



Establishing and Embedding Risk Appetite: Practitioners' View

December 2013



CRO FORUM



North American
CRO Council

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Section 1: Executive Summary

Search for “risk appetite” on any popular Internet search engine and you will receive well over one million results. The topic has exploded in recent years, especially since the global financial crisis. One can easily find numerous materials on risk appetite statements, definitions, metrics, and even examples of statements. The Financial Stability Board has stepped into the act with their recent releases, Thematic Review on Risk Governance, and Principles for an Effective Risk Appetite Framework, both of which are very good pieces that provide information for insurance supervisors when reviewing risk management practices.

Given the myriad of resources available, what contribution could the CRO Council and CRO Forum possibly add to the discussion? While it’s true much has been published on risk appetite fundamentals, the much harder task of operationalizing and embedding risk appetite throughout an organization has not received much attention. Developing a risk appetite statement is only the first step. Effectively embedding a common risk language throughout the organization is truly more challenging. At times, changing the corporate culture is required and this can take years.

Starting with the premise that an effective risk appetite statement exists, this paper presents a variety of sound practices that can enable an organization to create an effective risk appetite framework. In addition, a healthy discussion surrounding sound practices on embedding risk appetite into the organization is presented. Insights from a CRO Council/CRO Forum member survey¹ are added to give tangible perspective to actual practices. Different approaches to operationalize and embed a risk appetite framework are discussed, as there is no one “best” answer, but rather several options from which to examine and determine what would be best for your organization. The size, complexity, and nature of business operations will also weigh in determining what is “best” for any individual company. This paper gives you food for thought on making your risk appetite statement an integral part of your organization.

Before you begin reading the paper, it may be helpful to provide some background about the CRO Council and CRO Forum. The CRO Council is a professional association of Chief Risk Officers of leading insurers based in the United States, Bermuda, and Canada. Member CROs represent 30 of the largest Life and Property and Casualty insurers in North America. The Council seeks to develop and promote leading practices in risk management throughout the insurance industry and provide thought leadership and direction on the advancement of risk-based solvency and liquidity assessments. The CRO Council shares its views through publications and papers that can be found on the Council’s website (<http://www.crocouncil.org>). The CRO Forum is an association that was formed in 2004 to provide insights on emerging and long-term risks, to advance risk management practices in the insurance industry and to seek alignment of regulatory requirements with best practice in risk management. The CRO Forum member companies are large multi-national insurance companies headquartered across the world with a concentration in Europe. The CRO Forum shares its views through publications and papers that can be found on the Forum’s website (<http://www.thecroforum.org/>).

This paper is the first jointly authored by the CRO Council and CRO Forum.

¹ The survey was conducted during a Joint Industry Meeting CRO Council and CRO Forum in London, 21st March 2013

Section 2: Introduction

Appropriately establishing and embedding a risk appetite framework (RAF) for an insurance company is one of the most difficult tasks to do because it means implementing an infrastructure that will oblige a company to control itself. Companies often develop control frameworks that allow them to monitor their activities, personnel, and performance; however, it comes far less naturally to a company to build a framework that places limits (or preferences) around its own decisions. Largely because the global financial crisis has placed risk appetite and risk management in the spotlight as a developing concept, RAFs have become key to linking a company's² strategy with its management of risk.

Building a RAF that creates value is not only conceptually but also technically difficult due to the difficulty in aligning quantitative metrics and qualitative statements between strategy and risk, and cascading these down to more granular levels that can be monitored and managed in a practical way. Much has been written about the components of a RAF and goals that should be pursued, whether under the form of regulatory sound principles for risk management, or under the form of research on economic capital or performance measurement. Less discussed is the more operational aspect of implementing and embedding a RAF.

Questions as to whether RAFs should set limits or provide incentives, how granular should risk appetite be, and how to allocate risk appetite are all being currently debated. We believe that these concepts are foundational in nature to building an effective RAF within a company. Conscious that there is no one-size-fits-all, this paper has been conceived to provide different views that, as practitioners, we have experienced in the set up of RAFs, and explore the possible options that are currently in practice in our own companies to operationalize an effective RAF. It does not have the ambition of providing a recipe, but will hopefully pinpoint the areas where companies need to take decisions about operationalizing which best fits their nature, size, and ambitions.

In this paper, we first set the scene by introducing the Core Principles that drive the design and implementation of a RAF. We describe the components of a RAF, suggesting standard definitions for each component with the goal of avoiding ambiguity in the terms used (rather than setting industry standards). We also explore different views of organizing, governing, and communicating on the RAF to stakeholders.

The second section, of the paper concentrates on how to embed risk appetite in decision making processes. We discuss how risk appetite can be an integral part of strategic decisions, and the different approaches to enforcing adherence to the limits that are set. Finally, we discuss best practices in terms of reporting on risk appetite.

² Throughout this paper we refer to 'company' as a generic term for the scope of the risk appetite framework. It can be a legal entity, a business unit, or the entire enterprise. A distinction of the different levels will be made when their interplay is relevant for discussion.

Section 3: Risk Appetite Core Principles

A company's RAF serves as a tool for the Board and senior management to establish boundaries around risk taking to achieve company objectives. As a key element of the wider system of governance, a RAF has both strategic and tactical dimensions. Before discussing methods for establishing and embedding an effective RAF within a company, we provide the following basic principles.

In establishing a risk appetite framework, companies should consider the following core principles.

- Establishing a comprehensive risk appetite framework is a complex endeavor, and should be crafted via an iterative process, which requires diligence, patience, collaboration, and flexibility;
- The diverse interests of parties relevant in achieving company objectives should be considered;
- Managing within risk appetites should be realistically achievable;
- The risk appetite framework should identify and quantify risk preferences for material risks;
- Risk appetites should be reassessed after significant events and reviewed by the Board at least annually.

When embedding risk appetite, companies should consider the following core principles.

- The risk appetite framework should be cascaded to business segments to ensure decisions are consistent with enterprise objectives, tolerances and limits;
- Measurements should be used to provide evidence of risk appetite and strategy alignment at the enterprise and business segment levels;
- For risks that are inappropriate to quantify, qualitative boundaries should be developed and assessed.

As basis for a sound RAF, the principles also underlie the content of this paper. They are addressed and expanded upon in the following sections either explicitly or implicitly.

Section 4: Establishing the Risk Appetite Framework

A company's RAF is the framework of policies and processes that establish and monitor adherence to the company's risk appetite. A company's RAF serves as a tool by the Board and senior management to establish boundaries around risk taking to achieve company objectives. As a key element of a company's wider system of governance, RAFs have both strategic and operational dimensions.

4.1 Components of a risk appetite framework

Establishing a risk appetite should be completed in conjunction with establishing business strategy, both aligned with a company's mission statement. As such, establishing a comprehensive RAF is a complex endeavor, crafted via an iterative process, which requires diligence, patience, collaboration, and flexibility.

Guided by its mission, vision and values, a company's Board and senior management develop a business strategy and plan to deliver on business objectives. Generally speaking, the objectives of business and risk management are as follows:

- Achievement of target performance;
- Preservation of capital;
- Maintenance of liquidity;
- Protection of franchise value.

Each of the strategic objectives contain elements of risk that need to be managed by solving a delicate balancing act: on one hand, management of the risk elements should support the business goals to help create value, and on the other, it should play a warning role by sounding alarms to help avoid big surprises. As a tool for the Board and senior management, the RAF helps establish boundaries around these risk elements, thereby turning the balancing act into something far more concrete.

A company's **risk appetite** establishes boundaries for the aggregate level or types of risk a company is willing to assume in order to achieve its business objectives. Risk appetite may have multiple qualitative and quantitative dimensions, resulting in multiple ways of expressing risk appetite. Risk appetite statements reflect the combination of risk acknowledgment, including preferences to and unacceptability of specific risks, and company-wide tolerances for those risks. In its most general form, a risk appetite would describe the pertinent risks to which the company is exposed and the amount of exposure it is willing to assume from those sources of risk. An example of a risk appetite statement is included in the appendix.

