

Assessing the impact of Solvency Assessment and Management on risk management in South African insurance companies

L. Jansen van Vuuren, M. Reyers &
C.H. van Schalkwyk

A B S T R A C T

The study investigates how regulatory changes influence the role of risk management in insurance companies, more specifically the impact which Pillar II of Solvency Assessment and Management (SAM) may have on risk management in a South African insurance company. Furthermore, the study evaluates the current self-assessed readiness of insurers for future SAM risk management requirements. A quantitative secondary data analysis approach was applied to the *SAM Pillar II Readiness Survey*, which the Financial Services Board conducted in 2012 as part of the process to prepare insurance companies for SAM. The results of the survey, which was mandatory for all registered South African insurance companies (life and non-life insurers), indicated that four areas are associated with insurers' self-assessments in terms of readiness for the SAM requirements: having a risk management system in place, documenting the risk management strategy, having an explicit asset-liability management policy and having a risk transfer policy. Furthermore, the results indicate a gap between effective risk management practices as described in the literature and those which insurers associated with being ready for the SAM requirements. Raising insurer awareness of these gaps will help strengthen the local risk management system.

Key words: enterprise-wide risk management; insurance regulation; risk-based supervision framework; risk management; Solvency Assessment and Management

Introduction

In 2008, the world experienced a global financial crisis, expediting reform to the prudential financial regulatory system which had been used in South Africa. Even though this country's financial system weathered the storm, nearly a million jobs were lost as a result of the global economic contraction that originated from the crisis, which itself emanated from the world's banking and financial systems (National Treasury 2013). Consequently, National Treasury together with the Financial Services Board (FSB), the South African regulator responsible for the non-banking financial services industry, expedited reforms to its regulatory system (Botha & Makina 2011).

The FSB first considered implementing a risk-based regulatory approach during 2006, when international financial condition reporting (FCR) was debated for potential implementation in South Africa. The FSB considered the use of FCR to replace the solvency regime for local short-term insurers: it entailed the calculation of risk-based capital aligned to the insurer's inherent business risks, the purpose being broader than pure solvency requirements, by requiring short-term insurers to implement sound risk management strategies and reporting of results (FSB 2006).

FCR evolved into the Solvency Assessment and Management (SAM) framework which is currently being developed to establish a risk-based regime for the prudential regulation of long- and short-term insurers in South Africa. SAM has developed as a risk-based supervision framework replicating the multi-year European project, Solvency II (Swiss Re 2006), initiated in 2001. The FSB established a governance structure to invite recommendations from all stakeholders, so as to create a comprehensive risk-based framework underlying the SAM regulatory regime. The SAM governance structure consists of three main committees overseeing quantitative aspects (Pillar I), risk management and governance (Pillar II) and reporting and disclosure (Pillar III) (FSB 2012).

In June 2012, the FSB conducted a *Pillar II Readiness Survey* which was mandatory for all local insurers, and followed it up with selected interviews. In November, the FSB presented its high-level findings on the key strengths and weaknesses of the governance structures currently used by insurance companies, before making the full report available to the insurance industry in June 2013 (FSB 2013b, 2013c). In this article, data obtained from the *Pillar II Readiness Survey* are used to establish the self-assessed readiness of insurance companies for the risk management requirements of SAM.

This article focuses on how Pillar II (risk management and governance) will impact the risk management framework of an insurance company. More specifically, it considers how existing risk management policies and procedures need to evolve to

be compliant and effective within SAM requirements. Furthermore, the data analysis identifies which aspects of the risk management framework, tested in Section C of the *SAM Pillar II Readiness Survey*, were significant indicators of whether an insurance company rated itself as ready for SAM.

Key indicators of readiness identified in the analysis are compared with the literature on the crucial attributes of a robust risk management system. Even though limited literature is available on the impact of implementing Solvency II in Europe and SAM in South Africa, the study provides insight into insurers' perceptions of a relevant risk management framework which is compliant with the SAM requirements.

This article considers how key economic events tested regulation, exposed shortcomings in regulatory frameworks and influenced the role of risk management. Thereafter, the method used to perform the secondary data analysis is described. The final section discusses the results from the analysis of the individual relationships considered in the study, including contributions and recommendations for future research.

Literature

Impact of economic events on the evolution of insurance regulation

The substantial number of insurance insolvencies, along with the market downturn during the second half of the 1980s, had a significant impact on insurance regulation. This brought into question the capability of insurance regulation to proactively prevent insolvencies. Research into these failures and lessons learnt caused many large insurance companies to formalise the role of a chief risk officer, and led to reporting being done directly to the chief executive officer and the board of directors (Lehmann & Hofmann 2010).

The equity market downturn during 2001 and 2003 led to a reassessment of the asset-liability management function, as well as the role the risk management function plays in the management of insurance companies (Lehmann & Hofmann 2010). Regulation was tested again in 2007 with the financial crisis. According to King (2016), this crisis was more a failure of the financial system and the aspects supporting it, than of key individuals in banking or policy-making roles. King (2016) argues that the crisis points to the joint inability to appreciate the interrelated effect between a capitalistic system and financing activities on an international scale. So accentuated were the effects wrought by capitalistic motives that widespread corporate failure occurred in some of the world's largest financial systems, impacting negatively on consumer confidence and resulting in the deepest recession since the 1930s.

Insurers were not immune to the 2007 crisis with the prominent example being American International Group (AIG), an insurer that was severely affected by credit default swaps within its financial products. Following the rapid increase in mortgage default rates, AIG recorded enormous losses within a subsidiary while the conventional insurance subsidiaries in the group continued to operate profitably. The United States (US) government decided AIG posed a systemic risk and opted to provide federal assistance, which raised additional concerns about the adequacy of regulation. Harrington (2009), however, doubts whether any of AIG's globally regulated insurance subsidiaries would have failed if the US government had not intervened. Amongst insurance failures AIG was an exception, prompting Harrington (2009) to question whether the responsibility for failure rested with banking (rather than insurance) regulation. This is validated by the fact that most federal assistance was paid to banking counterparties during the AIG crisis.

