RAWP Risk appetite literature review

1 Introduction

This literature review was performed by the Risk Appetite Working Party during 2015 and 2016. It was written at that time and has not been updated subsequently. It has not gone through the IFOA review process, however it was reviewed by members of the working party for reasonableness.

2 Background and purpose

The purpose of this section of the report is to review this diverse literature with a view to establishing a common understanding of the role and benefits of establishing a risk appetite framework.

The following key areas will be explored:

- The benefits of a Risk Appetite Framework (Section 2)
- Potential risks faced by Life Insurers (Section 3)
- Key Definitions (Section 4)
- Risk Appetite in the context of Risk Governance (Section 5)
- Risk Appetite Framework core principles (Section 6)
- Best practice: Implementing a Risk Appetite Framework (Section 7)
- Potential Pitfalls (Section 8)

Although risk appetite is a relatively new concept, it is already a key part of the enterprise risk management approach for firms in all industry sectors, not just insurance.

In the modern context risk appetite was mentioned first in the article ‘Management of Risk - A Strategic Overview’ published by the British Treasury in 2001. This article recognised that the firm’s willingness to accept risk should drive risk mitigation strategies.

By 2006 the concept of risk appetite was beginning to find its way into insurance and risk literature. In 2007 the International Association of Insurance Supervisors (IAIS) issued its ‘Guidance Paper on Enterprise Risk Management for Capital Adequacy and Solvency Purposes’ which introduced the concept of risk tolerance in a regulatory setting, describing it as:

"An insurer should establish and maintain a risk tolerance statement which sets out its quantitative and qualitative tolerance levels overall and defines tolerance limits for each relevant and material category of risk, taking into account the relationships between these risk categories" (IAIS, 2007, p.12).

However Risk Appetite really gained focus after the global financial crisis. In 2011 the Financial Stability Board (FSB) commented that: “Effective risk appetite frameworks (RAF) that are actionable and measurable by both firms and supervisors are not yet widely seen”. In late 2013 it finalised its ‘Principles for An Effective Risk Appetite Framework’. The Principles aim to enhance the supervision of SIFIs (Systemically Important Financial Institutions) but are also relevant for the supervision of financial institutions and groups more generally, including insurers, securities firms and other non-bank financial institutions. The FSB Principles are high level to allow financial institutions to develop an effective RAF that is institution-specific and reflects its business model and organisation, as well as to enable financial institutions to adapt to the changing economic and regulatory environment in order to manage new types of risk.

3 The benefits of a Risk Appetite Framework

Milliman (2011, p2) provides a good summary of the advantages:

“Putting in place a robust and well understood risk appetite framework is a key enabler of good enterprise risk management. Improved understanding of what generates value, and what simply generates risk, facilitates business decisions that are based on optimising the risk-return profile of the organisation. This improves management’s chances of achieving their strategic objectives in a measured way over time.

Apart from direct benefits, there are also many indirect benefits to be gained by putting in place a risk appetite framework. These may include a lower cost of capital (as ratings agencies or prospective shareholders view risk management initiatives in a positive light) or reduced regulatory scrutiny as the risk profile of the organisation reduces.

While the likelihood of unwelcome external events may be unaffected, the impact of such events may be considerably reduced. Contingency plans will have been put in place in order to protect the interests of policyholders and shareholders alike. During the recent financial crisis, many organisations with out-of-date or insufficient risk appetite frameworks were caught unaware and took time to react to changing and challenging conditions. Others were much better placed to meet the challenges and emerged from the crisis in better shape than some of their competitors.”

The following sections are taken directly from Ayer's (2010) article, which was written regarding variable annuities but which can be applied more generally:

“• Reduce earnings surprises:

Since business can be a material driver of overall company earnings, a risk appetite framework can help reduce earnings surprises to shareholders. Senior management and directors will be surprised by the extent of losses in the crisis and the amount of risk embedded in their products. Building a risk appetite framework can help management understand potential issues with business before issues arise.

• Link management actions to risk limits:

A risk appetite that explicitly links remedial risk management actions to risk tolerances will enable a company to quantify the impact of prospective risk management actions.

• Prospective assessment of product risks and product risk management strategies:

A risk appetite framework for product should involve assessing product exposures and risk mitigation strategies prospectively against risk tolerances. A risk appetite framework will help product writers assess the evolution of product risks. Product risk management strategies will evolve as state variables change in a dynamic environment. Many product writers analyse the efficacy of product risk management strategies retrospectively through back-testing analysis.

• Transparency:

A risk appetite creates transparency in how risks and exposures are managed by linking product performance across a variety of metrics against risk tolerances.”

4 Potential risks faced by Life Insurers

This section summarises the risks typically faced by life insurers (including composites).

It's important to identify and classify all (material) risks faced by a firm in order to develop a cohesive risk management framework. Without this it is not possible to either articulate how much of a particular risk can or should be taken, or to monitor how much is actually being taken. This section focusses on the classification; identification is considered in more detail in section 7.

At the lower level of detail, the risks faced depend on the precise type of products written by a company – for example annuities will introduce longevity risk, term assurances introduce mortality risk and savings products with guarantees introduce a range of market risks. How these risks interact with each other is also important. For example it is common for adverse movements in equities, property and credit spreads to take place at the same time, whilst it is possible for adverse changes in longevity to be offset to some degree by beneficial changes in mortality.