Risk Appetite

- Acknowledges sources of risk
- Expresses unacceptable risks
- Expresses preferred risks
- Sets risk tolerances
- Is formalised in a statement

Risk Tolerances

- Should be measurable
- Should be actively monitored
- Typically are set at enterprise level

Underlying a company's risk appetite are their **risk tolerances**. Risk tolerances are the quantitative measures and qualitative assertions for the maximum risk allowed by the appetite. Risk tolerances should be measurable and are typically limited to a few key metrics. They should be actively reported and monitored by the Board and senior management. Risk tolerances are typically set at the

enterprise/group level, though they may also be set at the business unit or legal entity level if the organizational structure deems it necessary.

For the sake of simplicity, the paper has generally assumed risk tolerances to be established at the enterprise/group level. It intentionally does not discuss the ability for companies to set risk appetite tolerances and draft risk appetite statements at the level of business units or legal entities and the issues this may raise, especially when considering special purpose business units or legal entities.

Not to be confused with risk tolerances, **risk capacity** is the maximum level of risk a company can assume before it breaches regulatory constraints (e.g. breach of solvency or liquidity ratios) or other stakeholders' constraints (e.g. inability to fulfil pension scheme obligations). For some companies, risk capacity is closely aligned with their risk appetite. For other companies, the risk capacity is viewed as a starting point for setting risk appetite: the latter is likely more stringent than the absolute risk capacity. For example, a company may not have the appetite for its solvency ratio to fall below a level well above the level that would breach regulatory constraints.

Risk limits are measurements based on forward-looking assumptions that cascade the company's aggregate risk tolerances to lower levels of granularity. For many companies, risk limits provide operational controls at the level of the organization that manages the risk on a day-to-day basis. They are expressed in metrics that are locally relevant and convenient to monitor and are often thought to "act as a brake against excessive risk-taking".³

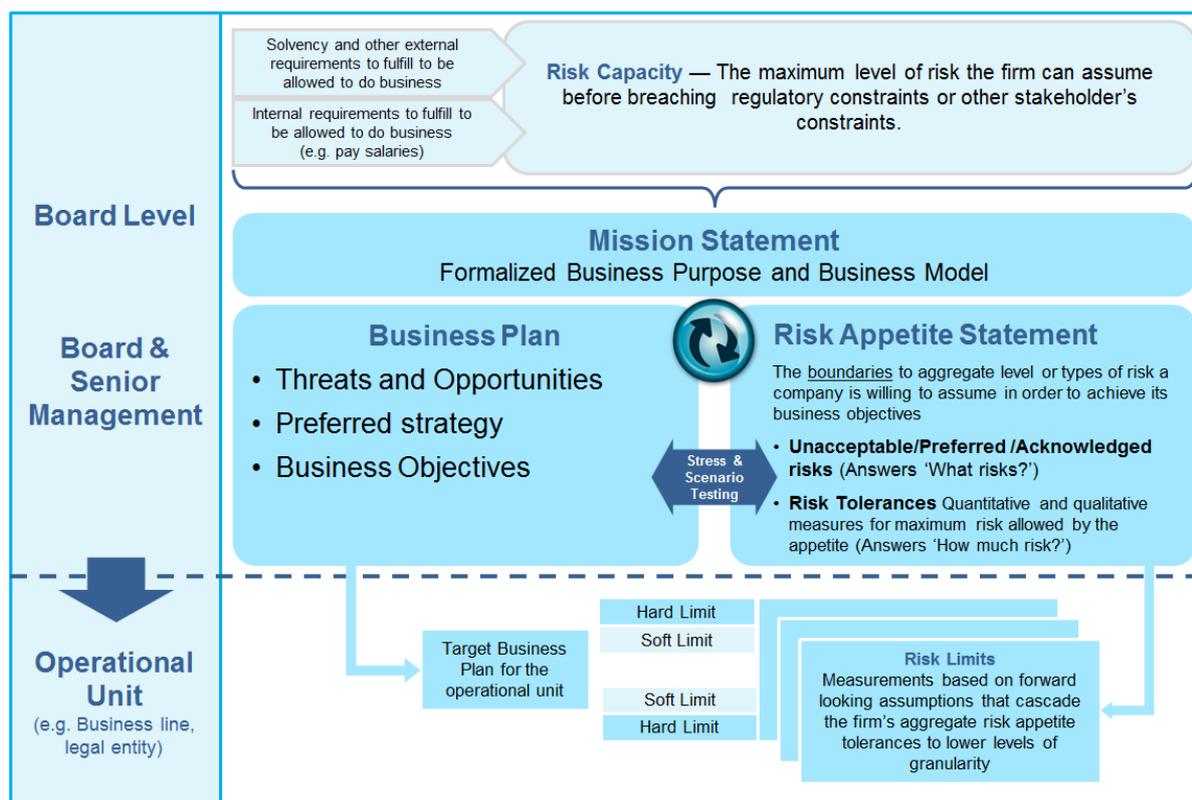
A company's **risk profile** is a point-in-time assessment of risk exposures, expressed in relation to risk limits, risk tolerances, and risk capacity. If a company is operating within its risk limits at a more granular level, the company is then presumably operating within its risk tolerances and maintaining a risk profile that is within its risk appetite.

Ultimately, a company's risk appetite framework should be established with consideration for practical use and application.

The graph below serves as a reference to the different components of the risk appetite framework expressed above.

³ "Principles for an Effective Risk Appetite Framework", Financial Stability Board, 18 November 2013; Section 1.1.d http://www.financialstabilityboard.org/publications/r_131118.pdf

Graph 4.1.1: RAF components and definitions



4.2 Establishing risk appetite and quantifying risk tolerances

When establishing risk appetite, the diverse interests of parties relevant in achieving company objectives should be considered. A company's objectives are directly linked to satisfying the needs and expectations of various stakeholders (e.g. shareholders, policyholders). Hence, the value added from a RAF depends on how closely it is linked to stakeholders' priorities, which may vary considerably from one company to another.

For example, shareholders will naturally be concerned with long term earnings growth and efficient deployment of capital, while policyholders and debtholders will naturally be concerned with the company's ability to satisfy obligations as due, seeking a high level of solvency. Risk appetite can then be linked to the needs of the stakeholders by using risk tolerances consistent with how the company prioritizes the expectations and needs of its stakeholders. Table 1 summarizes metrics of particular importance to various stakeholder groups, as well as related valuation frameworks.

Table 1 – Stakeholder expectations

Stakeholder Group	Metrics	Valuation Framework
Shareholders	Earnings Volatility, Growth	Local GAAP, IFRS, US STAT
	Economic Capital	Market consistent
	Franchise value	Market vs Book value
Policyholders	Solvency ratio	Market consistent
	Debt Rating, Liquidity	Specific
	Reputation, Quality of service, Operational losses	
Debt holders	Debt Rating, Leverage, Liquidity	Market consistent
	Solvency ratio	
Regulators	Solvency ratio	Specific
	Non Compliance	Specific
Employees	Earnings Volatility, Growth	Local GAAP, IFRS, US STAT
	Reputation	Specific

Reconciling different stakeholder priorities in terms of risk is therefore the first difficulty companies are confronted with when building their RAF. Trying to address the multiple constraints and priorities of stakeholders are important inputs to choosing which risks to place focus on in a company's risk appetite statement.

To add to the complexity, the way stakeholders perceive the company's value can be through the prism of different valuation frameworks. It is not the view of this paper that these need to be, or even can be, reconciled. Companies acknowledge that they are faced with increasingly numerous and complex valuation frameworks, leading to difficulties in establishing consistent RAFs. This is later developed in section 5.3.

As part of the risk appetite statement, risk tolerances play a prominent role of expressing precisely what level of risks the company is willing to assume. Establishing risk tolerances involves specifying the scope of the risk appetite statement, the choice of the metrics, and the appropriate boundaries for these metrics.

A good risk appetite statement should be:

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

Each of these criteria presents companies with concrete challenges and questions, some of which have been summarized below.

