RIMS Executive Report

The Risk Perspective

Exploring Risk Appetite and Risk Tolerance

RIMS™

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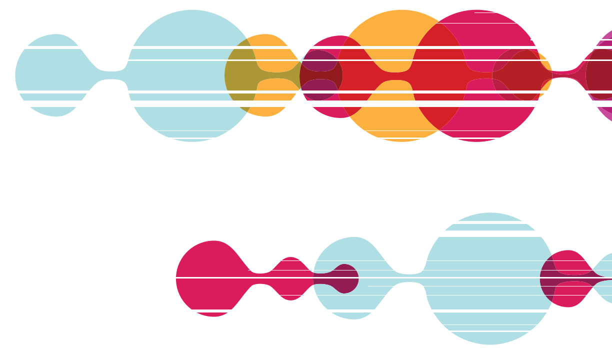


Introduction

Enterprise risk management (ERM) has become a critical practice in organizations that are dedicated to managing uncertainty and its effect on achieving organizational objectives. ERM helps organizations focus on the most relevant risks to achieving an organization's goals and objectives, both from an operational, as well as a strategic, perspective. In this way, risk is linked inextricably with future outcomes. As noted in a November 2011 article in *Risk Management Magazine* entitled "Has ERM Reached a Tipping Point?," RIMS characterizes risk as "an uncertain future outcome that can either improve or worsen our position."

How much risk an organization assumes—either knowingly or unwittingly—plays a large part in whether that uncertain future outcome actually improves or worsens the organization's position. Risk appetite and risk tolerance therefore are critical components of an effective ERM program. The objective of this report is to provide those responsible for risk management with:

- An understanding and practical applications of terms used
- Practical guidance on how to explore risk appetite and tolerance with the board of directors and executive management
- Examples of risk appetite and tolerance approaches and statements that risk managers may be able to use or adapt for their organizations.

As ERM evolves, organizations will likely advance their understanding, application and use of risk appetite and risk tolerance statements. RIMS intends for this report to provide a catalyst for discussion within individual organizations and, more broadly, among risk practitioners.

Definition Challenges

Since the terms "risk appetite" and "risk tolerance" often are used interchangeably and different definitions abound (see "Selected Definitions of Risk Appetite and Tolerance" below), this tends to add confusion when discussing the concepts both internally and externally. For the purpose of this paper, we will use the following definitions:

Risk appetite *is the total exposed amount that an organization wishes to undertake on the basis of risk-return trade-offs for one or more desired and expected outcomes*. As such, risk appetite is inextricably linked with—and may vary according to—expected returns. Risk appetite statements may be expressed qualitatively and/or quantitatively and managed with respect to either an allocated individual initiative and/or in the aggregate. Think of risk appetite as the amount that an organization actively ventures in pursuit of rewards—also known as its goals and objectives.

Risk tolerance *is the amount of uncertainty an organization is prepared to accept in total or more narrowly within a certain business unit, a particular risk category or for a specific initiative*. Expressed in quantitative terms that can be monitored, risk tolerance often is communicated in terms of acceptable or unacceptable outcomes or as limited levels of risk. Risk tolerance statements identify the specific minimum and maximum levels beyond which the organization is unwilling to lose. The range of deviation within the expressed boundaries would be bearable. However, exceeding the organization's established risk tolerance level not only may imperil its overall strategy and objectives, in the aggregate doing so may threaten its very survival. This can be due to the consequences in terms of cost, disruption to objectives or in reputation impact.

Risk appetite and tolerance are generally set by the board and/or executive management and are linked with the company's strategy. They capture the organizational philosophy desired by the board for managing and taking risks, help frame and define the organization's expected risk culture and guide overall resource allocation.

Risk culture *consists of the norms and traditions of behavior of individuals and of groups within an organization that determine the way in which they identify, understand, discuss and act on the risk the organization confronts and takes.* Organizations get in trouble when

Selected Definitions of Risk Appetite and Risk Tolerance

SOURCE	RISK APPETITE DEFINITION	RISK TOLERANCE DEFINITION
ISO Guide 73:2009 *Risk management vocabulary*	Amount and type of risk that an organization is willing to pursue or retain. *Note: ISO 31000 does not include this risk appetite definition in the guidance standard.*	Organization's or stakeholder's readiness to bear the risk after risk treatment in order to achieve its objectives. *Note: Risk tolerance can be influenced by legal or regulatory requirements.*
COSO *Strengthening Enterprise Risk Management for Strategic Advantage, 2009*	A broad-based description of the desired level of risk that an entity will take in pursuit of its mission.	Reflects the acceptable variation in outcomes related to specific performance measures linked to objectives the entity seeks to achieve.
BS 31100:2008	The amount and type of risk than an organization is prepared to seek, accept or tolerate.	The organization's readiness to bear the risk after risk treatments in order to achieve its objectives. *Note: Risk tolerance can be limited by legal or regulatory requirements.*
KPMG *Understanding and articulating risk appetite, 2009*	The amount of risk, on a broad level, that an organization is willing to take on in pursuit of value.	Risk thresholds, or risk tolerances, are the typical measures of risk used to monitor exposure compared with the stated risk appetite.
Towers Perrin, *What's Your Risk Appetite*, Emphasis 2009 by J. David Dean and Andrew F. Giffin	The amount of total risk exposure that an organization is willing to accept or retain on the basis of risk-reward trade-offs: • Reflective of strategy, risk strategies and stakeholder expectations • Set and endorsed by board of directors through discussions with management	The amount of risk an organization is willing to accept in the aggregate (or occasionally within a certain business unit or for a specific risk category): • Expressed in quantitative terms that can be monitored • Often expressed in acceptable/ unacceptable outcomes or levels of risk
ECIIA and FERMA, Guidance on the 8th EU Company Law Directive, article 42, 2011	The level of risk that the company is willing to take: high return-high risk; low risk-low return, or a portfolio of different exposures. Risk appetite is strategic and relates primarily to the business model.	The maximum amount of risk that the company can bear despite controls. Risk tolerance is more operational and relates primarily to the company's targets.

