Risk Appetite Working Party (GIRO)

Risk Appetite for a General Insurance Undertaking

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8th August 2011

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Executive Summary

A well articulated and effective risk appetite lies at the heart of effective Enterprise Risk Management. This paper places a deliberate emphasis on risk appetite in the context of insurance risk management where there is limited published material. Many of the areas discussed are also relevant to operational risk but this is not specifically considered in this paper.

General insurers operate in a market characterised by a high transaction volumes - sales, customer service and claim incidents. Underlying this are longer term trends in the external business environment, emerging risks and opportunities accompanied by discontinuities and step changes. Risk appetite can engender increased rigour, internal consistency and constructive debate about how the insurer pursues its business objectives and evaluates strategic alternatives. Clear, meaningful definitions of risk appetite need to inform multi-dimensional, realistic policies and statements of risk appetite. There are various approaches to exploring and developing these dimensions. Forms of risk mapping can be used as both an exploratory tool and at implementation stage.

Many of the examples of risk articulation or statements discussed in this paper tend to emphasise quantitative dimensions such as earnings, capital and liquidity. However, the dimensions of Business Model or Enterprise Risk Focus may also require clarification of the risk appetite in respect of qualitative dimensions. For example, reputational impacts indicated by customer and distribution channel surveys, complaints and ombudsman cases. Potential linkages between qualitative and quantitative dimensions need to be articulated and defined to assist in informing the interpretation of emerging risks and management decision making.

Attempts at standard definitions for commonly used terminology are unlikely to be successful. However some important concepts are explained together with their relevance to risk management and decision making. Of particular importance is distinguishing between undesirable risk (to be avoided at all costs) and desirable risk (subject to sufficient upside criteria).

Different drivers of risk aversion are suggested: capital, earnings, market size and risk confidence. Understanding these is important to arrive at a complete view of risk appetite. The results from Internal Models can have an important influence in risk management decisions but there are a number of important limitations which are highlighted by looking at these risk drivers.

Risk appetite can be articulated in many different forms and its impact within an organisation may vary. It is not possible to be prescriptive over best practice but a number of criteria are proposed, grouped into two themes:

1. Articulation: six theoretical considerations covering scope, coherence and usefulness
2. Effectiveness: four practical considerations covering the implementation within the organisation

Examples of how risk appetite is articulated in practice are discussed. In addition consideration is given to the specific challenges an enterprise is likely to face based on its organisational and risk portfolio characteristics.

Finally the issue of external risk appetite disclosure is reviewed.

There are opportunities to develop further some of the topics covered in this paper. In addition a recognised omission is any detailed consideration of the challenges of risk appetite elicitation. The members of the Working Party would welcome suggestions as to how the work presented here can be enhanced and expanded.

A. Introduction

This paper has been prepared by the Risk Appetite Working Party as an introduction to the subject for actuaries who are involved with general insurance undertakings. Although risk appetite is not a new subject for risk management practitioners across a wide range of industries, this is perhaps the first time that a such a paper has been prepared that is focused on the needs of general insurance undertakings and the actuaries who are involved with such undertakings.

The Risk Appetite Working Party was established in October 2010 at the General Insurance Conference and Convention 2010. It is intended to be an on-going working party that will lead risk appetite research for actuaries involved with general insurance undertakings. It is understood that similar working parties have been established for actuaries involved with other lines of business, such as life assurance.

A1. Role and importance of risk appetite

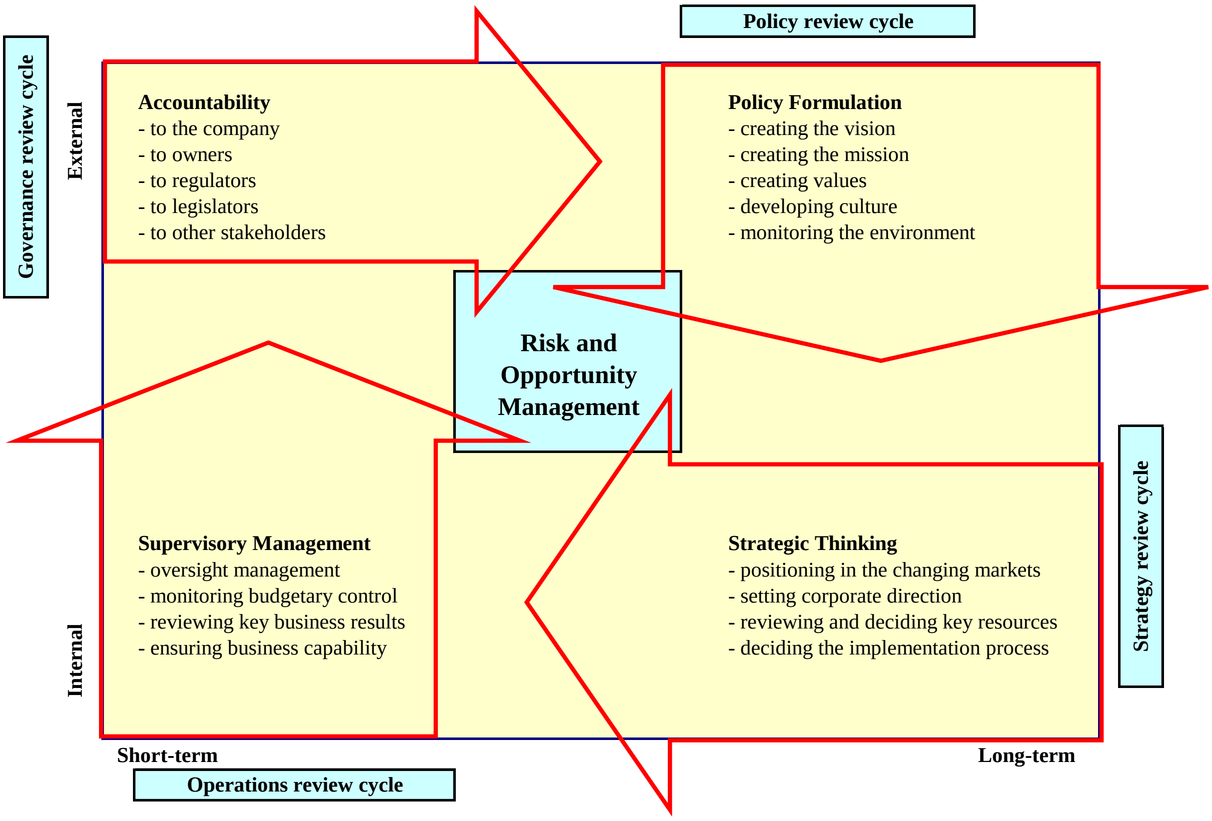
Risk appetite is at the heart of an effective risk management policy for a general insurance undertaking. The potential role and benefits of setting (and acting upon) risk appetite are outlined below.

Risk Appetite Role	Risk Appetite Benefits
Support strategy setting	Enhanced performance by facilitating achievement of enterprise business objectives.
	Improved strategic vision and business planning by identifying which risks to take and which to avoid
	Achieve a balanced risk profile, thereby increasing the enterprise capacity to take on risk where this is value adding
Support risk management	Better allocation of risk management resources by targetting them on areas of risk over-exposure or risk under-exposure.
	Improved clarity regarding the benefits of risk management expenditure, leading to better management 'buy in' and commitment
	Foster a risk aware culture, where "we are all risk managers" here
Set boundaries for risk taking	Enhanced enterprise governance, leading to happier stakeholders and/or investors, regulators and credit rating agencies
	Decision makers are motivated to make better and more consistent risk decisions
	Support quantitative risk modelling, leading to enable risks and opportunities to be positioned above or below the risk boundary line.
Support stakeholder value optimisation	Improved management of stakeholder expectations
	Enhanced enterprise performance
	Value of the enterprise increases

Risk appetite has previously been discussed within the context of ERM (enterprise risk management) and was considered as part of a recent sessional meetings paper of the Institute and Faculty of Actuaries on "Enterprise Risk Management from the General Insurance Actuarial Perspective" [1]. This paper introduced the risk appetite concept within general insurance, based on a risk appetite definition provided by Chapman [2]:

"Risk appetite is the degree of risk, on a broad-based level, that a business is willing to accept in pursuit of its objectives. Management considers the business's risk appetite first in evaluating strategic alternatives, then in setting boundaries for downside risk".

Chapman[2] describes the process of ERM, which is essentially one of risk and opportunity management, as impinging 'on the four main functions of Boards; policy formulation, strategic thinking, supervisory management and accountability and their respective control cycles'.



It follows that the articulation of risk appetite should provide some context for an organisation's risk and capital management policy and should incorporate both quantitative and qualitative risk metrics. The level of risk appetite is governed by the risk limits that are aligned to their strategic business objectives and capital management policy. Risk appetite level is just one of the components of an ERM framework and its implementation.

What is risk appetite?

There is no single, universally accepted definition of risk appetite or prescribed path to develop a concept of risk appetite and embed it within an enterprise. However, clearly articulated risk appetite is a cornerstone of the enterprise wide risk management framework. We acknowledge that a diversity of internal views will exist within a general insurance undertaking on risk appetite and the associated risk management processes. Insurers must try to find unity in diversity to meet their obligations under the Solvency II regime for a clear risk appetite statement to be agreed by the Board and senior management, built into the governance processes and then communicated throughout the general insurance undertaking.

An academic view of "what is risk appetite?" and how this differs from 'risk tolerance' and 'risk threshold' was the subject of an article in Risk Management, which is published by the Joint Risk Management Section of the Casualty Actuarial Society, the Society of Actuaries and the Canadian Institute of Actuaries. According to D'Arcy[3], 'risk appetite' is a relatively new concept within ERM. Although sometimes discussed in the context of 'risk tolerance' and/or 'risk threshold' (according to Chapman[2]), 'risk appetite' is a much more complex concept. Whereas 'risk tolerance' and 'risk threshold' imply that risk has only a negative or painful aspect and has financial limits, 'risk appetite' recognises that risk includes upside risks as well as downside risks and so risk appetite decisions involve more than trying to quantify downside risk potential.

According to D'Arcy[3], risk appetite considers the entire probability density function of a new business plan (e.g. a product, service, pricing plan, reinsurance treaty, or an innovation), as well as its effect on the shape of the probability density function of the enterprise.

According to D'Arcy[3], "*There is no single value that can be used to determine a firm's risk appetite. If it were, then stochastic dominance could be used to decide which risks to accept and which to avoid. Risk appetite must consider the income statement for measuring the effect of a risk on earnings, the balance sheet for determining the impact of risk on key financial ratios, and even off balance sheet items that could affect an organisation's financial position. Thus, risk appetite has multiple dimensions that are based on multiple data sets of financial data.*"

Link to business decision making

For some risk appetite is focussed solely on risk management and governance. However within a more integrated ERM framework there is an opportunity to offer greater practical decision making guidance to assist business development, for example:

- Risk selection and pricing
- Portfolio development and management
- Reinsurance purchasing, both strategic and tactical
- Investment decision criteria

External perspective: investors, regulators and rating agencies

There will inevitably be a diversity of internal views within a general insurance undertaking on risk appetite and the associated risk management processes. However developments in risk based regulation and the ERM criteria outlined by rating agencies emphasise the importance of a clear risk appetite statement to be agreed by the Board and senior management, built into the governance processes and then communicated throughout the general insurance undertaking.

From an external perspective, the risk appetite framework is set by the public domain statements on enterprise risk management that are published by the company. Additional non-public information will be made available to regulators and rating agencies where appropriate but further public disclosure might be expected as part of Pillar 3 of Solvency II.

A rich source of material is generally the annual report and accounts of the company. Where the general insurance undertaking is part of a broader financial services group, the risk appetite and its enterprise risk management context is set at the parent company level.

Lloyd's have issued a set of guidance notes to assist managing agents in their preparation to meet solvency II requirements. Lloyd's existing risk management standards require all managing agents to have in place a clearly defined risk appetite framework, taking all risk types into account. An extract of the Lloyd's detailed guidance on risk appetite is Appendix 2.

A2. Scope of paper and suggestions for future attention

The paper seeks to build on the voluminous material already available on this subject to develop both **technical thinking** and **practical guidance** specifically for general insurers and reinsurers. A number of areas are covered:

- **Risk appetite within enterprise risk management** (section B). A well articulated and effective risk appetite lies at the heart of effective Enterprise Risk Management. We discuss risk appetite and risk tolerance concepts within the broader scope of an enterprise risk management framework. We consider both upside and downside risk potential and how these concepts and issues might be communicated to the Board of Directors and then cascaded throughout the company.
- **Risk appetite concepts** (section C). Debating definitions of specific risk appetite related terminology can become very academic and have questionable practical benefit. There are however some important concepts to understand which can help the communication and understanding of the subject.
- **Drivers of risk aversion** (section D). Understanding the ways in which risk may be considered undesirable provides an important basis for any wider discussion on risk appetite. The extent to which each risk driver can be measured in an Internal Model is also discussed.
- **Risk appetite articulation and effectiveness** (section E). An exploration of a range of criteria that can be used to assess an organisation's risk appetite statement and the way it is used. There is no single best way to articulate risk appetite but it useful to explore some of the issues and how they might be handled.
- **Risk appetite characteristics** (section F). The specific challenges vary from company to company. The issues and implications are considered for a range of different organisational characteristics.
- **Risk appetite disclosure** (section G). Examples are given showing the scope and detail of disclosure made by 20 (re)insurers.

All of the above areas would benefit from further debate and refinement by the industry to help establish non prescriptive but clear best practice guidelines.

An area which has not been considered in great detail by the Working Party is that of risk appetite elicitation. How does an organisation get views on risk appetite and reach a consensus? There are a number of observations:

- Many risk appetite statements articulate existing risk retention levels because to do otherwise is difficult. The rationale justifying such levels is often incomplete which hampers discussions on the merits of changes.
- Opinions across individuals and stakeholders will often vary due to differing personalities and perspective.
- However well risk appetite views are debated and articulated, the key test is the occurrence of actual adverse scenarios. Often only then are failings in logic and consensus apparent.

There are a number of approaches and techniques which may be used but most have limitations and are not well suited to the time constraints of a board and its members. There are a number of interesting case studies but further work is required to move towards establishing robust guidelines on best practice.

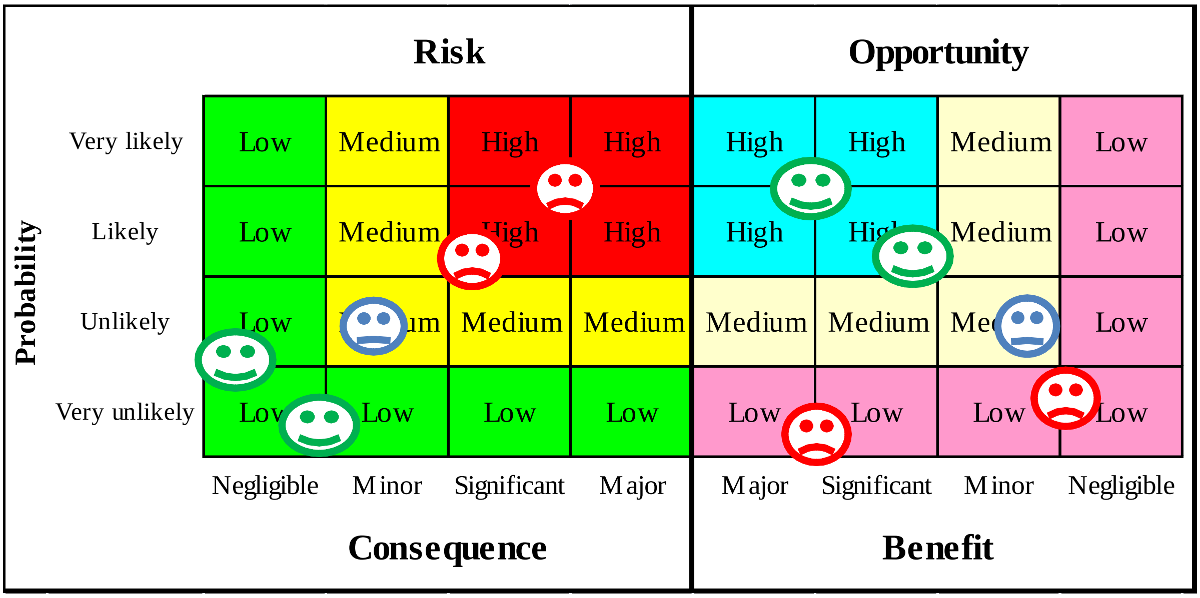
B. Risk Appetite within Enterprise Risk Management

B.1 Risk and Opportunity Management for General Insurance

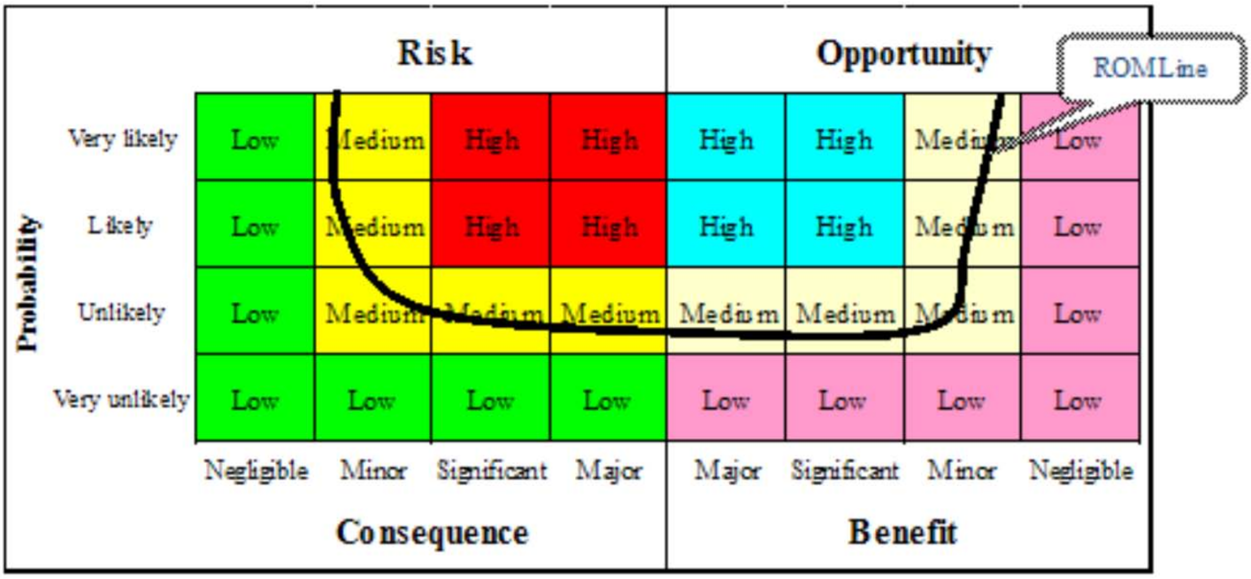
Elucidating a firm's risk appetite requires a consideration of 'downside' and 'upside' risks. Considering risk appetite as the firm's efficient risk frontier is a useful concept to help participants map out the upside and downside risks in order to develop a more robust, realistic view of the likely dimensions of their risk appetite. The ROM (risk and opportunity management) matrix approach in respect of a general insurance undertaking visualises the 'risk efficient frontier' concept using graphics to help the Board and senior management to develop an approach which is both coherent and internally consistent.

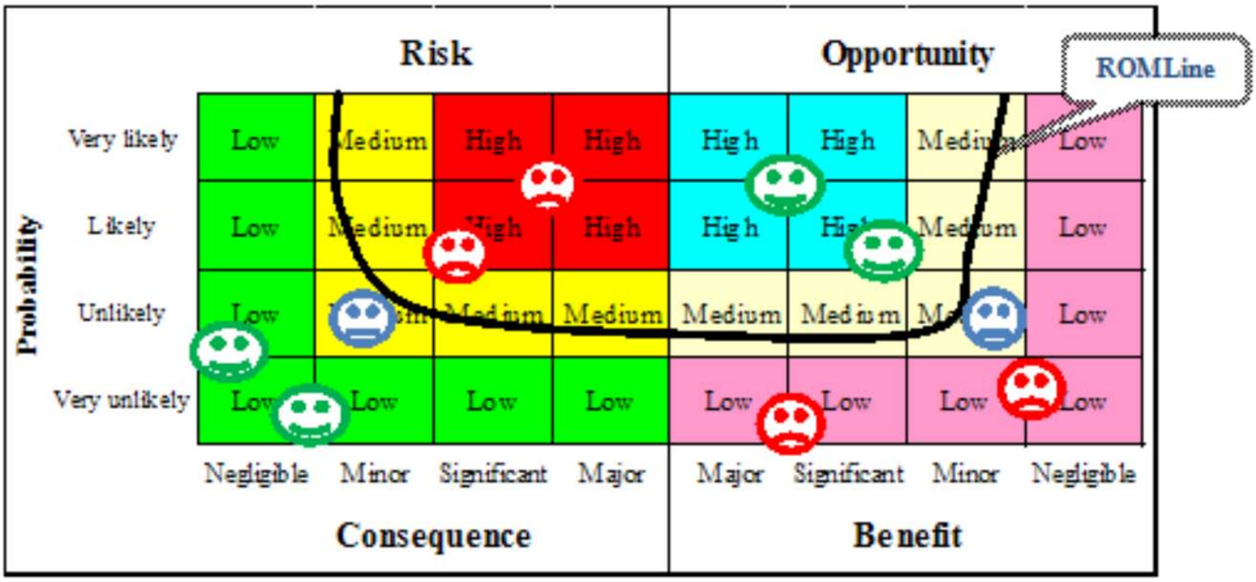
	Risk				Opportunity			
Probability								
Very likely	Low	Medium	High	High	High	High	Medium	Low
Likely	Low	Medium	High	High	High	High	Medium	Low
Unlikely	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low
Very unlikely	Low	Low	Low	Low	Low	Low	Low	Low
	Negligible	Minor	Significant	Major	Major	Significant	Minor	Negligible
	Consequence				**Benefit**			

The attractiveness of the major risks and opportunities are indicated by the colour coding of the ROM matrix. On the 'risk' side, the danger zone, which must be addressed, is coloured red (or amber in a more detailed risk matrix). On the 'opportunity' side, the action zone, which should be addressed, is coloured blue, indicating a major opportunity to take action to add value to the enterprise.



In this approach, the ROM (risk and opportunity management) boundary line can help the senior management team to position the risks as well as the opportunities.





The positioning of the major 'risks and opportunities' on the ROM matrix indicates:

1. Some major risks on the ROM (risk and opportunity management) register need to be terminated, avoided or transferred out to another company, whereas others are too simple for the company and should be transferred out to another corporate 'parent' that can add more value (e.g. outsource the risk).

2. Some major opportunities on the ROM register are worth pursuing, whereas others are too simple for the company and perhaps should be offered to another company.

3. A holistic view can be taken by the Board and senior management of the 'downside' and 'upside' risks under an integrated approach to risk and opportunity management. This process can inform the development and evolution of risk and opportunity management including the expression of risk appetite within the firm.

