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## Risk financing guidelines

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## PREFACE

This Handbook was prepared by Standards Australia/Standards New Zealand Committee OB-007, Risk Management. It relates to a particular type of risk treatment known as Risk Financing.

- (a) They should be read and applied in conjunction with AS/NZS ISO 31000:2009, *Risk Management—Principles and Guidelines* as their underlying purpose is to help organizations of all types to manage risk effectively, in those situations where risk financing is an appropriate form of risk treatment.
- (b) It is not the purpose of the Guidelines to turn all consumers of risk financing into technical specialists or to provide an advanced textbook for risk financing technical specialists. Rather, the Guidelines have been prepared with specific goals for each of three groups of end user in mind.
- (c) Directors, managers or risk specialists with responsibilities for implementing their own organization's risk financing arrangements. For this group, the objective is to help them become a well-informed consumer, providing the knowledge, understanding and confidence to work with their external advisers to explore and test options and make decisions consistent with good governance.
- (d) Expert providers of risk financing services (including those involved in related legal issues) with the objective of providing additional background knowledge to their formal training, and an awareness of some of the risk financing issues beyond their own domain.
- (e) Students of risk management seeking to gain a sound understanding of this form of risk treatment and its relationship to the overall risk management process and to other controls.

The Guidelines explain the role of risk financing and describe a wide range of risk financing techniques. These include the most common techniques (insurance and self funding) and other less frequently used methods such as those offered by the capital markets.

Each such description explains where the particular technique may be suitable as well as pointing out factors which may affect its reliability.

The Guideline also explains the interrelationships between risk financing and the other risk management techniques (such as setting risk criteria, assessing risks and implementing other types of risk treatment in parallel to improve the efficiency of the risk financing arrangements).

A basic approach to selection of an appropriate risk financing mix is provided (although risk financing arrangements tend to be very specific and need to be tailored to the organization concerned and the particular risk being financed).

A further section (3) explains the key points which need to be considered in order to maximise the effectiveness of any particular risk financing program and provides practical guidance in respect of each.

Implementing risk financing arrangements requires a mix of specialist expertise and skills. Most organizations that don't want to rely entirely on external risk financing suppliers (such as insurers) engage either advisers or intermediaries to assist decision making and transacting the risk financing arrangements (the use of an insurance broker is one such example).

The scope of expertise of such specialists is often particular to their type of risk financing activity and may not include a broader understanding of either risk management or the wider aspects of risk financing.

## CONTENTS

	<i>Page</i>
1 THE ROLE OF RISK FINANCING IN THE RISK MANAGEMENT PROCESS.....	4
2 RISK FINANCING MECHANISMS.....	10
3 EFFECTIVE RISK FINANCING.....	33
APPENDICES	
A GLOSSARY OF TERMS.....	38
B BIBLIOGRAPHY.....	41
C ACKNOWLEDGEMENTS.....	42

## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

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### **Handbook**

### **Risk financing guidelines**

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#### **INTRODUCTION**

Risk Financing refers to arrangements to ensure the availability of funds in the event these are needed following occurrence of an unintended event.

Implemented effectively, risk financing may lessen the effect of the event upon achievement of the organization's objectives or even facilitate exploitation of new opportunities created by the event. It will be unusual however that risk financing can lessen all of the consequences of the event.

As with any form of management activity, organizations will normally seek to effect Risk Financing in an efficient manner. The costs of the Risk Financing arrangements will reflect the method chosen, its reliability, and the scale of the consequences and their likelihood of the risk being financed.

It follows therefore, that coherent Risk Financing arrangements require that risks are accurately assessed and both the need for and parameters of any Risk Financing determined after considering other treatment options or combinations of options.

Accordingly, Risk financing decisions need to be reached through application of the risk management processes described in AS/NZS ISO 31000:2009.

Risk financing methods continue to evolve with some being more complex than others. The cost of any particular method can vary significantly over time - even though the risk being financed is unchanged. This gives further emphasis to the importance of applying the general risk management techniques of Monitor and Review to all aspects of the risk management process.

An increase in cost of one Risk Financing method (for example, as a result of often cyclical movements of global capital markets) can act as a stimulus for the development of alternative methods.

The expertise required to implement various forms of risk financing differs markedly. Small and medium sized Enterprises (SMEs) such as those with fewer than 50 employees which constitute 98%\* of organizations in New Zealand will often trade the cost of engaging the expertise needed to implement a particular Risk financing measure against any variations in the underlying cost of the method itself.

Whatever the method of risk financing that is selected, the crucial test is that within an acceptable level of certainty, the method chosen will ensure funds in the amounts required will be available when needed.

However, it is not uncommon to find that those responsible for Risk financing decisions will subordinate this crucial test to considerations of the transactional cost of the proposed method.

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\* Statistics NZ Business Demography Survey February 2008

Those with responsibility for the governance of an organization should be particularly alert to this form of error. Whereas the costs of Risk Financing may impact on organizational performance at the margin, risk financing arrangements that do not deliver the funds required when needed, can result in organizational failure.

The central purpose of this Guide is therefore to—

- (a) assist the reader to understand the functions and limitations of Risk financing as a type of Risk treatment;
- (b) obtain an understanding of risk Financing nomenclature and underlying concepts (as they stand at the time of publication);
- (c) explain the nature and impact of the dynamic relationship between risk financing and other forms of risk control, the opportunities for this to be exploited and the consequences of it being disregarded;
- (d) provide a framework within which to define the risk financing need and select options that meet the above 'Critical Test'; and
- (e) offer guidance to those within an organization who are responsible for either implementing or monitoring its risk financing arrangements.

Readers need to keep in mind that risk financing methods, the markets which provide risk financing instruments and regulatory frameworks will continue to evolve. For all of these reasons, this Handbook should not be relied upon for legal or definitive advice.

## **1 THE ROLE OF RISK FINANCING IN THE RISK MANAGEMENT PROCESS**

### **1.1 Risk financing as a risk treatment**

Risk financing is a form of risk treatment suited to risks in which the foreseeable consequences include a shortfall in available money after an event (or sequence of events) has occurred.

By ensuring money is available in these circumstances, the organization (or individual) will be more likely to be able to achieve their objectives and thus will have reduced the level of risk. In some circumstances, it may be critical to survival.

Any form of risk treatment involves selecting (from options) methods for modifying the risk to a level that is tolerable in terms of the organization's risk criteria.

The Australian and New Zealand Standard (AS/NZS ISO 31000:2009 *Risk Management—Principles and Guidelines*) demonstrates at Figure 1 (below) the process through which the decision to treat risk is made.

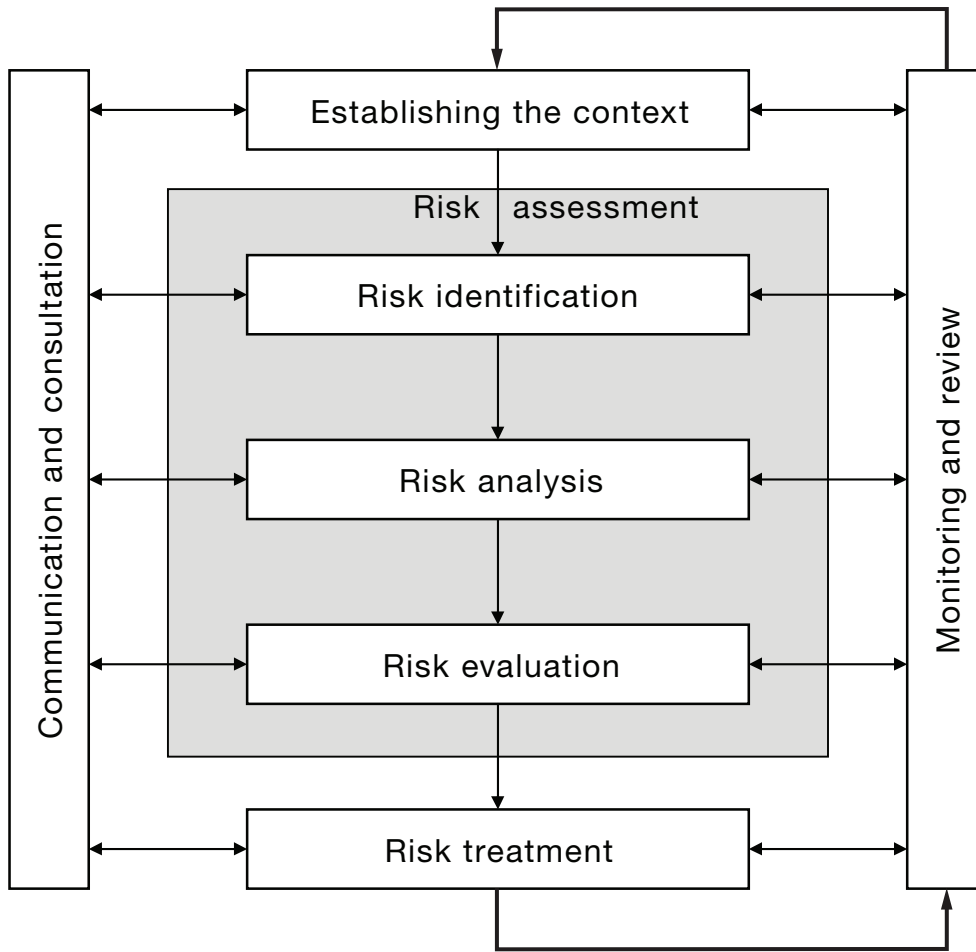


FIGURE 1 THE RISK MANAGEMENT PROCESS

The risk assessment process should reveal the quantum of funds (sometimes described as the ‘maximum foreseeable loss’) which might be required (and the likelihood). By evaluating these amounts (and the likelihood of occurrence) against the organization’s risk criteria, the need for risk financing (and other treatments) can be determined.

As well as assessments of the gross amount, the assessment will examine when the funds will be needed which as illustrated in the two examples below, will also require consideration of how they will be spent.

- Examples:
- If a self-owned production building was destroyed, there might be a need for immediate funds to lease an alternative facility and to continue to pay staff until revenue streams are resumed. By contrast there will be some time (months or years) before payments for repair or replacement, are required.
  - If an organization is sued, it may be some years before liability is established but in the meantime, substantial costs may be incurred in defending the action.

The viability or optimality of any particular form of risk treatment will often depend on the concurrent application of other risk treatments. Frequently, that is the case with risk financing.

Example:

- A popular form of risk financing for events in which financial value is lost, is insurance. Obviously, however, the cost of insurance will depend on the presence of other controls that will either reduce the likelihood of an insured event and/or reduce the scale of the consequences of the event. In other words, the cost of insurance as a risk treatment will reflect the (treated) risk.

Therefore, as with other types of risk treatment, risk financing decisions should be taken after having regard to the larger picture and through application of a logical process. This will include a review of costs and benefits of the options.

The following should be taken into account to determine whether other risk treatments are needed in conjunction with the risk financing arrangements:

- (a) Which other risk treatments, if any, will affect the availability of the preferred form of risk financing (for example, an insurer may only be prepared to offer risk financing for the consequences of [say] product defect if the insured party has a robust and externally critiqued quality assurance program)?
- (b) Which other risk treatments, if any, will affect the cost of the preferred form of risk financing (for example, an insurer may charge an individual less to insure the costs of hospital treatment if the individual is a non smoker)?
- (c) What other benefits will accrue from other risk treatment (for example, to make it less likely that an adverse event will occur)?

To some considerable degree, these matters involve management of the perceptions of the party providing the funds (e.g. an Insurer).