There are different ways of grouping these lower level risks into higher level risk groups or risk categories, a common approach is to separate market risks and operational risks from demographic or insurance type risks as suggested by Creaven et al. (2015, p.15) for the Australian actuarial profession. This grouping is similar to the regulatory classification that will apply to the calculation of capital requirements for firms reporting under the Solvency II Standard Formula, as shown in the table below:

Lower Level Risk (Solvency II Standard Formula Technical Specification p120)	**Risk Category (Solvency II Standard Formula Technical Specification p120)**	**Risk Category (Creaven et al., 2015)**
Non-life premium and reserve risk	Non-Life Underwriting Risk	Insurance Risk
Non-life catastrophe risk		
Non-life lapse risk		
Life mortality risk	Life Underwriting Risk	
Life longevity risk		
Life disability morbidity risk		
Life lapse risk		
Life expense risk		
Life revision risk		
Life catastrophe risk		
Health mortality risk	Health Underwriting Risk	
Health longevity risk		
Health disability morbidity risk		
Health expense risk		
Health revision risk		
Health lapse risk		
Health catastrophe risk		
Interest rate risk	Market Risk	Market Risk
Equity risk		
Property risk		
(credit) Spread risk		
Currency risk		
Concentration risk		
Credit counterparty risk	Counterparty Default Risk	Credit Risk
Operational risk	Operational Risk	Operational Risk
n/a	n/a	Liquidity Risk
n/a	n/a	Strategic Risk

5 Key Definitions

The key concepts of risk limits, risk tolerance and appetite are closely linked and not unique to the life industry. In order to embed risk management into a life office, it is important to understand these and related concepts in a life office context as well as how they relate to risk governance and an entity's risk appetite framework (RAF).

At its simplest, risk is the potential for an event outcome that is different to what was expected - the consequences of uncertainty. The risk appetite of an individual or company could then be seen as a statement of the amount of uncertainty that entity is prepared to accept.

Many different regulatory and advisory bodies have developed definitions relating to risk and risk appetite that vary depending on the target audience and context in which the definitions are used. The varying definitions are arguably causing confusion within many organisations on how to define, express and use the concepts.

This section draws on these to define risk appetite, risk appetite framework and related concepts in a life insurance context.

The definitions set out below are not intended to be prescriptive.

5.1 Risk Appetite

To start with risk appetite in a general rather than insurance context, the UK government's Orange Book (HM Treasury, 2004) states that "risk is unavoidable, and every organisation needs to take action to manage risk in a way which it can justify to a level which is tolerable. The amount of risk which is judged to be tolerable and justifiable is the "risk appetite". The British Standards Institute (2009, p.7) defines risk appetite as the "amount and type of risk that an organization is willing to pursue or retain. Overseas, Rittenberg & Martens (2012, p.1) described risk appetite as "the amount of risk, on a broad level, an organization is willing to accept in pursuit of value. The idea that a firm's appetite for risk is that which helps it achieve its objectives is also consistent with the Institute of Risk Management (IRM) defining risk appetite as "the amount and type of risk that an organisation is willing to take in order to meet their strategic objectives" (IRM, 2011). Together, these give a good base definition of risk appetite.

Moving onto an insurance context, the CRO Forum & North American Risk Council (NARC) (2013) expands on this, stating that a "…risk appetite establishes boundaries for the aggregate level or types of risk a company is willing to assume in order to achieve its business objectives." This draws a line between the objectives of the business and its willingness to assume risk. The CRO Forum also moves away from an 'amount'-based definition, recognizing that risk appetite can be expressed in both quantitative and qualitative measures (as Ashby & Diacon, 2009 also suggested). Implicit in this definition is that a company's risk appetite might also articulate those risks a company might want to avoid. A similar point is made by Standard & Poor's in their definition of risk appetite as a framework "establishing the risks that insurer wishes to acquire, avoid, retain and/or remove." (Standard & Poor's, 2010, p3).

We add that the survey of (largely non-financial) firms reported in the research by Marsh Risk Consulting and Nottingham University Business School (2009) – subsequently MRCNUBS (2009) – found that no one definition of risk appetite had gained consensus.

Creaven et al (2015) consider the constraints that life insurers face when deciding on a risk appetite. They define **Risk Capacity** as "the maximum level of and type of risk an organisation is able to support before breaching constraints determined by regulatory capital and liquidity needs and its obligations to

customers, shareholders and other stakeholders." The risk appetite of a life company would therefore be set in the context of this capacity constraint. For the purposes of this paper, we have synthesized these definitions and those provided by a number of other advisory bodies to:

> **Risk Appetite:** The aggregate level and type of risk that an institution is willing and has the capacity to assume or avoid in order to achieve its strategic objectives.

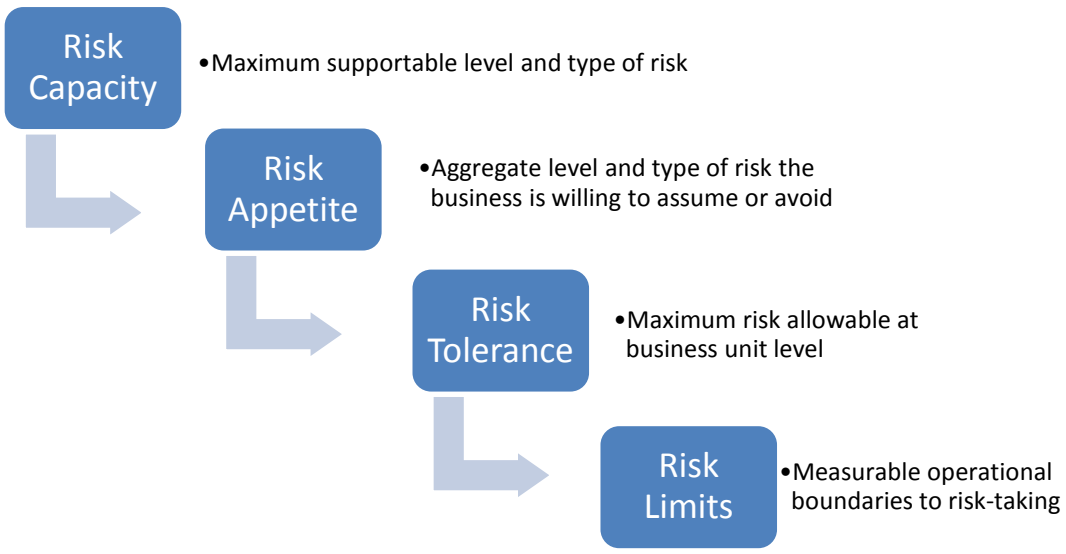
Drawing on the sources above, a company's risk appetite statement (RAS) could then be defined as:

> **Risk Appetite Statement:** The written expression of a company's risk appetite. It will include qualitative statements as well as quantitative measures where possible. It should capture all risks faced by the entity.