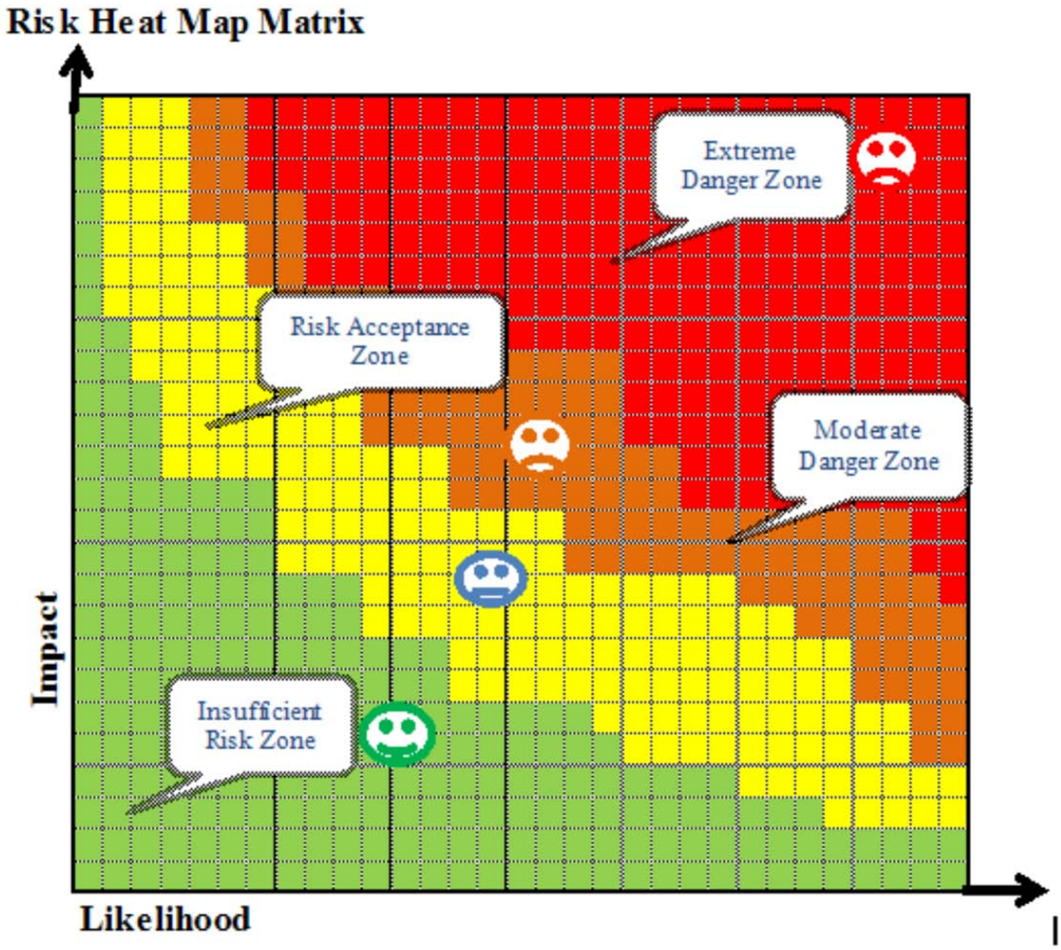
B.2 Risk Appetite and Risk Tolerance within ERM

Risk Appetite Definitions

Risk appetite is a major building block of an effective risk management policy for a general insurance undertaking. However, there is a diversity of views on the definitions and exact meaning of risk appetite, the ways in which a general insurance undertaking should develop a risk appetite statement and how this can then be embedded within a general insurance undertaking.

Theoretical Risk Appetite

The risk appetite of a general insurance undertaking can be set in terms of the 'boundary' or 'risk efficient frontier' between 'acceptable' risks and 'unacceptable' risks. This 'risk efficient frontier' approach can be visualised via the graphics below, which are partly based on a research study by the University of Nottingham[4].



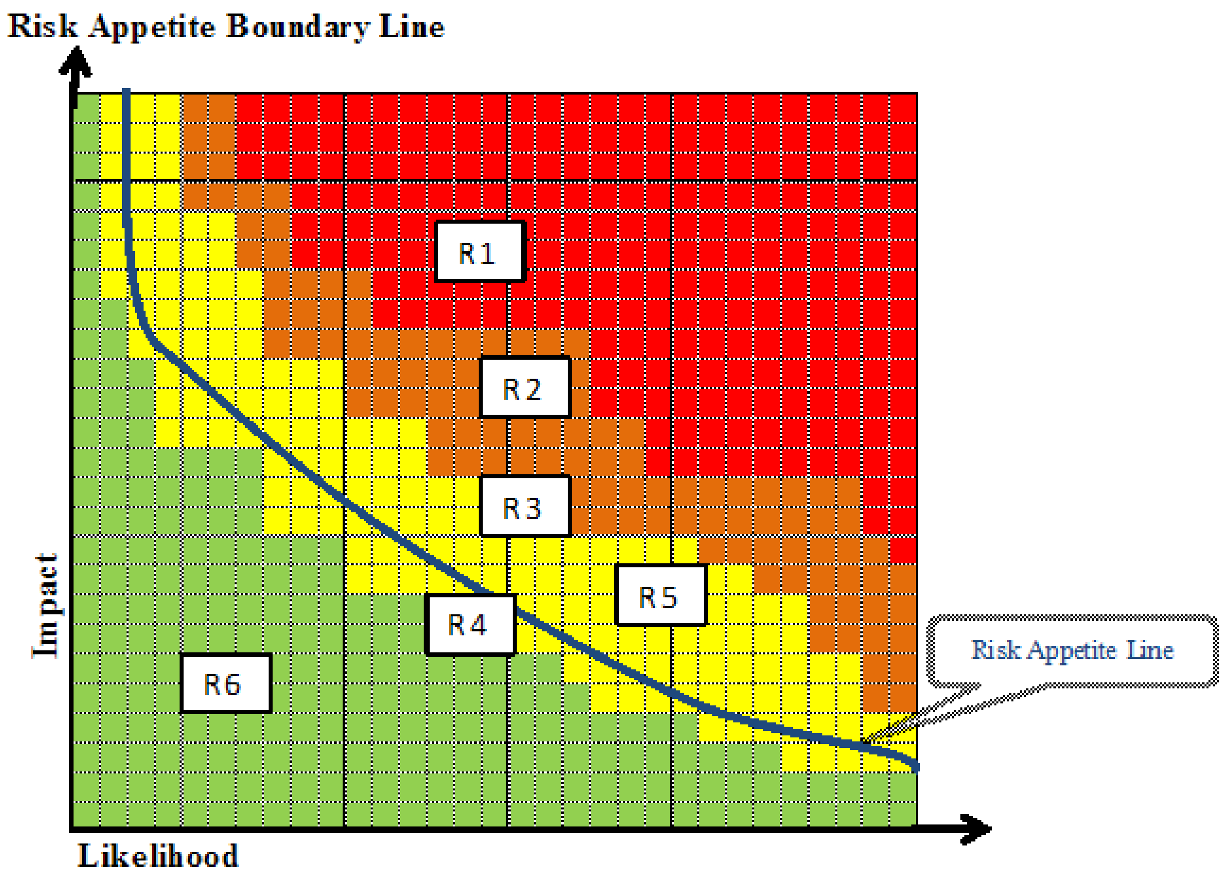
The risk heat map matrix indicates:

1. The 'red' risk zone exceeds the risk tolerance of the organisation and should be terminated, avoided or transferred out to another company.

2. In the 'amber' risk zone there is moderate danger; action plans are required to validate the risk positioning and, if necessary, to terminate, avoid or transfer out to another company.

3. The 'yellow' risk zone shows where there is an acceptable balance between risk and reward; the efficient risk frontier can be expected to lie within this region.

4. The 'green' risk zone indicates that the risk is too simple for the company and should be transferred out to another 'parent' that can add more value (e.g. outsource the risk).



The positioning of the major ‘risks’ on the risk matrix indicates:

1. Risk ‘R1’ exceeds the risk tolerance of the organisation and should be terminated, avoided or transferred out to another company.

2. Risk ‘R2’ is in the moderate danger zone; action plans are required to validate the risk positioning and, if necessary, to terminate, avoid or transfer out to another company.

3. Risk ‘R5’ lies within the acceptable zone, the region in which there is an acceptable balance to the enterprise between risk and reward. It may lie slightly above or below the efficient risk frontier, the ‘risk boundary’ line.

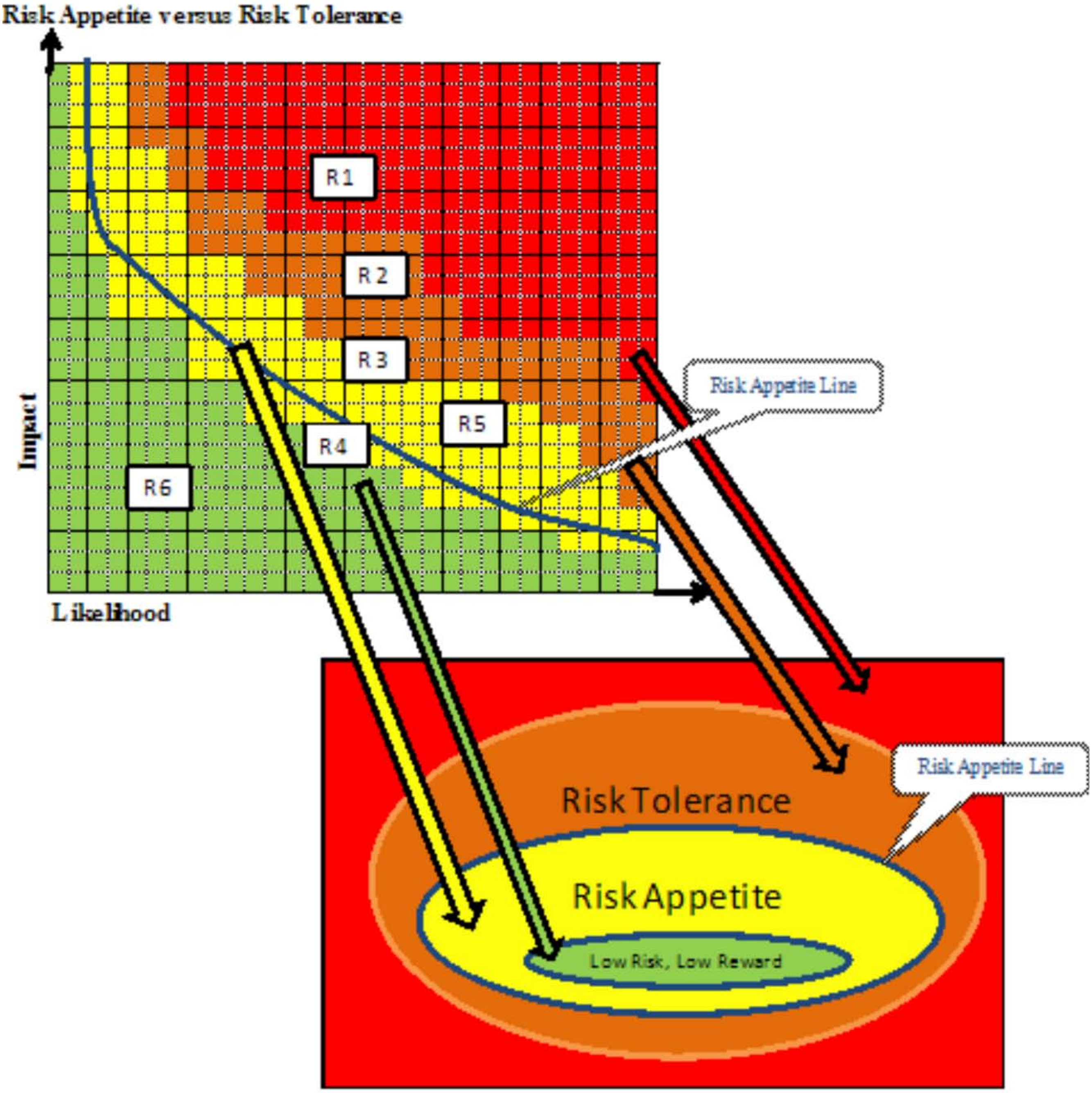
4. Risk ‘R6’ is too simple for the enterprise and should be transferred out to another corporate ‘parent’ that can add more value (e.g. outsource the risk).

The benefits of the risk matrix approach include:

- The risk matrix approach can be applied for all lines of general insurance business
- The approach uses standard risk assessment terminology
- Simple to communicate and to embed throughout the organisation

The challenges associated the risk matrix approach include:

- Perception that risk actions are primarily negative, designed to reduce risk
- Calibration issues, as lines of business may have different quantum scales
- Alignment challenges via economic capital measures of risk



Risk Appetite is generally understood to mean "how much risk an enterprise is willing to take".

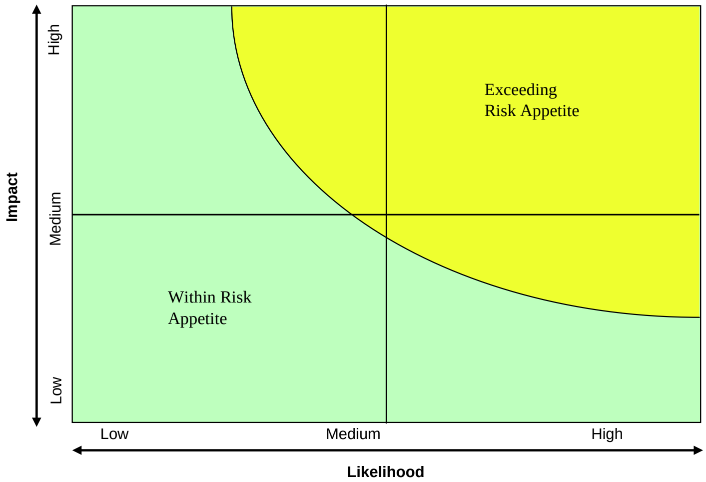
Risk Tolerance or **Risk Bearing Capacity** is generally understood to mean "how much risk an enterprise is able to take", or "the maximum threshold before real financial distress for the enterprise". However, there is a diversity of definitions of these terms; for example **Risk Bearing Capacity** has also been defined as "the capacity to absorb losses arising out of risks without an immediate threat to the enterprise's continued existence" and **Risk Tolerance** as "that part of the **Risk Bearing Capacity** that should be used in the future to cover all significant risks" [5].

Sometimes, in a "**Low Risk, Low Reward**" scenario, there is insufficient risk and/or reward to make the business investment proposition worthwhile. In these cases, consideration should be given to outsource to a more appropriate corporate parent for the business investment proposition.

B.3 Risk Appetite Framework

Risk appetite can also be expressed using the medium of a 'risk map', such as the map in **Figure 1** below. Any significant residual risk in the map's yellow area exceeds the risk appetite of the enterprise, and requires management action to reduce the likelihood and/or impact of the risk in order to bring it within the enterprise's risk appetite[6].

Figure 1

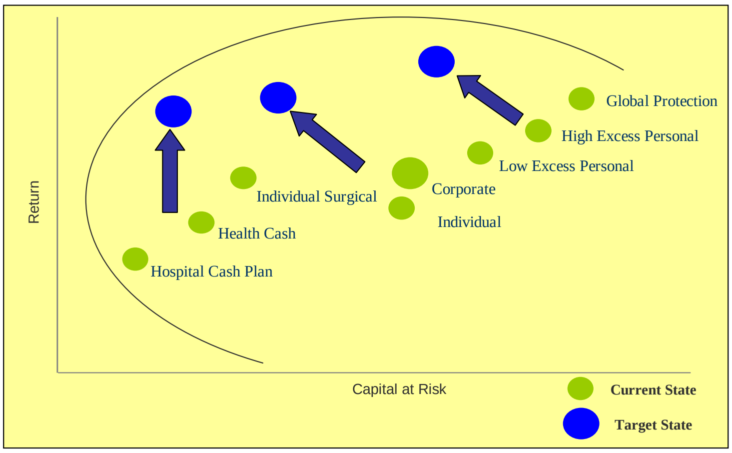


The enterprise can then strive to diversify its portfolio to earn a return that is aligned with the target risk profile. Inevitably, plotting the current state of the estimated 'return' against the 'capital at risk' will identify instances where the 'return' is insufficient to justify the 'capital at risk', according to the risk appetite of the general insurance undertaking. In such situations, the associated business plans need to be revised to satisfy the executive management and the Board that the proposed returns are compatible with the capital at risk and the risk appetite. Portfolio diversification may be required in order to propose a 'return' that aligned to the target risk profile, closer to the efficient risk/return frontier, rather than lower down in the interior of the risk region.

A health insurance example of this might be expanding product range to include a broader array of excess level options to policyholders at each renewal. All things being equal, higher excess products make claim costs more volatile and require more policies to diversify. Availing the option to policyholders will also increase selection. However, the option could make a general insurance undertaking's offering more marketable. The question then becomes whether the general insurance undertaking has the risk appetite and additional capital to support increased risk exposure, and would the expected margins produce a suitable return on capital.

Figure 2 below illustrates the principle, and the effects of three business plan revisions that were designed to move three business units closer to the efficient risk frontier [7].

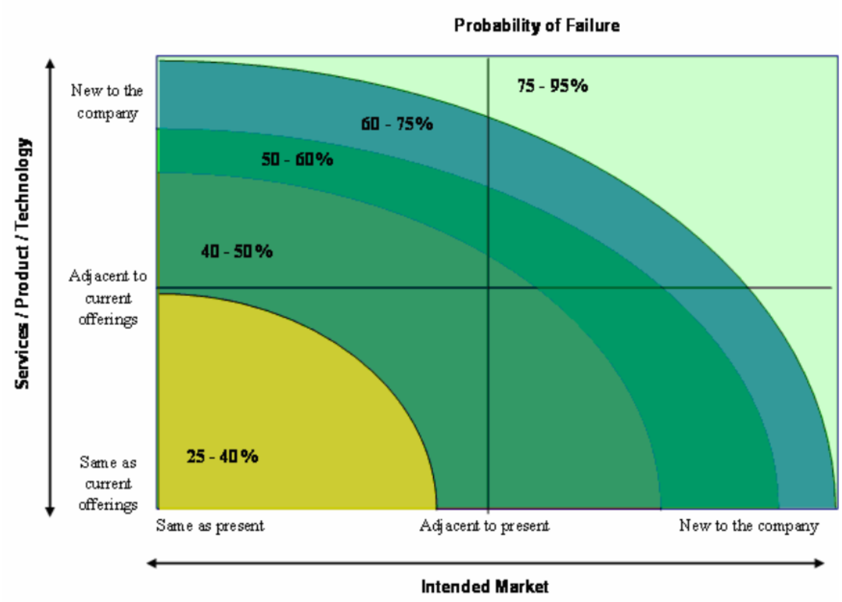
Figure 2



In practice, the general insurance undertaking will be managing a portfolio of risks and will need to decide which are within its risk appetite. One way is to consider the risk management task as being equivalent to managing an innovation portfolio of risks that are aligned to its strategic direction and its business plans. In this situation, the CRO will need to guide the effective risk management of the innovation portfolio and the road towards the achievement of the strategic goals. The balancing of the risks and rewards inherent in the innovation portfolio requires the adoption of a risk matrix, in order to obtain a clearer picture of how its planned projects fall on the spectrum of risk.

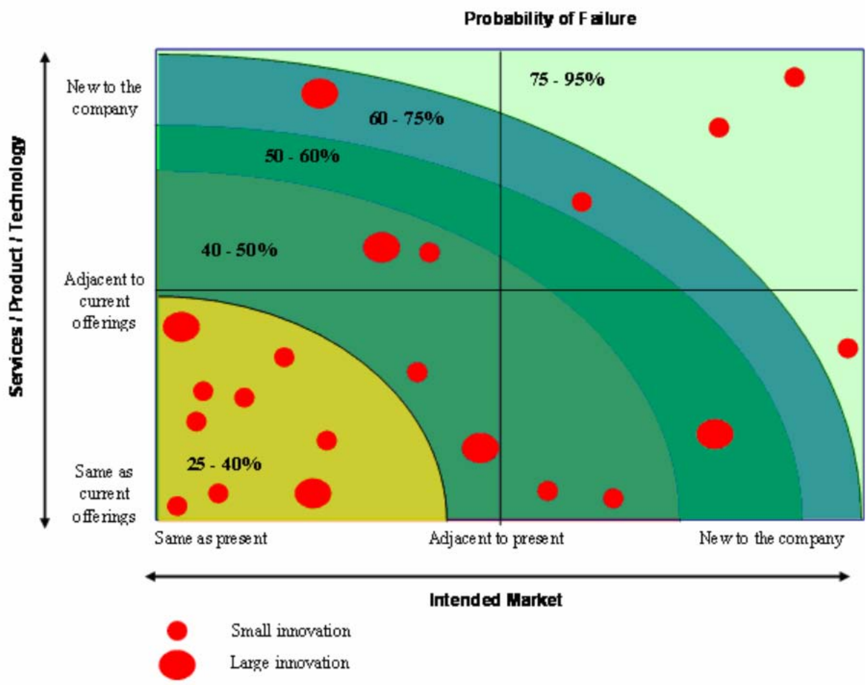
Differences and divergences across the team serve to initiate a continuous process of evaluating the enterprise's mix of projects and their alignment with strategy and risk appetite. The risk matrix model, with probability bands indicating the probability of failure, is illustrated in **Figure 3** below[8].

Figure 3



The risk map also provides a medium to explore the innovation mix of risk and reward from new products and help the enterprise to decide 'what do we want more of /less of' and help to formulate its limits and tolerances for innovations and their interfaces with the existing portfolio. The innovation portfolio is plotted on the risk matrix, as illustrated below. Some of the product, service, and technology innovations are categorised as relatively small innovations, whereas others are judged to be relatively large innovations. The risk matrix model, with probability bands indicating the probability of failure and the innovation portfolio, is illustrated in **Figure 4** below.

Figure 4

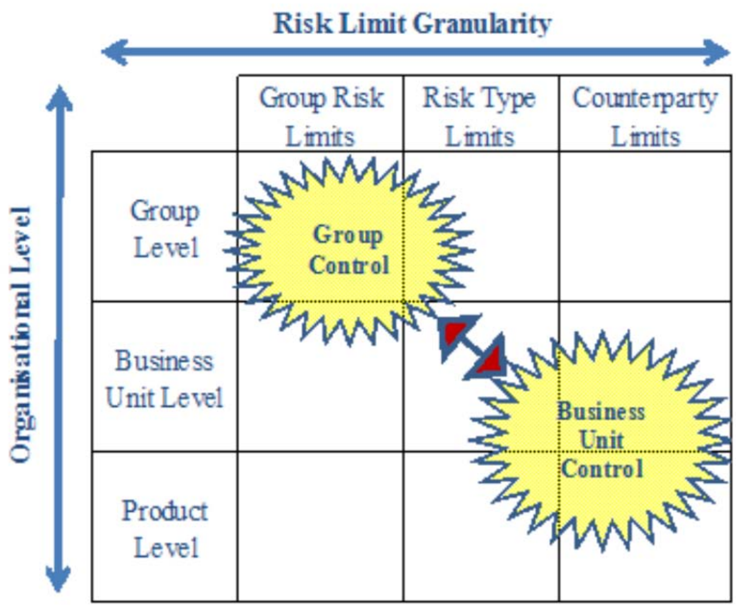


For some general insurance undertakings, the ERM governance processes are clearly specified and strictly applied. For these organisations, the accountable operational managers are obliged to try and implement the approved risk appetite statements, even if their commercial experience and judgement sometimes indicates that a contrary view would be appropriate. As the future is uncertain, compliance with rigid risk appetite statements can sometimes be perceived to be a virtue.

