and living benefits within variable annuity business. In addition, most companies are required to prepare asset adequacy testing of the in-force business using current assumptions to support the sufficiency of assets under set scenarios. An actuarial opinion of the adequacy of the assets is required for all life companies except for those below a certain de minimis size.

The NAIC Risk Based Capital ("RBC") system was created to identify weakly capitalized companies and provide a minimum capital standard which reflects the material risks of life insurance business. This acts as a safety net to identify when further company specific analysis is required and is used to define the points at which regulators have authority to take action. It is largely based on a standardized formula which, by its nature, does not completely take account, company and circumstance specific risks. The formula applies factors to balances taken from the statutory financial statements to calculate a RBC requirement. The factors are primarily based upon relevant statistics and are calibrated to be appropriate across the industry rather than on a company by company basis, providing for a level of consistency and objectivity across companies.

The RBC system includes factors for asset risk (affiliates, credit, interest rate and market risk), insurance risk and business risk and allows for the impact of asset concentration, diversification or correlation of risks. Changes have been made to these assessments for variable and interest sensitive products requiring stochastic modeling for the equity and interest rate risk components. These changes better reflect the inherent risks in the assessment of minimum capital.

The RBC system operates in conjunction with other aspects of US solvency regulation that focuses on company-specific factors and risks, such as annual solvency reviews (including actuarial analysis) by regulators, periodic risk-focused exams and stress testing / asset adequacy analysis. It is also worth noting that although it was never intended to be used in this way, RBC commonly is a key measure used in assessments of company strength by certain rating agencies, through analysis of the ratio of surplus to Company Action Level RBC. This generally causes companies to maintain target surplus at multiples (e.g., 350%) of such RBC.

4.1.2 European Union

Historically, Europe had separate regulatory frameworks in each country. Companies could enter additional countries by setting up a separate subsidiary subject to that country's separate regime. With the advent of the EU, companies gained access to other member territories (without setting up a separate subsidiary). Before the 2002 directive there were 14 different "directives" on insurance regulation, and approaches to reserving and assessing solvency consequently have reasonably significant differences among the individual countries.

The existing Solvency I directives are consolidated under the Directive 2002/83/EC of the European Parliament and of the Council of 5 November 2002 concerning life assurance. Amongst other elements, this Directive sets out high level requirements for assessing technical provisions (reserves), available capital and the minimum solvency margin.

The requirements of the Directive are at a sufficiently high level that a wide variety of practices are possible. There are no explicit components in the required solvency margin to reflect asset risk, asset-liability mismatch, or volatility in investment guarantees. Rather, the current regime addresses these by requiring prudence and placing restrictions on asset holdings. Many countries, recognizing limitations in the minimum standards of solvency imposed by the existing directives, have implemented their own reforms resulting in divergent approaches and practices leading to the need for Solvency II.

4.1.3 Current comparison

The following table summarizes key components of the current solvency regimes and highlights key observations.

Component	United States	European Union
Asset and Liability Valuation	Valuation is generally consistent among all states with relatively minor variations. For life business, a net level premium approach (with an allowance for acquisition expenses) to liability valuation is generally required using prescribed prudent assumptions for death and interest which are locked in at policy issue. A greatest present value of benefits approach, also with prescribed assumptions is generally required for annuity business. AG 38 and 43 introduced additional requirements for life insurance products and stochastic valuation for annuity guarantees, subject to a deterministic floor. Generally fixed interest assets are valued on an amortized cost approach for solvency purposes and subject to impairment testing. Equities are carried at market value. There are rules on which assets can be admitted for solvency purposes. Asset adequacy testing (AAT) is required for most life insurance entities. In general, AAT is performed at an aggregate level using a variety of scenarios that test the adequacy of the assets under certain interest rate scenarios. For certain products, such as universal life with secondary guarantees, there are requirements to perform such testing on a stand-alone basis. AAT requires the modeling of assets and liabilities, and although many approaches are allowed to determine the adequacy of the assets, cash flow testing is common, often using stochastic analysis.	Current regulations for technical provisions under Solvency I vary by country. However, all are calculated with a prudent prospective actuarial valuation and must include an appropriate margin for adverse deviation. The rate of interest used should be chosen prudently, and member countries are required to set maximum rates. Some territories require stochastic assessment of options and guarantees, but this is not true of all countries. Similar to liability valuation, asset valuation rules vary by country. There are rules on the categories of authorized assets that insurers can use to cover technical provisions. In addition, there are rules on investment diversification that restrict undertakings from investing more than a certain percentage of their technical provisions in particular asset classes.

Capital Requirements	The RBC calculation generally uses a standardized formula to determine a minimum amount of capital for an insurer's overall business operations. RBC is designed to identify minimum capital levels and is not intended to be useful as a risk management metric for well capitalized companies. Stochastic requirements are included for C-3 Phase I and II, and possibly (where a regulator requires further analysis) weakly capitalized companies.	The required solvency margin is held in addition to technical provisions and varies according to whether the risks are of investment, death or management only. For life insurance business, it is determined by a formulaic approach considering reserves and capital at risk underwritten by an undertaking.
Supervision	RBC results are part of annual statement filings and are readily available to the regulator (primarily driven by state of domicile). Regulators are active in their monitoring whenever RBC ratios begin to approach action levels. Factor based calculations are relatively easy for regulators to "audit" and compare across companies, but additional complexity results from the models associated with C-3 Phase II and variable annuity benefits. Supervision of capital is primarily at the entity level, with holding company regulations addressing affiliated transactions in conjunction with annual reviews and risk-focused examinations.	Life insurers are subject to official authorization and supervision in each member country of the European Union. Authorities of the member countries are able to introduce appropriate safeguards or impose sanctions aimed at preventing irregularities and infringements of the provisions on assurance supervision. Supervision is primarily at the entity level with the addition of Insurance Group Directive capital requirements.

Reporting and disclosure	At present, because it is intended as a regulatory tool to identify poorly capitalized companies and not as a means of ranking well capitalized companies, the details of the RBC calculation are reported to supervisors only and insurers are prohibited from using RBC in marketing. However, many of the inputs to the formula as well as the final two numbers (total capital and Authorized Control Level ("ACL") capital required) needed to determine the RBC ratio are publicly available in the insurer's statutory annual statement. The requirement to file a regulatory report (or Blue/Yellow Book) with the supervisor results in extensive disclosures.	The returns disclosed to regulators are expected to contain strong detail on a wide range of information that would be of use in risk assessment. The return also gives significantly more information about both inward and outward reinsurance and on the use of derivatives by insurers than is available from the financial statements. Whilst many countries in the EU do require regulatory reports (such as the UK FSA returns) these are not usually as comprehensive as the US Blue/Yellow Book.

4.2 Expected changes in reserving and capital standards

4.2.1 United States

Updated

The NAIC, in line with other global solvency regime developments, is following a program to review and consider enhancements to the existing approach. Changes in the reserving and solvency standards in the US were being developed under the NAIC's Solvency Modernization Initiative ("SMI") and, since December 2013, by the NAIC's Financial Condition Committee. This includes a review of international developments regarding insurance supervision, banking supervision, and international accounting standards and their potential use in US insurance regulation. The NAIC published a white paper in August 2013 titled "The U.S. National State-Based System of Insurance Financial Regulation and the Solvency Modernization Initiative". The paper explains the U.S. solvency regulatory framework and how and why it works successfully. In addition, it discusses the SMI self-evaluation and highlights the strengths of the national state-based system of insurance regulation and the improvements made over the last several years in the SMI.

Key SMI activities include:

- Capital requirements - RBC is expected to remain as a key component in the US solvency regulatory framework and to provide a floor for triggering regulatory intervention. It is expected that RBC will continue to be calibrated to identify "weakly capitalized companies" rather than to identify the economic target levels of capital that a well-capitalized company should hold. The NAIC is considering whether it would be appropriate to make the RBC non-public. Other aspects of the existing solvency regulatory regime, including regulatory reviews, risk-focused exams and asset adequacy testing are also expected to continue. In addition, as described below, the introduction of the Risk Management and Own Risk & Solvency

Assessment ("RMORSA") will provide regulators information on companies' own view of required capital levels, particularly over projected periods and adverse scenarios. Overall, regulators are conducting a holistic evaluation of the RBC formulas, factors, and methodology.

- Governance & risk management - Work has been completed to explore the risk management requirements in the US solvency framework. The NAIC's recently endorsed RMORSA will provide risk management information to regulators and should enable more efficient risk-focused examinations. Regulators anticipate receiving certain information from all non-exempt insurers, including 1) a description of an insurer's risk management policy, 2) quantitative measurements of risk exposure in both normal and stressed environments, and 3) prospective solvency assessments.
- Group supervision - In December 2010, the Insurance Holding Company Act was modified (by granting enhancements to regulators' rights to access information and the introduction of supervisory colleges within the Act) to strengthen the "walls" that protect the solvency of insurers, and open the "windows" that allow supervisors to look into operations across any part of a group. There also are modifications to improve supervisors' abilities to access information and participate in supervisory colleges (forums to facilitate communication and cooperation among different regulators with responsibility for supervising a group), and to enhance corporate governance and senior management responsibility.
- Statutory accounting & financial reporting - The valuation of life insurance reserves is, in general, currently based on prescribed methods and assumptions. The NAIC amended the Model Standard Valuation Law in late 2009, with an intention to implement the work-in-progress Valuation Manual and incorporate principle-based reserving requirements. An initial version of the Valuation Manual was adopted by the NAIC in December 2012, after preliminary industry field testing. The industry field testing provided quantitative information to analyze the Valuation Manual requirements, which are currently limited to life insurance products. The Valuation Manual will become effective for new issues after at least 42 states (comprising greater than 75% of life premiums written) have adopted the Standard Valuation Law.
- Reinsurance - The NAIC adopted the Reinsurance Regulatory Modernization Framework proposal (Reinsurance Framework), during 2008. Work progressed over 2011 to incorporate key elements of the Reinsurance Framework and to develop a process by which the NAIC will review the reinsurance supervisory systems of non-US jurisdictions in order to determine which jurisdictions should be recommended to the states as qualified non-US jurisdictions and therefore the benefits of these reinsurance transactions will be treated in a similar way to those in the US. In addition, further changes to the allowance for reinsurance are being considered as part of Principle Based Reserving ("PBR").

4.2.2 European Union

Existing Solvency I approaches to reserving and capital in Europe lack consistency and are generally viewed to be insufficiently risk sensitive. The intention of EU insurance legislation is to create a single unified EU insurance market with a common solvency framework, thereby unifying and enhancing consumer protection. The Insurance Directives which bring the legislation into effect establish an "EU

passport" (single license) for insurers to operate in all member states. The current lack of harmonization, supervisory alignment and focus on managing risks are key drivers behind Solvency II.

Updated

Solvency II represents a fundamental review of the prudential regulatory requirements for the European insurance industry, and is intended to establish a revised set of EU-wide capital requirements, risk management standards and disclosure requirements. When implemented it would represent the single largest change to European insurance regulation ever. Discussion on Solvency II started in 2004, and significant progress towards introducing Solvency II has been made. However, there were numerous delays in adopting the final Directive due to difficulties in agreeing on the final rules. The original date included in the Solvency II Directive for its introduction was 2012. Following the approval of Omnibus II in 2013, the scheduled Solvency II effective date is January 1, 2016.

Solvency II has been designed from the ground-up and bears little resemblance to the current Solvency I regime. Due largely to this sweeping redesign, there has been a long development phase and multiple field studies to assess the impact on the industry and readiness of insurers. Structured around three "pillars", Solvency II is a risk-based, forward-looking regulatory regime founded on a 'total balance sheet' and market-consistent approach. Solvency II is expected to give companies further incentive to run their business with an increased focus on risk management, governance and enhanced disclosure. The three pillars are:

- Pillar I - Quantitative and Qualitative Requirements. Solvency II introduces requirements for the calculation of technical provisions, capital requirements and the recognition of eligible own funds. Technical provisions are calculated as a probability weighted best estimate on a market-consistent basis for financial variables and a best estimate basis for non-financial variables plus an explicit risk margin. The best estimate reserve will therefore need to reflect the average across a range of scenarios where the distribution of outcomes is not symmetric. A replicating portfolio technique (where assets that provide cash flows that match the insurance liabilities are selected and the liability value is then equal to the market value of the assets) could be used to value the liabilities. However, it is difficult to select assets that accurately match the liability cash flows under all potential scenarios, particularly for the more complex products often part of an insurer's portfolio. This approach is therefore practically very difficult to implement and is not expected to be a common approach other than for very simple liabilities. The Minimum Capital Requirement ("MCR") is held in addition to the technical provisions and represents the minimum amount below which solvency cover should not fall. The MCR is based on a simple formula (broadly the sum of a defined percent of reserves and a defined percentage of capital at risk). The MCR is relatively risk insensitive and is subject to a corridor of between 25% and 45% of the Solvency Capital Requirement ("SCR"). Further capital requirements are specified by the SCR which is a risk-responsive capital measure designed to ensure that the insurer will be able to meet its obligations over the next 12 months with a probability of at least 99.5% (meaning being able to pay claims in the year and just having sufficient assets to meet liabilities at the end of the year). The SCR applies at the entity level for insurance companies and, in addition, there are group level SCR requirements as well. The SCR can be calculated using a standard formula or an approved internal model.

- Pillar II - Corporate Governance and Risk Management Requirements. Solvency II will require insurers to develop and demonstrate an adequate system of governance, including appropriate internal organization and key functions, an effective risk management system and prospective risk identification through an ORSA (to be provided to the regulator). This is currently an important area of focus for companies in the EU as they work to formalize their risk management processes to meet these requirements.
- Pillar III - Supervisory and Public Reporting Requirements. A new set of European Economic Area ("EEA") wide reporting and disclosure requirements will replace current regulatory reporting requirements. Reporting requirements under Solvency II include both private reporting by insurers to their supervisors via the Regular Supervisory Report ("RSR") together with public reporting in the form of an annual Solvency & Financial Condition Report ("SFCR"). The RSR contains information that is required for the purposes of supervision that it is not deemed appropriate (i.e. responses to concerns raised by a supervisor) to require public reporting in the SFCR.

  Insurers will be expected to continue to maintain a close relationship with their regulator, who will monitor compliance with Solvency II through the risk-based supervisory review process. This review process should be carried out at a frequency (which should be regular) and scope set by the supervisor based on the nature, scale and complexity of the insurer's activities.

As well as imposing requirements on individual insurers within the EEA, Solvency II also establishes rules for the supervision of insurance groups containing EEA insurers. Such groups will be subject to many of the Directive's requirements (e.g. group solvency requirements; group reporting requirements; and requirements regarding risk management and internal control at the level of the group).

Updated

Insurance companies impacted by Solvency II are generally well along the journey of implementation. The matters that led to the delayed implementation date of January 1, 2016 related primarily to Pillar 1 quantification methods. An assessment of these measures (called the 'Long Term Guarantee Assessment') took place in early 2013, and the key European bodies came to an agreement on it in autumn 2013. The package contained a number of measures:

- The matching adjustment: Solvency II uses a market-consistent basis with the allowance for an illiquidity premium on certain products. The matching adjustment is an explicit adjustment to the discount rate and allows insurers to recognize the return (in excess of an allowance for credit default and downgrade costs) of assets backing closely matched liabilities. The use of a matching adjustment is subject to a number of strict requirements, including the quality of backing assets, extent of duration mismatching, and approval for use by local supervisors. These requirements, in addition to a mortality stress test requirement suggest that fixed deferred and fixed immediate annuity products can potentially meet the matching adjustment criteria. EIOPA will provide the credit default information for each asset class, duration, risk rating and currency on a quarterly basis to allow insurers to determine their matching adjustment.

- The volatility adjustment - The volatility adjustment addresses the situation that arises when spreads widen significantly and a pure market-consistent valuation would create a significant, potentially short term capital strain on companies. Solvency II rules specify the size of the adjustment to the discount rate using a formula-based approach, leading to a permanent and predictable adjustment based on the market conditions. The adjustment is available to all types of business with the exception of unit-linked products, and cannot be used in conjunction with the matching adjustment. The insurer makes the decision to apply the volatility adjustment, though some EU regulators are requesting insurers in their jurisdiction to provide information on the scope of application of the volatility adjustment and the impact on the Solvency II balance sheet.
- Back book transition: This includes certain options to phase in the valuation and capital requirements of Solvency II for existing business. Insurers can choose one of two options regarding technical provisions; the first allows the firms to transition from the Solvency I to the Solvency II discount rate linearly over a 16-year period. The second option permits firms to transition linearly from Solvency I to Solvency II technical provisions. If a company elects one of these options, then it still needs to disclose the technical provisions using a pure Solvency II result. Some transitional measures also are acceptable for assets used to meet capital requirements. All transitional measures will require pre-approval from the local regulator.
- Swap curve extrapolation: As there is limited depth and liquidity in the swap rate market at longer terms, it is common to assume a long-term rate and extrapolate the current curve to the long-term rate. At the time of writing, the extrapolation methodology was under discussion.

EIOPA is continuing to develop some detailed elements of the Solvency II regulation in preparation for 2016 implementation, but the most controversial elements were agreed to as part of the long-term guarantee assessment package described above.

Updated

One area of particular significance to the industry relates to the treatment of structured securities. The capital requirements regulation ("CRR") aimed at credit institutions and investment firms became effective in 2014, and the new rule also will affect EU insurers subject to Solvency II.

The regulation includes rules on the risk retention requirements relating to collateralized loan obligations and other tranched securitization transactions. The rules prohibit an institution, other than when acting as an originator, a sponsor or original lender and from becoming exposed to the credit risk of a securitization position unless the originator has explicitly disclosed to the institution that it will retain a material net economic interest which shall not be less than 5%.

There are additional requirements that the institution have a comprehensive and thorough understanding of the risks associated with the transaction (i.e. the "due diligence" requirement) before entering into any arrangement, and all arrangements are required to be disclosed to investors. The regulator has the authority to provide a capital add-on should any of the requirements not be met.

