



Another bite at the apple

Risk appetite revisited



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Defining an enterprise's risk appetite is viewed as a foundational first step towards broader risk management. And while many insurers have taken this step, clearer linkages are needed to mission and strategy for risk appetite to be effective.

As insurers (as well as other institutions) have embarked on the implementation of enterprise risk management programmes, they have recognised the need for clarity around the organisation's appetite for taking risk in exchange for attractive expected returns. And because no organisation's capacity for risk is unlimited, risk appetites must include boundary constraints.

While most insurers have, by now, developed risk appetite policy statements and discussed them with their boards, many have expressed dissatisfaction with the exercise. In particular, some are questioning whether they are getting good value from the investment of the time and senior management 'band-width' devoted to the topic. The main issue appears to be insufficient linkage to the business, in terms of business planning and performance management. This led one CEO to describe their risk appetite statement as 'high-quality, but somewhat sterile'.

'Another bite at the apple' presents our latest thinking on risk appetite to help insurers make it a more effective and valuable process. We focus on enhancing risk appetite by improving its articulation, via clearer linkages to mission and strategy. In two sequel papers we will further explore how to operationalise risk appetite by: (a) implementing near-real-time monitoring tools that assure that the organisation is operating in a manner consistent with its risk appetite; and (b) linking enterprise risk tolerances more closely to local risk limits.

Our underlying premise is that, properly implemented, risk appetite can add value by fostering greater clarity and alignment with the

mission and strategy of the company. Internally, the risk appetite framework provides a basis for consistent risk-trading¹ decisions; externally, it gives stakeholders comfort regarding the company's exposure to risk.

Insurers' key concerns are that risk appetite statements are not sufficiently actionable; that the linkages to risk tolerances and limits are tenuous, at best; and that monitoring of actual risks against limits and tolerances is neither sufficiently frequent nor timely. To some extent, this stems from development efforts that are driven by external regulatory compliance requirements rather than by internal business requirements. While both are important, the former is focused on insolvency risk, while the latter broadens the view to include other dimensions such as not meeting financial performance targets. The issues are also attributable to shortcomings of some firms' risk measurement and monitoring systems, which do not provide insurance risk information that is timely. All of these issues make the various 'use test' requirements that are emerging in various regulatory regimes somewhat problematic.

These issues are borne out by our recent Global Insurance ERM Survey², in which over 80% of respondents indicated that they planned further development on some aspect of their risk appetite over the next 12-24 months. The most frequently mentioned aspects for further development were processes for internal monitoring of risk exposure against risk appetite, risk policies and procedures to support risk appetite, and a framework for demonstrating consistency between top-down risk appetite and bottom-up risk limits.

What is risk?

We begin by revisiting a basic question, ‘what is risk?’.

In our paper ‘The wrong type of snow’ (which was written in the context of pensions and other long-term investment funds)³ we pointed out that, while the term risk is widely used, it has different meanings to different people, often depending on the specific context. For example, to an equity investor risk is the downside volatility of stock market returns. Alternatively, to an insurance regulator it is the possibility of insolvency, leading to unmet policyholder obligations. And, to a manager within a business it is the possibility that his or her performance goals will not be met, leading to a bonus below the target level. One can immediately see from these examples that a common element to risk is uncertainty of outcomes; what varies is the context of that uncertainty.

We suggested that greater clarity around the definition of risk is needed and that, in the context of these long-term pension funds, risk should be directly related to the mission of the fund.

We believe that extending these concepts to the risk-based decision framework of an insurer can lead to an enhanced approach to risk appetite. In this context, risk should be defined in terms of those events and circumstances that may result in an insurer failing to deliver on its mission. In relation to the mission, risk is a multi-faceted concept, and therefore not susceptible to reduction to a single number.

Risk assessment should focus on the possibility of shortfall in any critical element of the mission.

For each risk source or event, there are four facets of risk assessment: size, likelihood, impact and significance. Illustrative insurance risks are shown in **Figure 01**.

The risk source or event (or the series of interrelated events, potentially including reflexive actions by various parties in response to the events) that we should be most concerned with in risk management is the one that leads to a permanent impairment of the enterprise’s mission. This is why significance and impact are important facets in risk identification and prioritisation. Impact focuses primarily on the direct effect of the event on the enterprise; significance goes beyond the direct impact to consider how different stakeholders may be affected by – and may react to – the event. For example, one can see in **Figure 01** that the events listed are variously significant to shareholders, policyholders, rating agencies, employees, investment analysts, and the company’s board of directors.

In summary, while generically risk is uncertainty of outcome, it is context specific. The outcome that we are concerned about in the context of an insurer is mission impairment. The outcome extends beyond direct impacts (financial and non-financial) of risk sources or events, to include impacts caused by changes in view or expectation among stakeholders and audiences.

Figure 01. Four facets of risk, with a sample of illustrative risks for multiline insurer

Event/size	Likelihood	Impact	Significance
What is the risk source, and how bad ‘it’ could be?	Probability of ‘it’ occurring?	The direct effects of ‘it’ on the business?	The consequences of ‘it’, including indirect or subsequent effects?
Major US hurricane, in area outside of our geographic concentration, causes record industry loss	Model estimate of likelihood is 1-in-250	<ul style="list-style-type: none"> • 3% loss of capital • Significant reinsurance market dislocation, ensuing global capacity shortage 	<ul style="list-style-type: none"> • Our balance sheet is OK, but we are forced to shed core business due to on-going unavailability of reinsurance protection, damaging our brand value
Major pandemic in our area of the country; ineffective vaccine; significant mortality and morbidity	‘Very low’	<ul style="list-style-type: none"> • 25% loss of capital over two years, due to adverse claim experience on health and life policies • Significant business disruption from employee absences 	<ul style="list-style-type: none"> • Complete depletion of buffer capital, threatening rating and undermining investor confidence • Customer service and operational performance significantly degraded
Customer scoring models used in underwriting are based on behaviour patterns of one generation, but do not apply to the next generation	‘Very, very low’	<ul style="list-style-type: none"> • Significant hit to underwriting performance over three years while issue goes unrecognised; once recognised, mitigation takes time to fully implement 	<ul style="list-style-type: none"> • Material under-performance of the business over multiple years, causing investment analysts to question the competence of management, and whether we have ‘lost our mojo’
A rash of highly-publicised municipal bond defaults undermine investor confidence, create turmoil in that market; market values decline significantly	‘Low’	<ul style="list-style-type: none"> • Market value of municipal bond portfolio (30% of total invested assets) declines significantly, well below ‘intrinsic’ values and current amortised-cost carrying values; becomes illiquid • Need to expand bank liquidity facility in difficult environment 	<ul style="list-style-type: none"> • External audiences question why balance sheet valuations are not marked to market; adverse PR and distractions due to questions about accounting treatment • Board pressure to sell ‘toxic’ assets to get rid of the problem

The context of mission

As we have stated, risk is concerned with the possibility that mission goals will not be met. Mission statements vary from one insurer to another, but generally cover the purpose of the enterprise, the responsibilities to various stakeholders, and the time horizon for the mission. At some organisations some of these elements may be covered by Vision or Values or other similar statements that supplement the purer mission statement. And since published mission statements can be fairly terse, the risk appetite may need to look beyond the explicit elements of the mission and consider elements that are implicit.