For other general insurance undertakings, the ERM governance processes give the accountable operational managers appropriate latitude to act in accordance with the spirit (rather than the letter) of the approved risk appetite statements. As the future is recognised to be uncertain, compliance with the spirit of the risk appetite statements can be achieved without compromising the commercial judgement and professional integrity of the accountable operational managers.

The presentation of management information is important. Consideration needs to be given to the different types of management information. One needs to develop and strive for appropriate management information presentations, taking due note of feedback and to be aware that the use of different and/or inconsistent formats may cause unnecessary confusion. Ideally, one should aim to keep management information simple and to ensure that it can be produced in a timely fashion. Risk monitoring are risk controls are important.

Debate within general insurance undertakings may centre upon whether the risk appetite framework, its practical implementation and governance should be ‘top down’ or ‘bottom up’. The choice of implementation and governance model will help to make or break the project and its long term objectives. Whilst the granularity and realism of a bottom-up view may add to the ownership and plausibility to the output there is also a need for a group and a board-level enterprise wide view of risk including mediating views from the stakeholder community. Local views may be diverse, valuable but hard to aggregate. The Risk Limits system for a general insurance undertaking is a useful framework as it can link the group risk appetite to individual risk decisions. Risk limit granularity will be an important subject, since there are likely to be tensions between the Board level view and the business unit departmental views.



The main challenge is this system likely to be linking the top-down risk allocation approach to the bottom up risk decision approach. In order to resolve these tensions, views are required on risk allocation, alignment with risk ownership, risk decision flexibility and risk management reporting. It will be important that the risk management reporting systems are not unduly onerous and that sight is not lost of the strategic direction and the overall business objectives.

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*”.

C. Risk Appetite Concepts

C.1 Defining concepts

Before discussing the details and characteristics of risk appetite, it is important to consider what we actually mean by this, and other related terms. Although an academic view of the subject has been provided by D'Arcy[3], the working party considered a diversity of views and concluded that a generally accepted set of definitions has not yet emerged.

Risk appetite is a major building block of an effective risk management policy for a general insurance undertaking. Despite this, there is a diversity of views on the definitions and exact meaning of risk appetite itself, as well as other terms commonly used in discussions about risk appetite. It is not our intention to give rigid definitions of the terms that are used, but rather to discuss the concepts surrounding this terminology and how these phrases are commonly interpreted.

When a firm's board considers the risks the firm faces and what the company's strategy should be concerning those risks, some picture of "desirable" and "undesirable" levels of risk is likely to emerge. By this we mean, that a picture may emerge of:

- risks that the firm is willing to accept or even seek out
- risks that the firm is not currently seeking, but would be acceptable for some trade-off
- risks that the firm is unlikely to accept under any foreseeable circumstances

Such a discussion therefore leads to three key concepts:

1. **Risk Appetite** is understood to encompass "how much risk a company wishes to take". This is often articulated in a number of ways, but, at its core, should be an effective representation of the desirable balance of the downside and upside risks faced by a company. The term will also usually encompass some ideas as to how this appetite could be achieved in practice. The risk appetite generally includes only that level of risk that is desired by the firm when undertaking its usual and planned activities.

2. **Risk Tolerance** is distinct from risk appetite as it may exceed the level of downside risk the company was expecting to take. The risk tolerance of a company will encompass desirable risks, but also risks that, while not desirable or sought by the firm, would be acceptable, at least temporarily, under some scenarios. In respect of the potential downside risks, risk tolerance is a broader concept than risk appetite and is generally concerned with those deviations from the risk appetite that, whilst unplanned, can be tolerated by the company.

3. **Risk Bearing Capacity** can mean "the maximum level of downside risk that the firm can accept". A company could theoretically bear a level of downside risk much greater than they would ever be willing to bear. However, most companies would not be prepared to proceed with scenarios that put them close to real financial distress or regulatory breaches, even if it such a level of risk could theoretically be supported. For example, writing policies that could foresee ably exhaust all available capital held by the company.

Note:
For a visual 'graphic' interpretation of 'risk appetite' versus 'risk tolerance' and 'risk bearing capacity', the reader should refer to **Section B.2** above. A broader view of the risk appetite framework for an enterprise with a portfolio of major risks that need to be managed is the subject of **Section B.3** above.

The **Risk Strategy** generally describes the type, source, size and time horizon of risks. It could also list the effects that the strategic objectives could have on the financial situation of the company and define the risk response strategies that may be required to successfully manage all of the significant risks faced by the company. It might also facilitate the setting of the risk tolerance, taking into account the risk bearing capacity.

Risk limits are generally an articulation of the above concepts, allowing them to be practically implemented within a firm. These might, for example, provide limits on levels of underwriting, outwards reinsurance (level and cost) or operational risk that must be followed by staff throughout the organisation. It is clearly not a simple task to define such limits in a way that encapsulates the subtleties of trade-offs between potential upsides and downsides that define the risk tolerance.

C.2 Use of risk appetite concepts

A company should give careful consideration to each of the above concepts and their interpretation. In particular, since many of these concepts can be used in different ways by different parties, it is important that there be as little ambiguity as possible concerning their meaning within that company.

Consideration should be given to those risks the company will accept, and how these will be dealt with, as well as residual risks that exceed the company's risk appetite, and require management action to reduce the likelihood and/or impact of the risk in order to bring it within the company's risk appetite. The company can then strive to diversify its portfolio to earn a return that is aligned with the target risk profile.

For example, suppose a firm is determining the level of outwards aggregate excess of loss reinsurance to purchase for a particular class of business:

- The firm may decide that it only wishes to retain a maximum of $10m exposure, and its risk appetite therefore states that they will purchase reinsurance such that net losses cannot exceed this amount.

- The firm may find that, despite this preferred level of retention, they could retain an extra $5m in aggregate at what is considered to be an advantageous cost saving. Although exposure to losses of this magnitude is not desirable, the company may decide to tolerate exposure to an aggregate loss up to $15m in return for this cost saving. Such a scenario therefore lies within the firm's risk tolerance.

- The firm may have sufficient capital to support an aggregate loss of $100m. The firm may decide that a loss of this magnitude is so undesirable, and the perception of outside parties (regulators, rating agencies, shareholders, analysts, etc.) so negative that, even if perhaps theoretically supportable, they will never accept this level of risk. The firm may, therefore, have a risk bearing capacity to support a net retention up to $100m, but its risk tolerance and risk appetite are significantly lower than this.

In practice, a general insurance undertaking will be managing a portfolio of risks and will need to decide which are within its risk appetite. One way is to consider the risk management task as being equivalent to managing a portfolio of risks that are aligned to the strategic direction and to the business plans. In this situation, the CRO will need to guide the effective risk management of the portfolio and the road towards the achievement of the strategic goals. The balancing of the risks and rewards inherent in the portfolio requires the adoption of a risk matrix, in order to obtain a clearer picture of where the planned projects fall on the spectrum of risk.

D. Drivers of Risk Aversion

The term "risk appetite" can cover a broad spectrum of outcomes, causes and perspectives. In order to express a risk appetite completely and more importantly to understand its rationale, it is useful to consider the underlying drivers of attitudes to risk. We suggest these can be categorised into four distinct categories. With the development of Internal Models and the requirements to demonstrate their use, it is also interesting to consider the degree to which each of these drivers may be reflected directly using measurements from model output.

D.1. Capital

Capital based risk appetite will be influenced by the level of capital in excess of the desired 'minimum' target and the accessibility and cost of new capital, particularly in a post loss scenario. When considering aversion to losing capital, it is useful to consider two perspectives:

Survivability

The requirement to meet all existing liabilities to which an organisation is committed. This is the view taken by:

- Policyholders
- Regulators (focusing on policyholder protection)
- Rating agencies

For a given financial strength target these may be viewed as non-negotiable.

Capital survivability measures are a natural output from Internal Models. Not only is the calculation a key focus of such models given the sponsorship by both regulators and rating agencies, the common measurement definitions are straightforward (VaR, TVaR).

Sustainability

The desire to be able to trade following a large event. Investors (and management) have an interest in the future enterprise value of the company (rather than just asset value). This gives rise to more near term expressions of risk appetite:

- Tolerance to rating downgrades
- Ability to meet future regulatory capital requirements
- Sufficient post loss strength to be able raise new capital

Measurements of capital sustainability can be supported using Internal Models. However thought is required to decide how these should be articulated. If focusing on the capital required post an event, the size (and possibly nature) of the contingent event needs to be defined. But a limited definition may not be desirable. An alternative could be to target the probability of maintaining a defined buffer above the survivability measure.

D.2. Earnings

Unforeseen financial outcomes can lead to a lack of investor confidence (current and potential), thereby damaging the enterprise value of an organisation. A company's aversion to earnings volatility often comes down to the subjective views of a number of individuals which makes articulation and quantification especially challenging. Factors include:

- Size
- Cause – market or private event
- Cause – core or non-core business

For publically traded companies the ultimate measure is the difference between the market and book value. For private and mutual companies (or risk pools / funds) the position is inherently less clear. While it is possible to define "earnings" volatility measures using an Internal Model these are often somewhat arbitrary. Careful interpretation of such measures is required, often taking on board more qualitative factors.

D.3. Market size

Where a company commits capital to a particular market, be it a product / line of business or a geographical area, the upside will inevitably be constrained by the size of the overall market and the company's market share. It is common to see that the level of acceptable downside is constrained by the size of the upside, even where significantly greater risks are retained elsewhere.

A more specific but related influence is where a large event may lead to significant strengthening in market conditions. A company's small market share and infrastructure constraints will limit the potential upside to payback a large loss in a reasonable time frame.

Market size will often limit a company's risk appetite below the levels implied by overall capital and earnings factors.

It may be possible to prescribe certain Internal Model criteria which are influenced by market size. However in general this issue cannot be measured using a model.

D.4. Risk confidence

Uncertainty over how a risk may behave will inevitably lead to caution being taken. This is a common factor when considering risk retentions, especially for volatile lines of business or new products/classes. The expertise and credibility of the underwriters will also have a bearing on risk appetite. The same issues apply to less well understood asset classes.

While a company may have a view on the confidence of its Internal Model, this will not be measured by the model.

E. Risk Appetite Articulation and Effectiveness (A&E)

The essence of a good Risk Appetite Statement lies with the articulation of this information within the organisation and this can be communicated in many different forms. Even a well-articulated statement is of little benefit to the organisation if it is poorly understood or implemented in practice.

This paper does not attempt to be prescriptive over the articulation of the Risk Appetite as no single approach will be correct for every organisation. However, there are a number of criteria against which both the articulation and effectiveness of the Risk Appetite statement may be judged. A single "template" can ever hope to be appropriate for all organisations, but a good Risk Appetite statement is likely to meet most, if not all, of the criteria discussed below.

We propose ten criteria grouped into two themes:

1. **Articulation**: an assessment of six theoretical aspects covering scope, coherence and usefulness
2. **Effectiveness**: an assessment of four practical aspects covering the implementation within the organisation

In practice, any one risk appetite statement is likely to fulfil the criteria to some extent. The maturity profile of each criterion can be reviewed to form an overall assessment of an organisation's Risk Appetite statement and use.

E. 1. Articulation & Effectiveness Criteria

The first six criteria cover theoretical aspects of risk appetite **articulation**.

i) Vertical Coherence

There should be a connection and consistency between corporate objectives, such as capital and earnings targets, and more granular risk guidance and limits.

Such links can be inherently difficult but a clear rationale will be apparent in a vertically coherent risk appetite articulation. Less developed statements will be more disconnected and at the most basic level not attempt to define more detailed risk tolerances.

ii) Horizontal Coherence

There should be connection and consistency across different sources of risk: different lines of business, portfolios, or types of risk.

A horizontally coherent risk appetite will display a clear rationale for differing risk tolerance levels across the organisation. It will be apparent how these sit within the context of the organisation's business strategy.

iii) Stakeholder Coherence

There should be consideration and reconciliation of all different risk perspectives: external (investors, regulators, rating agencies, policyholders) and internal (group and local management).

The rationale for each element of a risk appetite will be driven by one or more stakeholders. These differing perspectives can lead to conflicts in reasoning which will be intelligently balanced (and recognised) in a stakeholder coherent risk appetite. A less well developed statement will not recognise these issues, or fail to address them in a meaningful way.

iv) Analytical Balance

The risk appetite statement should include an appropriate use of both quantitative measures and qualitative considerations.

The key issue here is one of balance: an over-reliance on quantitative measures may obscure key qualitative issues, leading to confused, poor decision making or the implied risk "rules" being at least partly ignored. At the other extreme dominance by qualitative factors will limit the level of practical guidance that can be derived from the statement.

v) Decision Support

The risk appetite statement should offer guidance to provide support for all risk-related decision making.

A full range of decision support requirements should be addressed including those relating to underwriting, portfolio management, reinsurance, capital management, asset allocation, etc. It is not practical for a risk appetite statement to offer direct guidance for every detailed decision and this should be judged proportionately. However some level of indirect guidance for all decisions should be provided.

vi) Governance

The risk appetite statement should offer complete and appropriate support for the processes and responsibilities surrounding the monitoring and review of an organisation's risk appetite.

Practical, complete guidance identifying roles and responsibilities within the organisation should be included in a well-developed statement.

Even a well-articulated statement is of little benefit to the organisation if it is poorly understood or implemented in practice. The four criteria discussed below allow a judgement regarding the practical **effectiveness** of the risk appetite statement.

i) Awareness

Those within the organisation who are expected to make use of the guidance provided in the risk appetite statement are both aware of and fully understand the statement.

A company with well developed procedures would find all relevant members of staff are aware of the risk appetite guidance, and have a deep and detailed understanding of how it impacts their role. A company with less well developed procedures may find significant members of staff are either unaware of the statement, unfamiliar with what it says, or do not understand it.

ii) Usability

The risk appetite statement should be usable by those who are expected to make use of it.

An effective risk appetite statement should offer practical guidance allowing those who are expected to make use of it to do so. For example, an underwriter deciding on a level of exposure to accept, a reinsurance manager deciding on the level of risk to cede, or credit risk to accept, should be able to look to the risk appetite statement and find it offers clear guidance and support in making these decisions.

iii) Influence

The risk appetite statement should influence the key decision making within the organisation.

An effective risk appetite statement would clearly influence decision making: where decisions need to be made concerning items discussed in the statement, these should demonstrably be made in line with the guidance provided. Poorly developed risk appetite procedures would show decisions clearly being made without reference to the stated risk appetite and based only on the influence of other factors or criteria.

iv) Credibility

The effectiveness of the risk appetite statement should be evident from comparing the statement itself to the past situations the company has faced.

If, for example, the company states that it has an acceptable and desirable level of natural catastrophe exposure, it would lend credibility to the risk appetite effectiveness if, following such a natural catastrophe, actual losses (or other measure) were within originally-defined limits. If this is not the case, the risk appetite framework may not be operating effectively within the organisation.

E.2. Top Down vs. Bottom Up Approach

Risk Appetite is an important link between a firm's strategic intent and its practical execution. The articulation or statement of risk appetite must be as pragmatic as possible. Although qualitative statements can play an important part in the risk appetite framework, more value will be gained from quantitative statements that can be measured and monitored over time. From a general insurer's perspective, risk appetite can be defined at a number of operational levels, e.g. in terms of a firm-wide impact to its capital requirement, its individual underwriting authority limits or its investment policy..

It is likely that there will be debate within the undertaking on whether the risk appetite framework, its practical implementation and governance should be 'top down' or 'bottom up' in its focus, or indeed capturing elements of both viewpoints.

The choice of the primary implementation and governance model is important with consequences which may not be easily unwound with the benefits of hindsight. The table below outlines some of the 'pros' and 'cons' attached to models at either end of the spectrum:

	Top Down	**Bottom Up**
Description	Risk appetite is determined by the Board and cascaded down the organisation	Expressions of risk appetite at ground level are aggregated to develop an overall appetite for risk
Advantages	Board is engaged in risk issues, promoting buy in and helping to integrate risk management and strategic decision making	Ensures that all risks are captured and local factors taken into account for a specific area of risk
	Board is best placed to balance the views of conflicting stakeholders	Uses input from local risk experts to arrive at a consensus view of appetite for risk
	Board can take an enterprise wide view of risk	Promotes management buy-in at all levels, as they have been involved in setting the risk appetite
Disadvantages	Could be set arbitrarily according to the perceptions and prejudices of Board members	Local views may be inconsistent and impossible to aggregate
	Can constrain operational management decision making where local factors suggest a different risk appetite	Local views may be 'too narrow'
		Can be time consuming

E.3. Challenges of linking both approaches

Resolving conflicts of interest

To resolve tensions between the top-down and bottom-up approach the undertaking should consider risk allocation, alignment with risk ownership, risk decision flexibility and risk management reporting. It will be important that the risk management reporting systems are not unduly onerous and that sight is not lost of the strategic direction and the overall business objectives.

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".

Translating appetite statements through the undertaking

Risk appetite statements at Board and senior management level should be a concise set of measures, providing a risk profile of the business that senior management can use to measure whether the risks are within acceptable tolerance levels. How these measures are coherently translated and measured lower down the organisation should be carefully thought through. It is important that the more detailed metrics used at the operational level of the business to monitor the risk appetite statement are clearly linked to the measures used by senior management.

Timeframes

The approach will require a plan for a roll out across the undertaking with a clear timeframe for reviewing the risk appetite statement on a regular basis. This timeframe should take into account the strategic and business planning process. The plan should set specific targets to support demonstrating the use of risk appetite across the organisation.

Communication

Any "new" concept requires careful communication, and risk appetite is no different. Using example output will assist with communication through the organisation. Such output should be as specific as possible to the organisation, rather than generic in nature, to help bridge the gap to the new risk appetite framework for the prospective end-users.

Jargon may be an issue, e.g. the term risk appetite may not be ideal for "cascading". This links to the concepts of awareness and usability, as noted in section D1. It may be helpful to distinguish between risk appetite and risk strategy, e.g. those measures easily linked to solvency protection and those relating to reputational issues.

Granularity

An insurer's operational risk limits link the group risk appetite to individual risk decisions. Whether a top-down or bottom-up approach is mandated such limits are the key operational mechanism for measuring the risk the undertaking assumes day to day. Vertical coherence of risk appetite is crucial to result in a practical risk appetite framework.

Risk limit granularity will be an important subject, since there are likely to be tensions between the Board level view and views "on the ground" within individual business units. The key is usability of limits.

E.4. Practical considerations

Given that real risk appetite statements are not yet common currency in the public domain, any illustration will be generic to some extent. Below are some high level considerations in respect of qualitative and qualitative measures, this is supplemented by further more detailed examples, a sample risk appetite framework template and a more detailed illustration of quantitative and qualitative considerations in Appendices 3.1, 3.2 and 3.3.

- Quantitative measures
  - Risk based
    - Earnings volatility
    - Capital volatility
    - Liquidity stress scenarios
  - Exposure measures
    - Individual risk limits
    - Catastrophe aggregate exposure
    - Counterparty exposure
      - Investments
      - Insurance intermediaries
      - Other third parties
    - Currency limits
  - Financial strength rating

- Qualitative measures
  - Operational controls in place
  - Reputational impacts
  - Regulatory breaches
  - Governance procedures

E.5. Maturity Profile

Risk appetite is not a new concept outside of the insurance market, making the maturity level of organisations easier to gauge. However, as the concept and practice around risk appetite beds down and information becomes more openly available it will be possible to build an insurance industry maturity profile. Appendix 3.4 includes an illustrative maturity profile using the following 7 dimensions which can steer the undertaking's vision for risk appetite and be used to develop a picture of the current state. Actuaries, who will have assisted in developing many of the quantitative measures around risk appetite can take a lead in plotting their undertaking's maturity level.

Maturity profile dimensions

- Philosophy of Risk and Attitude to Risk
- Processes
- Processes Risk Cycle
- People
- Planning
- Risk Management
- Risk Modelling

F. Risk Appetite Characteristics

Different types of organisation are likely to face very different risk characteristics. The risks faced can themselves be inherently different, but so too can the practical approach to dealing with these risks, both how this is intended to function and how it is likely to function in practice. Different organisation types are likely to face many overlapping, and some unique, challenges regarding these risks. They are also likely to have unique advantages in the way they can approach these risks.

Set out below are some of the key differing characteristics of a general insurance undertaking and how the risk profile and issues surrounding risk appetite are likely to differ based on these.

F.1. Size of Undertaking

"Small company"

Strengths and opportunities	*Weaknesses and threats*
• Small size means may have the ability to react more quickly to change • Easier to ensure everyone is "singing from the same hymn sheet" due to small numbers of people involved • Risks may remain "buried" for longer in a very large company – issues may surface more quickly in a smaller company. • May have fewer stakeholders (e.g. more likely to be controlled by small number of partners/equity backers than many shareholders) – easier to understand and articulate the genuine level of risk sought/tolerated. • More likely to be concentrated in one geographical region. • Potentially simpler and cheaper to put control structures/authorisation limits in place.	• Lack of risk expertise • Lack of technical expertise: may desire modelled quantities to exceed set thresholds, but lack modelling capability to implement • If a company is growing/changing rapidly, can the tolerance and its articulation keep pace? • A reluctance to articulate risk appetite may mean not as clearly embedded as thought. • Added importance of limiting risk profile as small company may not be able to absorb risks as well as larger ones. • Potentially more regulatory oversight/concern/interference for small, start-up. • May be costly to conform to risk appetite statement requirements designed more with larger firms in mind (SII) • Smaller size may mean lack of genuine peer review/challenge, or over-dominance of a small number of people acting out of line with other stakeholders' requirements • Less onerous regulation could mean less transparency in genuine levels of risk company is undertaking. Harder for some stakeholders to judge if risk appetite is in line with expectations. • May not have formal warning processes in place when tolerances are exceeded.

“Medium-sized company”

The strengths and weaknesses here are likely to be a mix of those for smaller and larger firms (see sections above and below).

Additionally, in medium-sized firms a situation may arise where risks are not addressed or properly monitored or mitigated. People within the firm may think “someone else is dealing” with issues: in a large firm there may be a dedicated area co-ordinating the relevant area, in a small firm, it is easy for the relevant people to know. Also, even in a medium-sized firm, many individual divisions may be relatively small and have limited resources or access to IT for production of management information.