The continuing financial downturn raised concerns about the need for a systemic risk regulator for financial institutions, leading to steps to identify institutions which pose such a risk. The International Association of Insurance Supervisors (IAIS) emphasised the need to identify insurers and non-banking institutions that are systemically important and to implement measures to reduce the impact which the failure of those companies might have on the insurance industry and the economy. Therefore, the IAIS, together with others, initiated a worldwide enterprise to recognise potential global systemically important financial institutions (G-SIFIs) (IAIS 2012).

Harrington (2009: 815) debates the need for a systemic risk regulator, arguing that it would not be "good policy" and that companies which form part of the G-SIFIs could be deemed "too big to fail, reducing market discipline and giving them an inappropriate competitive advantage". When comparing the insurance and banking sectors, it is evident that the systemic risk facing an insurance company is much lower than that facing a bank (Financial Stability Board 2013; Harrington 2009).

The aforementioned economic events have shaped the evolution of regulation over the past two decades. Previously, regulators used a 'desktop approach', meaning that regulatory authorities monitor compliance with prudential requirements by checking statutory returns submitted to the regulator on a quarterly and yearly basis (Ellis 1990: 286). This has since been replaced by a 'risk-based supervision approach' which focuses more on identifying the inherent risk of an insurance company and the mitigating factors its management have in place to manage those risks (FSB 2012, 2013a). The FSB in South Africa and other international regulators follow this 'risk-based approach': an example of a tested 'risk-based approach' is the risk-

based capital (RBC) requirements for life insurers adopted in 1992 by the National Association of Insurance Commissioners (NAIC) of the US (NAIC 1994).

Since the study focuses on the impact which the implementation of SAM has on the role of risk management in South African insurance companies, it is necessary to consider the development of local regulation.

Regulatory developments in South Africa

Global economic events over the past two decades have also influenced the South African regulatory landscape. Since the financial sector is globally integrated but nationally regulated, there need to be minimum international standards and coordination among different national regulators (National Treasury 2013).

Through South Africa's participation in multilateral institutions and forums such as the International Monetary Fund (IMF), the G20, the Financial Stability Board, the Basel Committee on Bank Supervision, the International Organisation of Securities Commissions and IAIS, this country has committed itself to implement higher global financial standards in order to make the local financial sector safer and better (National Treasury 2013).

This is not, however, the first time South Africa has considered the effectiveness of its financial sector: already in 2007, the government launched an official evaluation of the financial regulatory system. The evaluation was expanded in 2009 to take into account the lessons learnt from the global financial crisis that began in 2007. This culminated in the publication of *A safer financial sector to serve South Africa better* (National Treasury 2011). This policy document notes that the domestic financial sector had weathered the global financial crisis relatively well due to the country's comprehensive macroeconomic fundamentals and a healthy financial regulatory framework. However, it cautions against becoming complacent and proposes a twin peaks model of financial regulation (National Treasury 2011), which envisages prudential and market conduct regulators.

The prudential regulator's responsibility, to be carried under the auspices of the South African Reserve Bank (SARB), will focus on establishing and encouraging the safety and soundness of regulated financial institutions (National Treasury 2013). The market conduct regulator's responsibility, on the other hand, will remain with the FSB, which will adapt to the revised mandate. Its focus will be on safeguarding consumers and policyholders of financial services, and promoting the trustworthiness of the South African financial system (National Treasury 2013).

The South African government, through the Minister of Finance, is responsible for the policy framework underpinning the regulation of financial systems. In terms

of this framework, the SARB will take the lead in promoting financial system stability by becoming the systemic regulator for the South African financial system, supervising and monitoring the system to give effect to the financial stability objective (National Treasury 2013).

Currently, the FSB is the principal basis of information for the solvency monitoring process of non-banking financial institutions. The examination activity, which focuses on on-site visits conducted at insurance companies, emphasises corporate governance and the role of risk management in an organisation (Kelly, Kleffner & Leadbetter 2012). For this reason, the FSB developed SAM as a risk-based supervision framework for South African insurers and insurance groups (FSB 2012).

Part of the SAM framework envisages strengthening the governance structure of insurance companies – a goal which aligns with the King Code of Corporate Governance Principles (King III), which offers guidelines for the governance structures and operations of local companies (issued by the King Committee on Corporate Governance). King III, which is based on an ‘apply or explain’ basis, acknowledges that there cannot be a ‘one-size-fits-all’ approach, since companies differ in terms of the type of business they conduct. Even though good governance is a complex task, sound governance practices offer numerous practical benefits that companies should integrate into their operational processes (IoDSA 2009). The responsibility for implementing governance practices and managing the insurer in terms of the rules and regulations of an appropriate regulatory framework resides with the board of directors (OECD 2011).

A sound risk management function is associated with a sound governance structure. Having a sound risk management function makes an organisation better prepared for any unforeseen events and improves its chances of surviving a financial crisis. The Organisation for Economic Cooperation and Development’s (OECD) (2011) guidance on an insurer’s management structure recommends the establishment of an internal organisational structure with appropriate management committees (e.g. risk management, audit, investment and asset-liability management). These committees should oversee the business on a company-wide basis, promote reporting and disclosure, and ensure sound decision making.

Linking the influence of key economic events on regulatory evolution and the role of risk management requires a study of the risk management function – discussed hereunder.