As with Solvency II, some of the more detailed elements of the regulation are still under discussion, but these developments may have implications for the insurance industry in terms of investment strategy and product pricing.

4.2.3 Comparison of expected changes

Component	United States	European Union
Asset and Liability Valuation	Assets are expected to continue to be valued on an amortized cost approach for solvency purposes, subject to impairment testing. No significant changes are expected for valuation of in-force liabilities (reserves). PBR will only apply for new business issued after PBR becomes effective, and is initially expected to apply only to life insurance products. PBR will require companies to assess the risks within their product portfolios, to use a combination of their own current best estimate assumptions with margins for adverse deviation with some level of safe-guard or prescription, especially in situations where companies have less control over their experience, such as equity market risk. PBR requires modeling both the assets and liabilities and only requires the use of stochastic modeling of the equity and interest risks for products which contain certain risk profiles.	Assets are valued on a basis that reflects their fair value (described as an economic valuation), based on arms-length transactions. The aim is that the valuation bases adopted should, as far as possible, be compatible with IFRS. Solvency II does not include a prescribed list of 'admissible assets' that insurers may invest in but rather requires insurers to invest their assets in accordance with a principles based 'prudent person' regime. Member countries are prohibited from introducing their own, more restrictive, rules governing the categories of asset an insurer may invest in or requiring the localization or pledging of assets. Liabilities will be calculated as the sum of a market-consistent discounted best estimate (probability weighted) liability plus an explicit risk margin, with some additional adjustments to the discount rate to handle the illiquidity of long-term insurance liabilities as described in Section 4.2.2.

Capital Requirements	An updated RBC calculation is expected to be a component in the US solvency regulation legal framework in order to maintain a floor for triggering regulatory intervention and identifying “weakly capitalized” companies. C3 Phase 3 and revisions to the C1 component may be introduced. RBC is expected to remain a "point in time" result based on current balances taken from the statutory financial statements rather than an assessment of the capital needed to allow for the change in profile of those balances over time. The introduction of the RMORSA will provide regulators information on companies own view of capital needs and plans.	Two tiers of capital requirement are included in Solvency II - the MCR & SCR. The MCR is the point of supervisory intervention. The SCR is the point where additional supervisory requirements can be made. The MCR is based on a simple formula (and restricted to a percentage range of the SCR) intended to represent a probability of 85%. The calculation of SCR on a standard formulae or internal model is risk-based, and is reflective of the particular risk profile of the insurer. It is determined in a way that attempts to ensure the insurer will be able to meet its obligations over the next 12 months with a probability of 99.5%.

Supervision	Supervision is currently conducted at the entity level with supervisory colleges (led largely by state of domicile) to communicate and share information on insurance holding company systems. The RMORSA will allow supervisors access to group wide solvency information but will not introduce a group wide capital requirement.	Group supervision for groups headed in the EEA is at the level of the ultimate parent insurer. The supervisor in one member country in which an insurance group operates will be identified as the "group supervisor" and will be responsible for exercising group supervision. The supervisory approach consists of: • The supervisory review process; • Risk-focused supervision; • Risk-aligned capital requirements; • Harmonization and the role of EIOPA; and • Assessment and reliance on insurers' own risk management (ORSA, internal models).

Reporting and disclosure	The RMORSA requirement will satisfy IAIS ICP 16 - Enterprise Risk Management - and enable US regulators to develop a deeper understanding of an insurer's internal risk management practices and group capital requirements. The RMORSA is intended to allow regulators to understand a company's analysis of risk and prospective solvency and form an enhanced view of an insurer's ability to withstand financial stress. The information in the RMORSA, which should be produced annually and a summary filed with the lead state commissioner, will complement the information coming out of the risk-focused examination process - a current requirement of US insurance regulators. PBR will also require disclosure of the assumptions experience and margins used in the valuation for business within scope of VM 20.	Regulatory reporting under Solvency II is facilitated by the RSR. The RSR is built around a common prescribed structure and provides extensive qualitative and quantitative information about an insurer, reported both free form and on quantitative reporting templates. In addition to regulatory reporting requirements, insurers must produce and make publically available a SFCR on an annual basis. The SFCR is intended as the primary tool for insurers to make regulatory disclosures to the public. Groups are required to publish a group SFCR in addition to solo SFCRs for each insurance subsidiary, or may, by agreement with the supervisor, publish a single group-wide SFCR. Finally, the ORSA is defined as the entirety of the processes and procedures employed to identify, assess, monitor, manage, and report the short and long-term risks an insurer faces or may face and to determine the own funds necessary to ensure that the insurer's overall solvency needs are met at all times. This assessment is performed to a company's own view of the required level of confidence. The ORSA requirement under Solvency II is, in general, more prescriptive than the US RMORSA.

5 Key Valuation Implications

The introduction of new solvency initiatives, discussed above, has implications for key stakeholders, including insurers, regulatory supervisors, consumers and policyholders. Both Solvency II and the

NAIC's SMI initiative (including PBR) seek to align valuation and reporting methodologies with the underlying risk in an insurer's balance sheet. As a consequence, in addition to the economic benefits of risk mitigation practices (i.e. ALM and hedging) there will be an opportunity for regulatory benefit if supervisors can move towards a more risk-focused process. In addition to valuation and capital requirement changes, alterations to the structure of governing regulatory bodies and their ability to access new information will also shift the way in which insurance supervision is approached.

5.1 Capital level

US RBC (see section above) has generally been viewed as working well as a basis for assessing the minimum regulatory capital for a life insurance entity. Various action, control and intervention levels are specified as multiples of the minimum level. The level of company action or supervisory intervention follows a tiered approach based on a comparison of the company's total capital to its ACL RBC.

Thus, RBC allows regulators to identify potentially "weakly" capitalized companies and is used to define the point at which a supervisor can legally intervene. It is not intended to and does not assess the appropriateness of higher amounts of capital. As such, insurers are likely to hold additional capital to meet their strategic objectives and maintain rating agency assessments. Companies often target multiples of the minimum level of RBC authorized control or company action levels, and manage their business in order to maintain this level.

In Europe, Solvency II requires that companies calculate the SCR and MCR as defined above. The SCR (using the standard formula or an internal model) is a higher capital level representing greater security and should reflect all the risks in the insurance company. Although the SCR is unlikely to be as high as the capital required to meet an insurer's strategic objectives, or meet rating agency requirements, it is a prescribed regulatory hurdle above the minimum amount which is risk-focused and intended to allow timely supervisory intervention.

An important area is the legal point at which supervisors have the power to influence, act or take control of a company to safeguard the interests of the policyholders:

The US uses a tiered approach to supervisory intervention based on a company's ACL:

- Company Action Level (total adjusted capital is between 150% and 200% of the ACL): At this level an insurer must prepare a report to the regulator outlining a comprehensive financial plan that identifies the conditions that contributed to the company's financial condition and sets forth proposals to correct the financial problems.
- Regulatory Action Level (total adjusted capital is between 100% and 150% of the ACL): At this point an insurance company must file an action plan and the regulator is required to perform any examinations or analyses of the insurer's business and operations that is deemed necessary. The regulator can also issue appropriate corrective orders to address the company's financial problems.
- Authorized Control Level (total adjusted capital is between 70% and 100% of the ACL): The regulator can take control of the insurer. This is in addition to the options available to the

supervisor at the Company Action Level and the Regulatory Action Level. The regulator is automatically granted legal power at this level.

- Mandatory Control Level (total adjusted capital is less than 70% of the ACL): At this level the regulator is required to take steps to place the insurer under control.

In the EU, under Solvency II, the supervisory trigger levels are the SCR and the MCR.

- If solvency falls below the SCR the supervisor has the authority to require a company to establish additional capital or reduce its risk to meet the SCR within six months. The regulator has the power to restrict the insurer's free disposal of assets.
- If the MCR is breached this must be restored within three months. To the extent that the insurer continues to deteriorate the regulator has the power to take all proportionate measures necessary to safeguard policyholders including removal of authorization and transfer of liabilities to another insurer.

Updated

In exceptionally adverse situations, local EU regulators have the ability to extend the period of recovery for individual insurers who breach their SCR or MCR limits. The regulators will consider a number of factors in determining the length of the extension, including the interests of policyholders.

The implications of the different focus in capital levels on in-force business valuation are likely to include:

- US companies reporting to state regulators will continue to be assessed against the RBC intervention levels. In addition, a US company with a European parent or a US parent company with European operations may (depending on equivalence considerations) need to hold capital, somewhere within the group, to the likely higher Solvency II SCR level. This may impose additional regulatory capital restrictions. It is important to note, however, that US companies almost always hold a higher capital level than the minimum amount necessary to avoid regulatory action under the RBC requirement.
- The costs of implementing a SCR calculation as part of a company valuation can be significant. An assessment by the UK regulatory body estimated that in addition to the changes to capital levels the cost of implementing Solvency II since 2008 is just under the $3 billion mark in the UK alone. Staffing and support costs accounted for almost half of this figure reflecting the need for firms to strengthen the expertise within their companies. The highest area of cost is related to Pillar I activity, specifically in determining the scope and functionality of the regulatory capital model.
- Although there is no group minimum capital requirement in the US, the RMORSA will provide regulators with additional information on the level of capital considered appropriate by the group's management. If available capital is, or in the future becomes, less than the amount identified by management as appropriate, the risk-based focus of the regulatory examination likely would require company management to consider plans to address.
- Although not strictly a valuation impact, it is worth noting that the US formulaic approach to RBC minimizes the costs, to all but weakly capitalized companies, and there may be additional

effort, time commitment and resource requirements resulting in extra costs for companies and regulators as a result of preparing and reviewing more complex valuations or capital results.

5.2 A total balance sheet approach

When comparing US statutory requirements with Solvency II, it is important to consider the complete balance sheet, not just required solvency capital. Under US statutory accounting, the balance sheet is composed of statutory reserves and additional miscellaneous liabilities (such as an asset valuation reserve) and equity composed of required capital and free surplus. Under Solvency II, liabilities are composed of technical provisions and an explicit risk margin. Equity is composed of the capital requirements and free surplus.

- Liability valuation - as described above, current US statutory reserves are, for the most part, valued using a prescribed methodology which utilizes conservative assumptions set at issue to introduce margins for prudence. These margins for prudence provide a buffer or additional funds to meet policyholder obligations and to this extent are implicit capital requirements in addition to best estimates.

  Solvency II reserves, on the other hand, are valued using a best estimate approach and liabilities do not include elements of prudence. However, in addition to the best estimate liabilities Solvency II requires that the liabilities include a risk margin. This is intended to allow for the uncertainty in the insurance cash flows and is calculated as the cost of holding an amount of capital equal to the SCR in each future year over the lifetime of policyholder obligations. The cost is calculated based on the additional rate (specified and referred to as the 'cost of capital rate'), above the relevant risk-free interest rate, that an insurer would incur holding that capital. The Solvency II regulations prescribe a 6% rate for the cost of capital.

  When comparing US statutory reserves to Solvency II requirements, the following drivers of key differences will be important:

  - The level of implicit conservatism in US statutory reserving (for example, exclusion of an allowance for lapse and CTE levels) versus the allowance under Solvency II for the explicit risk margin (defined on a cost of capital method);
  - The point in the economic cycle. As US statutory reserving uses an amortized cost basis on prescribed discount rates (albeit this will be "trued up" by asset adequacy testing) this may produce a higher or lower discounting effect in the liabilities depending on whether the rate is higher or lower than the Solvency II current risk free curve. To consider the impact on surplus, the net effect on assets less liabilities is clearly important, and the different bases of accounting for assets (generally book value in the US, and market value under Solvency II) also become important.
  - The impact of other generally prescribed assumptions under US statutory reserving versus the current entity specific assumptions required by Solvency II.

In the US, PBR will result in less prescription in assumptions and will move to a more principles based determination of statutory liabilities, including certain company specific assumptions (which will no

longer be locked in at issue) and inclusion of the material risks within a portfolio of policies. The assumptions will require a margin for prudence, although the margin is set for each assumption rather than in aggregate, as with the risk margin of Solvency II. At the onset, PBR will be applicable only to certain life and annuity contracts and, for life policies, will be for new issues only. Therefore, the key drivers for differences between liability valuation in the US versus under Solvency II will continue to remain as the current methods for US statutory reserves will still be in place for the business in force prior to PBR going into effect.

As a consequence of these drivers, reserves under US statutory approach may be higher or lower than under Solvency II.

The implications of the different capital requirements on in-force business valuation are likely to include:

- Theoretically, there may be opportunity for regulatory arbitrage. In fact, depending on the relative levels of capital, the benefits of such arbitrage could increase. For European insurance companies, Solvency II would require them to hold the group MCR and SCR regardless of geographic location. However, if the US was regarded as an equivalent regime (see section 5.4 below), this may allow EU companies to utilize US statutory requirements in their capital quantification and may introduce scope for arbitrage. Other (non regulatory) capital requirements, such as internal objectives and rating agency targets, may limit or eliminate the extent to which arbitrage is beneficial. However, these may not apply at the legal entity level, so regulatory arbitrage may still grant additional capital freedom.
- Revised capital requirements (particularly under Solvency II) may cause companies to revisit their investment strategies, and in some cases, to start moving assets into lower risk categories or out of asset classes with unduly onerous capital charges.
- There could be increased incentives to find ways of mitigating capital needs or reducing requirements through reinsurance, hedging or other initiatives. Where these activities genuinely improve the risk profile of the business, it will be of benefit. However, where such activity is simply to achieve capital relief, this could result in incenting behavior without due regard to risk management objectives.

5.3 Liability valuation - market consistency

The IAIS ICPs require an economic valuation. Interpretation of this requirement varies, with some regimes, including European Solvency II, following a market-consistent approach, while others, including the US, appear likely to follow existing non-market-consistent approaches.

There is not a unique definition of a market-consistent valuation. However, in general, a market-consistent valuation is one in which assets and liabilities are valued in line with market prices and variables. More specifically, assets would be valued at market value. But, because there is not a deep and liquid market in insurance liabilities, a different approach is required for liabilities.

- To the extent that liability cash flows can be replicated by the same cash flows from tradable assets, then the market value of assets can be used as the value of the liability cash flows.

- However, for insurance liabilities, this is often not the case, and a mark-to-model approach calibrated to market variables is used and an allowance for unhedgeable risk included.
- In a market-consistent liability valuation, no credit is taken for future investment returns in excess of the risk free rate curve.

Supporters of market consistency see a number of advantages to the basis:

- It provides more immediate information about an insurer's financial position, identifies the implications of mismatching and strengthens the incentives for tight asset liability matching;
- A market-consistent valuation theoretically could be more objective, therefore, improving consistency across companies, provided the underlying assumptions are sufficiently consistent. For observable information, consistency likely can be achieved; however, key insurance assumptions, are often not observable;
- Market consistency can be a useful tool in understanding and pricing certain risks inherent within insurance portfolios. In particular, a market-consistent valuation develops a value of options and guarantees that can be consistent with option pricing models and, as a result, reflects the cost of hedging or transferring those obligations; and
- In theory, a market-consistent valuation could represent the amount required to transfer certain liabilities to a third party, but in practice it is not how many insurance transactions (e.g., mergers and acquisitions) are priced. In practice such transactions assume real world assumptions and take account of return on capital, profit criteria and expense coverage amongst other things.

However, there are some key difficulties in practically applying a market-consistent valuation, many of which led to delays to the implementation of Solvency II:

- In many situations, it is difficult to obtain reliable market data. In many territories, markets are not deep and liquid in sufficiently long durations that are appropriate for the term of life insurance liabilities. It can even be difficult to observe the risk-free yield curve at longer durations and may require extrapolation to terms required for liability cash flows.
- It is often difficult to determine an appropriate risk free rate at sufficiently long durations consistent with the insurance liabilities.
- Insurance liabilities generally are illiquid in nature. There often are significant charges or haircuts to surrender a policy, and in some cases, such as payment annuities, the policyholder does not have an option to transfer. Therefore, a market-consistent value of the liability should reflect this illiquidity. A number of approaches have been developed to determine the adjustment. However, the result depends on the method applied, and in particular on the relative levels of liquidity in the instruments compared. In addition, the use of an illiquidity premium implied by asset valuations, to represent the illiquidity of the liabilities, may not be appropriate. There are obvious practical difficulties in achieving consistency in the illiquidity premium used in such a valuation across companies.

- In light of the above, the mark-to-model approach for market-consistent valuation of insurance liabilities would, at best, be an approximation to the market value of the liabilities.

In addition, there are important implications of a market-consistent approach:

- A market-consistent valuation will, in theory, fully reflect the value of assets under current market conditions, not necessarily their ability to fund long-term obligations. The perceived advantage of market-consistent valuation providing current market information is less applicable to a life insurance company for which policies are generally long-term, rather than immediate obligations and investments that are generally based on a buy and hold strategy. Volatility will arise from the use of a market-consistent measure. Certain aspects of this volatility provide meaningful information (i.e., changes in option and guarantee costs and volatility due to mismatches in the duration of the asset and liabilities). However, volatility also will increase from discount rate differences between assets and liabilities and not necessarily reflect the ability of the assets to fund the liabilities over the period of the insurance contracts.
- Products that rely on achieving an investment spread over a risk free return are likely to look uneconomic on a market consistent basis (see section 6.2).
- There may be an inappropriate impact on public perception of the strength of the industry and regulatory oversight. Volatility of results likely would impact an insurance company's ability to access (and the cost of) capital, at a time when it is needed most.
- In order to reduce capital requirements or volatility concerns, life insurers may reduce their product offerings and/or shift risks to policyholders.
- Procyclicality (positive correlation of market prices with current market movements) would likely increase. In order to address immediate solvency measures in falling market conditions, a market consistent valuation will incent the sale of riskier asset classes. Because insurance liabilities are typically long duration (with limited near term liquidity requirements), the sale of assets to meet potential short-term market movements would result from the valuation model and not necessarily from the insurers' operating models.

5.4 Solvency capital additions

One of the differences in supervisory power between the US and EU is the way in which regulators can impose capital add-ons.

