State of Knowledge Report
Legal Considerations for the Design of Weather Index Insurance[1]

Innovation in Catastrophic Weather Insurance to Improve the Livelihoods of Rural Households

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Using experience gained from a number of projects developing agricultural insurance and, in particular, projects in many lower income countries to introduce index insurance, GlobalAgRisk produced this report for the Gates Foundation. It is not possible in a general document such as this to address the circumstances of any particular project or country. Therefore, this report is not intended to provide, and should not be relied upon as providing, advice with respect to any specific project or index-based product. No one should take any action with respect to guidance provided in this report without making an assessment and without seeking appropriate professional advice. The report is provided on the basis that users assume full responsibility for any decisions made, or actions taken, with respect to any matters considered in this report, and neither GlobalAgRisk nor the authors accept any responsibility for such decisions or actions.

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Acronyms and Definitions of Some Terms

IAIS	*International Association of Insurance Supervisors*
ICP	*Insurance Core Principles, Standards, Guidance and Assessment Methodology as published by the IAIS*
IFRS	*International Financial Reporting Standards*
IMF	*International Monetary Fund*
LBIA	*London Business Interruption Association*
IOSCO	*International Organization of Securities Commissions*
MFI	*Microfinance institution*
NAIC	*National Association of Insurance Commissioners*
OTC	*Over-the-counter market for derivatives* *Derivative contracts are entered into directly between the parties and not traded on an exchange*
PEICL	*Principles of European Insurance Contract Law*
SKR	*State of Knowledge Report*
SST	*Sea Surface Temperature*
WRMA	*Weather Risk Management Association*

Executive Summary

Interest in index insurance as a mechanism to manage the risk of adverse weather and natural disasters has been growing, along with its application, particularly in areas with nascent or non-existent insurance markets and rural, largely agricultural, populations. However, the differences between index insurance products and traditional insurance products must be carefully considered in the context of potential legal and regulatory consequences. Regulators have occasionally challenged the legal status of index contracts, and even blocked proposals for index insurance products in some countries, on the basis that an index contract cannot be insurance. Their rationale on initial examination appears reasonable, i.e., that it is possible for a payment to a policyholder under an index contract to exceed the policyholder's loss or even for a policyholder to receive a payment without sustaining a loss.

Despite the key differences between index contracts and insurance, the challenges that have been made and the increasing use of index insurance, little attention has been focused on the legal and regulatory aspects of index insurance or how to approach these issues when developing markets. Research and innovation has focused more on the technical aspects of product design with little attention given to some of the broader institutional constraints, such as the legal and regulatory environment, to developing index insurance markets in developing countries.

To date, this may not have been a significant problem. Many existing index insurance products have been introduced as pilot projects with support from international donor organizations, such as the World Bank. Insurance regulators have often allowed these pilots to be introduced without a thorough legal and regulatory review on the basis that the objective is to test the technical and market aspects of the product. Insurance regulators may well have felt comfortable taking this approach given the limited impact of the pilots and the fact that they have largely been supported by trusted organizations.

Given the ready agreement of regulators to the introduction of index insurance pilots in their countries, practitioners may not appreciate the merit in considering legal and regulatory issues during the initial stages. There is a temptation to postpone these considerations to a later time, perhaps once the technical aspects of the product have been advanced. However, we consider this to be the wrong approach. The ultimate objective of a pilot must be to test the feasibility of introducing a commercially sustainable product. Of course, this requires the product to be well-designed from a technical perspective, for example the data constraints must be minimized, and the product must be actuarially sound. However, the legal and regulatory risks must also be minimized, enabling the product to operate, as intended, within the country's legal and regulatory framework.

The legal risks associated with index insurance should not be underestimated. We conclude in this SKR that no reasonable case can be put forward for classifying index contracts of any type as traditional indemnity insurance. If our conclusion is correct, an index contract must either be capable of classification as a form of non-indemnity insurance or it will be classified as some other type of non-insurance contract, usually a derivative. However, we consider that a strong argument can be made for classifying index insurance as a special type of contingency or fixed sum insurance or, in the case of contracts based on aggregate loss indexes, as a form of valued policy. However, the argument will only succeed to the extent that non-indemnity or non-

traditional indemnity insurance is permitted within the legal framework of a country and even then will require careful contract design.

This matters even at the pilot stage. Pilots involve the sale of real insurance contracts granting each party rights that can be legally enforced through the courts. Therefore, an index insurance product is potentially open to challenge from the time that the very first policy is sold. Legal risk may even have an impact on the technical design of the product. Therefore, during the design stage, it is important that attention is paid to the legal and regulatory frameworks within which the product will operate, with the aim of minimizing legal risk.

For example, what would the attitude of the court be if a policyholder who sustains loss from a natural disaster during a pilot, but who receives no payment because the threshold was not reached, makes a claim to the court against the insurer? If the claim results in a court ruling that, for example, the contract is not an insurance contract, the consequences could be very serious, not just for the parties concerned, but also for those whom it was designed to benefit. It could also result in much of the time and money invested in the development of the product being wasted. Legal risk is perhaps less visible than regulatory risk. Like a latent design defect in a building, legal risk can materialize many years after the product was first designed and fully implemented, very possibly after the project development team is no longer involved. The consequences of an adverse ruling at that stage could be even more serious.

Legal systems and legal frameworks vary between countries. Although certain common principles underpin the insurance law of most countries, small differences can be critical. It is, therefore, essential when designing an index insurance product that practitioners ensure that they have the benefit of appropriate legal advice, including advice from local professionals.

It is also essential that an index insurance product can be adequately regulated and supervised by the insurance regulator. The insurance regulator must be able to protect the interests of policyholders and ensure that the products will not impact adversely on the solvency of insurers.

That insurance markets in emerging market and developing countries are at very different stages of development and with significant differences in regulatory and supervisory capacity has an impact on regulatory risk. For example, where a regulator is under-resourced, an index product may not initially be subject to the appropriate degree of scrutiny. Whilst this may make for a smooth start to the pilot, the regulator may at a later stage grow to understand that there are regulatory problems and impose constraints or conditions that have an adverse impact on the product. Where practitioners find that regulators are not subjecting an index product to adequate scrutiny, they should take special care to satisfy themselves, as far as possible, that the product is compatible with the regulatory and supervisory framework and that the product will not adversely affect the solvency of insurers who sell it.

Appreciating the importance of this, we pay particular attention to legal and regulatory issues in all of the pilots with which we are or have been involved and we obtain local legal advice, where necessary. In our limited experience, this has been very worthwhile and, in the case of Peru, our interaction with the regulator has enabled the development of products that we had not initially considered.

We designed this SKR to achieve a number of objectives. First, as far as possible, we establish the existing **state of knowledge** on the legal status of index insurance and key legal issues and concerns. We lay a foundation by summarizing some general principles of insurance law that are

of particular relevance to index insurance. This summary of general legal principles will be well known to readers with some familiarity of insurance law as it does not represent new work. However, we consider it is necessary to provide some detail of the basis for our proposals concerning the legal treatment of index insurance products, and we expect this SKR to be read by persons who are not familiar with the principles of insurance law.

As discussed above, laws, legal systems, regulatory systems, and frameworks differ, not just between countries with different legal systems, such as the common law and civil law systems, but also between countries with a similar legal system. Countries are also at differing stages of development with respect to the implementation of internationally agreed regulatory and supervisory standards. Although we have worked in a selection of countries and are familiar with the insurance laws and regulations relating to some others, we are not qualified to provide advice on, or concerning, the laws, legal systems, or regulatory frameworks of any of these countries. It is therefore not possible, in a document such as this, to provide specific country advice, and we do not attempt to do so. Instead, we look at the legal status of index insurance from a broader perspective.

First, to assist in developing a higher-level view, we consider in particular English law because we have some familiarity with it and also the principles established by English law are still important, and even relied upon, in many developing countries with a common law legal system. Furthermore, there is surprising consistency worldwide in the principles that underpin insurance law, even though there may be substantial differences in the details. In reviewing the relevant higher-level legal principles, it is desirable to consider a country with a developed insurance law and a mature insurance industry that has a strong presence in the international market. The United Kingdom, along with a number of other countries, fulfils these criteria.

Second, we consider the legal status of index contracts on the basis of the general legal principles of insurance law that we have outlined and some legal and regulatory risks associated with index insurance contracts.

Third, in the light of the analysis in this SKR, we provide some guidance on the design of index insurance contracts and types of product that are suitable for index insurance contracts. We also consider some potential opportunities that may be available to users of index insurance products. The SKR on Data (GlobalAgRisk, 2010) provides a conceptual foundation for the type of products also considered in this SKR.

The development of index insurance continues to present new challenges and new opportunities. As we meet these challenges and advance the opportunities, we continue to develop our own understanding. The suggestions we make for the legal status of index insurance contracts have not been tested. The courts in one or more countries may not agree with us. This SKR should not, therefore, be regarded as a work completed. Instead, it should be regarded as part of a dynamic process we hope results in index risk transfer contracts being widely accepted as insurance contracts.

The SKR is organized as follows: Chapter 1 provides an introduction and background to the development of insurance law and regulation with regard to traditional insurance. In this chapter we describe the different types of index contracts and provide a brief history of index insurance. Perhaps, most importantly, we consider why it is so important that index products sold to individuals, households, and small businesses should be categorized as insurance

products, rather than as derivatives. Finally we consider some key concepts and terms used throughout the SKR.