## 1.2 Reliability of risk financing arrangements

All forms of risk financing have an inherent degree of reliability (or unreliability). For example, if insurance is the chosen risk financing treatment, its usefulness is substantially if not totally dependent on the insurer's ability and willingness to pay at the time of the loss. This will have been evident to organizations that insured with the failed insurance company HIH Insurance in 2001.

The Royal Commission of enquiry found that HIH Insurance failed because of overpriced acquisitions (especially the takeover of FAI Insurance by HIH), corporate extravagance, inadequate provision for insurance claims and general mismanagement in the area of its core business activity. Readers seeking more detail of the collapse of HIH are recommended to read the Report of the Royal Commission of enquiry at [www.aph.gov.au/library](http://www.aph.gov.au/library)

The failure of HIH insurance was not unique. The demise of Standard Insurance in New Zealand in 1963, Vehicle & General Insurance and Independent Insurance Companies in the United Kingdom in 1971 and 1997 respectively were equally significant failures in the marketplaces in which they operated. In a market acutely sensitive to any loss of insurer solvency, the near collapse of the parent company of the world's largest insurer (AIG) in September 2008 caused widespread apprehension even though its individual insurance operations ultimately remained solvent.

Business Insurance of 22 September 2008 reported that over several years AIG built very large portfolios of mortgage-related credit derivatives and residential mortgage-back securities. As the housing bubble burst, write-downs on those portfolios rose quarter-by-quarter to total US\$18bn early in 2008. Then in the space of less than a week a liquidity crisis pushed AIG to the brink of what would have been the largest insurance holding company bankruptcy in history. Internal risk management failures, the lack of adequate regulation of the derivative business coupled with rating agency downgrades, and the collapse of the large Lehman Bros bank were suggested as causes of AIG's difficulties.

Similarly, a risk financing strategy for any particular risk or group of risks that is based in whole or in part on the organization's own financial strength and resilience, must consider the aggregate dependency on those sources of funds. Other events may intervene over the term of such arrangements that will weaken the organization financially.

It is necessary therefore to consider what degree of certainty is needed that the selected risk financing arrangements will work as intended when called upon. This may well affect both the cost and the choice of those arrangements (for example, HIH premiums were typically significantly cheaper) but may also rule some treatment options in or out if the required level of certainty is not available.

Some assistance is provided in this regard by regulatory requirements and associated official prudential monitoring that apply to financial institutions (refer 2.1.3 Insurance Regulation) and by published ratings by independent ratings agencies.

Even then it can be unwise to rely unduly on the efficacy of either the regulator or ratings agencies. Both can be misled. In the case of the HIH collapse, APRA (an Australian regulator) encountered criticism of their response to early indicators of that insurer's financial difficulties.

Ratings agencies are also not infallible. Although their ratings are used by many to predict the future, they rely in part on historical information, some of which is sourced from the agency being rated. Incorrect or delayed release of information (as happened with HIH) can result in a more optimistic rating than is warranted. As well, financially overwhelming events can develop very quickly as evident in the 2008 global financial crisis.

A prudent organization taking comfort from regulatory surveillance should inquire into the vigour and effectiveness of the monitoring regime and keep in mind that absence of enforcement action does not equate to a guarantee of financial stability. In the case of AIG, what had been a gradual decline suddenly went into free fall, the parent company unraveling at such speed that the ratings agencies were unable to keep up.

The lesson to be learned is that the financial reliability of any given risk financing method is likely to change over time, hence the relevance of 'Monitor and Review' to all steps of the risk management process. The financial strength of any entity providing risk financing arrangements should be checked continuously during times of global financial uncertainty via a number of sources including the published independent credit ratings.

### **1.3 Other risk financing considerations**

The need for risk financing, and its parameters, are determined through application of the risk management process described in AS/NZS ISO 31000:2009. The following particular points regarding aspects of that process are of unique relevance to risk financing.

#### **1.3.1 *Communication and consultation***

As with any risk management activity, communication and consultation are an indispensable part of risk financing. Jargon and technical terms are common in the risk financing sector. A particular communication challenge to those involved is to avoid misunderstandings when dealing with consumers.

It is also important to ensure that a party being asked to provide risk financing has a clear and correct understanding of the risk. An investment in providing high quality information, perhaps developed by an independent expert, can have a significant impact on availability and cost.

Useful guidance in addressing communication and consultation issues can be found in HB 327:2010 *Communicating and consulting about risk*.

### **1.3.2** *Context*

Risk owners will need to decide to what extent they can tolerate loss without the assistance of external risk financing. Hence, when developing the context, particular attention will need to be given to establishing the risk criteria. This should take into account the organization's financial strength and its willingness to tolerate variance from its objectives.

### **1.3.3** *Evaluation*

When the results of risk analysis (which should reveal, for example, the maximum loss that is foreseeable from any particular event, and its likelihood) are compared with the risk criteria, care is needed to consider the range of events which can cause variance.

For example, if an organization was prepared to experience (say) a 20% reduction in its projected financial returns (say) once every 5 years, it would be unwise to then set up its risk financing arrangements on the basis of an insurance policy which would only operate if a loss exceeded that amount. That is because multiple insured events could occur and also because uninsured risks (such as the effect of an aggressive competitor or delays in implementing a new project) need to be considered as these may also adversely affect financial returns.

### **1.3.4** *Monitor and review*

Risk financing arrangements are typically arranged on an annual basis which means that relevant information might change over the period of those arrangements. For example, as noted in the next Section, the financial security of insurers or other sources of risk financing can change; the risk for which financing has been arranged, or factors which are relevant to the risk analysis (for example international exchange rates) might change or asset acquisitions or new commercial ventures may create new risks not contemplated at the time that risk financing was arranged.

Similarly, changes in the external environment (for example, the occurrence of catastrophe scale losses elsewhere in the world) can suddenly render a risk which hitherto was insurable, now uninsurable. For example, the availability of insurance for losses arising from terrorist action suddenly ceased in the immediate aftermath of the '9/11' terrorist attacks in New York and Washington DC.

Therefore, when implementing risk financing arrangements, organizations should make specific plans for monitoring and review of relevant issues. For example, arrangements can be built into capital expenditure approval processes to ensure that those in the organization responsible for risk financing are alerted to the intended expenditure prior to it occurring – even if there are provisions in the risk financing arrangements which accommodate such changes of risk. The financial media should also be closely monitored to help detect the earliest signs of loss of solvency of the organizations providing risk financing.

External advisers such as insurance brokers should be required to hold routine review meetings during the period of insurance (with the frequency reflecting the size and operational volatility of the organization). These meetings should, in addition to dealing with routine matters, specifically attempt to detect 'change' of any kind which can affect the adequacy and efficacy of the risk financing arrangements.

#### **1.4 Risk financing by governments**

Governments approach risk financing in various ways. Some make no special arrangements beyond budgeting for some degree of unplanned expenditure or loss of revenue and simply draw on reserves, increase tax, or borrow in the event that these amounts are exceeded.

Others, such as the New Zealand Government, require their own agencies and departments to manage their risk within their annual approved expenditure budgets. For most agencies, their risk assessment will lead them to act in a way similar to a commercial organization and set up a range of external risk financing arrangements.

However if losses are fairly predictable due to the total values at risk being widely spread (for example agencies owning residential housing or schools), it is more likely that the agency will simply budget for losses up to the limit of their risk appetite and perhaps buy catastrophe insurance for loss events which might exceed that. Such an approach is often in combination with other forms of risk treatment (such as, say installing security or sprinkler systems in schools to limit arson) and thereby validate their assumptions.

Since 1998 the Australian Commonwealth Government has operated an internal fund (Comcover) to provide risk financing for the types of risks of its agencies which would be insurable in the commercial insurance market. Premiums are set and charged so Comcover can accumulate reserves to meet future losses. The Government's objectives in establishing Comcover were to ensure its agencies managed risk effectively (for example by selecting an appropriate mix of risk treatments) and to reduce the long term costs of risk financing. This approach also allows relevant knowledge (for example the loss experience of the various agencies) to be captured and applied.

In both Australia and New Zealand, local government agencies have created a risk pool (refer 2.4.2) to provide financing for some types of risk. Risk arising from legal liabilities is a common example. The risk pool charges a 'premium' and typically also purchases reinsurance (refer 2.1.3) to protect itself from losses exceeding its reserves.

Such risk pools have mixed success. They are vulnerable to the pool being exposed to multiple claims against it as a result of a single type of loss. For example, in New Zealand, thousands of houses constructed in the 1980's to a new building code were found to leak severely with resulting expensive structural damage. Many building owners sought redress from the local government agency that had approved the construction, especially if the original builder or developer had gone out of business.

## **2 RISK FINANCING MECHANISMS**

### **2.1 Insurance**

Insurance works on the premise of the premiums paid by the many being sufficient to pay for the losses of the few as well as providing a return on the insurer's capital investment (after meeting operating expenses) across the portfolio of insured risks. For most Small to Medium size Enterprises (SME's), Insurance is seen as the simplest and most practical risk financing option for most, but not all, risks.

However, insurance has limitations as a method of risk sharing, for example:

- (a) Not all types of loss are insurable.
- (b) In some instances insurers may require additional controls to be implemented as a condition of accepting the risk.
- (c) There is an obligation of disclosure of material information by both parties to an insurance contract.
- (d) At the same time, the doctrine Caveat Emptor (buyer beware) also applies to insurance.

- (e) Insurance companies are only as good as their financial ability to pay at the time they are called on to do so (which may be some time after the insurance was effected). The level of reserves may not be sufficient to meet claims, particularly if there are cascade or cumulative events.
- (f) The actual effect of the wording of an insurance contract when applied to particular circumstances may only be finally determined after a loss has occurred and a claim has been made.

Insurance is often referred to as a type of 'risk transfer' but, because of the above considerations, it is more appropriately described as a method of 'risk sharing' because, knowingly or otherwise, at least some part of the risk remains with the risk owner.

Purchasing insurance is such a common activity that it is often entered into with little attention to need or adequacy and in the belief that risk has transferred. Consequently, the steps of the Risk Management process through which risk is revealed, understood, compared with risk criteria and where other treatment options (or combinations) are considered, are dispensed with or done poorly.

As a result, any of the following pitfalls may result:

- (i) Insurance is purchased which is not needed.
- (ii) The cost of insurance is unnecessarily high.
- (iii) Aspects of the risk believed to be insured are in fact not insured.
- (iv) The insurer may be either unable or unwilling to pay on the day in the event of a loss arising.

### **2.1.1** *The principles and concepts of insurance*

#### **2.1.1.1** *Insurance is a form of contract*

At its essence, insurance is a risk financing technique in which a contract is entered into that is expressed by the Insurance Policy, The Insurance Policy provides that in the circumstances specified, the Insurer will pay to the Insured a sum of money calculated according to the criteria of the Policy if the Insured makes a Claim on the policy.

The circumstances in which payment will be made are typically defined by a general description of the events or circumstances in which payment will be made, for example:

'In the event of physical loss or damage of the insured property...'

However, this general undertaking may in turn be limited or qualified by Exclusions (such as: 'except for jewellery having a value over \$5,000 unless specifically declared on the attached Schedule') or be extended by an Endorsement (for example 'The Policy shall also apply to property located at the following address...').

The legal meaning and effect of the Policy depends in part on both Statute and many years of case law.

As noted, one of the important aspects of the common law is the doctrine of uberrima fides or 'utmost good faith' which relates to the obligation of both parties to the contract to disclose what is material to the understandings represented by the contract. Organizations must not mislead their insurers. To do so can void the contract.