Under Solvency II, the regulator is able to impose capital add-ons in the following cases:

- The insurer’s risk profile deviates significantly from the assumptions underlying the SCR calculated using the standard formula and the use of an internal model is inappropriate or ineffective or a partial or full internal model is in the process of being developed;
- There is a significant deviation between an insurer’s actual risk profile and that captured by a full or partial internal model (and the model has not been adapted to capture those risks within an appropriate timeframe); or
- There are significant governance failures (which are unlikely to be resolved in an appropriate timeframe, and which prevent the insurer from being able to properly identify, measure, monitor and manage the risks to which it is exposed.

Capital add-ons are a measure of last resort to be used by the supervisors, and should be imposed only in exceptional circumstances to ensure an adequate level of SCR is maintained.

In the US, regulators can impose a requirement to hold additional capital (funds) when certain financial condition standards are breached or in the context of a solvency review or risk-focused exam. This is in addition to the capital (funds) that a company holds; not to the minimum capital (requirements) as calculated by the RBC. In addition, most companies in the US are required to perform asset adequacy analysis. This essentially tests the sufficiency of the assets to cover the expected liability obligations under a series of deterministic stress scenarios (though companies often perform testing over a broader range of scenarios). Regulators maintain the right to require additional statutory reserves be held (although the actuary would usually chose to do so themselves) based on the results of the asset adequacy testing irrespective of a breach in the minimum capital requirements.

The ability to require capital add-ons is not expected to add significant competitive differences between the US and EU as it would only be used where required capital did not properly reflect the risks in the business.

5.5 Tax treatment

In the US, the determination of an insurer's corporate tax liability is closely tied to the valuation methods prescribed by the NAIC as CRVM or CARVM. Insurers are provided a deduction to their tax liability up to a tax reserve, which is calculated in accordance with methodology adopted by the NAIC, irrespective of whether it has been adopted by an individual state, using prescribed assumptions that may differ from those in the statutory reserve calculations. In addition, the Internal Revenue Code (IRC) includes definitions for life insurance which are often tied to the assumptions of mortality and interest, as determined by the NAIC. The insurance industry is sensitive to the possibility of legislators opening the tax code for changes in reserving methodology. Therefore, much consideration is given by the industry to have statutory reserving methodology that can conform to fit within the context of the existing IRC. As such (and reflecting the preference of regulators), PBR will continue to have a statutory minimum floor reserve which will be based on prescribed assumptions in order to better conform with the existing IRC for tax reserves deductibility. The imposition of the minimum floor creates a difference compared with the approach adopted under the Solvency II regime.

The RBC requirement for life insurance uses factors that have been tax effected and therefore allow for the impact of taxation. Under Solvency II the calculation of the best estimate liabilities reflects taxes directly attributable to meeting the obligation to policyholders but not corporate level taxation. The SCR reflects the impact on deferred taxes that arises (similar to timing differences arising between tax and statutory results in the US) as a result of the factors and stresses applied.

Both the US and EU regimes recognize deferred tax assets (DTA). A proposal to introduce deferred tax asset charges in RBC was adopted by the NAIC Capital Adequacy Task force in June 2012 as a result of changes to SSAP43R.

Under Solvency II, current tax assets and liabilities should be valued at the amount expected to be recovered or paid. Deferred tax assets may be recognized in accordance with IFRS recognition criteria. Deferred tax should not be taken into account for assets and liabilities which are not recognized in the

Solvency II balance sheet. The requirements of IFRS are considered to be an acceptable proxy for valuation on an economic basis. In particular, consistent with International Accounting Standard ("IAS") 12, deferred tax balances will not be discounted. The issue of discounting of deferred tax balances is not explicitly discussed in the Solvency II Delegated Acts and therefore an IFRS approach of valuing deferred tax on an undiscounted basis was followed.

The differences in deferred tax between Solvency II and US Statutory/RBC will result in similar implication as those discussed above on the overall level of reserves and capital.

5.6 Equivalence

Under Solvency II, non-EU territories can be assessed for equivalence of the level of regulatory supervision. The assessment is made against a variety of criteria which are intended to ensure that the regime provides an equivalent level of policyholder protection as under Solvency II. The treatment of EU companies' insurance subsidiaries in other territories depends on whether that regime is determined to be equivalent or not. If the regime is equivalent, then local regulatory results may be used; otherwise the Solvency II requirements apply.

The decision as to whether a regime is equivalent is determined by the European Commission following a potential technical review against certain criteria performed by EIOPA. There are a number of potential difficulties for the US regime in such an assessment. These may include:

- Regulation is on a state by state basis and not at the federal level. It may be difficult to grant equivalence to a country when regulation differs within that country (even where state variations are disclosed).
- The reserving methods under statutory requirements and capital levels required in the US do not translate well to the market consistent reserves and MCR/SCR required by Solvency II and do not represent a particular level of confidence.
- There is no US group capital requirement equivalent to that under Solvency II.

Updated

Given the challenging criteria for Solvency II equivalence and the limited number of countries on track to meet them by January 1, 2016, the Solvency II rules introduced two other equivalence concepts: temporary equivalence and provisional equivalence.

- Temporary equivalence can be granted to countries for five years, with the possibility of a one-year extension. The country must be committed to developing a regime that can be assessed as equivalent and have sufficient resources assigned to meet these commitments. In addition, the existing regime must be risk-based, with both quantitative and qualitative solvency requirements.
- Provisional equivalence allows third-country subsidiaries of EU Groups to gain the benefits of equivalence for Group solvency requirements, but they are not required to demonstrate their commitment to the EU to adopt an equivalent regime to Solvency II. The European Commission and EIOPA will deem that the existing regime of the country would be sufficient to meet the full equivalence should it be assessed. Provisional equivalence is granted for 10 years and renewable for further periods of 10 years if the criteria continue to be met. Provisional equivalence has been included in order to ensure that European insurance companies are not at a disadvantage if based abroad, particularly in the U.S. It is clear that EU policy makers were conscious of the damage a

non-equivalent tag would cause for EU operations in the US market if they were to hold additional regulatory capital compared to their domestic peers in the U.S.

The SMI has clear objectives to enhance US supervision but has explicitly determined not to move US regulation towards Solvency II in these areas. In addition the NAIC as yet has not requested that the US be considered as equivalent. However, the US EU Insurance Dialogue Project aims to reduce conflicting insurance supervisory issues and create a more cooperative framework. This includes coordination between insurance supervisors from the US and EU on group supervision, solvency and capital requirements, reinsurance and collateral requirements and exchanges of information under confidentiality strictures.

5.7 Internal models and models used for regulatory reporting

The use and scope of models used for regulatory reporting is different in the US and EU.

- In the US, the use of models for regulatory reporting is part of a larger initiative by the NAIC to move from a formulaic-based approach to a principles-based approach in the determination of policy reserves for new business and certain elements of risk-based capital. At this stage, the NAIC has permitted the use of models in the determination of reserves via PBR for certain products, asset adequacy testing and in the determination of risk-based capital requirements for:
    - Interest risk associated with fixed annuities in the accumulation phase, and
    - Equity risk associated with variable annuity guaranteed benefits, lifetime benefits and other benefits as well as for certain life products.

  The rules governing the use of these models are fairly prescriptive and regulators set the parameters and time horizons that these models use. As a result these models are not subject to regulatory approval.
- For Solvency II, there is a standard approach for calculation of the MCR and SCR if an internal model has not been approved by the supervisor. However, an insurer can choose to use an internal model which has been approved by the supervisory authorities. To gain approval, the insurance company must demonstrate, amongst other things, that it uses the results of the model in managing its business. This is quite different than in the US where the supervisors only consider the model's regulatory purpose.
- Under Solvency II an insurer may only use a full or partial model where it has been approved for use by the supervisor. The application for model approval must be made in a set format, and must contain a significant level of detail on the internal model covering the following areas:
    - Covering letter;
    - Approval of the application;
    - ORSA;
    - Scope of the application and model coverage;
    - Risk management process and risk profile;

  - Self-assessment of the internal model's regulatory compliance;
  - Technical characteristics of the model;
  - Use of external models and data;
  - Model governance, systems and controls, including documentation and organizational charts;
  - Independent validation report;
  - Policy for changes to the model;
  - Plans for future model improvement; and
  - Capital requirements calculated by the model (economic and SCR).
- There is no strict regulatory definition under Solvency II of an "internal model"; rather, it refers to the collection of processes, systems and calculations that together quantify and rank the risks faced by the insurer. Solvency II encourages firms to use internal models in the belief that it will lead to a better alignment between the company's capital requirements and the company's risk management policies. To obtain regulatory approval for its internal model, an insurer must demonstrate that the model meets a use test, statistical quality standards, calibration standards, validation standards, profit and loss attribution and documentation standards.

The implications of using internal models could include:

- Scope to better align the capital requirement with the insurer's risk profile. Whilst this is certainly true in the EU, the scope may be less in the US given the regulatory prescription on the use of models. A lack of alignment between models for regulatory purposes and risk management may therefore exist for some time in the US.
- Greater reliance on complex models and the need for model risk management and validation tools possibly including review by an independent third party.
- In the EU there is a potential for reduced capital requirements, particularly in insurance groups. In the most recent EIOPA quantitative impact study ("QIS 5"), the ratio of internal model results to standard formula (for groups submitting both) was 80%, at that time. Three groups had higher SCR with their internal model than with the standard formula (one small, one medium and one large group). Three other groups had similar results for both methods (again one small, one medium and one large group). For the remainder (mostly composed of small groups), the SCR calculated with the internal model was between 46% and 90% of the SCR calculated with the standard formula.
- Increased complexity and costs to produce and adequately document results of and decisions taken in the execution of the modeling.
- Increased regulatory resources necessary to adequately examine and understand internal modeling and results. The additional complexity of an internal model along with resource constrained regulators could well lead to delays in acceptance of the model.
- The potential for reduced objectivity of regulatory intervention levels as the SCR (and MCR "corridor") is now calculated using an internal model.

- Reduced comparability across insurers including the potential for differing capital levels across similar products.

Also, within insurer's internal models, it is possible to make use of external or third-party models. However, under Solvency II requirements the use of external models or data does not exempt an insurer from the requirement to meet any of the tests required of the overall model.

5.8 Supervisory implications

The policy objectives of the EU and US solvency initiatives are, amongst other things, both focused on policyholder protection and financial stability; however, they differ in the method in which they are applied and realized. This is true not only for the capital requirements, but the method and structure of group supervision. Within the EU Solvency II initiative, a legally binding supervision regime is proposed with formal reporting channels. In the US, group supervision amongst supervisors is not binding; however, common practice occurs similarly in both regimes. That being said, key differences do exist and are not limited to but, include;

- The scope of group supervision (for insurance groups) in the EU includes the entire group, including all sub-entities on a global basis. In the US, group supervision is focused at the holding company level and subsidiaries domiciled in the US.
- Supervisory powers in the EU include the ability to mandate capital additions at the EU group level for entities outside of jurisdiction. In the US, no formal power exists and regulators must rely on mutual cooperation.
- Under Solvency II, reporting is standardized similarly for both group and individual organizations. In the US, reporting at the group level is consolidated in a similar fashion as with the EU for publicly reported companies only.
- Although not strictly a valuation impact, it is worth noting that there is likely to be additional costs imposed on regulators as a result of reviewing more complex valuations or capital results.

5.9 Opinions

In the US, the Appointed Actuary, which is a defined role, provides an opinion on the adequacy of the reserves. Under Solvency II, the actuarial function must provide an opinion to management on how the final technical provisions have been prepared, as well as report to management on the degree of uncertainty, ultimate outcome, and circumstances which might lead to a significant deviation. There is a requirement that management is "fit and proper" as defined by the Solvency II Directive and assessed by the supervisor.

6 Product Development

The purpose of this section is to highlight some of the implications for product design and pricing that arise due to the differences in the regimes. We also identify where differences between US and EU developments may create competitive advantages or disadvantages for US companies versus US subsidiaries of EU groups.

6.1 US overview

Historically in the US, the market has focused on cash value products, which offer long-term guarantees to consumers and qualify as life insurance under the Internal Revenue Code. While whole life permanent coverage is common, so are other forms of insurance, such as universal life and deferred annuities, which have an explicit interest rate credited to an account value. These are sometimes referred to as accumulation product designs.

Over recent years, the market has looked toward product guarantees and policyholder options on the benefit bases that defined life payments or death benefits in a way that did not increase the cash values. Due to the prescriptive nature of insurance statutory reserves and RBC, reserve and capital levels do not always capture the nature and current cost of the guarantees and options (for example the prescription of assumptions/scenario calibration and the lack of consistency with the way option markets are priced). As the regulatory environment in the US has been predominantly rules-based rather than principles-based, the reserve and capital requirements tended to respond to product design. As a result, the US regulations tend to be developed to address perceived abuses around reserving and capital practices or to address particular features not contemplated at the time the standard valuation law and RBC requirements were developed for particular products. This has generally resulted in the products driving regulation.

Asset adequacy testing ("AAT") is required for most life and annuity products. In general, AAT is performed in aggregate across a company's product portfolio using a series of deterministic stress scenarios. For certain products, such as universal life with secondary guarantees, adequacy testing is also required on a stand-alone (product level) basis. When required in aggregate, AAT is often not a consideration at the time of product design and any additional capital requirements as a result of AAT are part of the in-force product management. However, for products where stand-alone asset adequacy testing is required, the total capital requirements, including any additional reserves as a result of AAT are often taken into consideration. AAT does require the modeling of assets and liabilities, and although many approaches are allowed to determine the adequacy of the assets, cash flow testing often using stochastic analysis is common.

Unlike changes in the reserve requirements, minimum capital requirements have not tended to change frequently in response to product design. The exception to this is C3 Phase 2, which was put in place in response to risks inherent in new product benefits offered on variable annuity contracts. Since RBC is a solvency minimum and not typically the level a company uses as its target operating capital level, most products are priced at levels significantly higher than the RBC company action level. For example, many companies today use a target such as 300-350% of the RBC company action level in their pricing. The target levels are driven by internal objectives that may include target rating agency capital needs

or economic capital. Thus, changes in the RBC requirements, unless dramatic, are not in and of themselves likely to impact product design.

Companies tend to look at total capital requirements (i.e., regulatory reserves plus capital) when designing and pricing their insurance contracts. Although the minimum capital requirements of RBC tend to be lower than the operating capital or economic capital a company targets, the statutory reserves for certain products tend to be much higher than what a company perceives to be economic based on best estimate assumptions and expected investment returns. This is due to the prescriptive and conservative nature of the assumptions, which often differ from a company's own best estimate, even with a margin applied. Currently, when the total regulatory capital requirements (reserve liabilities plus capital) are in excess of the total capital requirements based on company specific assumptions, companies sometimes seek alternative reinsurance or capital markets transactions to reduce the level of capital and/or reserves it is required to hold in hard assets by replacing it with letters of credit, surplus notes or parental guarantees.

PBR requirements will change the dynamic of reserve requirements in the US and are expected to have a material impact on product design. Unlike current reserving regulation, PBR will require companies to assess the risks within their product portfolios, to use a combination of their own best estimate assumptions with margins for adverse deviation with some level of safe-guard or prescription, especially in situations where companies have less control over their experience, such as equity market risk. PBR requires modeling both the assets and liabilities and requires the use of stochastic modeling of equity and interest risks for products which contain certain risk profiles. PBR may create more differentiation in the market, with product designs and pricing that incorporates more company-specific reserve levels based on a company's assumptions and risk margins and more reflective of all the embedded risks and options within the specific contracts.

Based on PBR impact studies performed on behalf of the NAIC and industry (and on current product designs and prices), PBR will change the timing of the release of profits for many products, especially those with more embedded options and guarantees. In some cases, the reserves increase and in others they decline. However, in most, the pattern of the profits changes considerably due to the timing and amount of reserves and capital required. In addition, PBR will require reserve levels and assumptions to be reassessed each valuation year. In our view, this will likely result in changes in product design, causing companies to better reflect the costs and risks associated with embedded options and guarantees.

The RMORSA will require companies to disclose information about their own internal views on the amount of capital needed to meet corporate objectives and so is not intended to be a replacement for the minimum capital requirements under RBC. It does not impose additional entity or group regulatory capital requirements. Rather, it is intended to provide regulators with additional insight and transparency into company management's view of their risks and risk mitigation, business plans and objectives and a company's view on their required capital levels. At the onset, RMORSA appears unlikely to have implications on product design and pricing, other than perhaps by providing more awareness and discipline around risk management and risk tolerances of an organization. Over time, as the RMORSA requires companies to document and consider their Enterprise Risk Management

("ERM") processes, we expect enhancements in those processes to create a stronger link between risk management and product pricing/design with the potential for a greater consideration of the likely true cost of options and long-term guarantees.

6.2 EU overview

In the EU, the existing approaches to reserving and capital lack consistency and are viewed as insufficiently risk sensitive. Statutory reserve methods vary by country. While current IFRS was put in place to bring consistency to financial statement reporting across countries, the insurance contracts portion was not fully developed and countries essentially resorted to their local generally accepted accounting methods for determination of the insurance liabilities. This is often different than the statutory basis as well.

Much like in the US, in Europe, traditional insurance products such as term, whole life, endowment, immediate and deferred annuities are common. In addition, unit linked savings policies and products tied to pension buy-outs are common. Many of the products in the EU are considered to be "with-profits" (where policyholders participate in profits of the "ring-fenced" fund). Similar to the US, the regulatory regimes in Europe have historically been designed around specific product features, designs and distribution methods. An example of this is in the UK where the FSA set out rules for a realistic valuation of with-profits business to take account of the ring-fenced nature of these products and a stochastic assessment of the guarantees and charges.

The market-consistent nature of Solvency II will likely change the product profile for companies. Products that rely on achieving a return above risk free and products with longer guarantees and options will likely become much more costly to offer, in terms of the total capital requirement. This is because companies will not be able to reflect expected investment gains above the risk free rate in the determination of the minimum capital and solvency capital requirements. Not being able to recognize investment returns until such time that they are achieved will put a strain on products which rely on these returns as a source of profitability. Therefore, it is likely that product designs under a SII regime will change with shorter guarantees, increased costs for spread-based designs (or elimination of them altogether). With the aging population in the EU, this is likely to significantly increase the cost and/or limit the options of carriers of products in which to fund their retirement costs, such as fixed annuities.