Generally, the primary purpose of the insurance enterprise is delivering long-term value to its owners (either attractive returns to equity shareholders or cost-effective products to mutual policyholders, depending on the form of the enterprise). The mission may also reflect the broader social purpose of insurance, to enhance society by underwriting risks that individuals and institutions cannot afford to retain.⁴ Key responsibilities may be: to provide good security and high-quality service to policyholders; offer rewarding careers to employees; and engage in responsible conduct to regulators. The time horizon for the mission is generally long term, because many of the promises inherent in insurance contracts are long term, and also because the insurer must operate over the course of business, investment and insurance underwriting cycles.

In summary, mission is the insurer's unique multi-period and multi-stakeholder value creation proposition. For most insurers, a central element of the mission will be to build value over the long term; mission success depends on sufficient value being created over time to meet the commitments to all stakeholders.

Creating value includes producing financial returns in excess of the firm's cost of capital (however defined), thereby contributing to the tangible value of the firm. Achieving those returns requires the development and maintenance of a comparative advantage over other providers – for example by the development of superior human, brand, intellectual, relationship or system capital. The business strategy will describe how the company intends to build and sustain its comparative advantages, and translate them into value-adding returns. The value of the firm includes both the tangible financial value on the balance sheet and the intangible value in these other forms. Risks to the mission include the loss of all forms of capital that are drivers of intangible value, in addition to loss of tangible value itself.

This mission focus means that short-term risk measurement – as is inherent in Value-at-Risk (VaR) or the one-year risk horizon often employed in solvency regulation – is not sufficient, by itself, for risk assessment. One must also look at risks to the mission over the longer term, across the cycles and over the life of the obligations that the insurer takes on. And, shorter-term volatility in asset valuation or earnings is only of relevance if it creates the potential for mission impairment. While one-year VaR is a very useful tool, and may be relevant for the measurement of current capital needs, multi-year measures such as Continuous VaR or Resilience, are equally relevant to risk appetite.

This last point of distinction is important enough to deserve reiteration for clarity. We are *not* saying that current levels of required capital must be measured using a longer-term model. Current levels of required capital can appropriately be set based on the potential for consumption of that capital by adverse events over the short term, as is inherent in the one-year risk horizon. And, if the one-year horizon is used to determine required capital, the potential needs for additional capital in the future should be assessed over the longer-term. The distinction is between capital adequacy testing and capital planning.

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What is risk appetite?

While we do not want to focus too much on the issue, we do believe that it is useful to thoughtfully define terms relating to risk appetite. While each organisation may choose to define terms in ways that suits its own purposes, in this section we briefly outline a suggested taxonomy for key elements of the enterprise risk appetite framework. These reflect some refinement in our own thinking, based on observation of actual company practices that have proven effective. With these definitions in place, we can then go on to discuss issues with specific elements of the framework.

Some take the view that risk appetite can be expressed as a single metric, or perhaps a small set of metrics, that capture the organisation's willingness and ability to bear risk. An extreme example might be the Chicago Board Options Exchange's Volatility Index (the 'ViX'), which is an excellent indicator of investors' aggregate expectation of equity market volatility. When the ViX is relatively high, investors are required to pay

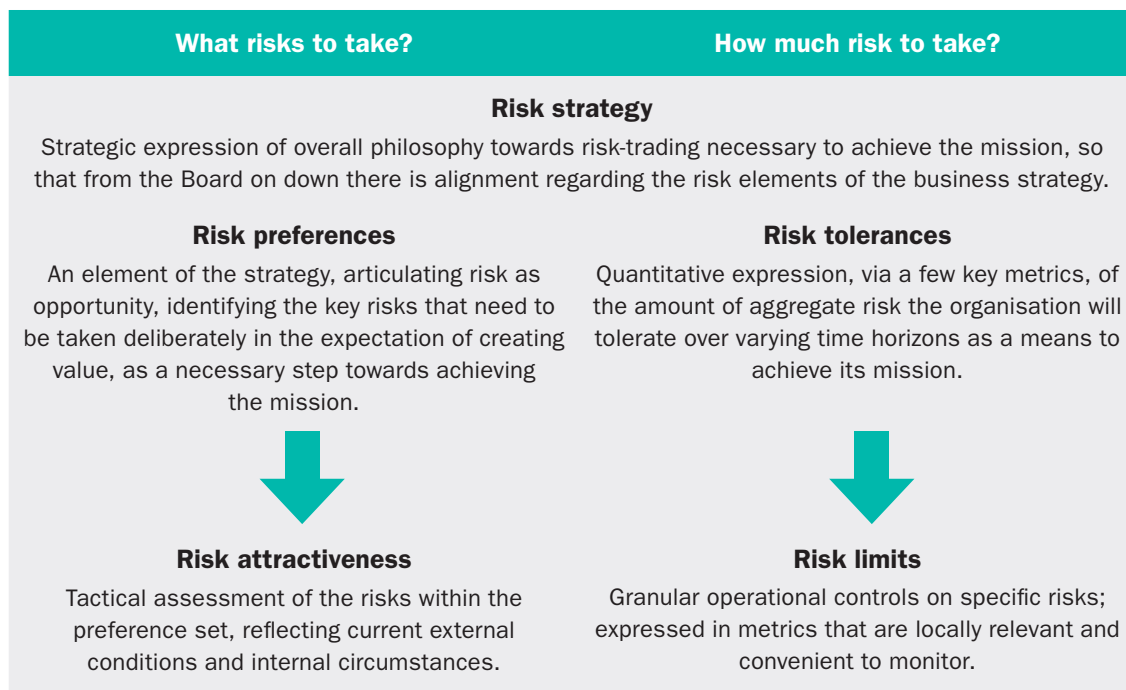
more to hedge equity market risk. Conversely, a lower ViX implies lower hedging costs. An equity investor's risk appetite could easily be expressed by some function of the ViX. Analogously, some might suggest that an insurer's risk appetite could be reduced to an internal ViX-like measure of risk aversion.

However, we define risk appetite quite differently and more broadly, as the manner in which a company expresses an identified set of risk-trading opportunities, and sets boundaries on its risk-trading among those opportunities, aligned with successfully delivering on its mission.

Part of risk appetite is qualitative and therefore not susceptible to reduction to numeric values; and risk appetite may have multiple quantitative dimensions, necessitating an array of tolerance metrics.