Chapter 2 regards legal issues concerning insurance. First, we analyze the core legal elements of an insurance contract and describe different types of insurance contracts. We suggest that index insurance contracts be considered either as aggregate loss index insurance contracts or as indirect loss index insurance contracts, and we propose that each should be regarded as a different type of insurance contract. We assess whether index risk transfer contracts can be considered insurance contracts. As indicated above, we conclude that no reasonable case can be put forward for classifying index contracts, whether based on an aggregate loss index or an indirect loss index, as traditional indemnity insurance. However, we consider that under general principles of insurance law, both types of index contract, if well designed, are capable of being classified as contingency or fixed sum insurance, provided that they meet the core characteristics of an insurance contract.

Contingency insurance is distinguished from indemnity insurance in that payment under the contract is based on the sum insured rather than losses sustained. It is particularly suitable in circumstances where the insured will sustain a range of different costs and losses on the occurrence of a natural disaster. These will typically include not just direct loss and damage, but also consequential losses and costs, such as business interruption costs that would be difficult and costly to assess under a traditional consequential loss insurance contract. Recognizing that not all legal systems may permit classification as contingency insurance, we argue that a strong case can be made for positioning appropriately designed aggregate loss index contracts as a form of valued policy.

In Chapter 3, we consider legal and regulatory risks associated with index insurance and discuss how these can be mitigated. Finally, we consider the possible consequences of failure to address legal and regulatory risks.

Index risk transfer contracts can be written as insurance or as a derivative. Where the legal and regulatory frameworks of a country permit an index risk transfer contract to be classified as insurance, its actual classification will depend principally on contract design. In Chapter 4 we consider some issues concerning contract design that have arisen in relation to our own index insurance projects which may assist in developing index products that have a better prospect of being classified as index insurance.

In order to place this in context, we consider some of the benefits that flow from classifying an index insurance contract as contingency insurance as these too should be taken into account when designing the contract. In particular, we submit that, if classified as contingency insurance, index contracts there should no longer be a requirement to establish a close correlation between the index and individual loss, removing the tendency for the over fitting of data. Classifying index contracts as contingency insurance also enables consequential losses to be more easily covered, permits more rapid payment after the occurrence of the disaster, enables compensation to be paid for mitigation costs and opens the way for forecast insurance, where the payment is made before the disaster occurs.

Chapter 1 Background — Traditional Insurance and Index Insurance

An economist views insurance as a contingent payment contract[2] that operates as a mechanism for transferring risk. However, insurance is not the only type of contingent payment contract and is far from the only mechanism available for transferring risk. Other risk transfer mechanisms include derivatives, securitization, guarantees, letters of credit, and warranties. Even betting and other forms of gaming may, in certain circumstances, be used as a hedge against loss.[3] Whilst risk transfer or hedging contracts may be classified as contingent payment contracts, not all risk transfer or hedging contracts are insurance.

Some types of derivatives (particularly credit derivatives and weather derivatives) are in common commercial use by large institutions and businesses to transfer different types of risks. For example, commercial growers may use weather derivatives to transfer the risk of a worse than average winter or a reduced level of rainfall.[4] Insurers may use derivatives or securitization instead of, or in addition to, using traditional reinsurance to transfer insurance risks to which they are exposed. Although derivatives are unlikely to be used by individuals and smaller businesses to transfer risk, a case has been made for the use of weather lotteries as a mechanism for enabling small farmers to hedge against their weather risk (Hess, Stoppa, and Richter, 2002). With a range of competing mechanisms for transferring, or hedging against, weather risk, the primary consideration of an economist will be which mechanism is most efficient.

From a legal perspective and the perspective of a financial services regulator,[5] however, there are many reasons to differentiate between the different types of risk transfer mechanisms. Each is differently defined and each has different legal and regulatory implications. For example, guarantees are commonly used to transfer credit risk and risks associated with other kinds of contract default. Although guarantees are often regarded as insurance contracts for regulatory purposes, bank guarantees being a common exception, guarantees are not usually considered to be insurance contracts under insurance law.

1.1 Traditional Insurance and Insurance Law

Traditional insurance products have been used as a risk transfer mechanism for many centuries. Insurance law has gradually developed over this time to the point that, today, most countries have in place a fairly complex set of legal rules governing insurance contracts which build on, and in part modify or replace, the legal rules applying to contracts generally. As we discuss in *Section 1.4.2 Common Law and Civil Law Systems*, in countries with a civil law framework these legal rules are usually found exclusively in legislative instruments such as laws, codes, and

[2] A contract that makes payment dependent upon the happening of a specified event.

[3] For example, spread betting may be used as a hedge against a falling market.

[4] The use of weather derivatives is discussed in more detail in *Section 1.2.1 Brief History of Index Products* and *Section 2.4 Assessment of Index Insurance Contracts*.

[5] Unless otherwise specified, we use *regulator* to include both the regulatory authority and the supervisory authority, which are often the same body.

regulations[6], often in a specific chapter of the Civil Code. In most countries with a common law framework, the law governing insurance contracts in based on principles developed by the courts over many years, usually supplemented by legislation covering specific matters that apply to contracts generally or to insurance contracts specifically, for example with respect to unfair contract terms. Many smaller countries, and countries with less developed insurance markets, do not have any legislation specifically applicable to insurance contracts[7] and do not have a long history of court-made law. Complex or high value insurance contracts in these countries may be written subject to the law of a country with a more established legal framework. If insurance contracts subject to local law are litigated, the courts in common law countries may apply the case law that has developed in larger common law countries with a strong insurance tradition, such as England , United States, and Australia.

Furthermore, whilst there are very significant differences in the approaches taken by civil law countries and common law countries to important areas of law such as property rights, family law, succession, and trusts, certain fundamental principles underpin the insurance law of most countries.

Insurance law continues to evolve, but it can safely be said that the law of insurance as it applies to traditional insurance products is relatively clear and well-settled in most countries.

1.1.1 Regulation of Traditional Insurance

Accepted international standards for the regulation of insurance have developed much more recently. It was only with the establishment in 1994 of the International Association of Insurance Supervisors (IAIS) that common international regulatory standards began to develop. However, since then, development has been rapid. The IAIS has issued Principles, Standards and Guidance Papers covering most aspects of the regulation and supervision of insurance markets that have been approved by its member jurisdictions, now numbering some 190 (IAIS, 2011a). Many of these are detailed and complex. Having been approved by the member jurisdictions of the IAIS, the Principles and Standards have universal acceptance. There is international pressure on countries to establish legal and regulatory frameworks that comply with the fundamental principles contained in the Insurance Core Principles (ICP),[8] even if in a staged and proportionate manner, and to implement them effectively. As a result, consistency in the regulation and supervision of insurance markets (with respect to traditional products) is gradually developing. However, constraints within the insurance markets and regulatory and supervisory bodies in developing and emerging market countries mean that global consistency in the practical implementation of these principles and standards is still a long way off.

1.1.2 Definitions of an Insurance Contract

Ascertaining the definition of an insurance contract will differ from one country to another. In some countries, the definition is provided in legislation; in other countries, there may be no stated definition of an insurance contract, the meaning being found through an examination of

[6] Collectively termed, **legislation**, in this SKR

[7] Although most if not all countries have legislation covering the regulation and supervision of insurance business.

[8] The most recent version being the Insurance Core Principles, Standards, Guidance and Assessment Methodology, October 1, 2011

decided cases. More importantly, there may be different definitions for different purposes, and these definitions may not be fully consistent with each other. For example, there may be a different definition of an insurance contract for the purposes of defining the contractual relationship between the parties than for the purposes of the regulation and supervision of insurance business. In some countries, the supervisory authority is given some discretion, particularly in marginal cases, to determine what is and what is not insurance for regulatory and supervisory purposes. In most countries, carrying on insurance business without appropriate authorization is an offence under the criminal law. For regulatory purposes, a definition of, or clear criteria for determining, insurance business is therefore essential to set the regulatory perimeter or boundary.

A further definition of insurance may be used for tax purposes and yet another definition may be contained in the applicable accounting standards. The various definitions may all differ from the practitioner's view of insurance which, in the absence of any legal or regulatory challenge, may have de facto significance in a country.

In this SKR, we are only concerned with legal and regulatory issues and we do not consider tax or accounting implications further for index insurance contracts. However, it is worth noting that the definition of insurance in the International Financial Reporting Standards (IFRS) may raise some concerns in relation to whether index contracts can be considered as insurance.

(IFRS 4, Appendix A) includes the following definition of an insurance contract:

> *"An insurance contract is a contract under which one party (the insurer) accepts significant insurance risk from another party (the policyholder) by agreeing to compensate the policyholder if a specified uncertain future event (the insured event) adversely affects the policyholder."*

On its own, the definition appears broad. However, potential problems arise from the definition of **insurance risk**, which is an essential part of the definition of **insurance contract**.

For the purposes of IFRS 4, **insurance risk** is risk, other than financial risk, that is transferred from the holder of an insurance contract to the insurer. Financial risk is considered to be the risk of a future change in *one or more variables*, including interest rates, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, with the proviso that in the case of a nonfinancial variable, the variable is not specific to a party to the contract.