The use (of an internal model) requirement within SII (where management must demonstrate the use of the model in their decisions making process) is expected to better align a company's best estimate assumptions and expectations towards capital needs. The disconnect currently seen in the US between regulatory capital (RBC) and company's own view of capital needs will likely not be as explicit under SII as companies need to demonstrate they are using their internal capital models (recalibrated to their own views and assumptions) in the actual management of their risks and not just for regulatory reporting purposes.

As companies are required to base solvency provisions (liability and capital) on their own experience and tolerance for risk, we expect to see more product variation to occur. For example, an onerous internal view on the capital required to support long-term guarantee features could lead some to remove these for new issues, whilst other companies may still believe they are able to offer such guarantees and achieve their desired return on capital. More impetus will be placed on strong product

and experience management to understand the various drivers of the underlying experience and areas for refinement in pricing and design. It is also expected, as policyholder options and guarantees become more expensive, that product designs will shift more of the risk burden to the customer and/or increase the charge for the options commensurate with the capital charges required.

7 Risk Management and Governance

The purpose of this section is to describe how the US regime, including potential changes under SMI, and the EU Solvency II regime encourage risk management and identify the potential implications. Many of the comments in this section identify difficulties of using US RBC as a risk management tool. This is perhaps unsurprising, as it has been developed to identify weakly capitalized companies, and not as a risk management metric. These difficulties as a risk management metric do not imply it is not appropriate for the purpose it was designed for; rather that the regulatory required capital levels themselves do not create incentives for strong risk management. Reliance is therefore placed on other aspects of the US regime, such as risk-focused exams, solvency reviews and the forthcoming ORSA to encourage effective risk management.

One of the main topics of concern in this section is whether the regulator capital, in isolation, encourages and incentivizes strong risk management practices.

7.1 Solvency and Capital Philosophy in the US and EU

As mentioned before, there is a difference in the supervisory intent of US regulators and those in Europe when it comes to determining solvency and capital levels.

- When considering capital requirements, the NAIC focuses on setting a minimum capital level aimed at identifying weakly capitalized companies and thereby providing protection for policyholders. The Risk Based Capital system is designed to create a uniform safety net across states for insurers and provide regulatory intervention in a timely manner. Multiples of the RBC (150% for the regulatory action level and 100% for authorized control level ("ACL") are used to determine when supervisory intervention occurs. Additional information and metrics are then used by the regulators to evaluate an insurer's financial strength and likelihood of progression towards action and control levels.
- In Europe the Solvency II project is changing supervision from a minimum capital approach to requiring a higher capital standard. Differing levels of intervention will occur as a company progresses from breaching the SCR down to the MCR. To this extent the focus is moving from a minimum level (to protect policyholders) towards an approach that requires capital at a level closer to that to ensure the ongoing viability of the company.

On the face of it, the 150% of authorized control level in the US and the SCR in Europe may appear to be trying to achieve the same thing - the point at which the supervisor is empowered to take action. However, the underlying development of the RBC and the SCR mean that the philosophy is quite different.

- The RBC is a minimum capital level and it is not explicitly calibrated to any scenario or confidence level in aggregate. The 150% authorized control level similarly doesn't reflect any scenario or confidence level - it was set at a level believed to be appropriate to review recovery plans, perform further examinations and instruct corrective action to address the company's financial problems.
- Under Solvency II, the SCR is a risk sensitive measure with all quantifiable risk being included. To the extent that supervisors conclude that the calculated SCR does not adequately capture

the risk profile of the insurer they have the power to impose capital add-ons. The SCR is determined in a way that aims to ensure the insurer will be able to meet its obligations over the next 12 months with a probability of 99.5%. The calibration of the standard formula specifies the stresses and parameters used to achieve this confidence level although the credibility of accurately determining tail risk events for insurance and operational risks needs to be recognized. Nevertheless, Solvency II attempts to link the regulatory intervention level to a level of capital that will provide protection to the company against a 1 in 200 year event.

This difference in philosophy has some potential implications for risk management topics:

- The linkage between US RBC and a company's own view of the capital it needs (which will be reported to supervisors in the RMORSA) may not be clear. RBC is designed as a mechanism to identify weakly capitalized companies and not to suggest an appropriate level of capital for a well-capitalized company. Therefore, RBC, in aggregate, does not represent a particular scenario or level of confidence and as a minimum could be less than companies actually need to meet their objectives. In many cases this lack of a linkage may not be a problem; however, if a company bases its target capital level solely on a multiple of RBC, this may not totally reflect the risks in the business.
- Solvency II creates a linkage by requiring an SCR which is closer to and easier to reconcile with the company's own view of capital as it is constructed either by using an internal model or through a formula calibrated to a particular confidence level.
- This alignment between the regulatory capital and companies' own view of capital may result in improved linkage to risk management activities as management focus on maintaining solvency also acts to manage the internal view of capital. Under RBC managing solvency and regulatory capital doesn't necessarily translate to managing the internal view of capital.

7.2 Risk sensitivity of RBC and SCR

In addition to their separate underlying philosophies, the US RBC and Solvency II SCR have different sensitivities to risk. Both are risk based but the approach, coverage, calibration and sensitivity are, at least in theory, different.

- Approach - The US RBC life formula typically uses a series of factors applied to company specific statutory information. The factors were derived by using relevant statistics. The calculation of an RBC risk charge is performed for every individual risk item included in the life RBC formula except for items previously mentioned that are included in stochastic calculations. For potentially weakly capitalized insurers, extensive individual company analysis of all critical risks is developed jointly by regulators and the company, using internal assumptions and models and other refinements including stress testing. This review and analysis may become more intense if the company continues to weaken its solvency position.

  The Solvency II SCR uses what is referred to as a delta-NAV (the change in the net asset value) approach whereby the market value of the assets and liabilities are stressed to each risk included in the formula. This can be done by using standard formula stresses, undertaking specific parameters or by using an approved internal model.

- Coverage - US RBC does not necessarily capture every single risk exposure of a company in the formula. The formula focuses on the material risks that are common for life insurance companies. The risks covered under the life RBC formula are:
    - C-0 Asset risk - affiliates;
    - C-1 Asset risk - default, credit risks with separate C factor for common stock and other;
    - C-2 Insurance risk;
    - C-3 Interest rate and market risk; and
    - C-4 Business risk.

  As part of the SMI, the RBC coverage will be re-evaluated to determine whether to include catastrophe risk and liquidity risk and explicitly include a refined operational risk component in the RBC calculation or in other regulatory models.

  The Solvency II SCR is intended to cover all quantifiable risks. To the extent that the standard formula doesn't adequately reflect an individual company's risk profile, adjustments should be considered. The risks covered in the standard formula are:
    - Life underwriting risk (mortality, longevity, disability/morbidity, expense, persistency, revision and catastrophe risks);
    - Market risk (interest, currency, property, spread, market concentration, illiquidity premium and equity risks);
    - Counterparty default risk;
    - Intangible asset risk; and
    - Operational risk.
- Calibration - We have already provided some discussion on the calibration of US RBC and Solvency II above. In addition to these differences in the alignment to a particular confidence level (or not), another relevant factor is that US RBC is based on factors derived from average market or industry data. It is intended to be a broad measure and not necessarily reflective of specific nuances or all risks of an individual company. It has advantages, though, in that it is simple, has a low cost to implement and is consistency and objectivity across companies.

  Solvency II, on the other hand, is intended to reflect all the risks borne by a particular company. The standard formula either involves stressing an insurer's balance sheet for individual risks (delta-NAV approach) or in some cases industry factors to statutory information. However, where this doesn't adequately reflect the company specific risks, adjustments should be made. In particular, Undertaking Specific Parameters ("USP") and internal models can be used to better represent the particular risk profile of the company. To the extent that the regulator does not believe the SCR represents the risks of a company, a capital "add on" to the SCR can be made.

- Change in risk - Another important consideration is how sensitive the capital requirements are to changes in risk.

  US RBC is relatively insensitive to many of the potential changes in the risk characteristics of a company. Firstly, the factors applied to a company's statutory information do not change frequently. The capital will therefore not always change to reflect a new market environment as risk variables change (i.e., if credit default spreads widen, this will not result in additional capital requirements). Secondly, as RBC does not reflect all management actions to reduce risk, capital requirements will not change with the risk profile. For example, introducing new fraud prevention measures or IT & data security protection will reduce risk but are unlikely to impact RBC.

  The Solvency II SCR is expected to be more risk sensitive. If companies follow a USP or internal model approach this may well hold true assuming the model or parameters (subject to supervisory approval) used are actively updated. However if a standard formula approach is adopted this will depend on how actively updated some of the factors and parameters are. When calculating the SCR the impact of management actions should be taken account of. This applies not only to actions taken to date, but also future management actions that can reasonably be expected under the stressed conditions tested.

- Scenarios and Stress Testing - Solvency capital and reserves should also reflect the ability of an insurer to withstand adverse scenarios if they were to occur.

  US RBC factor-based approaches do not, in general, incorporate scenario or stress testing or illustrate stress testing results in their calculation. However, scenario testing underpins the Interest and Equity risk components through C3-phase I and C3-phase II stochastic results. In addition asset adequacy testing is inherently a stress testing exercise. As part of the statutory reserving approach, regulatory measures require insurers to stress test portfolio reserves in the form of liability adequacy testing. Most recently, large institutions under the Federal Supervisory Capital Assessment Program ("SCAP") and Dodd-Frank act are required to stress test balance sheets and income statements with a focus on GAAP equity. Scenario and stress testing will be a requirement under the RM ORSA discussed below.

  Under Solvency II, stress testing of the balance sheet occurs when calculating the SCR. In the Standard Formula, changes in the best estimate due to market and actuarial factors are explicitly reported to the supervisor. When using an Internal Model, stress testing results can be projected and are a component of supervisor reporting requirements. The stress testing results not only assist in the supervisor review, but also provide valuable information regarding an insurer's risk profile and in the establishment of risk tolerance levels.

- Time horizon - Solvency II uses a one year 99.5% confidence level, whereas the US capital regime utilizes a longer term horizon (with different elements using different time horizons) more consistent with the time over which liabilities run off.

  The best estimate liabilities under Solvency II should represent the current amount an insurer would have to pay for an immediate transfer of its obligations to another insurer (or "exit

value"). However, as there is no deep, liquid and observable market in insurance liabilities, this value will be calculated using a mark-to-model approach. The model used will reflect the present value of the cash flows over the life of the in-force business similar to the way insurance liability transactions would be priced. In practice, the assumptions used in the valuation, should represent those implied by the market. However, in practice the demographic assumptions are likely to be based on the company's own portfolio specific assumptions.

The SCR level of capital under Solvency II is calculated using a value-at-risk measure with a 99.5% confidence level over a one year period. As set out in the Recitals to the Directive this means that "ruin occurs no more often than once in every 200 cases or, alternatively, that those undertakings will still be in a position, with a probability of at least 99.5%, to meet their obligations to policyholders and beneficiaries over the forthcoming 12 months….".

Being in a position to meet their obligations means that the projection covers cash flows in all future policy years over which the insurer has an obligation as well as the impact of events in the next 12 months. For example in the standard formula there is a stress covering a mass lapse event occurring immediately but also stresses covering a permanent persisting change in the base level of lapses in all future policy years. So although the calculation is calibrated over a one year period it is the impact on all future policy years (until the liabilities/obligations are extinguished) of events in that period. To perform this calculation the cash flows over the lifetime of the policy would be projected and the best estimate liability determined. Then the permanent persistency stress change would be applied and the revised cash flows used to calculate the stressed liability. In this way, allowance is made for the fact that assumptions may need to change at the end of the 12 months thereby increasing liabilities. The capital for each risk is the difference in the assets and liabilities between the base case and the stressed scenario.

However, the approach may not be consistent with how some companies view economic capital internally. It is often common to operate to a different confidence level (potentially lower) but over a longer term horizon. Such an approach is more natural with longer term risks or long-term embedded guarantees, for example, the risk of selective lapses at the end of a level term period which causes profitable business to leave and mortality averages to deteriorate.

In the US, the basis for the statutory reserves reflects the long-term nature of life insurance liabilities. For most products this means that actuarial reserves are valued based on a conservative basis which reflects future guarantees, such as cash surrender options in annuities, secondary guarantees in UL products, and complex guaranteed benefits in variable annuities.

The difference in risk sensitivity of US RBC and Solvency II SCR may have risk management implications:

- A risk sensitive regulatory capital requirement incentivizes companies to improve risk management activities. It creates incentives by rewarding reduced risk with reduced capital

requirements. It is therefore likely to result in an increased focus on asset/liability matching and other risk management approaches.

- A common trend among insurers, both in Europe and the United States, is to target a certain level of required solvency capital. In the US, although economic capital is also commonly used, some insurers may hold 300%-350% (for example) of the CAL. In Europe, insurers may target 200-250% (for example) of the SCR. Such focus inherently leads to a risk culture in which the key focus is the underlying drivers of the respective capital requirements. Consequently, if a risk is not fully reflected in the capital requirements, then there may not be a focus on that risk within the corporate culture. A prime example is operational risk which under the Solvency II standard formula is typically calculated based on a flat percentage. With a static approach to measuring operational risk, the regulatory incentive for strong operational risk governance may not be as strong as it would be otherwise.
- However, where the calibration of the SCR is perceived as onerous or out of line with expectations, unintended consequences may arise, such as reducing the term of guarantees, changing investment mix and product offerings.
- The US RBC requirement, by design, is not intended to be a metric suitable for risk measurement or management. Importantly RBC is often different from an insurer's own internal view or economic capital requirements. If the RBC requirements are lower than economic capital measures, it gives the insurer the option to underwrite a risk and hold less regulatory capital than is actually needed by the company for the risk. This could open the door for potential regulatory arbitrage and underwriting of excessive risk.

7.3 The Own Risk and Solvency Assessment

In September 2012, the NAIC adopted the RMORSA Model Law, which requires insurers to "maintain a risk management framework to assist the insurer with identifying, assessing, monitoring, managing and reporting on its material and relevant risks." The law intends to capture all significant risks to the solvency position of the insurer, including those arising from non-insurance operations within an insurance group.

While the model act requires the "RMORSA Summary Report" to be filed first with the commissioner in the lead state of domicile in 2015, we expect that many states will include RMORSA-type frameworks in their supervisory reviews well in advance of that mandate. The introduction of the RMORSA in the US places a greater emphasis on the importance of risk management. Insurers and/or groups will carry out an assessment of their risk and solvency as part of their risk management process annually.

The NAIC has 3 principal objectives for the new RMORSA:

- Risk management – The RMORSA will be a tool to help supervisors understand the risks insurers are exposed to, and how adequate insurers risk management practices are at managing those risks. Regulators plan to assess Enterprise ERM capability, and to use it to guide their supervisory strategy

- Group capital assessment – NAIC examiners will use the ORSA to assess groups' own assessment and management of their capital at group level. While the ORSA will not set a group capital requirement, it will provide information to regulators that will help guide supervisory focus.
- Encouraging ERM– The NAIC expects the ORSA to help foster effective ERM practices at all insurers.

The RMORSA guidance manual (which may be subject to further revision) requires a 3-section structure for the RMORSA summary report:

Section	Content
Section 1 – Risk Management Policy	Section 1 provides a summary of the risk management framework and policies, aligned to the following principles: ▪ Risk Culture and Governance ▪ Risk Identification and Prioritization ▪ Risk Appetite, Tolerances, and Limits ▪ Risk Management and Controls ▪ Risk Reporting and Communication The level of detail should be appropriate to the nature and complexity of the company, and is not intended to be lengthy. Section 1 can reference more detailed internal documentation (e.g. risk policies), providing these are available to the supervisor on request
Section 2 – Quantitative Assessment	Section 2 documents management's quantitative, or where quantitative assessment is not feasible, qualitative assessment of risk exposures in normal and stressed environments. The section should include: ▪ Details of risks identified, measurement approaches and assumptions used ▪ Quantification of risk for each major risk category ▪ Outcomes of plausible adverse scenarios ▪ The impact of stressed environments on available capital, considering multiple capital viewpoints if relevant (e.g. regulatory, rating agency) The structure of the assessment should reflect the way the business is managed in practice. Where appropriate or requested by the regulator, a group assessment may be mapped to legal entities.

Section 3 – Economic Capital & Prospective Solvency

Section 3 explains how the assessment of risk is used to determine the financial resources a company requires to achieve its business objectives over its business planning period, considering normal and stressed conditions, and may include:

- Definition of solvency
- Accounting or valuation regime
- Time horizon of risk exposure
- Risks modeled

The assessment should consider the group as a whole, including the impact of inter-group transactions and financing arrangements, the transferability and fungibility of capital, and contagion risk.

The section should demonstrate that the organization has sufficient capital to execute its 2-5 year business plan, taking into account the potential impact of adverse scenarios, and should consider the company's own economic solvency needs in addition to regulatory capital requirements.

Where necessary, the section should detail the actions that management has taken or will take where capital may not be adequate, for example, modifications to the business plan, or the raising of new capital.

