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ENTERPRISE RISK MANAGEMENT BENCHMARK REVIEW: 2013 UPDATE

In April and October 2009, Guy Carpenter published two briefings titled “Risk Profile, Appetite and Tolerance: Fundamental Concepts in Risk Management and Reinsurance Effectiveness.” This briefing is an update of those studies that summarizes the information publicly disclosed on enterprise risk management (ERM) measures.

This update reinforces the conclusions from the previous briefings. Most (re)insurers are managing capital with metric-based frameworks and are publishing more about their risk management targets. This is certainly true for European carriers who are focusing on their risk management process in view of Solvency II, but also for companies in Asia Pacific, Bermuda and North America, which appear to be catching up with the disclosure quality of their European peers.

Relative to the 2009 briefings, this new study covers more (re)insurers. In light of the improving disclosures, additional information has been collected on internal models and catastrophe models.

Introduction

There was a continued movement toward more robust enterprise-wide risk management practices in the period following the financial crises of 2002 and 2008. With the goal of greater transparency, both regulators and rating agencies have increased the emphasis on ERM-related disciplines in capital adequacy dialogues.

The ongoing sovereign bond crisis and the natural catastrophe events of the last few years are again showing how important it is today for insurance companies to comprehensively assess corporate risks by accounting for various risk sources as well as the correlation between them. In that respect, insurance regulators have been recently pushing for the creation of internal risk assessment tools. In particular, Solvency II has introduced Own Risk and Solvency Assessment (ORSA), which aims to implement a new aggregated risk management culture. Its intent is to create a consistent framework that ensures the connection between internal and external risk drivers. In the United States, beginning in 2015, regulators will be expected to require companies with more than USD500 million in direct premiums to file an annual ORSA summary report with regulators. The summary report would require the (re)insurers to report their risk management framework, assess their risk exposure and measure their solvency with respect to an articulated business plan.

Rating agencies continue to increase their focus on ERM policies, incorporating this information into their rating assessment models and requiring disclosure in data requests and ratings discussions.

Guy Carpenter supports the view that developing ERM discipline will help insurers make value-accretive decisions through the improved deployment of capital. With a thorough understanding of the basic concepts of enterprise-wide risk and the integration of this knowledge into the process of making strategic business decisions, (re)insurers will be better prepared to respond to the internal and external questions relating to risk and capital. This investment will provide companies and their stakeholders a better understanding of the size and direction of the risks underlying their enterprise value creation activities. More importantly, insurance and reinsurance firms will benefit by establishing hedging or reinsurance strategies to drive capital efficiencies and maximize stable risk-adjusted returns.

2013 Update General Observations

Before focusing on the results of the latest study, we would like to reaffirm the definition of *risk profile*, *risk appetite* and *risk tolerance* found in our previous publications:

Risk Profile: The broad parameters a firm considers in executing its business strategy in its chosen market space.

Risk Appetite: The level of uncertainty a company is willing to assume given the corresponding reward associated with risk. A company with a high appetite for risk would be a company accepting more uncertainty for a higher reward, while a company with a low risk appetite would seek less uncertainty for which it would accept a lower return.

Risk Tolerance: A stated amount of risk a company is willing and/or able to keep in executing its business strategy — in other words, the limits of a company's capacity for taking risk.

Putting these definitions in perspective, a company's risk profile comprises the lines of business or the markets in which the company operates. Within the company's risk profile, it will define its general risk appetite taking into account its risk mitigation costs and targets for return on equity, return on assets and profitability. After determining its appetite for risk the company will finally formulate its risk tolerance profile. This will enable it to state well-specified risk objectives in terms of value at risk (VaR), tail value at risk (TVaR), probable maximum loss (PML) or other metrics that define loss.

The Study

Guy Carpenter's ERM Benchmark study is based on data from publicly-available 2012 financial reports and publications of (re)insurers from all over the world. In order to improve the depth of the analysis we have increased the number of insurance groups included. The sample now comprises 67 different companies from the four largest world markets, compared to the 35 companies used in 2009. The study contains information from 27 companies domiciled in Europe, 9 in the United States,

12 in Bermuda and 19 in the Asia Pacific region. The firms included are mainly publicly traded and have large global operations.