As the value of an index is a **variable**, it appears on first reading that any index would fall within the definition of **financial risk**, with the result that all index contracts would be considered as financial contracts, i.e., derivatives, for the purposes of IFRS 4. However, weather indexes are always indexes of nonfinancial variables and, if an index contract is well designed, we consider that a case can be made for arguing that the index is specific to each policyholder. The argument is that, although the index is not specifically designed for individual policyholders, the requirement of insurable interest or that the triggering of the index would be adverse to each individual policyholder,[9] means that the variable protects each policyholder against a specific risk. This would result in a well-designed index contract falling outside the definition of **financial risk** enabling it to be regarded as **insurance risk** for the purposes of IFRS 4.

[9] See further *Section 2.1.2 Core Elements of an Insurance Contract*.

1.2 Index Insurance

Index insurance is rather different from traditional insurance. As the payment made to the insured under an index insurance contract is based on the value of an agreed index, rather than on the actual loss of the insured person, an index insurance contract has a similar structure to a derivative contract. As we will argue, this key difference creates difficulties in applying principles of insurance law that have developed for traditional insurance products to index insurance contracts and regulatory frameworks have not yet been adapted to cover index insurance.

1.2.1 Brief History of Index Products

The failure of legal and regulatory frameworks to adapt to index insurance is largely explained by its brief history as a commercial product and that most index products have not yet graduated beyond a pilot stage.

Index insurance, in the form of area-yield insurance, can claim a reasonably long history in theory, if not in practice. As early as 1920 an Indian scholar (Chakravarti, 1920) proposed area-yield insurance for India. Given the preponderance of small farmers in India, Chakravati proposed that insurance should pay farmers on the basis of the outcome of yields in a well-specified geographic area (e.g., a county) rather than on the basis of the outcome of an individual farmer yield. Independently, a U.S. scholar (Halcrow, 1949) developed his Ph.D. dissertation on the same concept, arguing that moral hazard and adverse selection problems were just too great to make farm-level crop insurance workable.

1.2.1.1 AREA-YIELD INSURANCE PRODUCTS

Area-yield insurance was first offered as a market product in Sweden in the 1950s, with a highly sophisticated bundled package of crops representing a portfolio of insurance products. The Canadian Province of Quebec established an area-yield insurance program in 1977 and in the 1980s, more than 60 years after Chakravati first made his proposals, the Indian government introduced area-yield insurance for cropping districts.[10] The U.S. Group Risk Plan (an area-yield insurance product) was established as a pilot program under the framework of national legislation that established the U.S. crop insurance program in 1993, and today, there are a number of other examples of area-yield insurance programs in operation, including in a number of Canadian provinces.

Despite their short but established history, established area-yield programs are not a useful precedent and do not provide much guidance on legal and regulatory issues or on appropriate legal and regulatory frameworks. Most of the area-yield insurance programs referred to above have been established as national programs, often under specific legislation. As such, they have their own legal framework which is set by the governing legislation. The rules of the schemes, and the insurance contracts themselves, are therefore not constrained by the established legal principles of insurance. Very often, the insurance is provided by a national provider that sits outside the normal regulatory framework (for example, the Canadian schemes). Even where area-yield insurance is provided by commercial insurers under a national program, the product

[10] Skees (2008) provides a more comprehensive review of the history of index insurance product development.

is often not fully commercial. For example, under the U.S. Group Risk Plan, contracts are designed and specified under the national program and the products are rated, and premiums set, through the Risk Management Agency (RMA) of the United States Department of Agriculture (USDA) under the legislative authority of national crop insurance legislation. Risks carried by the insurers are also limited via a special reinsurance agreement between the U.S. government and the participating insurance companies.

1.2.1.2 EXCHANGE MARKETS

The Dojima Rice Exchange in Osaka, Japan, is thought to be the first futures exchange market. This market dates to 1710 (West, 2000). Derivatives, and derivative trading exchanges, have evolved over time. The Chicago Board of Trade, created in 1848, is one of the oldest ongoing futures exchange markets, recording its first forward contract as early as 1851 (CME, 2010).[11] However, the early derivative contracts appear to have been principally, if not exclusively, used in the grain markets, and it was not until much later (in the 1970s) that derivatives, particularly financial derivatives, became more widely used.

Weather markets emerged in the United States in the late 1990s; the Chicago Mercantile Exchange dates its first recorded weather-based futures contract to 1999, a little more than 10 years ago (CME, 2010). The early contracts were contingent claims contracts for use in sectors, such as the energy sector, where the revenue of players in the sector could be adversely affected by extremes in weather conditions. Extremes in either cold or hot temperatures were indexed into heating degree days and packaged into financial instruments that would offset the loss of revenue in the energy sector that accompanied such outliers in weather patterns. For example, a power generator in Texas would lose revenue during the summer months when temperatures are cooler than normal for an extended period but, in the same manner, a power generator in the Northeast would lose revenues if temperatures during the winter months are warmer than normal for an extended period. The products for weather markets in the United States are primarily structured as over-the-counter (OTC) derivative contracts. Weather markets have experienced substantial growth in the United States and in Europe, primarily in the energy sector, but there has been limited application of weather derivative products to the agricultural sector. Until the enactment of the Dodd-Frank Wall Street Reform and Consumer Protection Act in July 2010, OTC contracts in the United States were largely unregulated.

Weather data have been used to support index insurance products for little more than the last eight or nine years, with most of the significant activity within the last five or six years. Weather data are capable of supporting an index insurance product or a derivative product and the payout structure of index insurance contracts and weather derivatives can be the same. However, unlike insurance, derivatives are not intended to indemnify or compensate one of the parties for a loss that is independent of the contract. The similarity between index insurance products and derivatives creates difficulties in applying principles of insurance law that have been established for traditional insurance products to index insurance contracts. From a regulatory perspective, the IAIS Principles, Standards and Guidance Papers (IAIS, 2011b; IAIS, 2011c; IAIS, 2011d) do not specifically consider or refer to index insurance and it is therefore not surprising that policy makers and insurance regulators are often hesitant to enable or provide for the development of index insurance products.

[11] The CBOT is now part of the Chicago Mercantile Exchange Group.

1.2.2 Characteristics of an Index Insurance Product

To summarize the essential characteristics of index insurance, the fundamental requirement of an index insurance contract is that payments to the insured are based, not on an assessment of the insured's actual loss, but on an objective and independent *index.* In our Data SKR (GlobalAgRisk, 2010) we classify index insurance products in two categories: indexes that aggregate losses over a group and weather-based indexes. Aggregate loss products utilize an index that captures loss across many individuals, typically in the same geographic region. Examples are indexes of area crop yield or area livestock mortality. The index used for an aggregate loss product is designed to serve as a proxy for individual losses.

Weather-based indexes are measurements of events that are highly correlated with losses of the insured. As we indicate in our Data SKR (GlobalAgRisk, 2010), an index of rainfall measured at local weather stations is commonly used for weather-based index contracts, which may be used to insure against losses caused by an excess of, or a deficiency in, rainfall. Other examples include vegetation density indexes used to insure against the risk of drought and indexes of river levels and sea surface temperature (SST) used to insure against the risk of flood. SST may also be used in the future to insure against drought in some regions of the world. The difference between the two types of index, aggregate loss and weather-based, is important as this results in differences in the legal implications for the contract.

The basic structure of an index insurance contract is usually quite simple. The contract has a defined *threshold* and a *limit* that establish the range of values over which insurance payments can be made. The threshold marks the point at which payments begin. Once the threshold is reached, the payment structure can take many forms. A straightforward contract will pay proportionally between the threshold and the limit. For example, an index insurance contract designed to transfer the risk of drought would begin making payments if rainfall levels, as measured at an agreed weather station, fall below the threshold over a defined time period, such as a month or a season. Payments would increase proportionately for each millimeter (mm) of rainfall below the threshold until the agreed limit is reached. The maximum payment would be made when rainfall is less than, or equal to, the limit. The payment rate for an index insurance contract is the same for each policyholder who has the same contract, regardless of the actual losses sustained by the policyholder. The amount of the payment received will depend upon the amount of liability purchased (the value of the insurance). (Barrett et al., 2007; Skees et al., 2006)

For the most part, this description of the basic structure of an index insurance contract serves equally well to describe other types of risk transfer products, such as a derivative. As shown later in this SKR, the critical differences between an index insurance contract and any other type of index-based contract lie not in the basic structure, but what the contract is designed to achieve, who is able to purchase it and, to some extent, on how well it achieves its design objective.

1.3 Legal and Regulatory Status of Index Insurance — Why Is This Important?

With any risk transfer product, the person who purchases the product exchanges an up-front payment for the other party's promise to make a payment at some future time, should the risk occur. Clearly, the failure of the other party to make the promised payment on the occurrence

of the risk could have very serious consequences for the purchaser, especially if the product is purchased to protect an individual, household, or small business from a large loss. For this reason, insurance is a highly regulated business. One of the primary objectives of regulation and supervision is to protect insured persons, beneficiaries, and others by minimizing the risk that insurers are unable to meet proper insurance claims when they are made, even under the worst conditions.

This objective is achieved principally through the imposition on insurers of prudential requirements and by requiring insurers to establish and maintain effective processes and controls, particularly in relation to risk management. Also, particularly in developed insurance markets, insurers and insurance intermediaries are subject to market conduct rules which not only require the fair treatment of customers, but also seek to minimize the risk of the misselling of insurance products. Thus, where a risk transfer product is classified as an insurance product, the person purchasing the product has the assurance that the provider is regulated as an insurer.