Table 2 – FAQs on Risk Appetite Statements

Criteria	Challenges and Questions
Comprehensiveness	Does the appetite sufficiently address the key risks that would inhibit company objectives? How do we know a risk is material if it can't be measured? To what extent should the scope include ancillary or non-material activities?
Concreteness and Practicality	How quickly should it be possible to report on results? Does this influence our choice of metrics? Should speed be prioritized at the expense of accuracy? Should qualitative statements have some measure of risk?
Consistency and Coherence	What metrics reflect similar measures of risk across different types of activities? How can I link these measures to the business model?

It is useful to distinguish quantifiable risks from less quantifiable risks. The highest level of quantifiable risk consideration can start with a company's financial statements. The table below lists examples of metrics for quantifiable risks. Among the three financial statements, the balance sheet draws the highest attention as it represents a view on the shareholder capital available to absorb downside shocks. Thus, it forms the basis of regulatory solvency requirements and agency assessment of credit worthiness. When considering the balance sheet, attention should also be drawn to the off-balance sheet items, which may bear considerable risks. Note also that off-balance sheet items may serve as important sources of capital, providing a buffer against risks.

Table 3 – Risk Tolerances – High level quantitative risk metrics

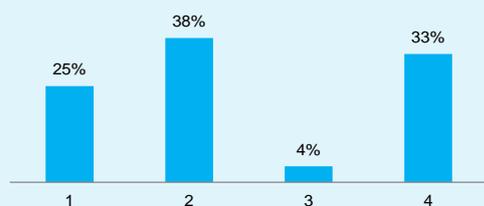
Financial statement	Risk metrics (examples)
Balance Sheet	Capitalization level depending on target solvency ratio and/or target rating
Profit & Loss	Earnings-at-risk, Expected Shortfall
Liquidity	Liquidity-at-risk, Expected Shortfall, leverage ratio, funding profile

Two common types of risk metrics are value-at-risk (VaR) and Expected Shortfall (ES). Both metrics measure the risk associated with a time horizon for the loss distribution and a confidence level (or probability). **VaR** is a common risk measure often already calculated for the total capital requirement

of the company. For Profit & Loss and Liquidity measures, a company might call the VaR “earnings-at-risk” and “liquidity-at-risk”, respectively. **Expected shortfall** represents average losses given that the VaR threshold is exceeded.

Putting it into practice...

1. Minimum regulatory capitalization levels
2. Minimum capitalization levels according to company-internal model
3. Maximum target capitalization level according to company-internal model
4. Debt rating target



When asked which capital related metrics were included in their companies' published risk appetite, CROs overwhelmingly cited minimum capital requirements, whether regulatory or economic, as key.

When asked which non-capital related metrics were included in their companies' published risk appetite, CROs stated earnings volatility, risk limits (under the form of non capital related limits e.g. underwriting limits, counterparty concentration limits, etc.), and qualitative statements as the key elements.

1. Earnings volatility targets
2. Formal risk limits
3. Strategic Risk Appetite Statements ("we will not take exposure in...")
4. Statements on exposure to reputational risk
5. Liquidity Targets
6. Others



While well-established risk metrics exist for quantifiable risks, the less quantifiable risks (or qualitative risks) are mostly out of the reach of mathematical modelling. These pertain, in particular, to the qualitative aspects of a company. Examples of these risks include reputational risk and confidence of the stakeholders in the company. Another example of qualitative risk is strategic risk (i.e. unexpected losses due to improper strategy or its implementation). In this case, more qualitative risk measures, such as specific indicators (e.g. number of customer complaints) or key findings of risk assessments (e.g. how well processes and accountabilities are defined throughout the organization) can be used as the basis for risk assessment. If these risks are included in a risk appetite, they should be measured and monitored against the most appropriate indicator available.

Table 4 – Risk Tolerances – High level qualitative risk metrics

Risks	Qualitative risk measures
Reputational risk	Reputational risk indicators, key findings in customer satisfaction surveys, advertisement impact assessment, etc.
Strategic risk	Exposures, earnings volatility, company share price volatility, key findings of opportunity and process optimization assessment, etc.
Model risk	Root cause analysis of errors, Backtesting, Certification of model principles, Periodicity of model validation
Emerging risks	Expert assessments of identified risk's impact, velocity, and probability.

Risk appetite and risk tolerances are often broken down by risk type. Risks usually faced by insurance companies are listed in the left column of the table below.

Table 5 – Risk-type level consideration of quantifiable risks

Risk type	Risk metrics (examples)
Market risk	Funded yield vs. portfolio/plan yield, pricing interest margin, current and projected reserve margin, duration mismatch, sensitivity of MV surplus, and accounting to risk factors such as interest rates, FX, equity, commodity indices, VaR
Credit risk	Counter party rating, concentration, debt rating, VaR,
Insurance risk	Exposures, concentrations, trend, policyholder behavior, VaR
Operational risk	Exposures, risk control assessment outputs, VaR

Academia and industry have invested significantly into research on market, credit, and insurance risk. Consequently, the methodologies have reached a high level of sophistication. For operational risk, measurement is less certain, mainly due to the complexity in modeling the risk drivers and the difficulty in compiling representative, historical event sets. Regardless of the approach, the management of operational risk is a good example where introducing “soft limits” (i.e. limits that are set as referrals for management to raise concerns about the risk and decide whether to take action) can be advantageous to the risk appetite framework. Soft limits can also be useful for most risk types.

When setting Risk Tolerances, companies should consider

- Universality of the risk measure (applicability to all environments)
- Ability to link to the business plan
- Ability to define risk based return
- Ability to be cascaded down
- Availability of data to allow for timeliness in reporting
- Complexity in computing the metric
- Ease to communicate and understand

4.3 Roles and responsibilities in the creation of risk appetite

A company’s risk appetite framework requires strong governance and ongoing management with clear roles and responsibilities embedded at all levels of the company. As discussed previously, development of a RAF is a complex endeavor, requiring an iterative process, and therefore appropriate governance and ownership may only be achieved as the framework is developed and as support for it is built over a period of time. Establishing expectations by the Board and senior management promote the value and strength of the risk appetite framework within a company.

Companies should organize roles and responsibilities related to establishing and embedding the risk appetite framework in a manner that is most relevant to its specific structure; as such, we do not prescribe specific segregation of duties or attribute specific roles to designated corporate figures. The Board should be actively engaged in assessing the effectiveness of the risk appetite framework, with discussion of more material changes to the framework and current risk appetite levels possibly delegated to an executive or Board sub-committee. The Board and/or Board sub-committee would

ensure alignment of risk appetite with strategy and risk preferences, that the framework encourages appropriate accountabilities and that reporting (including metrics) supports their needs in order to provide appropriate oversight. Board review of risk appetite should occur annually, or after significant events. Board decisions on performance appraisals and incentive compensation should be made through the lens of risk appetite. Depending on the jurisdiction, additional expectations of the Board may be placed by regulators who require specific types and levels of Board engagement and ownership of risk appetite.

A company's CEO, CRO and CFO share responsibility for establishing and embedding risk appetite and should work jointly on the risk appetite framework, but specific allocation of responsibilities would be left to the company's discretion. In a mature and effective framework, the CRO and the CFO would work together in ensuring that the risk appetite of the firm is consistent with its strategy, business and capital plans, risk capacity and compensation program and would be equally responsible for aligning risk appetite to supervisory expectations. Appropriate checks and balances should be utilized to optimize development, use and ongoing maintenance of a company's risk appetite framework.

To embed the risk appetite into the organization, senior management should facilitate cascading; use and adherence would be encouraged through performance expectations for employees at all levels.

The RAF, including the roles and responsibilities of all levels of management, should ultimately be developed in consideration of a company's nature, scale and complexity. For example, the framework may be adapted to suit the organizational structure of a company divided into business units. A pragmatic approach may be to embed risk appetite over the span of several years rather than trying to implement a comprehensive framework at once. Regardless, the key aspects for a successful RAF are ownership and support of risk appetite at senior levels, clarity of governance and roles and responsibilities, and the fundamental goal of developing a risk culture that supports the strategic direction of the company.