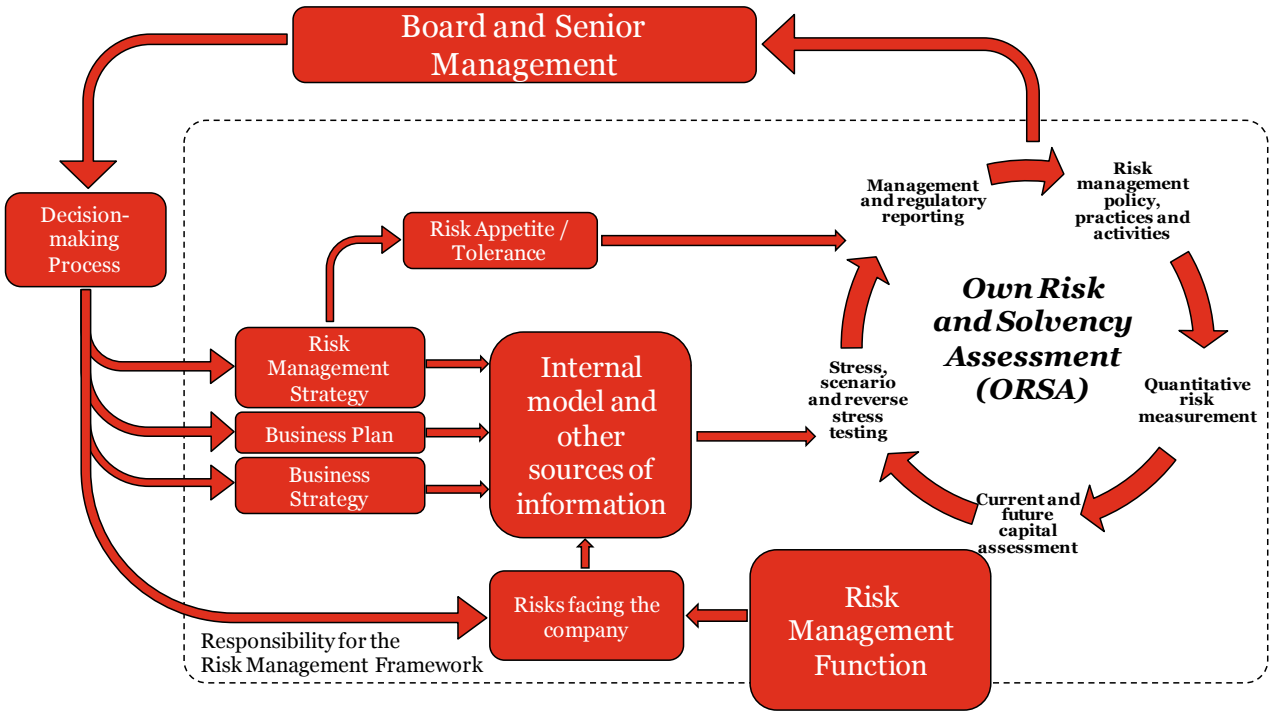
Solvency II requires that insurers shall have an effective risk management system in place, to identify, measure, monitor, manage and report risks on an individual and aggregate level to which they could be exposed. In order to embed the new requirements of Solvency II within companies, requirements for ownership of controls and clear reporting lines have been laid out. Insurers are also required to have a number of policies and functions around risk management. Solvency II sets out explicit governance requirements in four main areas: risk management; internal control; internal audit and actuarial.

A risk management system should be in place to identify, measure, monitor, manage and report risks on an individual and aggregate level. The risk management system must be fully integrated into the insurer's decision making process and insurers must regularly conduct an ORSA.

Similar to the US RMORSA the assessment should take account of the company's risk appetite, risk profile and business strategy, covering both present and prospective risks. The prospective view required under the ORSA will take many firms beyond their normal capital allocation horizons, but it should align these horizons more closely with the time frame over which the board makes strategic decisions. This will depend upon the nature of the risks the business is exposed to, but is typically considered to be around three to five years.

Not only does this mean that insurers need to demonstrate they are solvent today, but also over the business planning period. Should the analysis reveal that the insurer is at risk of breaching capital requirements it will be necessary to develop a plausible plan as to how it will meet the requirements.

The ORSA should also chart how risk is managed, providing details on roles and responsibilities and how it is considered and integrated in to decision making.



The ORSA process in the US and Europe will be a fundamental driver in embedding ERM into the business. It will focus on what management itself believes the business will need. It is therefore quite distinct from the capital required by the regulator. We expect this to mean that the company board will need to be fully conversant with the ORSA and be able to demonstrate that risk management influences their decision making. This places a burden of responsibility on board members to understand the risk related exposures and activities within their organization.

- Companies reporting on US RBC basis are likely to consider a separate set of capital results, using a different more risk sensitive and company specific process, reflecting an "own view" basis for the RMORSA. Companies producing the Solvency II SCR can recalibrate to their own view and follow the same process and calculations. A key difference between the US RBC and European Solvency II capital requirements is their synergies to be used within a risk governance framework and produce key risk metrics. The ability to use a single model for solvency standards and risk management allows for easier access to consistent governance metrics and avoids redundant parallel systems.
- As discussed above, the existing regulatory metrics in the US are deliberately not intended to quantify the capital required under this “own view”, and therefore, additional effort may be required to produce appropriate risk management metrics and quantify capital needs. Although the ORSA requirement is to report on existing processes, it is likely that companies will assess their current state and remediate any significant weaknesses.

- Firms should approach the RMORSA or ORSA as a management tool not as a compliance exercise. This approach will make the process as useful as possible and allow companies to derive the most value from the process. The benefits include the ability to respond proactively to a possible future change in their risk profile which could affect their strategy. An effective (RM) ORSA should provide useful insights in to capital efficiency and optimal management actions. The processes and interaction underlying an embedded and functioning (RM) ORSA should allow a long-term view of the risk and reward profile of particular products and assist the design of new policies and shareholder value creation.

8 Conclusion

In this paper, we have identified the main differences between the regulatory approach (with a focus on liability valuation and capital requirements) in the US and in the EU under Solvency II. These differences arise due to the differing historical contexts and environmental influences that exist in each of these territories, as well as reflecting the objectives of the regulators.

The need for change in the regulation of life insurance companies in the EU is evident from the divergent approach currently applied in member countries. In a single EU market the approach to regulation needs to be consistent to create a level playing field, and a fresh approach to solvency has been developed as well as regulation to address supervision of groups.

In the US there is recognition of the need to continue responding to changes in risk management practices, the economic environment, increased globalization and other regulatory oversight. However, the approach and changes can be more measured due to the comfort and level of acceptance of the current system.

Some of the significant differences identified in this paper include:

- Although the regimes have similar purposes, they focus on and specify differing levels of capital. In the US the RBC measure is intended to identify weakly capitalized companies and allow supervisory intervention and further analysis. In the EU, Solvency II sets a minimum level of capital but goes further to require a higher level of capital representing a greater level of security, and focused on the specific risks borne by the company.
- The policy reserves are calculated using different methods and assumptions. The US approach to statutory reserving is reflective of the long-term nature of the liabilities, for the most part uses prescribed methods and assumptions determined at issue and incorporates margins for prudence. In the EU, Solvency II will generally require a current, market consistent, best estimate of the liabilities with an explicit risk margin. The relative level of reserves between the US approach and the Solvency II approach will vary, amongst other things, by product, point in the economic cycle, level of margins incorporated and the prescribed assumptions.
- The scope and use of internal models is quite different between the regimes. In general, the rules for the use of internal models in the US are fairly prescriptive and consequently they are not subject to regulatory approval. Under Solvency II there is less prescription on the use and requirements of an internal model and as a result, if these are to be used to calculate capital requirements then regulatory approval is required.
- The point at which supervisors have legal authority to act and the powers they have are different; this could create differences in the point in time when regulators intervene and their required control actions.
- The approach to group solvency assessment is likely to differ. In the US, group supervision is focused at the holding company level and subsidiaries domiciled in the US. Minimum capital requirements apply at the entity level and there is no current intention to introduce a group

minimum. In the EU, group supervision includes the entire group and minimum group capital requirements apply in addition to entity level requirements.

- The responsiveness of the capital requirements to risk and level of calibration to the life insurer's own portfolio of risks and controls is different. US RBC, by design, is not intended to act as a risk management metric. It largely reflects an industry calibration for many factors and lends itself to more objectivity and comparability across companies, and is therefore not fully comprehensive in assessing company-specific risks. Other regulatory requirements in the US, including solvency reviews, risk-focused exams and the forthcoming RMORSA will allow regulators access to information to ensure adequate risk management activities are in place. The Solvency II SCR is intended to be risk sensitive and reflective of a life insurer's own portfolio of risks. Where the standard formula approach is not followed it reflects considerable company-specific judgment.

Throughout the paper, we have highlighted potential implications in the areas of reserve and capital valuation, product pricing and risk management. These have included:

- A US company with a European parent or a US parent company with European operations may (depending on equivalence considerations) in the future be required by regulators to hold capital, somewhere within the group, to the potentially higher Solvency II SCR level. This may impose additional regulatory capital restrictions.
- There may continue to be opportunity for regulatory arbitrage. In fact, depending on the relative levels of capital, the benefits of such arbitrage could increase.
- Revised capital requirements (particularly under Solvency II) may cause companies to revisit their investment strategies, and in some cases, to start moving assets into lower risk categories or out of asset classes with onerous capital charges (for example investments that fall into the "other" category).
- There could be increased incentives to find ways of mitigating capital needs or reducing requirements through reinsurance, hedging or other initiatives. Where these activities genuinely improve the risk profile of the business, it will be of benefit. However, where such activity is simply to achieve capital relief, this could result in incenting behavior without due regard to risk management objectives.
- EU life insurance companies subject to Solvency II are likely to have increased volatility of their statutory results compared with US companies. This may require EU companies to change their product mix and investment strategies.
- US RBC partially incents companies to improve risk management. The Solvency II SCR is likely to engender a greater linkage between risk management activities and regulatory capital requirements.
- The ORSA process in the US and Europe are expected to be fundamental drivers (or complement existing efforts) in embedding ERM into the business. It will focus on what

management itself believes the business will need and it therefore quite distinct from the capital required by the regulator.

Overall, while globalization is recognized, and there may be perceived benefits of convergence, the practical realities make this unlikely. Accordingly, disparate outcomes on the method of supervision, design and pricing of products, capital requirements and risk management practices are likely to persist. This means that, despite the various improvement programs, in the foreseeable future at least, life insurers will continue to operate in a complex and differentiated global regulatory environment with competitive advantages/disadvantages and regulatory arbitrage opportunities.

Appendix A - Tabular comparison of IAIS ICPs, US &EU

This appendix provides a comparison of the IAIS ICPs, the US Solvency Modernization Initiative, and the EU Solvency II approach. These differences and their potential effects have been discussed in sections 4 to 7.

Area	Category	IAIS ICPs	US SMI	Solvency II
General	Scope and application	The ICPs and standards apply to the supervision of insurers at the legal entity and the insurance group level, except where noted. The application of individual ICPs and standards to insurance groups may vary and where appropriate, further guidance is provided under individual ICPs and standards.	SMI scope includes the entire regulatory system and all aspects relative to the financial condition of an insurer, and is not limited to the evaluation of solvency related areas. The SMI focuses on key issues such as capital requirements, governance & risk management, group supervision, statutory accounting & financial reporting, and reinsurance.	As a general rule, all insurers established in the EEA are required to apply the Solvency II Directive. In addition, some of the Directive's requirements apply to insurers with their head office outside the EEA that conduct business within the EEA. Solvency II covers capital requirements, governance & risk management, group supervision and reporting.
Updated	Objective	The ICPs can be used to establish or enhance a jurisdiction's supervisory system. They can also serve as the basis for assessing the existing supervisory system and in so doing may identify weaknesses, some of which could affect policyholder protection and market stability.	SMI includes a review of international developments regarding insurance supervision, banking supervision, and international accounting standards and their potential use in US insurance regulation. An enhanced risk-focused approach to examinations incorporating new risk assessments in the areas of governance, ERM and other types of prospective risk became effective in 2010.	Solvency II is a fundamental review of the prudential regulatory requirements for the European insurance industry, and will establish a revised set of EEA-wide capital requirements, risk management standards and disclosure requirements. It represents the single largest change to European insurance regulation ever.
	Implementation timetable	The ICPs in their current form were adopted on October 1st, 2011. Application within individual countries varies from country to country.	The broad SMI project was completed in 2012, resulting in an August 2013 white paper. The initiative was subsequently disbanded and each of the SMI white paper findings assigned to various NAIC task forces, which are	Solvency II was originally planned for October 2012. It was delayed on a number of occasions, most recently due to the lack of agreement on the package of measures in the Long Term Guarantee Assessment. Solvency II is

Area	Category	IAIS ICPs	US SMI	Solvency II
			responsible for implementing the recommendations. Historically the NAIC has struggled to implement uniform adoptions across different states in line with timetables.	now scheduled to be effective from January, 1 2016.
Balance sheet and capital requirements	Asset valuation	IAIS ICP 14 requires that the valuation of assets and liabilities be consistent, reliable and based on economic values. It further comments that the amortized cost of an asset or liability may reliably reflect the value of future cash flows, when used in conjunction with an adequacy or impairment test.	The NAIC is in general agreement with objectives of consistency, objectivity and reliability for purposes of assessing solvency and believe that the current US amortized cost approach meets these requirements. As new GAAP pronouncements and policy decisions relating to the FASB/IASB Insurance Contract Standard are finalized the implications for SMI will be considered.	Solvency II requires that assets are valued on a basis that reflects their fair value, at "the amount for which they could be exchanged between knowledgeable willing parties in an arm's length transaction". IFRS is accepted as a proxy for fair value unless a specific valuation rule exists.
	Liabilities valuation	ICP 14 issues core principles surrounding the liability valuations, rather stating a required methodology. The core principles include: • Assets and liabilities should be recognized and derecognized to the extent necessary for risks to be appropriately recognized.	For most life insurance products statutory accounting for life insurance reserves is currently based on prescribed methods and assumptions. The NAIC adopted revisions to the Standard Valuation Law in late 2009, to implement the new Valuation Manual. An initial draft of the Valuation Manual was adopted by the NAIC in December 2012.	Liabilities should be calculated as the sum of a best estimate and a risk margin. The best estimate is calculated as a probability-weighted average of future cash-flows, taking account of the time value of money, discounted at a risk-free rate (see Balance sheet and capital requirements - Discount rate below). The calculation of the best estimate shall be based upon up-to-date and

Area	Category	IAIS ICPs	US SMI	Solvency II
		• The valuation of assets and liabilities is undertaken on consistent bases. • The valuation of assets and liabilities is undertaken in a reliable, decision useful and transparent manner. • The valuation of assets and liabilities is an economic valuation, which reflects the risk-adjusted present value of cash flows. • Allowance should be made for embedded options and guarantees. • The value of technical provisions and other liabilities does not reflect the insurer's own credit standing. • The valuation of technical provisions exceeds the Current Estimate by a margin - see below in Balance sheet and capital requirements - Risk.	For life products the focus is expected to be on a minimum net premium reserve with all of the variables prescribed including the default costs and reinvestment rate spread methodology. For variable annuities with guarantees the focus is expected to be on the seriatim minimum reserve called the standard scenario that uses prescribed discount rates, limits revenue sharing income and disallows dynamic hedging. It may, however, take several years for the impact of the new reserve requirements for life insurance products to be fully felt, because the new standards will only apply to new issues.	credible information and realistic assumptions and be performed using adequate, applicable and relevant actuarial and statistical methods. The risk margin is described below in Balance sheet and capital requirements - Risk.
	Capital requirements	According to ICP 17, the supervisor establishes regulatory capital requirements at a sufficient level such that, in adversity, an insurer's obligations to policyholders will continue to be met as they fall due. ICP 17 also requires that insurers maintain capital resources to meet the	The current US risk based capital requirement has been in force for over ten years with periodic improvements having been made. The RBC calculation generally uses a standardized formula to determine a minimum amount of capital for an insurer that is appropriate for its overall business	Capital requirements in the Solvency II regime are set out by the MCR and the SCR. The MCR is the "minimum level of security below which the amount of financial resources should not fall"; while the SCR reflects a higher level of capital resources that allow the

Area	Category	IAIS ICPs	US SMI	Solvency II
		regulatory capital requirements. Capital requirements should be based on a total balance sheet approach that recognizes the interdependence between assets, liabilities, regulatory capital requirements and capital resources and requires that risks are appropriately recognized. In addition, supervisors should establish multiple capital level requirements at which different levels of supervisor action are expected to be performed. Specifically, a Prescribed Capital Requirement ("PCR") and a MCR should be established. A PCR level indicates capital levels, where a supervisor would intervene and a MCR level indicates a level where the strongest supervisory action would be taken, including revoking an insurance license.	operations. The RBC amount explicitly considers the size and risk profile of the insurer, providing for higher RBC charges for riskier assets or for riskier lines of business. Four levels of intervention currently exist based on multiples of the RBC calculation with two levels being "action" levels and two as "control" levels. RBC will continue to be a component in the US solvency regulation legal framework in order to maintain a floor for triggering regulatory intervention. This will continue to be calibrated to identify “weakly capitalized companies” and not to represent the economic target levels of capital that a company should hold.	supervisor a timely intervention should resources fall below it. The MCR is calculated using a simple formula, with a floor and a cap (based on prescribed percentages of the SCR). It is intended to be calibrated to achieve an 85% confidence level over a one year period. The calculation of SCR is risk-based, complex, and is more reflective of the particular risk profile of the insurer. It reflects a level of own funds (defined below in Balance sheet and capital requirements - Available capital including debt treatment) that enables insurers to absorb significant losses and that gives reasonable assurance to policyholders and beneficiaries that payments will be made as they fall due. The SCR is determined in a way that attempts to ensure the insurer will be able to meet its obligations over the next 12 months with a probability of 99.5%.
	Available capital including debt treatment	Technical provisions and regulatory capital requirements should be covered by adequate and appropriate assets, having regard to the nature and quality of those assets. To allow for the quality of assets, supervisors may consider applying restrictions or adjustments (such as quantitative	Currently, US insurance statutory accounting utilizes a method of non-admitted assets. An asset may be accounted for in an insurance company's balance sheet, but not allowed to be counted for purposes of calculating statutory capital or compliance with solvency ratios.	“Own funds” consist of two categories-- ‘basic’ and ‘ancillary ’. Basic own funds are items on the balance sheet. ‘Ancillary own funds’ are items that may be called up to absorb losses. The main constituent of basic own funds is the excess of assets over liabilities but they also include