Non-insurance risk transfer products, such as derivatives, have a very different legal and regulatory status. In countries with less well-developed financial markets, derivatives, and other capital market products, may be subject to minimal or even no regulation. Even in those countries that do regulate derivatives and other capital market products, the regulatory objectives are very different. For example, the Dodd-Frank Wall Street Reform and Consumer Protection Act 2010 and proposed new European Union legislation establish new regulatory frameworks for the OTC derivatives markets in the United States and the European Union. The legislation is focused on reducing counterparty risk by requiring clearing and exchange trading for certain types of derivative, imposing disclosure requirements and regulating intermediaries. Prudential requirements are not imposed on counterparties. Therefore, even where derivatives do fall within a regulatory regime, the regime will not provide purchasers with equivalent protection to the insured under an insurance contract and purchasers will not be subject to the market conduct rules that countries are required by the ICP to establish.

International standards[12] require that securities exchanges, as secondary markets, must be subject to regulation and supervision. However, the objectives focus primarily on integrity and transparency of trading and the deterrence of market manipulation and other market abuses. Regulation, with respect to the issuer of a derivative or capital market instrument, is focused primarily on disclosure and fair treatment of purchasers, or holders, of the instrument.

Investment intermediaries are usually subject to a higher degree of regulatory control, principally because investments and securities may be, and routinely are, marketed to and purchased by ordinary consumers and retail investors. However, regulating intermediaries will not offer significant protection against default to pay against the derivative.

From a regulatory perspective, therefore, the classification of a risk transfer product is of critical importance to the regulatory and supervisory protection given to the purchaser and beneficiaries under the contract.

The insurance law of most countries (that is the law that governs the relationship between the parties to the insurance contract), recognizing the special characteristics of an insurance

[12] As promulgated by the International Organization of Securities Commissions (IOSCO).

contract, usually modifies and supplements general contract law with the intention of achieving a fair balance between the interests of insurers and insureds. Although many of the modifications are intended to protect the insurer, for example pre-contract disclosure and warranties, there are also important protections for insured persons. The classification of a risk transfer product as insurance is therefore important from a legal perspective, as well as a regulatory perspective.

There may be sound reasons for applying a lighter regulatory touch to products purchased by large and sophisticated market players with deep pockets. If they are not themselves knowledgeable, they have the means to purchase the necessary advice. However, small farmers and rural households are generally neither knowledgeable nor sophisticated in regard to financial risk management mechanisms and often do not have the resources to purchase the necessary advice, even if available. Small farmers may be able to match or beat an insurance company when assessing the risks that they face, yet they usually do not have sufficient knowledge of financial markets to use derivatives. In addition, it also may be true in the case of small and medium-sized financial institutions, including many MFIs, that large financial institutions are clearly better placed to understand derivatives.[13]

Our experience supports the above argument. We have found that the regulation and supervision of insurance business in most developing and emerging market countries is far stronger than the regulation and supervision of derivatives and their issuers, where derivatives and derivative markets are regulated at all. We therefore consider it essential that when risk transfer products are sold to households, farmers and small businesses, they are sold as insurance products, that every effort should be made to ensure that they fall within the legal definition of insurance in the country in which they are sold, and that they will not be classified as a non-insurance product for regulatory purposes. Positioning risk transfer products as insurance should also be considered important in relation to small and medium sized financial institutions, including MFIs. This will ensure that purchasers of the product will have the benefit of the strong regulatory system under which insurance should operate as this will minimize the risk of non-payment on the occurrence of the risk.

Where a risk transfer product is being sold to a risk aggregator that is knowledgeable and sophisticated, it may be possible to justify selling a risk transfer product as a derivative, as this may allow a greater flexibility in contract design. However, this should be assessed on a case-by-case basis.

1.4 Key Concepts and Terms

Before considering the legal and regulatory issues in more detail, we detail some key concepts of this SKR and define some of the terms we use.

1.4.1 Distinguishing between Legal Issues and Regulatory Issues

The primary purpose of this SKR is considering whether and how index products may be categorized as insurance products and their associated legal issues and risks. Whilst the focus of this SKR is on legal issues, as insurance is a highly regulated business, insurance contracts sit within both a legal and regulatory framework. As a regulator's powers to regulate and supervise

[13] Although the financial crisis suggests that even large and sophisticated financial institutions did not understand the more exotic and complex derivatives they were trading.

derive from law, regulatory and supervisory issues may both be considered as legal issues. This is an unhelpful approach. This SKR therefore also considers certain regulatory issues and risks. However, regulatory issues and risks are considered only to the extent of the impact they have on the definition of insurance and on contract design. For the most part, index insurance is an insurance product that should be regulated as traditional insurance products. Although there are possible differences in regulatory approach, for example in relation to provisioning requirements, these are not discussed in this paper.

We consider legal issues to be those that relate to the contract between the insurer and the insured and to the legal effect of an insurance contract on third parties. The definition of insurance, or of an insurance contract, is a legal issue insofar as it relates to establishing the rules that govern the relationship between the parties to the contract and beneficiaries under the contract.

Regulatory issues are those issues that relate to the regulation and supervision, by an insurance regulator, of entities and other persons that provide services in the insurance market. The insurance regulatory framework of a country will always cover insurers, i.e., those companies that offer and write direct insurance business in the market, and will usually cover certain insurance intermediaries, for example insurance agents and brokers. In some countries, providers of other insurance-related services, such as loss adjusters, are also regulated and supervised. The IAIS considers (IAIS, 2011) that:

> *"A sound regulatory and supervisory system is necessary for maintaining a fair, safe and stable insurance sector for the benefit and protection of the interests of policyholders, beneficiaries and claimants as well as contributing to the stability of the financial system."*

We consider issues concerning this objective, even though they derive ultimately from legislation, as regulatory issues.

In this SKR, we use the terms *regulation,* the power to make, and the making of, regulatory rules and *supervision*, the implementation of the regulatory legislation and of the regulatory rules. Supervisors are often given the power to exercise discretion on a case-by-case basis. We consider this to be an exercise of a supervisory power. Regulatory and supervisory functions are often exercised by the same person or body, but this is not necessarily the case.

1.4.2 Common Law and Civil Law Systems

In this SKR, we occasionally indicate differences between those countries that have a civil law legal system and those that have a common law legal system. A full explanation of the differences between the two systems is beyond this SKR. However, a summary of our understanding of the principal differences between the two systems is set out below.

Countries with a common law legal system have a legal system based on the English system of law, derived in part from statutory law and in part from judicial decisions. Traditionally, under a common law system, judicial decisions are important, not just to the parties in the case, but to the building up of a body of case law that interprets legislation and is, to some extent, independent of legislation. This body of case law is a precedent for future court decisions. Unlike the courts in civil law country, the superior courts in a common law system have **inherent jurisdiction**, i.e., a general power that is not derived from legislation that enables the courts, amongst other things, to ensure that justice is done between the parties to a case and to ensure

a fair trial. This inherent jurisdiction enables the court to make decisions in areas not covered by statute, or where a statute is silent on an issue. The superior courts in a common law country are not, therefore, constrained by a lack of legislation. A decision made by a superior court in exercising its inherent jurisdiction becomes law in its own right, unless or until overturned by legislation or on appeal, and is a binding precedent for future court decisions. The Courts in common law countries may also rely on relevant court decisions in other common law countries. For example, an English court may rely on principles drawn from an Australian case in exercising its inherent jurisdiction, or in interpreting legislation. Of course a decision of a court in another jurisdiction is not binding on the English court. As already indicated, this is particularly useful for smaller common law countries that do not have a long history of court decisions on which to draw as, where there are no decisions relating to a particular issue, the Court may rely on a judgment in a country where that particular issue has previously been determined.

A country with a civil law legal system has a codified set of laws, usually based on the European Continental system of law. The traditional view is that the courts in a civil law system determine cases on the basis of the written law, without reference to a previous body of case law. However, this is something of a simplification. Previous court decisions are important in a civil law country insofar as they may guide the courts in future cases, although they are not binding and courts in civil law countries do not have inherent jurisdiction. In the circumstances, there is no concept of court made law in civil law countries, but there are certain general principles that underpin the codified law and upon which court can rely in determining cases brought before them. These general principles are very different from the body of court-made law in a common law country.

These differences are perhaps not as important as they once were, particularly in relation to the regulation and supervision of insurance business which, even in common law countries, is primarily found in legislation. However, it is important that the different approaches are understood when considering the legal implications for introducing an index insurance product in a particular country.

1.4.3 The Insurer and the Insured

We refer throughout this SKR only to *the insurer*, who is the person assuming the risk under an insurance contract, and *the insured*, by which we mean the person who is protected by the insurance contract. We understand that there may be other parties. For example, the policyholder (the person who enters into the insurance contract) may be a different person than the insured and there may be other persons with an interest under an insurance contract. However, in the case of index insurance contracts written for low income households and farmers, the insured person will usually be the policyholder and, subject to any assignment of the policy to a lender as security, the insured will usually be the only person having an interest in the policy. To avoid unnecessary confusion, we have ignored the possibility of other parties. This should be borne in mind in the design of more complex index insurance contracts and in cases where some or all of the insured's rights under the contract are assigned to a third party such as a lender.