The results of the study indicate the focus on risk continues and that disclosure is improving:

- The majority of the companies include a dedicated risk section in their financial reports.
- The risk reports are getting more homogeneous and comparable in each market. Finding risk-related information in the annual reports is becoming easier.
- Even though the general disclosure level is quite high in Europe, improvement compared to the last studies is not as significant as what has been seen in the United States, especially with regards to insurance risk.
- In the past, companies published more details such as descriptions of the value-based management system in place to show rating agencies and financial analysts the progress of ERM. However, most companies in Europe today appear to be aligning their reporting detail with what is required by regulators. The majority of the companies disclose at least qualitative information about four principal risks: market, credit, insurance and operational. Moreover, a relatively good level of disclosure exists for catastrophe risks.
- An increasing number of companies (especially in Europe) also disclose specific quantitative information about their risk tolerances.

The following table summarizes the spectrum of risk measurements and methodologies used by companies to disclose their risk levels.

Method	Group Level	Market Risk	Credit Risk	Insurance Risk	Catastrophe Risk
VaR¹	3:10,000; 1:200; total loss probability 99%	3:10,000; 1:100; 1:200	3:10,000; 1:200	3:10,000; 1:200	1:250; 1:10; 1:200; Loss from 1:5 to 1:250; 1:200; 1:100
TVaR²	Tail Value at Risk (TVaR) at 99th percentile (99%)	Return period not explicitly disclosed	Return period not explicitly disclosed	Return period not explicitly disclosed	TVaR 99%
HVaR³	Did not appear	99% on a 250 working days	Did not appear	Did not appear	Did not appear
Sensitivity Analysis	Did not appear	+/- X% change in equity markets; +/- X% yield curve shift; +/- X% change in claims ratio; +/- X% change in property markets	P&L effect of % change in credit spread	Impact on pre-tax profits of +/- X% in incurred claims and expenses	Did not appear
Scenario Analysis	Aggregate impact on Solvency ratio of "All risks worst case scenarios"; Scenario modeled by one of the three Vendor Models (RMS, EQECAT or AIR) then checked by the other two for validation	Largest occurred event scenario, 16% market drop, 2% interest rate rise, 10% decrease in foreign currencies; 99% VaR figure based on the 261 scenarios is equal to the average of the second and third worst risks observed	Did not appear	Scenario twice as large as the ones generated by the most significant natural disaster of the last 20 years (the Daria wind storm of 1990)	(RDS) Realistic Disaster Scenarios; A one in ten year annual loss scenario; Terrorist worst case scenario; standardized scenarios as suggested by QIS5
PML⁴	Largest occurrence scenario impact	Did not appear	QIS5 formula	Did not appear	Limits in 1:100 & 1:200 years events; Loss > x% Statutory Surplus
Threshold	The risk tolerance threshold was fixed at x% (usually at least 99.5%), compatible with a certain rating goal on the basis of Standard & Poor's capital model	Maximum investment by instrument or asset class	Limit of biggest 3 exposures to 10% of shareholder equity; 2-3 % of total invested portfolio; Maximum/minimum exposure to a certain rating category	Threshold of significant insurance risk was deemed to be x%	Limits in 1:100 & 1:200 years events; X amount of maximum retention per year; Loss > x% Statutory Surplus

Source: Guy Carpenter

¹ Value at Risk. ² Tail Value at Risk. ³ Historical Value at Risk calculates value at risk by comparing the actual volatility of components or risk elements within a portfolio to the historical sensitivity of those components. ⁴ PML = Probable Maximum Loss. PML is technically equivalent to VaR but is typically used in the modeling of natural catastrophe perils.

- The prevalent risk metric is by far the VaR. The VaR reports and calculations are reinforced by the results from sensitivity analyses and stress testing (depending on the size of the “deterioration factor”). Metrics used to disclose the risk tolerance level for catastrophe risk are less strict and PML or scenario methods are generally preferred.
- Nearly all companies in Europe now use the VaR at the 99.5 percentile to measure the risks according to Solvency II requirements for capitalizing against the 1-in-200-year event. Some of the companies use dedicated buffers to reflect higher rating requirements, for example 175 percent Solvency II ratio as minimum capital requirement. In the past we saw more diverse risk metrics in place, such as 99.97 percent VaR or 99 percent TVaR, but there has been convergence toward the Solvency II level.