Area	Category	IAIS ICPs	US SMI	Solvency II
		limits, asset eligibility criteria or "prudential filters") where the risks inherent in certain asset classes are not adequately covered by the regulatory capital requirements. Capital resources may be regarded very broadly as the amount of the assets in excess of the amount of the liabilities. In considering the quality of capital resources, the supervisor should have regard to their characteristics, including the extent to which the capital is available to absorb losses (including considerations of subordination and priority), the extent of the permanent and/or perpetual nature of the capital, and the existence of any mandatory servicing costs in relation to the capital.	SMI is considering whether assets should be tiered with specified requirements around the level of capital covered by each tier. SMI is also considering the use of "tied" assets a concept employed in Switzerland, where insurance companies are required to secure the claims arising from insurance contracts and, thus, must cover their liabilities with a certain amount of tied assets.	subordinated liabilities. Examples of ancillary own funds include unpaid share capital, letters of credit and guarantees. Insurers should cover the SCR with eligible own funds (which may include limited amounts of 'ancillary' own funds) and the MCR with basic own funds which are subject to more stringent eligibility criteria. Own funds are classified into tiers, and there are certain limits regarding the eligibility of own funds to meet the capital requirements (i.e. ancillary own funds are not available to cover the MCR). Ancillary own fund items may only count towards solvency if they have received prior approval from the supervisor. The onus is on the insurer to prepare its own assessment in arriving at the amount to be approved and to provide the necessary information.
	Risk allowance	ICP 14 states that the risk allowance, or Margin Over Current Estimate ("MOCE"), should reflect the inherent uncertainty related to all relevant future cash flows that arise in fulfilling insurance obligations over the full time horizon thereof. It may not be necessary, in practice, to determine the current estimate and the MOCE separately.	SMI is not specifically dealing with the calculation of an explicit risk margin in the liabilities to fit within a total balance sheet approach. Rather the approach to determining the statutory liabilities and RBC allow for the risks in the business.	Best estimate liabilities under Solvency II contain a risk margin, calculated as the cost of providing an amount of capital equal to the SCR necessary to support the insurance obligations over their lifetime. The cost is calculated based on the additional rate (referred to as the 'cost of capital rate'), above the relevant risk-free interest rate, that an insurer would incur holding that capital. The Solvency II regulations

Area	Category	IAIS ICPs	US SMI	Solvency II
				prescribe a 6% rate for the cost of capital. The amount of capital held is appropriate to the level of risks. The SCR should cover, as a minimum, non-life underwriting, life underwriting, health underwriting, market, credit and operational risks.
		Different methods may be used in practice to measure risk and at present, there is no one common methodology. In determining the appropriate methodology for determining the MOCE, the supervisor should consider the extent to which possible methodologies promote transparency and comparability.		
Updated	Discount rate	ICP 14 states that the solvency regime allows for the time value of money to be recognized in the determination of technical provisions and should establish criteria for the determination of appropriate interest rates to be used in the discounting of technical provisions (discount rates). In developing these criteria, the supervisor should consider the following: • the economics of the insurance obligations in its jurisdiction including their nature, structure and term; and • the extent (if any) to which benefits are dependent on underlying assets. The appropriate interest rates may not be directly observable and it may be appropriate to apply adjustments based on observable economic and	Discount rates are covered in the Standard Valuation Law and Standard Valuation Manual. Current US insurance statutory accounting links the reference rate to the average composite yield on assets supporting the liabilities. Guidance on the calculation of this average composite yield exists and varies by product type. Future developments could move away from this prescriptive approach, but there are currently few details available on this.	The EC proposes that the basic risk-free rates used for discounting are derived from swap rates with an adjustment for credit risk. Explicit allowances can be applied to the discount rate in order to address the illiquid nature of the liabilities. The matching adjustment can be applied to portfolios that meet defined criteria, including predictability of liability cash flows, extent of asset matching and asset quality standards. The use of a matching adjustment requires approval from local regulators. A volatility adjustment is a formulaic adjustment to the discount rate that reduces short-term balance sheet volatility. The adjustment is set by currency and by country, and is effectively 65% of the observed spread on corporate and government bonds from a reference portfolio as defined

Area	Category	IAIS ICPs	US SMI	Solvency II
		market data of a general nature as appropriate. To the extent that a risk is provided for elsewhere in the balance sheet by alternative means, there should be no allowance for that risk in the chosen discount rates.		by EIOPA. The volatility adjustment can be applied to all contracts except unit-linked contracts, and contracts which have a matching adjustment.
	Diversification	When determining solvency requirements, ICP 17 states that the assessment of the overall risk that an insurer is exposed to should address the dependencies and interrelationships between risk categories (for example, between underwriting risk and market risk) as well as within a risk category (for example, between equity risk and interest rate risk). Where diversification between different risk types is allowed for, the insurer should be able to explain these effects and ensure that it considers how dependencies may increase under stressed conditions. In determining the MOCE, ICP 14 states that the supervisor should consider the diversification of the inherent risk factors reflected in the MOCE and the impact of segmentation of the business.	RBC recognizes that diversification of risk lowers the overall capital requirements. RBC uses a covariance calculation to determine the appropriate capital to allow for the fact that it is unlikely that all of the risk components are expected to be impaired simultaneously. The capital is aggregated using a square root approach ($\sqrt{\sum_{i,j} Corr_{i,j} \times Cap_i \times Cap_j}$)to reduce capital requirements for diversification of risks within the life, P&C and health formulas.	Solvency II recognizes that diversification of risk lowers the overall capital requirements. Solvency II uses correlation matrices to reduce capital requirements for diversification of risks and uses a square root approach ($\sqrt{\sum_{i,j} Corr_{i,j} \times Cap_i \times Cap_j}$) in the aggregation of the SCR within the life, P&C, health, market and counterparty default risk modules. The same approach is also used to allow for diversification between these risk modules. In calculating a group SCR, the directive requires that in order to properly reflect the risk exposures of a group, the consolidated SCR should take into account the global diversification of risks that exist across all insurers in the group.

Area	Category	IAIS ICPs	US SMI	Solvency II
	Internal models	Internal models can play an important role in facilitating the risk management process. Supervisors should encourage insurers to make use of such models for parts or all of their business where it is appropriate to the nature, scale and complexity to do so. In determining regulatory capital requirements, the supervisor allows a set of standardized and, if appropriate, other approved more tailored approaches such as the use of (partial or full) internal models. The use of the internal model for this purpose would be subject to prior approval by the supervisor based on a transparent set of criteria and would need to be evaluated at regular intervals. In particular, the supervisor would need to be satisfied that the insurer's internal model is, and remains, appropriately calibrated relative to the target criteria established by the supervisor.	Most of the RBC relies primarily on a factor-based approach (i.e. a standard model). However the NAIC introduced the use of internal models in the determination of risk-based capital requirements for : ▪ Interest risk associated with fixed annuities in the accumulation phase. ▪ Equity risk associated with annuities and certain life products. The rules governing the use of these models are fairly prescriptive. Although companies may use their own scenarios, most companies use the scenarios published by the AAA.	Rather than calculating the SCR using a standard formula, an insurer can choose to use an internal model which has been preapproved by the supervisory authorities. There is no strict regulatory definition of an "internal model", rather it refers to the collection of processes, systems and calculations that together quantify and rank the risks faced by the insurer. Solvency II encourages firms to use internal models in the belief that it will lead to a better alignment between the company's capital requirements and the company's risk management policies. To obtain regulatory approval for its internal model, an insurer must demonstrate that it meets a use test, statistical quality standards, calibration standards, validation standards, profit and loss attribution and documentation standards.
	Statistical standard	The level at which regulatory capital requirements are set will reflect the risk tolerance of the supervisor. Reflecting the IAIS's principles-based approach, this ICP does not prescribe any specific methods for determining regulatory capital requirements. However, the IAIS's view is that it is	Risk-based capital is not calibrated to an overall standard. However, certain factors are calibrated to a particular standard i.e. the bond factors were developed to determine a capital requirement that is adequate 92% of the time under various economic	Solvency II establishes capital requirements around a consistent statistical standard - a 99.5% VaR over a one year time horizon. Insurers can use different measures but must be able to demonstrate that their measure is equivalent to 99.5% VaR over a one year time horizon. This

Area	Category	IAIS ICPs	US SMI	Solvency II
		important that individual jurisdictions set appropriate target criteria (such as risk measures, confidence levels or time horizons) for their regulatory capital requirements.	conditions over a ten year time horizon. RBC C-3 Phase II factors are based on CTE 90 over the life of the business. However, the operation of a policy reserves floor may result in a higher capital standard than the CTE 90 level.	standard applies to the development of the standard formula and correlation factors. Internal models must also be calibrated to this measure to calculate the SCR.
	Treatment of taxation and deductibility	ICP 17 dictates that non-subordinate liabilities such as deferred tax liabilities would not be considered part of capital resources. Supervisors should consider that, for certain assets in the balance sheet, the realizable value under a wind-up scenario may become significantly lower than the economic value which is attributable under going-concern conditions. Similarly, even under normal business conditions, some assets may not be realizable at full economic value, or at any value, at the time they are needed. A specific example of this is future income tax credits: such credits may only be realizable if there are future taxable profits, which is improbable in the event of insolvency or winding-up.	The RBC requirement for life insurance uses factors that have been tax affected and therefore allow for the impact of taxation. The current statutory accounting rules recognize the risk associated with recovering this asset by adjusting or capping the amount of deferred tax admitted as an asset. RBC is on an after tax basis. ▪ Valuation Allowance – reduces gross DTA to the amount "more likely than not" to be realized. ▪ Realizability Limitation – limits admitted DTA to the expected amount to be realized within one year. ▪ Surplus Limitation – limits admitted DTA in excess of that recoverable from past taxes to 10% of surplus (with some adjustments). ▪ Deferred Tax Liabilities (DTLs) – to the extent not admitted through the	Current tax assets and liabilities should be valued at the amount expected to be recovered or paid. Under Solvency II, the calculation of the best estimate liabilities reflects taxes directly attributable to meeting the obligation to policyholders but not corporate level taxation. The SCR reflects the impact on deferred taxes that arises (similar to timing differences arising between tax and statutory results in the US) as a result of the factors and stresses applied. DTA may be recognized in accordance with IFRS recognition criteria. Deferred tax is recognized based on the value on the Solvency II balance sheet, not the IFRS balance sheet. DTA have to be classified as tier 3 Own Funds, meaning that they have less value for solvency purposes than other assets (there is no corresponding special treatment for deferred tax liabilities, which reduce your excess of assets over liabilities and therefore Own Funds like any other liability).

Area	Category	IAIS ICPs	US SMI	Solvency II
			above rules, DTAs can be admitted to the extent they can offset DTLs.	There is an adjustment for the loss absorbing capacity of deferred taxes in the calculation of the SCR, which may have an impact on solvency.
	Separate account rules	ICP 17 states that investments related to separate account products and profit sharing products should be ring-fenced within the organization. Any guarantees in the form of embedded guarantees should be reflected with the assessment of technical provisions.	Valuation rules currently exist for guaranteed benefits on variable annuity products.	As liabilities reflect a best estimate calculated as a probability-weighted average of future cash-flows this would include the best estimate of scenarios where guaranteed benefits are paid on death.
Legal entity structure	Group supervision approach	ICP 23 states that the group supervisor, in cooperation with other involved supervisors as necessary, identifies the scope of the group to be subject to group-wide supervision; however all materially relevant entities within group should be included. In order to facilitate group supervision across borders, the IAIS recommends that the group supervisor create a college of local supervisors to decide upon scoping and responsibilities, even if such agreements are not legally bound. That being said, local subsidiaries are still under the	The NAIC feels that at the heart of the lessons learned from the recent financial crisis was the need for regulators to be able to assess the enterprise risk within a holding company system and its impact or contagion upon the insurers within that group. Therefore, US regulators want to enhance certain prudential features of group supervision within the models and monitoring practices, providing clearer windows into group operations, while building upon the existing walls which provide solvency protection for insurers. The concepts	Group supervision for groups headed in the EEA is at the level of the ultimate parent insurer. The supervisor in one member country in which an insurance group operates will be identified as the "group supervisor" and will be responsible for exercising group supervision. For each insurance group a "college of supervisors", chaired by the group supervisor will be established to ensure cooperation, exchange of information and consultation between supervisors in the member countries the insurer operates in.

Area	Category	IAIS ICPs	US SMI	Solvency II
		authority and subject to the regulation in the corresponding foreign / local jurisdiction.	addressed in the enhanced "windows and walls" approach include: • Communication between regulators; • Supervisory colleges; • Access to and collection of information; • Enforcement measures; • Group capital assessment; and • Accreditation.	Solvency II group supervision does not apply to financial conglomerates that are subject to supplementary supervision under the Financial Conglomerates Directive. It will apply to insurance subgroups within such conglomerates.
	Treatment of subsidiaries	ICP 15 requires that for insurance groups, the supervisor should specify how investments should be aggregated for the purposes of regulatory investment requirements that apply to the group. The supervisor should also consider appropriate restrictions on intra-group transactions, for example, to limit contagion or reputational risk. Issues to be considered may include exposures to related counterparties and the exposures arising from investments in subsidiaries and interests over which the insurer has some influence. In stress situations, there will tend to be greater restrictions on movements and	RBC (C-0 component)"looks-through" to the risk-based capital requirements of insurance and investment subsidiaries. The RBC requirements for other subsidiaries is the common stock factor (currently, 30%) times the book/adjusted carrying value of the subsidiary.	The Solvency II treatments of participation in undertakings are yet to be finalized. When calculating entity-level available capital, any participation in a financial or credit institution should be excluded from own funds. Participation in other undertakings (including insurers) contribute to excess of assets over liabilities within Tier 1. No adjustment to own funds should be made for participations in non-financial undertakings and these are subject to the required stress testing on equities.

Area	Category	IAIS ICPs	US SMI	Solvency II
		realization of investments within the group. The regulatory regime may therefore require contractual evidence of the ability to access assets for solvency purposes before allowing their inclusion for group purposes.		
	Holding company capital requirements	ICP 23 requires that the supervisor, in cooperation with other involved supervisors as necessary, identifies the scope of the group to be subject to group-wide supervision. The identified group covers all relevant entities. In deciding which entities are relevant, consideration should be given to, at least: • operating and non-operating holding companies; • insurers (including sister or subsidiary insurers); • other regulated entities such as banks and/or securities companies; • non-regulated entities (including parent companies, their subsidiary companies and companies substantially controlled or managed by entities within the group); and • special purpose entities. The supervisor does not narrow the identified scope of the group due to lack of legal authority and/or	Guiding the interaction between supervisors to minimize duplication is a key concern of both the industry and NAIC. So far, the NAIC has avoided proposing that groups should calculate a formal regulatory capital requirement at holding company level, and has focused instead on understanding how groups assess their own capital through a group level RMORSA capital assessment.	Insurers, the parent undertaking of which is an insurance holding company, will be subject to group supervision at the level that is necessary to ensure a proper understanding of the group and the potential sources of risks within the group. Where this is at the holding company level, the group SCR described above will be calculated at this level.

Area	Category	IAIS ICPs	US SMI	Solvency II
		supervisory power over particular entities.		
Risk management requirements	Identification	ICP 16 sets out that the supervisor requires the insurer's enterprise risk management framework to provide for the identification and quantification of risk. This should be done under a sufficiently wide range of outcomes using techniques appropriate to the nature, scale and complexity of the insurer's risks and adequate for risk and capital management as well as solvency purposes. The ERM framework should identify and address all reasonably foreseeable and relevant material risks to which an insurer is, or is likely to become, exposed. Such risks should include, at a minimum: • Underwriting risk; • Market risk; • Credit risk; • Operational risk; and • Liquidity risk. It may also include, for example, legal risk and risk to the reputation of the insurer.	RBC classifies risk into five broad categories: • C-0 Asset Risk – Affiliates; • C-1 Asset Risk – Other; • C-2 Insurance Risk; • C-3 Interest Rate Risk & Market Risk; and • C-4 Business Risk. All the major categories of risk are explicitly recognized with a few notable exceptions. RBC does not include: • Catastrophe risk; and • Liquidity risk. The RBC factors for bonds and mortgages reflect credit risk, but not the risk of widening credit spreads. As the NAIC knowingly excluded some risks in the calculation, regulators will re-evaluate "missing risks" to determine if they should now include them in the RBC calculation, or whether they are appropriately handled utilizing other regulatory methods.	Solvency II requires that insurers shall have an effective risk management system in place, to identify, measure, monitor, manage and report risks on an individual and aggregate level to which they could be exposed. This includes risks included in the SCR calculation and other risks not fully reflected in the quantitative capital requirements. It shall cover at least the following areas: • Underwriting and reserving; • Asset-liability matching; • Investment, in particular derivatives and similar commitments; • Liquidity and concentration risk management; • Operational risk management; and • Reinsurance and other risk mitigation techniques.
	Measurement	The IAIS states that the measurement of risks should be based on a consistent economic assessment of the total balance sheet to ensure that	Measurement of the minimum capital requirements follows the RBC approach and SMI may make changes to this. There are no plans to require	For each of the categories above, the risk management system should be able to assess the capital required for both regulatory capital purposes and

Area	Category	IAIS ICPs	US SMI	Solvency II
		appropriate risk management actions are taken. Care should be taken not to base ERM decisions purely on accounting or regulatory measure that involve non-economic considerations and conventions. The constraints on cash flows that they represent, however, should be taken into account.	measurement of higher capital levels, except through RMORSA requirements.	business needs. There may be a difference between these values for a number of reasons including different confidence levels, risk profiles, time horizons and management actions. The insurer should be able to explain these differences
	Stress testing	The level of risk borne by the insurer should be assessed regularly using appropriate forward-looking quantitative techniques such as risk modeling, stress testing, including reverse stress testing, and scenario analysis. An appropriate range of adverse circumstances and events should be considered, including those that pose a significant threat to the financial condition of the insurer. The IAIS does not explicitly state which tests or scenarios should be performed; however, the IAIS gives general guidance that an insurer should regularly produce quantitative assessments of the risks its business faces to facilitate a disciplined method of monitoring risk exposure. Different modeling approaches may be appropriate depending on the nature, scale, and complexity of a risk and the availability of reliable data on the behavior of that risk.	At present, insurance companies in the US are not required to perform nor report stress test results to the regulators. The RMORSA will introduce the requirement to understand the risk profile, exposure and capital requirements under stressed conditions.	For each of the risk categories in the identification section, the insurers must have reliable methods for evaluating these risks. These include: • Stress testing; • Scenario testing; • Sensitivity testing; • Back-testing; and • Reverse stress testing (examination of stress scenarios that break the business model). The standard formula specifies stress levels for risks that are used to calculate the capital requirements. Where companies use internal models, the stress levels may be different than the standard formula.