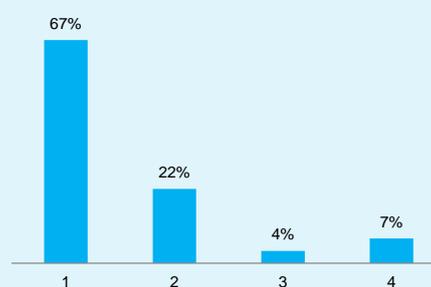
4.4 Communicating risk appetite inside and outside the company

As discussed in the previous section, senior management should set risk tolerances and risk limits than underpin the risk appetite framework in a collaborative manner with the company's business leaders. Risk tolerances should also reflect market expectations (e.g. a company wanting to develop its share of the CAT risk market would be expected to set higher limits at the local level than previously expected), corporate strengths and peer group considerations. As part of this process, the risk tolerances should be approved (by senior management and the Board) any time a financial budget is produced since they are intrinsically linked boundaries of financial results. For a RAF to be effective, tolerances and limits should be clearly communicated to all affected risk takers on a timely basis so that localized decision making is in line with the company's appetite.

Risk appetites should be submitted to the Board annually, or after significant events causing the company to reconsider its risk appetite. While many companies do not communicate the specifics of risk

Putting it into practice...

When asked how their companies communicate risk appetite metrics, CROs overwhelmingly indicated that a single risk appetite statement is usually established and communicated to all stakeholders with the same format.



1. One format Risk Appetite Statement at company level, supported by a simple set of metrics, communicated to all stakeholders in the same format.
2. One single set of metrics on Risk Appetite, but communicated differently to different stakeholders
3. Different sets of Risk Appetite metrics, depending on stakeholder group. Targets set on different metrics must be coherent.
4. Different sets of risk appetite metrics, depending on stakeholder group. Targets set on the different metrics must not necessarily be coherent

appetite broadly around the company, the company's senior management should be fluent in them. Risk appetites are integrated with strategy, budgets, and policies and often contain confidential information making their broad dissemination to both internal and external constituencies inappropriate.

With respect to public disclosures, many companies disclose their limit setting philosophy together with the tolerances associated with their most material risks (e.g., CAT limits), and disclose peak risk exposures related to certain key risks at different levels of confidence. Many companies disclose the existence of a RAF in their public filings, and provide insight on the elements of the RAF without necessarily giving details on the quantitative features of the RAF itself.

Of course this last statement does not necessarily hold true for every company and for each type of risk appetite statement. For example, it is natural for rating agencies to understand the company's risk appetite statements and framework and related governance processes in greater detail. Further, as part of an earnings call, or as part of its financial disclosures, some companies disclose long term ROE expectations, hurdle rates or capital buffers (versus either a regulatory or a rating agency standard). While discussions about RAF are occurring more frequently in financial disclosures, there remains a fair amount of variability across companies as to the level of detail provided.

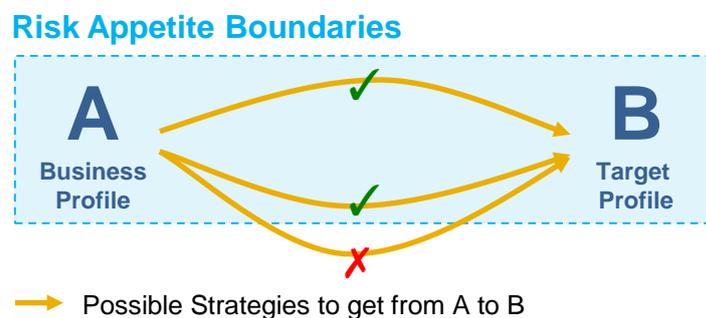
Section 5: Embedding Risk Appetite

In this section, we take a more practical approach to risk appetite and provide more detail on how a RAF would work operationally. Embedding risk appetite in the culture of the business is not a simple compliance exercise, but rather part of a company-wide effort to change the way the businesses perceive risk by considering it as an integral part of their decision making processes, whether at strategic levels or more operational (i.e. day-to-day) levels, according to the company's approach to managing risk.

The Board and senior management likely take a strategic perspective with a view of what risk appetite means to them over an extended timeframe, and how it relates to performance. Management should strive to fully embrace the RAF and use risk appetite explicitly in their thinking and in decision-making processes. A company with a strong risk culture has a Board thinking in terms of risk appetite, and everyone else in terms of what drives the company's risk profile versus its risk appetite and how decisions impact the profile.

5.1 Integrating risk appetite with business strategy

A common question when embedding risk appetite is, which comes first, risk appetite or strategy? This paper takes the view that setting business strategy and risk appetite, including allocation of resources, is an iterative one; risk appetite informs strategy and strategic choices shape risk appetite and inform allocation of resources. Essentially strategic goals need to be set within the boundaries of the overall risk appetite, yet in practice, risks are only apparent after business strategy has been identified.



Early stages of embedding a RAF are likely led by units in charge of strategic and business planning in collaboration with the company's ERM function. Risk appetite might be seen as a constraint (often established with the goal of compliance with regulatory requirements). Focus may be on controlling whether the plan is compliant with risk appetite, measured by expectations regarding how risk factors might evolve. Stress testing would be utilized to set the expectations and monitor against them. For example, stress testing might be used to highlight risk exposures allowing management to determine its appetite for each. Then once risk appetite is set, stress testing would be used to monitor adherence. If a company seeks to maintain net assets equivalent to 120-130% of its economic capital requirement, stress testing (or reverse stress testing) could be utilized to understand what might draw net assets down below 120%. Alternatively, sensitivity tests calibrated to a tail event (considered to be unusual yet plausible, e.g. a 1-in-20 to 1-in-200 year event) could be applied to determine if they would bring the level of net assets out of compliance with risk appetite. In this case, non-compliance might lead to an iterative process resulting in revisions to the business plan.

Graph 5.1.1: Maturity Model of Risk Appetite Implementation

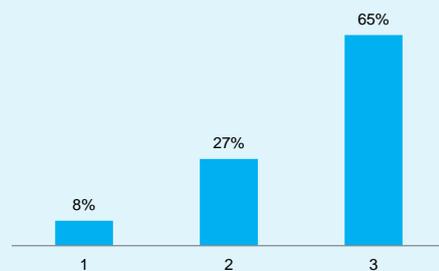
	Early stages of RAF implementation: Control risk	More advanced RAF implementation: Support decisions	Advanced / optimised RAF: Optimise capital position
What?	<p>Role of RAF</p> <ul style="list-style-type: none"> Sets controls around risk taking and ensuring solvency Limits: sets Risk targets based on a cascade from the Group position Solvency: Capital held and managed to local requirements + operational buffer 	<ul style="list-style-type: none"> Covers aspects of “early stages” RAF Supports business planning and other decision making Facilitates allocation of capital to most desirable opportunities during business planning process Consciously takes account of fungibility constraints / trapped capital 	<ul style="list-style-type: none"> Covers aspects of “more advanced” RAF Active optimised allocation of Group capital Constraints to be addressed as required by, e.g., restructuring, internal risk transfer, asset / liability management, product management, etc Drives economic optimisation through risk selection and structural change
Why?	<p>Business and Control context</p> <ul style="list-style-type: none"> Cascade would allow risk taking to be controlled at local as well as at the Group level Sets risk targets that provide the basis for risk management activities and monitoring Limits business risk taking to within the overall Group risk appetite 	<ul style="list-style-type: none"> Allows capital to be allocated efficiently throughout the Group Facilitates allocation of physical capital from less attractive activities to more attractive activities Identifies key constraints and opportunities to improve capital efficiency Allows EU regulated entities / group to help demonstrate S2 compliance and can move to support the “use test” by incorporating economic capital metrics into business decision making 	<ul style="list-style-type: none"> All Group capital benefits from diversification should be captured Drives all possible capital benefits resulting from internal risk transfers, internal and external leverage, other structural considerations, etc Likely to drive pursuit of unachievable or expensive rewards

As the business model matures, the RAF becomes more embedded in the company. Risk appetite will increasingly become an important input to the strategy informing management of decisions that best optimize the likelihood of delivering on business objectives. For example, a company’s risk tolerances which set the amount of longevity risk desired would set bounds to the amount of annuity business that can be written; in turn, the risk appetite might encourage the company to focus on writing life insurance business within its given risk limits that maximizes its return. The net result might be a mix of annuity and life insurance business with offsetting risks, and optimized value requiring fewer resources (in this case capital).