A company's risk appetite framework may include all of the elements summarised in **Figure 02** and discussed briefly opposite.

Figure 02. Elements of the risk appetite framework



“We define risk appetite... as the manner in which a company expresses an identified set of risk-trading opportunities, and sets boundaries on its risk-trading opportunities, aligned with successfully delivering on its mission.”

The company's *risk strategy* articulates how risk fits with the mission. Insurers are in the business of deliberately trading risk, in the expectation of value creation. Taking on risk is necessary to achieve the mission. However, the taking of risk opens up the possibility of poor outcomes, so risk will need to be taken selectively. Clearly, risk is integral to the company's business strategy and the risk strategy provides an articulation of the needed risk dimension to that strategy.

The risk strategy expresses broadly the risks the organisation needs to take⁵ to achieve its mission; and at least by implication those risks not needed. Since the mission typically involves delivering value to shareholders, the needed risks will presumably offer expected returns commensurate with the risk taken, and the capital needed to support those risks. The risk strategy also expresses how the company will limit or mitigate risks to reduce the likelihood of impairment of the mission. Stated differently, it is an expression (largely qualitative) of the company's overall philosophy towards risk-trading.

Risk tolerances are a quantitative extension of the risk strategy. They express quantitatively the amount of aggregate risk that the company is willing to accept, expressed in probabilistic terms, time horizons, and unacceptable mission impairment impacts. Risk tolerances are set at the overall enterprise level, across the full spectrum of risks contemplated by the business strategy. (For the largest insurers, they may be set at the business unit level as well, to the extent that business units operate on distinct legal entity platforms with distinct capital bases.) Most importantly, risk tolerances must be *measurable*, so that actual levels of risk can be monitored to assure that the tolerances are not breached. In some cases, for more subjective types of risk, proxy measures may be required to define risk tolerances. Ultimately, risk tolerances place quantitative boundaries on the company's strategy.

While risk tolerances express boundary constraints, *risk preferences* view risks as opportunities, articulating the key risks that will be used by the company to achieve its mission. The risk preference set represents the risks that the company believes are necessary to achieve the mission, and are expected to contribute value-creating returns. The inclusion of risk preferences in the risk appetite framework helps to assure a balance between the positive and negative aspects of risk.

We suggest that *risk appetite statements* should be taken as the combination of risk strategy, tolerances and preferences, bringing together qualitative and quantitative enterprise perspectives on risk as both opportunity and threat.

Importantly, risk strategy, tolerances and preferences must be consistent with stakeholder expectations and preferences regarding risks and opportunities. This puts them squarely in the domain of the C-suite: executive management develops them and the governing board ratifies them.

While risk preferences are strategic, expressed as an extension of the risk strategy, *risk attractiveness* is more tactical, reflecting how current conditions affect the relative attractiveness of different risks, as an element of the current business plan.

Finally *risk limits* are more granular tolerance levels expressed for specific risk sources, business units, and/or products that are used to implement the risk tolerances. Risk limits are more practical in that they can be expressed using metrics that are measurable and relevant to managers at the local level. Risk limits must also be tested to be sure that they are effective in controlling risk tolerances. Establishing this linkage will be the focus of the sequel to this paper.



Mission and risk appetite

Like the mission, a company's risk appetite is enduring, but adaptive to significant changes in company circumstance and external environment.

Because much of the work to-date on risk appetite statements has been driven by solvency supervision requirements, many statements tend to focus primarily on potential losses of capital (one possible impact), short-changing other risks that could impair the mission. Rather than taking a compliance requirement approach, we suggest that a better way to approach risk strategy and tolerances may be to start with the business requirements inherent in the mission, then engage in risk identification and prioritisation along all dimensions of the mission, and finally develop a risk appetite that is responsive to key risks across all dimensions.

Stated slightly differently, the focus of many risk appetite statements is on losses to financial capital that are sufficient to impair the mission. However, for most companies sub-par performance over a sustained period, even if it did not lead to capital impairment, would be equally important as a mission impairment risk. And, when one considers wider definitions of capital to include non-financial forms, one can see that the mission might be impaired by a material loss of brand capital or human capital. The significance of these other forms of capital would depend on the insurer's mission, its business strategy to achieve that mission, and what it deemed most critical to the delivery on that mission. One can even envision circumstances where other more esoteric forms of capital such as governance capital, political capital, cultural capital, and so on, might be relevant to some insurers.

Linking risk appetite to mission impairment leads to a broader view of risk appetite than just an expression of the company's willingness to lose specified amounts of capital. The company's risk strategy, preferences and tolerances should address other key risks in relation to mission impairment. In this regard, some companies have found it useful to organise their thought process around four 'risk quadrants', as follows:

1. Achieving targeted performance
2. Preserving capital adequacy
3. Maintaining liquidity
4. Protecting franchise value

The emphasis and content by quadrant will naturally vary from company to company. Below, we touch briefly on each of the four quadrants.

Achieving targeted performance – Since achieving targeted performance is usually critical to the mission of the company, the risk appetite should address the risks associated with non-performance. For many companies, both a short-term and a long-term view may be required, as risk-trading activities inherently introduce volatility into short-term performance. The level of volatility can be relevant to mission – even if targeted performance is achieved on average over the long term – to the extent that it exceeds tolerable levels and undermines confidence among internal and/or external audiences. Performance relative to peers can, similarly, be important, to the extent that key constituents make judgements based on peer comparisons. In this context, performance extends beyond earnings to include any financial performance measure that is critical to the mission. For some companies, this could include revenue growth or returns sufficient to support dividend payments.

Maintaining liquidity – Maintaining sufficient liquidity to meet obligations is clearly critical to the mission, and should therefore be addressed in the risk appetite. It includes both extraordinary acceleration of policyholder obligations (for example, due to catastrophes) and unusual illiquidity of assets due to market dislocations. Historically, liquidity risk has not been a significant issue (in terms of potential mission impairment) for many insurers; however, experience in the recent credit crisis suggests that liquidity risk can be significant, at least for some insurers.

Preserving capital adequacy – Preserving capital to assure continuity of the business and avoiding substantial losses in tangible value are clearly mission-critical. This quadrant is broader than avoiding insolvency; it includes avoiding capital losses that would trigger regulatory interventions, rating agency actions, policyholder withdrawals, or adverse actions by distributors. It would also include failure to maintain any debt covenants, triggering adverse actions by debt-holders.

Protecting franchise value – The final quadrant entails protecting against risks that engender losses in the value of the franchise. These include reputational risks, losing the affinity of policyholders, shareholders, or employees, and avoiding market-conduct failures that attract regulatory attention or foster class-action lawsuits. While this quadrant is broader, with risks that are harder to quantify, these franchise risks should be addressed in the articulation of the risk appetite, focusing on those with significance to mission impairment.