individuals, knowingly or unknowingly, act outside of the expected risk culture, or when the expected risk culture either is not well understood or enforced.

A Balancing Act

Risk appetite and tolerance definitions often can be a balancing act as an organization's stakeholders may have varying philosophies on how much risk should be pursued or retained. Risk appetite and tolerance are influenced by the nature of the organization and by the industry that an organization operates in:

- Companies with higher risk appetite generally are more focused on the potential for a significant increase in value and earnings. As a result, these companies may be willing to accept higher risk in return. Early-stage, high-potential, high-risk, growth startup companies have a high appetite for risk and are usually willing to accept greater volatility and uncertainty.

- Conversely, companies with lower risk appetite generally are more risk averse as their focus is on stable growth and earnings. They may be more averse to market fluctuations and greatly influenced by legal and regulatory requirements.

Some definitions distinguish between appetite and tolerance in that appetite is viewed as a statement that defines the organizational philosophy for managing and taking risk and tolerance as a quantitative metric in order to bound activities and consequences within the metric. Therefore, an organization's risk appetite must be aligned with its risk tolerances.

Risk tolerance can be measured as an acceptable/unacceptable range of variation relative to the achievement of a specific objective or to the aggregated risk appetite. Risk tolerance provides constraints around the level of risk, which may have upper boundaries (e.g., tolerate no more than) and lower boundaries (e.g., tolerate at a minimum or not tolerate a return less than x based on the risk assumed). It may be measured using the same units as the related objective. These risk tolerances may be accompanied by a risk target.

A **risk target** *is a desired level of risk that the organization believes is optimal to meet its objectives.* This often can be some level within the risk tolerance boundaries, possibly depicted along a risk/reward curve. Implicit in the risk tolerance and risk target concepts are reviews to determine the suitability, adequacy and effectiveness in operating within the boundaries at the desired target levels. Monitoring changes from the expected outcomes is vital for risk tolerance statements to be meaningful. Unexpected or unacceptable deviations should trigger further analysis and action, including escalation to senior management. As with appetite, an organization's risk tolerance generally is driven by its objectives and stakeholder expectations, ranging from value protection (generally lower tolerance levels) to value creation (generally higher tolerance levels). Tolerances are also highly dependent on how well capitalized or financed the organization is.

An organization should not define risk appetite without considering its risk capacity. **Risk capacity** *is the amount of risk an organization can actually bear*. An organization's board and management may have a high risk appetite but not have enough capacity to handle a risk's potential volatility or impact. Conversely, the risk capacity may be high but the company may decide based on strategy, management objectives and stakeholder expectations to adopt a lower risk appetite.

Understanding Your Organization's Risk Appetite

Implementation of an effective ERM program is incomplete without determining and defining an organization's risk appetite and risk tolerance. In fact, according to the RIMS Risk Maturity Model, "risk appetite management" is one of seven essential attributes of an effective ERM framework and an essential part of any risk-mature organization (Figure 1). Maturity is further determined by the degree of understanding and accountability of five factors:

- Defining acceptable boundaries
- Calculating and articulating tolerance
- Developing risk portfolio views
- Making risk and reward trade-offs in daily management
- Attacking gaps between perceived and actual risks

Clearly-expressed risk appetite and tolerance statements help protect organizations against solely pursuing single, narrow goals without considering potential consequences as they pursue rewards for an "appropriate" level of risk. What is appropriate and acceptable for one organization may be unacceptable to another, as their attitudes toward risk necessarily may range along a continuum from risk taking to risk averse.

Risk attitude *is the organization's or individuals' view/perspective of the perceived qualitative and quantitative value that may be gained in comparison to the related potential loss or losses.* For

Figure 1: Essential Attributes of an Effective ERM Framework

- ERM-based approach
- Process management
- Risk appetite management
- Root cause discipline
- Uncovering risks
- Performance management
- Business resiliency and sustainability

Source: RIMS Risk Maturity Model

example, many people who place their money at risk in gambling perceive that the small (quantifiable) average financial loss combined with the qualitative excitement benefit is a net gain. Within large, complex organizations, you may find a wide range of risk attitudes among different business units. While risk appetite and tolerance statements are intended to provide specific guidance, risk attitudes reflect a broader philosophy and approach that is informed by the underlying culture, beliefs and collective comfort level of the individuals within the organization as well as external stakeholders. Risk attitudes also will vary among individual managers and board members themselves. Research conducted by the Strategic Decision Group consistently reveals that the maximum loss variance may be as little as .01% at a department level and as much as 17% at a corporate and board level, given the same level of expected reward.