For example, if the organization (or person) seeking insurance lied or gave false information to the insurer when asked, for example, whether they had experienced previous events of the type being insured, the insurer may later be able to decline a claim made on the Policy on the basis of non disclosure of a material fact. In practice however, this common law doctrine has been modified over time by consumer statutes such that now there must be proven to be a strong linkage between the non disclosure and the particulars of the claim in order for the non-disclosure to provide a basis for the insurer not to pay. Even so, the

Insured should be mindful that there are generally greater obligations for honesty and disclosure than in many other types of contract.

#### **2.1.1.2** *Insurer's ability to pay*

The whole value of insurance as a risk financing technique lies in the insurer's willingness and ability to pay in the event of a valid claim on the policy, and to do so promptly when required by the policy.

However, an insurer cannot predict with absolute certainty whether or when claims will occur or the scale of claims they may be confronted with. As a general rule, very large claims occur with less frequency than smaller claims and so are less predictable. How then to ensure that sufficient funds will be available when such losses occur?

Several methods are used to both reduce uncertainty and improve an insurer's ability to meet claims when required:

- (a) Careful assessment of each risk to be insured to establish the Maximum Foreseeable Loss, in other words, how much the insurer may need to pay in the worst case? These assessments also consider the insurer's aggregate exposure to particular events (for example, events such as flood, storm, earthquake or volcanic eruption typically affect many Insureds and result in multiple claims).
- (b) Spreading their Portfolio of risks by taking only a 'slice' or percentage of large risks (this is known as 'Proportional Insurance') or by limiting risk accumulations (for example, the total value of property insured by that insurer within a single city block, a single flood plain or single earthquake zone).
- (c) Statistical analysis of the history of claims and forward projecting this information to predict what is likely to be paid in future (work that is typically carried out by specialist Actuaries).
- (d) Establishing reserves in a sufficiently liquid (accessible) form. Certain levels of liquid reserve are usually required by regulators.
- (e) Purchasing Reinsurance to cover large or infrequent claims which could exceed the reserves.

If all else fails, as with any company, an insurer may have to draw on its capital to meet its obligations.

#### **2.1.1.3** *Reinsurance*

Reinsurance is a form of insurance for insurance companies to which there are two main forms. One involves reinsurance arrangements for an individual insurance contract (known as Facultative Reinsurance). The other (known as Treaty Reinsurance) provides standing arrangements (or a 'facility') which can be directly accessed by the insurer without further reference to the Reinsurer. Treaties may relate to either broad or very specific classes of risk. The 'Treaty' enables the Insurer to accept new risks within the defined portfolio in the knowledge that they will be automatically reinsured. Typically, reinsurance treaties are negotiated annually and the costs of this (which vary from year to year depending upon the claims experience and other trends) inevitably flow through to the costs of premiums charged to the Insured at the next renewal of their insurance arrangements.

The terms of the Treaty (which set the standard criteria on which risks can be reinsured into the Treaty facility) are expected to ensure that at the specified price, the resulting portfolio of risk will be profitable to the reinsurer. That is one reason why an insurer may opt for arranging Facultative Reinsurance even where it has access to a Treaty, as it allows a more risk-specific negotiation of terms and price. That could be advantageous if, for example, the risk in question had very effective controls.

Some insurers also act as reinsurers but most reinsurance capacity is provided by companies dealing exclusively with reinsurance (for example such well known companies as Swiss Re and Munich Re).

In an effort to improve the reliability of their insurance arrangements, some Insureds will make their own reinsurance arrangements rather than leave it to their Insurers. This may also be cheaper in some cases as it can avoid bearing the transactional charges between Insurers and Reinsurers which are often described as Exchange Commissions.

Instead of conventional reinsurance, some insurers spread risk in certain parts of their portfolio using sophisticated financial instruments sourced from the Capital Markets. These are briefly described later.

#### **2.1.1.4** *Operation of the insurance 'market'*

The underlying need to spread the costs of the misfortunes of the few across the many who are exposed to risk, results in insurance operating in both local and global 'markets'. One result is that many decisions which influence the ability and willingness of a particular insurer to pay legitimate claims are not transparent to an individual insured.

For that reason, insurance is regulated by both Governments and agreements between market participants. These latter arrangements, through which global markets such as Lloyds of London operate, also provide short forms of expression of quite complex legal undertakings. This necessitates that those who operate the market are both appropriately qualified and compliant with these requirements. Some markets, such as Lloyds, will only permit persons who hold specified technical qualifications to operate in that market. This reduces the likelihood of error and speeds up transactions.

Consequently, quite large transactions can often be agreed within a few minutes with the paperwork comprising little more than a stamp, signature and the percentage of risk being accepted being recorded on a 'Slip' which describes the risk and, using market abbreviations, the proposed terms of insurance.

#### **2.1.1.5** *Setting the premium*

The premium is the price the insured agrees to pay to the insurer in return for the insurer sharing in the risk. Typically, it is paid annually but there are usually facilities available ('premium funding') to allow monthly payments in order to smooth the cash outlay.

The premium is usually calculated by the insurer setting a 'premium rate' (typically expressed as a number of cents of premium per \$100 of insured value\*) and then applying this to the value at risk.

In general terms, the premium rate will always reflect the risk but seldom in a precise or mathematical way. That is because the insurer is factoring in:

- (a) various considerations about the risk which reflect the insurer's own experience and business model – including, for example, the past loss experience for the particular type of risk; what the insurer knows or perceives about the risk including the effect of other risk controls; how much of the risk the insured 'retains' via deductibles; the cost of reinsurance and other uncertainties; and
- (b) commercial factors such as competition from other insurers or sources of risk financing; a possible desire to acquire a new insured by offering attractive terms; the 'moral hazard' (the extent to which the insured can be relied on to act prudently); administration costs; investment returns; profit expectations of shareholders and the cost of capital.

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\* This is sometimes expressed as a number of cents 'per cent', or in decimal form – for example a rate of 4.2cents per \$100 could alternatively be expressed as 'a rate of 0.42'

Even in life insurance where actuarial calculations based on statistical life expectancy should, in theory, make the premium rate reasonably predictable, rates can vary considerably between insurers.

In practice, premium rates fluctuate in cycles: a period of profitability will attract new capital into the insurance market; competition from that new market capacity will drive premium rates below those that are sustainable (and often also cause insurers to accept risks which otherwise they would not); large catastrophic or cumulative losses then destroy profitability; capital moves away from the insurance market to more profitable opportunities causing a shortage of insuring capacity; rates are then increased both opportunistically and to recoup past losses; profitability is restored; and the cycle begins again.

Although such cycles (the peaks and troughs of which are sometimes described as 'hard' and 'soft' markets) affect all classes of insurance (e.g. property-related, liability, aviation) they may not be in phase across classes. An exception can occur when there is an event such as the '9/11' terrorist attacks in 2001 which simultaneously exposed virtually every insurance market sector to very large losses (see box on page 37).

For the reasons already explained which lead to variability in pricing from insurer to insurer, these market cycles exist as a moving 'band' of pricing rather than as a single line. Thus, although premiums might be generally rising, the risk and commercial considerations described above will still influence the actual premium rate paid by a particular insured. Consequently, in a hardening market, the premium rise paid by (say) an insured with a well controlled risk and an exemplary record of making few, if any, claims will normally be less than that paid by a less attractive risk. Indeed, in a hard market, some risks will become uninsurable.

#### **2.1.1.6 Use of multiple insurers**

Some risks may be so large that even with reinsurance protection, no single insurer will have either the appetite or capacity to accept the whole risk. But if multiple insurers are to be involved, how is the risk, and therefore the premium to be divided? And who will pay what, should a claim be made against the insurance policy?

In practice, there are two forms of joint insurance and either or both may be used in most situations. In each case, the same terms and conditions apply hence from the insureds perspective it will generally not matter how the arrangements are structured. Furthermore, such arrangements will establish a 'lead' insurer which, due to its standing in the market, the other participating insurers broadly agree to follow regarding price, policy terms and resolution of claims (although some may still insist on their particular requirements being reflected in the final arrangements).

The two methods of joint insurance are:

- (a) Proportional insurance where each participating insurer accepts a percentage (a 'proportion') of the whole risk and receives in return that same proportion of the total premium. Claims payments will also be shared in the same proportion. One way of thinking of this (see Figure 2) is as slicing the risk vertically.
- (b) Layered insurance which can be pictured as slicing the risk horizontally, with each such slice insured by a different insurer. A participating insurer will only have to pay that part of any claim which falls within its layer.

Whereas in proportional insurance, percentages are used to define an insurer's participation, in layering, the layer is usually described by its thickness and where it sits above zero – for example a layer that would pay that part of any loss falling between \$10m and \$30m would be described as '\$20m excess of \$10m' or in shorthand '20 XS 10'.

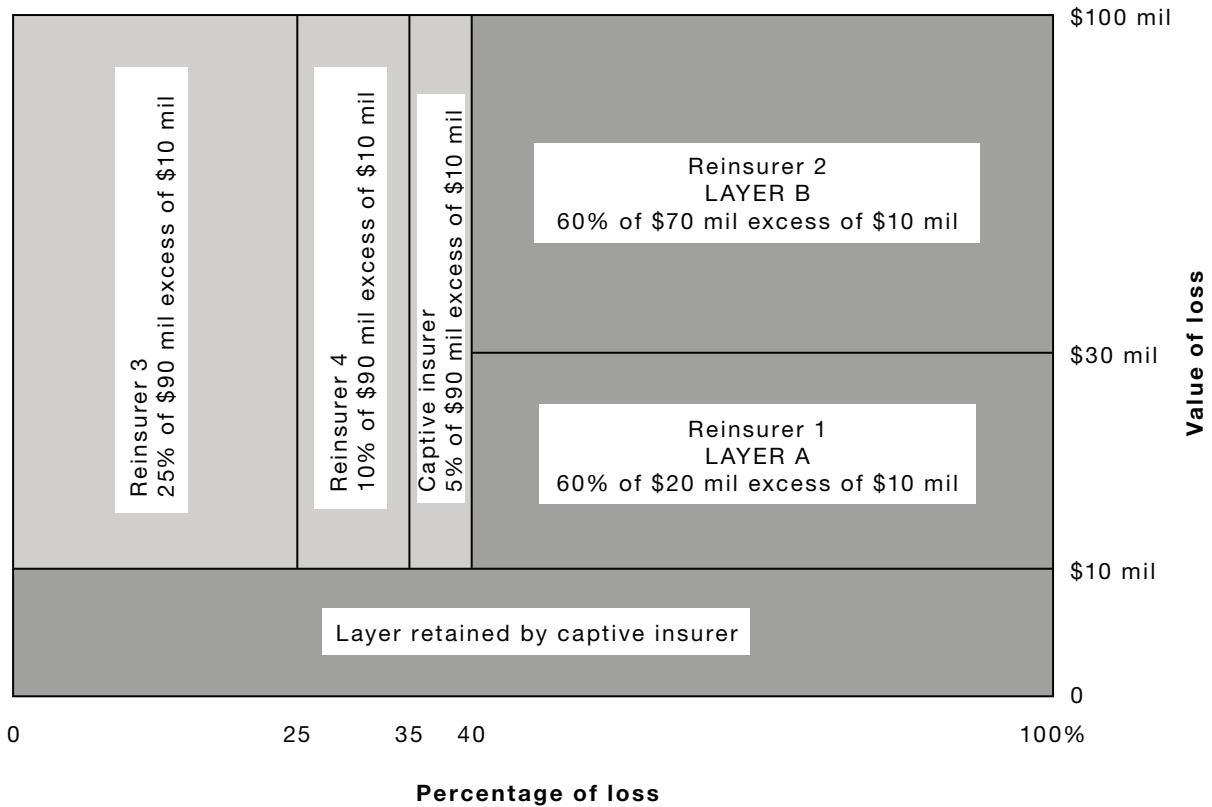
Obviously in this arrangement, the insurers of the bottom layers are more likely to have to pay out than those at the top because large claims will occur less often than smaller claims. Consequently, unlike the situation with proportional insurance, the premium rate applicable to each layer will vary.