Adaptive buffers

To better understand how risk tolerances can be integrated into a business’s risk management process we suggest the more general concept of *adaptive buffers*. These are defined as resources that allow the organisation to manage through any ‘bumps in the road’ that may occur. The resources can be financial or non-financial in nature. All of the different types of non-financial capital discussed earlier can serve as adaptive buffers.

Note that we use the term *adaptive buffers* as shorthand. To be more precise, the buffers are not adaptive themselves; they provide management with room to develop and implement adaptive actions.

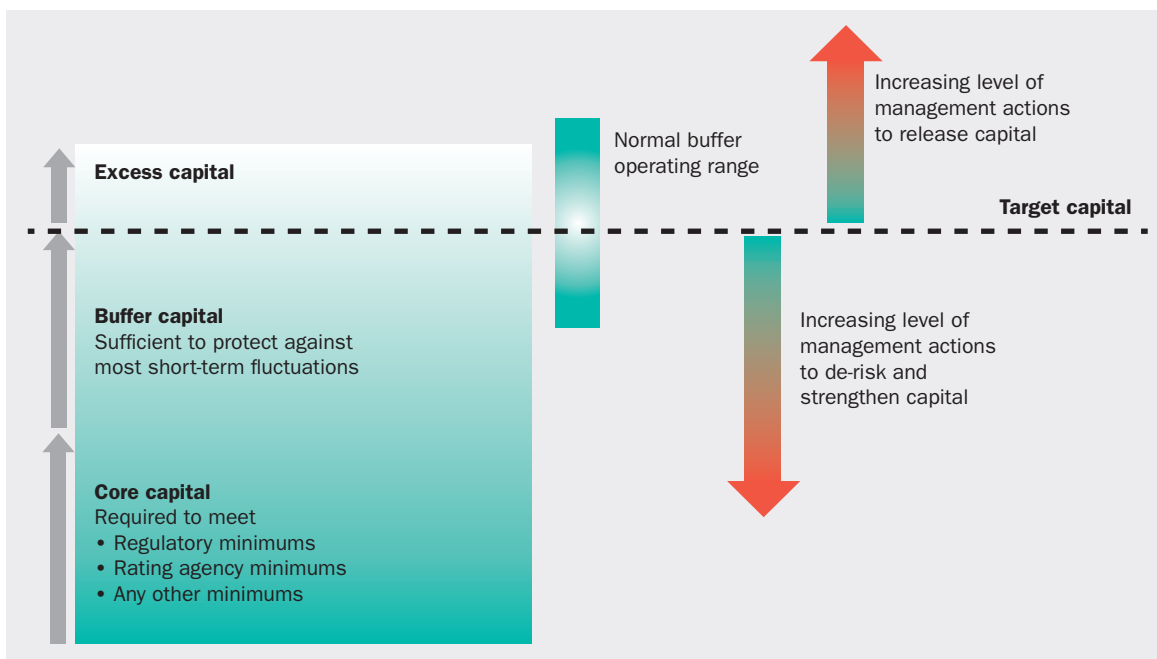
Financial capital, particularly the excess above minimum requirements, is the most obvious among adaptive buffers for insurers. Many insurers have adopted a capital adequacy model that reflects the adaptive buffer concept, as well as the use of a hierarchy of management actions (often referred to as a ladder of intervention). An example of such a capital adequacy model is illustrated in **Figure 03**. As can be seen, there is an amount of core capital that is necessary for the insurer to continue normal operations along its mission journey path. This capital is the minimum required to: (a) meet supervisory minimums, thereby avoiding regulatory intervention; and (b) meet rating agency criteria for the minimum acceptable rating. If capital were to fall below this level the mission would clearly be in jeopardy of impairment; and strong management actions directed at some form of rescue would be necessary.

Above the core capital is a layer of buffer capital, targeted to a level sufficient to protect against expected fluctuations from risk events. The presence of the buffer provides a cushion that allows the insurer to adapt its plans and tactics, without altering its core strategy to deliver on its mission. The size of the actual buffer relative to the target will dictate how much the plans must change, with little change required most of the time, but increasingly strong actions if the buffer is significantly eroded. This is the essence of an adaptive buffer.

Many companies determine their overall required capital using an internally developed economic capital model, based on a target level of policyholder security. This is not at all inconsistent with the framework presented in **Figure 03**. In this case the size of the target buffer is determined by subtraction, as the difference between the total required economic capital from the model and the minimum required core capital from regulatory and rating agency considerations. The resulting buffer would then need to be tested to be sure it was consistent with management’s impairment probability tolerance.

We expect that this capital adequacy framework, and the measurement of economic capital, will continue to be central to many insurers’ risk management activities. However in the balance of the paper we want to adapt and extend the framework to additional dimensions of risk.

Figure 03. Capital adequacy framework with buffer capital





“Buffers are linked to risk tolerances, because the latter expresses the enterprise’s willingness to expose the former to potential exhaustion through risk-trading activities.”

Buffers are not without cost, so the size of the buffer must be limited to that which is cost-effective. Capital above the target buffer layer is considered excess, and generates management actions to return it to stakeholders.

Buffers are linked to risk tolerances, because the latter expresses the enterprise’s willingness to expose the former to potential exhaustion through risk-trading activities. Stated conversely, the size of the required buffer is linked to the risk tolerance, in light of the risk profile of the company. For example, a risk tolerance relating to required capital might be expressed as follows:

We will have failed in our mission if our actual capital falls below the minimum core capital necessary to function in the market, due to adverse regulatory, rating agency, distributor or customer actions. We therefore strive to maintain a buffer layer of capital above the minimum core capital. The target for the buffer is an amount that is sufficient to reduce the modelled odds of a catastrophic capital loss in a single year that would consume 100% of the buffer, to 1-in-50.

Model results indicate that, through the combination of core capital and target buffer capital, the total target capital affords policyholders security equal to that of an ‘AA’-rated corporate bond.

When the actual available buffer capital falls below the target buffer we will take actions appropriate to the circumstances. In the short run these actions will focus on de-risking, and may include purchasing additional reinsurance, tightening our underwriting to curtail growth in gross insurance exposure, or shifting our investments to a more conservative stance. These actions will be sufficient to give us time to re-build the capital through retained earnings, or engage in capital-raising actions.

And, since the buffer could be eroded by partial losses over several years, we set the following additional risk tolerances.

- The modelled odds of a catastrophic capital loss in a single year that would consume 50% of the current available buffer must be less than 1-in-20.
- The modelled odds of a catastrophic capital loss in a single year that would consume 25% of the current available buffer must be less than 1-in-10.

While all of these tolerances are expressed over a one-year time horizon, we model their impact over a longer horizon to determine the resilience of the capital buffer, taking into account possible management actions and current business plans; those results confirm the efficacy of the selected tolerances.