On a personal level, you may have a large appetite—some might even have an insatiable appetite—for the possibility of generating several million dollars within your personal financial portfolio, but generally there is a limit on what you can actually tolerate as an investment. What might be some of those constraints? Your income level, the need to pay the mortgage, tuition and taxes are a few that come to mind. How these constraints affect your readiness to bear the risk in order to achieve the multi-million dollar objective play into your personal risk tolerance. This is not so different from an organizational view.

Defining Acceptable Boundaries

The financial crisis of the late 2000s contained many examples of organizations that either knowingly or unwittingly accepted large amounts of risk in the pursuit of apparent short term gains. These organizations took risks that contributed to severe financial consequences. In hindsight, many of these organizations had not established acceptable boundaries effectively nor defined a well-articulated, properly-communicated and enforced risk appetite. Organizations that did define their risk appetite and risk tolerance apparently did not communicate or enforce the limits across their organizations. Moreover, they had no apparent mechanism to view the impact of the individual risk taking at an enterprise-wide level or as a portfolio. Some did not have the appropriate governance mechanisms to ensure that risk takers were complying with the organization's defined risk appetite and tolerance. Since the financial crisis, a strong interest has developed among board members to increase the risk management discussions at board meetings. Risk appetite, no doubt, should play a key role in those discussions. Ideally, management and board members can agree on the acceptable boundaries for the organization.

Figure 2: Common Methods for Expressing Risk Appetite

1. Setting a boundary on a probability and impact grid
2. Economic capital measures/balance sheet-based expressions
3. Changes in credit ratings (headroom before a potential downgrade)
4. Profit and loss measures (e.g., tolerable level of annual loss)
5. Value based measures (based on probability of ruin or default)
6. Limits/targets or thresholds for key indicators (e.g., +/- 5% variation in profit or 1 - 2.5% variation in revenue)
7. Qualitative statements (e.g., zero tolerance for regulatory breaches or loss of life)

Source: Research into the definition and application of the concept of risk appetite. Undertaken by Marsh and University of Nottingham, June 2009

Challenges in Calculating and Articulating Risk Appetite and Tolerance

Defining, determining, calculating and articulating both risk appetite and tolerance is challenging. There are many reasons for these challenges:

- There are varying definitions for these terms. Indeed, risk appetite and tolerance often are used interchangeably.
- Risk appetite is described using multiple methods and different calculations (Figure 2). Some organizations take a qualitative approach to risk appetite with categories such as high, moderate or low, while others take a quantitative approach, such as value at risk (with metrics like economic value at risk and/or financial strength at risk) and earnings at risk (with metrics like EPS at risk or amount of loss a company is willing to accept).
- Few detailed examples have been published that articulate risk appetite and tolerance. Organizations that have defined risk appetite and tolerance statements often are sensitive about sharing their methodologies with the larger community.

Developing Risk Portfolio Views

Some organizations use specific risk appetite and tolerance statements based on certain categories of risk. Other organizations approach risk statements with overall organizational statements, such as:

- Take risks that the organization can manage in order to optimize returns
- Balance risk and reward against the impact and cost of managing risks for the organization
- Accept potential loss of x% of [EBIT/earnings/donations] for a 50% probability of increasing [EBIT/earnings/donations] by x%
- Avoid risks that negatively impact brand

While these types of statements may provide guidance, they do not consider the impact on the overall risk position for the organization. They also do not address the question as to whether the organization is taking enough risk to sustain itself.

Figure 3: The Efficient Frontier

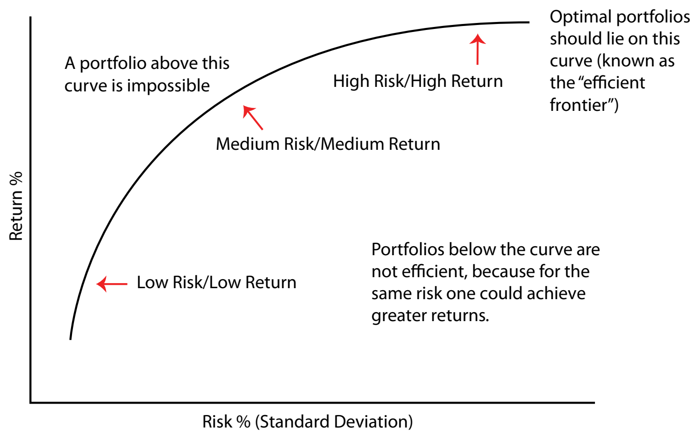
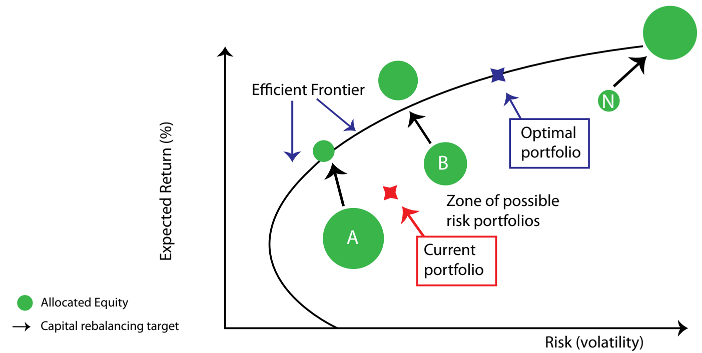


Figure 4: Applying the Efficient Frontier for Risk Taking



Adapted from work by J.P. Louisot. Used with permission.