As part of an enterprise's RAS, an expression of the maximum risk allowed by the risk appetite will usually be made. This could be quantitative or qualitative and is called the **Risk Tolerance**. Typically, risk tolerances are cascaded down from enterprise level (CRO Forum & NARC, 2013). However, we add that in 2009 MRCNUBS (2009) found that there was only limited cascading from senior management.

In the day-to-day work of business units, these risk tolerances need to be translated into practical boundaries to operations – **Risk Limits** (FSB, 2013). These limits should capture material risks at reasonable operational granularity and should be measurable in order to allow regular monitoring. Effective implementation will constrain risk-taking to within the risk appetite.

The relationship between these concepts is set out below:



5.2 Risk Appetite Framework (RAF)

The CRO Forum & NARC (2013, p.5) outlines a risk toolkit for companies: the "RAF is the framework of policies and processes that establish and monitor adherence to the company's risk appetite… RAF serves as a tool by the Board and senior management to establish boundaries around risk taking to achieve company objectives. As a key element of a company's wider system of governance, RAFs have both strategic and operational dimensions."

The FSB (2013), in its definition of RAF, outlined its components as a risk appetite statement, risk limits, and an outline of the roles and responsibilities of those overseeing the implementation and monitoring of the RAF. It highlighted (p. 2) some key items for consideration in the RAF: "material risks to the financial institution, as well as to the institution's reputation vis-à-vis policyholders, depositors, investors and customers", while also stating (p. 2) that "The RAF aligns with the institution's strategy."

The Solvency II Directive (Directive 2009/138/EC, article 44) sets out a structure similar to this RAF - "insurance … undertakings shall have … effective risk management system comprising strategies, processes and reporting procedures necessary to identify, measure, monitor, manage and report, on a continuous basis the risks on an individual and aggregated level, to which they are or could be exposed, and their interdependencies".

Similarly, CEIOPS Advice (CEIOPS, 2009, pg. 21/81) calls for "A clearly defined and well documented risk management strategy that includes the risk management objectives, key risk management principles, general risk appetite and assignment of risk management responsibilities across all the activities of the undertaking and is consistent with the undertaking's overall business strategy;"

The FSB (2013) notes that establishing/maintaining a company's RAF is an iterative process that should ultimately be fully embedded in the business. It should be part of the process of developing the company's strategy and business plan, but should not include that process.

> **Risk Appetite Framework:** The policies and processes through which Risk Appetite is established, communicated, maintained and adherence to which is monitored.

The RAF is therefore a toolbox for effective risk governance. The section below sets out how the concepts defined above work together in a typical life office Risk Governance structure.

6 Risk Appetite in the context of Risk Governance

It is clear that the board of directors and the company's governance structures should be involved in some way in establishing, maintaining and embedding the RAF in the business.

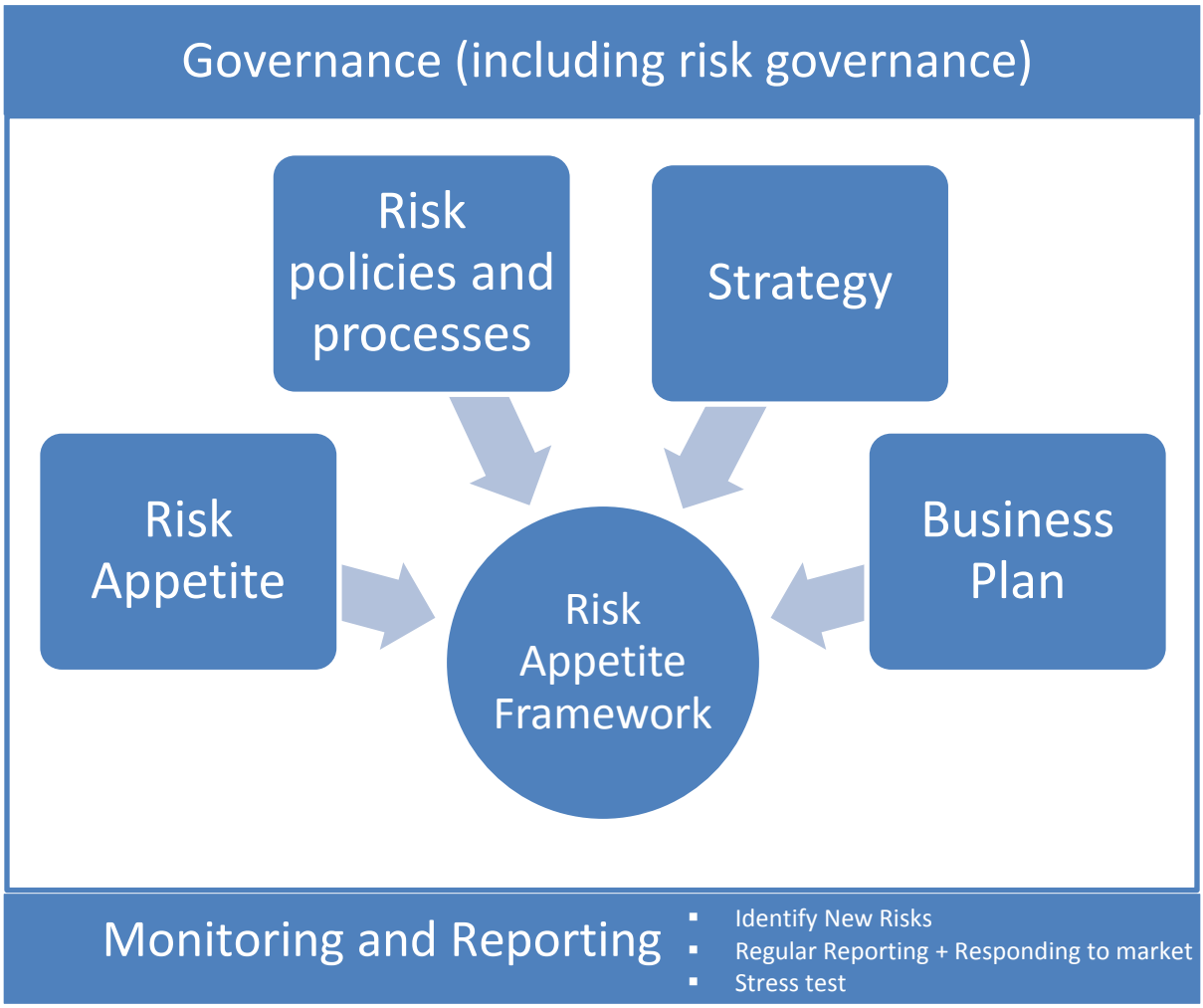
The FSB (2013, p. 7) believes that the board of directors is responsible for establishing the RAF, noting "Boards that approve the risk appetite statement, however, tend to have a higher level of understanding of the financial institution's risk appetite than when it is 'received' or 'noted'." It goes further to set out detailed responsibilities of different levels of governance.