Role of risk management in an insurance company

The global financial crisis of 2007–2009 caused the insolvency of several large financial institutions. Canada was the only nation among the G8 countries (Canada,

France, Germany, Italy, Japan, Russia, the United Kingdom and the US) that did not have to intervene and give financial support to troubled financial institutions (Kelly et al. 2012). Kelly et al. (2012), who investigated what Canada did differently, found that the Canadian regulatory framework was successful during the economic downturn due to certain fundamentals that it had in place to survive the crisis. These included an existing federal regulator who followed a holistic risk approach to insurer monitoring that focused on system-wide issues, legislation that governed consistent solvency standards and investment guidelines that inspired prudent risk taking.

Apart from a holistic risk management approach on the part of the regulator, Kelly et al. (2012) found that that approach was also very important to an individual insurer's sustainability, particularly when ownership in the form of a group structure introduced additional group risk. A holistic risk management approach is necessary to enable a company to meet its strategic, operational and financial objectives (Lehmann & Hofmann 2010). The role of risk management therefore involves highlighting the associated probabilities of possible future business scenarios before strategic decision makers in senior management commit capital (Stulz 2008).

The process of risk management starts with the first step of identifying and measuring the risks the insurer is facing; the second step involves communicating the identified and measured risks to senior management and the board of directors (Stulz 2008). Failure to effectively communicate risk information is also a risk management failure. The third step lies with the board of directors, which has to decide which of the risks (communicated to it) should be accepted, rejected or transferred. At this point in the process, the role of risk management is to ensure that the company stays within this risk appetite, without taking risks that have not been identified or measured. It is therefore the risk manager's responsibility to keep abreast of and manage the company's risk, and ensure that the risks adhere to the established guidelines (Stulz 2008).

To assist with the abovementioned process, risk management has evolved into a broader scoped and more integrated enterprise-wide risk management (ERM) process. ERM is designed to identify potential events that might pose a threat to the company. It also assists management and the board in managing risks within the company's risk appetite, and ensures that the company reaches its objectives.

ERM is a management tool with a holistic approach towards risk management, which attempts to limit the probability of large losses occurring in the organisation. Ultimately, it enhances shareholder wealth. The study by Atluntas, Berry-Stölzle and Hoyt (2011) on German property-liability insurance companies (the European equivalent of non-life insurers in South Africa) considered the proportion of such insurers that had already implemented ERM. Atluntas et al. (2011) found that the

majority of participating insurers had a risk management strategy in place that defined their risk management system. They further noted that it was high priority for the insurers to improve their risk management capabilities and embed risk management in the whole organisation, in anticipation of Solvency II.

Some benefits of ERM, when compared with traditional risk management, are that the former will effect greater collaboration between the different risk management activities and will include operational, reputational and strategic risk, which cannot be measured or collated. Among the numerous advantages of ERM is that its use enhances the effectiveness of risk management activities in an organisation (Atluntas et al. 2011).

A successful organisation requires a connection between the risk framework and the way the business operates in practice. Good ERM requires the entire organisation to be in agreement about establishing a risk framework that improves the overall management, before connecting this with the business model. A holistic approach is thus necessary to incorporate the risk framework with the business model. Successful implementation requires a team effort from the risk function, and collective support throughout the business. The development of a successful risk management framework takes time and is most likely to be an iterative process which will be refined over a few strategic planning cycles (Bielski 2013).

Being an “evolving discipline”, it is essential to learn from and use mistakes made in the past to strengthen the role of risk management in an insurance company (Cantle 2013). Comparing the insurance and banking industries, Drzik (2005) found there were similarities that could help insurance companies implement new ways of measuring and managing their risks by studying the lessons learnt from the banking industry. The financial crisis was predominantly a result of a series of “macroeconomic temptations” that led banks and only some insurance companies to take excessive risks. According to Ashby (2011: 330), these risks were not controlled effectively due to “poor risk management communication and over-reliance on mathematical risk models”.

A control structure to improve the risk governance environment is proposed by the Institute of Internal Auditors (IIA) (2013) in the form of a three lines of defence model. Core to its design are specific roles that are allocated to promote effective and efficient coordination among management teams, so as to minimise ‘gaps’ in the reporting and control functions. The three lines of defence model provides an easy and effective way to improve the communication between reporting lines and the risk management function, which is the ‘heart’ of the organisational structure. In the model, management control is the first line of defence in risk management, the various risk control and compliance oversight functions implemented by management constitute the second, and independent assurance the third. Each line of defence plays a distinct role in the organisation’s wider governance framework.

External auditors, regulators and other external bodies do not form part of the organisation's structure, yet they play a key role in its whole governance and control structure (IIA 2013). This is particularly the case with SAM being developed as a risk-based framework for South African insurers and insurance groups (FSB 2012). When coordinated effectively, external auditors and regulators can be seen as additional lines of defence, providing independent oversight to the organisation's shareholders, board of directors and senior management (IIA 2013).

Insurance organisations are aware that they will have to strengthen their risk management function, governance and internal control practices in conjunction with regulatory guidance (Ashby 2011). The implementation of Solvency II in Europe and SAM in South Africa enables regulators to move in the direction of more principle-based regulation aimed at reducing the effects of another possible financial crisis. With the imminent implementation of SAM (FSB 2013d), research has not yet established what impact SAM will have on the role of risk management in an insurance company. Therefore, as a first step in obtaining a better understanding of these issues, this study sets out to determine which factors are associated with insurance companies rating themselves as ready for SAM risk management requirements.

Method

Secondary data analysis

A quantitative secondary data analysis approach was followed using data collected by the FSB via the *Pillar II Readiness Survey*, which was primarily conducted to obtain a better understanding of how insurers prepare themselves for the requirements of Pillar II, as well as to determine their self-assessed readiness for the SAM requirements (FSB 2013c).