Consider how a portfolio risk appetite and tolerance view may be expressed using an "efficient frontier" lens (Figure 3). Efficient frontier approaches have been used extensively in financial institutions to calculate the optimal risk/reward balance (or ratio) for securities and investments, based on the Modern Portfolio Theory developed by Harry Markowitz in the 1950s. Different combinations of investments produce different levels of return based on the level of risk assumed. The efficient frontier represents the best of these investment combinations—those that produce the maximum expected return for a given level of risk. Such an approach lends itself to situations where risks and rewards are financial in nature.

A number of nonfinancial organizations are beginning to use efficient frontier models to allocate capital in a way that enables the highest return for an acceptable level of risk across the organization (Figure 4). In this illustration, an organization may be willing to assume a greater level of risk and volatility in order to obtain a higher expected return (optimal portfolio) than currently realized from divisions A and B (current portfolio). As such, it reallocates targeted capital to division N along the efficient frontier to rebalance the entire portfolio more efficiently. Obviously, there are many assumptions that underlie this model, but it is based fundamentally on the organization increasing its overall risk appetite to achieve a greater return. This type of approach can help answer the question as to whether management should be taking on more or less risk.

Making Risk and Reward Trade-Offs in Daily Management

Risk appetite and tolerance statements are meaningless if they are not translated and communicated into daily management decisions. Senior executives may go to the trouble of developing risk appetite and tolerance statements that are approved at the board level. These statements may even be cascaded or distributed to operating managers.

How these statements are used for guiding daily risk and reward trade-offs makes all the difference, however. Impact scales can be determined per project, aggregated per operational or business unit and then confirmed at the corporate level. In this way, the risks arising from projects are in compliance with the company's overall risk appetite.

Consider how a manufacturing firm might apply this concept to a an operating unit undertaking a new strategic project valued at $100 million in investment. At the outset, management defines the impact and likelihood levels to be considered as noted in the table below:

IMPACT	LEVEL	LIKELIHOOD
50% or $50M	**Very High**	90%
25% or $25M	**High**	30%
12.5% or $12.5M	**Medium**	10%
6.25% or $6.25M	**Low**	3%
Below $6.25M	**Very Low**	Below 3%

So using these parameters, how can risk appetite and tolerance statements be translated into daily management?

Management determines at what point a project can be shut down. As the project is valued at $100 million in investment, a loss of 50% of the project value is considered a very high impact. In other cases, the percentage may vary based on type of industry, strategic position on the market, etc. If the likelihood of the $50 million impact is determined to be below 3%, it may be acceptable but not if the likelihood reaches 10%.

Assume the company defines its key risk indicators (KRIs) under various areas that can cause an impact to the project or to the company's operations overall. In this example, the areas are: Strategic, Finance, Legal, Operations, Compliance and Quality. Each area has defined levels of risk that are designed to match the financial impact level on the impact scale above.

For example, a strategic risk may be to lose access to a small regional market. Even though this is viewed as a strategic risk, the company quantifies the risk financially to have an $80 million impact on revenues. Therefore, the risk is considered to have a very high impact as it exceeds the $50 million threshold defined above.

The company may financially quantify different types of risks under the various areas, but may exclude certain risks from the limits set, such as employee safety risks.

The company-specific KRIs are designed by a team of individuals from selected areas. The process is finalized by obtaining the board and senior management's approval of the developed risk levels and identified specific risks. Projects on an individual level and aggregated on a company level can then be monitored for deviations against the expressed risk appetite and tolerances.

Risks that can affect the company's strategic plan or influence the strategic position would be considered through the organization's ERM process, by consolidating and using a simulation method to determine the risk exposure for the entire company.

Attacking Gaps Between Perceived and Actual Risks

Sometimes organizations are overwhelmed with the prospect of dealing with the multitude of risks that can be identified, some of which are "perceived" and some "real." What needs to be taken into consideration to differentiate between perceived risks and actual risks? First, a formal mechanism needs to be established. The next step is to attack the gaps between the risks that matter to the organization's objectives and those that do not.

To determine whether an identified risk actually matters to the organization, ask whether the risk is both relevant and important to achieving the organization's objectives. That is, can the risk either improve or worsen the organization's position? If the answer is no, the risk may be a perceived rather than an actual risk and may be put aside for later consideration as circumstances change. This is not to say that perceived risks are not real risks. Indeed, they may warrant attention one day, so they should not be forgotten.

Four questions then can be asked in relation to the organization's risk appetite for the remaining risks:

1. Is this risk within an acceptable range based on the organization's risk appetite and tolerance levels?

2. If yes, is there a way to exploit this risk in order to create or capture more value for the organization?

3. If not, what is the most the organization would reasonably expend in resources, investments and controls to bring the risk into acceptable boundaries? In order to keep consequences within a tolerable and justifiable level, the organization needs to consider the cost (financial or otherwise) of constraining the risk within acceptable parameters should the uncertain outcome become a reality. Control costs that are out of balance with the organization's overall risk attitude generally are neither efficient nor optimal.

4. What monitoring mechanisms can be used to trigger action if there are deviations from expected outcomes or in advance of crossing risk tolerance targets?

In this way, managers can report on the organization's actual assessed risk as compared to the organization's defined risk appetite and tolerances, whether at a corporate, operational or project level. Management then can execute plans that incorporate activities to reduce unfavorable variations and accelerate favorable variations.