Layering thus allows insurers to participate according to both their appetite for risk and their own judgement of the profile of the risk. For example, an experienced insurer who had assessed the risk carefully, may see that only a particular set of rare circumstances could produce an event which would result in a loss reaching the level at which they are participating. They will feel confident therefore in accepting a smaller premium – thereby being more competitive – than another insurer which had not made the effort to properly assess the risk or who assessed it as being higher.

Joint insurance arrangements will usually require the technical skills of a broker to negotiate and implement. In deciding whether to use a proportional or layered structure, or a mix of the two, the broker will be considering the appetites of various participant insurers. The broker will also need to select a 'lead' insurer to set the premium and the terms but that insurer will need to command the respect of other insurers who will be asked to 'follow'.

If the insured has their own Captive insurance company (refer 3.5), the captive may also participate in either a layered or proportional structure. This can give confidence to would-be insurers that the insured has confidence in their own risk, thus lowering any apprehension the external market may have about 'moral risk'.

Figure 2 illustrates both layered and proportional insurance using the example of the value at risk being \$200million, and shows how these techniques can be used in combination, and how the insured's captive might also participate.



Legend:  
 ■ layered  
 ■ proportional

Note:  
 An insured event involving—  
 (i) a loss of \$8 mil would be funded solely by the Captive.  
 (ii) A loss of \$65 mil would be funded as follows—  
 Captive \$10 mil + \$2.75 mil = \$12.75 mil  
 Reinsurer 1 \$12 mil  
 Reinsurer 2 \$21 mil  
 Reinsurer 3 \$13.75 mil  
 Reinsurer 4 \$5.5 mil

FIGURE 2 EXAMPLE OF MIXED PROPORTIONAL AND LAYERED APPROACH TO INSURANCE TO THE VALUE OF \$100 MIL AND INVOLVING THE INSURED'S CAPTIVE INSURER]

2.1.1.7 Minimising premiums

As noted above, the insurer's perception of the risk factors will affect the premium. It is sometimes said that insurers fill holes in their knowledge about risk with more premium! If the risk either is high or is perceived to be high, premiums will be higher in both hard and soft markets than if the level of risk was low and the insurer had the knowledge to know this was the case.

What can the insured do to minimise the premium?

- (a) Make the risk more attractive to insurers through the use of additional risk controls.
- (b) Demonstrate confidence in those controls by accepting larger deductibles which also reduces the insurer's exposure to small losses which tend to occur more frequently.
- (c) Understand the appetite of particular insurers for risk; some would prefer to use their capacity by accepting only a small premium but for very low risk; some will be the opposite or somewhere in between. Market knowledge of insurer appetite is important.
- (d) Make sure the insurer has an accurate understanding of the risk – provide the information requested but also don't rely on the insurer to accurately interpret it. Enter into dialogue either directly or via external advisers (also see Section 3 regarding provision of information).
- (e) Invest time to build relationships at a personal level with the insurer as this can improve perceptions. This should occur both in soft market times (when some insureds make the mistake of taking their insurers for granted because it is a 'buyers market') and when the market is hard. The aim should be to understand the insurer's perspectives and issues (so these can be responded to both strategically and tactically) and to better align the insurer's perceptions about the risk with reality.

Such considerations need to keep in mind the purpose of risk financing which is not to pay premiums. Consequently, it is necessary to consider the trade off between insurer security (for example the credit agency rating) and their premium. More secure insurers will generally charge a little more, but are also less likely to default on claims. Risk financing deals which are 'too cheap to be true' usually aren't true.

It is also necessary to keep in mind that risk financing arrangements will be needed every year. Like any firm, insurers appreciate loyalty and ethical behaviour. While that is not a reason not to enjoy the benefits to insureds of a soft market, insurers usually have long memories if they feel they have been taken advantage of.

### **2.1.2 Insurance Regulation**

Insurance regulation has the following general aims:

- (a) Providing confidence that insurers can and do meet their liabilities.
- (b) Facilitating global harmonisation of insurance market.
- (c) Reflecting general trends in consumer protection.
- (d) Reducing anti-competitive behaviour.

Australian and to a much lesser extent, New Zealand, statutes contribute to the above goals. But trans-Tasman insurance practices are also influenced by global regulatory activity particularly because many insurers and brokers are global organizations.

For example, in the US, the regulatory actions of the Attorney General of New York State in 2004 led to worldwide focus on the form and transparency of fees and other forms of remuneration received by insurance brokers. There was a particular focus on payment by insurers of 'contingent commissions' to brokers to reflect the volume of business supplied. The New York State action forced the major global brokers to abandon contingent commissions and to provide open disclosure to their clients of the amount and method of all forms of remuneration. Nevertheless, in the U.S in particular, contingent commissions continue to be a common form of remuneration amongst smaller brokers which are also not subject to the same enforced transparency of their remuneration arrangements.

#### **2.1.2.1 Australia**

The insurance market in Australia is highly regulated, more so since the failure of the HIH Insurance Group in 2001. While caveat emptor (let the buyer beware) applies to the

insurance market, the level of regulation demonstrates how important governments regard a well capitalised, solvent and competitive insurance industry.

The regulatory regime is complex and involves both Federal and State legislation. In 2008, the Commonwealth government extended regulatory control to many 'Direct Offshore Foreign Insurers' carrying on business in Australia and to 'Discretionary Mutual Funds' (an insurance-like risk financing technique operated via a trust).

Life insurance is regulated by the Life Insurance Act 1995 (Cth).

Most non-life or general insurance is regulated by the Insurance Act 1973 (Cth). Some types of non-life insurance, e.g. workers compensation and health insurance are otherwise regulated.

General insurers who provide prescribed insurances to retail clients are regulated also under the Financial Services Reform (FSR) regime embodied in Ch 7 of the Corporations Act 2001 (Cth). This governs the licensing and conduct of general insurance providers, the licensing and conduct of insurance intermediaries, and financial services and financial product disclosure to retail consumers of general insurance products.

Regulating the formation and terms of general insurance contracts is the Insurance Contracts Act 1984 (Cth) The aim of this lengthy and complex legislation is to regulate certain contracts of insurance so that a fair balance is struck between the interests of insurers, insureds and others and so that the provisions included in such contracts, and the practices of insurers in relation to such contracts operate fairly.

#### **2.1.2.2** *State insurers*

Historically, each Australian State and Territory had its own insurance office, created and to some degree regulated by its own legislation. The States have largely privatised their insurance offices, although in some cases leaving certain residual insurance functions to statutory instrumentalities.

Because of the Commonwealth's inability under the Australian Constitution to legislate with respect to State insurance except that extending beyond the limits of the State concerned, Commonwealth insurance legislation does not apply to State insurers unless the State in question has passed legislation making it apply.

Australian Prudential Regulation Authority (APRA) & Australian Securities and Investments Commission (ASIC).

The responsibility for overseeing the regulatory system and monitoring the prudential activities of insurance companies which issue general or life insurance policies is vested in APRA. ASIC is responsible for the market conduct of insurance companies, consumer protection, and licensing insurers and insurance intermediaries who fall within the FSR regime. There is a degree of overlap within the regulatory system between the functions carried out by ASIC and APRA.

The laws relevant to insurers regulate the conduct of insurance business. Insurance operations are more likely to be characterised as a business if repetitive and they resemble ordinary trading activities in the insurance industry.

#### **2.1.2.3** *Conduct of general insurance*

An insurer may carry on general insurance business in Australia only if authorised to do so under the Insurance Act 1973 (Cth). Only the following are eligible to be authorised under the Act:

- (a) a body corporate authorised under the Insurance Act 1973; or
- (b) a Lloyd's underwriter who is automatically authorised to carry on general insurance under the Act.

Those general insurers (and insurance intermediaries) which are subject to the FSR regime also require an Australian Financial Services Licence, issued by ASIC.

Insurance business is defined by the Insurance Act 1973 to mean (sec 3(1)):

- (i) the business of undertaking liability by way of insurance or reinsurance in respect of loss or damage (including liability to pay compensation upon the occurrence of a specified event); and
- (ii) any business incidental to the above.

#### **2.1.2.4** *General Insurance Code of Conduct*

Operating in conjunction with the regulatory framework, the insurance industry has adopted a General Insurance Code of Practice which is periodically reviewed by the Insurance Council of Australia. The code is monitored and enforced by the Financial Ombudsman Service (see below).

The objectives of this Code are to—

- (a) promote better, more informed relations between insurers and customers;
- (b) improve consumer confidence in the general insurance industry;
- (c) provide better mechanisms for the resolution of complaints and disputes between insurers and customers; and
- (d) commit insurers and the professionals they rely upon to higher standards of customer service.

#### **2.1.2.5** *Banking and financial services ombudsman*

A further mechanism to resolve disputes with insurers is the Financial Ombudsman Service. The service was established in 1991 and is an independent national external dispute resolution body approved by the financial services regulator, APRA and ASIC. On 1 July 2008, the Banking and Financial Services Ombudsman (BFSO), Financial Industry Complaints Service (FICS) and Insurance Ombudsman Service (IOS) merged to form the national Financial Ombudsman Service. The service is free for consumers. Organizations participating in the Service include insurers and other financial service providers. The service strives to independently and impartially resolve general insurance disputes, between consumers and participating companies.

Relevant legislation in Australia includes:

- (a) Insurance Act 1973 (Cth).
- (b) Insurance (Agents and Brokers) Act 1984(Cth).
- (c) Insurance Contracts Act 1984 (Cth).
- (d) Corporations Act 2001 (Cth).
- (e) Marine Insurance Act 1909 (Cth).

### 2.1.3 *New Zealand*

New Zealand has, arguably, one of the least regulated insurance markets. Some protection is offered by the Insurance Companies (Ratings and Inspection) Act 1994 which applies to non-life insurers, and the Financial Reporting Act 1994 for life insurers. The principles of market forces and 'Let the Buyer Beware' are still the most important governing considerations. It is relatively easy to establish an insurance company in New Zealand although the following statutes indirectly impose restrictions on insurance operations:

- (a) The Insurance Law Reform Acts 1977 and 1985.
- (b) The Insurance Companies (Ratings and Inspections) Act 1994.
- (c) The Insurance Intermediaries Act 1994.
- (d) The Investment Advisor Disclosure Act 1996.
- (e) Financial Advisors Act 2008 (FA Act).
- (f) Financial Service Providers (Registration and Dispute Resolution) Act 2008 (FSP Act).

Additional legislation in the form of the Insurance (Prudential Supervision) Bill was introduced to the House of Representatives in October 2009 and is expected to be enacted late in 2010. This Act will establish the Reserve Bank of New Zealand (RBNZ) as the prudential supervisor.

A review of insurance market practices by the New Zealand Securities Commission in 2006 resulted in passage of the FA Act and FSP Act. However, only limited parts of these Acts are in effect at the time of publication. Whilst sections of the FA Act defining 'Financial Advisor' and establishing a Commissioner for Financial Advisors are in force, conduct and disclosure obligations have yet to take effect. The requirement of the FSP Act for financial advisors to register and belong to an approved dispute resolution service has yet to take effect and there are concerns that there will be insufficient time to prepare for these requirements. An existing dispute resolution service set up by members of the Insurance Council of NZ (insurers only) is likely to play a major role in this area through the possible expansion of their scheme to include broker disputes.

The Insurance (Prudential Supervision) Bill will align the New Zealand insurance industry with similar jurisdictions elsewhere. Most large insurers are already compliant with Australian requirements.