The survey

The *SAM Pillar II Readiness Survey* was structured as a standardised questionnaire that was available on the FSB's website and easily accessible for all registered insurers participating in the survey. The fact that it was compulsory for all registered South African insurers, guaranteed the return of the questionnaires. The completed survey had to be signed off by senior management, including the preparer, the chief executive officer and a non-executive director of the insurance company (FSB 2013c).

The questionnaire was structured around Pillar II requirements, with particular emphasis on the elements of the envisaged framework, and was designed to obtain insights into the processes the insurer had in place at that time to achieve the SAM objectives and commitments. The questionnaire's objective conforms to the purpose

of the study, and was therefore appropriate to use in assessing insurers' readiness for the SAM requirements.

The questionnaire consisted of seven parts, with Section C focusing on the assessment of risk management – that is the section referred to here. Only the responses to the structured questions were received, with the FSB withholding the responses to semi-structured questions as they contained confidential or sensitive information. Therefore, the study is limited by the information provided by the FSB.

Data

The mandatory nature of the *SAM Pillar II Readiness Survey* resulted in 160 South African insurers participating. For the purpose of this analysis, a total of ten insurance companies (four life insurers and six non-life insurers) were eliminated due to incomplete data having been submitted. The eliminated insurers did not provide a self-assessed readiness rating in Section C.2, and could therefore not be used in the analysis. The survey data received classified six reinsurance responses as “captive insurers”. These results were too small to analyse separately and since no information about the reinsurance activity was provided in the survey results, these could not be allocated to either life or non-life categories. The remaining 144 insurance companies which formed part of the analysis consisted of 68 life insurers and 76 non-life insurers.

The responses to each question in Section C.1 fell into one of three categories: “Yes”, “Partial” or “No”. Answers shown as “Not Applicable” were excluded for the possibility of being misleading. In addition, Section C.2 reflected an insurer's self-assessment rating of current compliance with the SAM requirements as either “Strong”, “Acceptable”, “Needs Improvement” or “Weak”. From these, the first two options were grouped into a category “Strong and Acceptable” and the remainder into “Needs Improvement”, since no insurer assessed itself as “Weak”. For the purpose of the quantitative analysis, “Strong and Acceptable” is classified as “Ready”, while “Needs Improvement” is classified as “Not Ready”.

Data analysis

The purpose of the data analysis was to identify which aspects of the risk management framework tested in Section C of the *SAM Pillar II Readiness Survey* were significant indicators of whether an insurance company rated itself as ready for the risk management requirements. Each aspect of the framework was considered as an indicator of the insurer's self-assessed readiness rating provided in the survey. The data analysis was conducted with the Statistical Package for the Social Sciences (SPSS). Furthermore, the analysis of the individual relationships was tested with Pearson's chi-squared test and Fischer's exact test.

The chi-squared test was used for the majority of responses analysed. According to Jaccard and Becker (1997), Fisher’s exact test and the chi-squared test deliver the same result as N increases. Fisher’s exact test is more appropriate when expected frequencies are small, it is generally applied when 20% of the cells have an expected count less than five, and was used to analyse responses where the recommended minimum expected frequency count was not met.

Discussion of results

The objective of the data analysis was to identify which aspects of the risk management section of the questionnaire were significant indicators of whether insurers rated themselves as ready for the SAM Pillar II risk management requirements. The participants’ responses to the questions in Section C.1 are summarised in Figure 1.

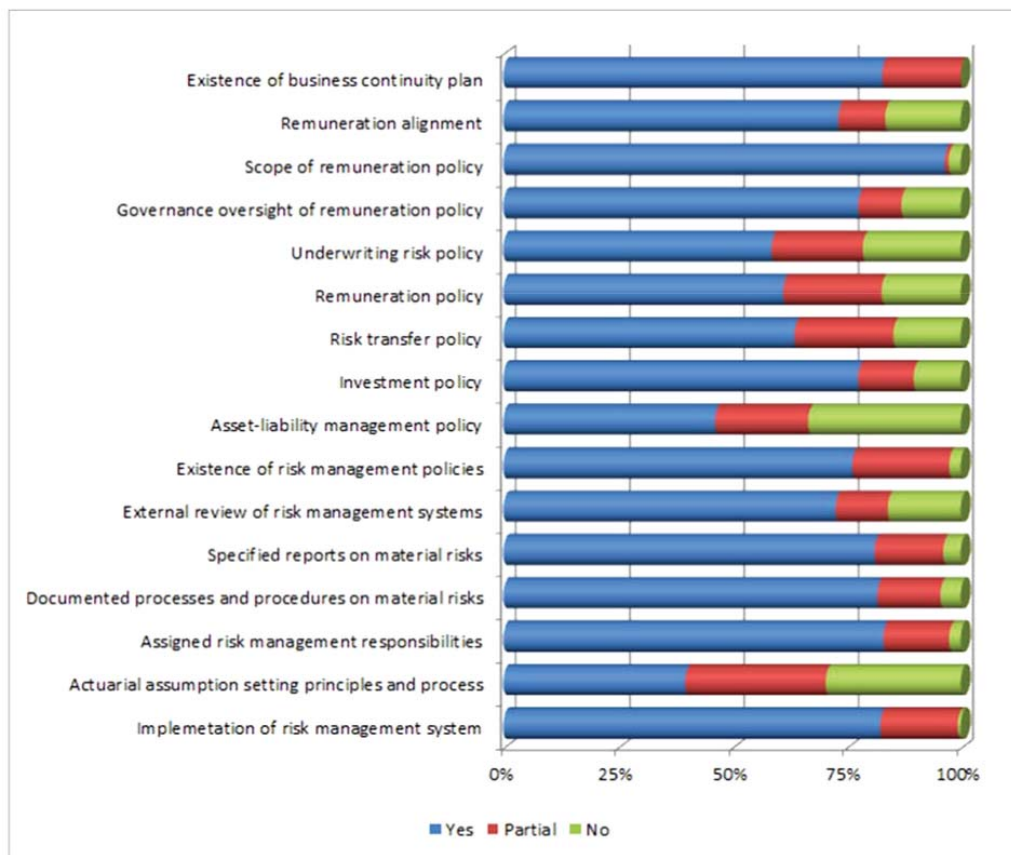


Figure 1: Responses per question

Source: SAM Pillar II Readiness Survey

The insurers' overall readiness for the SAM requirements had to be considered prior to them rating themselves. The results indicated that 55% assessed themselves as ready for the SAM requirements, while 45% assessed themselves as not ready.