The CRO Forum & NARC (2013) outlines that "the Board should be actively engaged in assessing the effectiveness of the risk appetite framework…" and "Board review of risk appetite should occur annually, or after significant events. The CRO Forum & NARC (2013, p. 12) also outlines the roles of key stakeholders, stating: "In a mature and effective framework, the CRO and the CFO would work together in ensuring that the risk appetite of the firm is consistent with its strategy, business and capital plans, risk

capacity and compensation program and would be equally responsible for aligning risk appetite to supervisory expectations."

In the UK, in the light of the global financial crisis, Walker (2009) recommended that major financial institutions should have a board risk committee, which would advise the board on its overall risk appetite and tolerance. Creaven et al. (2015) go a step further to argue for Board involvement in the development of the RAF.

Governance could therefore be seen as encompassing the RAF as set out below.



As set out earlier, monitoring and reporting are key features of the RAF and check adherence to the business' Risk Appetite. Dillon et al. (2011, p. 6) set out some examples of what reporting could include:

- Compliance with approved risk tolerance limits
- Trends in data over time (such as claims, expenses and sales)
- Compliance with approved risk policies (such as Investment or Liquidity)
- Estimates of future experience
- Ratings of third parties (such as Reinsurers or Investment Counterparties)
- Notification of defaults/arrears.

They go on to say that “it is very informative to perform stress and scenario testing on the risk profile of the organisation in order to gain further insights into the robustness of the risk tolerance limits and on the possible volatility of results. Reverse stress testing (whereby the conditions under which the undertaking would breach its risk appetite or risk tolerance are investigated) would also form part of an effective reporting framework (p. 6)”.

In this way a feedback loop develops, helping the business manage its risk exposures to be within its appetite and allowing the appetite and processes around it to develop along with the business.

7 Risk Appetite Framework core principles

As described by the FSB (2013, p3) “The development and establishment of an effective Risk Appetite Framework (RAF) is an iterative and evolutionary process that requires ongoing dialogue throughout the financial institution to attain buy-in across the organisation. The RAF sets the financial institution’s risk profile and forms part of the process of development and implementation of the institution’s strategy and determination of the risks undertaken in relation to the institution’s risk capacity.”

The following table summarises the risk appetite core principles set by the CRO Forum & NARC (2013), Institute of Risk Management (2011) and the FSB (2013).

Category	**CRO Forum & NARC**	**Institute of Risk Management**	**FSB**
Development	Establishing a comprehensive RAF is complex, iterative process	RA should be developed in the context of an organisation's risk management capability(risk capacity and risk management maturity)	Should be both top-down Board leadership and bottom-up with involvement of management at all levels,
	The diverse interests of parties relevant in achieving company objectives should be considered;	RA needs to take into account differing views at strategic, tactical and operational level	RAF should be a defence against excessive risk-taking
Features	risk appetite framework should identify and quantify risk preferences for material risks;	Should use key risk and control metrics	RAF should cover activities, operations and systems within its risk landscape but are outside its direct control
	Measurements should be used to provide evidence of risk appetite and strategy alignment at the enterprise and business segment levels;	Risk appetite is complex, needs to be measurable, flexible, not a fixed concept	
	For risks that are inappropriate to quantify, qualitative boundaries should be developed and assessed.	Data governance: Data should be accurate and consistent with routine accounting data	
		Propensity to take risk, propensity to exercise control	

Category	CRO Forum & NARC	Institute of Risk Management	FSB
Embedding	The risk appetite framework should be cascaded to business segments to ensure decisions are consistent with enterprise objectives, tolerances and limits;	RA needs to be integrated with the control culture of the organisation	RA should be embedded into the organisation's risk culture;
			Communication of RAF across the company and also with external stakeholders
			The RA statement should be used in the organisation's decision making process
Reviewing	Risk appetites should be reassessed after significant events and reviewed by the Board at least annually.		RAF should be adaptable to changing business and market conditions

8 Best practice: Implementing a Risk Appetite Framework

The purpose of this section is to set out some examples of good practice drawn from the available literature on how to implement an effective risk appetite framework.