The Bill includes:

- (a) A definition of a contract of insurance to clarify present uncertainty.
- (b) A revised definition of life insurance to exclude death-by-accident-only insurance products.
- (c) A three year phase in period for insurers to qualify for a full licence.
- (d) An override of the NZ Companies Act 1993 which would bar Directors of a subsidiary insurer from acting in the interests of their parent company.
- (e) A requirement for the RBNZ to publish its policies relating to its powers under the proposed legislation in a similar manner as it currently does for retail banks.
- (f) A requirement for all insurers other than friendly societies or credits unions with income below a yet to be specified threshold to have credit ratings.

Changes to insurance law in relation to non-disclosure and the role of agents are also contemplated but at the time of publication have not been introduced.

Hence, at the time of publication the principle of Caveat Emptor (Let the Buyer Beware) still applies. There is no overall industry guarantee fund available although the Consumer Guarantees Act 1993 does offer improved contract performance for insurance buyers.

In both New Zealand and Australia, there are statutory agencies with limited powers to settle disputes with insurers. Jurisdiction is generally limited according to the amount in dispute and whether there have been efforts made by the insured to resolve the issue directly with the Insurer.

## **2.2 Other ('Alternative') forms of risk financing**

### **2.2.1 Historical perspective**

'Risk Financing' is not a new concept. Around 2000BC in the reign of King Hammurabi of Babylon and before the advent of insurance, the practice of bottomry developed. Bottomry involved a loan on the security of a ship. If a ship was lost, the loan was not repaid. In today's market, such risk financing is known as a Catastrophe Bond.

In the latter part of the last century alternative risk financing techniques to conventional insurance have evolved. Some still depend in part on the insurance markets – either directly or in some 'blended' way, others were supported by other capital markets. A Swiss Re study in 2002 estimated that the market for alternatives to conventional insurance - including self insurance, captives, risk retention groups and pools involved premiums of US\$88 billion in 2001.

'Alternative' may well be a temporary term to describe techniques, which are increasingly making up the mainstream risk financing options of today which include—

- (a) self funding;
- (b) borrowing;
- (c) mutual insurance;
- (d) captives;
- (e) risk pools;
- (f) finite risk;
- (g) capital markets including catastrophe bonds and hedges and borrowing; and
- (h) takaful.

These products, described in more detail in sections 2.3 to 2.10, provide a variety of solutions to meet the risk financing needs of corporations. For example a Finite Risk financing mechanism is suited to financing near certain events such as payments on a known set of uninsured losses (such as employee lay off costs) in which only the timing is uncertain.

The lifespan of some of these solutions has been short-lived. Accounting scandals in 2001 involving accounting firm Arthur Andersen and their client Enron Corporation led to a reduction in the use of Finite Risk solutions. The trend now is for 'Alternative' Risk Financing mechanisms to be used to simply provide increased capacity in the sharing of risks which otherwise might be the subject of traditional insurance arrangements.

## **2.3 Self funding**

Self Funding (sometimes called 'Self Insurance') is a conscious recognition that some or all risks can be financed in full or part from an organization's own financial resources. In a sense it differs from non-insurance (which is usually inadvertent) although the net financial effect is the same in that, losses are absorbed by the organization.

With deliberate self funding, however, the organization goes about this in an orderly way, giving consideration to—

- (a) the extent to which this method can be used while still adequately achieving the organization's objectives;
- (b) capturing and reporting data relating to losses funded in this way;
- (c) exercising rights of recovery from other parties who may have caused or contributed to a loss;
- (d) defending unjust claims by other parties; and
- (e) monitoring the effectiveness of other forms of risk control designed to prevent or limit the severity of incidents.

Consciously selected self funding will sometimes include internal arrangements to protect the Profit & Loss accounts of its sub business units from excessive variation as a result of large or multiple uninsured loss. (For example, the parent might fund that part of a loss exceeding a threshold amount that is within the business unit's financial resources.)

The principal rationale for self-funding is the elimination of insurers' expenses and profit for those losses that the 'self-insurer' can afford to fund from their own resources. Because of the delay which typically occurs between payment of an insurance premium and receipt of the proceeds of claims (a delay which is avoided with self insurance), there will usually be a further cash flow advantage.

Conversely, an organization may offset these considerations (and therefore, savings) against the convenience of having an expert external organization to deal with the administrative tasks of documenting and verifying losses and dealing with other parties involved in the loss.

'Self-insurers' need to think carefully about the potential for self funded losses causing unacceptable variation in the organization's financial performance. There are two main reasons why previous experience is only a guide to and not a guarantee of future experience:

- (i) The ongoing effectiveness of controls.
- (ii) Predictability of size and frequency of losses.

Past loss experience will reflect the controls in place at the time which may be more, or less, effective than current or future controls. This uncertainty will be reduced (but not eliminated) by increasing or closely monitoring the controls which are relied on to limit the frequency and size of self funded losses.

Statistically, the larger the loss, the less frequently it will occur. Consequently, distinctions are often made between:

- (A) Small, frequent and almost regular losses, the annual cost of which will be reasonably predictable. These are sometimes considered as a form of 'maintenance'.
- (B) Larger, less frequent losses where there is no annual pattern of occurrence but which are large enough to have a considerable (albeit not fatal) impact on the organization's annual financial results.
- (C) Very large or catastrophic losses where self-funding could lead to a correspondingly catastrophic impact on the organization's financial results or even, its survival.

An obvious method of reducing volatility is to use self funding for only the smaller losses, and other risk financing techniques for larger losses. This is what in effect happens when an insured accepts a 'deductible' or 'excess' on their insurance policy whereby losses of a value below the deductible are self funded and the external insurers only pay for losses above the deductible (see 'deductibles' overleaf).

Another method for treating the chance of large losses would be to build a contingency reserve that will in time be sufficient to either fund such losses or at least facilitate higher levels of self-funding in the future.

The two practical problems with this method are firstly, the possibility that the large loss will occur in the period while the fund is still building and secondly, that in most countries such a reserve made by an organization which is not itself an insurance company or not-for-profit organization, will not be recognised by tax authorities as a legitimate tax-deductible business expense. The reserve will therefore have to be developed using after-tax funds and any interest earned by the fund will also be taxable.

These factors are reasons for the organization forming its own 'captive' insurance company (see below).

There can be many other limitations to the usefulness of self-insurance. Where insurance is compulsory by law or where a legal contract, such as a lease, requires the Lessor or Lessee to buy full insurance, self-insurance may not be acceptable to the other party or as a means of compliance.

### **2.3.2** *Deductibles*

With the above points regarding the advantages of self-funding in mind, it is generally to the benefit of both insured and insurer for insurance policies to include some level of 'deductible' (i.e. an agreed amount of any otherwise insured loss that will be borne by the insured rather than the insurer). From the insurer's perspective, it allows them to keep the premium low (and thus attractive) because they are not exposed to funding numerous small losses (and paying the associated administrative costs).

Deductibles also encourage the insured to exercise greater care because they will be absorbing part of the cost of any loss which occurs. (Often, of course the same precautionary measures that prevent small losses also prevent large losses so such efforts also help protect the insurer against above-deductible claims).

'Aggregate Deductibles' are those where there is an 'each and every' deductible that applies to every loss until a defined aggregate amount of loss has been absorbed during the term of the insurance policy. At that point, the deductible drops down to a lesser figure. This improves predictability for the insurer and encourages the insured to accept larger 'each and every' deductibles. It also protects the insured from an unexpected spike in losses – particularly if the deductible is sizeable.

Some large international corporations take very large deductibles on their insurance programmes, particularly companies in such industries as energy, mining and chemicals. These deductibles (particularly on property-related insurance) can be as large as US\$50 million or even US\$100 million or more for each and every loss. In these cases, the insured has the financial strength and/or credit worthiness, to treat the repair costs as a new capital investment (see FCL example in box below).

### **2.3.3** *'Net Effect' Considerations*

Producers of scarce commodities with multiple, globally-spread, large production facilities (such as oil, gas and petrochemicals) can sometimes finance any loss of revenue due to disruption of one of their production facilities, via the resulting increase in revenue they enjoy from the output from their remaining facilities during the disruption. This revenue increase occurs because global prices for that commodity spike in response to the shortfall between global demand and supply during the disruption.

Accordingly, such companies either don't insure the risk or seek very low premiums for the 'business interruption' component of the insurance by agreeing that any loss will be calculated on the basis of the net effect.

**Example of self-funded risk financing:**

In the 1990's, a very large New Zealand based Australasian conglomerate operating in diverse extractive and related manufacturing industries adopted a substantially self-funded approach. This company opted for a US\$50 million each-and-every-loss deductible. Any losses under this amount had to be absorbed in full by the business unit suffering the loss. If the business unit could not meet its need for funds from its own balance sheet after the loss (for example to re-build a damaged asset) it had to compete for those funds with other demands for capital within the Group on the same investment-case basis as it would for, say, a new acquisition or expansion in order to obtain funds for re-building. Some of the reasons for adopting such a large deductible were:

- (a) Over the prior 10 year period, premiums paid to the insurance market had greatly exceeded claims payouts.
- (b) Some insurers had fewer capital resources and less financial security than the conglomerate.
- (c) The conglomerate knew its risks far better than insurers ever could and had confidence in the ability of its wide- ranging prevention and protection risk controls to prevent a catastrophic cumulative loss.

**2.4 Mutual insurance**

Mutual insurance involves a risk being shared by the members or policyholders of an organization formed for that purpose. The motivation for forming a mutual is often similar to that of an organization forming a captive. The members either have difficulty in securing insurance or can only obtain it on what they regard as unreasonable terms.

There are two main forms of mutuals:

- (a) Mutual insurance companies are typically registered as such and in many respects are indistinguishable from other insurance companies in the way they operate. Although the shareholders are the mutual insurance company's policy holders, those shareholders may not have any other common interest. The company will typically offer a conventional range of insurance products – albeit in only some broad classes (such as life insurance) - but compete against commercial insurers in those categories. In Australia and New Zealand, AMP was a long-standing example until it de-mutualised. Some types of mutual insurance companies are referred to as 'risk retention groups' or RRGs.
- (b) Risk Pools have a more narrow purpose and are available only to the members of an 'affinity group' (such as local government organizations or members of a particular profession). Risk pools typically accept a very limited – or even single – type of risk (for example that arising from legal liability).

The operating basis of mutual insurance companies and risk pools is simple: Members put their premiums into a pool from which claims and expenses are met. However, any shortfall in funds not covered by reserves can be dealt with by a 'call' on members – an unpopular feature of a mutual. Conversely however, members share any surplus.

Another type of 'mutual' activity is described as a 'risk purchasing group' (RPG) which instead of accepting risk collectively, negotiates collectively.

The various forms of mutual activity are discussed below.

#### 2.4.1 *Mutual insurance companies*

Mutual insurance companies provide risk financing for the risks of a group of members and can therefore provide a greater spread of risk.

Some mutuals invest in research in order to obtain a better understanding of the risk and as a result can be more selective in accepting new members. Some set mandatory risk control standards that must be met by the insured. This helps ensure a more predictable loss experience and thus avoids sharp swings in premiums – even in the face of very hard or very soft conditions in the general insurance market.