“Large/Group company”

Strengths and opportunities	*Weaknesses and threats*
• Critical mass and budget to attract and retain high-quality risk and technical expertise • May have reached a stable size so less of a “moving target” in implementing risk measures. • Possibly more buy-in/appreciation of the need to clearly articulate risk appetite (probably expected/required for a firm of significant size). • May be able to absorb risks better than a small firm. • May have more influence with regulators (though clearly not always the case). • Regulatory requirements may suit a larger firm better, having been designed more with larger firms in mind (e.g. SII) • More opportunities for peer review/challenge and board-level discussion rather than over-dominance of a small number of people acting out of line with other stakeholders’ requirements • Disclosure requirements (and common practice even when not required) for larger, quoted firms may mean more transparency in genuine levels of risk company is undertaking.	• Very easy for “left hand not to know what right hand is doing”- hard to know if procedures are being followed in practice. • Even a well articulated risk appetite/statement can be difficult to filter down to lower levels in a multi-layered structure. • Larger firms will take longer to make changes and react to changing circumstances. • “Skeletons” and warning signs can take longer to surface in a larger company • Likely to have lots of stakeholders (e.g. large board, multitude of shareholders) – difficult to understand level of risk sought/tolerated and, even if this is understood, to marry up conflicting views. • Challenges if more spread out geographically (different regulations, cultures, languages, common practices, less day-to-day contact amongst teams, etc.) • Potentially more challenging to remunerate people in a manner that ensures they best implement the risk practices sought.

F.2. Long tail vs. short tail

Companies involved primarily in longer tailed lines of business may find that, as far as underwriting risks are concerned, it may take longer for the effects and outcomes of a risk appetite strategy to emerge. This may make it more difficult to implement risk controls and measures.

The long-term nature of risks itself may drive a different insurance risk appetite. For example, the long time horizon over which uncertainty in the true underwriting position may persist may offer more incentive to transfer these underwriting risks elsewhere (e.g. through reinsurance). The costs of transferring risks may also rise.

There may also be exposure to a host of different risks that are more trivial for shorter-tailed business (e.g. more significant investment and inflation risk, legal costs etc.). Companies may also find it more challenging to measure risks over a shorter time horizon.

Companies involved mainly in short-tailed lines of business are likely to find the opposing side of issues discussed above. In addition, the fairly immediately apparent result may mean future opportunities for firms with genuinely improved risk methodology to profit. However, these lines of business may be more market-driven by events making it more difficult to develop a rigorous set of personal risk criteria.

F.3. Start up vs. long established / stable

A brand new start-up firm is generally, to a large extent, starting with a "blank sheet of paper". This means few or no legacy issues, established views, and reduced internal or political conflicts. This potentially can make it easier to clearly define and implement the firm's risk appetite right from day one. It should also be more straightforward to immediately be more in tune with the founders' desired risk appetite.

The downside such firms may face is that they may be overwhelmed by the task and miss aspects that later transpire to be important. Small, non-obvious gaps in the risk criteria now may lead to bigger problems in the future.

Newer firms may also find that, at least at first, they may lack the specialist and technical expertise needed. Also, for those firms that find themselves growing rapidly, risk identification, articulation and definition may not keep pace with this growth. This may be compounded if, as is possible, such firms do not have a dedicated risk function, and the risk department may just be one or two people with these aspects only a part of their wider job.

Conversely, longer-established firms may have good risk framework and measures already in place to take advantage of. They may have a wealth of technical and industry expertise to draw on and help in properly defining and implementing good risk practice. They may have past "near misses" (e.g. for operational risk) that can be learnt from.

However, such firms can often be resistant to change, with many elements of practice already embedded, with a "why change?", "that's how we've always done it" mindset. For firms that have grown quite quickly there can also be less incentive to think more about risk if they have so far grown successfully without doing so.

F.4. Specialist vs. multi-line

Specialist firms will generally have a great deal of knowledge of those risks specific to their area. They may find they can harness this knowledge to improve their understanding and approach to risk. If they are concentrated in just this specialised area, they may find it simpler to define and monitor their risks without the complication of risks introduced when multiple lines are covered. This can also be technically simpler – issues relating to the correlations between different lines may not be relevant, for example.

Multi-line firms, on the other hand, while having to face up to the complexities these different lines generate, may find they can take advantage of offsetting or complementary risks that may be harder to come by in a more specialist firm. They may also find more similar firms in the marketplace who they can benchmark against when articulating and quantifying elements of risk appetite.

F.5. High risk venture vs. low risk

If an organisation deliberately targets a high- or low-risk area, then this may mean that their tolerable risk appetite is at the forefront of their thinking right from the outset.

However, this does not remove the need to carefully consider the risk appetite, and disregard this since, for example, a firm is seeking risk anyway. A high-risk venture may struggle to ensure only the risks it wants to take (primarily related to business undertaken) are taken and not, for example, significant undesirable operational risks. Also, a low-risk venture may find it needs to avoid being stifled by too much risk concern preventing any profitable activity.

F.6. Nature of ownership: Private, public or mutual

A public company is likely to have many shareholders and so many conflicting risk appetites to potentially satisfy. It may be difficult to know and articulate what these are. However, with lots of alternative investments with different levels of risk to choose from, shareholders can easily "vote with their feet" if the level of risk appetite is not what they wished. This will subsequently be reflected in the share price, which may make this easier to measure.

This does assume sufficient understanding of the risk controls and practices of a firm by shareholders, which is not always the case, as recent financial scandals and accompanying sudden drops in share price have reflected. However, since public companies do have higher disclosure requirements, it is likely that the market may have more understanding of their risk appetite and how it is implemented.

A mutual organisation is likely to be similar, but there may be fewer members who may then need to steer the risk appetite since they have more of an inherent stake in the firm. There may be fewer conflicts in designing a risk appetite framework as less of a "drive for profit" motivating a mutual compared to a public or private company.

Private firms with one or a couple of directors may benefit from more simplicity in articulating just a small number of people's views and implementing them in a smaller firm. However, larger private firms likely to be similar to public companies.

F.7. Lloyd's Syndicates

Lloyd's has, to some extent, its own oversight of Syndicates in terms of risk insofar as it relates to capital. Many Syndicates write inherently risky business, though still necessitating proper controls. Some of the challenges are therefore likely to be a mix of those relating to high-risk public companies above.

As with shareholders moving away from a public company if the risk is out of line with their needs or desires, there is likely to be a flow of capital to other Syndicates if risk appetite at one becomes misaligned. Also, the layers of protection offered at Lloyd's may encourage higher risk appetite with less reputational risk towards the insurer.

F.8. Soft vs. hard market

The risk appetites of all firms writing in cyclical markets will need to consider the traditional risks of managing a soft market: how much business to write in such a market, how much is needed to remain in the market, for how long would such a situation be tolerated, and how much profit could be sacrificed to remain in a soft market? Consideration needs to be given as to how these are articulated.

The risks associated with growth, as discussed above, also need to be considered as and when the market hardens. Also, risk systems and processes may be placed under strain and overworked if a hard market follows a natural catastrophe or large market loss, and consideration of this is also necessary.

F.9. Stakeholder differences: e.g. shareholders vs. regulators vs. management

Briefly, the challenge here, which has been much discussed elsewhere, is how to marry up different agents' requirements. This needs to encompass how to communicate with different stakeholders and spot problems when they arise, as well as the correct incentivisation of managers, in a manner aligned with risk appetite (salary, stock, options, etc.)

F.10. Multi-national vs. single country

As for a large firm, the coherency of implementing a risk appetite across a large area is fundamentally difficult. For multi-national firms, language and cultural differences can add to this and there are likely to be significant costs involved in overcoming these.

The different types of firms are likely to face many differences in regulatory oversight (its extent, type, nature, and philosophy). Also, multi-nationals expanding into a new market may lack local knowledge. They may also not appreciate some challenges or risks in the new market. For example, catastrophe or legal risks may be much more prevalent in some markets than others. This may be increasingly the case when expanding into developing markets.

F.11. Multi-platform vs. single platform (London, Lloyds, Bermuda, Switzerland etc)

As in other sections above, the key issue for multi-platform firms is likely to be how to ensure coherency across each platform. The specifics of each platform may interfere or complement to generate new opportunities (e.g. unique structure and broker relationship at Lloyd's, reduced overheads in Bermuda, etc.)

G. Risk Appetite Disclosure

Risk appetite disclosure is an important subject for general insurance undertakings and has been the subject of much attention by Boards and senior management teams. There is clearly a diversity of views on what should be disclosed externally, both via statutory accounts and in public announcements by Boards and CEOs, CFOs and CROs.

Appendix 2 contains extracts of the public domain statements made by 20 leading general insurance undertakings on their risk management practices, including **risk appetite**, **risk tolerance** and **risk strategy**. In some cases, we have tracked these statements through a series of their annual reports and accounts and reviewed how their risk appetite, risk tolerance and risk strategy statements have been refined over recent reporting years.

On the basis of the recent public domain extracts shown for 20 leading general insurance undertakings (see **Appendix 2**), our principal conclusions on risk appetite disclosure are summarised below.

1. There is no generally accepted definition of terms 'risk appetite' and 'risk tolerance'; the organisations reviewed have a diversity of views on the appropriate definitions.
2. The term 'risk appetite' is sometimes articulated as an expression of the level of risk that a general insurance undertaking is willing and able to accept in pursuit of its strategic objectives and, therefore, provide some context for its risk and capital management policy.
3. The term 'risk appetite' can have both quantitative and qualitative risk metrics. Some general insurance undertakings appear to give more weight to the qualitative risk assessments rather than to quantitative metrics based on their internal and/or partial risk models.
4. Some general insurance undertakings prefer to comment on their strategic management objectives, their 'risk strategy' and their 'risk limits', rather than to define or articulate their 'risk appetite'. For some organisations, it is more important to ensure an appropriate balance between business opportunities and the risks incurred.
5. Some general insurance undertakings discuss their 'risk appetite' as being just one of the components of their ERM framework and ERM implementation; they do not specify their 'risk appetite' in isolation.
6. Some general insurance undertakings discuss risk management at a high level and do not articulate their 'risk appetite' and/or appear not to recognise the term.
7. Some general insurance undertakings discuss risk management at a high level and discuss their 'risk strategy' and 'economic capital' instead of their 'risk appetite'.
8. Some general insurance undertakings do not recognise the term 'risk appetite' and prefer to discuss their 'tolerance' to risk decisions.
9. Some general insurance undertakings comment upon their 'risk tolerance' and do not mention the term 'risk appetite'.
10. Some general insurance undertakings attempt to quantify elements of their 'risk appetite' and 'risk tolerance', based on their quantitative risk models.

Appendix 1

Case Study for a general insurance undertaking

<u>Example Insurance Company – Consideration of Risk Appetite</u>

Company ABC has traditionally operated in certain sectors of the primary insurance market within one country. A review some years ago indicated that certain areas of its traditional market were in long term decline and the Directors decided to broaden the Company's target market(s).

The Company is medium sized with around £1bn of premium income currently spread equally in motor, property, liability and speciality lines; historically it has achieved consistent profits compared with other insurance companies operating in the same market.

Its current risk appetite statement was set some time ago and reads:

- To maintain our financial strength, ensuring that our liabilities to our clients can be met
- To continue to have significant presence (by premium volume) in all of the Company's other areas of business. To remain the market leader (by premium volume) in particular sectors of the speciality market.
- To maintain a significant capital buffer over regulatory minima such that regulatory breach is extremely rare

Note:
Historically there have been no tolerance limits set concerning the premium volumes expressed above. However, the Company currently underwrites around 60% of the country's market for a particular speciality line and 10-20% of the more traditional lines of business.

The Company is revisiting its risk appetite statement in light of its increased focus under Solvency II. It is also considering the issues around how to cascade the principles across the Company and have better control processes aligned with its top level strategy. In particular, the executive are interested in developing a logical process and having a coherent argument for the risk appetite statements they choose.

The executive has decided to garner views from across the departmental senior management in the Company. As a first step it sent around a document on Risk Appetite explaining the new approach and the need for Risk appetite to consider the views of different stakeholders (regulators, policyholders, shareholders, and Company employees). The document set out the executives' aims and the factors that it considers as constraints (regulatory capital, maintaining a commitment to its traditional market sector) and a questionnaire asking for their views.

The executive is principally focused on maintaining market presence and profitability. In particular, key areas thought to drive their risk appetite, and the proposed top-level statements, are:

A. To maintain a credit rating of A+ over the medium term
B. To aim to achieve at least 15% of GWP in the chosen sectors of the market in which the Company operates and maintain its market share if higher
C. To maintain planned dividends to shareholders at least 4 years out of 5

It has provided the senior management the following explanation for its focus.

a) Re A: The new statement A implicitly incorporates items 1 & 3 of the original risk appetite statements Maintaining a credit A+ rating requires that regulatory capital is exceeded and that it has estimated, using its internal capital model, that it has sufficient buffer capital in excess of the regulatory capital such it can withstand the erosion of its buffer capital once in 10 years. This statement should therefore assure regulators, rating agencies and policyholders.

b) Re B: The minimum targets by premium volume demonstrate its continued commitment to those business areas and support for longer term policyholders; it also allows headroom compared, to its current market share, for expansion into the wider market.

c) Re C: This statement will provide discipline to the Company to maintain profitable business and is something that can be cascaded to line of business levels. In particular it will aid the divisions in focussing not only on profitability, cross subsidies etc, but in considering the volatility of business underwritten. The co-ordination of capital and risk management will require the business managers to :

d) use the internal capital model in conjunction with the business plan and consider the distribution of results; in particular that reduction in the planned dividend has a chance of occurring only once in five years

e) consider in particular, and try to quantify, the greater risk and uncertainties around the business they are targeting from the wider market

f) consider the impact of too cautious an approach. For example ensuring planned dividend is not paid only once in 10 years may result in lower than expected profits and thus not meet dividend targets.

g) consider the interaction of capital erosion from the non profitable ranges of the distribution and consequences as regards meeting Risk Appetite statement A.

h) focus business attention around events and scenarios that are plausible, such as 1:3 to 1:30 , and not spend disproportionate time remote events impacting at the 1:200 level of chance

<u>Appraisal of risk appetite statement from aspects identified in this paper</u>

1. Process of defining risk appetite

The Company is principally at the stage of (re)defining what it means by risk appetite and it's top-level risk appetite statement (i.e. more Board Metrics and business strategy than specific quantitative limits). Following this, a more granular statement, in line with the supporting comments, could be drawn up for internal use in respect of operational tolerances (e.g. limits assessed against the Internal Model, variance from business plan) and process controls overlaid.

The approach is effectively top-down, although some canvassing of opinion across the business is being sought. The Company directors may wish to reassess the external (major) shareholder's objectives for their tolerance of earnings and capital volatility (if possible) because of the increased focus and transparency of this area across the market.

2. Drivers of Risk Aversion

The proposed statement itself is a mixture between risk aversion items (statements A and C) and more forward-looking business strategy (B). In relation to the broad categories identified in this paper - capital erosion tolerance is perhaps only alluded to in statement A and earnings volatility in statement C; there is no explicit mention of operational tolerances or liquidity although the Company will clearly be risk averse to operational risk wishing to continue as a going concern.

The linking directly to credit rating capital (statement A) to capital setting (see note a), will place a strong reliance on the rating agencies' assessment. For a Company of this size, the statement might reasonably be expected to give the Company's own interpretation of the risks it currently faces (or will face) and the working capital it proposes to hold against these risks. For example, the statement could include better definition of what the Company expects rare events to cost (1-in-50 year event for example and it's exposure to various defined catastrophic events) and to benchmark it's capital against this. Explaining the additional capital maintained up to regulatory minima and/or credit rating constraints could be appended thereafter (for operational and reputational reasons) and is more transparent.

The dividend statement C does not describe the causes that may lead to a fall in income (and dividend payments) and the severity of such a shortfall is not quantified. The risk appetite statement may therefore be rebased to tolerances/volatility around the key drivers of company earnings instead and then linking this to the potential impact on external investor dividend payments.

3. Risk Appetite Articulation and Disclosure

The executive must decide how to articulate the risk appetite for use in the public domain and for internal use. Possible considerations are given below.

External reporting (e.g. in report & accounts or separate risk reports)

Appendix 4 shows that the explanation of the risk management framework is commonly disclosed in public accounts. The company's statement is therefore likely to be accompanied by explanation of the risk landscape for the Company and it's risk management framework for monitoring/controlling those risks.

Appendix 4 shows that generic aims (e.g. relating to maintaining regulatory capital, and target returns) are often stated but specific quantitative tolerance limits assessed in the internal model are more infrequent and can vary significantly in their form. The executive may therefore wish to expand to provide further information on their tolerance level and the capital buffer being maintained at global company level (e.g. relate capital held to an event tolerance level or excesses held above regulatory or rating agency capital).

Statements concerning operational, reputation and illiquidity risk may be added for avoidance of doubt (even if they are of zero tolerance or aimed to be minimized).

The business plan referred to in statement B is potentially out of place in the risk appetite statement as it does not explain the variability that would be allowed and potential management actions in the event of breaching this. The central business plan could be explained in greater detail in other parts of the Company's disclosures and the risk appetite statement focus on variations from that plan.

Further statements regarding changes or assessment of risk policy in response to extraordinary items may be included (for example, the company's policy and appetite to expand into alternative markets or business lines, appetite for M&A activity, an assessment of the ability to raise capital in stressed scenarios)

A more granular statement for internal use might include specific tolerances across different risk types (Insurance risk, market risk etc) and across the segmentation of the business as described in Appendix 2.

Under Solvency II, reporting of current year (or a running history) of profits and exposures attributable to the major risk categories could be reported, in which case the structure/granularity of the risk appetite statement could be made to coincide.

Appendix 2

Lloyd's of London Guidance on Risk Appetite

Risk Appetite for Risk Management

The successful implementation of the Solvency II regime at Lloyd's (Lloyd's of London) has been deemed to be critical to maintaining the competitive position and the capital advantages of the Lloyd's market. Lloyd's has agreed with the FSA that it will seek the approval of one internal model, the LIM (Lloyd's Internal Model). An important component of the LIM is the establishment of a risk appetite framework and the governance thereof.

A key principle underlying the Solvency II regime is that of "proportionality". Although the "proportionality" principle does not exempt Lloyd's syndicates from any of the requirements of Solvency II, it does mean that for some risks the process of meeting the requirements may be simpler than for other risks. Managing agents will in practice need to determine their own views, taking into account the nature, scale and complexity of the risks they face. There should also be an audit trail that documents the decisions taken and the bases that were explicitly used for the proportionality determinations.

It is understood that, as Lloyd's will be seeking full internal model approval, partial internal models will not be used. Therefore, the standard formulae provided under the Solvency II regime will not be used to calculation any of the elements required for the SCR.

The detailed guidance notes for the "dry run" required by Lloyd's on "risk appetite" and its risk management context were published in March 2010. A pre-requisite for the determination of the "risk appetite" was envisaged to be the establishment of the "risk universe" that is relevant for the Lloyd's managing agent [9].

Risk Universe

The risk universe can be defined as a complete view of all possible types of risk that the business may face. As such, it is likely to be articulated at a higher level than the risk register and focuses on identifying possible risk types, rather than risk assessment.

An agreed schedule of all risks in the risk universe can facilitate the alignment between risk management and the internal model. It can be used to ensure that there is clarity on which aspects of the risk universe are included in the internal model and how these should be incorporated into the internal model. It can also be used to underpin the development of a comprehensive risk management framework, which will need to ensure that all risks can be covered on a consistent basis. Similarly, when reviewing and refining the risk governance structure, it will be important to ensure that all possible areas of risk are addressed within the governance framework.

As part of its Solvency II programme, Lloyd's has defined its own risk universe using a number of industry sources. Lloyd's does not expect its agents to have an identical risk universe, although there will be many common areas of risk [10].

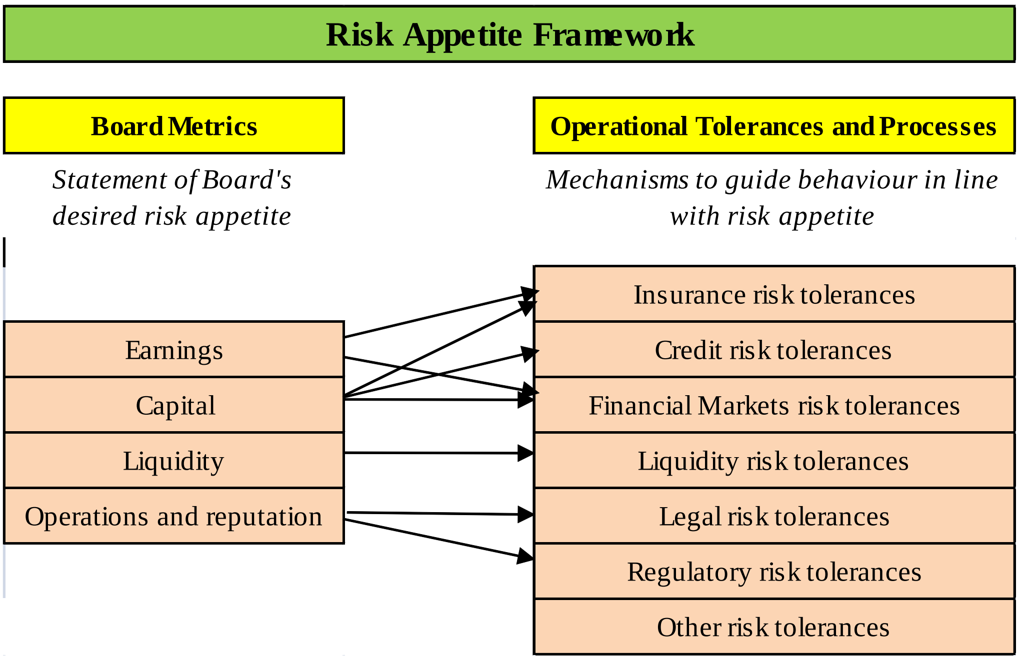
The suggested risk universe template is illustrated below.

Lloyd's of London - Risk Type			
Level 1	**Level 2**	**Level 3**	**Level 4**
Financial	Insurance	Underwriting risk Reserving risk Claims risk Reinsurance risk Aggregation risk Run-off risk Insurance operation risk	
	Credit	Insurance counterparty default risk	Reinsurance credit risk Insurance credit risk Broker credit risk
		Investment credit risk Credit operational risk	
	Financial markets	Interest rate risk Exchange rate risk Equity risk Other investment risk Concentration risk Asset/liability matching risk Financial market operational risk	
	Liquidity	Liquidity risk Regulatory liquidity risk Liquidity operational risk	
Insurance	Operational	Employee practices risk Systems and information risk Business disruption risk Processes risk	
	Regulatory and Legal	Financial crime risk	Internal financial crime risk External financial crime risk
		Other legal risk	
		Regulatory compliance risk	UK regulatory compliance risk US regulatory compliance risk O/s regulatory compliance risk
		Unattractive supervisory environment risk	
	Strategic	Failure to set and maintain appropriate strategy Failure to implement strategy Failure to exploit market changing event	
	Group	Group risk Pension fund risk	
Other	Capital	Inappropriate capital calculation risk Insufficient capital risk ('too little' capital) Inefficient capital risk ('too much' capital) Inadequate quality of capital risk	

Risk Appetite Framework

Lloyd's and its managing agents are required, under the Solvency II regime, to evidence an effective risk appetite framework. This sets the boundaries within which risk taking should remain in order to meet stakeholder expectations. It should articulate the key set of risk management metrics against which the business is managed and should cascade down in a pragmatic way between a 'top level' view and day-to-day decision making processes. The risk appetite framework should underpin the ERM processes and be prioritised for early implementation.