Area	Category	IAIS ICPs	US SMI	Solvency II
	Embedding	ICP 8 sets out that the risk management system should be integrated into the culture of the insurer and the various business areas and units with the aim of having appropriate risk management practices and procedures embedded in the key operations of the insurer enterprise-wide. ICP 16 discusses the ability of an insurer to reflect risks in a robust manner in its own assessment of solvency. There should be an effective overall ERM framework and risk management policy should be embedded in the insurer's operations. Through the use of continuity analysis, an insurer is better able to link its current financial position with future business plan projections and ensure its ability to maintain its financial position in the future. In this way, the insurer further embeds ERM into its ongoing operations.	Among the most significant of the changes brought about by SMI is a requirement that US insurers routinely conduct an RMORSA. A RMORSA requirement will satisfy IAIS ICP - in particular, ICP 16: Enterprise Risk Management - and enable US regulators to develop a deeper understanding of an insurer's internal risk management practices. Regular completion of a RMORSA will help formalize the process and reporting requirements necessary in embedding an ERM framework into a business.	Encouraging a culture of risk management and responsibility is key to successful risk management. In order to embed the new requirements of Solvency II within companies, requirements for ownership of controls and clear reporting lines have been laid out. Insurers are also required to have a number of policies and functions around risk management. Risk management shall be integral to the business strategy and the strategic decisions of the entity. This is closely linked to the Use Test for internal models. Solvency II also requires an ORSA process.
	Control framework	ICP 8 sets out that the supervisor requires the insurer to establish, and operate within, effective systems of risk management and internal controls. The internal controls system should be designed and operated to assist the Board and Senior Management in the fulfillment of their respective	Regulators currently perform certain elements of risk management evaluation in the enhanced risk-focused surveillance process, which includes an assessment of risk and the insurer's ability to manage or mitigate risks. There is currently no explicit regulatory requirement to have in place a strong	Overarching all the risk management requirements of Solvency II, insurers must have in place a strong control environment, encompassing support activities, effective information, communication and monitoring procedures and clear lines of responsibility.

Area	Category	IAIS ICPs	US SMI	Solvency II
		responsibilities for oversight and management of the company. At a minimum, the internal controls system should be designed and operated to provide reasonable assurance over the insurer's key business, IT and financial policies and processes, including accounting and financial reporting, and the related risk management and compliance measures in place. Each individual control of an insurer, as well as all its controls cumulatively, should be designed for effectiveness, and they should operate effectively.	control environment around capital levels.	
Supervision	Approach	The ICPs in their entirety set out the IAIS approach to supervision.	RBC results are part of annual statement filing and are readily available to regulators. Regulators monitor companies more closely whenever RBC ratios begin to approach action levels. The RMORSA process will provide further information to enable regulators to perform routine examinations of prospective solvency and form an enhanced view of on an insurer's ability to withstand financial stress. This will augment the existing annual reviews and risk based exams.	Solvency II establishes a regulatory approach which is designed to ensure that supervisors have the necessary means to achieve the main objective of supervision, namely policyholder protection. While supervisors are given wide ranging powers, a key principle underlying the exercise of these supervisory powers is one of proportionality. The supervisory approach comprises: • The supervisory review process; • Risk-focused supervision; • Risk-aligned capital requirements; • Harmonization and the role of EIOPA; and

Area	Category	IAIS ICPs	US SMI	Solvency II
				• Assessment and reliance on insurers' own risk management (ORSA, internal models)
	Authority	ICP 1 requires that primary legislation clearly define the authority and objectives of insurance supervision, as well as the mandate and responsibilities of the supervisor. It gives the supervisor adequate powers to conduct insurance supervision, including powers to issue and enforce rules by administrative means and take immediate action. The principal objective of supervision is to promote the maintenance of a fair, safe and stable insurance sector for the benefit and protection of policyholders.	The RBC for Life and Health Insurers Model Act requires certain regulatory actions be taken if the RBC ratio of the company falls below certain percentages. The RBC ratio is (A) divided by (B), where: (A) is the total adjusted capital of the life insurance company; and (B) is the authorized control level Risk-Based capital of the life insurance company resulting from the formula. If this RBC ratio falls below a specified level, certain "action levels" are triggered, ranging from a "mandatory control level" where the insurance commissioner must seize control of the company, to a "trend test level" where the company must perform an additional test to determine trends in the RBC ratios.	While supervisors gain new powers under Solvency II, they will also acquire increased responsibility, particularly to consider additional factors such as financial stability and procyclicality. There are powers and requirements for supervisors to cooperate and be transparent in regard to the overall position of the regulated insurance industry across the community. In any event, if the condition of the insurer continues to deteriorate the regulators have the power to take all proportionate measures necessary to safeguard policyholders of insurance or reinsurance contracts.
	Level of customer protection provided by capital	The IAIS recommends that the supervisory system should establish regulatory capital requirements at a sufficient level so that, in adversity, an insurer's obligations to policyholders will continue to be met as they fall due	RBC is not calibrated to an overall statistical standard.	The SCR expressed standard is a confidence level of 99.5% over 1 year and the MCR expressed standard is an 85% confidence level over 1 year. Different levels of supervisory intervention from the supervisory

Area	Category	IAIS ICPs	US SMI	Solvency II
		and requires that insurers maintain capital resources to meet the regulatory capital requirements. In addition, the IAIS requires supervisors to take preventive and corrective measures that are timely, suitable and necessary to achieve the objectives of insurance supervision.		authorities should be expected between reaching SCR and falling below MCR.
	Structure of supervisor(s)	ICP 25 requirements on coordination arrangements for group-wide supervision include supervisory colleges and/or other coordination mechanisms intended to foster cooperation, promote common understanding, communication and information exchange, and facilitate enhanced coordination for group-wide supervision. Supervisory colleges, where established, can be structured in different ways. They should, however, be operated in such a way that allows members of the college to fully	As part of the SMI, work has been performed reviewing existing legislation and case law relating to corporate governance requirements for insurers. This study revealed that existing law varies significantly from state to state, is not very detailed or specific in relation to overseeing the business of insurance, and does not seem to recognize the board of directors' legal duties to policyholders. A key output from the SMI is to ensure greater consistency in the supervision of insurance companies, underpinned by a greater understanding of the responsibility of regulators.	To achieve supervisory convergence, member countries must ensure the mandates of supervisors take into account an "EU dimension". The supervisors will have regard to the convergence of tools and supervisory practices. Member countries will cooperate with each other to facilitate the supervision of insurers. The supervisor in one member country in which an insurance group operates will be identified as the 'group supervisor' and will be responsible for exercising group supervision. For each insurance group, a 'college of supervisors', chaired by the group supervisor, will be established to

Area	Category	IAIS ICPs	US SMI	Solvency II
		understand the major risks to which the group is subject. The group-wide supervision framework should be designed to reduce regulatory arbitrage across jurisdictions / sectors and facilitate the supervision of cross-border / cross-sectoral groups. The ultimate objective of group-wide supervision is to promote effective supervision of insurance groups and facilitate appropriately streamlined, consistent and effective group-wide supervision.	This includes the introduction and funding of supervisory colleges.	ensure cooperation, exchange of information and consultation between supervisors in the member countries in which the group operates.
Systems of governance	Key requirements for the system of governance	The IAIS through ICP 7 requires that insurers establish and implement a corporate governance framework which provides for sound and prudent management and oversight of the insurer's business and adequately recognizes and protects the interests of policyholders. The supervisor requires the insurer's Board to have, on an on-going basis: • An appropriate number and mix of individuals to ensure that there is an overall adequate level of knowledge, skills and expertise at the Board level commensurate with the governance structure and the nature, scale and complexity of the insurer's business; • Appropriate internal governance practices and procedures to support the work of the Board in a manner	The SMI Corporate Governance Working Group has performed a study of corporate governance principles and standards placed upon insurers worldwide. After reviewing existing corporate governance law in the United States as well as principles and requirements placed upon insurers in other countries, the Working Group developed a comparative analysis to the IAIS ICPs and proposed enhancements to the US system in a document entitled "Proposed Response to a Comparative Analysis of Existing US Corporate Governance Requirements".	An insurer's system of governance under Solvency II should facilitate effective cooperation and communication throughout the insurer with clear reporting lines established that ensure prompt and effective transfer of key information. The system of governance should be proportionate to the nature, scale and complexity of the operations of the insurer. The system of governance should also include an adequate transparent organizational structure with a clear allocation and appropriate segregation of responsibilities and be subject to regular internal review.

Area	Category	IAIS ICPs	US SMI	Solvency II
		that promotes the efficient, objective and independent judgment and decision making by the Board; and • Adequate powers and resources to be able to discharge its duties fully and effectively. The supervisor requires the insurer's Board to have appropriate policies and procedures. The supervisor has the power to require the insurer to demonstrate the adequacy and effectiveness of its corporate governance framework.		
	Areas within the risk governance system	Areas included within guidelines are: • Objectives and Strategy • Appropriate allocation of oversight and management responsibilities • Structure and Governance of the Board • Board member duties • Risk Management and Internal Control • Remuneration • Reliable and transparent financial reporting and communications • Supervisory review	It is likely that the SMI will bring about improvements in areas such as: • Specific suitability criteria (e.g. background, experience, etc.) for key persons; • Requirements in relation to ongoing notifications regarding suitability; • Additional requirements or guidance for insurers related to good corporate governance practices; • Requirements for insurers in maintaining an internal audit function; and Explicit requirements for insurers in maintaining risk management systems capable of identifying, measuring, assessing, reporting and controlling risks.	Solvency II sets out explicit governance requirements in four main areas of risk management, internal control, internal audit and actuarial. The risk management system is in place to identify, measure, monitor, manage and report risks on an individual and aggregate level. The risk management system must be fully integrated into the insurer's decision making process and, as part of this, insurers must regularly conduct an ORSA. Solvency II also requires insurers to have an effective internal control system in place which includes administrative and accounting procedures, an internal control framework, appropriate reporting arrangements at all levels and a compliance function.

Area	Category	IAIS ICPs	US SMI	Solvency II
				Internal audit is responsible for evaluating the effectiveness and adequacy of the internal control system and other areas of governance. Insurers are required to have an effective actuarial function.
	Documentation	ICP 8 requires that material changes to an insurer's risk management system should be documented and subject to approval by the Board. The reasons for the changes should be documented. Appropriate documentation should be available to internal audit, external audit and the supervisor for their respective assessments of the risk management system. ICP 13 sets out that the supervisor requires that parties to reinsurance contracts promptly document the principal economic and coverage terms and conditions agreed upon by the parties and finalize the formal reinsurance contract in a timely fashion. ICP 16 sets out that the supervisor requires the insurer's measurement of risk to be supported by accurate documentation providing appropriately detailed descriptions and explanations of the risks covered, the measurement	A highly visible documentation implication of the SMI will be the production of the RMORSA. However there are likely to be further documentation requirements, particularly around the clarity and simplicity of the documentation of intercompany arrangements and multi entity relationships.	The amount of evidence and record-keeping needed to demonstrate the compliance of governance, risk management, data quality and other core elements of Solvency II is extensive. For insurers looking to use an internal model, the requirements are even more extensive. There is a test of the documentation of the internal model that must be adhered to.

Area	Category	IAIS ICPs	US SMI	Solvency II
		approaches used and the key assumptions made. ICP 17 sets out the requirements for documentation of internal models.		
	Capital add-ons	Based on the supervisor's assessment of risk management practices and ORSA requirements, the supervisor can require additional capital add-ons. Conversely, where risks and capital are well managed, insurers should be rewarded in the form of capital relief.	Supervisors cannot require additional capital requirements on top of the legal minimum RBC requirements. However, they can require a company hold additional funds when certain financial condition standards are breached.	In exceptional circumstances, supervisors have the power to impose capital add-ons where the supervisor concludes that the calculated SCR does not adequately capture the risk profile of the insurer or where there are deficiencies in an insurer's system of governance that prevent it from being able to properly identify, measure, monitor and manage the risks to which it is exposed.
Reporting and disclosure requirements	Regulatory reporting requirements	ICP 3 sets out that the supervisor should have the legal authority and power to obtain and exchange supervisory information in respect of legal entities and groups, including the relevant non-regulated entities of such groups.	There is currently a very regimented approach to regulatory reporting and filing. The largest change as a result of SMI is the requirement to complete a RMORSA, which is discussed further below.	Regulatory reporting under Solvency II is facilitated by the RSR. The RSR is built around a common prescribed structure and provides extensive qualitative and quantitative information about an insurer, reported both free form and on quantitative reporting templates.

Area	Category	IAIS ICPs	US SMI	Solvency II
				The detail of the information required by the supervisor is commensurate with the nature, scale and complexity of the risks inherent in the business of the insurer. This should naturally be the case since insurers with more complex risk profiles are likely to have more to disclose and explain to fulfill reporting and disclosure requirements than more simple insurers.
	Public disclosure requirements	ICP 20 sets out that the supervisor requires insurers to disclose relevant, comprehensive and adequate information on a timely basis in order to give policyholders and market participants a clear view of their business activities, performance and financial position.	At present, the RBC calculation is reported to supervisors only and is not publicly disclosed. Many of the inputs to the formula as well as the final two numbers needed to determine the RBC ratio are public information. Industry feedback during the development of the RMORSA agreed that confidentiality is critical because the information they share with regulators would be business sensitive.	In addition to regulatory reporting requirements, insures must produce and make publically available a SFCR on an annual basis. The SFCR is intended as the primary tool for insurers to make regulatory disclosures to the public. Groups are required to publish a group SFCR in addition to solo SFCRs for each insurance subsidiary, or may, by agreement with the supervisor, publish a single group-wide SFCR.
	Own Risk and Solvency Assessment (ORSA)	ICP 16 sets out that the supervisor requires the insurer to perform its ORSA regularly to assess the adequacy of its risk management and current and likely future, solvency position. The ORSA should encompass all reasonably foreseeable and relevant material risks including, as a minimum, underwriting, credit, market, operational and liquidity risks. The assessment should identify the relationship between risk management	The NAIC adopted the "Own Risk and Solvency Assessment Manual" in March 2012 and the model law requiring insurers to have a risk management framework, perform and file an RMORSA summary report was adopted in September 2012. A RMORSA requirement will satisfy IAIS ICP 16 - Enterprise Risk Management - and enable US regulators to develop a	The ORSA is defined as the entirety of the processes and procedures employed to identify, assess, monitor, manage, and report the short and long-term risks an insurer faces or may face and to determine the own funds necessary to ensure that the insurer's overall solvency needs are met at all times. The ORSA should be carried out at least annually and include an assessment of the capital required for both regulatory

Area	Category	IAIS ICPs	US SMI	Solvency II
		and the level and quality of financial resources needed and available. As part of its ORSA, an insurer should determine the overall financial resources it needs to manage its business given its own risk tolerance and business plans, and to determine that supervisory requirements are met. The insurer's risk management actions should be based on consideration of its economic capital, regulatory capital requirements and financial resources. Within the ORSA, an insurer should analyze its ability to continue in business and the risk management required to do so over a longer time horizon than typically used to determine regulatory capital requirements. Such continuity analysis should address a combination of quantitative and qualitative elements in the medium and longer term business strategy of the insurer and include projections of the insurer's future financial position and modeling of the insurer's ability to meet future regulatory capital requirements.	deeper understanding of an insurer's internal risk management practices. RMORSAs will allow regulators to perform routine examinations of prospective solvency and form an enhanced view of on an insurer's ability to withstand financial stress. The information a RMORSA contains will complement the information coming out of the risk-focused examination process - a current requirement of US insurance regulators.	capital purposes and business needs, encompassing all material risks that may have an impact on the insurer's ability to meet its obligations. There may be a difference between these capital assessments for a number of reasons including different confidence levels, risk profiles, time horizons and management actions. Insurers should explain the reasons for the differences between the internal capital requirement identified and that of the SCR. Where internal capital requirements exceed SCR, supervisors may consider the reasons for this when determining any capital add-on. However, there may be valid reasons for such differences that do not give rise to a need for a capital add-on.
	Timescales for public disclosure	Insurers disclose, at least annually, appropriately detailed quantitative and qualitative information in a way that is accessible to market participants on	Still currently undetermined and expected to be addressed after completion of the IASB/FASB Insurance	It is currently proposed that the SFCR is reported annually, with the RSR submitted on a less frequent basis determined by the supervisor, which

Area	Category	IAIS ICPs	US SMI	Solvency II
		their profile, governance and controls, financial position, technical performance and the risks to which they are subject. ICP 20 sets out further requirements on what is regarded as appropriately detailed quantitative and qualitative information.	Contracts project and SEC decision regarding IFRS.	EIOPA recommends should not exceed every five years. In all other years a summary of material changes will be required. EIOPA have also proposed quarterly reporting of qualitative information. The scope of the quarterly reporting has not yet been defined but EIOPA envisages that it would cover 'core financial and solvency information', which it considered to be MCR, SCR, liabilities including technical provisions, premiums and claims, assets including investments and own funds.

Appendix B – Illustration of Balance Sheet & Building Blocks

As discussed in section 5 of this report, changes in the US and EU regulatory regimes will impact not only solvency capital but also the reserving methodology. Consequently, it is important to assess changes using a total balance sheet approach. In this appendix we illustrate the composition of the current and potential future balance sheets in the EU to assist in the understanding of the building blocks and put some of the comments in this report in context.