8.1 Risk Identification

The first stage in the implementation of a Risk Appetite Framework is to identify all risks that the firm may face as described in Arulampalam et al. (2016, pp 19-22). In addition to financial and insurance risks, firms need to consider strategic, reputational, conduct and group risks. Best practice would now consider emerging risks separately though this is not universal. In common with cascading risk tolerances and limits, there is a choice between “top-down” and “bottom-up” processes (or a mixture of the two). The former would involve senior management identifying the major risk categories, whereas a bottom up approach would start from the identification of lower level risks which are subsequently classified into a hierarchy of risks (for example those set out in section 3).

8.2 Risk Appetite Statements

Having identified and classified the risks, the next stage is to express the firm’s appetite for each risk.

One of the benefits of risk appetite is that it can help to maximise the value of an organisation to its stakeholders. It follows that the better the RAF is aligned to stakeholder interests, the greater the benefits actually derived from implementing the RAF. This point is made by a number of authors; an example of differing stakeholder interests is described by the CRO Forum & NARC (2013, p7):

“For example, shareholders will naturally be concerned with long term earnings growth and efficient deployment of capital, while policyholders and debtholders will naturally be concerned with the company’s ability to satisfy obligations as due, seeking a high level of solvency. Risk appetite can then be linked to the needs of the stakeholders by using risk tolerances consistent with how the company prioritizes the expectations and needs of its stakeholders”.

A helpful list of stakeholders and their respective interests is included in Arulampalam et al. (2016, p18).

It can, however, be challenging to satisfactorily reflect all the different interests of all stakeholders; this is addressed in Ashby and Diacon (2009, p25):

“One key solution to the problem is satisfying multiple stakeholders is to use multiple expressions of risk appetite. As such profit and loss based expressions might be set for shareholders while economic capital and ratings based approaches should find favour with a firm’s regulators, creditors and customers. Qualitative statements of risk appetite may also find favour with certain groups, such as customers, especially where they are focussed on environmental or ethical considerations.”

The key challenge for a company after having established the risk appetite statements is to make this theoretical concept practical, and UK insurers have made significant progress in this. The Financial Services Authority (FSA) (2003) found then that only about 50% of their sample firms had set out risk appetites: usually these were expressed in qualitative terms and not linked to an amount of capital required to support them. In its later survey (FSA, 2006) it noted that most insurers did have risk policies, procedure manuals and risk appetite statements to document their approach to risk management. However, the FSA highlighted the big step between defining and applying risk appetite, particularly for operational risk, with risk appetite often not sufficiently well understood to help decision making.

“How an organization expresses its appetite for risk is a key component of this challenge ... in most cases there is no right way to express an organisation’s appetite for risk and that, depending on nature, scale and complexity of their activities, different organisations are likely to choose different methods of expression. It is also important to recognize that risk appetite is a multi-dimensional concept that should typically be expressed in a variety of different ways within an organisation” Ashby & Diacon (2009, p12).

Risk appetite statements are discussed by Rittenberg & Martens (2012, p.9). They say, "Statements often start out broad and become more precise as they cascade into departments and operations across the organization. Some organizations find that broad statements crafted around terms such as “low,” “medium,” or “high” appetite meet the characteristics of risk appetite statements listed above. Others are more precise, making statements like “We are not comfortable accepting more than a 10% probability that we will incur losses of more than a set dollar amount in pursuit of a specific objective.” Which type of statement is best for a particular entity is a management decision. Some organizations may find terms like “low appetite” clear enough to be communicated and monitored effectively within the organization. However, such statements are vague and can be difficult to communicate and implement. Often, as organizations become more experienced in risk management, their risk appetite statements will become more precise." Ultimately, it is critical that the risk appetite statement is understood by all key stakeholders.

The risk appetite statement provides guidance for a variety of key stakeholders therefore it cannot be captured by any one measure due to the different interests of the various stakeholders. Broadly speaking, the risk appetite statements can be grouped into two main categories:

1. Qualitative risk appetite statements
2. Quantitative risk appetite statements

Qualitative risk appetite statements are discussed by Ashby & Diacon (2009). They can be very useful because they can help to fill in the gaps of an organisation’s appetite for risk, by expressing certain attitudes or philosophies (e.g. an organisation’s wish to avoid regulatory sanction and or reputation damage) that cannot be articulated numerically.

Quantitative risk measures are also very important because by using them the risk appetite becomes tangible and actionable as they can be linked to the company's targeted financial performance indicators.

The following table summarises the qualitative and quantitative measures and the advantages of using them, based on Ashby & Diacon (2009):

Measure	Description	Advantages of method
Qualitative		
Risk preferences	Clear statement of risks that the organisation is not willing to take	Often easy to understand and cascade. Can integrate in a firm's policies ensuring key risk appetite messages are regularly reinforced across the whole organization
Credit ratings	Expression of the lowest desired financial strength rating or debt rating.	Can provide useful information for rating agencies, potential investors
Franchise value	How much can be decreased due to adverse publicity, poor reputation or regulatory intervention.	Can be applied to areas of risk that are difficult to quantify effectively (such as certain operational and reputation risks)
Quantitative		
Setting limits, targets for each risk	Translates enterprise risk tolerance and risk appetite for each risk category into risk-monitoring measures. The consistency between risk limit and enterprise risk tolerance helps the company realize its risk objective and maximize risk-adjusted return.	Simple and widely used, and can easily be cascaded throughout a company.
Value based measures	to set limits around the volatility of its share price or perhaps even to set a target share price. The	Encourages company to focus on Investments and projects likely to a risk profile that will meet these targets/limits.
Economic capital measures	Balance sheet based measures of risk appetite	Easily understood by Boards and management and relatively easy to cascade to all levels. Typically favoured by rating agencies and regulators.
Setting a boundary on probability	Places an organisation's risks on a probability and impact matrix and then draws a line to demarcate the boundary between those risks that are deemed to be 'acceptable' and those that are not.	Simple to apply across an organisation and relatively easy to communicate.