Examples of mutuals include:

- (a) The early marine mutuals formed by ship owners, such as owners of colliers and fishing vessels, bringing together most, if not all, of the fleets in a particular port.
- (b) Factory Mutual originally formed by a group of New England fabric mill owners who could not get fire insurance due to the combustibility of the mills and their adverse loss experience. In order to participate, a mill had to comply with rigorous risk control standards – which in many cases were developed through technical research by the mutual itself – such as use of automatic fire extinguishing systems. FM became market leaders in fire sprinkler and other loss prevention and risk control technologies and introduced the concept of the Highly Protected Risk (HPR) a descriptor of any organization which followed all of their guidelines. The generally favourable and stable premium rates offered by FM required insureds to accept large deductibles (and thus financial accountability for the effectiveness of risk control) and to achieve and maintain HPR status.
- (c) Trade mutuals formed by companies in a particular industry that had difficulty in securing insurance cover at a reasonable price or, even, at all.
- (d) Life insurance mutuals in which the combination of the inevitability of death, actuarial calculations regarding life-span and an agreed fixed level of payment provide substantial predictability of long run cost. Such mutuals (of which AMP was an example) often later diversified by establishing subsidiary commercial insurance companies which could accept broader types of risks than those for which the mutual was established.
- (e) One global mutual provides risk financing for the legal liabilities of nuclear plants. It supplies a sizeable part of world insurance capacity for this type of risk. The owners of each participating power station can be called on to contribute a fixed sum in the event of a large nuclear incident.

#### 2.4.2 *Risk pools*

A risk pool is formed when a group of individuals (for example, a professional group such as dentists) or like organizations (such as local government entities or a particular type of sporting organization) contribute to a collective fund to provide risk financing for a common source of risk\*. It differs from a mutual insurance company in that it usually only 'insures' a specific source of risk such as professional liability as it effects that particular group.

Local Government organizations which because of their many points of relatively uncontrolled interface with the public have a significant liability risk profile were particularly affected by these trends. They responded by using their collective financial strength with the formation of 'risk pools'.

The main advantages of risk pools are similar to those of a captive, namely the ability of members to determine their own insurance cover, encourage greater effort to control risk

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\* In insurance, particular sources or risk (for example, earthquake) are referred to as 'perils'

through other means, smooth annual fluctuation in cost and have direct access to the reinsurance markets.

#### **2.4.3 Risk purchasing groups**

Risk Purchasing Groups gain an advantage by being able to present to the insurance market a collectivised loss experience and standardised risk controls to secure more favourable terms than could be secured individually. They are an attractive option for SMEs such as cafes, supermarkets or motel operators.

RPGs are not insurance companies as such, although have some similar characteristics. For example, RPG members ultimately share each other's claims experience as future premiums will be driven by the group's experience.

#### **2.4.4 Captive insurers**

Captive insurance companies are typically subsidiaries set up to insure the parent organization's own risk but some captives also accept risks from other parties and so may be characterised as 'rent-a-captive'.

Initially, Captives were a response to organizations being unable to buy insurance cover or to do so at an acceptable price. Taxation benefits (see below) and the ability to directly access the reinsurance market were, originally, strong factors in the decision to establish a Captive and (together with the regulatory regime and associated establishment costs of the jurisdiction concerned) to select its domicile.

##### **History of captives**

The first captive insurance company is generally assumed to be the Phoenix in 1782. In the early twentieth century several major industrial companies formed insurance subsidiaries to underwrite their own insurable risks. BP formed Tanker Insurance in 1920, Unilever later formed Blackfriars Insurance and The Church of England formed Ecclesiastical Insurance.

In 1998, Tillinghast Towers Perrin (publishers of the Captive Insurance Company Directory) estimated worldwide captive insurance premiums were US\$21.3 billion but by 2005, Risk Management Magazine reported that world-wide, nearly 5,500 captive insurers were receiving combined premiums of US\$70 billion.

More recently, captives have become recognised as a way for organizations to exercise greater direct control over their insurance arrangements, obtain access to a pool of insurers with large risk-taking capacity and as a vehicle for structuring more exotic forms of risk financing.

Many organizations with a captive employ specialist captive management firms to deal with administrative and other matters. Once the preserve of large conglomerates, many relatively small companies now have captives. Increasingly, captives are recognised as just another risk financing tool for an organization to have in its risk management armoury.

#### **2.4.5 Taxation**

One of the consequences of the Second World War was a sharp increase in taxation, resulting in multi-national corporations looking for ways to reduce their tax. Establishment of a trading company in a 'no-tax' or 'low tax' environment (such as Jersey, Guernsey, Bermuda or the Cayman Islands) permitted arms-length dealing with both trade and insurance.

As noted in the discussion regarding Self Insurers establishing reserves, the allocation of company funds in expectation of self-insurance losses is not tax deductible. By contrast, reasonable premiums paid to Captive insurance companies are tax deductible, although tax authorities in some countries have challenged tax deductibility in certain cases. Premiums paid to a captive and not yet used for claims provide a source of investment income.

Consequently, when such funds and the underlying capital are located offshore in a low or no tax environment there could be substantial growth in funds, thus allowing the captive to absorb an increasing amount of risk before having to resort to reinsurance protection.

Consequently, captive insurance companies were soon recognised as a tax abatement tool and instead of taking the opportunity of a Captive to reduce premiums, some large corporations paid very large premiums to their overseas captive insurers to maximise the tax advantage.

Inevitably, revenue authorities began to examine the premiums paid and looked for captive premiums to be comparable to those that would be payable to the conventional insurance market for the same risks.

Progressively, therefore, tax considerations have become less significant with the result that over time, there has been a change in the distribution of Captive domiciles as other factors became more dominant,

#### **2.4.6** *Other factors affecting Captive domicile*

Aside from taxation, the regulatory regime (including minimum capitalisation requirements), operating costs, geographical proximity to the parent and availability of captive management expertise are all factors which typically form part of the mix in deciding on the domicile for the Captive.

By late 2007, Bermuda had 20% of the world's captives, Guernsey 7%, with more than 30 other offshore locations as well as a number of 'onshore' locations encouraging registration of captives.

Because local tax laws have removed much of the advantage of tax-haven domiciles, an increasing number of Australian and New Zealand companies forming Captives prefer the convenience of either Singapore (which is in a similar time zone and only a few hours travel) or their own country for registering their Captives.

#### **2.4.7** *Access to reinsurance*

As a general rule, reinsurers deal only with insurers, not insureds. Use of a captive insurance company gives an insurance buyer access to the reinsurance market with five consequential benefits.

- (a) It avoids the payment of Exchange Commissions (transaction charges) to another party.
- (b) It allows the insured organization to have greater confidence that its risk is being represented effectively and favourably to the reinsurers (as distinct from having to rely on the often unseen efforts of the direct insurer).
- (c) It avoids reliance on a direct insurer to settle claims fairly and promptly.
- (d) It is a means of obtaining lower reinsurance premiums.
- (e) It can use its capacity to retain risk in creative ways that can solve particular concerns of reinsurers or demonstrate the captive's confidence in its parent's risk control measures (for example by also retaining in a proportional way, part of the risk which is otherwise reinsured (refer Figure 2). It also may be able to fill small gaps in a complex layered reinsurance placement involving multiple reinsurers, each with a different risk appetite.

Some of the newer captives formed their own reinsurance pools to provide more capacity. This sometimes included participation by captives in other risks in the pool.

In nearly every case the normal insurance or reinsurance market is still needed to some degree. It is usually administratively convenient for most of the risk to be initially 'fronted' by a major insurer, with the captive then reinsuring a part of the risk.

#### **2.4.8** *Captives as an administrative mechanism for Self-funding*

Organizations that self fund all or part of their insurable risk or need a mechanism to fund risks that aren't conventionally insurable, usually need an internal mechanism to administer such losses in a financially prudent way.

A captive insurance company is an ideal and highly flexible tool for this purpose. It can—

- (a) establish its own risk acceptance and loss funding rules;
- (b) set the requirements for internal reporting of self-funded losses;
- (c) charge internal premiums and vary those according to the quality of the risk control practices and risk profile of each business unit;
- (d) recover losses from third parties on behalf of the parent (particularly where the loss is not so large as to involve the reinsurers; and
- (e) capture data, monitor and analyse trends and provide regular prudential reporting.

If the reinsurers agree that the captive should act as the primary insurer (for example if the captive was retaining a large part of the risk and the captive managers enjoyed the confidence of the reinsurers, then a further advantage is that the captive will determine the quantum of the loss – usually more quickly than would the reinsurance market.

#### **2.5 Finite risk contracts**

Finite risk contracts are typically multi-year insurance contracts (for example, 10 years) which seek to take account of the time value of money by spreading risk over time.

The name reflects the fact that the risk owner (i.e. the insured) makes payments into an 'experience fund' for a finite number of years to a fund that is ultimately sufficiently large for a particular risk financing purpose.

However, a claim against the fund can be made at any time during the finite period if it meets whatever criteria ('triggers') the risk owner sets when the contract is established.

Any shortfall between what is in the experience fund at the time and what is claimed is funded by the insurer. The fact that a claim has been made and paid during the period does not change the need for the insured to continue to pay premiums for the full period of the contract. If no claims occur during the finite term, the balance of the fund can either remain intact and available to pay future claims without further premium contribution or be recouped according to the terms of the contract.

Finite risk contracts are often used (by both individual organizations and as a form of reinsurance by insurance companies) where it is anticipated that the insured event is likely to occur over the period of the contract but the main uncertainty is exactly when this will occur in that period.

In effect, the premiums (which may well be higher than premiums for conventional insurance) go into an 'experience fund' that accrues interest and pays losses. The balance of the experience funds reverts to the insured at the end of the finite period.

Finite risk contracts are only available from specialist insurers and are particularly valuable for their flexibility in that they allow the risk financing arrangements to be closely tailored to the specific need.

Sometimes, a finite risk contract may be established to protect against the coincidence of two events (sometimes referred to as 'double triggers'). For example an insurance company may use a finite risk contract to protect against it experiencing both a blow out in its loss ratio (claims versus net income) and a specified drop in its share price.

Common features of many finite risk programmes:

- (a) A multi-year contractual commitment.
- (b) Multi-risk nature of coverage (often for risks not conventionally insurable or prohibitively expensive to do so).
- (c) Alignment of the interests of both parties, usually through profit sharing mechanisms which recognise investment income on the premiums paid.
- (d) Aggregate limit of liability.
- (e) Contract usually 'written' 100% by a single insurer.

It is the blending of these features into a single structure that has made the finite risk approach both distinctive and successful. They are suitable as a substitute for traditional insurance for example to cover long tail high value claims such as experienced by hospitals and pharmaceutical companies, or to cover otherwise uninsurable risks such as price fluctuations of a commodity. If the commodity price surpasses a predetermined level, the policy is activated.

Swiss Re estimated in 2002 that worldwide premiums paid to 'finite providers' was between US\$6 to US\$7 billion annually and about 5% of worldwide non-life reinsurance. However, by the mid-2000s, finite risk contracts had become less acceptable to accounting and audit organizations in the US in particular. It was believed by some that the concept was abused by some primary insurers to disguise under-reserving for losses stemming from the World Trade Centre disaster and thus became regarded with some suspicion. Another concern was that in some contracts there was little if any transfer of risk and the arrangements were seen as a banking rather than insurance device.

#### **Examples of the use of Finite Risk Contracts**

Several UK corporations have used finite risk contracts to address balance sheet issues.

Turner & Newall, a pipe manufacturer, bought a £500 million finite risk policy as the key part of steps to solve an historic asbestos liability exposure that had continually depressed its share price.

Hanson, a brick manufacturer, purchased a US\$800 million finite risk policy to deal with potential environmental clean-up exposures from airborne pollutants in a US subsidiary they had acquired.

One common feature of both these deals was the unlimited time period of policies. However, BA Systems, a military equipment manufacturer, arranged a 15-year financing programme in 1999 to protect its future earnings from leasing out a portfolio of over 600 jet aircraft. The risks financed included forecast lease rentals and credit, as well as the residual value of the aircraft.