B1. Current US Statutory, SMI and PBR

US statutory reserves are currently valued using a prescribed methodology which utilizes conservative assumptions to introduce margins for prudence. These margins for prudence provide a buffer or additional funds to meet policyholder obligations and to this extent are implicit capital requirements. Similarly the standard RBC formula is based on prescribed methodology.

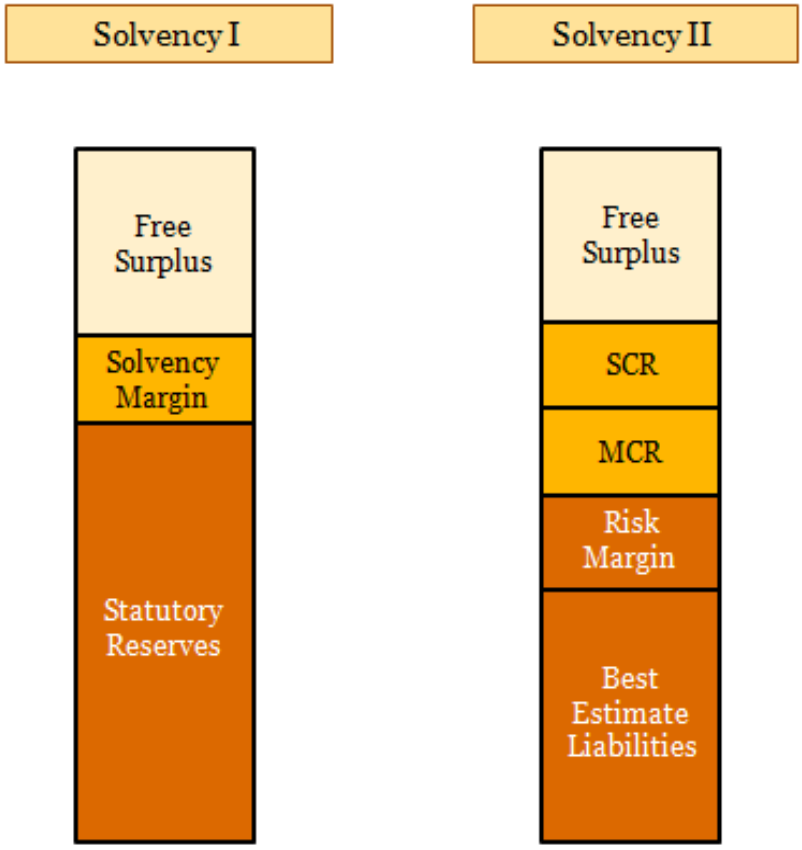
For most life insurance products current US RBC aggregates the capital across the various factors using a square root approach to reduce capital requirements for diversification of risks.

Section VM-20 of the Valuation Manual sets forth three valuation components: a net premium reserve (NPR), a deterministic reserve (DR) and stochastic reserve (SR). The NPR is a minimum policy level reserve that is calculated using prescribed assumptions and is formula-based. For most individual life products, the NPR equals today's CRVM requirements. However, for term insurance and universal life insurance with secondary guarantees, the formulae are more complex than the current CRVM requirements. Companies will need to determine and hold the greater of the NPR, DR and SR unless the product meets the requirements of either the deterministic or stochastic exclusion tests. The DR and SR are determined using projected asset and liability cash flows and are based on a gross premium rather than net premium basis. Reserve calculations are based on a combination of a company's prudent estimate assumptions (own experience assumptions with margin) and prescribed assumptions in situations where the company has little to no control over market forces (e.g., credit spreads and default rates) or where credible experience is not available.

SMI may make some changes to the calculation or calibration of RBC.

B2. Solvency I & Solvency II

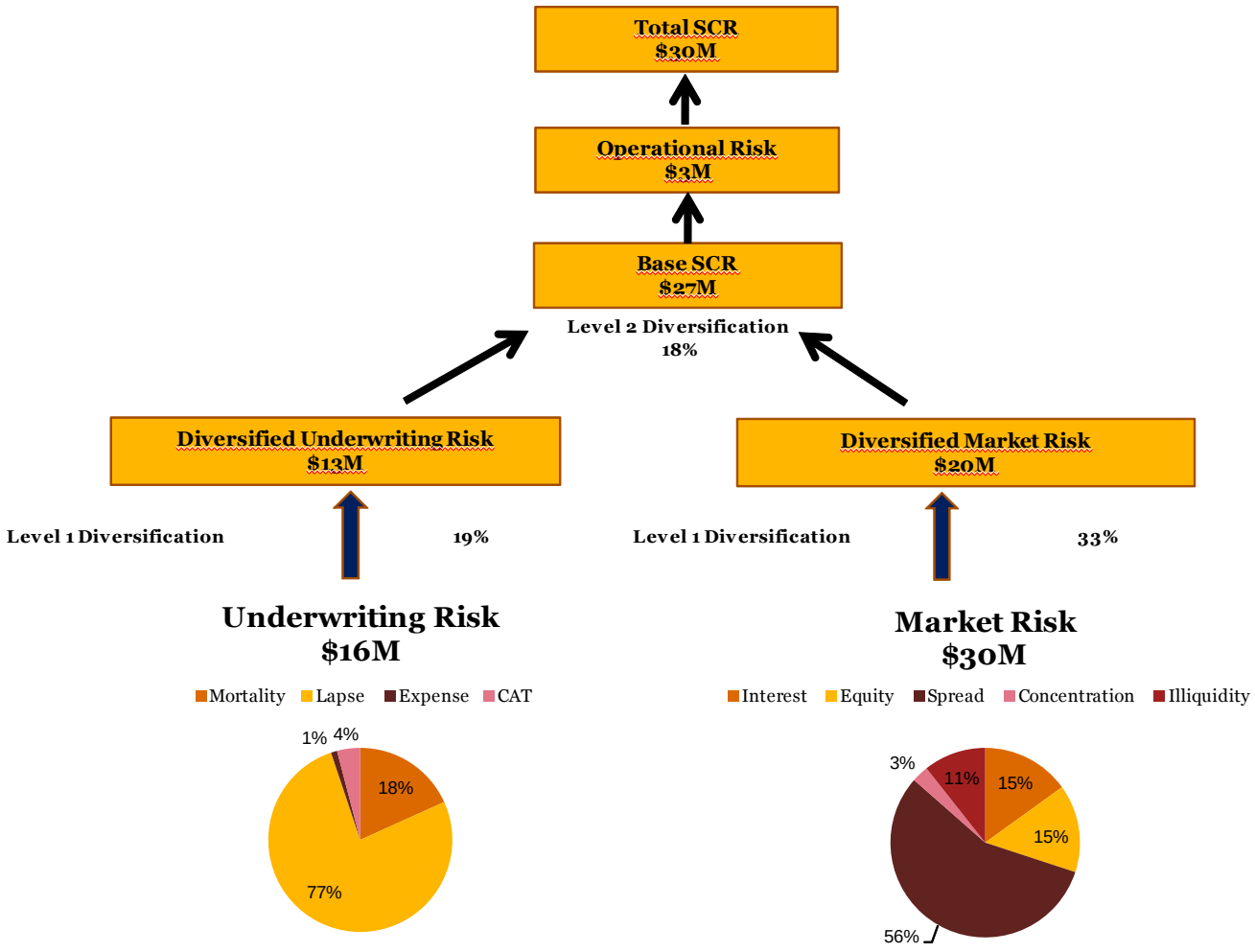
The approach to current statutory reserve calculations varies between countries in the EU. A common directive sets out the required minimum margin of solvency.



Under Solvency II best estimate reserves are calculated which include allowance for the cost of options and guarantees. A risk margin is held in addition to the best estimate reserves and is calculated as the cost of holding capital equal to the projected SCR. The capital requirements being the MCR and SCR replace the current solvency margin.

The approach to aggregating capital in the standard formula also follows a square root approach using correlation matrices to aggregate sub-level-risks to main risk categories and then across the main categories using the formula $\sqrt{\sum_{i,j} Corr_{i,j} \times Cap_i \times Cap_j}$.

This is illustrated in the following diagram:



The aggregate across the risk modules is done using the square root of the sum of products of the correlation factors and capital requirements.

The correlation factors used are shown in the following table:

	Market	Default	Life	Health	Non-life
Markey	1				
Default	0.25	1			
Life	0.25	0.25	1		
Health	0.25	0.25	0.25	1	
Non-life	0.25	0.5	0	0	1

In addition within each risk module further correlation tables are used to aggregate across sub risks i.e. longevity, mortality, persistency in the life risk module.

Updated

Appendix C - Glossary

AAA	American Academy of Actuaries
ACL	Authorized Control Level
BCBS	Basel Committee for Banking Supervision
BCR	Basic Capital Requirement
BHC	Bank Holding Companies
CARVM	Commissioner's Annuity Reserve Valuation Method
CCAR	Comprehensive Capital Analysis and Review
CDAWG	ComFrame Development and Analysis Working Group
ComFrame	The IAIS ComFrame project
CRVM	Commissioner's Reserve Valuation Method
CTE	Conditional Tail Expectation
DTA	Deferred Tax Asset
DTL	Deferred Tax Liability
EC	European Commission
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
EU	European Union
FASB	Financial Accounting Standards Board
FIO	Federal Insurance Office
FSB	Financial Stability Board
FSOC	Financial Stability Oversight Council
GAAP	Generally Accepted Accounting Principles
G-SIFI	Global Systemically Important Financial Institution
G-SII	Global Systemically Important Insurer
HLA	Higher Loss Absorbency
IAIG	Internationally Active Insurance Group
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
ICP	Insurance Core Principles
ICS	Insurance Capital Standard
IFRS	International Financial Reporting Standards
IOSCO	International Organization of Securities Commissions
LATF	Life Actuarial Task Force of the NAIC
LISCC	Large Institution Supervision Coordinating Committee
MCR	Minimum Capital Requirement
MOCE	Margin Over Current Estimate
NAIC	National Association of Insurance Commissioners
ORSA	Own Risk & Solvency Assessment
OTS	Office of Thrift Supervision
PBR	Principle Based Reserving
PCR	Prescribed Capital Requirements
QIS	Quantitative Impact Study
RBC	Risk Based Capital
RMORSA	Risk Management and Own Risk & Solvency Assessment
RSR	Regular Supervisory Report
SCR	Solvency Capital Requirements

SEC	Securities and Exchange Commission
SFCR	Solvency and Financial Condition Report
SIFI	Systemically Important Financial Institutions
SLHC	Savings & Loan Holding Company
SMI or US SMI	Solvency Modernization Initiative
SVL	Standard Valuation Law
UK	United Kingdom
UK FSA	UK Financial Services Authority
US	United States
USP	Undertaking Specific Parameter
VaR	Value at Risk

Appendix D – Glossary Definitions

American Academy of Actuaries	The American Academy of Actuaries is a professional association serving the US actuarial profession and the public by assisting public policymakers and setting qualification and professional standards.
Authorized Control Level	The level of RBC coverage at which the regulator can take control of the insurer. The regulator is automatically granted legal power at this level.
Basel Committee for Banking Supervision	The Basel Committee is the global standard-setter for the supervision of the banking industry and provides a forum for cooperation on banking regulation. It is mandated to strengthen the regulation, supervision and practices of banks worldwide with the purpose of enhancing financial stability.
Commissioner's Annuity Reserve Valuation Method	The US statutory reserving method for annuity business based on the greatest present value of benefits over considerations.
The IAIS ComFrame project	A project by the IAIS to set international supervisory requirements focusing on the effective group-wide supervision of internationally active insurance groups.
Commissioner's Reserve Valuation Method	The US statutory reserving method for life and endowment business based on the greatest present value of benefits over modified net premiums.
Conditional Tail Expectation	Also known as Tail VAR, the Conditional Tail Expectation is a measure of the expected loss given that an event outside a given probability level has occurred.
Deferred Tax Asset	An asset on a company's balance sheet that may be used to reduce any subsequent period's income tax expense.
Deferred Tax Liability	A liability on a company's balance sheet that is a result of timing differences between the company's accounting and tax bases.
European Commission	The European Commission represents the interests of the EU as a whole. It proposes new legislation and it ensures that EU law is correctly applied by member countries.
European Economic Area	The European Economic Area includes the EU countries, Iceland, Liechtenstein, and Norway and creates an internal market governed by the same basic rules to enable goods, services, capital, and persons to move freely about the EEA.
European Insurance and Occupational Pensions Authority	EIOPA's is an independent advisory body to the European Parliament and the Council of the European Union. EIPOA's core responsibilities are to support the stability of the financial system, transparency of markets and financial products as well as the protection of insurance policyholders, pension scheme members and beneficiaries.

European Union	The EU is an economic and political partnership between 27 European countries. The member countries are set out in Appendix E.
Financial Accounting Standards Board	The FASB is the organization in the US for responsible for establishing standards of financial accounting that govern the preparation of financial reports by private sector organizations.
Financial Stability Board	The FSB was established to coordinate, at the international level, the work of national financial authorities and international standard setting bodies. It develops and promotes the implementation of effective regulatory, supervisory and other financial sector policies.
Generally Accepted Accounting Principles	GAAP refers to the standard framework of guidelines for financial accounting used in any country and is defined in authoritative standards and practiced procedures.
International Association of Insurance Supervisors	The IAIS is composed of and represents insurance regulators and supervisors globally. The IAIS promotes effective and globally consistent supervision of the insurance industry as well as financial stability.
International Accounting Standards Board	The IASB is an independent, accounting standard-setting body responsible for developing International Financial Reporting Standards.
Insurance Core Principles	The ICPs developed by the IAIS are an internationally developed set of principles, standards and guidance applicable to supervisors/regulators of insurance companies and provide a globally accepted framework for the regulation and supervision of the insurance sector.
International Financial Reporting Standards	IFRS are a set of principle-based accounting standards set by the IASB and are designed to improve consistency of financial reporting across the globe.
International Organization of Securities Commissions	IOSCO is an international body that brings together the world's securities regulators and is recognized as the global standard setter for the securities sector. It develops, implements, and promotes adherence to internationally recognized standards for securities regulation.
Life Actuarial Task Force of the NAIC	The LATF is a task force set up by the NAIC to identify, investigate and develop solutions to actuarial problems in the life insurance industry.
Minimum Capital Requirement	Under Solvency II the MCR represents the minimum amount below which solvency cover should not fall. The MCR is based on a very simple formula but is constrained to a corridor defined as an upper and lower bound percentage of the SCR.
Margin Over Current Estimate	A margin in the valuation of technical provisions to cover the inherent uncertainty of those obligations. Incorporating the margin

	results in the technical provisions exceed the current probability weighted best estimate of the obligations.
National Association of Insurance Commissioners	The NAIC is the US standard setting and regulatory support organization created and governed by the chief insurance regulators from each of the states.
Own Risk & Solvency Assessment	An ORSA is the entirety of the processes and procedures employed to identify, assess, monitor, manage, and report the risks a firm faces or may face and is used to determine the amount of capital necessary to ensure that overall solvency needs are met at all times. It can also be used to refer to the summary regulatory report that describes the process and outcome.
Office of Thrift Supervision	The OTS was a US federal agency that supervised, and regulated all savings banks and savings and loans associations. This has now been merged into the Federal Reserve.
Principle Based Reserving	PBR is part of the efforts to modernize the framework for determining life insurers' statutory required capital and reserves in the US. Under PBR reserves and capital will capture underlying life insurance and annuity risks more accurately.
Prescribed Capital Requirements	The IAIS ICPs define a PCR which indicates capital levels, where a supervisor would intervene and contrasts this to a minimum capital level where the strongest supervisory action would be taken.
Quantitative Impact Study	Under Solvency II a series of quantitative impact studies have been performed to field test the proposed capital requirements and refine the calibration of the standard formula approach to determine the SCR.
Risk Based Capital	Risk-Based Capital (RBC) is a method of measuring the minimum amount of capital appropriate for an insurance company to support its overall business operations. Under the RBC system, regulators have the authority and statutory mandate to take preventive and corrective measures that vary depending on the capital deficiency indicated by the RBC result.
Risk Management and Own Risk & Solvency Assessment	The US ORSA requirement.
Regular Supervisory Report	A report submitted solely to the supervisor, containing information considered necessary for the purposes of supervision.
Solvency Capital Requirements	The higher of the two capital levels required by Solvency II. The SCR is the capital level in excess of liabilities that provides an approximate to a 1 in 200 year level of protection. The SCR is calculated using either the standard formula or an approved internal model.

Securities and Exchange Commission	The SEC is the US federal agency that holds primary responsibility for enforcing the federal securities laws and regulating the securities industry and exchanges.
Solvency and Financial Condition Report	This is the public disclosure report under Solvency II which is required to be published annually by all undertakings and will contain detailed quantitative and qualitative elements.
Systemically Important Financial Institutions	A SIFI is any institution that is generally considered to be systemically relevant, so that when it exits the market, it causes a major disruption to the financial system, either in its own home market, or globally, depending on its size and geographic reach.
Savings & Loan Holding Company	A SLHC, defined in the US under the Home Owners Loan Act, includes any company that directly or indirectly controls either a savings association or any other company that is an SLHC.
Solvency Modernization Initiative	The NAIC SMI is a self-review of the US insurance solvency regulation framework and includes a review of international developments regarding insurance supervision, banking supervision, and international accounting standards and their potential use in US insurance regulation.
Standard Valuation Law	The NAIC SVL defines the methodologies that are used in common across all the states to calculate minimum insurance reserves.
United Kingdom	The United Kingdom
UK Financial Services Authority	The regulatory and supervisory authority for financial institutions in the UK.
United States	The United States of America
Undertaking Specific Parameter	Solvency II terminology for parameter assumptions set by a company using internal and external data to better reflect the risk profile of the company than the standard formulae parameters.
Value at Risk	A widely used risk measure. It is the value such that the probability of loss being greater than this is equal to a predetermined level over a given time horizon.

Updated

Appendix E – EU & G20 Member Countries

E1. EU Member Countries

The following countries are members of the EU at December 31st 2014:

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden & the United Kingdom.

E2. G20 Countries

The following countries are part of the G20 as at December 31st 2014:

Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, the Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States of America.

In addition the EU is represented by the European Commission and by the European Central Bank.