If strategy is set without any view of overall risk appetite then, taking the above example, an optimal mix of annuity and life insurance business might not be obtained; risk limits for one or the other might be breached, resulting in an overall risk profile that leads the company to freezing resources (in this case capital) that could have been more profitably allocated elsewhere. Leaving individual businesses to decide their business plans, where they seek to optimize locally without any view of how this might impact the overall position, is unlikely to end in optimal solutions.

Putting it into practice...

When asked how risk appetite and strategy were integrated in their companies, CROs indicated by a large majority that there existed a timely feed-back loop between both.



1. Risk Appetite is set and strategy follows it.
2. Strategy is set and risk appetite follows.
3. There is a timely feedback loop between strategic decisions and risk appetite, and changes to both.

Putting it into practice...

When asked in what areas risk appetite was integrated with business decisions in their companies, CROs responded that overall business strategy and capital and asset allocation were the key areas. This is indicative that integration of risk appetite at more operational levels still needs to improve.



The main way risk appetite influences business decisions is through establishing risk tolerances and limits, providing key metrics against which to monitor the risk profile of on-going operations and assuring adherence to business strategy. Further, the RAF can provide targets for capital and liquidity adequacy under a normal environment as well as tolerances or limits for relevant stressed scenarios.

Stress and scenario testing is intrinsically linked to risk appetite, tolerances, and limits and is useful in understanding the risks associated with the business plan. Stressing the business plan allows for assessment of expectations under stressed conditions relative to risk appetite and may result in adjustments either to the plan or to the risk appetite. Finally, as a tool for improving risk culture, risk appetite can be used in incentives, remuneration, and performance measurement.

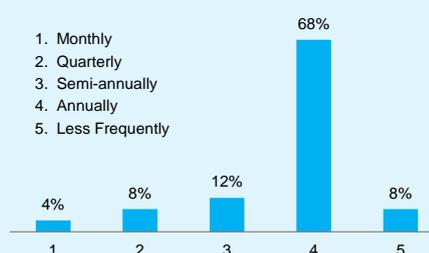
5.2 Reviewing risk appetite and risk tolerances

For a company to maintain an adequate profile in various business cycles, review of a company's risk appetite should be a regular event that, under benign conditions, is part of the business planning cycle. Situations arise which warrant ad hoc revisions to a company's risk appetite because they have the potential to materially change the risk profile of the company. They are generally classifiable in two categories, both of which stem from systemic factors:

- Scenarios that lead to material shifts in market opportunities: As an example, acquisition of a significant block, sale, merger, demutualization, exit by a major competitor from a certain market, leaving an unusual return opportunity for remaining or newcomer companies to this market. A company could reset some or all parameters within its risk appetite framework to be in a position to seize this opportunity.
- Scenarios of material shifts in market conditions: As an example, suppose that market stress causes certain asset classes to suddenly become more volatile which, in turn, causes certain risk tolerances to be breached *even though* the underlying asset limits are in compliance. After review, a company may choose to expand its risk appetite as an alternative to sizing down its assets to accommodate periods of market stress.

Putting it into practice...

When asked how frequently risk appetite was updated in their companies, a large majority of CROs responded annually.



If tolerances are breached, risk appetite could be reviewed temporarily or permanently in accordance with ultimate risk capacity. As discussed in section 4.1, risk capacity and risk appetite may be closely aligned for some companies while for other companies, risk appetite is more stringent than the absolute risk capacity. In any case, the ability for a company to stretch beyond its risk appetite

depends on the difference between its risk capacity and its current risk profile (supposedly very close to or beyond its risk appetite). As such, risk capacity should be monitored and reassessed regularly. For example, suppose a company has set its economic capital at 140%, and it seeks to maintain assets equivalent to 120-130% of economic capital in a stressed environment, with a risk capacity that would allow reduction to 100%. If the company finds itself in the scenario of a material shift in market conditions, the difference between ultimate risk capacity and current position provides the latitude to weather the storm, rather than implement significant de-risking efforts, which would limit the company's ability to capitalize as conditions improved.

As a tool for the Board and senior management to establish boundaries around risk taking to achieve company objectives, the RAF should be subject to change and evolution as conditions and opportunities require so long as a robust governance and escalation process exists, including articulating the following:

- What has changed between the time when the RAF was last approved and the new opportunity or threat that presents itself;
- The commercial profit opportunity in terms of the expected risk/return tradeoffs or the impact on profit of the threat that has changed the expected risk / return tradeoff;
- Why the potential losses associated with the additional risk taking are acceptable or not;
- Peer group and rating agency expectations.

We believe that as a matter of sound governance, Boards should review and/or approve the request for expanded risk tolerances and the associated change in risk appetite.

5.3 Cascading risk tolerances to risk limits

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

Approaches to developing risk limits vary, due to different basis for the measurement of risk exposures driven potentially by different regulatory regimes and different methodologies and infrastructures employed, as well as different data availability. Although the primary purpose of a limit system is to support meeting the risk tolerances by braking excessive risk taking, some companies also employ limits in support of risk-based return optimization as well (e.g. tighter limits where risk-return is low).

Companies with the ability to measure risk exposures based on risk-sensitive indicators (e.g. internal model approaches for economic capital) may define risk limits on, for example, the amount of economic capital allocated to business units and/or risk exposures. Other risk exposures may be measured on an indirect basis, utilizing premiums, reserves or sums assured, for instance. In such cases, the RAF would be embedded on the basis of limits in regard to indirect indicators. In fact, the RAF should be broad enough to allow for the cascading of economic measures of risk as well as other measures of risk derived using other approaches.

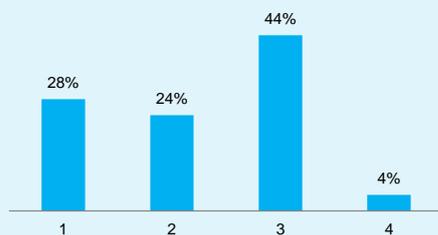
The cascading of the RAF should result in a limit framework at the business unit level that is calibrated to the company's strategic vision, risk appetite, and tolerances. In practice, this process is more complex than just allocating risk appetite proportionately, as business units' strategies vary. Some companies may consider it more important that local decisions be made to maximize the global value of the company, others that value should be managed locally to optimize local risk appetite constraints. Another reason for a company to take a more local view on risk appetite is a philosophy that management's performance measurement should more closely align with performance drivers under their control. Although there might be good economic arguments for aligning each management decision to a company target, it could also have adverse consequences for the total value of the company if management becomes less flexible in reacting to local opportunities or threats. Furthermore, linking incentives to individual performance breaks down when decisions taken elsewhere in the company ultimately hurts local measured performance. A typical example of this dilemma is illustrated in Appendix 2 that develops the arguments for and against allocating diversification effects in the context of economic capital.

When cascading Risk Tolerances down to granular levels, companies should consider

- Consistency between metrics at the granular levels of the RAF
- Link to the larger strategic vision
- Balance between global and local views of managing risk

Putting it into practice...

When asked by which means capital is allocated in their companies, a large majority of CROs indicated that a combined approach has been adopted.