## **2.6 Capital markets**

Capital markets are the markets in which organizations including Governments raise long terms funds and engage in other financial transactions. Capital Markets include markets for equity, debt, derivatives (options, futures and swaps) and commodities (metals, food and other products). They may be formally established markets such as securities exchanges, or they may involve over-the-counter (OTC) agreements between market professionals.

Volatility in the price of risk financing products from these markets can be expected as they are reflective of local and global economies.

Contingent funding products available from capital markets include:

- (a) Borrowing and equity raising.
- (b) Insurance futures.
- (c) Catastrophe Bonds.
- (d) Weather Hedges.
- (e) Securitisation.

#### **2.6.1** *Borrowing and equity raising*

One method of financing infrequent losses is to augment the balance sheet by borrowing or by raising equity. Borrowing can be arranged in advance, or new borrowing and equity raising may take place after a loss has occurred. Typically there are three methods available to obtain such funds:

- (a) For a nominal fee, the risk owner can obtain a line of credit from a bank or other financial institution that promises to provide cash if specified contingencies occur.
- (b) Alternatively, funds can be borrowed or equity can be raised at the time cash is needed.
- (c) The risk owner can issue bonds to obtain cash in the short term and repay those bonds over time.

Borrowing is only possible if the lender can be persuaded that the funds will be repaid. This may be more difficult if the funds are being sought at a time when the intending borrower has just experienced a large financial loss or their business has been disrupted. In such circumstances, the lender may also require a higher than usual level of interest which might be more than the fees that will be charged if a line of credit is arranged in advance.

A line of credit arranged for risk financing will reduce the organization's capacity to borrow for other purposes and so the 'costs' of this method may include the 'cost' of lost opportunity as well as the lender's charges. Furthermore, a change in the lender's financial circumstances could lead to a line of credit being cancelled.

Borrowing at the time of the event may take some time to arrange – especially if the lender requires extensive due diligence investigations of the borrower's creditworthiness. If bonds are to be issued, there is a lead time of several months to prepare and market a prospectus and meet other regulatory requirements. Even if this period is compatible with when funds will be needed, it will only be at the end of the period that it will be known whether this method was successful.

Raising equity to fund a loss event has many of the disadvantages of borrowing after a loss event – investors will need to be persuaded the investment is worthwhile, equity may have to be issued at a discount to persuade new or existing investors to contribute, there may be delays in receiving funds, and the use of the professional capital markets for raising funds quickly may upset retail investors whose equity becomes diluted by the new issue in which they cannot participate.

#### **2.6.2** *Insurance futures*

Insurance futures had their origins in the aftermath of Hurricane Andrew in 2002. An insurance futures contract is a derivative that is triggered by changes in the previously agreed value of an underlying asset or in an index that demonstrates change in some relative financial or 'other' value over time.

For example, if a particular insurer was concerned about having a significantly more adverse experience to that of other comparable (i.e. competing) insurers, an insurance futures contract might be used to 'smooth' any such variance. In this case, the contract

might be triggered by the loss ratio of the insurer taking out the contract exceeding that of a panel of insurers by, say 200%.

For insurers accustomed to buying catastrophe reinsurance that covered their individual specific exposures (i.e. paid claims in relation to the losses of their own insureds) this alternative concept was difficult to accept at first. It required consideration of how well one individual insurer's exposure related to the overall market exposure, (sometimes referred to as the 'basis risk')

### **2.6.3** *Catastrophe bonds*

Catastrophe bonds (also known as 'CAT bonds') are risk-linked securities typically used by insurance companies as an alternative to conventional catastrophe reinsurance. The CAT Bond shifts a specified set of risks from a sponsor to investors. They are often structured as floating rate corporate bonds whose principal is forgiven if specified trigger conditions are met.

In the event of a catastrophe that falls within defined limits (e.g. geographic area, type of loss and size of insured loss) the holders of the bonds contribute to that loss. This contribution usually involves loss of the principal invested. In other variants of cat bonds, the investors may forfeit interest, or the payment of interest or repayments of principal may be deferred.

CAT Bonds have been in existence in some form or other since the 1970's. They are estimated to make up 8% of property damage risk limits worldwide. Over that period, very few have actually been triggered, probably because the trigger thresholds were set conservatively. One exception was the KAMP Re Bond which was triggered in 2005 when claims from Hurricane Katrina exceeded its US\$1bn trigger amount.

### **2.6.4** *Weather hedges*

Weather hedges are a form of financial derivative that can provide risk financing for organizations exposed to the indirect effects of unexpected variances in weather, particularly when those variances coincide with some other adverse situation.

For example, an electricity generating company with a high reliance on hydro generation might find itself having to turn to more expensive thermal generation if colder temperatures (which triggered higher demand) coincided with low snow melt when water storage lakes were already low. Such occurrences are usually not able to be protected by conventional insurance.

Weather Hedges are typically purchased only for specific high risk periods (usually one or more months but sometimes up to several years) and typically to protect against 'double-whammy' events.

It is estimated that nearly 20% of US economic activity is influenced by weather; (i.e. about US\$1 trillion in sales). A weather hedge can also take the form of a risk swap between two companies with opposite weather-related risk profiles (e.g. one gains from a mild winter, whereas the other company suffers). Predictability of future weather patterns is important for both potential buyers and sellers of weather hedges and hence both historical data about such phenomena as 'El Niño' and 'La Nina' cycles and future climate models must be considered.

### **2.6.5** *Securitization*

Securitisation involves bundling or packaging risk and selling it on to others thereby redistributing the original lending (for example when a financial institution on-sells its portfolio of house mortgages) Investors are attracted by the proposition of the investment involving a specific package of risk which can then be converted into saleable, and tradable, income yielding instruments.

However, as illustrated by the U.S. 'sub-prime' housing mortgage crisis, the purchaser may have little insight as to the true nature and quantum of the risk being purchased. The far-reaching calamitous effects of that crisis has led to greater regulation of securitisation practices and greater scrutiny from a corporate governance perspective.

#### **2.6.6 Other capital markets transactions**

There are many other forms of transaction in the capital markets that have the effect of providing financial protection against unforeseen events. Some of these include:

- (a) **Purchase of options:** An option gives the buyer the right, but not the obligation, to buy (for a call option) or sell (for a put option) a specified asset at a specified price at a specified time in the future. For example, a manufacturer may purchase a call option over resources necessary for production to provide protection against failure of a key supplier; a supplier may purchase a put option to both ensure that a commodity can be sold and to guarantee a specified selling price.
- (b) **Forward contracts:** Investors may buy or sell commodities for completion at a time in the future, thus guaranteeing both the transaction quantity and the price.
- (c) **Swaps:** An investor may swap one uncertain cash flow into another that is more certain or over which it feels it has more control. Variable cash flows that can be swapped with a counter-party include fixed- and floating-rate interest payments and payment streams in different currencies.

#### **2.7 Takaful**

Takaful is an Islamic risk financing concept conformant with Islamic Law. It originates from the Arabic word Kafalah, which means 'guaranteeing each other' or 'joint guarantee'. In principle, the Takaful system is based on mutual co-operation, responsibility, assurance, protection and assistance between groups of participants. It is a form of mutual insurance. (Commercial insurance is perceived in the Islamic world to contain the unacceptable elements of uncertainty, gambling and interest.)

The principles of Takaful are:

- (a) Policyholders co-operate among themselves for a common good.
- (b) Every policyholder pays a subscription to help those in need of assistance.
- (c) Losses are divided and spread according to a community pooling programme.
- (d) Uncertainty is eliminated in respect of subscription and compensation.
- (e) It does not derive compensation at the cost of others.

At the end of each financial year, after deduction of expenses, any remaining cash surplus is returned to policy holders in the form of cash distributions or distributions.

First launched in the Sudan in 1979, Takaful took off at the turn of the millennium and now has an increasing role in core markets over a belt from Brunei through Sri Lanka, South Africa, Nigeria, the Gulf States, Arabia, and Egypt to some former states of the Soviet Union. Malaysia has become one of the more important Takaful centres in south Asia.

According to Global Reinsurance in 2007 there were more than 130 Takaful entities worldwide and with growth rates of between 20% and 40% annually were predicted to become a US\$10-US\$15bn industry by 2015\*. Other factors suggesting Takaful will become a more significant global risk financing mechanism in the future, include:

- (i) In the next decade, governments of the Gulf States are poised to spend US\$1.5 trillion on infrastructure projects. With the surge in capacity, Takaful and Re-takaful are expected to provide a substantial part of the risk financing arrangements.
- (ii) The increasing affluence in young Muslims who comprise two thirds of the worlds 1.5bn Muslims.
- (iii) The Muslim population accounts for 22% of the world's population, whereas by the late 2000's, the uptake of Takaful accounted for just 1.1% of current total global insurance premiums.

By the late 2000's several major global insurance companies including Hannover, SwissRe, TokioRe and MunichRe had established Re-takaful companies in the Middle East and Asia. Europe's largest insurer, Allianz entered the Takaful market in April 2007.

## **2.8 Combinations of risk financing methods**

It is not uncommon for organizations to apply a mix of risk financing techniques. Doing so can improve efficiency, reduce the overall effect of uncertainty which is a factor in virtually all forms of risk treatment, and avoids the risk of having 'all the eggs in one basket'.

It is necessary however to ensure that there is good coordination between the methods – particularly if, as sometimes occurs in large organizations, the various techniques are implemented by different departments of the organization (e.g. treasury, risk management, finance). Ensuring such coordination occurs is an appropriate matter for consideration by the Chief Risk Officer and the Chief Finance Officer, as is the more complex task of continual monitoring and review of critical aspects of each element and of any interactive effects.

## **3 EFFECTIVE RISK FINANCING**

A successful risk financing arrangement will ensure funds will be available when required and in the amount required. As well, the risk financing arrangements will be efficient and the costs reasonably predictable over time.

Although these goals are simply stated, meeting these key criteria is challenging. Several issues need to be kept in mind:

- (a) The risk must be correctly assessed; otherwise:
  - (i) There may be uncertainty about the amount of money which the risk financing arrangements must deliver or when it will be needed.
  - (ii) It may not be possible to accurately describe the risk to other parties involved in the risk financing arrangements (with the result that the other party might decline to participate or seek a higher price due to their uncertainty).
  - (iii) The opportunities to implement other risk controls in combination with the risk financing arrangements (see Item (b) below) and the value of those controls may not become clear.
  - (iv) There may be difficulties in selecting the most efficient mix of risk financing techniques.

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\* Estimate of HSBC Holdings as reported in Global Reinsurance May 2007.