The reader should note that the quoted odds in our example above are meant to be illustrative only. Our experience with actual risk tolerance levels indicates quite a wide divergence in practice across geographies, sectors, and types of organisations. It is also important to recognise that size of the required buffer depends on the willingness of management to act quickly to restore the buffer. For example, a policy to engage in capital-raising only as a last resort will require a larger buffer than a policy that treats capital-raising as a more routine business activity.

Reinsurance protection and hedging programmes can also be viewed as adaptive financial buffers. (These are, after all, just forms of capital.) The usage and structure of these programmes is adapted to changing circumstances, for example with greater use of reinsurance when capital adequacy is weak than when it is strong.

Adaptive buffers and tolerances around them are not limited to those relating to the risk of capital loss. An obvious example would be a liquidity facility arrangement with a bank, which can be viewed as an adaptive financial buffer against extreme liquidity needs. In this case the risk tolerances would relate to the probability of exhausting the facility, and also possibly to the probability of breaching any covenants in the facility agreement.

Similarly, buffers around non-performance risk could be defined in terms of establishing an historical track record of exceeding performance targets, so that a shortfall in the current year would be viewed against a positive historical context.

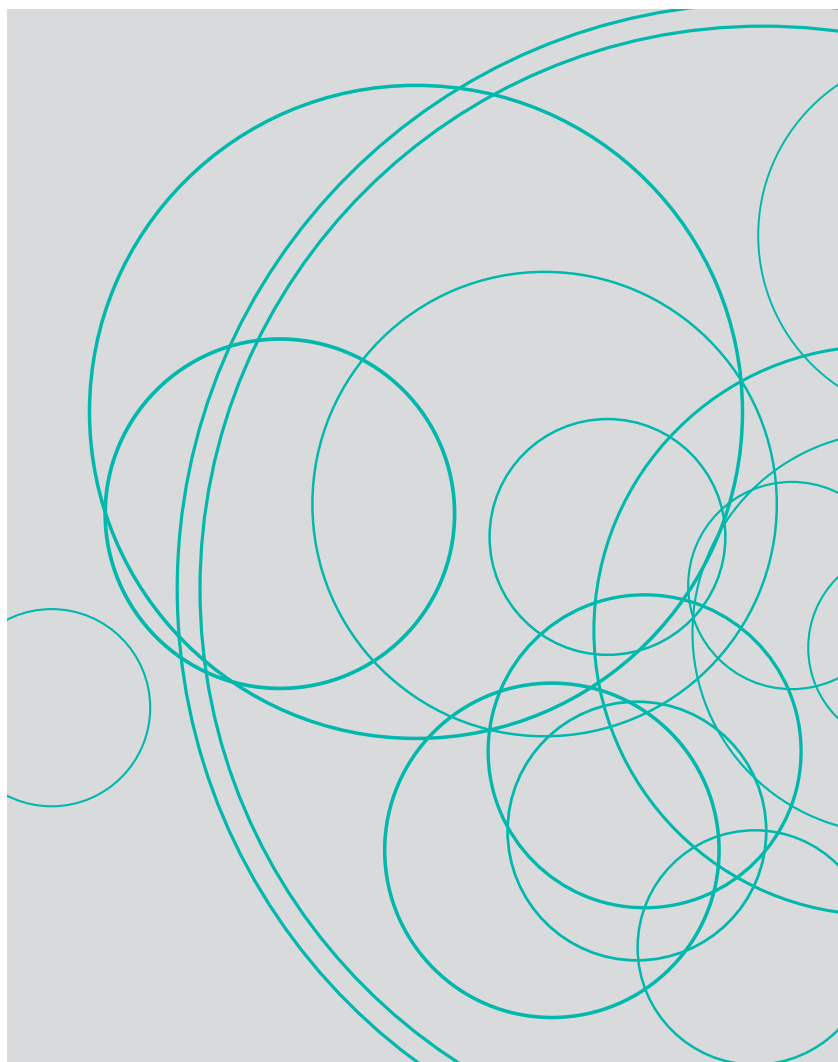
As a result of the recent credit crisis, some believe that even the accounting system itself can act as an adaptive buffer; an example would be amortised cost accounting for fixed investment instruments held to maturity, which buffers against day-to-day fluctuations in market values. This is perhaps why some companies are so strongly opposed to proposals to move to a mark-to-market accounting system.⁶ However, for those who favour amortised costs, the history of junk bonds and mortgage-backed securities provide a cautionary tale against over-reliance on this accounting buffer during times of extreme stress in the markets for these securities.

In addition to financial capital, buffers can include other types of non-financial capital such as brand capital, human capital, or political capital, all of which can be used to protect against certain types of risk. For many insurers, strong affinity with customers or producers will be important adaptive buffers to consider. Developing close relationships

with rating agencies, regulators, and investment analysts can also serve as adaptive buffers, to the extent that they are useful in times of stress. Maintaining a high level of employee engagement could, similarly, serve as an adaptive buffer when results are bad and bonuses are down.

Like other forms of capital, non-financial adaptive buffers are in short supply, are not provided without some form of return to the counterparty (and hence cost to the business), and are difficult or costly to replenish when depleted. Identifying key adaptive buffers, understanding their importance to the mission success, and setting tolerances around their potential consumption will help to enrich the risk appetite process. In these instances it may be necessary to develop approximate, proxy measures for these types of adaptive buffers.

Even when one is focused on financial capital as a source of mission impairment, looking at the impact alone is insufficient. One must also consider the significance.



For example, if a property insurer suffers a surprisingly large loss as a result of a catastrophe, the significance to the mission may depend on how that loss is viewed comparatively. If other property insurers in the peer group also suffered a surprisingly large loss, then the significance could be small; conversely if the others did not suffer large losses the significance could be very large if it undermined investor or rating agency confidence in the company's ability to manage its catastrophe risk exposure. Comparative performance may have greater significance than absolute performance if it depletes non-financial adaptive buffers.

Similarly, investors and regulators may react badly to losses which are from unexpected sources, even if those losses are not too significant to earnings or capital. An example might be losses on workers compensation business reinsured by a life insurer (some life insurers actually did this); investors and regulators may not have even been aware of the existence of this non-life exposure. By undermining investors' and regulators' confidence in their understanding of the company, these losses could have magnified significance.