The risk appetite framework should include the '**Board Metrics'** and the '**Operational Tolerances and Processes**', as indicated below.



The **Board Metrics** should provide a tangible sense of how risk taking will impact the business. It is understood that Lloyd's of London has used the above four types of impact to link risk appetite to its strategy. The more detailed risk tolerances that should sit below each of the **Board Metrics** can then be interpreted as being the 'root causes' of risk that will cause these business impacts.

The **Operational Tolerances and Processes** should be a set of more detailed risk limits, triggers and monitoring processes, which should be defined on a risk-type basis. Therefore, for each risk defined category, there should be a clear set of risk tolerances that are in place to ensure that risk taking is managed in line with the risk boundaries defined by the **Board Metrics**.

Furthermore, an escalation process should be defined that clearly defines each risk category, such that, if an operational tolerance is breached, this breach is communicated through appropriate channels. Action can then be taken to resolve the breach in a timely manner.

The table below provides an illustrative worked example of how the risk appetite framework may operate in practice.

Risk Appetite Framework	
Board Metrics	**Operational Tolerances and Processes**
1. **"We do not expect to expose our capital to potential losses of more than [x] in a [1 in y] year scenario"** **Note:** Focussing on the risk appetite framework on key business metrics will support alignment of business strategy and risk management.	a. Use of Solvency II internal model to assess potential losses of capital through the business planning process. b. Monitoring of variance against business plan and the resulting risk exposre.
2. **"We do not to lose more than [x] more often than once in every [y] years from investment income"** **Note:** A key source of earnings volatility is likely to be investment income, hence it may be useful to define parameters within which performance deviation is acceptable.	a. Portfolio diversification results. b. Single name and other concentration limits.
3. **"We have no appetite for failure of material systems or processes which may cause significant business disruption"** **Note:** As well as financial risks, it will be important to consider non-finanacial risks such as system risk.	a. Target system and process recovery times for key activities. b. Strength of business continuity processes. c. System and process downtime metrics.
4. **"We have no appetite for unprofitable classes of business"** **Note:** There should be a reasonable expectation of making an underwriting profit on each line of business.	a. Target loss ratios by business class.
5. **"We seek to ensure an appropriate degree of quality and diversification in reinsurance coverage"** **Note:** Aim to have clear objectives set for the extent to which a syndicate is reliant on particular reinsurers.	a. Limits per reinsurer on concentration and credit rating.
6. **"We have no appetite for significant deviations in earnings driven by reserving deficits"** **Note:** Focus on the degree to which reserve deteriorations may affect the syndicate.	a. Measure extent of impact on combined ratio from reserve deterioration.

The table below provides an illustrative worked example of how the risk appetite framework may operate in practice.

Risk Appetite Framework - 6-stage process						
	Stage 1 Understand current risk	**Stage 2** Scope and objectives	**Stage 3** Stakeholder expectations	**Stage 4** Board Metrics	**Stage 5** Operational tolerances and processes	**Stage 6** Governance and escalation
Description	Identify existing risk appetite and tolerances	Define and communicate approach and outcome of risk appetite work	Articulate stakeholder expectations	Define high level risk appetite metrics	Define detailed operational tolerances and processes	Linking risk appetite into the risk governance structure
Objective	Ensure existing martrices are appropriately leveraged	Establish clarity around the risk appetite project (typically understanding of risk appetite is not consistent)	Enable a focus on and clear link to business strategy (i.e. ensures management of risk aligns with key objectives of the business)	Establish a clear concise set of matrices that are intuitive and aligned to business goals.	Ensure robust processes are in place to manage risk on a day to day basis in line with Board Metrics	Ensure a clear ownershop structure and escalation process is in place to manage risk profile within risk appetite
		Identify key stakeholders and risk owners within the business (should include key financial risk stakeholders, not only operational risk)		Demonstrate embedding of risk management in strategic decision making	Demonstrate embedding of risk management in day to day business operations	

Whilst the risk appetite frameworks for managing agents will differ, the process of formalising and enhancing the risk appetite framework of Lloyd's has provided a number of lessons which may support the development process, as indicated below. As this will be a large and complex transformational programme, there are many interdependencies between individual elements of Solvency II implementation. In order to ensure alignment, dependency between the Solvency II work streams is likely to be essential.

Key Challenges and Considerations	
Focus on materialty	1. Risk appetite should focus, at a minimum, on the most material risks of the organisation
	2. As the framework will be owned by the Board, it is likely that key metrics will focus on the risk taking activities which may materially impact the performance of the firm
	3. Day to day decision taking around risk may be guided by operational risk tolerances
Leverage existing material	4. A sigificant amount of existing processes and metrics should already be in in place - this is likely to be a good starting point to develop a risk appetite framework
	5. Existing processes and metrics may be able to slot into the risk appetite framework or may crystalise the current view of the organisation's tolerance to risk taking
Clearly link risk appetite to strategy	6. Risk appetite should support the achievement of business strategy, hence there should be a clear link between the two processes
	7. The degree of risk taking which is acceptable within two managing agents may be significantly different and this will be reflected

Programme Dependencies	
Solvency II	**Dependencies to Consider**
Internal Model	8. Many risk appetite metrics are likely to be produced by the internal model, hence risk appetite will impact specification of the internal model
	9. Conversely, given risk appetite metrics are likely to contain tolerances against specific internal model outputs, final parameterisation of the risk appetite framework may not be able to be completed until the model is producing reliable outputs
Governance Framework	10. Ownership of the risk appetite framework and metrics should be clearly documented within the governance framework.
	11. Similarly, escalation processes should be clearly documented and evidenced within the governance framework.
Internal Reporting / MI	12. Risk appetite is likely to drive a significant proportion of the risk management information, hence Board or other risk committee reports should include this specification

Solvency II Governance

Lloyd's already expects its agents to have in place an effective high-level governance framework in place that is relevant to the risk faced by its business model. Under the Solvency II regime, there are additional new governance requirements, include those for risk management and actuarial functions.

Under the Solvency II regime, Lloyd's agents will need to ensure that their risk management capability is sufficiently developed to meet the requirements for an effective risk management system. This should include ensuring that there is a formal risk management strategy covering all risk categories and that risk appetite is defined for all risk types. Furthermore, there needs to be an effective risk escalation process for all risk issues.

Regarding the actuarial function requirements, the Solvency II directive refer to the actuarial function holder, who may be internal or external. Although the actuarial function could be entirely outsourced, it is understood that this may cause difficulties for Lloyd's agents in satisfying the Use Test requirements for an internal model. They might also have difficulties in demonstrating to the regulatory authorities that the actuarial function contributes to the implementation of an effective risk management system.

Solvency II Use Test

Under the Solvency II regime (Article 120), a general insurance undertaking needs to demonstrate that its Solvency II internal model is widely used in and plays an important role in their system of governance. The wider the scope of the internal model is, the easier it may prove to demonstrate that it is widely used for risk management purposes. Although it is not expected that internal model outputs lead to risk decisions, it is expected that the internal model outputs were considered as part of the decision making process for the important risk decisions faced by the general insurance undertaking.

Use for decision making

Some examples of how risk appetite can be used for decision making by Lloyd's managing agents and syndicates were provided in the Lloyd's guidance notes on the Solvency II regime, as part of the "dry run" documentation for the Solvency II implementation [11]. These examples are outlined below.

1. **Risk appetite on risk position**. The internal model is used to provide reports to the Board and senior management of the syndicate's exposure to areas of risk at different percentiles and return periods. The discussion, which is documented, may lead to the Board issuing instructions that lead to changes in the syndicate's exposures, as appropriate.
2. **Business Plan alignment with risk appetite.** The agent runs a draft of their syndicate(s) business plan(s) through their internal model and, following a senior management review, further analysis in carried out on the risk exposure implications of the business plan and how this compares with the agent's risk appetite.
3. **Reinsurance credit risk.** The agent has set risk appetite for any one reinsurer, based on categories determined by current security ratings. After the reinsurance programme has been purchased for the underwriting year, a particular reinsurer is downgraded. The agent considers output from the model, which gives an analysis of the probability that gross losses during the year will cause the syndicate to exceed the risk appetite for the reinsurer under consideration.

Appendix 3

App3.1 Risk Appetite – ERM Symposium examples

Example A	
Insurance Company	Risks Are Us
Enterprise Size	Medium
Line of Business	Life settlement
Ownership Structure	Private Equity
Business model risk focus	Volatility
Risk Appetite Statement	The probablity of negative GAAP earnings for the next 12 months is no more than 20%
Risk Appetite Metric	Stochastic risk-based projection model shows losses in no more than 1 out of 5 scenarios
Mortality Risk Tolerance	Projected losses due to adverse mortality (longevity) experience in no more than 1 in 8 years
Mortality Risk Limit	Underwriting limit of £5 million. No single medical condition may inflict more than 10% of the insured population.
Interest Rate Risk Tolerance	Projected losses due to interest rate movements in no more than 1 in 8 years
Interest Rate Risk Limit	Duration mismatch between assets and liabilities of no more than 3 years

Example B	
Insurance Company	Play It Safe
Enterprise Size	Medium
Line of Business	Household insurance
Ownership Structure	Mutual
Business model risk focus	Security
Risk Appetite Statement	The annual risk of ruin is no more than 0.2% and the need for additional capital is no more than 1 in 50 years
Risk Appetite Metric	Stochastic risk-based projection model shows negative equity in no more than 1 in 500 scenarios, and capital below required level in no more than 1 in 50 scenarios
Natural Disaster Risk Tolerance	Sufficient capital to sustain losses from the worst 0.1% of simulated natural disaster scenarios.
Natural Disaster Risk Limit	Retention limit of £2 million per home; no more than 5% of retained business written in any given natural disaster zone
Counterparty Credit Risk Tolerance	Reinsurance counterparty default reduces capital below 200% of regulatory limit in no more than 1% of scenarios
Counterparty Credit Risk Limit	Reinsurers must be rated AAA; no more than 10% of business with any single reinsurer

Example C	
Insurance Company	Middle of the Road
Enterprise Size	Medium
Line of Business	Personal and commercial lines
Ownership Structure	Mutual
Enterprise risk focus	Long term security and survival
Risk Appetite Statement	The probablity of negative GAAP earnings for next 12 months is no more than **xxx** %
Risk Appetite Metric	Stochastic risk-based projection model shows losses in no more than 1 out of **xxx** scenarios
	Capital at Risk - Exposure at 1 in 200 year return period
Insurance Risk	Underwriting Risk: risk appetite £**xxx**, or yyy% of ECR, optimal range 15% to 20% of ECR
	Personal Lines: target ROC 10%, risk appetite £**x** and 10% of earnings
	Credit and MIG Lines: target ROC 10%, risk appetite £**x** and 5% of earnings
	Property Lines: target ROC 20%, risk appetite £**x** and 20% of earnings
	Catastrophe Risk: risk appetite £**xxx**, or yyy% of ECR, optimal range 25% to 37% of ECR
	Personal Lines: target ROC 10%, risk appetite £**x** and 10% of earnings
	Credit and MIG Lines: target ROC 10%, risk appetite £**x** and 5% of earnings
	Property Lines: target ROC 20%, risk appetite £**x** and 20% of earnings
	Reserving Risk: risk appetite £**xxx**, or yyy% of ECR, optimal range 25% to 30% of ECR
	Overall: risk appetite £**x** and 15% of earnings
Market Risk	Interest Rate Risk: risk appetite £**xxx**, or yyy% of ECR
	Currency Risk: risk appetite £**xxx**, or yyy% of ECR
	Other Market Risk: risk appetite £**xxx**, or yyy% of ECR
Credit Risk	Inv Counterparty Default Risk: risk appetite £**x**, or y% of ECR (optimal range **a**% to **b**%)
	Reinsurer Counterparty Risk: risk appetite £**xxx**, or yyy% of ECR
	Coverholder Counterparty Risk: risk appetite £**xxx**, or yyy% of ECR
	Broker Counterparty Risk: risk appetite £**xxx**, or yyy% of ECR
Liquidity Risk	Liquidity Risk: risk appetite £**xxx**, or yyy% of ECR
Operational Risk	Each individual Operational Risk has risk appetite based on impact/likelihood, then aggregated
	Operational Risk 1: risk appetite £**xxx**, or yyy% of ECR
	Operational Risk 2: risk appetite £**xxx**, or yyy% of ECR
	Operational Risk 3: risk appetite £**xxx**, or yyy% of ECR
Group Risk	Each individual Group Risk has a risk appetite based on its impact/likelihood, then aggregated
	Group Risk 1: risk appetite £**xxx**, or yyy% of ECR
	Group Risk 2: risk appetite £**xxx**, or yyy% of ECR
	Group Risk 3: risk appetite £**xxx**, or yyy% of ECR
Other Risks	Strategic and Emerging Risk: risk appetite £**xxx**, or yyy% of ECR

App3.2 Risk Appetite Framework Template

A specimen template for a high-level risk appetite framework is shown below.

Risk Appetite Framework

<table>
<tr><th>Risk Category</th><th>Range as % Solvency Capital Requirement</th><th>Sub-Risk</th><th>Risk Appetite GBP</th><th>Risk Appetite Optimum Range</th><th>Risk Split (Class or type)</th><th>Target Return On Capital</th><th>Risk Appetite as % of Earnings</th><th></th><th>Metrics Used to Monitor Risk Appetite</th></tr>
<tr><td rowspan="9">Insurance</td><td rowspan="9">60% to 80%</td><td rowspan="3">Underwriting</td><td rowspan="3">£x</td><td rowspan="21">As % of Capital Held</td><td>Class A</td><td>>10%</td><td rowspan="21"></td><td rowspan="21"></td><td rowspan="21">Each Risk area should be monitored using appropriate metrics</td></tr>
<tr><td>Class B</td><td>>15%</td></tr>
<tr><td>Class C</td><td>>25%</td></tr>
<tr><td rowspan="3">Reserving</td><td rowspan="3">£x</td><td>Class A</td><td rowspan="3"><5%</td></tr>
<tr><td>Class B</td></tr>
<tr><td>Class C</td></tr>
<tr><td rowspan="3">Catastrophe</td><td rowspan="3">£x</td><td>Class A</td><td>25%</td></tr>
<tr><td>Class B</td><td>10%</td></tr>
<tr><td>Class C</td><td>0%</td></tr>
<tr><td rowspan="3">Market</td><td rowspan="3">5% to 15%</td><td>Interest Rate</td><td rowspan="3">£x</td><td rowspan="7">N/A</td><td>>0%</td></tr>
<tr><td>Currency</td><td>>0%</td></tr>
<tr><td>Inflation</td><td>>0%</td></tr>
<tr><td rowspan="3">Credit</td><td rowspan="3">5% to 15%</td><td>Reinsurer Counterparty Default Risk</td><td rowspan="3">£x</td><td rowspan="9">N/A</td></tr>
<tr><td>Investor Counterparty Default Risk</td></tr>
<tr><td>Broker Counterparty Default Risk</td></tr>
<tr><td>Liquidity</td><td>0% to 5%</td><td></td><td>£x</td></tr>
<tr><td rowspan="3">Operational</td><td rowspan="3">5% to 15%</td><td rowspan="3"></td><td rowspan="3">£x</td><td>Event Type A</td></tr>
<tr><td>Event Type B</td></tr>
<tr><td>Event Type C</td></tr>
<tr><td>Group</td><td>0% to 10%</td><td></td><td>£x</td><td rowspan="2">N/A</td></tr>
<tr><td>Other</td><td>0% to 10%</td><td>E.g Emerging Risk</td><td>£x</td></tr>
</table>

App 3.3 Quantitative vs. Qualitative

The Risk Appetite Statement can include qualitative as well as quantitative risk metrics. A disguised example was presented at a recent risk appetite presentation [12]. A graphic based on this example is shown below.

	Metric	Illustrative Definition	Management Options	Key Stakeholder
Quantitative	Target debt rating	• We target a Moody's rating of "XXX" on our senior debt, at all times staying above "YYY"	• Granular measurement of Economic Capital • Monitoring key metrics (e.g. AFR, liquidity, etc.)	• Debtholders • Rating agencies
	Earnings volatility	• We will not miss consensus earnings forecast by more than "X"% at a "YY"% confidence level • We will aim to consistently target dividend of "XXX"	• Quantitative stress testing of business plans	• Shareholders
	Maximum loss	• We do not wish to see a loss of more than "XXX" at the "YY"% confidence interval	• Bottom up risk measurement	• Management
	Liquidity headroom	• Available liquidity resources to meet requirements at "XX"% confidence interval	• Liquidity model to measure and forecast requirements	• Regulator • Shareholders • Debtholders
Qualitative	Reputation	• Ensure that the highest ethical standards are followed at all times	• Ethical policy written to be followed by all staff all the time	• Customers • Regulator
	Regulation	• Have no significant instances of regulatory breach	• Compliance department	• Regulator • Shareholders
	Governance	• Ensure appropriate policies and processes are followed at all times	• Internal/external audit	• Regulator • Shareholders
	Growth	• All new business opportunities to follow appropriate risk controls	• Strategic Planning Process • Avoid portfolio concentrations	• Shareholders

App3.4 Risk Appetite Maturity Profile Matrix

Table 1 provides a high-level overview and template of the considerations and approaches. This can help position the risk appetite in perspective alongside the more detailed checklists below.

Table 1. Philosophy to Risk and Attitudes

Basic	***Standard***	***Advanced***
A. Philosophy		
▪Un-listening and immature ▪Not clear - muddled and inconsistent	▪Partially developed but not comprehensive ▪Strong ideas in some areas weak or non-existent in others	▪Clear, cohesive, holistic, integrated and adult ▪Comprehensive yet effective policy statements & procedures ▪Proportionate (e.g. size, complexity, industry), practical and meaningful ▪Clarity on performance, measures, expectations, risk adjusted thinking
B. Risk Culture		
▪Deny that unexpected things will happen ▪Closed and inflexible	▪Focused on the historical, the tangible ▪Does consider the Known Unknowns	▪Expect the unexpected ▪Values diversity, stakeholder views are a positive ▪Pragmatic and intuitive alongside the analytic
C. Opportunity Management		
▪Risk control to minimise downside risk ▪Awaits reliable market data and intelligence ▪Follows competitors (who may fail)	▪Risk control to minimise downside risk ▪Acts on market data and intelligence ▪Generally follows the herd but prepared to step outside the crowd in some circumstances	▪Opportunity management exploits upside risks ▪'Blue ocean' strategies to create value innovation ▪Leadership role to create new market space
D. Attitudes		
▪Does not recognise the organisation has unique style and values ▪Sees ERM as an unnecessary cost	▪Thinks that every organisation has the same style and values ▪ERM response related to regulation, real or perceived, in particular rating agency expectations	▪Relate organisation style to risk ▪Integral to Governance ▪ERM business advantage; an offensive weapon; raises certainty and chance of winning
E. External Awareness		
▪Inward looking - borders on the complacent ▪Highly reactive and not inclined to think ahead in any cohesive manner	▪Looks outside but does not try too hard ▪Reactive response to external events and their implications	▪Hungry to be aware of the outside world – rapid scientific / technological changes affect risk and behaviour, globalisation, sceptical about institutions ▪Active event identification (internal / external): seeks meaning and potential opportunities in/from events

Table 2. Processes

Basic	***Standard***	***Advanced***
2.1 Full process mapping and quality management - General		
▪ Some processes mapped ▪ Limited links between process maps ▪ Generally silo based and limited integrated view ▪ No ongoing updating or metrics ▪ Policy framework disjointed, not clearly owned or coherent	▪ Majority of processes mapped ▪ Some links between process maps ▪ Some key input / throughput / output metrics ▪ Some attempt at coherent policy framework	▪ All processes mapped and top down view exists ▪ Links between processes explicit (Integrated view) ▪ Policy framework, processes & info flows clear ▪ Causal consequences of failure logged ▪ Full value chain analysis and drivers understood
2.2 Impact of processes, including that of their failure		
▪ Some financial aspects of processes logged ▪ Consequences of failure not fully documented ▪ No explicit understanding of controls ▪ Unexpected events occur regularly (say 1x per week) ▪ No pre-planned responses	▪ Financial and customer impact of most processes logged ▪ Links between related processes in place ▪ Many KPIs (Key Performance Indicators) for some processes regularly measured	▪ Process consequences log ▪ Causal consequences of one failure understood ▪ Full understanding of gross/net and controls ▪ Risk based internal audit ▪ Surprises very rare ▪ Governance is integral part of process view
2.3 Understanding of (group strategic and operational) objectives		
▪ Some strategic and operational objectives logged as part of planning process ▪ Some aspects of risk to achieving objectives in place ▪ Basic HML for probability / impact of failure logged	▪ Most aspects of plans translated into clear objectives ▪ Risks to achieving objectives articulated occasionally ▪ Some quantification of impact in terms of probability and severity	▪ Strategic and operational goals have well documented objectives ▪ Risks in achieving objectives logged in planning process and regularly updated ▪ Clearly quantified impacts at considerable granularity
2.4 Control Framework		
▪ Basic controls exist ▪ Some documented, but generally ad hoc ▪ Concerns at regulatory visits - will be satisfied? ▪ Effort behind controls not proportional to risks ▪ Strategic and big management decisions outside framework	▪ Key controls documented ▪ Some controls not automated, relying on manual work and knowledge of individuals	▪ Coherent framework - well documented policies ▪ Coherent; inbuilt resilience ▪ Internalised across firm ▪ Effective regulatory / compliance reporting ▪ Proportionate effort; with clear rationale ▪ Clear links to Governance, ERM, assurance, audit
2.5 Impact of assumptions failing, and other barriers to achievement		
▪ Some key assumptions behind objectives logged ▪ Risk maps consider barriers, but not holistically ▪ Some senior management discussion ▪ RMC	▪ Most key assumptions logged ▪ Bottom up and top down risk maps exist ▪ Regular top management and board discussion ▪ Active and well managed risk committee exists	▪ Log of key assumptions ▪ Full risk mapping ▪ Regular senior management / board discussion; External challenge ▪ RMC active and full links audit