- (b) Other parties involved in the risk financing arrangements must be able to meet their obligations throughout the term of the arrangement. Consequently:
- (i) The financial strength of the other parties must be kept under close and continuous scrutiny. Even then, as illustrated by demise of HIH and the rapidity of the 2008 global banking financial crisis, fortunes can change rapidly.
  - (ii) The expertise of the other party in assessing their cumulative exposure to single events (such as the World Trade Centre attacks in 2001 in which some insurers had liabilities to many clients for a wide range of types of risk needs to be considered.  
NOTE: See 'Lessons from 9/11' box on Page 37.
  - (iii) Risk financing arrangements which have long 'tails' make assessment of credit-worthiness very important (For example, some types of insurance for legal liabilities are expected to operate even though the liability may not be incurred for many years after the risk financing arrangements were made).
- (c) The legal expression of the risk financing arrangements must adequately reflect the intent when interpreted at some future point by a court. Consequently:
- (i) Very close attention should be given to the wording of the arrangement which should be prepared or vetted by experts.
  - (ii) Care is needed to align the wording of insurance and reinsurance policies to avoid 'gaps' or conflicts, particularly for Captives and for Facultative Reinsurance arrangements.
  - (iii) Some words (such as 'terrorism') are defined differently by different suppliers of risk financing capacity. Careful attention is needed to detect and understand the significance of such differences.
  - (iv) Care is needed in selecting and nominating the jurisdiction to be used for the interpretation of the agreements on which the risk financing arrangements depend.
  - (v) Those responsible for the wording must be expert in relevant legal precedents (some legal precedents for contracts of insurance, for example, date back hundreds of years).
  - (vi) Additional care is needed with forms of agreement which have not previously been tested in court. Second opinions may be appropriate.
  - (vii) Close attention is needed to the legal obligations contained within the risk financing instrument including requirements for notification of change or disclosure, time requirements for payment of premiums and lodgement of claims, and any duties not to admit responsibility to an outside party should an event occur, even if such responsibility may seem obvious.
  - (viii) Close attention is needed to regulatory requirements (such as those relating to registration of captives and lodgement of financial returns). Arrangements should be made to monitor new legislation or court determinations with implications for compliance or the interpretation of policies.
- (d) Risk financing methods should be chosen in the context of, and in combination with, all possible forms of treatment of those risks. Consequently:
- (i) Opportunities to reduce both the scale and likelihood of any risk through prevention or protection measures should be considered including the likely effect of such measures on the perceptions of the risk by other parties involved in the risk financing arrangements.

- (ii) The effect of such methods on the availability, level of participation of, and the terms required by, other parties to the risk financing arrangements should be considered.
  - (iii) Attention should be given to the collection of data concerning previous losses and to the effectiveness of control measures; sharing that data with other parties involved in the risk financing arrangements.
  - (iv) Attention should also be given to effective communication of the details and effect of other controls affecting the risks being financed.
  - (v) Careful consideration should be given to the views of the other parties involved in the risk financing arrangements, as to how the risks being financed could be reduced. If such views are technically valid, these should be factored-in to the design of risk treatments or if they are not valid, challenged. In any event, the other risk financing parties should be kept regularly informed of the design and implementation of treatments of the risks of interest.
- (e) Other parties involved in the risk financing arrangements require a correct understanding of the risk. Consequently:
- (i) Clear factual information should be provided, supported by data and illustrations where necessary.
  - (ii) Attention should be given to explaining risk controls and any improvements made since the risk was last explained.
  - (iii) Close attention should be given to how other parties represent the risk to their own risk financiers (e.g. how insurers represent the risk to re-insurers).
  - (iv) Risk financing sources such as capital markets which may not be familiar with assessing operational risks may require specific assistance.
  - (v) If risk financing organizations send their own specialists to assess risk, the descriptions and conclusions reached by those specialists should be checked and, if incorrect, challenged.
- (f) Expertise is important. Consequently:
- (i) It is prudent to use external advisers to supplement the organization's own in-house expertise both in relation to strategic as well as technical issues.
  - (ii) Relevant areas of expertise include familiarity with and access to third party providers of risk financing (e.g. insurance and reinsurance brokers); risk assessment; legal drafting of risk financing instruments; presentational skills for representation of risk to third parties; global credit rating agencies.
  - (iii) Advisers should be encouraged and expected to be proactive and provide frank advice and to explore both conventional and non-conventional options.
  - (iv) Although capital markets can offer innovative risk financing products, they may not be expert in risk financing, assessing the risks being financed or, indeed in managing their own risks (as illustrated by the 2008 financial crisis). It may be prudent therefore to approach such markets via insurance markets.
  - (v) The fees charged by advisers should be evaluated against the costs which the advice is intended to influence. Quality and competency rather than price is usually more important.

- (g) The likelihood of timely payment in the event of a loss or 'claim' on the risk financing arrangements is of utmost importance. Consequently:
- (i) Enquiries should be made as to the track record of organizations involved in the risk financing arrangements.
  - (ii) Contingency planning for events for which risk financing arrangements have been made should include measures which can assist the establishment of both liability and quantum, including for example, quarantining data, photographing or retaining physical evidence and recording expenditure incurred to reduce the size of the loss.
  - (iii) Wherever possible, there should be prior agreement as to who will be engaged to assess liability and quantum.
  - (iv) If the 'loss adjuster' is appointed by a third party, consideration should be given to retaining independent advice even though the loss adjuster's responsibility may be to determine a fair settlement.
  - (v) The domicile of and accessibility to those responsible for authorising payments should be considered at the time that risk financing arrangements are made as this may affect the speed of payments and the ease of resolving disputes. Sometimes, off-shore risk financing markets may seem attractive from a cost point of view but can be very slow to settle claims.
  - (vi) Close attention should be given to meeting promptly legitimate requests for information needed by risk financing organizations in order to agree quantum or liability.
- (h) It is beneficial but difficult to predict risk financing costs over more than one year. Considerations include:
- (i) Sudden large scale events can cause rapid changes in both price and available risk financing capacity. Examples are: the 2008 global banking crisis, the 2001 World Trade Centre attacks, large natural hazard events (such as cyclones, tsunamis, earthquakes and bushfires), catastrophic failures of good governance (such as the Barrings Bank, Enron and Arthur Anderson defaults and the HIH insurance failure), As well as sudden increases in price, such experiences can cause flights of capital from some risk financing markets, and a more risk-averse attitude from those who remain.
  - (ii) A general cyclical pattern due to over-supply of risk financing capital (as a result of new entrants attracted to high pricing) and under-supply (due to withdrawal of capital due to low returns). While such cycles have been evident for many years they vary in both amplitude and frequency.
  - (iii) Close monitoring of local and global financial information and a willingness to continually evaluate the best mix of risk financing measures help counter adverse movements.
  - (iv) Use of multi-year and multi-line arrangements (although these will sometimes have escape clauses or rights of cancellation).
  - (v) The maintenance of a captive insurance company even though in any particular year, it may not offer the best option. In difficult times, it can be used in both a strategic and tactical way to smooth year on year cost changes.
  - (vi) Active involvement in controlling risks so that loss events are smaller and less frequent.

**Risk Financing Lessons from 9/11**

Direct and indirect losses arising out of the attack on the World Trade Centre and the Pentagon on 11th September 2001 have been estimated by the Milken Institute in their report '*The Impact of September 11 on US Metropolitan Economies*' to be of the order of US\$70 billion. To this figure needs to be added the world wide costs (which in US alone are estimated at US\$40 billion) for the implementation of heightened security systems.

The insured property loss in respect of the WTC twin towers was finally resolved in May 2007 at US\$4.55bn the largest insurance claims payment in history.

Reinsurers were significantly affected and increases in premiums, driven by the increased costs to secure reinsurance, flowed quickly through to all global insurance markets.

Several lessons emerged from the WTC attacks:

- (a) Risk assessments had not detected the vulnerability of the buildings to this type of attack.
- (b) The wording of some policies left open the question of whether an attack in two waves each directed at a different but commonly owned building amounted to one or two 'occurrences'.
- (c) The importance of formalising the insurance contract. Some policy wordings had not been signed at the time of the attack with the result that determination of insurance claims rested on interpretation of 'placing slips'. In some slips, different participating insurers asserted their own individual definitions of 'occurrence' thus leading to disputes and delay in settlement of claims.
- (d) The importance of effective and efficient communication between insurers and their reinsurers during the process of settling claims.

APPENDIX A  
GLOSSARY OF TERMS

(Normative)

Aggregate Deductible	Total amount of otherwise insured loss not recoverable from the insurer (also see 'Deductible').
Bond	Fixed term security issued by a government or private organization with a fixed rate of interest for which the principal is repaid at maturity or in specified circumstances.
Captive Insurance Company (Captive)	Insurance company formed by an organization to insure part or all of its insurable risks.
CAT	A commonly used abbreviation for large scale losses or catastrophes such as may result from a hurricane or large earthquake.
CAT Reinsurance	Reinsurance of an insurer's exposure to the cumulative effect above a specified level of multiple claims arising from the same source of catastrophe.
Control	Measure that is modifying risk. NOTES: <ol style="list-style-type: none"> <li>1 Controls include any process, policy, device, practice, or other actions which modify risk.</li> <li>2 Controls may not always exert the intended or assumed modifying effect.</li> <li>3 Insurance is a control.</li> </ol>
Deductible	Underlying amount of an otherwise insured loss not recoverable from the insurer. Sometimes also called an 'excess'.
Event	Occurrence or change of a particular set of circumstances. NOTES: <ol style="list-style-type: none"> <li>1 An event can be one or more occurrences, and can have several causes.</li> <li>2 An event can consist of something not happening.</li> <li>3 An event can sometimes be referred to as an 'incident' or 'accident'.</li> <li>4 An event without consequences can also be referred to as a 'near miss', 'incident', 'near hit' or 'close call'.</li> </ol> <p>[ISO Guide 73:2009, definition 3.5.1.2]</p>
Finite Risk Contract	Insurance policy for a specified maximum sum for which a premium equal to or greater than that amount must be paid over a specified number of years.
Indemnify	Compensate for loss or expense incurred (in accordance with the terms of an insurance policy).
Long Tail Liability	Insurer's obligation to indemnify which continues to exist well beyond the end of the policy period (typically, several years).
Organization	Any public, private or community enterprise, association, group or individual.

Policy (Insurance)	Document recording a contract of insurance.
Premium	Agreed amount to be paid by the insured to the insurer in consideration of the insurer's contractual undertaking to indemnify the insured.
Probability	Mathematical expression between 0 and 1 of the chance of something happening (i.e. of likelihood).
Resilience	Adaptive capacity of an organization in a complex and changing environment. [ISO Guide 73:2009, definition 3.8.1.7]
Risk	Effect of uncertainty on objectives. NOTES: <ol style="list-style-type: none"> <li>1 An effect is a deviation from the expected, positive and/or negative.</li> <li>2 Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).</li> <li>3 Risk is often characterised by reference to potential events and consequences, or a combination of these.</li> <li>4 Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence.</li> <li>5 Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.</li> </ol> [ISO Guide 73:2009, definition 1.1]
Risk Criteria	Terms of reference against which the significance of a risk is evaluated NOTES: <ol style="list-style-type: none"> <li>1 Risk criteria are based on organizational objectives, and external and internal context.</li> <li>2 Risk criteria can be derived from standards, laws, policies and other requirements.</li> </ol> [ISO Guide 73:2009, definition 3.3.1.3]
Risk Purchasing Group	Group of insurance buyers who collectively buy insurance cover (sometimes called a Risk Buying Group).
Risk Retention Group	Group of insurance buyers who collectively retain risk through a special insurance product.
Securitisation	Practice of marketing debts; raising money on securities rather than a bank loan.
Stakeholder	Person or organization that can affect, be affected by, or perceive themselves to be affected by a decision or activity. NOTE: A decision maker can be a stakeholder. [ISO Guide 73:2009, definition 3.2.1.1]

## Risk Treatment

## Process to modify risk.

## NOTES:

- 1 Risk treatment can involve:
  - (a) avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk;
  - (b) taking or increasing risk in order to pursue an opportunity;
  - (c) removing the risk source;
  - (d) changing the likelihood
  - (e) changing the consequences;
  - (f) sharing the risk with another party or parties (including contracts and risk financing); and
  - (g) retaining the risk by informed choice.
- 2 Risk treatments that deal with negative consequences are sometimes referred to as 'risk mitigation', 'risk elimination', 'risk prevention' and 'risk reduction'.
- 3 Risk treatment can create new risks or modify existing risks.

[ISO Guide 73:2009, definition 3.8.1]

APPENDIX B  
BIBLIOGRAPHY

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APPENDIX C  
ACKNOWLEDGEMENTS  
(Informative)

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