1.4.4 Legal and Regulatory Risk

In this SKR, we consider both legal and regulatory risks. These are distinct and different risks. Legal risk, in relation to a contract, is usually considered to have a wide meaning. For example,

Ciro (2004) uses a working definition for legal risk, "a failure in the legal framework, documentation, or counterparty that results in the increased probability of risk and loss." We consider this to be a good working definition for this SKR.

By regulatory risk, we mean the risk that the implementation of the regulatory framework by the regulator, or future changes to the regulatory framework, will result in the product being categorized as other than insurance, or will have some other significant impact on the ability of the product to achieve its objectives.

We discuss both legal and regulatory risk in more detail in *Chapter 3 Legal and Regulatory Risks.*

1.4.5 Contract Design

In this SKR, we use the term **contract design** to mean the design of the legal document that constitutes the contract between the parties. As the purpose of an index contract is to give legal effect to the underlying index product, contract design is largely driven by the design of the underlying index product and, to that extent the term **contract design** includes the design of the underlying product. However, it is useful to consider contract design and product design separately as the various legal and regulatory constraints will have a bearing on how the contract is drafted and this, together with other contractual requirements, will feed back into product design.

Chapter 2 The Status of Index Contracts — Legal and Regulatory Considerations

In the introduction, we argue that the status of a risk transfer product is of critical importance when the product is being offered or sold to less knowledgeable and sophisticated purchasers such as rural households, small farmers and businesses and small to medium size financial institutions. If the product is not an insurance product, the purchaser will not have the benefit of the protection afforded by the insurance regulatory and supervisory framework or the protections provided by the general insurance law. We also indicate that it is possible for different definitions of insurance to be used for different purposes. However, unless the regulatory regime expressly specifies a different definition, or permits the insurance supervisor discretion, the legal definition of insurance is likely to also be the definition for regulatory purposes. The legal definition of insurance in a country or the core legal elements of an insurance contract should always be the starting point.

2.1 The Legal Definition and Core Elements of an Insurance Contract

To determine the status of index insurance products, and provide guidance on the design of an index insurance product with the intention of minimizing the risk that the product will be categorized as a non-insurance risk transfer product, it is necessary first to determine a workable definition of insurance, or at least to determine the core legal elements of an insurance contract.

2.1.1 A Legal Definition of Insurance

Many countries, particularly common law countries, have deliberately refrained from providing a statutory definition of insurance. There is a concern that any definition will either be too limiting and exclude contracts that should properly be regarded as insurance contracts or too wide and draw in non-insurance contracts. In 1980, eminent English judge, Vice Chancellor Robert Megarry stated in his judgment in Medical Defence Union Limited v. Department of Trade, 1980:

> *"I do not know whether a satisfactory definition of a contract of insurance will ever be evolved. Plainly it is a matter of considerable difficulty. It may be that it is a concept which it is better to describe than to attempt to define..."*

There is still no statutory definition of *insurance* in English Law,[14] but this may change as the Law Commission of England and Wales, the body responsible for English law reform, is currently undertaking a comprehensive review of insurance contract law and has indicated that it intends to consider whether a statutory definition would be appropriate (Law Commission and Scottish Law Commission, 2006). In England, and many other common law countries that do not have a statutory definition of insurance, the meaning must be found through an examination of decided cases. Australia, unusually for a common law country, has enacted specific legislation on insurance contracts. Notably, it contains no definition of *insurance contract.*

[14] Although the U.K. Marine Insurance Act 1906 does contain a statutory definition of a contract of marine insurance.

Other countries, particularly civil law countries, have attempted to define insurance statutorily and we have seen a range of definitions in countries in which we have worked and examined other statutory definitions.

The IAIS has produced a glossary of insurance terms (IAIS, 2011e). Notably, there is no definition of insurance or insurance contract. Although the previous version of the glossary contained definitions of **insurance product**, **insurance company** and **insurer**, these definitions have not been carried over into the new edition. The rationale for that, no doubt, is that the IAIS cannot hope to provide a meaningful definition applicable to all countries. Indeed, the ICP require countries to have a legislative definition of regulated insurance activities.

In 2003, the European Commission formed a Project Group to establish a Common Frame of Reference of European Contract Law. Under the auspices of this project, a project group was formed to draft Principles of European Insurance Contract Law (PEICL). The final draft of the PEICL was submitted to the European Commission in December, 2007. The PEICL is in the form of Rules, in essence a Model Law. It has been published together with an extensive commentary and notes (Restatement of European Insurance Contract Law Project Group, 2009). Although the PEICL is not complete, it does provide a useful frame of reference, because it was prepared over a number of years and has taken into account not only the insurance contract law of European Union member states, but also academic research. Furthermore, the Project Group had considerable input from its English representatives, who provided their (English) common law perspective and therefore, the PEICL is intended to be applicable to the United Kingdom.

The PEICL contains a definition of insurance contract as follows[15]:

> Insurance contract *means a contract under which one party, the insurer, promises another party, the policyholder, cover against a specified risk in exchange for a premium* (Restatement of European Insurance Contract Law Project Group, 2009).

On its own, this definition is not very helpful, as it seems to us capable of including non-insurance risk transfer products. However, the definition is supplemented by definitions of particular types of insurance contract which are more helpful, and to which we will return later in this chapter.

Our conclusion is that there is insufficient agreement on, or consistency in, definitions of insurance to arrive at a workable definition for the purposes of this SKR. In our view, the better approach is to consider the core legal elements of insurance, or of an insurance contract.

2.1.2 Core Legal Elements of an Insurance Contract

A review of a typical insurance law textbook will show that an insurance contract is, almost universally, regarded as having the following core elements:

a. The payment by one party (the insured) of a premium to the other party (the insurer);
b. The agreement by the insurer to accept the risk of an uncertain event occurring at some future time (the uncertainty may be as to when the event will occur or whether the event will occur at all);
c. The uncertain event must be outside the control of both the insurer and the insured;

[15] Article 1:201(1)

d. The agreement by the insurer to make a payment to, or on behalf of, the insured or to provide a valuable service or other benefit to the insured on the occurrence of the risk, without further payment (or significant payment) by the insured (subject to any limits in the contract); and
e. A specified period for when the contract is in force.

It is clear that the above elements could describe many non-insurance risk transfer products. It is therefore necessary to introduce one or more additional elements to satisfactorily differentiate an insurance contract from other types of risk transfer contract. The principal additional differentiating factor is that there must be a clear link between the insured event and the insured. However, there are differences between different countries in how this link is made. The legislation or law of many countries requires that the insured must have an insurable interest in the subject matter of the insurance contract (although strictly this usually affects the validity of the contract, rather than being part of the definition of insurance).[16] However, as we shall see, this is by no means a universal requirement. Another way in which the link is expressed is that the insured risk must be **adverse** to the insured. In other words, the occurrence of the insured risk will in some way harm or damage the insured or cause the insured loss.

Not every contract that satisfies all of the above criteria will be an insurance contract. For example, a manufacturer's product guarantee could satisfy all of the above criteria, but is not insurance. It has therefore been argued that one further test must be satisfied, namely that to be an insurance contract, the primary purpose of the contract must be the transfer of risk from one party to the other. This distinguishes insurance from a product guarantee where the risk of the future failure of the product is ancillary to the main contract, i.e., the sale of the product.[17]

Finally, it has also been argued that the **assumption of risk** should include, not just a legal assumption of risk, but an economic assumption of risk, which involves an analysis of the risk pooling arrangements (Purves, 2001). This is an interesting approach, particularly when determining the definition of insurance business for regulatory purposes. Thomas (2009), when comparing insurance and credit default swaps, states:

> *"What makes insurance different from these other transactions is that insurance both transfers and distributes or pools a risk."*

Although this argument is not found in traditional textbooks, we consider that it does have merit. It seems to us that such a requirement would be satisfied for an index insurance product, provided that the product is being sold by an insurer.

It should be stressed that the laws of most developing and emerging market countries will not contain definitions of an insurance contract, or even criteria for an insurance contract, that are as comprehensive as the criteria set out above. Nevertheless, it is important to be aware of them, and to consider them, when designing an index insurance product.

We will consider the characteristics of a typical index insurance contract against these criteria in *Section 2.4 Assessment of Index Insurance Contracts*.

[16] Insurable interest is discussed again in *Section 2.2 Categories of Insurance Contract*.

[17] For more discussion, see Clarke, 2005.

2.1.3 Insurable Interest

Historically, an insurance contract was not valid unless the insured had an *insurable interest* in the subject matter of the insurance contract. Although some countries have abolished this requirement, either wholly or partly,[18] it is still a requirement in many countries and it is certainly a requirement in most of the developing and emerging market countries where we have worked.

The law concerning insurable interest is fairly complex, and the legal meaning of the term differs from country to country. However, at the risk of generalizing, the effect of the laws in most countries is that, to have an insurable interest in the insurance contract, the insured must either gain some benefit from the preservation of the subject matter of the insurance or suffer a disadvantage should the subject matter be lost.[19] Rarely, a country's laws may require that the interest is financial. More commonly, the definition is broader than that and can be construed to include a wider economic interest. In respect of property insurance, a country's laws may require that, to have an insurable interest in the property insured, a person must have a right to an interest in the property. Of course, a person will also have an insurable interest in property if that person is under a legal liability with respect to that property.

The definition of insurable interest is rather wider than this in some countries and may include, for example, a contingent interest in property.