Considering Potential Unintended Consequences

You may have read statements like, "the business has zero appetite (or tolerance) for fraudulent activity" or "the business has zero tolerance for outages beyond x time in duration." Translated into daily management, these statements potentially may result in a manager firing an employee for dishonesty, whether the dishonesty resulted in a $1 or a $1 million loss, or in establishing a fully redundant operations center with capacity to handle all business transactions.

Typically, the potential costs associated with complying with these statements are not considered when they are developed. The employee whose dishonesty resulted in the $1 loss may represent a $100,000 training investment, or be the engineer with the latest technological know-how to advance the organization's core business. Building a fully redundant operations center may be impracticable or the costs may be grossly disproportionate to the disruptive time frame.

That is not to say that zero tolerance statements are unwarranted or unmanageable. It is, however, important to understand the potential implications when adopting or modifying such statements.

Stakeholders and Risk Appetite

Although decisions about risk appetite and risk tolerance levels generally fall to an organization's executive management team and board to shape, ISO Guide 73:2009 notes that stakeholders also have a "willingness to bear risk." The internal and external context within which organizations operate can hold a tremendous sway on an organization's approach to its risk appetite and tolerance statements (Figure 5, page 8).

In addition to the strategies and objectives driven by the organization's board and management risk attitudes, its other internal and external stakeholders hold varying attitudes about the level or amount of risk an organization should assume. The varying risk attitudes of these organizations and individuals when compared with the organization's own risk attitude can become problematic if the organization is not clear in its own statements, transparently signaling to its varied stakeholders what can be expected as the organization pursues its objectives.

Understanding the varying risk attitudes of the organization's external and internal stakeholders may influence how the organization balances its risk appetite statements with the expectations of these stakeholders.

Case Studies

This report provides four examples of organizations that have defined or are working toward their risk appetite and tolerance statements. These are presented so that risk practitioners can consider

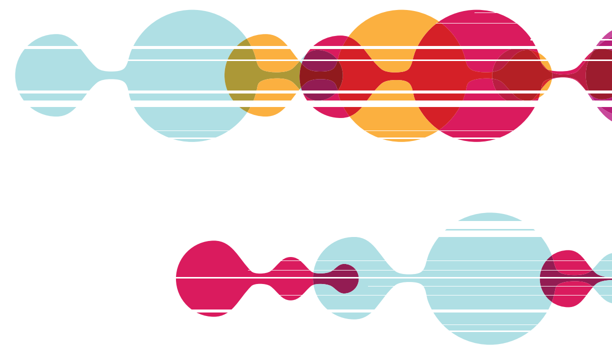


Figure 5: Stakeholder Risk Attitude Matrix

TYPE OF STAKEHOLDER	INSTITUTIONAL INVESTORS	INDIVIDUAL INVESTORS	CUSTOMERS	EMPLOYEES	RATING AGENCIES	SUPPLIERS
POSSIBLE RISK ATTITUDE	RISK SEEKER wants organization to seek risk in order to maximize gain over a shorter term	VARIES depends on individual risk attitudes and short-term/longer-term return expectations	RISK NEUTRAL as long as goods and services can be procured competitively elsewhere	RISK AVOIDER most employees seek job security over the longer term	RISK NEUTRAL as long as organization can meet its debt service obligations minimizing risk of default (may view conservative risk taking as a credit strength)	RISK AVOIDER to the extent suppliers' viability depends on organization's success

the approaches and techniques that provide the most help within their own organizations. There are three common threads present in each of these examples:

- **Understand risk appetites and tolerance.** Risk appetite and tolerance statements are created by management and approved by the organizations' boards of directors. The organizations know their key risks in relation to the pursuit of their discrete business objectives. All define risk appetite and tolerance on the basis of a risk-return trade-off decision for key risks. Each realistically understands and estimates the potential change in enterprise value based on the possible downside losses and upside gains based on varying degrees of risk taking.

- **Seek a balance between risk and reward.** All the organizations seek an appropriate balance between risks being taken for the desired outcomes. The organizations strive to articulate the amount of risk the organization is willing to take, based on each one's unique risk attitude and for a sufficient return. In at least one of the organizations, the formalized review of risk appetite has led it to conclude that it has the capacity to assume even more risk as a competitive advantage.

- **Communicate and enforce the application of risk appetite and tolerance.** Risk appetite and tolerance levels are communicated and enforced through various means: policy, authority/spending authorization levels, value statements, incentive compensation at different levels of the organization and monitoring reviews.

Case 1: Defining Acceptable Boundaries in Health Care

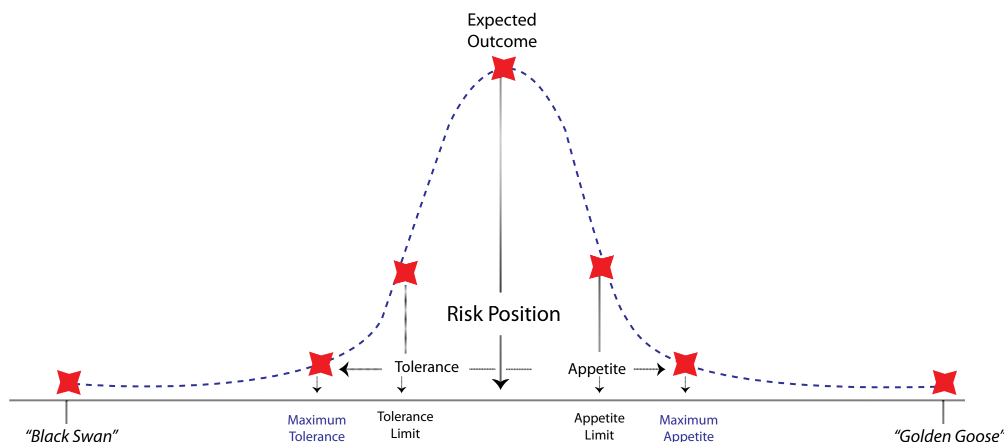
One non-profit health care organization considers its risk position in terms of boundaries. The combination of risk tolerance and risk appetite represents the organization's "risk position" and demonstrates the degree of established commitment the organization has towards achieving its goal or expected outcomes (Figure 6, page 9).