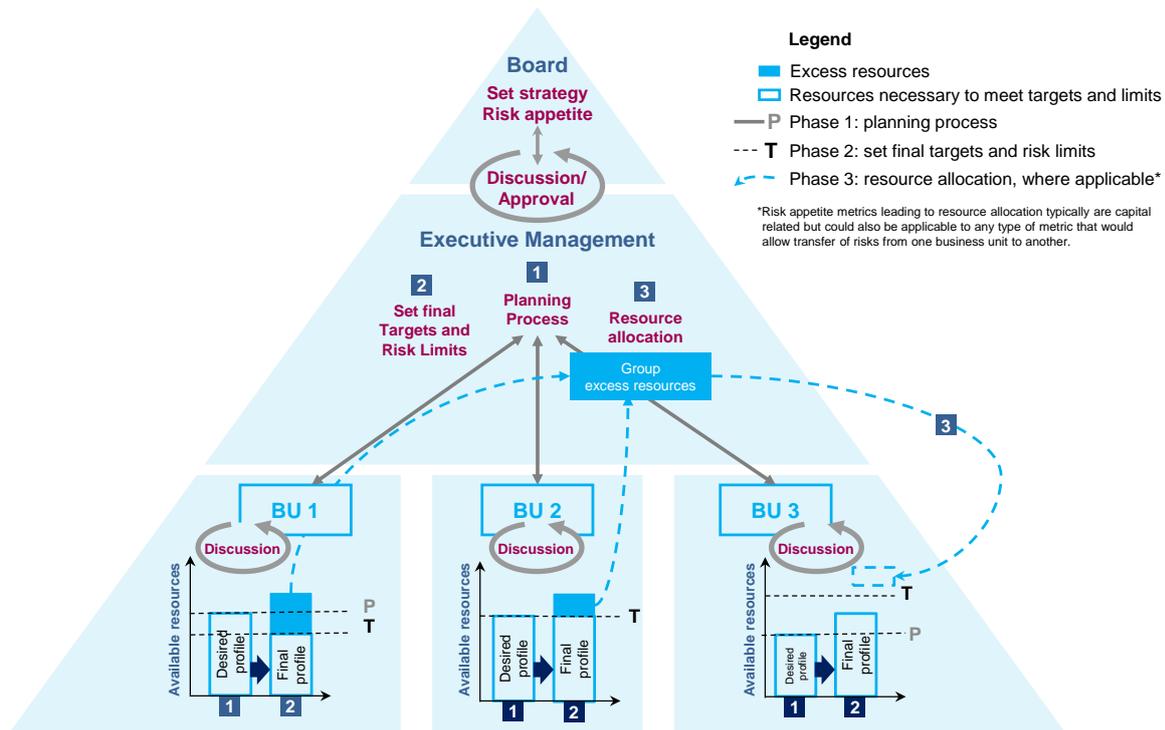


1. Contributions to our global risk appetite criteria. Group diversification is allocated.
2. Local Risk Appetite criteria. Major business units operate on a stand alone basis.
3. Combination. Blend of local and global criteria result in some group diversification being allocated but not all.
4. Other. Our approach is unique.

Increasingly, a combined approach is being adopted. As a result, in allocating risk appetite across business units, companies will need processes to help manage cases where different business unit strategies need more or less resources than available, while ensuring that the company risk tolerances are not breached. During this process, companies might experience constructive tension among the various business units for scarce resources. Ultimately, senior management is charged with ensuring that such resources are allocated across business units in a manner that maximizes risk adjusted returns, subject to the relevant constraints faced by business units and the company – in a manner consistent with company risk appetite frameworks.

In the following graph, an example is provided of a step-by-step process of how cascading can be done using a combination between a local and a global approach.

Graph 5.3.1: Iterative cascading process



In this process of cascading and setting risk limits at increasing levels of granularity within the company structure, and depending on how complex a company is (e.g. multiple geographic zones, importance of non-insurance activities, variety of product mix, etc.), it is faced with equally increasing difficulty in keeping the overall risk limit framework consistent. Suppose a company has managed to strike an appropriate balance among the risk tolerances it fixes according to stakeholder priorities. If on one hand the company wishes to maintain a direct link between higher and lower level limits it will gradually lose the ability to maintain consistency with the limit and control infrastructure that may already exist at the business unit levels. If on the other hand it chooses to maintain a consistent approach at granular levels, it will be faced with the challenge of maintaining the link to the strategic goals. Contributing to this complexity are the multiple valuation frameworks (Local GAAP, IFRS, market consistent, etc.) and the non-harmonized regulatory regimes (Solvency II, ComFrame, NAIC, etc.).

Given the above, we would argue that, although it is a goal to strive for, limit frameworks will not necessarily be consistent across all metrics used. Top down consistency for each individual metric should be sought down to the level of granularity commensurate with the level at which decisions are being made (see section 5.4). Where the links at the lowest levels are indirect, it is important that harmony exists between these levels and the overarching risk tolerances; a bottom up reconciliation process can be used to ensure this. In addition, where consistency across metrics is not fully established, it should at least be possible to assess the impact that the variation of one metric will potentially have on the others. However, companies should acknowledge that there might be areas where they choose not to optimize risk because of the cost and complexity of maintaining a link between aggregate and granular limits.

5.4 Granular and dynamic nature of risk appetite frameworks

Debate exists as to whether the risk appetite framework should remain more of a strategic concept or become an operational tool.

On one hand, companies argue that risk appetite statements should be set at a high level across broad metrics for a business as a whole and should only be updated every three years or so. This interprets the RAF as a strategic concept, stable and high level. On the other hand, RAFs should be specified at a granular level so that day-to-day activities can be guided. These tolerances/limits should be dynamic and respond to updated views on risk on a regular basis (e.g. no less than annually), with the RAF used as an operational tool in day-to-day activity.

Putting it into practice...

Given a choice between the 2 interpretations,

- 48% of CROs considered more the strategic aspect of risk appetite, arguing that high level targets should be set across broad metrics that allow an adequate profile regardless of the business cycle
- 52% focused on risk appetite as an operational tool, arguing that strategy is of little use unless it can be translated into target risk profiles and practical day-to-day management activities
- 100% of the CROs considered both aspects to foundational to embedding an efficient RAF.

Defining limits that are too aggregate is problematic in that the aggregate numbers need more time to be produced and this represents a delay in monitoring. Also, in case of a breach, it is not clear from which area of the company the breach originates, thereby making targeted mitigation difficult and compromising the effectiveness of the framework. On the other hand, if the framework is too granular, the consistency of the limit system would be a challenge, as would be the significant operational costs of monitoring and reporting.

Granularity of the RAF (i.e. the extent to which risk limits are cascaded) should be aligned to the level at which business decisions are made. One possibility is to trade off depth with breath, i.e. if it is necessary to define a RAF for a wide range of local units, then the risk appetite statement should be relatively economical in risk metrics and risk tolerances, giving the appropriate flexibility to the

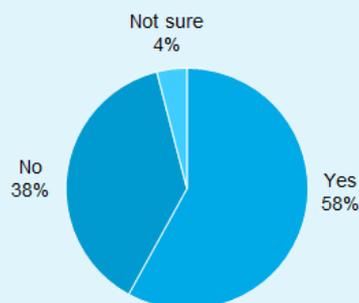
local management to manage the limits. In any case, to ensure consistency throughout the company, it should be possible to aggregate granular risk limits, monitor them and report against the company's risk appetite and risk tolerances.

In addition, determining the dynamic nature and granularity of risk limits should also be based on the materiality of the risk to the company and the volatility of the risk and/or the basis of the limit.

- **Materiality of risk:** Knowing which risk categories are the company's primary risk drivers in an adverse scenario can indicate where tighter risk limits need to exist (including additional "soft limits"), and/or where updating must occur with a higher frequency;
- **Volatility of risk:** The speed with which exposure to a certain risk type or category can change and/or its sensitivity to adverse scenarios should influence the frequency by which the company defines and updates its risk limits;
- **Volatility of limit:** If risk limits are based on dynamically changing metrics (e.g. percentage of capital), updating must occur with a higher frequency.

Putting it into practice...

When asked whether limits set on granular asset positions (as an example) cascaded directly from Group limits, up to 38% of CROs answered no.