The relationship between the responses to each question in the questionnaire (predictors) and the insurers' self-assessed 'current' compliance with the SAM requirements (outcome) was tested using Pearson's chi-squared test and Fischer's exact test (see Table 1).

The results, which are shown in Table 1, can be grouped into four sections: risk management system, risk management policies, remuneration and business continuity, and are discussed next.

Risk management system

According to section 10(3)(a) of Board Notice 158 (FSB 2014), a "risk management system must, at least include a clearly defined and well-documented risk management strategy which takes into account the insurer's overall business strategy and business activities". Therefore, the questions focusing on the risk management system (implementation of risk management system, documentation of the risk management strategy and the external review of the risk management system) will form part of the risk management system section.

The results pertaining to the **implementation of a risk management system** indicated no significant relationship between life insurers having a risk management system in place and assessing themselves as ready to comply with the SAM requirements. According to Section 10(1) of Board Notice 158 (FSB 2014), it is compulsory for life insurers to have an implemented risk management system in place – if not, they will be challenged on this important aspect in preparing for the SAM requirements.

On the other hand, the results indicated that non-life insurers were more likely to assess themselves as ready when they 'currently' have a risk management system in place. This is supported by the study of Atluntas et al. (2011), which found that the majority of participating insurers had in place a risk management strategy that defined their risk management system. Furthermore, Atluntas et al. (2011) established that it was high priority for insurers to improve their risk management capabilities and embed risk management in the entire organisation, in anticipation of Solvency II.

The results of the *Pillar II Survey* revealed no significant relationship between life insurers who **documented the actuarial assumption-setting principles and processes** and assessed themselves as ready to comply with the SAM requirements.

Assessing the impact of Solvency Assessment and Management on risk management in SA

Table 1: Test statistics summary

		Life	Non-life
Implementation of risk management system		$c^2(1) = 1.10,$ $p = 0.294$	$c^2(1) = 10.42,$ $p = 0.001^{**}$
Documentation of risk management strategy	Actuarial assumption setting principles and process	$c^2(2) = 4.96,$ $p = 0.084^*$	$c^2(2) = 7.16,$ $p = 0.028^{**}$
	Assigned risk management responsibilities	Fisher's exact test $p < 0.001^{***}$	$c^2(1) = 17.852,$ $p < 0.001^{***}$
	Documented processes and procedures on material risks	Fisher's exact test $p = 0.010^{**}$	$c^2(1) = 13.29,$ $p < 0.001^{***}$
	Specified reports on material risks	Fisher's exact test $p = 0.005^{**}$	$c^2(1) = 10.93,$ $p = 0.001^{**}$
External review of risk management systems		$c^2(1) = 2.74,$ $p = 0.098^*$	$c^2(1) = 1.83,$ $p = 0.176$
Existence of risk management policies		$c^2(1) = 8.38,$ $p = 0.004^{**}$	$c^2(1) = 1.16,$ $p = 0.282$
Types of risk management policy	ALM policy	$c^2(2) = 9.54,$ $p = 0.008^{**}$	$c^2(1) = 5.65,$ $p = 0.017^{**}$
	Investment policy	$c^2(1) = 5.13,$ $p = 0.024^{**}$	$c^2(1) = 3.13,$ $p = 0.077^*$
	Risk transfer policy	$c^2(2) = 11.03,$ $p = 0.004^{**}$	$c^2(2) = 7.97,$ $p = 0.019^{**}$
	Remuneration policy	$c^2(1) = 0.97,$ $p = 0.325$	$c^2(2) = 0.46,$ $p = 0.793$
	Underwriting risk policy	$c^2(2) = 1.65,$ $p = 0.438$	$c^2(2) = 5.01,$ $p = 0.082^*$
Features of remuneration policy	Governance oversight of remuneration policy	$c^2(1) = 0.11,$ $p = 0.735$	$c^2(1) = 4.00,$ $p = 0.046^{**}$
	Scope of remuneration policy	Fisher's exact test $p = 1.000$	Fisher's exact test $p = 0.224$
	Remuneration alignment	$c^2(1) = 0.64,$ $p = 0.425$	$c^2(1) = 0.71,$ $p = 0.399$
Existence of business continuity plan		Fisher's exact test $p = 0.498$	$c^2(1) = 1.01,$ $p = 0.315$

Source: SPSS output

*** Significant at $p < 0.01$ ** Significant at $p < 0.05$ * Significant at $p < 0.10$

According to Section 20 of the Long-Term Insurance Act (52/1998) (RSA 1998a), it is compulsory for a life insurer to appoint a statutory actuary to perform the actuarial function. In addition, according to Paragraph 23(1) of Board Notice 158 (FSB 2014), an insurer must establish and maintain control functions.

Conversely, the results indicated that non-life insurers were more likely to assess themselves as ready when documented actuarial assumption-setting principles and processes are in place. This result complies with Section 19(A) of the Short-Term Insurance Act (53/1998) (RSA 1998b), which stipulates that a non-life insurer may be directed by the regulator to appoint a statutory actuary to perform the actuarial function. This also complies with the OECD (2011) guidelines on insurer governance which state that “insurers should have an actuary or actuarial function to estimate insurance risks, calculate policy liabilities and determine, or provide an opinion on, the appropriate technical provisions to cover these obligations” and that “the actuary (or actuarial function) should perform sound actuarial valuations”. Because it is required by legislation, life insurers should establish and maintain an actuarial function, to comply with the SAM requirements.