Risk Types

Table 1 (below) quantifies the proportion of companies in the sample that disclose the method as well as the specific level of various risk quantifications. Compared to our previous ERM benchmark study, a new metric referring to catastrophe risk has been added. Taking advantage of the increased level of disclosure and transparency on catastrophe risk exposure, we have extended our reports to include this in view of its importance in the economic capital approach of (re)insurers.

For the different risk types, the general level of disclosure has increased, indicating growing attention together with improved measurement capabilities. Moreover, the quality of the disclosure shows a real break with the past as companies now disclose detailed quantitative data about the different risk categories.

T-1 | PERCENTAGE OF STUDY PARTICIPANTS WITH AFFIRMATIVE DISCLOSURE BY SEGMENT/REGION, 2012

Region	Study Version	Group Level		Market Risk		Credit Risk		Insurance Risk		Cat Risk	
		Method	Level	Method	Level	Method	Level	Method	Level	Method	Level
Europe	Current	85%	78%	93%	78%	89%	74%	81%	59%	67%	52%
	Prior	67%	50%	75%	8%	67%	0%	75%	17%		
North America	Current	67%	44%	78%	56%	67%	67%	56%	11%	78%	22%
	Prior	33%	17%	83%	33%	50%	0%	17%	17%		
Bermuda	Current	83%	33%	75%	67%	75%	25%	42%	25%	92%	83%
	Prior	33%	0%	56%	44%	67%	22%	33%	33%		
Asia Pacific	Current	63%	21%	89%	47%	79%	16%	53%	21%	42%	11%
	Prior	63%	13%	50%	38%	38%	13%	25%	0%		

Source: Guy Carpenter

Looking in detail at the information published by our sample companies, we can observe that:

- Multinational companies tend to align to global regulation developments (like Solvency II) independent of their headquarters location. This may be seen as a sign of a greater integration of the different markets.
- Europe remains the continent where insurers disclose the most information. European insurance companies generally disclose more details about their existing risk management processes and the quantitative levels for the

different individual risk types. The higher level of disclosure is mainly driven by regulatory requirements and the preparation for the Solvency II regime.

- Some companies were well advanced in publishing their ERM processes in the past, for example they presented detailed descriptions of the integration of risk results in their value-based management systems. However, this has been reduced to a certain lower standard all over Europe.
- For Asia Pacific, Bermuda and North America we can see a big step forward in ERM process publication compared to our previous studies. The disclosure quality in these regions has become more homogeneous. While the method used to calculate different risk types is often described, the companies are still more reluctant to publish detailed results.
- The path to better and more detailed disclosures is probably driven by two factors. First, the disclosure improvement is driven by international competition, rating agencies and financial analysts. Second, the Solvency II discussion around third-country equivalence has forced companies outside of Europe to have a closer look into the risk management procedures and publication standards used in Europe.
- For the catastrophe risk metric, the level and quality of disclosure are generally sound for illustrating the critical importance of this risk in the ERM process. This level of disclosure is also supported by the importance of analytical tools in place in this area.

Risk Governance

Table 2 shows disclosure percentages on the risk-based governance practices of the sample selected companies. Compared to the previous results, a new indicator for the number of companies linking performance measurements and incentive plans to risk-based proxies has been studied. This survey is helpful for looking at the integration process of a risk-based culture inside organizations.

T-2 | PERCENTAGE OF SYUDY PARTICIPANTS WITH AFFIRMATIVE ERM STRUCTURE DISCLOSURE BY TYPE/REGION, 2012

Region	Study Version	Group CRO	CRO Reports to Board	Group Risk Committee	BoD Resp	Risk-based Performance Measurement
Europe	Current	81%	67%	96%	89%	63%
	Prior	67%	33%	92%	92%	
North America	Current	89%	44%	56%	44%	33%
	Prior	33%	17%	33%	67%	
Bermuda	Current	92%	67%	75%	75%	67%
	Prior	89%	22%	67%	56%	
Asia Pacific	Current	32%	21%	89%	63%	21%
	Prior	25%	13%	75%	50%	