The rationale for the requirement for insurable interest is considered to be twofold, to:

1. Avoid insurance being used for speculation or gambling; and
2. Minimize the risk of moral hazard.

If a person does not have an insurable interest or the occurrence of the insured event is not adverse to his interests, an insurance contract is essentially a wager, bet or speculation on the happening of the insured event. Gaming was, and in some countries still is, considered contrary to public policy and therefore unenforceable. This is no longer necessarily the case, particularly in countries where gaming is subject to some form of regulation and control. In the circumstances, a requirement for insurable interest on this ground is no longer considered necessary.[20]

In the context of insurable interest, moral hazard is the risk that a person who takes out insurance, on a subject in which he has no interest, has an incentive to cause the insured risk to occur in order that, as the insured, he will receive the benefit under the policy. The incentive exists because, as he has no interest in the property, he will not suffer any loss through the occurrence of the insured risk.[21] In the case of life insurance, the moral hazard is particularly

[18] For example, in Australia, the Insurance Contracts Act, 1984, provides that an insurance contract of any type, including a life insurance contract, is not void for lack of an insurable interest. This effectively abolishes the legal requirement for insurable interest at law.

[19] This summary is from Law Commission and Scottish Law Commission, 2008.

[20] However, the gaming risk is still a potential issue for index insurance, as we discuss in *Section 2.4 Assessment of Index Insurance Contracts.*

[21] This is to be contrasted with the economic moral hazard created by the fact that property is insured, which may create an incentive not to invest in preserving the subject matter of the insurance contract.

serious as the incentive created is to murder the life insured. In theory, an insured person is much less likely to deliberately damage or destroy property, or lives, in which he has an interest to make a claim under the insurance contract.

The requirement for insurable interest, or that the insured risk is adverse to the insured, distinguishes an insurance contract from a derivative and a gaming contract. In neither case (i.e., a derivative or a gaming contract) is an interest in the event required. Of course, the party to a derivative (or gaming contract) may have an interest in the event, and would almost certainly have an interest, beyond the payment made or stake, if using the derivative or gaming contract as a risk transfer mechanism, but that is incidental.

In *Section 2.2 Categories of Insurance Contract,* we consider different types of insurance. There, we refer to some of the differences in the rules and requirements concerning insurable interest as they apply to the various types of insurance contract.

2.2 Categories of Insurance Contract

There are two broad categories of insurance contract, indemnity insurance contracts, and contingency insurance contracts,[22] each of which has particular characteristics. There are some differences between these two categories which have a significant impact on our recommendations concerning index insurance. In this section we outline the two categories of insurance, as far as is relevant to this SKR. We also cover composite contracts, i.e., insurance contracts that provide indemnity cover and contingency cover in the same contract.

2.2.1 Indemnity Insurance

Indemnity insurance, as its name implies, is insurance that is intended to indemnify the insured exactly or precisely for a particular type of loss or damage that the insured may sustain. This may be damage to property or goods, losses sustained by reason of the insured's liability to third parties or losses caused through accident or illness.

The PEICL defines indemnity insurance[23] as *"insurance under which the insurer is obliged to indemnify against losses suffered on the occurrence of an insured event."*

Traditional agricultural insurance products, whether crop or livestock, are indemnity policies, although they may also include insurance for consequential losses on either an indemnity or a non-indemnity basis. There are several key features of indemnity insurance:

a. There can be no payment under an indemnity insurance contract unless the insured has actually sustained loss or damage.
b. With some very limited exceptions, the insured can recover no more than his actual loss. Any agreed maximum sum insured operates as an upper limit.
c. Where the maximum sum insured is less than the loss or damage sustained, the insured will recover no more than that sum.

There have been some inroads into the strict indemnity principle. For example, property and goods insurance contracts often provide for the insurer to indemnify the insured on the basis of

[22] As discussed in section 2.2.2, in some countries the term used for these types of insurance contract, is **fixed sum insurance** or **insurance of fixed sums**.

[23] In Article 1:201(3)

replacement value, rather than actual value. Of more significance for index insurance is the concept of the valued policy (See *Section 2.3 Valued Policies*).

It is clear that an insured cannot sustain a loss unless he has an interest in the subject matter of the insurance contract. Under a traditional indemnity policy, therefore, consideration of whether the insured has an insurable interest is not so critical. If the insured has suffered a loss, he must have some form of interest in the subject matter of the insurance contract. Indeed, the English and Scottish Law Commission has provisionally recommended that the requirement for insurable interest in the case of indemnity insurance should be abolished in England, Wales, and Scotland (Law Commission and Scottish Law Commission, 2008).

There are differences between countries concerning the time when the insurable interest is required to be established for indemnity insurance. Under English law, the insured must have an insurable interest at the time of the loss. At the time of purchase, the insured is required to have no more than an expectation that he will acquire an insurable interest. In other countries, the insurable interest is required when the insurance contract is entered into and at the time of loss.

2.2.2 Non-Indemnity or Contingency Insurance

Under certain types of insurance contract, the payment made to the insured on the occurrence of the insured risk is not dependent on any valuation or assessment of the insured's loss, but on the terms of the contract. Ultimately, the amount paid under the contract will be determined by the premium paid. Such contracts are often referred to as non-indemnity insurance contracts, or contingency insurance contracts (Clarke, 2005). In some countries, this type of insurance is referred to as **fixed sum insurance**. The PEICL uses the phrase **insurance of fixed sums**. Whilst we prefer the term **contingency insurance**, and generally use that term in this SKR, we use the term **insurance of fixed sums** when discussing the PEICL. There is no difference in meaning between the various terms.

Life insurance, personal accident insurance, and sickness insurance are probably the most common examples of contingency insurance. Under a life insurance contract, the insured is not required to establish the loss or damage that he has sustained due to the death of the life insured, or even that he has sustained loss or damage. Similarly, an accident policy that pays a fixed sum if the insured person suffers an accident that causes an injury, such as the loss of a finger or of an eye, is not required to establish monetary loss or damage. The payment under the accident contract depends solely on the terms of the contract.

Before considering contingency insurance in more detail, it is important to note that the use of the term can lead to confusion as, in some countries, insurers sell specific types of insurance policies called **contingency insurance** policies. In this context, the term is used to refer to a group of policies that cover various risks not covered by standard policies. These include:

- Event insurance, which covers the risk of the cancellation, postponement, interruption, abandonment and relocation of events, which may be public events such as sporting events or exhibitions, or private events such as weddings or parties.
- Non-appearance insurance, which covers the non-appearance of persons or groups at particular events, such as the failure of an artist to attend a concert, the non-appearance of a speaker or a celebrity at a promotional event.
- Prize insurance, which may cover the liability of a person to pay a prize under, for example, a competition, lottery or game show or a sporting or other type of bonus.

- Judicial or litigation delay insurance, covering additional costs incurred by delays in litigation or arbitrations.

Contingency policies are almost always written as indemnity contracts, although they may contain an element of fixed sum insurance. In this SKR, when we use the term **contingency insurance**, we are referring to non-indemnity or fixed sum insurance, not the type of insurance policy referred to above.

Literature on insurance law appears to consider contingency insurance principally in the context of life, accident and sickness insurance. Despite extensive research, we have found very little in the literature, or in decided cases, concerning other types of contingency insurance. However, there appears to be no legal provision in English law that restricts contingency insurance to life, accident or similar types of insurance and the English and Scottish Law Commissions clearly consider that there are other types of non-indemnity insurance (Law Commission and Scottish Law Commission, 2008).

The PEICL includes definitions for indemnity insurance and insurance of fixed sums which, as indicated earlier, is a different term for contingency insurance. The definition of **insurance of fixed sums** provided is as follows[24]:

> "Insurance of fixed sums *means insurance under which the insurer is bound to pay a fixed sum of money on the occurrence of an insured event."*

The Comments to the PEICL state that, "the insurer is bound to pay the stipulated sum . . . regardless of any financial loss" (Restatement of European Insurance Contract Law Project Group, 2009).

Article 13.101 of the PEICL provides as follows:

> *"Only accident, health, life, marriage, birth or other personal insurance may be taken out as insurances of fixed sums."*

This is a significant restriction that would preclude index products, which are not personal insurance, from being classified as insurance of fixed sums if the PEICL were ever to be adopted. However, we consider that the rationale deployed by the drafters of the PEICL is equally applicable to index insurance and that this strengthens, rather than weakens, the case. We discuss this further in *Section 2.4 Assessment of Index Insurance Contracts*.

The rules for insurable interest are rather different for contingency insurance. First, because the insured is not being indemnified for actual loss or damage, the case for requiring an insurable interest is much stronger. There are few countries that have abolished the insurable interest requirement for contingency insurance, and the English and Scottish Law Commissions do not propose that should be the case for England, Wales, and Scotland (Law Commission and Scottish Law Commission, 2008). Furthermore, insurable interest for contingency insurance must usually be established, not at the time of loss, but when the contract is agreed upon and signed.

2.2.3 Composite Insurance Contracts

As indicated in the introduction, an insurance contract may provide both indemnity cover and non-indemnity cover. An accident policy would be a composite policy if it makes a fixed

[24] Article 1:201(4)

payment when an accident occurs that causes a particular type of injury and indemnifies the insured against medical expenses incurred as a result of the accident. In the case of a composite insurance contract, we would expect both sets of rules to apply to the contract. Consequently, where an insurable interest is required, it would have to be established both on the signing of the contract and when the loss occurs.