As an example, traditional insurance risks have a different dynamic than market risks. A company with a material market risk exposure may have dynamic financial risk limits updated and reported daily. Conversely, property catastrophe limits may only be updated quarterly if underlying exposures are steady. Regardless of the particular risk type, if an event changes the risk landscape, increasing the frequency or granularity of monitoring and reporting may be necessary.

Ultimately, the RAF should document in policies the granularity of the risk limits as well as the frequency of monitoring. In addition, the framework should incorporate an escalation process to ensure that a procedure is agreed upon, in place, and available in advance of a stress event. Approved mitigation tools – hedging, reinsurance, capital actions, or other methods used by the company – should also be documented, in policies and/or contingency plans.

The granularity of the RAF should depend on the

- Level at which business decisions are made
- Materiality and volatility of the risk being cascaded

Setting and managing dynamic limits is dependent upon robust risk management technology. Underlying data must be developed, complete, and validated. To this end, having adequate model validation is critical to the process to assure that systems, vendors, and technology are adequate for the level of monitoring the company requires.

5.5 Enforcing risk limits

Different Views

Some CROs took the opposing view of providing key risk takers the right incentives through performance management and remuneration, arguing that:

- Performance management and remuneration are the most powerful levers to influence behavior of the company's risk takers
- The performance targets and incentive schemes of those risk takers should therefore to a great extent be risk-related
- The defined Risk Appetite should inform those targets and incentives

Many companies have set up their RAFs to ensure that risk takers follow a company's risk appetite by constraining their actions with limits. RAFs attribute clear limits to the risk takers in such a way that they should be free to operate within them without the additional burden of taking into account risk appetite considerations on each decision. In other words, management should ensure that the levels of risk (by business unit and for the overall company) projected in the budgetary and business planning process are consistent with the company's RAF. Management should also be able to demonstrate that, if all risk limits are complied with, a company's risk tolerances would not be breached, and company operations would remain in line with its appetite. This presupposes that the RAF takes strict measures to ensure immediate action is taken when limits are breached.

In this section, risk limits have been described in terms of bright lines, which, should they be exceeded, require immediate remedial action – be it a reduction of the risk, or the decision to expand the defined limit so long as the larger limit is consistent with the company's strategic goals and risk appetite. One might define these types of limits as “hard limits.”

Many companies also employ a framework of “soft limits”. Distinguishing between hard and soft limits is useful in determining when discussions around revising risk limits are warranted. In contrast to hard limits, soft limits relate to an exposure level that should trigger discussions, but for which remedial action is not yet necessary unless otherwise decided upon. The conditions that existed when the risk appetite was established can change, and good governance leads the company to understand the

nature of this change and whether or not it warrants the decision to expand acceptable levels of risk. Triggering a soft limit results in an escalation process to ensure senior management and other internal governance authorities (e.g. risk or underwriting committees) discuss and understand the basis for the change in view and concur on the actions to be taken. This approach is commonly followed in financial risk management where departments seek approval to spend in excess of budgeted levels prior to the expense actually being committed to. More sophisticated escalation procedures would involve more than one soft limit for the same risk measure at increasing levels of seniority. To avoid excessive complexity, these referral procedures are usually applied to key metrics such as capitalization level, liquidity ratios, and concentrations levels.

In any case, RAFs should include escalation principles for both its hard and soft limits, and communicate these clearly to all decision makers. It should also be clear which types of mitigating actions are available to decision makers in case of breach of limit. If one considers the different risk mitigation techniques, which can be broadly categorized in four types, some of these techniques will be more readily available to higher levels of seniority:

- Increase risk monitoring (e.g. increase in reporting frequency) and de-risking (e.g. trigger of approved reinsurance or hedging programs) are actions typically available to decision makers at operational levels, whereas
- Resource reallocation (e.g. capital transfer), or revised risk appetite (e.g. increase in tolerance on earnings volatility) should only be available to senior management and to the Board.

Putting it into practice...

An example of soft limits typically involves companies that define “risk budgets” based on business planning. It is assumed that budgeted levels of risk fall below the tolerances otherwise defined in the risk appetite statement.

If a business desires to enter into risk beyond budgeted levels (the “soft limit”), the matter should be escalated to the appropriate governance bodies within the company for approval

5.6 Monitoring and reporting risk limits

Monitoring risk means assessing the company’s risk profile against the risk limits and risk tolerances that have been set. Gearing risk appetite reporting to senior management and the Board is critical and reports should include meaningful information presented in a transparent, easily understood format, and in a context that is actionable. When designing a monitoring and reporting process, some considerations are as follows:

- Data tailored to the audience and level of granularity;
- Useful visuals that prompt decision-making;
- Focus on material risk factors;
- Proactiveness of the report.

Proactive reporting usually includes the two following characteristics:

- Limit breaches are anticipated rather than reported on once they are breached. This is often achieved by reporting on the *projected* risk profile as well as the profile at the report date (e.g. End of year projection of economic capital consumption as of Q2). Other techniques include analyzing adverse trends or identifying and explaining emerging risks, particularly in a constantly changing environment.

- Limit breaches are linked to the mitigating actions that are available to the report's audience. Concrete examples of this are contingency plans and in particular recovery and resolution planning. These often are established in the company independently of the RAF because they respond to their own distinct criteria, although the quantitative and qualitative triggers that are part of the plan are necessarily part of the RAF. Awareness of which contingency plans could be triggered when certain limits are breached is key to helping management take informed action.

Education should be provided regarding how to interpret and use data included in quantitative risk reporting; many different types of risk exposures and metrics can be confusing to individuals outside of the risk management function. To be effective, risk reports should include the following:

- Definitions of material risks, and clearly identified confidence levels, accounting methods, time horizons, and other factors impacting results;
- Consideration of volatility of risk metrics shown and appropriate trending analysis;
- Stability of look and feel over time to avoid confusion;
- Executive summaries giving highlights of main conclusions, with drill down in more detailed parts of the report;
- Calibration of the level of detail of the report on the amount of "new" information available (i.e. first quarter reports may not need to be as detailed as half year reports).

Because the frequency and timing of risk reporting plays a key role in the interpretation of a company's exposure to risk, the following factors should be considered:

- Type of risk: The appropriateness of the report frequency will depend on the type of risk. For example, market data can change significantly from day-to-day; therefore, exposures may need to be monitored and reported daily.
- Risk mitigation technique: Another factor is matching the frequency of reporting to the risk mitigation techniques. For example, hedging will require more frequent monitoring and reporting than mitigating with reinsurance.
- Volatility of environment: The more volatile the environment, the more frequent and potentially ad hoc the reporting could be required (e.g. severe catastrophe event, market volatility). In normal operating environments, it may be appropriate to provide monthly reporting to senior management, and perhaps less frequent to the Board; however, it is the quality and timeliness of the data that will determine its usefulness. Given constantly changing environments, presenting stale information may lead to poorly informed decisions.

In short, a company should determine which risk factors, metrics and/or characteristics are most pertinent to their particular risk profile and position, at a level granular enough to detect trending, and on which to perform appropriate analyses. After determining the monitoring level and frequency, a reporting framework should be used to draw together the data across all risk areas, and present a clear and comprehensive picture for senior management and the Board.

Section 6: Conclusions

Developing a risk appetite statement is an endeavor in and of itself. Coalescing board and senior managements' thoughts around appropriate types and amounts of risk to take is no easy task. Following simple principles stated at the beginning of this paper help in that process. But, once completed you cannot stop there. Operationalizing and embedding an entire risk appetite framework throughout the company is required to have any success in managing toward your established risk appetite statement.

This paper has shown the need to develop a risk appetite statement that includes metrics and provided several examples. In addition, the importance of quantifying and measuring the established risk metrics to enable you to address the myriad of stakeholders' interests has been identified as a requirement of any risk appetite framework. Cascading risk tolerances throughout the organization is important to successfully embedding a risk appetite mindset throughout the company. If these steps are successful, the integration of risk management and business strategy will become apparent. Business strategy development and business decisions will be seen through the lens of the established risk appetite and risk management will become embedded in business strategy. This will benefit the long term viability of the company and enhance value.