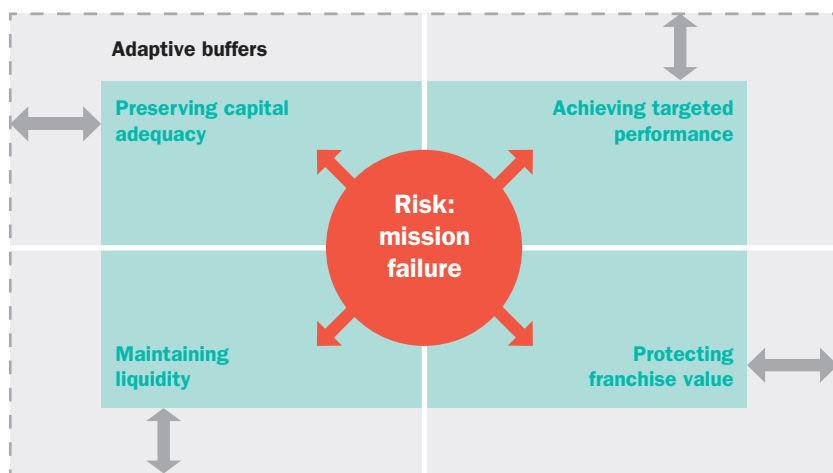
The framework of risk tolerances for consumption of adaptive buffers is summarised in **Figure 04**. The key takeaway points are:

- Risks to mission can be conveniently organised around four risk quadrants.

- Adaptive buffers provide management with the flexibility to manage through adverse risk events; buffers can be financial or non-financial in nature, and are specific to the mission and strategy of the company.
- Risk tolerances are expressed in probabilistic terms, as the willingness to take on risk with the potential to consume the available buffers; the risk tolerance determines the size of the required buffer.
- Management will take actions to restore a buffer when it has been eroded by one or more risk events; the urgency of the actions will depend on the extent of buffer erosion.

The reader should recognize that, more broadly, we are discussing a fundamental risk management process: the identification of the elements of the business that are mission critical, and the development of risk management programs that assure the organization is resilient to adversity relating to each critical element. Within this broader context, our use of adaptive buffers can be seen as a means to an end. We believe that expressing each program in terms of one or more adaptive buffers is a promising construct that deserves further study, because it offers a consistent measurement framework – one can monitor each adaptive buffer against agreed-upon tolerances for erosion.

Figure 04. Four quadrants for risk tolerances and adaptive buffers



“Identifying key adaptive buffers, understanding their importance to the mission success, and setting tolerances around their potential consumption will help to enrich the risk appetite process.”

An illustrative case study

In an effort to bring the concepts discussed in this paper to life, we present an illustrative case study. The case study reflects some actual approaches taken by several clients, but synthesises and extends those approaches beyond what has been done in practice in order to emphasise the concepts. The presentation is also stylised so that no specific company is discernible.

The ABC Company is a publicly-traded insurer; offering property and casualty insurance, life insurance, and bank products to consumers. It has embraced data and analytics as a key to its success, developing customer scoring models to use in underwriting its products, and other metrics to facilitate the management of its business. Rapid growth and strong earnings have combined to deliver excellent shareholder value creation over an extended period.

Our starting point is the ABC Company's mission, which is presented in **Figure 05**. The core of the company's mission is to produce attractive returns to shareholders over the long term, by executing on its strategy and delivering on its value proposition to targeted customers.

Because the pre-existing mission statement was not sufficiently comprehensive, we assisted the company in conducting a collaborative visioning process to draw out all of the key elements of the mission, drawing upon their vision and values, annual reports, and other key internal documents. The fully articulated mission is multi-dimensional, including commitments to all key stakeholders: customers, shareholders, employees, and regulators. Also included within the statement is a clear articulation of the broad outlines of the company's strategy for building a competitive advantage that will allow it to achieve its mission. This inclusion is important because it clarifies the key sources of intangible value, and the risks that relate to that value.

Figure 05. Comprehensive mission statement for ABC company

The Company's mission is to create value by offering attractive insurance and banking products and related services to all customers in our target markets who meet our minimum underwriting criteria. We seek to attract and retain customers by:

- **Offering products that are competitively priced.**
- **Providing customer interfaces that make it easy to do business with us.**
- **Taking an approach to claim handling that tries to reduce the 'hassle' associated with accidents, injuries and other insured events.**

We create competitive advantage by employing superior customer analytics. We invest in the talent and technology to develop customer scoring models that allow us to select and price business more effectively than the market; to retain the best customers; and to handle claims most effectively.

This allows us to outperform the market – through faster premium growth and/or better underwriting results, with the mix depending on market conditions – allowing us to produce attractive total shareholder returns over the long-term.

Our success also depends on adherence to our key core principles:

- **We will offer good security by maintaining adequate capital throughout the life of our liabilities, to assure that the promises inherent in our contracts are kept.**
- **We will provide a workplace experience that attracts and retains critical talent; we will provide attractive rewards to those who contribute to our success.**
- **We will operate in compliance with all laws and regulations governing practices in our markets.**
- **We will be forthright and transparent in our communications with shareholders.**



Figure 06. Risk strategy for ABC company

The Company's risk strategy is an extension of its mission and business strategy. To achieve its mission, the Company recognises that it is necessary to take on insurance, credit, and investment risks through the products it sells to consumers and the investments it makes with available funds. In addition the business strategy necessitates taking on some special operational risks relating to the customer scoring models employed and other technology investments. The risks taken through all of these activities, both specifically and in the aggregate, will be guided by the following principles.

- All risks undertaken must have an associated expected reward that is commensurate with the risk, and accretive to value when viewed over the long term; the company has no appetite for unrewarded risks.
- Risks are only undertaken to the extent that they are consistent with, and contribute to, the achievement of the company's mission and the execution of its business strategy; risks not fulfilling these criteria are not undertaken.
- Risks are only undertaken where the company has the demonstrable expertise to manage them.
- Enterprise risk tolerances, and more granular risk limits, are set to manage the aggregate exposure to risk in relation to the Company's current resources and capacity, so that most adverse outcomes can be absorbed without jeopardising the mission. In this context, resources and capacity include an identified set of adaptive buffers that the Company maintains in the belief that they are important to mission success.
- Actual levels of risk versus risk tolerances and adaptive buffers are monitored on an ongoing basis, and business plans are adapted to the extent required to stay within tolerances.

Based on the fully articulated mission and strategy, the ABC Company's risk strategy statement was developed to describe at a high level how risk-trading fits with the mission. This also necessitated a facilitated discussion, focusing on key beliefs about risk in relation to the mission. The resulting risk strategy is articulated in **Figure 06**.

As can be seen, the risk strategy is linked to the mission and business strategy, identifying at a high level the risks that must be undertaken to achieve the mission. These include the risks associated with the insurance and bank products sold, (presumably including property damage, liability, longevity, mortality, credit, and so on); the risks associated with investment activities, (presumably market, credit, and so on); and the risks associated with executing on the company's strategy for achieving competitive advantage, including model risks, talent risks, and technology risks. Within the insurance, banking, and investment risks, more detailed risk preferences would articulate the relative interest in each specific risk.

Because the company is very customer-centric, it extends its risk preferences in North America to risk attractiveness by individual state and province, and by country elsewhere. Risk attractiveness reflects the legal, regulatory, catastrophe, and socio-economic environment in each jurisdiction. The state and country risk attractiveness grid is reviewed and updated annually within the business planning process, along with broader risk attractiveness by product, asset class, and so on.