The significant relationship between life and non-life insurers whose risk management strategy **assigns risk management responsibilities across all activities of the company** and who assess themselves as ready to comply with the SAM requirements is supported by the study of Atluntas et al. (2011), who found that insurers do assign risk management responsibilities and allocate risk responsibilities to a specific role or department. Drzik (2005) is also of the opinion that leaders in a successful organisational structure need to appoint the right people and establish demarcated responsibilities for each role and function.

Even though the appropriate risk and control functions exist, it is important to allocate specific roles, and to promote effective and efficient coordination among management teams, so as to minimise ‘gaps’ in the reporting and control functions (IIA 2013). The significant relationship between life and non-life insurers who **documented the processes and procedures on material risks** and assessed themselves as ready to comply with the SAM requirements is supported by the three lines of defence model. The IIA (2013) found that the first line of defence in the model assist operational management in executing risk and control procedures.

The significant relationship between life and non-life insurers **specifying reports to inform senior management and the board of material risks** and assessing themselves as ready to comply with the SAM requirements is supported by the study of Stulz (2008), who found that communication failures appeared to be one of the main contributors of risk management failure in the global financial crisis of 2007–2009. He also found that effective communication is possible through timely reports

informing senior management and the board of material risks. This is supported by the study of Ashby (2011), who grouped the underlying causes of the financial crisis into six Cs, with communication as one of the six.

The results of the analysis indicated no significant relationship between insurers having their **risk management system externally reviewed** and assessing themselves as ready to comply with the SAM requirements. The results differ from the three lines of defence model, with the external review done by the internal audit function (part of the third line of defence). The internal audit function provides independent assurance on the insurer's effectiveness in managing risk (IIA 2013). The results differ from those by Atluntas et al. (2011), who found that the majority of participating insurers actually evaluated their risk management process, which was performed by an independent reviewer such as the internal audit department.

Risk management policies

The results indicated that life insurers were more likely to assess themselves as ready when they had **risk management policies** in place. This result complies with the OECD (2011) guidelines on insurer governance, which require that risk management policies be developed to form part of the risk management framework. The results indicated no significant relationship between the non-life insurers having risk management policies in place and assessing themselves as ready to comply with the SAM requirements. Since it is required in terms of Paragraph 11(1) of Board Notice 158 (FSB 2014) to implement risk management policies, non-life insurers should have such policies in place when assessing their readiness for the SAM requirements. These results are considered in more detail in terms of the types of risk management policies.

The results indicated that all insurers were more likely to assess themselves as ready when they had an explicit **asset-liability management (ALM) policy** in place. ALM is a process whereby insurers coordinate their asset management with their insurance operations. Atluntas *et al.* (2011) found that ALM existed in the majority of participating insurers, and that most of their investment strategies were structured to fit the insurance portfolio. Furthermore, the study found that only a few insurers indicated that ALM was a simultaneous process. Similarly, Lehmann and Hofmann (2010) found that the lessons learnt from the equity market downturn between 2001 and 2003 resulted in a strengthening of the ALM function. This, in turn, prepared the insurance sector to remain resilient during the 2007–2009 financial crisis and contributed, to a certain extent, to the stability of the financial markets (Lehmann & Hofmann 2010).

The results indicated that life insurers were more likely to assess themselves as ready when they had an explicit **investment policy** in place. These results are supported by Atluntas et al. (2011), who found that the majority of insurers had investment limits that were more rigorous – this, to comply with regulatory requirements. The benefit of an investment policy was also highlighted by Kelly et al. (2012), who identify governed investment guidelines within the financial regulations of the Canadian federal regulator as having helped insurers to remain solvent during the 2007–2009 global financial crisis.

On the other hand, the results for non-life insurers indicated no significant relationship between having an explicit investment policy in place and being ready for the SAM requirements. This result differs from that of other studies into the formalising of the investment function and regulatory requirements – see also Paragraph 15(1)(b) of Board Notice 158 (FSB 2014).

The results also indicated that insurers were more likely to assess themselves as ready when they had an explicit **risk transfer policy** in place. Insurers' perception of the importance of this policy aligns with the regulatory requirement in Paragraph 17 of Board Notice 158 (FSB 2014), namely that an insurer's risk management policies must "include reinsurance and other forms of risk transfer policy".

The results revealed no significant relationship between insurers having an explicit **underwriting policy** in place and assessing themselves as ready to comply with the SAM requirements. Atluntas et al. (2011), who aimed to determine how insurance companies manage their underwriting risks, found that the majority did so through risk limits that were annually evaluated and, if necessary, amended.

Remuneration

The results indicated no significant relationship between insurers having a **remuneration policy** in place and assessing themselves as ready to comply with the SAM requirements. This differs from the OECD (2011) guidelines on insurance governance, which require that "a compensation policy should be established as the basis for compensation arrangements". The results are considered further in terms of the features of the remuneration policy.

The results indicated no significant relationship between life insurers having a **governance oversight of remuneration policy** in place and assessing themselves as ready for the SAM requirements. On the other hand, the results showed that non-life insurers were more likely to assess themselves as ready when they had a governance oversight of remuneration policy in place. Paragraph 9(a) of Board Notice 158 (FSB 2014) requires that "a remuneration committee must develop an appropriate

remuneration policy” and paragraph 9(b) of Board Notice 158 (FSB 2014) stipulates that it is the remuneration committee’s responsibility to “monitor the implementation of an insurer’s remuneration and regularly review the suitability of that policy”.

Since oversight of remuneration in accordance with the remuneration policy is among the remuneration committee’s key responsibilities, life insurers should have an established remuneration committee and explicit remuneration policy in place, in readiness for the SAM requirements.