Think about your company's risk management strategy and risk appetite statement. Do you have established risk limits that are monitored through well-defined metrics? Is your risk appetite framework embedded within business strategy development and day-to-day business decisions? The process to accomplish this goal is challenging given the varied interests within any company, but the end result will provide a comprehensive and cohesive framework to make strategic and tactical decisions.

Section 7: Appendices

Appendix 1 – Example of a Risk Appetite Statement

XYZ Company's philosophy and approach to enterprise risk management strategy stems from our mission, corporate strategy and objectives, which are also aligned with the company's stakeholders (i.e. shareholders, policyholders, debtholders, regulators, rating agencies, etc.). Our mission is to [state mission]. Our corporate strategy is to focus on areas of expertise and deep experience, capitalizing on the company's competitive advantage. Corporate objectives are to achieve target performance and maximize shareholder value, preserve a level of solvency that will support XYZ Company in challenging environments, maintain adequate liquidity to satisfy obligations as they come due, and protect all aspects of the company's franchise value, including its brand and reputation.

The company takes and manages risks to achieve our objectives, and the following risk appetite statement broadly describes the types and amounts of risk the company is willing to take in pursuit of these objectives.

With regard to the types of risk we take in order to seek return, XYZ Company accepts and manages strategic, credit, and insurance risks in accordance with our corporate strategy, investment policy, and annual business plans. The company seeks to minimize potential exposure to market, capital & liquidity, and operational risks.

Underlying the company's risk appetite are risk tolerances, high level quantitative and measures and qualitative assertions for the maximum risk allowed, set at the enterprise level and in line with the needs of our stakeholders. At the highest level, they are intended to assure we maximize the likelihood of delivering on our mission, strategy and objectives.

1. Earnings: Our business should be monitored and managed so that we have 95% confidence that earnings will be no more than 5% lower than expected and 99% confidence that earnings will be no more than 10% lower than expected.
2. Capital
 - a. Regulatory: We seek to maintain a level of capital that is 375-400% NAIC RBC, but have a long term target to operate at 350% RBC. An early warning threshold of 300% RBC is established to initiate heightened monitoring and review. If the level falls below the early warning threshold, then causes and potential contingency plans will be reviewed at the next quarterly executive risk management committee meeting. Our desired absolute minimum level of capital is 250% RBC, which represents a 50% point margin over the regulatory intervention level of 200%. If the consolidated actual capital level falls below the minimum level, then immediate remedial action plans will be implemented.
 - b. Economic: We seek to maintain assets in excess of 130% of economic capital. The early warning threshold is 120%, and the minimum level of capital is 100%.
 - c. We manage risk exposures so that each single risk has a maximum loss exposure of less than \$500m of statutory capital at a 95% confidence level.

3. Liquidity: We seek to minimize exposure to liquidity risk and manage closely at all times, actively managing our liquidity position and collateral exposure to ensure we have ample resources to fund our obligations. At the enterprise level, we maintain holding company cash and securities of two times (2X) annual fixed charges with half of the total holdings (1X) in pure cash equivalents or commercial paper and we maintain recourse leverage below 25%. We manage leverage so that we have 90% confidence that our leverage ratio will be less than 20% and 99.5% confidence that it will be less than 25%.

4. Franchise value: Operational risks that could lead to material reputational, legal, or regulatory problems should be minimized. We seek to maintain appropriate compliance with all applicable laws, have no tolerance for criminal or fraudulent activities, and maintain strict data security and privacy controls to protect customer information.

Appendix 2 – Allocating diversification benefits

Companies are faced with the challenge of allocating capital resources to granular levels of the company and determine risk limits, which collectively satisfy an overall capital-based tolerance level. Because capital may not be fully fungible across the organization, the allocation of capital and determination of risk limits can be a complex exercise. Risk appetite, tolerances, and limits need to manage different views on capital fungibility. An example of opposing views is illustrated in comparing capital requirements governed by 'group-wide' or 'local' constraints.

Under a group view, individual risk exposures can be aggregated into a group measure of required capital, accounting for the benefit of full diversification of all exposures in the company. Implied in this view is that the aggregate value of the company is fully accessible to cover all risks; that is, capital is fully fungible (not to be confused with fully liquid). Capital can be accessed sufficiently quickly to cover unexpected losses in all parts of the company. The group view is consistent with the perspective of 'one company / one capital base' and, on a purely economic basis, reflects the most efficient provision of risk pooling.

The following two strategic goals promote fully allocating diversification benefits to all levels of the organization:

- Capital and liquidity allocation should be driven by global impacts of the business / product on the group-wide consolidated capital requirements. Shareholder value is reflected in the total market value of the company and is represented by shares in the top holding company. Therefore, the impact of a risk exposure on the amount of capital the entire company needs to hold is the most precise driver of value creation.
- Allocating diversification to business units maximizes shareholder value in marginal decisions (e.g. underwriting, costing, asset management). By allocating full diversification, risk exposures receive charges for capital employed that reflect their impact on the overall capital requirements of the company.

In general, management should be incentivized to maximize shareholder value. Where a 'group' view on risk appetite is employed, it follows that there is a group view on the cost of capital and, therefore, it is natural to measure management performance against the diversified capital base. By applying a fully diversified capital charge, local management is incentivized on their "contribution to the company value".

For many companies, a fully fungible capital base is not a reality due to local regulatory or managerial constraints. Under a more local view on risk appetite, full group diversification benefits may not be allocated.

One reason why a company may not allocate the full company's diversification benefit is because the business faces local constraints that are binding and so lacks the fungibility of capital implied by 'one company / one capital base'. The constraints may reflect regulatory realities over certain time horizons; the regulator might require a clear risk appetite definition for both legal entity and group. Local regulators might have a special interest in the local exposures (i.e. to ensure that the domiciled legal entities can meet their local risk capital requirements); therefore some resources might be bound locally (e.g. ring fenced funds to cover certain liabilities), which will not be fungible, inhibiting the 'realization' of full diversification inherent in the consolidated risk appetite. Properly managing local constraints may require locally focused risk appetite constraints and local management should manage value to optimize against the diversification present in the risks that aggregate to the local constraint.

Another reason for a company to take a more local view on risk appetite is a philosophy that management's performance measurement should more closely align with performance drivers under their control. Although there might be good economic arguments for aligning each management decision within the company to a group target, management becoming less flexible in reacting to local opportunities or threats could also have adverse consequences for the total value of the company. Further, linking incentives to individual performance breaks down when decisions taken elsewhere in the company ultimately hurt local measured performance, which can arise when decisions taken elsewhere change the diversification benefit for the entire company.

A final consideration for allocating the diversification benefit generated by risk pooling is the element of time. A company's risk profile changes over time and its risk appetite should be forward looking. Planning for expected changes to the portfolio and the resultant impact on diversification benefits is important. For example, a business that is under run-off might provide increasingly less diversification benefits. Because projecting future diversification benefit is technically difficult and subject to ever greater uncertainty, companies often ignore the effect and assume 'constant' diversification benefits in the future. Although understandable, this assumption could lead to an unreasonable estimate of risk for long-tailed lines (e.g. casualty and life) that are experiencing strong growth. Where business plans show large changes to future business mix, the allocation of diversification benefit should account for these.

In practice, companies are often faced with both local and group constraints. The allocation of diversification benefits may need to differ depending on the application or decision. Alternate approaches can be applied such as:

- Fully allocating diversification benefits at the start of a planning cycle and then "freezing" these benefits over the course of the cycle. This practice minimizes concerns of diversification benefit 'surprises' due to decisions made by other areas of the company in between planning cycles.
- In a growing market, withholding certain diversification benefits due to expecting a reduction in diversification benefit in the future.
- Adding additional local charges to entities where the fungibility of capital is considered to be exceptionally low.

Managing multiple capital constraints and different levels of diversification benefits is a challenge to a successful operationalization of a RAF.

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