For this organization, risk tolerance is understood as the degree the organization is comfortably willing to absorb as potential losses in the pursuit of its goals, objectives and expected outcomes. Conversely, risk appetite is the degree the organization is willing to securely invest to exceed such measures. As such, it is important for the organization to pre-establish boundaries and set limits. Risk tolerance and appetite limits are set and act as triggers. This allows the organization room to react and reset a course of action when outcomes fall too far below or ahead of expectations. By monitoring results against the limits, the organization can determine when it begins to trend too quickly towards maximum tolerances (before reaching a "black swan" killer) or maximum appetites (when the pursuit of the "golden goose" no longer makes sense given the investment required). These boundaries are preferably set in the aggregate but have been set against individual objectives, as well.

Case 2: Public Risk Appetite Statements Disclosed by a Financial Organization

Consider the risk appetite statements disclosed by a major U.K.-based financial organization in its annual report. For this organization, risk appetite is defined using a combination of qualitative and quantitative statements.

Figure 6: Depiction of a Health Care Organization's Risk Position



"Risk appetite is the amount and type of risk that [the organization] regards as appropriate for it to accept in order to execute its strategy. The board regularly reviews and sets this in the form of 10 risk appetite statements, which it sets in the context of [the organization's] strategy and the requirements of various stakeholders, including the regulatory framework in which we operate."

The risk appetite statements provide the benchmark against which the company's risk profile is reported, monitored and managed by the board, audit and risk, finance, and risk assurance committees. Risk appetite also forms the basis for the calibration and setting of the delegated authorities and financial limits for all aspects of market, credit, liquidity and operational risk. The 10 risk appetite statements address both quantitative and qualitative aspects of risk taking.

The quantitative risk appetite statements address:

- maximum tolerance for market, credit and operational losses
- the maintenance of a minimum credit rating level
- minimum economic and regulatory capital surpluses
- the maximum earnings volatility
- minimum excess liquidity resources to meet peak stressed liquidity requirements without the need to liquidate assets or raise capital

The qualitative risk appetite statements address:

- regulatory risk
- reputation risk
- business mandate
- operational risks in the execution of business plans
- risk-related decision making, especially in relation to new business opportunities

The statements express the organization's risk-taking approach for its internal and external stakeholders. The statements paint a "portfolio" view of the organization's willingness to bear and pursue risk for an expected return. It represents a collection not only of the risk types related to the business portfolio (qualitative statements) but of its overall enterprise financial appetite (quantitative statements). What is not clear—looking only at the statements themselves—is how these risks relate to each other within the organization's overall risk portfolio. The public statements of the company do not indicate whether this particular organization uses an efficient frontier model to consider the interrelatedness of its risk/return decisions in a portfolio view. However, it may be safe to assume that at least some portions of its risk portfolio are considered in this way.

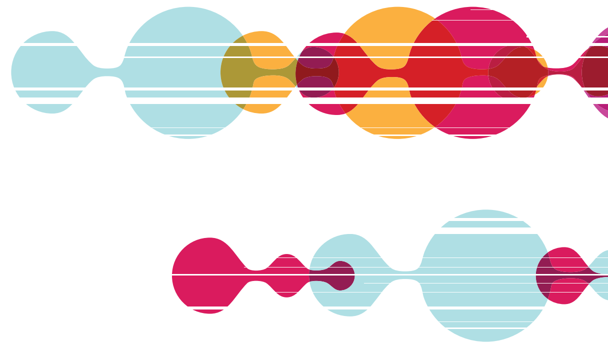
Case 3: Toy Manufacturer Makes Risk/Reward Trade-Offs in Daily Management

Consider a very successful and innovative toy manufacturing company. This example highlights two high-level organizational risk appetite statements that are then used for decision making, whether in general for the company or as applied in particular for each project.

Appetite Statement Part 1:
The company will not accept any risks that will be a "High Risk" after mitigation.

The company is willing to bear or retain risks that are assessed as medium or low after mitigation in pursuit of its objectives. In this way, risk appetite is tied to the traditional risk map and the variability around earning levels. It is adaptable in that—based on how risk is characterized within the organization's earnings at any particular time—it can reflect either a higher risk appetite (Figure 7, page 10) or a lower risk appetite (Figure 8, page 10) as described more fully below.

In this example, three risk priorities levels (High, Medium and Low) were determined when creating the risk map. Figure 7 reflects a relatively greater willingness to accept risk in pursuit of the organization's mission and objectives. The actual risk appetite can be modified based on the company's determination of "High Risk." If circumstances change and it prefers to adopt a lower risk appetite, it can designate



"High Risk" to encompass lower impact levels as shown in Figure 8. However, this does not change the risk appetite statement itself.