The risk strategy also links risk-trading activities to performance, demanding adequate expected rewards for the risk taken. It also limits risk-trading activities to those that are needed to achieve the mission; and those where the company has developed the requisite expertise.

The risk strategy also articulates the framework for risk tolerances. To integrate its risk tolerance within the business's risk management processes, the ABC Company first developed a set of adaptive buffers that are consistent with its articulated mission. Initially, the goal was to identify a comprehensive set of relevant adaptive buffers, as shown in **Figure 07**. As can be seen, the company has organised its thinking around the four quadrants we described in an earlier section. Within each quadrant the company identified the set of adaptive buffers that they believed could be useful in assuring mission success.

Once the adaptive buffers were identified, they were prioritised in terms of their perceived effectiveness. Since buffers are not costless to maintain, their development and maintenance will be subject to budget and resource constraints.

Figure 07 shows the initial list of buffers that were identified as well as their ultimate prioritisation. For example, while the company believes that good relationships with regulators is desirable, they are not willing to invest resources in developing relationships that go beyond the norm. In part this is due to high turnover in the regulatory community, which is problematic for the maintenance of superior relationships; in part it reflects a perceived greater importance to rating agency relationships. (This also illustrates that the prioritisation can be quite sensitive, and therefore not for public consumption.)

Priority A buffers are deemed high-priority, and are monitored on an on-going basis. The company is prepared to invest in these buffers as required. Priority B buffers are deemed middle-priority; they are monitored, but investment in them is not a priority. Priority C buffers are low-priority. ABC Company believes that, with this prioritisation, maintenance of the high-priority buffers give them the flexibility they need to take the risks necessary to achieve their mission.

While many of the buffers listed above are generic, applying more or less to all insurance companies, some (for example talent management of analytics and technology workers) are quite company-specific. The prioritisation is also company-specific, reflecting managements' beliefs about what is important to the mission. The prioritisation involved considerable internal debate, as the initial view was that 'all of these are important'.

The Company's enterprise risk tolerances are then tied to the associated buffers. For example, as presented earlier in **Figure 03**, the Company maintains buffer capital above the minimum required to operate; the target for the buffer capital is a level of total capital that provides policyholders with security equivalent to that of an 'AA'-rated corporate bond. The Company will manage its overall risk profile so that this risk tolerance (net of catastrophe reinsurance and other catastrophic hedges) is maintained.

Figure 07. High-level summary of mission risk areas and adaptive buffers

Risk quadrant	Identified adaptive buffers	Priority
Loss of actual or perceived financial strength	• Buffer = catastrophe reinsurance/hedging programmes	A
	• Buffer = capital above minimum requirements	A
	• Buffer = better-than-peers relationships with rating agencies	B
	• Buffer = better-than-peers relationship with regulators	C
Financial non-performance	• Buffer = maintenance of target pricing margins above minimum	A
	• Buffer = a 'bank' of historical performance above the minimum	A
	• Buffer = earnings protection reinsurance/hedging programmes	A
	• Buffer = better-than-peers model risk management practices	A
	• Buffer = better-than-peers monitoring of claim experience trends; faster responses	B
	• Buffer = better-than-peers relationships with investment analysts	B
Loss of intangible franchise value	• Buffer = better-than-peers shareholder communications	C
	• Buffer = better-than-peers customer satisfaction	A
	• Buffer = aggressiveness on patents and other intellectual property protections	A
	• Buffer = better-than-peers talent management of analytics and technology workers	A
	• Buffer = better-than-peers identification of emerging data sources and technology	A
Liquidity problem	• Buffer = better-than-peers engagement of workforce	B
	• Buffer = liquid assets in excess of expected cash needs	B
	• Buffer = bank liquidity facility	C

In addition, while deemed less critical, the Company believes that maintenance of its ratings is also important to its success. It therefore sets a qualitative buffer to be 'above average' (as measured against an identified set of peers) in its dealings with the rating agencies.

Like the capital buffer, the Company maintains a performance buffer above the minimum target. Here performance is measured using an internal metric equal to the annual rate of growth in tangible economic value, capturing both economic income and growth in the base of customers. (This performance measure was chosen because of its close alignment with long-term growth in shareholder value, and is also used in the management incentive compensation scheme.) In this case the buffer 'bank' is based on the average annual growth in tangible economic value over the past five years, less a minimum rate equal to the Company's estimated cost of capital plus 200 basis points. The aggregate level of risk is then managed so that the odds of depleting the 'bank' by non-performance (net of reinsurance/hedging) in a single year are not more than 1-in-50.

The company's pricing function also sets pricing margins above the minimum target to provide a prospective buffer.

Because predictive models are so critical to the performance of the business, the company sets a high-priority risk tolerance around them as well. The identified buffer is better-than-peers management of model risk, to avoid being fooled by the models.

The Company has established an additional set of buffers relating to intangible value that it sees as critical. These are necessarily proxy measures, as it is difficult to measure intangible value directly. However, the proxies are believed to be central drivers of that value. The first is to be 'above average' in customer satisfaction, based on scores from an external survey firm. Part of the Company's mission is to attract and retain customers through superior interfaces and claim services, and customer satisfaction is the litmus test of the success of the Company's efforts in these areas. The Company also believes it needs to be 'above average' in the talent management of its customer analytics and related technology groups, as these are mission-critical functions involving proprietary intellectual capital that the Company does not want to dissipate through high employee turnover. To keep the flow of innovation going and maintain their competitive advantage over time, they set a buffer to be better-than-peers at identifying new, emerging data sources and advances in technology. Once they have built their intellectual property advantage they are aggressive on protecting it.

Finally, while the Company has established buffers within the liquidity quadrant, it views these as less critical.

In summary, each of the high priority buffers in **Figure 07** has an associated risk tolerance, with defined metrics that are measurable and monitorable over time. As has been described, some of the key metrics are measurements drawn from the enterprise risk model, while other metrics are relevant proxies.

The intent of the case study is to show how some of the concepts in this paper might be applied in actual practice. A key takeaway for the reader should be that the resulting risk strategy, risk preferences and risk tolerances are quite specific to the circumstances of a company, and tightly linked to its mission. We would therefore expect that application to another company might produce strategy, preferences and tolerances that look decidedly different to those presented here.

“Because predictive models are so critical to the performance of the business, the company sets a high-priority risk tolerance around them as well.”



Risk preferences: the other side of the coin

As we have indicated, risk strategy, preferences and tolerances are enterprise-level considerations, to be set by agreement between management and the board.

Risk preferences articulate the posture of the Company towards specific risks, viewed as opportunities. Some companies find the use of risk preferences attractive as a way to reinforce the positive, opportunity dimension of risk management.