The results indicated no significant relationship between **remuneration policy clearly stating to whom it applied** and insurers assessing themselves as ready to comply with the SAM requirements. These results differ from the findings of Ashby (2011), who notes that one of the weaknesses in the compensation arrangements was the inadequate design thereof.

The results indicated no significant relationship between **remuneration policy aligning employee remuneration** with company risk and insurers assessing themselves as ready to comply with the SAM requirements. The study by Atluntas *et al.* (2011) indicates that the compensation policy forms the link between shareholder wealth and the value contribution of a manager’s decisions to the business. When designed appropriately, the compensation policy aligns shareholder interest in wealth creation and manager interest in financial reward. This is similar to the requirements on the remuneration policy set out in Paragraph 13(2)(a) of Board Notice 158 (FSB 2014), stating that “an insurer’s remuneration policy must not induce excessive or inappropriate risk taking and be consistent with the long-term interests of the insurer and the interest of its policyholders”.

Business continuity

The results indicated no significant relationship between insurers having a **business continuity plan** in place and assessing themselves as ready to comply with the SAM requirements. Business continuity planning is considered good business practice to keep the insurer as a going concern, should an unforeseen and significant event occur that disrupts its daily operations. According to the IIA (2014:2), a “well defined Business Continuity Management plan is like an insurance policy for the organization – it helps to ensure that the organization will continue to be viable and meet stakeholder expectations”. The IIA (2014) further states that business continuity management is the process followed by an organisation to restore critical operational activities following a significant disruption to the business.

Summary of contributions

The study considered the possible impact of regulatory changes, having found that limited research exists regarding the impact a principle risk-based regulatory regime such as Solvency II in Europe and SAM in South Africa has on the role of the risk management function. This study therefore makes a valuable contribution to an under-researched area.

South African insurance companies channel resources during the consultative process in SAM governance structures, to contribute to the development of the related requirements. As a result, there is scarce resource time to consider the international evolution of risk management frameworks, to compare these frameworks with existing frameworks or to implement changes to enhance such frameworks. This analysis of individual relationships identified several aspects of the insurers' existing risk management framework which do not have a significant relationship with insurers assessing themselves as ready for the future SAM risk management requirements.

Three key areas which form part of the identified gap are discussed separately. First, considering the importance of the remuneration policy, the literature shows that the inadequate design of remuneration arrangements is a key contributing factor to the global financial crisis. Therefore, raising insurer awareness of the importance of having a remuneration policy that transparently governs remuneration arrangements could address the issue of inadequate design.

A second area which was also not a significant predictor of self-assessed readiness for SAM requirements was having a business continuity plan in place. Implementing such a plan is considered good business practice and is vital to the risk management framework, because a single event can cause an insurance company to fail. This is in line with recently promulgated legislation on the risk management requirements set out in Board Notice 158 (FSB 2014). Therefore, raising insurer awareness about the importance of implementing a business continuity plan will assist them in remaining going concerns, should unforeseen and significant events occur to disrupt their daily operations.

The third and final aspect of the identified gap relates to non-life insurers having risk management policies in place. A risk management framework can only be embedded if it is documented. Furthermore, the culture of risk management is best changed through explicit guidance, as set out in documented risk management policies. Therefore, raising non-life insurers' awareness of the importance of having a documented risk management framework and policies in place should help to change the culture as well as business practices.

Opportunities for future research

Risk management frameworks for insurers are rapidly evolving, therefore a key area for future research could be to compare the state of future risk management frameworks with perceptions reflected in the *SAM Pillar II Readiness Survey*. Such research can potentially focus on current identified gaps, namely remuneration governance, business continuity planning, and the general level of documentation of the risk management framework and its policies.

Acknowledgments

The authors would like to thank the Financial Services Board for providing access to the anonymised data from the closed-end questions of Section C of the *Pillar II Readiness Survey*.

REFERENCES

- Ashby, S. 2011. 'Risk management and the global banking crisis: Lessons for insurance solvency regulation', *The Geneva Papers*, 36: 330–347.
- Atluntas, M., Berry-Stölzle, T.R. & Hoyt, R.E. 2011. 'Implementation of enterprise risk management: Evidence from the German property-liability insurance industry', *The Geneva Papers*, 36: 414–439.
- Bielski, J. 2013. 'Risk management business strategy: Talking the same language', *The Actuary*, October: 24–25.
- Botha, E. & Makina, D. 2011. 'Financial regulation and supervision: Theory and practice in South Africa', *International Business & Economics Research Journal*, 10(11): 27–36.
- Cantle, N. 2013. 'Enterprise risk management: All in the risk mix', *The Actuary*, December: 22–24.
- Drzik, J. 2005. 'At the crossroads of change: Risk and capital management in the insurance industry', *The Geneva Papers*, 30: 72–87.
- Ellis, H. 1990. 'Government regulation of insurance companies', In Diacon, S. (Ed.), *A Guide to Insurance Management*. London: Macmillan.
- Financial Services Board (FSB), Department of Insurance. 2006. Issues Paper on Financial Condition Reporting – Proposed solvency assessment for short-term insurers. [Online] Available at: <https://www.fsb.co.za/Departments/insurance/archives/Documents/FCR%20Issues%20Paper.pdf>. Accessed: 4 October 2016.
- Financial Services Board, Department of Insurance. 2012. Solvency assessment and management, 2012 update. [Online] Available at: [ftp://ftp.fsb.co.za/public/insurance/SAM/SAM_2012_Update\[1\].pdf](ftp://ftp.fsb.co.za/public/insurance/SAM/SAM_2012_Update[1].pdf). Accessed: 6 June 2013.
- Financial Services Board, Department of Insurance. 2013a. Solvency assessment and management report on the results of the 2nd South African Quantitative Impact Study