Table 3. Processes Risk Cycle

Basic	***Standard***	***Advanced***
3.1 Overview		
▪Exists, with non-complete implementation ▪Risk manager in place, but low level view	▪Fully implemented cycle ▪CRO (Risk Director) in place, with ICA links explicit	▪Detailed & implemented risk cycle in place ▪CRO influencing business, links ICA and controls ▪Feedback loops to help learning and balanced view
3.2 Identification		
▪Identification annually ▪Limited challenge ▪Limited and controlled access (e.g. only by Risk Manager)	▪Identification fully reviewed annually, with regular updates ▪External challenge on annual basis	▪Continuous identification process (real time) ▪On going external challenge ▪Fully accessible
3.3 Understanding (assessing and evaluating)		
▪Some attempt to quantify ▪Implicit acknowledgement of controls	▪Understanding of risks takes place, and quantification after ▪Control environment clearly understood	▪Clear insight/discussion on risk consequences Quantification of gross and net takes place once understanding agreed
3.4 Response planning and managing		
▪Most risks in risk register have owner allocated ▪Owner sets out bottom up approach to mitigation ▪No clear executive ownership for ERM	▪All risks have clear owners allocated ▪Owner proposed approach in light of risk appetite (not always mitigation) ▪Management challenged and agreed by RMC	▪All risks have owners allocated ▪Full assessment of approach to risk appetite ▪Full executive sponsorship for ERM processes ▪ Clear view of risk controls
3.5 Reporting		
▪Annual reporting of full picture (risk register) ▪Mainly paper based - not open to all	▪Exists on regular basis, with non-complete implementation ▪Risk manager in place, but low level view	▪Agreed annual calendar involving right people/bodies at right time ▪Lead by respected CRO ▪Proportionate reporting - coherent info at right level
3.6 Review of Approach		
▪Only occasional review of process ▪No clear view on what best practice is	▪Annual review of process effectiveness ▪Occasional use of external resource to benchmark	▪Fully bench-marked annual review of process ▪Participation on risk forum to ensure best practice
3.7 General Approach to Risk Management		
▪Delegated to Risk Manager ▪Some senior management participation in aspects ▪RMC focus on low level details	▪Active involvement of senior management ▪RMC take overview ▪RMC goals in individual's goals, but not embedded	▪Board and senior management fully involved ▪Key decisions and main activities risk assessed ▪Embedded in behaviours
3.8 Regular Reviews		
▪Irregular and partial reviews of Policy/Strategy, Ops / Governance but little Board involvement	▪Irregular reviews of Policy / Strategy / Operations / Governance - with some Board involvement	▪Regular thorough reviews of Policy / Strategy / Operations / Governance - with full Board involvement

Table 4. People

Basic	*Standard*	*Advanced*
4.1 Overview – General		
▪Risk management seen as frustrating constraint ▪Risk management if it exists 'home-grown'	▪Some, limited recognition that people are key elements of risk ▪RM a supporting management accountability ▪RM may include external skills	▪Recognition that people and culture are key elements of risk ▪RM key part of management ▪Fully trained and professional risk management resource
4.2 Overview – Wider Stakeholder Perspective		
▪One group of stakeholders exerts wrong or unbalanced pressure ▪Limited or no reference to several groups of stakeholders	▪Recognition that stakeholders have differing requirements ▪Some attempt to consider, but differences not reconciled	▪Considered view of all stakeholders well articulated and balanced response
4.3 Roles and Responsibilities		
▪Organisation roles not clear or fully articulated ▪Risk ownership unclear ▪Responsibility for maintenance of risk maps not agreed ▪Access to risk information severely limited	▪Organisation has clarified roles but not checked their coherence ▪ Risk ownership clear, but may still be too junior/not respected ▪Responsibility for maintenance of risk maps clear but piecemeal ▪Access to risk information open as required to selected few	▪Organisation has clear roles - coherent with strategy ▪Risk ownership clear - role of central team and management versus whole organisation clear ▪Responsibility for maintenance of risk maps clear ▪Access to risk info open
4.4 Training and Awareness		
▪Risk mentioned occasionally ▪Risk management team learning on the job ▪Risk measures for specialists ▪More generally training plans ad hoc and vary by department ▪No use of intranet or surveys or feedback ▪Limited understanding of competence or skill requirements ▪No access to specialist training	▪Risk referred to in general terms in training ▪Risk measures being introduced but not accepted or understood ▪Overall training plans reviewed for top-down sense but limited response as consequence ▪Competence based training, but not fully directed ▪Specialist risk training for those that need it	▪Risk management fully embedded in all training ▪Understanding of risk measures ▪Overall training plans fed from capability requirements ▪Acknowledge areas of relative competence/incompetence - ensure direction has integrity with the same - not in conflict ▪Specialist risk training for those that need it
4.5 Knowledge Sharing		
▪No Knowledge sharing ▪No understanding of required capabilities to compete ▪Centres of excellence may exist, but to control not share	▪Knowledge sharing acknowledged, but limited action ▪Capabilities to compete discussed; not fully acted upon ▪Centres of excellence may exist and plans in place to develop	▪Well designed knowledge capture and sharing system ▪Linked to capability and expertise development ▪Centres of excellence capture and share best practice
4.6 Performance objectives, assessment and reward		
▪Incentive plan conflicts with risk management goals ▪Risk objectives not set, or independent of goals ▪Assessment not independent – biased ▪Measures make no allowance for risk ▪No widespread feedback or monitoring of impact of risk management	▪Incentive plan aligned or mentions risk management goals ▪Risk objectives set but not fully integrated with goals ▪Assessment includes elements of independence ▪Measures acknowledge need to be adjusted for risk, but not embedded in appraisal system ▪Some feedback or monitoring of impact of RM, but ad hoc	▪Risk an integral part of objectives and objective setting ▪Performance assessment subject to independent feedback ▪Set across all key dimensions ▪Objectives co-coordinated with business line objectives ▪Performance risk measures ▪ Reward system reinforces ERM ▪Performance feedback on risk ▪Better decisions, ERM monitored

Table 4. People *(continued)*

Basic	***Standard***	***Advanced***
4.7 Resource Planning		
▪No man-power planning ▪Skills shortages occur as training lead-times not allowed for ▪Limited use of specialist groups or 'hit-teams'	▪Man-power planning considered alongside strategic plans ▪Skills planning and training lead-times allowed for in some more forward looking business areas ▪Use of specialist groups when major issue needs resolving	▪Full man-power planning ▪Skills planning and training lead-times allowed for ▪Widespread use of specialist groups (e.g. investment, underwriting, capital management)
4.8 Resource Planning - Risk Management Context		
▪Limited specialist resource ▪Tendency to be hidden and bottom-up - maybe linked with compliance ▪Use of external resources only in extreme circumstances ▪Tendency to be home-grown skills lacking true external input	▪Acknowledge need for specialists alongside those to take overview ▪Ad hoc use of specialist teams and mixed skill teams to resolve risk management issues ▪Ad hoc but not infrequent use of external resources ▪Starting to recruit trained, experienced risk professionals	▪Balance use of specialists with those able to take the overview ▪Use specialist teams and mixed to resolve risk management issues ▪Well planned use of external resources ▪Employ properly trained, experienced risk professionals
4.9 CRO and Actuary		
▪CRO role may not exist and limited risk policies ▪Actuary/modeller has ICA in place, but limited if any connection to risk framework ▪Role of actuary may be narrow and probably seen as black-box	▪CRO appointed, developing credibility and is point of co-ordination (not of control) ▪CRO has initiated risk policies ▪CRO may not yet understands all areas of the business but generally communicates well ▪Starting to develop relationship with ERM actuary/modeller - probably not yet in same team ▪Actuary role narrow modelling one, but still seen as black-box	▪CRO has credibility and is point of co-ordination (not of control) ▪CRO sets policy ▪Understands all areas of the business and communicates well ▪Needs clear working relationship with ERM actuary/modeller - ideally in same team ▪Role of ERM actuary may be narrow or wide : exhibits first rate communication skills : not Black Box : thought leadership
4.10 Authority Levels and Discipline		
▪Authority levels, roles and responsibilities not fully established ▪Appropriate standards of behaviour not the norm ▪Limited or zero sanction for non-adherence	▪Authority levels articulated but not coherent with each other or risk appetite and policy ▪Appropriate standards of behaviour generally endorsed ▪Suitable sanction for non-adherence generally adopted	▪Authority levels, roles and responsibilities clearly set out and coherent with risk appetite and policy ▪Appropriate standards of behaviour valued and rewarded ▪Sanctions for non-adherence
4.11 Structures and reporting lines (including checks and balances)		
▪Risk managers low/ middle level ▪Dispersed and incoherent responsibilities ▪Same people prepare risk monitoring reports as approve/execute risk taking ▪Concept of ERM not discussed ▪Organisational model not properly thought through ▪Concept of separate assurance from risk management not understood	▪Ad hoc checks and balances ▪CRO in place; starting to build ERM structure / team with right skills; right size for organisation ▪ RM and IA separate lines ▪Know that risk monitoring indep from risk taking/measurement ▪ Organisational model reasonably clear, but not widely articulated ▪Core RM team still lacks proper terms of reference and skills ▪Use of specialist teams ad hoc	▪Appropriate checks and balances ▪ERM team, under CRO in place; right skills/size for organisation ▪RM and IA separate lines ▪High level Risk Manager ▪Measures/monitoring indep from risk taking and measurement ▪Organisational model clear, well articulated/understood/accepted ▪Core RM team; balance practical and theoretical ▪Effective use of specialist teams

Table 4. People *(continued)*

Basic	***Standard***	***Advanced***
4.12 Leadership Style		
▪No clear articulation of style ▪Varying styles ▪Blame culture - dominant senior executive ▪Inflexible and intolerant ▪Shareholders driving unhelpful / incorrect / inconsistent behaviours	▪Leadership in part articulated; linked to organisational values ▪Consequences of agreed style not discussed widely ▪Learning and improvement desired key elements of style, but not yet embedded ▪Leadership for ERM initiated ▪Open / independent assessment of management behaviour ad hoc ▪Decision making generally shared and accepted; can be inconsistent with strategic goals	▪Leadership style clearly articulated (e.g. command & control, decentralised, empowered) ▪Consequences of agreed style fully considered ▪Learning and improvement key elements of style ▪Leadership for ERM respected ▪Open / independent assessments of management behaviour regularly undertaken/welcomed ▪Consistent / transparent decisions
4.13 The Way Things are Done		
▪Risk management purely advisory role ▪Solely responding to regulatory requirements ▪Patchy or non-existent ▪Ad hoc Board / management access ▪Delegation of key risk management issues ▪No clear senior management responsibility	▪Values include clear reference to risk management/ERM ▪Projects/plans and processes normally have some aspect of risk mentioned ▪Board discuss risk, and while access clear not yet regular ▪Management team understand importance of risk management but may not 100% agree ▪Senior management some responsibility for management of key risks ▪CEO & senior team starting to set the tone ▪Limited awareness of corporate risk management systems	▪Values include clear reference to risk management/ERM ▪Projects/plans and processes all have ERM mentioned ▪Risk management has appropriate authority ▪Board access clear and regular ▪Management team have clear respect for risk management ▪Senior management have clear responsibility for management of key risks ▪CEO & senior team set the tone ▪High / widespread awareness of corporate risk management systems
4.14 Culture and Behaviours		
▪Lack integrity ▪Limited or zero MI framework to track/manage risk ▪Limited ability to stand up for beliefs in face of strong / demanding management and objectives, but whistle-blowing policy in place ▪Muddled vision, beliefs and values - no feedback ▪Ad hoc communication - more propaganda, limited mention of risk issues and risk awareness ▪Relatively unmotivated staff and management	▪Terminology still varies across the organisation as silos diminish ▪Elements of MI framework in support and to track/manage starting to be developed ▪Intent is for integrity, but not always in practice ▪In main ability to stand up for beliefs in face of strong / demanding management and objectives ▪Vision/ beliefs/values widely articulated - with feedback, but inconsistent application ▪Regular communication on all matters, risk issues/awareness, but not always as open as ideal ▪Generally well motivated staff and management	▪Common terminology across the organisation ▪Right MI framework in support and to track/manage ▪Exhibits full integrity ▪Ability to stand up for beliefs in face of strong/demanding management and objectives ▪Shared vision, beliefs and values - with feedback ▪Clear, regular, open and honest communication on all matters, including risk issues and risk awareness ▪Well motivated staff and management

Table 5. Planning

Basic	***Standard***	***Advanced***
5.1 Planning Cycle and Components		
▪Blurred definition of planning process ▪No regular updates or review ▪No flexibility - goals have to be met without exception ▪Blame culture - no excuses ▪Back office activity - limited business meaning	▪Management take responsibility ▪Time horizons set without practical business insight ▪Annual review and comparison to ICA/Corporate model ▪Limited realistic discussion of issues - tend to be dealt with by planning department ▪Limited consideration of technology/innovation	▪Right people and management take responsibility ▪Time horizons meaningful to business : practical ▪Regular review and link to ICA ▪Updating of expectations open and honest; generally limited changes based on outward looking assessments ▪Forward looking risk awareness
5.2 Objective Setting		
▪Ad hoc, not cohesive ▪Mixture top-down, bottom-up ▪Not clearly set out ▪No links to performance system ▪No reference to risk as part of objective set	▪Generally cohesive ▪Reference to shareholders ▪Clearly set out, reasonably widely shared ▪Indirect/emerging links to team and individual performance goals ▪Acknowledges issues from risk appetite and risk tolerance	▪Well considered and cohesive, with reference to shareholder s ▪Clearly set out, widely shared and understood ▪Direct links to team and individual performance goals ▪Includes considered reference to risk appetite and risk tolerance
5.3 Incorporation of Risk Issues into Planning Process		
▪No mention of risk issues ▪Assumptions not stated - often only implicit ▪Risk management seen mainly as barrier to getting things done	▪Risk referred to in planning ▪Occasional links to risk register ▪Recognition that risk appetite and strategy need to be linked ▪RM seen as avoidance of threats ▪Clear assumptions and risks to these assumptions broadly stated	▪ERM integral to planning process ▪Direct links to risk register ▪Risk appetite aligned to strategy ▪ERM for opportunities as well as avoidance of threats ▪Clear assumptions and risks to these assumptions clearly stated
5.4 Resource and Capital Deployment		
▪Economic capital not widely understood or used ▪No clear prioritisation process - bottom-up and he who shouts loudest wins ▪No recognition of Op Risk issues	▪Economic capital referred to, but not regularly used ▪Used in prioritisation and decision taking when remembered ▪Scare resource deployment discussed but done ad hoc	▪Clear use of economic capital ▪Optimised deployment given objectives and risk insights ▪Used in prioritisation and decision taking, allocated to processes as well as projects ▪Dynamic resource deployment
5.5 Definition of programmes, projects and change		
▪No clear policy or procedures ▪Changes ad hoc and unplanned	▪Programmes, projects and changes articulated, but ad hoc ▪Project management identified, with dependencies articulated ▪Risk input for larger projects ▪Normal to use agreed management disciplines; may not always be proportionate	▪Clear understanding of key programmes, projects, initiatives ▪Procedures and policy articulated ▪Roles identified; linkages and interrelationships clearly set out ▪Professional risk input ▪Clear scope; agreed management disciplines; proportionate
5.6 Treatment of Risk		
▪No reference to risk profile ▪Not updated - only ad hoc ▪Differing decision processes ▪No risk assessments	▪Risk profiles reviewed but not always regularly; actions agreed but not always completed ▪Programmes not always distinguished from projects ▪Risk assessments part of projects	▪Risk profiles reviewed, actions agreed and implemented ▪Clear decision processes ▪Programmes managed systematically with full risk logs ▪Risk assessments indep tested

Table 6. Risk Management

Basic	*Standard*	*Advanced*
6.1 Roles		
▪Board involved in RM; possibly fairly passive sign-off ▪Board have ToR, but role not discussed often and different views around table ▪CEO and management take passive view of ERM ▪CRO may be fairly junior role ▪Resource allocated to ERM not clearly agreed ▪May have large consultancy based elements	▪Board actively involved in RM but not driving it ▪CEO and management supportive of RM, but still not fully impactful ▪CRO in place but may not unable to take long term view ▪Resource allocated directly and indirectly to ERM still being discussed and no clear view about right level ▪An owned/in-house activity	▪Board own risk management and set right tone ▪Clear lead given by CEO and Executive management so ERM process active and impactful ▪ERM leader (CRO) in place, Exec level, with clear role, right skills and long term view ▪Proportionate/appropriate agreed resource allocated to ERM ▪An owned/in-house activity
6.2 Internal Environment		
▪Risk management philosophy not clearly set out in agreed form ▪Organisation has generally ethical value set ▪Organisation says it is committed to high standards ▪HR policies and standards, but not best practice ▪Generally roles and authority levels clearly set out	▪Well articulated RM philosophy, but not 100% buy-in ▪Organisation has integrity and ethical value set, but not yet bench-marked what this means ▪Professional HR policies, but may not be fully agreed ▪Role definitions set out but not shared across Executive team	▪Clear and well articulated risk management philosophy ▪Organisation has integrity and ethical value set ▪Organisation is committed to high standards and competence ▪Professional and accepted HR policies and standards ▪Clear role definitions with accountabilities specified
6.3 Approach, Policy and Procedures		
▪Risk management policies and procedures not fully documented ▪Separate activity; siloed organisation ▪Objectives not regularly achieved ▪Strategy a separate or indirectly linked activity ▪Generally complies with any regulatory requirements ▪Seen as an expense; not adding value ▪Risk management policies and procedures established but not widely known ▪Mixture of qualitative and quantitative ▪Ambiguity ignored and outputs therefore muddled ▪Updated annually ▪Not fully integrated with the way the organisation functions ▪Parts of organisation not fully covered	▪Important aspect of management meaningful - not just tick-box ▪RM policies and procedures nearing full documentation ▪Mixture top-down and bottom-up; but not fully integrated with way organisation works ▪Indications that objectives will be achieved, affected by strategy but not yet influencing it ▪Fully complies with any regulatory requirements ▪Some see it as offensive tool but not yet used actively to exploit opportunities ▪RM policies and procedures stated but not yet widely known ▪Mix qualitative and quantitative ▪Management understand ERM to be important, able to handle ambiguity, but not explicit ▪Updated regularly (e.g. quarterly) ▪Not yet fully integrated across whole organisation ▪Some aspects integrated with the way the organisation functions ▪Intent to cover whole company	▪Key aspect of management - living and meaningful ▪Holistic; top-down; integrated ▪Gives agreed assurance that objectives will be achieved ▪Directly affects and is affected by strategy ▪Fully complies with any regulatory requirements ▪Adds value : offensive tool : helps identify and exploit opportunities ▪RM policies and procedures clearly stated and widely known ▪Explicit mixture of qualitative and quantitative ▪Management understand ERM to be a lead indicator of success ▪Able to handle ambiguity ▪Dynamic - updated in real time (not just four times p.a.) ▪Takes an integrated approach (including responses) across whole organisation ▪Is integrated with organisation functions (not siloed) ▪Covers the whole organisation

Table 7. Risk Modelling

Basic	***Standard***	***Advanced***
7.1 General Modelling Approach – Overall		
▪Modellers dive straight into quantification - in isolation from rest of organisation ▪Modelling scope incomplete ▪Models lack coherence/integrity ▪No external scrutiny ▪No regular updating (e.g. only annual) ▪Net risks modelled ▪Company in isolation from real world	▪Some general discussion of risk before modelling ▪Underlying model logic not directly related to organisation ▪Different models for component risks, coherence not robust ▪Regular updating when needed : ▪Gross risk and risk of control failure not directly modelled ▪Market behaviour considered and appropriately modelled	▪Assessment/understanding more important than quantification ▪Underlying risk processes imply risk modelling modules ▪Different models for component risks, but overall coherence ▪Dynamic - regular updating ▪Gross risk and risk of control failure explicitly modelled ▪Market behaviour considered and appropriately modelled
7.2 General Modelling Approach – DFA		
▪Use proprietary software ▪Only simple dependency structures ▪Models used regularly without refinement ▪Models not regularly updated	▪Outputs stand up to scrutiny, but based on simple logic ▪Limited dependency structures ▪Simulation outcomes considered and models refined over time ▪Models updated half-yearly as results/ICA/planning requires	▪Outputs stand up to scrutiny ▪Well considered use of copulas and dependency structures ▪Simulation outcomes considered and models refined ▪Models dynamically updated (e.g. as new results emerge)
7.3 Range of Modelling		
▪Limited number of approaches ▪Stress and scenario approaches may be the basic approach ▪Overall modelling may not give balanced outcome	▪Range of approaches understood and valued ▪Stress testing give useful insight ▪Hot spot analyses ▪Models give balanced (not exaggerated) outcome	▪Wide range of approaches understood and valued ▪Stress testing gives useful insight ▪Hot spot analyses ▪Overall modelling gives balanced (not exaggerated) outcome
7.4 Coherence, linkages, correlation and diversity		
▪Extremely limited insights into business linkages ▪Models use simple structures and assumptions ▪Correlation matrices used but not fully understood	▪Gives some useful insights into relationship between risks ▪Internal systems dynamics input as fixed assumptions ▪Correlation matrices tested, but not fully understood	▪Able to give useful insights into relationship between risks ▪Models capture business insights, and recognise internal systems dynamics / links / dependencies ▪Root causes drive assumptions
7.5 Clarity of assumption and causal modelling		
▪Assumptions implicit and not widely understood ▪Scarce data assumed meaningful ▪Model outputs assumed reliable - no insight into uncertainties	▪Assumptions clearly set out - but only really understood by modellers ▪Approach to dealing with scarce data reasonable	▪Assumptions clearly set out - and widely understood ▪Approach to dealing with scarce data clear ▪Causal modelling
7.6 Measures used in modelling		
▪Output limited to simple Profit & Loss/Balance Sheet items ▪Basic definition of capital used	▪Some risk metrics used ▪Different definitions of capital clearly allowed for	▪Understanding of risk metrics ▪Different definitions of capital, model logic exposure based
7.7 Transparency and buy-in to modelling		
▪Effect of internal decisions not explicitly modelled ▪Models not used for RM strategy ▪Models lack credibility and are seen as Black Boxes ▪No causal modelling	▪Some RM actions modelled ▪Models can assist RM strategy ▪Models have some transparency ▪Allows for some external factors ▪Cause/effect models do not stand up to practitioner scepticism	▪RM accepted by non-modellers ▪Models used for RM strategy ▪Models credible and transparent ▪Models allow for external factors ▪Cause & effect modelling stands up to practitioner scepticism

Appendix 4

Company specific public domain risk appetite statements/frameworks

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1. Assicurazioni Generali S.p.A.

1.1 Generali: Annual Report 2010 [13]

"Assicurazioni Generali adopts an internal control and risk management system which takes an integrated approach to internal control and risk-related issues. The system aims to identify, assess and control the main risks to which the Company and the Group are exposed, in other words those risks which could undermine the solvency of the Company or individual business units, or seriously hamper company objectives.

The company's risk management system follows the Enterprise Risk Management (ERM) approach, which directs business and investment decisions through risk control aimed both at mitigating and eliminating existing risks and at evaluating investments, products and new initiatives, on the basis of the prospective return compared to the associated risks.