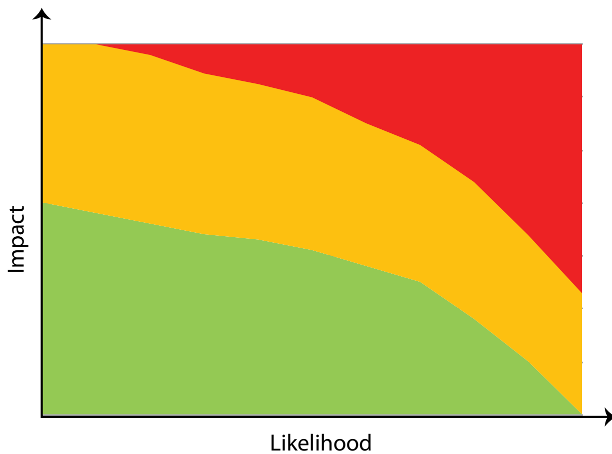
Appetite Statement Part 2:
The company shall ensure that it materializes at least [x%] of the budgeted earnings at a 95% confidence level.

Suppose the company wants to be 95% certain that earnings exceed $160 million. If budgeted earnings are set at $200 million, management determines that the acceptable lower range limit (or boundary) is 20% of budgeted earnings, that is, $40 million. Therefore, if actual earnings are above $160 million in 19 out of 20 quarters, they will have met their objective.

To arrive at this situation, the company looks at the assumptions used in calculating the budgeted earnings as well as its risk portfolio and determines through simulations that the worst case scenario at the 95th percentile is an acceptable value of 20% below budget (that is, all but 5% of the scenarios result in budgeted earnings of at least $160 million). This means that all things being equal, only once in 20 quarters will the actual earnings be less than $160 million. In this process, management has determined that up to a 20% "miss" on earnings is acceptable, i.e., within its risk tolerance range.

The major benefit of defining the risk appetite in this way is that the board and senior management understand the methodology and calculations enough to trust it. There are certain occasions when senior management or the board asks whether the company is taking enough risk and what would happen if they accept more risk? The solution would be

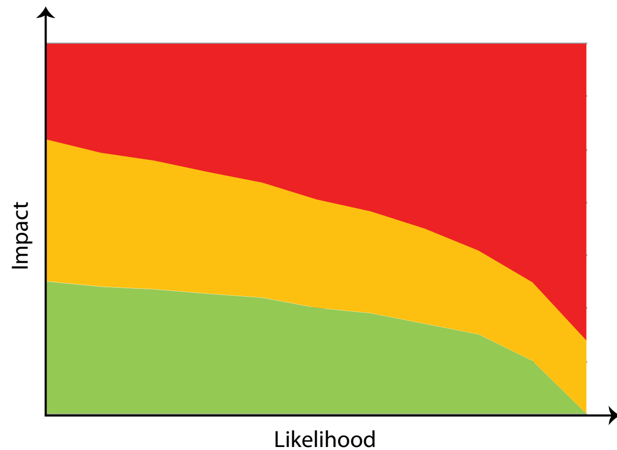
Figure 7: Higher Risk Appetite



High Risk: Medium to Very High Impact and Low to Very High Likelihood
Medium Risk: Very Low to Very High Impact and Very Low to Very High Likelihood
Low Risk: Very Low to Medium Impact and Very Low to Very High Likelihood

High Risk
Medium Risk
Low Risk

Figure 8: Lower Risk Appetite



High Risk: Low to Very High Impact and Very Low to Very High Likelihood
Medium Risk: Very Low to High Impact and Very Low to Very High Likelihood
Low Risk: Very Low to Medium Impact and Very Low to Very High Likelihood

to compare the utilized risk capacity with the available risk capacity. If the company is far from utilizing the full extent of it, solutions involving being more aggressive and taking more risks are considered. In any situation, the available risk capacity will not be exceeded and considering the risk appetite, will be better utilized. Using a driving analogy, the condition of your vehicle may determine that you can safely drive 50 mph (available capacity). If you are currently doing 35 mph (utilized capacity), you may decide to go faster, as long as you do not exceed 50 mph.

Case 4: University System Calculates and Articulates Its Risk Appetite and Tolerance Levels

Consider the case of a major university system comprised of multiple campuses, medical centers, research operations, student activities and housing, international facilities and programs, and all that it entails. Two key questions need to be answered:

1. How should the appetite for any particular risk be determined and what should be measured?

2. What metrics should be used to measure whether the risk is within expected tolerance levels?

One risk appetite statement and one set of metrics obviously would not serve the multiple stakeholders represented by the university system's environment. If set too low, a single risk appetite statement may be constraining. If set too high, it would provide little or no guidance to a number of the system constituencies. Ideally, the statements would provide:

- Measures that reveal when deviations from expected outcomes are reaching or breaching the risk tolerance limits for each type of risk. Awareness and monitoring of established thresholds would help this organization track changes in risks and avoid unexpected consequences.

- Risk targets that are the ideal goal for the risk based on the organization's objectives, risk appetite statements and measures for each risk.

- Risk tolerance/range where risk would be allowed to deviate around the defined risk target. This ensures that defined risk tolerances fall within the organization's risk capacity. The university's board of regents and management may establish a fairly high risk appetite, but the system may not have enough capacity to handle a risk's potential volatility or impact over the breadth of the university system's operations.