2.3 Valued Policies

English law recognizes an alternative type of insurance contract, known as the **valued policy,**[25] an insurance contract under which the parties agree in advance on the value to be placed on the insured property in the event of its total loss. Under English law, the insurer and the insured are bound by the value that they placed on the property, in the absence of fraud or special circumstances that invalidate the agreement (*Elcock v. Thompson*, 1949), the agreed value must be paid by the insurer to the insured on a total loss of the insured property, even if the sum paid is greater than the insured's actual loss. If there is a partial loss of the property insured, the insured is entitled to recover that percentage of the total loss value that is equal to the percentage loss of the property insured. Under a traditional valued policy, there may need to be an assessment to determine the percentage loss, or this may be agreed by the parties without an assessment. For example, if the partial loss is assessed or agreed at 25 percent, the insured will be entitled to recover a sum equal to 25 percent of the agreed value of the property on the basis of a total loss. We consider how the partial loss provision may work in the case of an index insurance contract in *Section 2.4 Assessment of Index Insurance Contracts.*

A definition from an encyclopedia of U.S. law provides confirmation that valued policies are also recognized in the United States and that the term has the same meaning:

> *"A valued policy is one in which the value of the subject matter insured is agreed upon; if it is not estimated at any particular amount or rate, it is an open policy. The 'sum at risk,' under such a policy, is the valuation placed upon the property by the policy itself. In case of a total loss, the valuation is conclusive upon the parties, unless it is fraudulent or so grossly excessive as to indicate fraud." (AmJur2d, 2003)*

Traditionally, valued policies have been used most extensively for marine insurance. In fact, the U.K. Marine Insurance Act 1906 specifically recognizes valued policies, defining a valued policy[26] as follows:

> *"A valued policy is a policy which specifies the agreed value of the subject-matter insured."*

The valued policy developed with respect to marine insurance to save the expenses of settling the amount of the actual loss, which may be very difficult and costly, if not impossible, in the case of a ship that is lost at sea. Similarly, one of the objectives of index insurance is to reduce transaction costs by eliminating the need for loss adjustment. A further advantage of valued

[25] We have used the technical term by which these contracts are usually known, which includes the word, *policy*. In this sense, *policy* is equivalent to *insurance contract.*

[26] In section 27(2).

policies is that, because a detailed loss assessment (in respect of value[27]) is not required, they enable prompter payment to the insured.

Valued policies are also used with respect to non-marine insurance, for example where the subject matter of the insurance is difficult to value, such as a work of art or a vintage car, or where the value of the insured property fluctuates frequently.

In the United States, valued policies have gained statutory recognition in some States in relation to property insurance. However, it appears that they are limited to cases of total loss and may not be relied upon where there is only a partial loss (although a near total loss may be construed as a total loss). Furthermore, the U.S. courts have prevented the insurer from reopening the agreed value, even where the insured will recover more than his actual loss.

Although we have no direct knowledge of the status of valued policies generally in civil law countries, the Notes to the PEICL state that valued policies are "explicitly allowed in most Member States" (Restatement of European Insurance Contract Law Project Group, 2009), most of which are civil law countries. This is confirmed, in relation to Spanish law by the reported English case (*Toomey v. Banco Vitalicio de Espana SA de Seguros y Reasseguros,* 2005). Although the case was decided in an English court, the insurance contract was governed by Spanish law and expert evidence was given to the court concerning Spanish law. It is clear from the judgment delivered in the case that Article 28 of the Spanish Insurance Contracts Act 1980 explicitly provides for valued contracts.

The Commentary and Notes to the PEICL clearly indicate that different rules apply in various European Union countries in relation to valued policies. For example, under French law, the insurer has the right, even under a valued policy, to prove that the actual loss is in fact lower than the agreed value. In Germany and Spain, the insurer can challenge the agreed value if it proves that the difference between the agreed value and the actual loss is significant (which may be as low as 10%). Under Dutch law, a valued policy is valid only if the agreed value is based on an expert's opinion.

Given that the insurance contracts law of most civil law countries ultimately derives from one of the Continental Civil law jurisdictions (often France, Germany, or Spain), the position in Europe suggests that although civil law countries are likely to recognize valued policies, the position may well differ from country to country and may be very different to the common law position.

It should be noted that there is a difference between an insurance contract that provides for the maximum sum insured (i.e., the ceiling on the amount of the actual loss that may be claimed), which is still a traditional indemnity contract, and a valued policy. There are a number of reported English cases where a contract has been held by the court to be an ordinary indemnity contract, not a valued contract, because the agreed amount was held to be the maximum sum insured, not the agreed value of the property insured.[28] As we shall see, this must be taken into account in the design of the contract.

[27] Although an assessment of percentage loss may be required in the case of a partial loss.

[28] For example, *Kyzuna Investments Limited v. Ocean Marine Mutual Insurance Association (Europe),* 2000; See also, Birds, 2010.

The U.K. Marine Insurance Act 1906 unambiguously states[29] that the agreed valuation is only conclusive of the insurable value, subject to fraud. It seems clear from the cases that the courts will regard a manifestly excessive valuation as evidence of fraud, a position confirmed in relation to the United States by the definition of a valued policy cited above (*AmJur2d, 2003)*. The Comments to the PEICL also support this view. We consider the problem of excessive valuations in relation to index contracts in *Section 2.4 Assessment of Index Insurance Contracts*.

Finally, there are different views as to whether a valued policy is a form of indemnity insurance or of non-indemnity insurance. The English and Scottish Law Commissions suggest that a valued policy is a type of non-indemnity insurance (Law Commission and Scottish Law Commission, 2008). The Law Commissions appear to have been persuaded to this view by the fact that a valued policy may provide the insured with more or less than a full indemnity.

However, we consider this to be the wrong approach. There are clear differences between the type of contingency or fixed sum insurance that we discuss in section 2.2.2 and a valued policy. Whereas under a valued policy the insured sum represents the parties' agreed value of the property insured, under a contingency insurance contract, the insured sum does not represent any agreement between the parties as to loss. The intention of the parties is that the insured should be indemnified in respect of the insured's loss; it is just that the value of a full indemnity is pre-agreed. Furthermore, as indicated above, the valuation under a valued policy must not be manifestly excessive. Under the usual contingency contract there is no real attempt to equate payment with loss. We are not aware of any cases in which the validity of a contingency contract has been questioned on the basis that the sum insured is too high. We therefore consider that a valued policy has more of the characteristics of an indemnity policy than a contingency policy.

Strong support for this view can be found from the PEICL, which includes valued policies within Part Two (Provisions Common to Indemnity Insurance). It is clear from this and some of the comments to the PEICL, that the Project Group consider valued policies to be a form of indemnity insurance.

2.4 Legal Assessment of Index Insurance Contracts

In this section we consider index insurance in more detail and, applying the principles discussed above, we consider the following questions:

- Can index insurance contracts properly be regarded as insurance contracts or should they be classified as derivatives or gaming contracts?
- If index contracts can be considered as insurance, into which category of insurance contract do they fall?
- Are there any legal implications that should be taken into account in designing an index insurance product?

As indicated in the Chapter 1, we identify (GlobalAgRisk, 2010) two types of indexes that may be used to support an index insurance contract. The first is the aggregate loss index, which describes losses across many individuals, typically in the same geographic region. Common forms of aggregate loss indexes are area yield and area livestock mortality. The second is the weather-based index, where the payment under the contract is dependent on the value of an

[29] In section 27(3)

underlying weather index, such as rainfall, temperature, river levels, SST, and vegetation density indexes. If index contracts are to be classified as index insurance contracts they may use an aggregate loss index[30] or a weather-based index. However, we consider that there are some differences in the legal issues that apply to each. In this SKR, to distinguish the two types of contract, we refer to the first as an aggregate loss index insurance contract and the second as an indirect loss index insurance contract. However, both are forms of index insurance contracts.

This terminology reflects important differences in the underlying index. An aggregate loss index measures, typically across a geographical region, the total losses (typically losses of a specific crop of or livestock) sustained by the population in that region. Generally, the intention is that the losses of the population covered by the aggregate loss index should serve as a proxy for the individual losses. The extent to which this is achieved depends on the uniformity of losses within the region. An aggregate loss index is therefore a direct proxy of individual losses, in regard to animals or crops. The value of the loss is obtained by multiplying the physical loss by the unit value stated in the contract.

On the other hand, when the index is based directly on a specific weather event, the index is not a direct proxy for the loss of the insured, but is a proxy for, or perhaps a predictor of, the insured risk. For example, lack of rainfall may well be a direct proxy for drought, but it can be no more than an indirect proxy for the losses that may be caused by the drought. Of course, the correlation between the weather data used for the index insurance and the loss may be extremely high, but the index is still an indirect proxy for loss. The lack of rainfall is a direct proxy for the drought; the drought affects the insured farmer (but is not a farm-level measurement) — and the drought causes the loss. In the case of an SST index used for flood insurance, the relationship between the event and the loss is arguably even more indirect. High SSTs are correlated with high levels of rainfall; high levels of rainfall cause floods; floods result in loss to the insured.

The use of the word *indirect* in the case of an index insurance contract that uses weather data is intended to reflect that the index is of a variable that is a cause of the loss (such as rainfall) or of a variable that is a predictor of another variable that causes the loss (e.g., SST may be a predictor of heavy rainfall) rather than a *direct* measurement of aggregated loss. It is not intended to reflect any normative view of which is preferred (indirect loss indexes versus aggregate loss indexes) in any given circumstance.