The main objectives of the internal control and risk management system of Generali Group are to maintain the identified risks below an acceptable level, to optimise the capital allocation to tackle such risks and to improve the risk-adjusted performance."

Risk Management and Control Process

"The risk management and control system is a "process" involving, in various capacities, the Board of Directors, Top Management and the different areas of the company. The phases of this process are summarised below:

- **Identification and assessment of risks**: the collection, on an ongoing basis, of information about current and potential internal and external risks to which the Company is exposed. Mainly conducted by area managers, according to a structured process;
- **Risk planning**: the **appetite for risk** and risk targets are defined by the Board of Directors and Top Management, while the operational managers set limits consistent with the targets;
- **Assumption of risks**: these activities are typically carried out by the operational management of Assicurazioni Generali S.p.A. and their delegated representatives, for example by entering into agreements or managing internal services or projects, assuming the relative risks in accordance with the policies and operational limits, as well as with specific instructions from the competent area managers;
- **Risk measurement and analysis**: current risk exposures are assessed according to predefined models and methods. Risk Capital is considered to be the best indicator for an integrated vision of the risks, but area managers can also use additional or supplementary measures depending on the specific risk in each area. The systems for measuring specific risks are generally managed by each area manager, always in accordance with the methods adopted by the Company.
- **Definition and execution of corrective actions**: the actions are usually approved by Top Management and are implemented by the area managers.

The process as structured above enables the identification, assessment and management of the risks on a continuous basis, taking due account of any changes in the type or scale of business, and the market context. Inclusion of the risk perspective in the planning and control cycle of Assicurazioni Generali S.p.A. also enables prompt, effective management of risks arising from the offer of new products or the entry into new markets."

Measurement and Reporting

"Assicurazioni Generali S.p.A. manages risk-related information in such a way as to guarantee adequate decision-making processes and enable the assessment of compliance with the **risk appetite** objectives set by the Board of Directors, possibly with a view to reviewing these objectives.

In addition to the specific measures in place for each risk category, Economic Capital provides an integrated measurement of risk and can be aggregated to the various organisational levels of the Company. It represents the quantity of capital required to cover, with a redefined probability of 99.5%, the potential losses that could be generated over a 12-month period."

2. Aviva plc

2.1 Aviva: Annual Report and Accounts 2010 [14]

Risk management

"As a global insurance group, risk management is at the heart of what we do and is the source of value creation as well as a vital form of control. It is an integral part of maintaining financial stability for our customers, shareholders and other stakeholders. The Group's risk strategy is to invest its available capital to optimise the balance between return and risk whilst maintaining an appropriate level of economic (i.e. risk-based) capital and regulatory capital. Consequently, our risk management goals are to:

- Embed rigorous risk management throughout the business, based on setting clear risk appetites and staying within these;
- Ensure that capital is allocated where it will make the highest returns on a risk-weighted basis; and
- Meet the expectations of our customers, investors and regulators that we will maintain capital surpluses to ensure we can meet our liabilities even if a number of extreme risks materialise.

In 2010, in support of these goals, the Group continued its work to enhance its risk management capabilities by developing a comprehensive Risk Plan. The Risk Plan sets out a phased programme for designing, implementing and embedding enhancements to the existing risk management framework (RMF) across the Group. Key components of the RMF and some of the enhancements made in 2010 are described below."

Risk appetite

"Risk appetite is an expression of the level of risk we are willing and able to accept in pursuit of our strategic objectives and thus provides the context for our risk and capital management.

The following appetite statements, which were reviewed and approved by the Board in June 2010, demonstrate a key focus on balance sheet strength and protection of the franchise value. They supplement existing risk appetite statements relating to the regulatory solvency position.

- Economic capital: the Aviva Board requires that the Group has sufficient capital to remain able to meet its liabilities in extreme adverse scenarios, on an ongoing basis, calibrated consistently with the Group's strategic target of maintaining a credit rating in the AA range.
- Liquidity: the Aviva Board requires that the Group maintains significant liquid resources to meet both planned cash outflows and cover unexpected cash requirements under stress conditions. In addition the Group maintains substantial unutilised committed credit facilities to cover extreme adverse scenarios.
- Franchise value: Aviva recognises that its long-term sustainability depends upon the protection of our franchise and our relationship with customers. As such, Aviva will not accept risks that materially impair the reputation of the Group and requires that customers are always treated with integrity.

The Group's position against the quantitative risk appetite statements is monitored and reported to the Board on a monthly basis. The 2010 business planning process included explicit consideration of the reviewed Group level risk appetite statements and economic capital risk appetites were cascaded to individual business units at the end of 2010.

More granular risk appetites or tolerances are set out in our risk management policies, which are implemented across the Group."

3. Allianz Group

3.1 Allianz: Annual Report 2010 [15]

Risk Management Framework

"As a provider of financial services, we consider risk management to be one of our core competencies. It is therefore an integrated part of our business processes. The key elements of our risk management framework are:

- Promotion of a strong risk management culture supported by a robust risk governance structure.
- Consistent application of an integrated risk capital framework across the Group to protect our capital base and to support effective capital management.
- Integration of risk considerations and capital needs into management and decision-making processes through the attribution of risk and allocation of capital to the various segments.

This comprehensive framework ensures that risks are properly identified, analyzed and assessed, in the course of a regular process which is consistently implemented across the Group ("Top Risk Assessment"). The Group's risk appetite is defined by a clear risk strategy and limit structure. Close risk monitoring and reporting allows us to detect potential deviations from our risk tolerance at an early stage both on the Group and operating entity level."

Risk strategy and risk appetite

"Our **risk strategy** clearly defines our **risk appetite**. It ensures that rewards are appropriate for the risks taken and that the delegated authorities are in line with our overall risk bearing capacity. The risk-return profile is improved through the integration of risk considerations and capital needs into management and decision-making processes. This also keeps **risk strategy** and business objectives consistent with each other and allows us to take opportunities within our **risk tolerance**."

Risk Governance Structure

"As a key element of the risk management framework, the Allianz approach to risk governance is designed to enable integrated management of our local and global risks and to ensure that the Allianz Group's risk profile remains consistent with our **risk strategy** and our capacity to bear risks."

4. AXA Group

4.1 AXA: Annual Report 2010 [16]

Group Risk Management

"As an integrated part of all of business processes, Risk Managements responsible for:

- Ensuring that the "second line of defence" is effective on all significant risks;
- Identifying, measuring and managing financial, insurance and operational risks;
- Defining and monitoring risk appetite on these risks – which strengthens risk reporting, limits and decision processes across four dimensions: earnings, value, capital, liquidity;
- Implementing an internal capital model and leading the approval process with supervisors for future Solvency II;
- Building a favourable environment – in terms of models/metrics/standards but also culture - for business lines to write risks within a **risk appetite** validated locally and by the Group."

"Within the AXA Group, Risk Management is the main responsibility of the Group Risk Management Department and supported by other central departments (DCFG, PBRC and GIA). It is coordinated by the central team, supported by local Risk Management teams within each operational entity**."**

Local Risk Management Teams

"Risk management is a local responsibility, subject to Group standards, guidelines and monitoring of the risk exposure, and within a clearly defined local Risk Appetite consistent with the Group's **Risk Appetite."**

"The Risk Management Departments of operational entities are managed by local Chief Risk Officers, who report directly to a member of their Executive Committee (CEO/CFO) and to the Group CRO. The roles and responsibilities of local Risk Management Departments are approved jointly by the Executive Committees of local entities and the Group Chief Risk Officer to ensure a better alignment of Group and local interests. The missions of local Risk Management are set in accordance with the responsibilities stated above. The minimum missions required for all Risk Management teams are:

- Performing a second opinion on P&C reserves, ALM studies & asset allocation and reinsurance strategy;
- Coordinating pre-launch product approval procedures and regular pricing reviews after launch;
- Coordinating operational risk framework;
- Implementing **risk appetite** on all risks, with strengthened reporting, risk limits and decision processes;
- Performing the calculation of an internal capital model;
- Carrying out the risk reporting."

5. Brit Insurance Holdings N.V.

5.1 Brit Insurance Holdings N.V.: Annual Report 2009 [17]

Medium sized insurer

"The risk appetite for the UK-managed operations is set by the EMC and for the Gibraltar-managed operations is set by the BIG Board. Risk appetite is determined following the annual review of strategy and three-year plans."

"Risk appetite is set by reference to underwriters' experience and judgement in light of:

- underwriting guidelines and limits of authority
- aggregate exposure limit by location or type of event
- expected return on capital
- anticipated return on allocated capital
- actuarial best estimate reserve projections"

"The Group seeks to manage the level of insurance risk, volatility and risk aggregation in line with risk appetite. Mitigation operates at a number of levels moving from policy level, to reserve and catastrophe assessment. The key components of insurance risk are pricing and underwriting, accumulation and reserving."

"The Group seeks to manage the level of insurance risk, volatility and risk aggregation in line with risk appetite. Mitigation operates at a number of levels moving from policy level, to reserve and catastrophe assessment. The key components of insurance risk are pricing and underwriting, accumulation and reserving."

"The tolerance for catastrophe risk is set using industry claims bandings. For example for US Windstorm, tolerance is set for seven separate industry claims bands increasing from a 'US$20bn–US$30bn' band to a 'US$200bn–US$350bn' band. The underlying frequency and severity of catastrophe events varies by peril and territory. For instance, a US$20bn US windstorm is expected to occur much more frequently than a US$20bn Japanese earthquake. Therefore, in terms of risk appetite and claims tolerance, it is not appropriate to treat these events equally."

5.2 Brit Insurance Holdings N.V.: Risk Management Committee (2011) [18]

Medium sized insurer

RISK OVERSIGHT

(Second line of defence)

Risk management framework

- To consider and challenge the effectiveness of the group risk management framework, including the risk function;
- To consider and approve on behalf of the board the risk management framework and its key risk management policies;
- To review the actual exposures against risk tolerances set out by the board;
- To approve, annually, the risk management function terms of reference and its annual plan; and
- To review reports from the risk function in respect of the status of key current and emerging risks and internal controls relating to those risks.

Internal control

- Make recommendations to the board, as appropriate;
- Regular review of reports from the risk function and (where appropriate) internal audit, on risk and internal controls, considering:
- the effectiveness of systems of internal control across the group; and
- reports on major control issues and their impact on the group's risk profile.

* An annual assessment of all significant risk issues, considering:
    - changes since the last annual assessment and the group's response;
    - the scope and quality of management's ongoing monitoring of risks and the system of internal control; and
    - the incidence of significant control failings in relation to all significant risks and their impact.

Insurance risk

- Review and recommend the adequacy of the underwriting and reserving risk tolerance;
- Monitor compliance with risk policies;
- Consider and approve product initiatives which involve new underwriting and reserving risks; and
- Monitor compliance with material outward reinsurance purchase policies.

Business and operational risks

- Review and recommend the business and operational risk tolerance;
- Consider and approve relevant risk policy statements;
- Monitor compliance with risk policies; and
- Consider and note the corporate insurance arrangements.

6. BUPA

6.1 BUPA: Annual Report and Accounts 2009 [19]

Medium sized insurer

Bupa's risk management process

"Bupa has a well established process for identifying business risks, evaluating controls and establishing and executing action plans. This process, which is based on best practice in risk management, involves the following steps:

- The management teams of each business unit and Group function carry out an annual risk assessment. Each unit identifies those risks that could impact its business objectives and strategic plan.
- The probability and likely impact of each potential risk is evaluated. The management teams consider each identified risk and note the controls in place to prevent the risk or to mitigate the effects should it occur, in order to identify the residual exposure that the risk represents.
- The residual exposure to each risk faced by the business unit or Group function is then assessed and action plans are formulated by each management team to improve controls for those risks where our exposure is above our **appetite**. The outcome of this process is reviewed by the Audit Committee and reported to the Board.
- Formal reviews of risk assessments and action plans take place at least quarterly. Risk databases are updated to include new risks, actions taken to strengthen controls and any changes to the risk profile. All significant strategic and operational risks identified by the business units are discussed twice a year at the Chief Executive's Committee. The Audit Committee considers the aggregated risk returns for all business units and Group functions at its meetings."

"Our financial strength is derived from operating cash flows and the benefits of our status as a company without shareholders, which allows all surpluses to be reinvested in the business. During 2009, leverage decreased from 34% to 27% (on a debt / debt + equity basis) as the Group repaid bank debt using cash generated in the period. This level of borrowings is within our Board approved **risk appetite** and we expect that operational cash flows will be available for further repayment of borrowings in the near future. The solvency positions of our regulated companies and of the Group as a whole are routinely monitored against the requirements of local regulators and of the UK's Financial Services Authority (FSA)."

7. Catlin Group Limited

7.1 Catlin: Annual Report and Accounts 2010 [20]

"Catlin has a robust risk and control framework which is designed to address all of the Group's material risks. The Group framework is supported by risk and control frameworks developed for each of the underwriting hubs covering each hub's material risks. Catlin is in the business of managing insurance risk transferred to the Group by policyholders.

The Group holds significant assets on behalf of both policyholders and shareholders which present investment-related risks. These are the risks we take commercially. These risks are compounded by the risks from external forces outside the Group's direct control, such as risks posed by economic uncertainty. Furthermore, there is risk associated with the delivery and execution of the Group's strategy.

Catlin's strategy for managing insurance and investment risks includes:

- Analysing and assessing insurance risks with quality underwriting, actuarial and claim expertise;
- Analysing and selecting high-quality investment options with experienced asset managers;

- Diversifying insurance and investment risks through active portfolio management and risk modelling;
- Allocating capital to business segments based on risk/return considerations;
- Transferring risk through cost-effective reinsurance programmes;
- Retaining risk within an approved **risk appetite** with appropriate levels of capital;
- Continuously monitoring for emerging changes affecting risk.

The Group's strategy for managing other business and operational risks includes:

- Identifying and analysing risk through a disciplined risk assessment process;
- Mitigating or avoiding risks that do not fit our business objectives; and
- Retaining risk within an agreed risk appetite with appropriate levels of capital."

8. Co-operative Insurance Society Ltd, part of CFS (The Co-operative Financial Services)

8.1 Co-operative: Annual Report 2009 [21]

Medium sized insurer

"The CFS Board delegates authority to the CFS risk management committee (RMC) (senior Board committee) for monitoring compliance with the Board-approved risk appetite statements. This includes:

- setting limits for individual types of risk; and
- approving (at least annually) and monitoring compliance with risk policies and delegated levels of authority.

CFS risk management committee (RMC): this committee is responsible for review and challenge of the adequacy of capital for all risks (including operational risk); and for technical risk management activities and portfolio exposures across CFS including:

- operation of mandates and limits;
- technical risk management policy approval;
- risk management information reporting and integrity of relevant data;
- risks adequately identified and measured;
- risk and portfolio exposure management strategy;
- adequacy of the risk mitigation process; and
- review and discussion of technical risk issues identified as a result of internal audit work."

8.2 Co-operative Insurance Society Ltd, part of CFS (The Co-operative Financial Services) Annual Report 2010 [22]

"Regulatory capital requirements are the capital requirements with which CIS must comply, and comprise the Individual Capital Guidance and Individual Capital Assessment. CIS's risk appetite requires working capital to be maintained above an internal tolerance level which is applied relative to the internal capital guidance. CIS's forecasts and objectives, taking into account a number of potential changes in trading performance, insurance and investment risk, show that CIS should be able to operate at an adequate level of regulatory capital for the foreseeable future. CIS has also considered a number of stress tests on capital and these provide assurance that CIS is sufficiently capitalised."

"The CFS Board delegates authority to the CFS Risk Management Committee (RMC) for monitoring compliance with the Board approved risk appetite statements. This includes:

- setting limits for individual types of risk; and
- approving (at least annually) and monitoring compliance with risk policies and delegated levels of authority.
- CFS Risk Management Committee (RMC): this committee is responsible for review and challenge of the adequacy of capital for all risks (including
- operational risk), and for technical risk management activities and portfolio exposures across CFS including:
- operation of mandates and limits and any breaches thereof;
- technical risk management policy approval;
- risk management information reporting and integrity of relevant data;
- risks adequately identified and measured;
- risk and portfolio exposure management strategy;
- adequacy of the risk mitigation process;
- review and discussion of technical risk issues identified as a result of internal audit work; and
- review and challenge the impact assessment of the strategic plan on the risk and capital profile of CFS."

"As part of the wider risk management framework for CFS, the RMC is further supported by the CFS Portfolio Credit Committee (PCC), a designated committee reporting to RMC and chaired by the Business Leader Banking Risk. It is responsible for defining Bank credit risk appetite and therefore has no direct role in relation to CIS."

9. Groupama

9.1 Groupama: Annual Report and Accounts 2009 [23]

Risk Management

"As the leader in the agricultural insurance market, Groupama is adapting its insurance and savings offers to the major regulatory changes in progress. With the change in the indemnification system by the FNGCA (Fonds National des Garanties des Calamités Agricoles), the security of farmers' income through **risk management** has become a major challenge. Thus, Groupama adjusted its offer by improving the complementary features of Climate and its 2009 Professional Savings Account (CEP 2009). Farmers can now optimise their income and manage their cash within the framework of general management of climate risks."

Groupama is supported by solid foundations: its history and values, along with its **Governance Method** guarantee the longevity of the Group's choices and the development of its vision over the long term. Its clearly defined strategy is taking the Group into new areas. Groupama is building its future and opening up new prospects. Its goal: to become a European leader. Expanding is not an end in itself but an objective that carries a dual meaning: being a Leader means preserving our independence and remaining true to our mission; and being European means tailoring the Group to the competitive, economic and regulatory environment.

10. Hiscox Ltd

10.1 Hiscox: Report and Accounts 2010 [24]

"The Group's risk management framework, which extends to all aspects of risk including insurance, market, credit, operational, liquidity, reputational and strategic risks is headed by the Risk Committee of the Board, which advises the Board in relation to management of the Group's risk profile. The Group's **risk appetite** is set by the Board and cascaded through the Group's global operations as part of the business planning cycle and through the risk management framework, which encompasses the following committees:

- Group Underwriting Review
- Reinsurance Purchase Review Group
- Reinsurance Security Committee
- Cash Flow Review Group
- Broker Credit Committee
- Investment Committee
- Reserving Committees
- Business Continuity Committee."

"The Board requires all underwriters to operate within an overall Group appetite for individual events. This defines the maximum exposure that the Group is prepared to retain on its own account for any one potential catastrophe event or disaster. The Group's underwriting **risk appetite** seeks to ensure that it should not lose more than one year's profit plus 15% of core capital as a result of a 1 in 250 bad underwriting year."

"The Group's exposure to structural foreign exchange risk primarily relates to the US Dollar net investments made in its domestic operation in Bermuda and its overseas operation in Guernsey and the US. Other structural exposures also arise on a smaller scale in relation to net investments made in European operations. The Group's **risk appetite** permits the acceptance of structural foreign exchange movements within defined aggregate limits and exchange rate parameters which are monitored centrally. Exchange rate derivatives are used when appropriate to shield the Group against significant movements outside of a defined range."

"In 2005, the UK Financial Services Authority (FSA) and Lloyd's introduced a new capital regime that requires insurance companies to calculate their own capital requirements through Individual Capital Assessments (ICA). Hiscox Insurance Company Limited and Syndicate 33 maintain ICA models in accordance with this regime. The models are concentrated specifically on the particular product lines, market conditions and **risk appetite** of each entity."

11. Legal & General Group plc

11.1 Legal & General: Annual Report and Accounts 2009 [25]

"The Board has overall responsibility for setting the **risk appetite and tolerance** for the Group. The Board is assisted by advice and recommendations received from the Board committees."

Risk management objectives

"The Group's primary objective in undertaking risk management activity is to manage risk exposures in line with **risk appetite**, minimising its exposure to unexpected financial loss and limiting the potential for deviation from anticipated outcomes. In this respect, a framework of limits and qualitative statements, aligned with the Group's **risk appetite**, is in place for material exposures."

Risk management approach

"A significant part of the Group's business involves the acceptance and management of risk. The Group is exposed to insurance, market, credit, liquidity and operational risks and operates a formal risk management framework to ensure that all significant risks are identified and managed. The risk factors mentioned below should not be regarded as a complete and comprehensive statement of all potential risks and uncertainties.

Insurance risk*:* the risk arising from higher claims being experienced than anticipated.

Market risk: the risk arising from fluctuations in interest rates, exchange rates, share prices and other relevant market prices.

Credit risk*:* the risk of loss if another party fails to perform its financial obligations to the Group.

***Liquidity risk**:* the risk that the Group, though solvent, does not have sufficient financial resources available to enable it to meet its obligations as they fall due, or can only secure them at excessive cost.

***Operational risk**:* the risk arising from inadequate or failed internal processes, people and systems, or from external events.

***Contagion risk**:* the occurrence of a risk in one part of the Group may result in contagion elsewhere in the Group."

Management of risks

"The Group seeks to manage its exposures to risk through control techniques which ensure that the residual risk exposures are within acceptable tolerances agreed by the Board."

12. Munich Reinsurance Company

12.1 Munich Re: Annual Report 2009 [26]

Sample "risk strategy" statement

"**Determining the risk strategy** Munich Re operates worldwide, turning risk into value. The assumption of risks is therefore an essential part of our business strategy. The risk strategy defines the extent of the risks we have incurred for our clients and shareholders. The development of the risk strategy is embedded in the annual planning cycle, and hence in our business strategy. The risk strategy is approved by the Board of Management and discussed regularly with the Supervisory Board.

Munich Re's risk strategy takes into account the interests of both clients and shareholders. Its objectives are:

- to maintain our financial strength, thereby ensuring that our liabilities to our clients can be met,
- to protect and increase the value of our shareholders' investment,
- to safeguard Munich Re's reputation.

The risk strategy is determined by setting a risk appetite defined by a series of risk limits. The risk appetite is based on the capital and liquidity available and earnings volatility, and provides a term of reference for the Group's operating divisions. The risk limits are:

- overall portfolio limits: based on Munich Re's overall risk portfolio and designed to protect our capital and limit the likelihood of an economic loss for the year;
- supplementary limits: to limit losses that can arise out of individual risk types or accumulations, such as natural hazards, terrorism and pandemics, and to limit market and credit risks that could endanger Munich Re's survival.
- other limits: designed to preserve Munich Re's reputation and thus protect its future business potential. They encompass limits for individual risks that, though they would not necessarily threaten the Company's existence, could cause lasting damage to the confidence of clients, shareholders and staff.

The risk appetite laid down ensures that an appropriate balance is maintained between business opportunities and risks incurred. The terms of reference set out in the risk strategy have especially proved their worth in the financial crisis."

12.2 Munich Re: Annual Report 2010 [27]

Munich Re operates worldwide, turning risk into value. The assumption of risks is therefore an essential part of our business strategy. Our risk strategy defines the extent of the risks we are prepared to incur for our clients and shareholders. The development of the risk strategy is embedded in the annual planning cycle, and hence in our business strategy. It is approved by the Board of Management and discussed regularly with the Supervisory Board.