In order to manage within this environment, a system-wide team has explored a number of complementary approaches:

- Combine the system's already established key performance indicators with the appetite and tolerance levels.

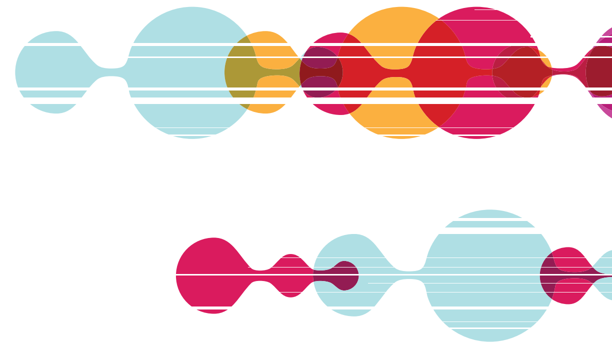
- Allow the campuses to set their own thresholds based on a system-wide tolerance statement.

- Use the already established enterprise risk management information system dashboards for communicating levels and reporting deviations from the expected outcome.

Figure 9 below does not reflect actual statements created by the university system, but represents what could be potential outcomes using the described approach.

Figure 9: Possible University System Risk Appetite and Risk Tolerance Statements

PERFORMANCE CRITERIA	POTENTIAL RISK APPETITE STATEMENT	POTENTIAL RISK TARGET	POTENTIAL RISK TOLERANCE STATEMENT	POTENTIAL METRICS OR KEY RISK INDICATORS
Debt Service	The university system is willing to assume x% of its system-wide operational revenues for debt service.	Derived number based on appetite statement	No more than x% of the total debt service can apply to any one initiative (or campus or project).	• Debt service-to-operations percentage • Allocation of debt service
Employee Turnover	The university system accepts an investment of $x per headcount in recruiting and training for new employees.	Calculated number based on appetite statement	On a university-wide basis, employee turnover is to be less than x% in any given 90-day period.	• Employee turnover by location or operating unit • Deviations from established system-wide tolerance limit • Aggregated comparative to potential risk target
Cost of Borrowing	The university system is willing to assume credit interest rates of x% for borrowing [a certain dollar amount or percentage of assets] to fund new initiatives.	Expected cost of borrowing number	Credit rating may not drop more than one grade from its current level.	• Variations from rating agency expectations • Deviations from cost of borrowing assumptions • Deviations in amounts



Conclusion

There are certain key elements to keep in mind when establishing your organization's risk appetite and tolerance:

Understand the concepts: Clearly articulating risk appetite and tolerance are key for a well-developed and effective enterprise risk management strategy. Board and top management understanding of the risk appetite and tolerance concepts, as well as how critical their statements are for achieving strategic objectives, are foundational. Without overcoming this initial challenge, proceeding further in attempting to articulate risk appetite and tolerance is destined for failure.

Balance risk and reward: Beyond gaining support for a well-developed understanding of risk appetite, the challenge in articulating an effective risk appetite is in balancing the risk/reward trade-off to provide a sustainable, long-term result. It can be undesirable and costly to attempt to eliminate all risk in an organization or to conversely not set upper limits. If the risk appetite is too low or is never challenged operationally, the potential for reward will likely be low (unless it is a niche market or monopoly). If risk appetite is too high or not understood by the board, management and employees, it can have extremely negative consequences on the company and possibly the industry. There are many examples of this from the recent financial crisis. Financial organizations that set their tolerances and appetites pre-2008 found a few soft spots in their evaluation of how much appetite and capacity they truly had and how much they needed to modify their risk appetite based on unanticipated risks or due to model risk.

Use for more than financial measures: Financial results are generally the most common components in risk appetite and tolerance. They are easiest to quantify and most areas eventually boil down to a financial result. Financial metrics are an important component of risk appetite, but risk appetite needs to be expressed beyond just financial performance metrics. Whether the stated appetites and tolerance further the organization's strategic objectives is more critical than just financial metrics.

Leverage positive aspects for taking risk: Risk can lead to both positive and negative results. Therefore, risk appetite should not be looked at simply through a negative lens. Taking too little risk may have undesirable consequences. There should be a positive orientation to the discussion where questions such as "what risks can provide us with the most value?" should be asked.

Evolve risk position over time: Defining and articulating risk appetite and tolerance will provide little value unless the position is updated, regularly monitored and has a control system to flag when someone is operating outside of the defined risk tolerance. Risk appetite and risk tolerance must adapt to an organization's ever-changing risk environment. It is important to continue to refine tolerance and appetite statements over time to stay in sync with an organization's evolution. The company's strategy and its risk appetite and risk tolerance work hand in hand and influence each other. They should be designed and changed together.

Communicate risk appetite and tolerance: Finally, organizations that have developed risk appetite statements may not have communicated this well to stakeholders. Without proper communication of risk appetite levels, organizations cannot expect that employees are consistently making decisions that are aligned to an organization's risk appetite. The challenge is compounded by the fact that the organization may wish to keep some of the risk appetite measures confidential from public view.

Well-defined and well-thought-out risk appetite and tolerance practices:

- Encourage organizations to take measured risks in order to generate value and avoid intolerable losses.
- Align stakeholders (e.g., the board, senior management, shareholders) on the amount and type of risk the organization is willing to take.
- Create awareness about, and actions to prevent, excessive levels of risk that could lead to adverse consequences.

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