- (SA QIS2). [Online] Available at: ftp://ftp.fsb.co.za/public/insurance/SAM/SAQIS2/SAM_SA_QIS2_Report.pdf. Accessed: 31 January 2013.
- Financial Services Board, Department of Insurance. 2013b. *Pillar II Readiness Survey* presentation by Suzette Vogelsang, Head: Insurance Groups Supervision Department SAM workshop, 23 November 2012. [Online] Available at: ftp://ftp.fsb.co.za/public/insurance/SAM/SAM_PILLAR_II_READINESS_SURVEY.pdf. Accessed: 15 March 2013.
- Financial Services Board, Department of Insurance. 2013c. Solvency assessment and management report on the *Pillar II Readiness Survey*. [Online] Available at: <ftp://ftp.fsb.co.za/public/Insurance/SAM/Pillar%20II%20Survey%20Report%20Final.pdf>. Accessed: 1 July 2013.
- Financial Services Board, Department of Insurance. 2013d. Newsletter on update on progress with Solvency Assessment and Management (SAM) project. [Online] Available at: <ftp://ftp.fsb.co.za/public/insurance/SAM/Newsletters/SAM%20Newsletter%2011.pdf>. Accessed: 14 August 2013.
- Financial Services Board, Department of Insurance. 2014. Board Notice no. 158 of 2014. *Government Gazette* (38357): 3–28. [Online] Available at: <http://www.fsb.co.za/Departments/insurance/Documents/Board%20Notice%20158%20of%202014%20-%20Governance%20and%20Risk%20Management%20Framework%20for%20Insurers.pdf>. Accessed: 21 March 2015.
- Financial Stability Board. 2013. FSB reports to the G20 on progress and next steps towards ending “too-big-too-fail”. [Online] Available from: http://www.financialstabilityboard.org/press/pr_130902.pdf. Accessed: 20 September 2013.
- Harrington, S.E. 2009. ‘The financial crisis, systemic risk, and the future of insurance regulation’, *Journal of Risk and Insurance*, 76(4): 785–819.
- Institute of Directors Southern Africa (IoDSA). 2009. King Code of Governance for South Africa. [Online] Available at: http://www.library.up.ac.za/law/docs/ /King_Code_2009.pdf. Accessed: 4 October 2016.
- Institute of Internal Auditors (IIA). 2013. IIA position paper: The three lines of defense in effective risk management and control. [Online] Available at: <https://na.theiia.org/standards-guidance/Public%20Documents/PP%20The%20Three%20Lines%20of%20Defense%20in%20Effective%20Risk%20Management%20and%20Control.pdf>. Accessed: 1 July 2013.
- Institute of Internal Auditors. 2014. IPPF practice guide: Business continuity management. [Online] Available at: <https://global.theiia.org/standards-guidance/Pages/Standards-and-Guidance-IPPF.aspx>. Accessed: 9 April 2015.
- International Association of Insurance Supervisors (IAIS). 2012. Global systemic important insurers: Proposed assessment methodology. [Online] Available at: <http://www.iaisweb.org/>. Accessed: 19 August 2013.
- Jaccard, J. & Becker, M.A. 1997. *Statistics for the Behavioral Sciences*. Pacific Grove, CA: Brooks/Cole.

Assessing the impact of Solvency Assessment and Management on risk management in SA

- Kelly, M., Kleffner, A. & Leadbetter, D. 2012. 'Structure, principles and effectiveness of insurance regulation in the 21st century: Insights from Canada', *The Geneva Papers*, 37: 155–174.
- King, M. 2016. *The End of Alchemy: Money, Banking and the Future of the Global Economy*. London: Little, Brown Book Group.
- Lehmann, A.P. & Hofmann, D.M. 2010. 'Lessons learned from the financial crisis for risk management: Contrasting developments in insurance and banking', *The Geneva Papers*, 35: 63–78.
- National Association of Insurance Commissioners (NAIC). 1994. Raising the Safety Net: Risk Based Capital for Life Insurance Companies [Online] Available at: http://www.naic.org/documents/prod_serv_statistical_rsn_lb.pdf. Accessed: 14 March 2017.
- National Treasury. 2011. A safer financial sector to serve South Africa better. [Online] Available at: <http://www.treasury.gov.za/documents/national%20budget/2011/A%20safer%20financial%20sector%20to%20serve%20South%20Africa%20better.pdf>. Accessed: 20 September 2013.
- National Treasury. 2013. Implementing a twin peaks model of financial regulation in South Africa. [Online] Available at: http://www.treasury.gov.za/comm_media/press/2013/2013020102%20-%20Twin%20Peaks%2001%20Feb%202013.pdf. Accessed: 15 August 2013.
- Organisation for Economic Cooperation and Development (OECD). 2011. Guidelines on insurer governance. [Online] Available at: <http://www.oecd.org/daf/fin/insurance/48071279.pdf>. Accessed: 15 August 2013.
- Republic of South Africa (RSA). 1998a. Long-Term Insurance Act, no. 52 of 1998. [Online] Available at: <http://www.acts.co.za/long-term-insurance-act-1998/index.html>. Accessed: 12 April 2015.
- Republic of South Africa. 1998b. Short-Term Insurance Act, no. 53 of 1998. [Online] Available at: <http://www.acts.co.za/short-term-insurance-act-1998/index.html>. Accessed: 12 April 2015.
- Swiss Re. 2006. Solvency II: An integrated risk approach for European insurers, Sigma no. 4, Zurich, Switzerland. [Online] Available at: http://media.swissre.com/documents/sigma4_2006_en.pdf. Accessed: 15 February 2017.
- Stulz, R.M. 2008. 'Risk management failures: What are they and when do they happen?' *Journal of Applied Corporate Finance*, 20(4): 39–48.