Munich Re's risk strategy takes into account the interests of both clients and shareholders. Its objectives are:

- Maintain our financial strength, thereby ensuring that our liabilities to our clients can be met
- Protect and increase the value of our shareholders' investment
- Safeguard Munich Re's reputation management report

The risk strategy is determined by a risk appetite defined by a series of risk limits. The risk appetite is based on the capital and liquidity available and on our earnings target within certain volatility limits, and provides a term of reference for the Group's operational divisions.

The risk limits are:

- Overall portfolio limits: based on Munich Re's overall portfolio and designed to protect our capital and limit the likelihood of an economic loss for the year;
- Supplementary limits: to limit losses that can arise out of individual risk types or accumulations, such as natural hazards, terrorism and pandemics, and to limit market and credit risks that could endanger Munich Re's survival were they to materialise;
- Other limits: designed to preserve Munich Re's reputation and thus protect its future business potential. They encompass limits for individual risks that, though they would not necessarily threaten the Company's existence, could cause lasting damage to the confidence of clients, shareholders and staff.

The risk appetite laid down ensures that an appropriate balance is maintained between business opportunities and risks incurred. Our risk strategy process has already proved its worth in both the financial crisis and the subsequent government debt crisis.

The risk appetite defined by the Board of Management is reflected in our business planning and integrated into the management of our operations. In the event of capacity shortages or conflicts with the systems of limits and rules, there are fixed escalation and decision-making processes which ensure that business interests and risk management aspects are reconciled. If necessary, risks are ceded or hedged by means of reinsurance, derivatives or other forms of risk relief.

Our implementation of risk management at operational level embraces the identification, measurement, analysis and assessment of risks, and the resultant risk reporting, limitation (reduction to a level we have defined as appropriate) and monitoring, which enables us to follow all significant risks closely.

Risk identification is performed by means of appropriate systems and indicators (quantitative component) and a number of risk surveys, which are supplemented by expert opinions and assessments by selected, highly experienced managers (qualitative component). Our ad-hoc reporting process provides for staff to report risks to central risk management (IRM) at any time."

13. NFU Mutual

13.1 NFU: Annual report 2009 [28]

"The Group's risk management framework incorporates levels which will trigger remedial action in order to mitigate any risk faced by the Group due to changes in market conditions."

"Exposures to individual companies and to equity shares in aggregate are monitored in order to ensure compliance with the relevant regulatory limits for solvency purposes and to ensure that the exposures remain aligned with the **risk appetite** set by the Board."

"Exposures to individual properties and to property investments in aggregate are monitored in order to ensure compliance with the relevant regulatory limits for solvency purposes and to ensure that the exposures remain aligned with the **Risk Appetite** set by the Board."

"The Group monitors interest rate risk by modelling the effect of changes in interest rates, and bond yields on the assets and liabilities held on the Balance Sheet. Where it is felt appropriate, assets will be held which react to changes in yields in the same way as the underlying liabilities – by purchasing bonds of an appropriate yield and term. Where it is not felt to be appropriate, capital is held to ensure that by taking this mis-matched position, the Group is operating within the **risk appetite** set by the Board."

"Within its corporate governance structure the Operational Risk Committee overseas the aggregate operational risk exposure on behalf of the Board. It makes recommendation on the **risk appetite** and assesses and monitors overall operational risk exposures, identifying any concentrations of operational risk across the Group verifying the implementation of action plans."

14. PartnerRe Ltd

14.1 Partner Re - Annual Report 2008 [29]

Quantification of risk limits (underwriting exposures, investments)

- "The Company manages its catastrophe exposures such that the chance of an economic loss to the Company from all catastrophe losses in aggregate in any one year exceeding $960 million has a modelled probability of occurring less than once every 75 years." and "At December 31, 2008, the modelled economic loss to the Company from a 1 in 75 year catastrophic loss was $810 million, in aggregate, for all zones."

- "The Company manages its casualty and other long-tail lines exposure such that the chance of an economic loss to the Company from prior years' deterioration in casualty and other long tail reserves exceeding $480 million has a modelled probability of occurring less than once every 15 years." and "At December 31, 2008, the modelled economic loss to the Company from a 1 in 15 year casualty and other long-tail lines prior years' reserve development was $350 million."

- "The Company manages its equity and equity-like exposures such that the chance of an economic loss to the Company of a severe decline in value of equity and equity-like securities exceeding $720 million has a modelled probability of occurring less than once every 75 years." and "At December 31, 2008, the modelled economic loss to the Company from a 1 in 75 year equity and equity-like value decline was $280 million."

14.2 PartnerRe - Annual Report 2009 [30]

- "The Company also manages its catastrophe exposures such that the chance of an economic loss to the Company from all catastrophe losses in aggregate in any one year exceeding $1.6 billion has a modelled probability of occurring less than once every 75 years." and "At December 31, 2009, the modelled economic loss to the Company from a 1 in 75 year catastrophic loss was $1.3 billion, in aggregate, for all zones."

- "The Company also manages its casualty and other long-tail lines exposure such that the chance of an economic loss to the Company from prior years' deterioration in casualty and other long tail reserves exceeding $800 million has a modelled probability of occurring less than once every 15 years." and "At December 31, 2009, the modelled economic loss to the Company from a 1 in 15 year casualty and other long-tail lines prior years' reserve development was $500 million."

- “The Company also manages its equity and equity-like exposures such that the chance of an economic loss to the Company of a severe decline in value of equity and equity-like securities exceeding $1.2 billion has a modelled probability of occurring less than once every 75 years.” and “At December 31, 2009, the modelled economic loss to the Company from a 1 in 75 year equity and equity-like value decline was $400 million.”

15. Prudential plc

15.1 Prudential plc: Annual Report 2010 [31]

“As a provider of financial services, including insurance, the management of risk lies at the heart of our business. As a result, effective risk management capabilities represent a key source of competitive advantage for our Group.

The Group’s risk appetite framework sets out our appetite for risk exposures as well as our approach to risk management and return optimisation. Under this approach, we monitor our risk profile continuously against agreed limits. Our main strategies for managing and mitigating risk include asset liability management, using derivatives to hedge relevant market risks, and implementing reinsurance and corporate insurance programmes.

Risk oversight - Group risk appetite

We define and monitor aggregate risk limits for our earnings volatility and our capital requirements based on financial and non-financial stresses:

(a) **Earnings volatility**: the objectives of the limits are to ensure that, (a) the volatility of our earnings is consistent with our stakeholders’ expectations, (b) the Group has adequate earnings (and cash flows) to service debt, expected dividends and to withstand unexpected shocks, and (c) earnings (and cash flows) are managed properly across geographies and are consistent with our funding strategies. The two measures we apply to monitor the volatility of our earnings are European Embedded Value (EEV) operating profit and International Financial Reporting Standards (IFRS) operating profit, although EEV and IFRS total profits are also considered.

(b) **Capital requirements**: the limits aim to ensure that, (a) the Group meets its capital requirements at all times including EU Insurance Groups Directive (IGD) capital requirements, (b) the Group achieves its desired target rating to meet its business objectives, and (c) supervisory intervention is avoided. In addition, we also monitor capital requirements on a local statutory basis.

Our risk appetite framework forms an integral part of our annual business planning cycle. Our Group Risk function monitors the Group’s risk profile against the agreed limits. Using submissions from business units, Group Risk calculates the Group’s aggregated position (allowing for diversification effects between business units) relative to the limits implied by the risk appetite statements.

We use a two-tier approach to apply the limits at business unit level. Firstly, we calculate business unit risk limits. These ensure that, provided each business unit keeps within its limits, the Group risk position will remain within the Group limits. Secondly, the impact on the risk position is considered as part of Group Risk’s scrutiny of large transactions or departures from plan proposed by individual business units.

In the event that the business unit plans imply risk limits will be exceeded, this will necessitate a dialogue between the executive and the relevant business unit or units. Exceeding Group limits may be avoided if, for example, limits in other business units are not fully utilised, or if the diversification effect at Group level of a particular risk with other business units means the Group limit is not breached.

Market risk is managed such that as conditions evolve the risk profile is maintained within risk appetite. In addition to business unit operational limits on credit risk, we set counterparty risk limits at Group level. The limits on our total Group-wide exposures to a single counterparty are specified within different credit rating ‘categories’. The Group Risk and the Group Credit Risk Committee monitor our actual exposures against these limits on at least a monthly basis, escalating matters to Group Executive Risk Committee (GERC) as appropriate."

"Material risks will only be retained where this is consistent with Prudential's risk appetite framework and its philosophy towards risk-taking, that is:

• the retention of the risk contributes to value creation,

• the Group is able to withstand the impact of an adverse outcome,

• the Group has the necessary capabilities, expertise, processes and controls to manage the risk."

16. The Royal Bank of Scotland Group

16.1 RBS Insurances: Annual Report and Accounts 2009 [32]

"The Group has been developing and adapting to an evolving economic environment, against a background of the strategic review which includes a clearly stated ambition to achieve standalone strength. The core aims of the strategic plan are to improve the risk profile of the Group and to reposition the balance sheet around the Group's core strengths. The Group level **risk appetite** statements and limits have been reviewed to ensure they are in line with the strategy. Any potential areas of misalignment between **risk appetite** and the Group strategy have been discussed by the Executive Risk Forum and remediation plans have been put in place."

Risk appetite

"**Risk appetite** is an expression of the maximum level of risk that the Group is prepared to accept in order to deliver its business objectives. Risk and capital management across the Group is based on the **risk appetite** set by the Board, who ultimately approve annual plans for each division and regularly reviews and monitors the Group's performance in relation to risk.

Risk appetite is defined in both quantitative and qualitative terms as follows:

- Quantitative: encompassing stress testing, risk concentration, VaR, liquidity and credit related metrics; and
- Qualitative: ensuring that the Group applies the correct principles, policies and procedures.

Different techniques are used to ensure that the Group's **risk appetite** is achieved. The Board Risk Committee considers and recommends for approval by the Group Board, the Group's risk appetite framework and tolerance for current and future strategy, taking into account the Group's capital adequacy and the external risk environment. The ERF is responsible for ensuring that the implementation of strategy and operations are in line with the risk appetite determined by the Board. This is reinforced through policy and limit frameworks ensuring that all staff within the Group make appropriate risk and reward trade-offs within pre-agreed boundaries.

The annual business planning and performance management processes and associated activities together ensure that the expression of **risk appetite** remains appropriate. Both GRC and GALCO support this work."

17. RSA Insurance Group plc:

17.1 RSA: Annual Report and Accounts 2009 [33]

"We have a culture of underwriting discipline which is supported by a strong governance framework. To ensure we take the right risks at the right price, we have a clearly defined **risk appetite** and have exited volatile lines."

"The Group **risk appetite** is set and monitored at both a Group and regional level and is annually reviewed and signed off by the Board Risk Committee and Group Board. It sets business volumes for certain higher risk insurance classes, stipulates loss retention limits, reinsurance protection, targets for credit rating and solvency margins and other measures. There is a formal escalation process for potential or emerging risks that are outside the **risk appetite**."

"Group risk policy statements set out the minimum standards to be maintained by the Group's operations to manage risks in a way that is consistent with the **risk appetite**. Business managers are responsible for complying with Group and local risk policies and for managing risk by taking mitigating actions where appropriate. The Board Risk Committee's role includes consideration of risk mitigation. Compliance with policy statements is mandatory. Policies are subject to regular review to reflect changes in circumstances and the Group **risk appetite**."

"The economic capital analysis compares the economic value of the Group's assets with the total resources required in a range of adverse scenarios, calibrated to a defined **risk tolerance** consistent with the Group's 'A' rating which is in line with target. The economic capital surplus is the amount by which the economic assets exceed the total resources required. The total resources required is the amount of assets the Group needs today to meet its liabilities under the defined **risk tolerance**. The Group defines the economic capital required as the difference between the total resource requirement and the accounting value of liabilities. At 31 December 2009, the Group's surplus economic capital was approximately £1.8bn (2008: £1.8bn)."

18. SCOR Re

18.1 SCOR Re: Annual Report 2008 [34]

Sample "risk appetite" statement

"In accordance with its capital allocation policy, in 2007 SCOR presented its strategic "Dynamic Lift" plan to the market. This plan sets out the Group's objectives for 2007-2010 and precisely determines the risk appetite that the Group considers necessary to achieve its profitability objectives. SCOR's three-year risk return strategy aims to:

- Provide a return on equity of 900 basis points above risk-free rate on average over the reinsurance cycle.
- Provide its clients with an "A+" level of security to Group clients from 2010.
- Self-finance the Group's development, without recourse to the markets or shareholders to ensure growth."

"Every quarter, an analysis of key risks is presented to the Risk Committee and the Board of Directors. Risk appetite and acceptable limits are formalised based on the internal model and the results of the work conducted by the extreme scenario work groups. All risks to which the Group is exposed are classified into four separate groups (Assets, Liabilities, Operational and Strategic) within SCOR's Risk Classification System "SCORClasS"."

18.2 SCOR Re: Annual Report 2009 [35]

"SCOR's ERM strategy is built around the Capital Shield policy, which determines the risk appetite of the Group.

The cornerstone of the SCOR group's ERM Framework is the "Capital Shield" policy. The purpose of the Capital Shield policy is to ensure that the Group reconciles its risk and return objectives, risk objectives being measured in terms of earnings volatility and Group solvency. The policy is based on an economic value approach in order to take into account all potential profits and losses, some of which are not immediately recognisable from an accounting point of view.

The Capital Shield policy is based on two concepts. Firstly, our gross exposure is mitigated through retrocession and other hedging mechanisms to achieve an acceptable net risk exposure. Secondly, through the device of Buffer Capital, SCOR calibrates the amount of target capital necessary to respect the Group's risk return objectives.

SCOR's Board and Executive Management team regularly review the Group's Risk Profile to ensure that it remains aligned with the Group's Risk Appetite. SCOR uses various mechanisms within its comprehensive ERM Framework to manage the Group's Risk Profile. These mechanisms enable SCOR to identify, assess, control and monitor specific risks in order to:

- take mitigating action to reduce the Group's retained exposure to specific risks and to ensure that the Risk Tolerance limits defined above are not breached,
- take optimising action to capitalise on the risk-return ratio."

SCOR's performance with regard to its strategic Dynamic Lift plan will be assessed over the whole period from mid 2007 to mid 2010, but we can already measure the extent to which it has achieved its principal scenarios and objectives. The 2009 results are in line with the plan's objectives:

- the ROE objective, for which the plan targeted 900 basis points above the risk-free rate, has been exceeded;
- the capital has increased solidly without having turned to the markets;
- the level of security offered to clients, for which the plan targeted a level equivalent to an A+ rating, has been achieved: our rating by the rating agencies has taken a positive turn;
- the Group's results have enabled us to practice an active dividend policy.

"The Group Risk Tolerance limits, which are designed to ensure that the Group achieves its objectives in terms of solvency and return on capital, are as follows:

- The amount of retained exposure for around 40 Lines of Business and asset classes is limited so that an annual loss from any one of these does not exceed 5% (or 7.5% for CAT business) of the Group's available capital. These limits are intended to avoid a concentration of risk in specific lines of business or asset classes and consequently to ensure that the diversification benefits, and hence returns, are optimised.
- The Group's retained exposure to extreme scenarios (with a probability of more than or equal to 1 in 250 years) is limited to a loss of 15% of the Group's available capital. These limits are designed to restrict the impact of extreme scenarios on shareholders' capital."

18.3 SCOR Re: Annual Report 2010 [36]

"The "Dynamic Lift V2" plan, which was implemented following SCOR's merger with Converium in 2007, came to an end in 2010 having achieved its objectives. The new three-year plan "Strong Momentum" is along the same lines as the previous plan, fixing three objectives for the Group:

- To raise its profitability to 1,000 basis points above the risk-free rate;
- To provide its clients with an "AA" level of financial security;
- To moderately increase its risk appetite.

The aim of this plan is to continue to expand the "magic triangle", which consists of simultaneously increasing the Group's profitability, solvency and premium income, whilst rigorously maintaining the cornerstones on which SCOR is built: a strong franchise, a moderate risk appetite, a high level of diversification and a robust capital shield policy, which is notably centred on retrocession and catastrophe bonds. Over and above endogenous growth, the "Strong Momentum" plan includes the implementation of six initiatives for Non-Life reinsurance, four initiatives for Life reinsurance and one initiative for asset management, all of which will provide the Group with additional growth drivers."

"Risk tolerances define the limits that have been set and communicated to the Group's stakeholders (clients, shareholders, regulators, etc.). The Board defines and approves risk tolerance limits for the Group, by LOB, asset class and extreme scenario in order to ensure that its risk profile remains aligned with its risk appetite framework. The Group uses various risk measures to verify that its exposures remain within these limits. These measures can take several forms depending on the technical constraints or the level of information available and are based on either internal model outputs or on Group expert opinions."

19. Swiss Reinsurance Company Ltd

19.1 Swiss Re: Financial Report 2010 [37]

"Risk management ensures an integrated, pre-emptive approach to managing current and emerging threats. Embedded throughout the business cycle, our Risk Management function upholds Swiss Re's Group-wide risk tolerance in strategic planning and limit setting. In addition, it is involved in capital cost assessment, large transaction approvals, portfolio monitoring and performance measurement. Its key objective is to enable controlled risk-taking and the efficient, risk-adjusted allocation of capital."

"The global Risk Management function operates through dedicated units for property and casualty risk, life and health risk, and financial market and credit risk. Each unit is entrusted with Group-wide responsibility for identifying, assessing and controlling their allocated risks and for risk governance at the risk category level. The units also work closely with each other where necessary on transaction reviews and other cross-category issues. Actuarial management is an integral part of the insurance risk units, ensuring reserving adequacy."

"Senior managers of business and corporate units are responsible for managing operational risks in their area of activity, based on a centrally coordinated methodology. The self-assessments are reviewed and challenged by operational risk specialists in each of the dedicated risk management units. Risk management experts also review our underwriting decision processes."

"Liquidity risk, capital adequacy, and emerging risks are managed at Group level. Certain other risk management activities are also performed globally, across all risk categories. These include risk governance at Group level, risk modelling, risk reporting and the steering of our regulatory activities."

"Our Group Internal Audit department carries out independent, objective assessments of the adequacy and effectiveness of internal control systems. It evaluates the execution of processes within Swiss Re, including those within Risk Management."

"Our risk tolerance is an expression of the extent to which the Board of Directors has authorised the Group to assume risk. It represents the maximum amount of risk that Swiss Re is willing to accept within the constraints imposed by its capital resources, its strategy, its risk appetite, and the regulatory and rating agency environment within which it operates."

"A key responsibility of Risk Management is to ensure that Swiss Re's risk tolerance is applied throughout the business cycle. In particular, the Group's risk tolerance forms the basis for risk management in our business planning process. Both our risk tolerance and risk appetite – the amount of risk we seek to take – are clearly defined and are translated into a consistent risk limit framework across all risk categories. The limit framework is approved at Executive Committee level through the Group Risk and Capital Committee. The individual limits are established through an iterative process to ensure that the overall framework complies with our Group-wide policies on capital adequacy and risk accumulation."

20. Zurich Financial Services Group

20.1 Zurich: Annual Report 2010 [38]

"The Risk Committee has four members. In 2010, it met six times (once jointly with the Governance and Nominations Committee and with the Remuneration Committee); attendance on average was 100%. The Risk Committee oversees the Group's risk management, in particular the Group's **risk tolerance**, including agreed limits that the Board regards as **acceptable** for Zurich to bear, the aggregation of agreed limits across the Group, the measurement of adherence to agreed risk limits, and the Group's **risk tolerance** in relation to anticipated capital levels. It further oversees the Group-wide risk governance framework, including risk management and control, risk policies and their implementation as well as the **risk strategy**, and the monitoring of operational risks. The Risk Committee also reviews the methodologies for risk measurement and the Group's adherence to its risk limits, and reviews the performance of the Risk Management function. It further reviews, with business management and the Group risk management function, the Group's general policies and procedures, and ensures that effective systems of risk management are established and maintained. The Risk Committee receives periodic reports from Group Risk Management and assesses whether significant issues of a risk management and control nature are being appropriately addressed by Management in a timely manner."

"The Risk Committee has reviewed the Group's **risk tolerance** and overseen Zurich's enterprise-wide risk governance framework and the Audit Committee has reviewed the effectiveness of the system of internal control operated by the Group related to the calendar year 2010 up to the date of this Annual Report and have reported to the Board accordingly. The Board is satisfied that the reviews were conducted in accordance with the UK Turnbull Guidance (as revised in October 2005). The assessment included the consideration of the effectiveness of the Group's ongoing process for identifying, evaluating, controlling and managing the risks of the business, including the scope and frequency of reports on both risk and control that were received and reviewed during the year by the Risk and Audit Committees and the Board, the important internal control matters discussed and associated actions taken by Management. Issues identified by this process have been communicated to the Board and either have been or are being addressed by the Group."

Mission and objectives of risk management

"The mission of risk management at Zurich Financial Services Group (Zurich, or the Group) is to promptly identify, measure, manage, report and monitor risks that affect the achievement of strategic, operational and financial objectives. This includes adjusting the risk profile in line with the Group's stated **risk tolerance** to respond to new threats and opportunities in order to optimize returns. The Group's major risk management objectives are to:

- Protect the capital base by monitoring that risks are not taken beyond the Group's **risk tolerance**
- Enhance value creation and contribute to an optimal risk-return profile by providing the basis for an efficient capital deployment
- Support the Group's decision-making processes by providing consistent, reliable and timely risk information
- Protect Zurich's reputation and brand by promoting a sound culture of risk awareness and disciplined and informed risk taking"

"To support the governance process, the Group relies on documented policies and guidelines. The Zurich Risk Policy is the Group's main risk governance document; it specifies risk limits and authorities, reporting requirements, procedures to approve any exceptions and procedures for referring risk issues to senior management and the Board of Directors. Limits are specified per risk type, reflecting the Group's willingness and ability to take risk, considering earnings stability, economic capital adequacy, financial flexibility and liquidity, franchise value and reputation, the Group's strategic direction and operational plan, and a reasonable balance between risk and return, aligned with economic and financial objectives. The Group regularly enhances the Zurich Risk Policy to reflect new insights and changes in the Group's environment and to reflect changes to the Group's **risk tolerance**. In 2010, the Zurich Risk Policy was updated and strengthened for various areas, including liquidity risk, remuneration, information risk and country risk. Related procedures and risk controls were strengthened or clarified for these areas."

Group Risk Management organization

"The Chief Risk Officer leads the Group Risk Management function, which develops methods and processes for identifying, measuring, managing, reporting and monitoring risks throughout the Group. Group Risk Management proposes changes to the risk management framework and the Group's risk policies; it makes recommendations on the Group's **risk tolerance** and assesses the risk profile. The Chief Risk Officer is responsible for the oversight of risks across the Group; he regularly reports risk matters to the Chief Executive Officer, senior management committees and the Risk Committee of the Board."

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