Risk preferences can be supplemented by risk attractiveness assessments, developed by the business as part of the planning process. Risk attractiveness is therefore relatively tactical, reflecting the current circumstances; some find them a useful and practical way of introducing risk into planning.

Some companies have found it helpful to establish a simple colour-coded grading system to support the communication of risk preferences or risk attractiveness. One such grading system is illustrated in **Figure 08**. While the coding scheme makes setting risk attractiveness appear to be easy, it is not expected that this will be the case. Risk attractiveness should be more than ‘off-the-cuff opinions’ as to the best opportunities. The expressed views should be tied to economically justified risk drivers, as part of the rationale for the business plan. Proper imposition of this requirement adds discipline to the planning process, with the potential to significantly enhance it.

Figure 08. Grading scheme for risk preferences/attractiveness

Risk Preference	Description
High 4	The Company readily accepts exposure to these risks, as managing them is a core competency of the enterprise and central to the strategy for achieving the mission.
Moderate 3	The Company seeks to increase exposure to these risks, but on a controlled basis as they also represent opportunities that can contribute to mission success; however exposure to these risks will be limited through business processes, due to concerns about risk manageability.
Modest 2	The Company is willing to accept these risks in certain circumstances, up to specified risk limits, in exchange for appropriately attractive expected returns; however they are not central to the strategy for achieving the mission.
Low 1	The Company has a limited appetite for these risks, as they are viewed as a marginal risk/return trade-off in relationship to the mission; where they arise, extra measures will be taken to mitigate them or where appropriate pass them to third parties.
Zero 0	The Company has no appetite for these risks, as they are not viewed as attractive and not part of the strategy for achieving the mission; but the company does recognise that limited exposures may arise from time to time.



Thinking Ahead

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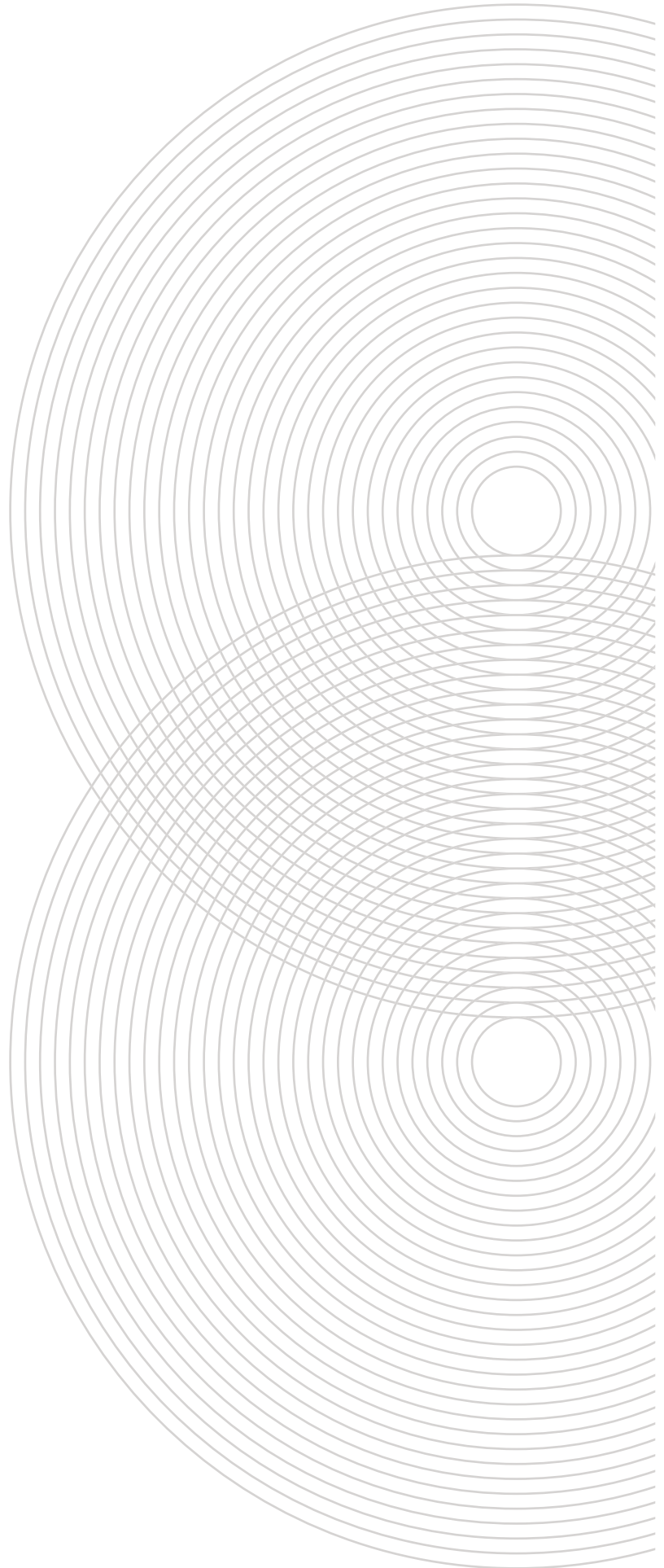
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Footnotes

- 1 In our view, insurance is most accurately described as a risk trading business. Insurers buy and sell financial instruments, taking on risk and laying off risk in the process.
- 2 'Keep Your Eye on the Prize – 2012 Global Insurance Industry ERM Survey', available at towerswatson.com/ermurvey2012.
- 3 Towers Watson, 'The Wrong Type of Snow', February 2012, available at towerswatson.com/assets/pdf/6534/The-Wrong-Type-of-Snow.pdf
- 4 An example here would be the Liberty Mutual creed, emblazoned on the wall of their headquarters lobby: "With our policyholders we are engaged in a great mutual enterprise. It is great because it seeks to prevent crippling injuries and death by removing the causes of home, highway, and work accidents. It is great because it deals in the relief of pain and sorrow and fear and loss. It is great because it works to preserve and protect the things people earn and build and own and cherish. Its true greatness will be measured by our power to help people live safer, more secure lives."
- 5 Within the universe of all risks, there are some that are necessary to take to achieve the mission, and others that are not necessary. For example, one may need to cross the road to get to the grocery store to buy milk, exposing oneself to the possibility of being hit by a car; however one does not need to cross the road while riding on a skate-board, exposing oneself to the additional risk of falling off the skateboard. Within the set of necessary risks, the entity will then choose to take those risks that it believes are the optimal way to achieve the mission, for example those that add the most value.
- 6 An interesting historical footnote is that, prior to the Depression in the 1930s, the US accounting system for banks used market values for all investment assets. Afterwards, many felt that the requirement to mark assets to market had proven itself to be pro-cyclical, and amortised cost accounting for fixed investments was introduced in the 1940s as part of the reforms to the banking system.



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