Source: Guy Carpenter

Observations

- The general disclosure level on risk-based governance practices has increased in all territories.
- In our previous survey, Bermudian and European companies tended to disclose more structural ERM information than companies in Asia Pacific and the United States. This new survey confirms this. Bermuda companies are now relatively close to European (re)insurers in their level of structural disclosure. Asia Pacific and U.S. (re)insurers continue to lag behind their European and Bermudian peers.
- Not all companies are disclosing the presence of their own chief risk officer (CRO), especially in Asia Pacific. But almost all companies disclose that they are supporting this role, sometimes by delegating it to the chief financial officer or to the chief actuary. The board of directors is usually held responsible for the overall corporate strategy. In Europe and Asia Pacific the disclosure suggests that governance is characterized by a more centralized approach with higher levels of accountability.
- Disclosure indicating better integration of risk management into the performance and incentives policy appears to be consistent with the increased requirements imposed by new regulation, such as Solvency II and the NAIC's ORSA Model Act. In Europe, where Solvency II approaches its final implementation stage, and in Bermuda, where the national regulators seek third-country equivalence to Solvency II requirements, this integration seems to be more important and also more consistent.

Capital Management

Capital management using risk-based capital models and capital allocation is a central component of risk management practices. We have investigated this topic as a new chapter for our 2013 ERM Benchmark update. In this context, Table 3 shows the portion of companies that publish concrete data on their excess capital – the amount of capital retained in excess of a certain target amount. Table 3 also shows both the portion of companies using risk-based capital models in the risk management process and the portion giving some indication of the methodology of the capital allocation process.

T-3 | (CAPITAL ALLOCATION) – PERCENTAGE OF STUDY PARTICIPANTS WITH AFFIRMATIVE ERM STRUCTURE DISCLOSURE BY TYPE/REGION, 2012

Region	Excess Capital	Risk Based Capital Model	Capital Allocation Method
Europe	30%	85%	93%
North America	11%	67%	33%
Bermuda	0%	58%	42%
Asia Pacific	42%	68%	16%

Source: Guy Carpenter

Observations

The companies from our sample are generally developing their own risk-based capital models that need approval from either risk committees or authorities and external independent third parties.

- Capital allocation methods are usually described with their related value at risk measures. Common methods include co-measures of risk, premium-to-surplus ratios and proportional allocation.
- In all territories the disclosure level for the excess capital is quite low. Companies appear to be reluctant to show the exact level of their economic excess capital. They usually refer to their excess capital as a proxy that provides reassurances about their risk levels without explicitly reporting it. For instance, for some companies, the disclosed information refers to a general solvency level: “The excess of capital is double the minimum solvency risk margin imposed by regulators...”
- Nearly all Bermudian companies publish details about their repurchase program for their own shares. If we interpret this as information about excess capital, the zero percent would change to a much higher number.

Conclusions and Outlook

Even though ERM implementation practices are disclosed at higher levels in the European market, we can observe that ERM practices are increasingly well integrated within companies' general management practices all over the world. The improvement in disclosure levels observed in the past three years clearly shows that a rapid evolution is underway. For instance, the disclosures on ERM governance have already reached an adequate level in all markets, illustrating the focus on well integrated ERM cultures. Attention is now shifting toward more technical aspects and a general focus (especially in Europe) on capital models and operational risks.

We noted in our previous briefings that we anticipate that regulatory, capital market and legislative influences would quickly push company managements to better recognize the risks of their enterprises. We again conclude that increasing external demands will drive (re)insurers to recognize the value of metric-based ERM frameworks and capital models in evaluating risks. The main external factor will be the final implementation of Solvency II in Europe, which has been announced for 2016. As Solvency II is the worldwide example for a holistic risk regulation framework, combining both quantitative and qualitative aspects of risk management, it is likely that insurance regulators outside of Europe will adopt many parts of Solvency II. Also, the further requirements of International Financial Reporting Standards, which focus on market-consistent valuation of insurance liabilities and globalization of the insurance market — together with rating agency pressure — will force companies to improve the quality of risk management disclosure, especially towards corporate quantitative goals and risk strategy.

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