A more detailed discussion of the quantitative measures can be found in Ashby and Diacon.

Both quantitative and qualitative approaches are used in practice (MRCNUBS, 2009). This survey, of over 800 companies across all industry sectors, found that quantitative techniques tended to be applied to operational and financial risks whereas a more qualitative approach was often applied to strategic, compliance and reputation exposures. These findings were consistent with a survey of insurance companies carried out by CRO Forum & NARC in 2014. Other findings from the MRCNUBS survey included:

- whilst more than one technique was often used to develop the risk appetite statement, top-down techniques were favoured with bottom-up approaches being relatively rare (17%).
- common challenges included developing management understanding and interest, practical difficulties and the ability to demonstrate the value added by a risk appetite statement. It could be speculated that the latter challenge may be a driver of the former.

Characteristics of Effective Risk Appetite Statements

It's critical that a risk appetite statement is clear and can be implemented across an organisation. The qualities of a good risk appetite statement are summarised by the CRO Forum & NARC (2013, p8) as follows:

- Comprehensive: it should have the appropriate breadth, reflecting coverage of risk landscape, and depth, meaning granularity within company structure;
- Concrete and Practical: all material risks should be identified and quantified via risk tolerances. For risks inappropriate to quantify, qualitative boundaries should be established;
- Consistent and Coherent: tolerances throughout the company need to form a balanced system of relevant boundaries, avoiding excessive allowance in some areas and excessive restrictions in others, and should align with the business model of the company."

Risk appetite statements in practice

How the statements appear in firms' published report and accounts was investigated in the context of UK general insurers by Orros et al. (2011). They envisaged that the risk appetite would depend on the company characteristics, such as the size and ownership of the company, and whether it was carrying on short- or long-tail business. The insurers' risk disclosures sometimes, though not always, referred to risk appetite, and some described how it was defined or how it was determined, and some provided relevant quantitative information.

8.3 Maintaining and Communicating RAF

It is important that developing and implementing a RAF is not just a one-off exercise; the RAF must be integrated or embedded into companies' culture and processes. Companies and the industries in which they operate and the regulations that apply change as time passes so it is also critical that the RAF is kept up-to-date. This point is made by a number of authors including CRO Forum & NARC (2013, pp15-16), FSB (2009, p2) and HM Treasury (2004, p10).

One way of maintaining the RAF is for it to be reviewed as part of the regular business planning cycle. The RAF should also be reviewed if there are material changes to the company's strategy or the markets in which it operates. Any changes proposed to the RAF should be subject to Board review and / or approval.

A RAF cannot be embedded into culture or processes if it cannot be easily communicated throughout the company. Communication of RAF and its components is therefore another common theme throughout the

literature as expressed by FSB (2009, p5), CRO Forum & NARC (2013, pp12-13), the FSA (2006, p14) and Creaven et al. (2015, p20).

“A common question when embedding risk appetite is, which comes first, risk appetite or strategy? setting business strategy and risk appetite, including allocation of resources, is an iterative one; risk appetite informs strategy and strategic choices shape risk appetite and inform allocation of resources. Essentially strategic goals need to be set within the boundaries of the overall risk appetite, yet in practice, risks are only apparent after business strategy has been identified”. CRO Forum & NARC (2013, p14).

Creaven et al. (2015, pp52-53) propose a 3-stage approach:

1. Early stages – Controlling Risk
2. More advanced stages – Supporting decision making
3. Advanced stages – Optimising the capital positions

HM Treasury (2004, p10) provides the following guidance: “Every organisation should have a risk management strategy, designed to achieve the principles set out in this publication. The application of that strategy should be embedded into the organisation’s business systems, including strategy and policy setting processes, to ensure that risk management is an intrinsic part of the way business is conducted.”

8.4 Cascading RAF

The importance of cascading is highlighted by CRO Forum & NARC (2013, p15): “Leaving individual businesses to decide their business plans, where they seek to optimize locally without any view of how this might impact the overall position, is unlikely to end in optimal solutions.”

“Cascading risk tolerances down through the company ensures that the business operations are consistent with the strategic direction of the company. The articulation of risk appetite from the Board to business units can be achieved through the development of risk limits.

Approaches to developing risk limits vary, due to different basis for the measurement of risk exposures driven potentially by different regulatory regimes and different methodologies and infrastructures employed, as well as different data availability… the RAF should be broad enough to allow for the cascading of economic measures of risk as well as other measures of risk derived using other approaches” CRO Forum & NARC 2013, p17).

The 2014 CRO Forum & NARC survey found that over half of companies surveyed employed a “strategic controller” governance model under which most decisions were delegated to business units / legal entities but some specific areas of control were retained at a Group level.

The RAF should enable risk capacity, risk appetite, risk limits, and risk profile to be considered for business lines and legal entities as relevant, and within the group context, taking also into account relationships across legal entities” (FSB, 2009, p4).

Creaven et al. (2015, p14) provides an example of the benefits of cascading:

“A call centre operator with the authority (and training) to exercise discretion to spend money to deal with customer complaints can generate much goodwill and return custom for a firm. The risk / return trade-off that call centre operators choose is a microcosm of the decisions made by the board ... The further down the organisation can cascade appropriate risk-taking the greater the potential gain – think about the call centre operator. However, risk-taking implies the exercise of discretion and there must be limits (consistent with the Board-approved appetite) on that discretion.”

There are however some challenges to be overcome in cascading such as those described by CRO Forum & NARC (2013, p18) for example:

- Business units' strategies vary
- The degree of local decision-making versus Group level decision-making varies from firm to firm
- Local management's performance will be impacted by decisions taken elsewhere in the Group

CRO Forum & NARC (2013, p18) goes on to propose the following method of addressing this issue:

"Top down consistency for each individual metric should be sought down to the level of granularity commensurate with the level at which decisions are being made. Where the links at the lowest levels are indirect, it is important that harmony exists between these levels and the overarching risk tolerances; a bottom up reconciliation process can be used to ensure this. In addition, where consistency across metrics is not fully established, it should at least be possible to assess the impact that the variation of one metric will potentially have on the others. However, companies should acknowledge that there might be areas where they choose not to optimize risk because of the cost and complexity of maintaining a link between aggregate and granular limits."

Creaven et al.(2015, p47) states that "once the firm-wide Risk Appetite has been determined, the aggregate Risk Appetite has to be allocated to the firm's business lines, legal entities, and down to all relevant levels, which need to align with the firm's strategic and business plans. These allocations of Risk Appetite can be assessed against the organisation's actual Risk Profile assessed at de-aggregated levels, as well as at the aggregated level, to provide further insight into actual and desired risk-taking levels within the organisation."

The "top-down" versus "bottom-up" debate is discussed in Orros et al. (2011, p21). Although the focus of that paper is General Insurance, the material is more general in nature and is equally applicable to Life Insurance (and indeed other industry sectors). In summary the advantages of the "top-down" approach revolve around the involvement of the Board in the risk appetite framework. The advantages of the "bottom-up" approach include the use of input from local risk experts, and that management buy-in at all levels may be easier to achieve as they will have been involved in the process.

Nevertheless there may be tensions between the two approaches, so the authors propose that "The risk decision philosophy should be '"we all are risk managers here", rather than "we need to ensure that our departmental silo meets its business unit performance targets"."

Current practices relating to cascading were an area investigated by the 2014 CRO Forum & NARC survey. The responses indicated that:

- cascading is an area where the vast majority of companies had identified improvements were still needed
- a variety of approaches to cascading were employed

8.5 Monitoring and Reporting

A RAF cannot achieve its aims without monitoring and if actions are not taken when limits are breached; unsurprisingly this is another common theme throughout the literature. The key requirements for monitoring and reporting include:

- Risk takers must constrain their actions within the agreed risk limits

- All risks should have an owner who has the authority to ensure actions are taken where necessary to remain within the agreed appetite
  Reports should be clear and easy to understand, conveying all the information necessary for the Board or other Committee to understand the position, and highlighting when action is needed

"Many companies also employ a framework of "soft limits". Distinguishing between hard and soft limits is useful in determining when discussions around revising risk limits are warranted. In contrast to hard limits, soft limits relate to an exposure level that should trigger discussions, but for which remedial action is not yet necessary unless otherwise decided upon" CRO Forum & NARC, 2013, p21).

8.6 Other considerations:

The recent introduction of Solvency II is likely to lead to ongoing RAF developments, with considerations such as the following, as anticipated in Aon Benfield (2012):

- Making the link optimising return on capital, managing the volatility of results and delivering within risk appetite is a good way to make senior management excited about using the results of internal models in strategic decision making.
- Accurate and complete risk information as well as a good capital model and insurance mitigation programme, can really add value!
- Proactively seeking early engagement with the regulator is one of the best ways to ensure there is a good mutual understanding of how the firm is working to meet the IMAP requirement. This provides the opportunity to understand any areas of regulatory concern as early in the process as possible, allowing plenty of time for remedial action to be taken if necessary.
- Solvency II sets standard and governance requirement which can be leveraged to enhance the quality of decision making and it had improved the use of internal model.
- The optimal capital strategy will help the firm to achieve its business goals while achieving an optimal risk adjusted return and attractive return on equity within the constraints of Solvency II.

9 Potential pitfalls

As with any concept or technique, there are limitations and dangers. In the case of risk appetite, there is also the possibility that "… an inappropriately defined or expressed risk appetite can do more harm to an organisation than no consideration of the concept at all" (Ashby and Diacon, 2009, p35). The authors then go on to discuss several examples they observed in the literature, which can be summarised as falling in six areas:

1. A difficulty in quantifying some of the metrics – it's often difficult to measure risk appetite or risk exposures in practice, and there is a danger inappropriate targets are set. For example it could be possible that an organisation would still be operating within risk appetite despite having made significant losses which could easily cause damage to its reputation

2. Vague expressions of risk appetite and / or risk limits – the other side to the above coin. In this situation it may not be clear how the risk appetite should be interpreted or monitored.

3. A failure to cascade or roll out the RAF – if not sufficiently embedded in the culture of the company, there is a danger individual business units or legal entities take decisions that are not in the interest of the company as a whole.

4. Over reliance on key risk indicators (KRIs) – there's a real danger of creating large numbers of KRIs which can make it difficult to see the wood from the trees, focussing on small known exposures and potentially missing new, much more material, risks.

5. Unnecessarily constraining risk-taking – one such danger is in the cascade of risk limits down through an organisation. If a company wishes to ensure that it is not possible to mechanically take a combination of individual decisions that would exceed the overall company appetite it will typically mean that less risk overall is likely to be taken (and hence an expectation of less return). Another danger is in expressing maximum loss limits without an associated probability

6. Failure to consider all stakeholders – the better the RAF is aligned to stakeholder interests, the greater the benefits actually derived from implementing the RAF. If the RAF is not aligned then it won't derive maximum benefits, and in the extreme, can lead to value destroying actions such as those observed during the 2008 financial crisis.

There are also practical challenges, such as those that relate to the limitations of the risk measurement models:

"Turnaround can be measured in months because of model size and complexity. So risk information is only available significantly in arrears, making the information substantially less useful for management decision making" (Towers Watson, 2014, p4).

"Model complexity has grown enormously in recent years. Companies are realising that they may need a number of variants of models to answer different financial questions, plus that they need the right software with the flexibility to respond to the various modelling questions facing firms today" (Aon Benfield, 2012, p23).

Despite the complexity and size of modern risk measurement models, they are still simplified models of reality and often are not able to accurately model the more complex features such as how the different risks are interlinked. This issue is discussed in Allan et al. (2011) who advocate the use of systems theory to better reflect the numerous complex interactions; in particular they propose Bayesian networks to model these interactions dynamically.

10 Summary

This report summarizes the wide body of available literature on the topic of Risk Appetite.

The initial section of the report describes how Risk Appetite has evolved through the years and how it has become the core consideration in any enterprise risk management approach.

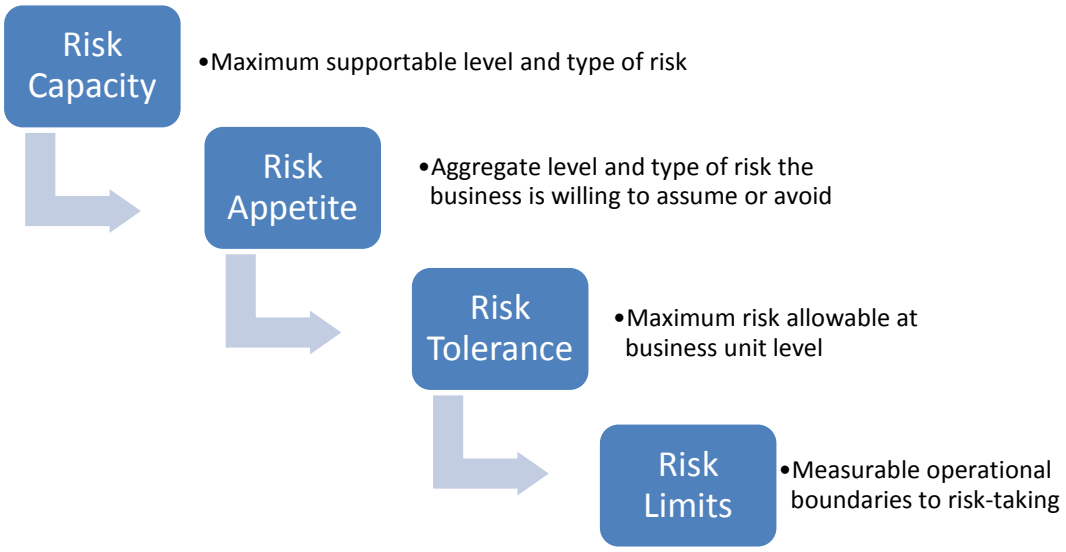
Section 2 details some of the benefits of implementing an effective Risk Appetite Framework which could include an increased probability of achieving the company's objectives, reduced impact from adverse events or a lower cost of capital.

There is a variety of risks Life Insurance companies are exposed to and it is necessary to identify and classify all risks in order to develop an effective Risk Management Framework. Risks can be categorised in different ways, and in section 3 we mention the categorisation of different types of risks as suggested by Creaven et al (2015) in an Australian context and regulatory classification that will apply to the calculation of capital requirements for firms reporting under the Solvency II Standard Formula.

Risk Appetite and Risk Appetite framework have more than one definition, as can be seen from section 4 on Key Definitions. For example, the UK government's Orange Book publication (HM Treasury, 2004) defines it differently from CRO Forum & NARC (2013). This report proposes the following definitions:

Risk Appetite Framework: The policies and processes through which Risk Appetite is established, communicated, maintained and adherence to which is monitored.

Risk Appetite Statement: The written expression of a company's risk appetite. It will include qualitative statements as well as quantitative measures where possible. It should capture all risks faced by the entity.



Section 5 sets out possible ways in which the Board of directors and other governance fora can be involved in establishing, maintaining and embedding the RAF in the business. While there are different views on the optimal degree of involvement, there was consensus that there should be some involvement.

Risk Appetite core principles set by the CRO Forum, Institute of Risk Management and the FSB are summarised in section 6. The development and establishment of an effective Risk Appetite Framework (RAF) is an iterative and evolutionary process that requires ongoing dialogue throughout the financial institution to attain buy-in across the organisation.

There are various factors which need to be considered when establishing a Risk Appetite Framework which are set out in section 7. These include considering all stakeholders' interests, the organisation's risk tolerance and the roles and responsibilities of different function holders in the organisation. Broadly, RA statements can be classified into two main categories: Qualitative and Quantitative. Both are very important as the former can help to fill in the gaps of an organisation's appetite for risk and the latter enables risk appetite become tangible and actionable via linking to the company's targeted financial

performance indicators. Maintaining an effective RAF can be a very difficult task. For a RAF to be effective, communicating the RAF on regular basis, integrating the RAF with business strategy, reviewing, cascading and monitoring are all important.

The last section of the report describes various pitfalls in the implementing RAF such as moving from theory to reality, managing large and complex models, attempting to quantify the unquantifiable and extensively relying on quantitative measures of Risk Appetite. As is generally the case with any work relying on the use of models, they are often are not able to accurately model the more complex features such as how the different risks are interlinked. This issue is discussed in Allan et al. (2011) who advocate the use of systems theory to better reflect the numerous complex interactions; in particular they propose Bayesian networks to model these interactions dynamically.

After studying most of the available literature on Risk Appetite, it can be concluded that with a couple of exceptions there is relatively little Life Insurance specific literature; hence this working party looks to develop a life insurance specific paper.

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