2.4.1 Can an Index Product Be Classified as Insurance?

Before considering the legal issues concerning index insurance, it is necessary to determine whether an index contract is even capable of being considered as an insurance product. Of course, we can provide no more than a general view in this SKR, and this question will need to be addressed specifically on a country-by-country basis as part of a development process for any index insurance contract.

[30] In this SKR, we are discussing weather index insurance, but aggregate loss indexes may of course protect against non-weather risks, such as disease (in the case of livestock insurance) or pests (in the case of area-yield insurance) or both weather and non-weather risks. Except to the extent that it is possible to exclude from the area index, losses caused by particular risks (e.g., predation on animals), an aggregate loss index is essentially a multiple peril insurance contract.

A fierce debate was sparked by the Draft White Paper circulated in 2003 by the U.S. National Association of Insurance Commissioners (NAIC), an agency representing the U.S. state insurance regulators, which proposed that all weather financial instruments based on a temperature index should be classified as insurance products (NAIC, 2003). The final section of the NAIC Draft White Paper states:

> *"These weather derivatives and other 'non-insurance' products are primarily temperature protection coverages (heating and cooling degree days) that appear to be disguised as 'non-insurance' products to avoid being classified and regulated as insurance products. In fact, there is evidence that the promoters of these products go to great lengths to be sure that the energy companies involved do not use terms that naturally describe what is taking place — namely the transfer of risk from a business to another professional risk taker. The principle purpose of insurance is spreading or diversification of risk. The principle purpose for purchasing a weather derivative is spread [sic] the risk of financial loss from a peril that is normally associated with insurance products — namely occurrence of temperature extremes."*

The NAIC concludes that (due to this misclassification), "the insuring public is missing out on many solvency and market regulatory benefits that state insurance regulation provides."

This view was opposed by both the Weather Risk Management Association (WRMA) and the International Swaps and Derivatives Association (ISDA). The WRMA argued in its response (WRMA, 2004) to the white paper that there is a spectrum of commercial risk-transfer products available (which the WRMA describes as contingent commercial contracts). At one end of the spectrum is the traditional insurance product and at the other end are the various types of capital market products, including derivative contracts. The WRMA considered that the most common capital market product used to transfer agricultural risk is the weather derivative. The ISDA, in its response (Pickel, 2004), expressed its view that weather derivatives lack two key elements of an insurance contract, the requirement for an insurable interest and the indemnification of loss.

This debate is largely considered to have been settled, at least from a practical perspective, when the New York State Insurance Department issued an opinion indicating its view that weather derivatives are not insurance. However, although this may be relied on to support the view that not all index risk transfer contracts are insurance, it does not help in determining whether an index-based risk transfer contract may be insurance, and if so — when.

Schwartz (2007)[31] considers the demarcation between credit default swaps and insurance, suggesting that insurable interest and indemnification of loss alone are not sufficient to explain the differences between credit default swaps and insurance.[32] He sets out the following six questions that he considers need to be addressed to demarcate credit default swaps and insurance:

1. Who can enter into the contract?

[31] The Schwartz article provides one of the most comprehensive analyses of the differences between derivatives and insurance that we have reviewed.

[32] Although the article does not directly address weather derivatives, the principles are essentially the same.

2. To what property can the contract extend coverage?
3. To what extent can the purchaser transfer the contract?
4. What events and subsequent action warrant a claim under the contract?
5. How does the contract measure recovery?
6. How do the parties settle a contract?

The first and second questions address the need for insurable interest, which Schwartz indicates is required for an insurance contract, but not for a derivative. The third question addresses what Schwartz considers to be the personal, non-tradeable, character of an insurance contract. Schwartz argues that an insurance contract cannot be transferred without the approval of the insurer, whereas a credit default swap is readily transferable. The fourth question is intended to contrast the claims process required for an insurance contract as opposed to the simple credit event notification required under a credit default swap. The fifth question suggests the payment under an insurance contract is broadly limited to the amount required to indemnify the insured, whereas loss recovery is irrelevant for a credit default swap. The sixth question suggests physical settlement is very different under an insurance contract and a credit default swap. Generally, he argues, an insurer pays cash whereas under a credit default swap, the parties may agree to a cash settlement or physical settlement. He also argues the netting provisions in the ISDA Master Agreement differentiate a credit default swap from insurance. Following an analysis of these questions, Schwartz proposes the theory that a failure of a contract to meet any one of six propositions means that the contract is not insurance.

This is the most exhaustive analysis that we have found and we have referred to it in this SKR in some detail, because it represents an extreme view. Whilst the analysis has merit, we do not agree with all of the propositions as framed. Our principle concern is that the article assumes that all insurance contracts are traditional indemnity contracts, no allowance being made for valued policies as a form of indemnity insurance or contingency insurance.

We discuss these propositions suggested by Schwartz in more details the next section (*Section 2.4.2 Assessment of Weather Index Insurance against the Schwartz Propositions*).

We are not aware of any cases concerning the status of index insurance and we do not know of any country that has covered index insurance in any detail in its legislation; though the Mongolian Insurance Law does include a basic definition of index insurance. However, in our view, an index contract may be designed as a derivative or as an insurance contract, depending upon how it is constructed and drafted. As we shall see, of particular importance is the question of who is permitted to purchase the contract.

We consider that, applying general legal principles, an index contract cannot be regarded as an insurance contract unless:[33]

a. The contract satisfies the core elements of an insurance contract set out in paragraphs (a) through (e) in *Section 2.1.2 Core Elements of an Insurance Contract*, namely the payment of a premium, the acceptance by the insurer of the risk of a future uncertain

[33] As stated, this is a general proposition. The actual legal status of a weather index insurance contract in any country can only be determined following a legal analysis of the insurance law of that country.

event which is outside the control of both parties, the agreement of the insurer to make a payment or provide a benefit on the occurrence of the risk without any further significant payment being required by the insured and a specified term.

b. There is a clear link between the occurrence of the event and the insured. As we have seen, in most countries an insurable interest will be required, whilst in other countries, the insured risk must be adverse to the insured.
c. The primary purpose of the contract is the transfer of risk from the insured to the insurer.

It may be prudent to add to these tests the criterion that the insurance is sold as part of a pooling arrangement instituted by the seller of the product. As indicated earlier, it should not be difficult for an index contract sold by an insurer to meet this criterion.

A well-designed index contract should be able to satisfy the criteria set out in paragraphs (a) and (c). More difficult is establishing the link between the occurrence of the event and the insured.

2.4.2 Assessment of Weather Index Insurance against the Schwartz Propositions

As indicated, the Schwartz article, discussed in Section 2.4.1, represents one of the more comprehensive analyses of the differences between derivatives and insurance that we have reviewed. Schwartz (2007) considers that the failure of a contract to meet any one of six propositions results in the contract not being insurance. For illustrative purposes, we have tested index contracts against each of the propositions. However, although this may be an interesting exercise, these propositions are not authoritative and the exercise should not be taken as our acceptance of the propositions as setting out all the key elements of an insurance contract.

The six propositions are as follows:

> *Proposition 1: Where a party enters into a contract for contingent recovery possessing no economic interest in protecting the covered property from loss or damage, the contract is not insurance.*
>
> *Proposition 2: When the contract for recovery fails to reference property that the purchasing party has economic incentive to protect from loss or damage, the contract is not insurance.*
>
> *Proposition 3: When recovery under a contract can be had without substantiating any actual loss or damage, the contract is not insurance.*
>
> *Proposition 4: Where a party can recover under a contract an amount that exceeds expenses caused by loss or damage, the contract is not insurance.*
>
> *Proposition 5: Where a contract for recovery allows physical settlement, the contract is not insurance.*
>
> *Proposition 6: Where a contract for recovery provides for cross-payment netting under a master agreement, the contract is not insurance.* (Schwartz, 2007)

2.4.2.1 Assessment against Proposition 1

"Where a party enters into a contract for contingent recovery possessing no economic interest in protecting the covered property from loss or damage, the contract is not insurance." (Schwartz, 2007)

Although we take **property** as used by Schwartz to have the widest possible meaning, we consider that focusing on property is too narrow. However, we agree with the principle that underlies this proposition, i.e., that the insured must have an insurable interest or, where that is not required in a country, the occurrence of the insured risk must be adverse to the insured. We consider that this should be a design objective of an index insurance contract, whether an aggregate loss index contract or an indirect loss index contract. In other words, index insurance contracts should be designed to protect against certain specific risks and should only be available for purchase by persons exposed to those risks. However, the fact that a person without such an interest purchases an insurance contract does not necessarily mean that the contract is not insurance.

2.4.2.2 ASSESSMENT AGAINST PROPOSITION 2

"When the contract for recovery fails to reference property that the purchasing party has economic incentive to protect from loss or damage, the contract is not insurance." (Schwartz, 2007)

Even interpreting the word, **property**, in its widest sense, the focus on property, is too limiting, particularly in the case of a consequential loss policy. In such cases, the proposition should be rephrased to refer to loss or damage arising out of a specified risk. On this basis, we consider that the proposition is sound. In our view, it is essential that an index insurance contract specifies the property or other loss or damage covered by the contract.

2.4.2.3 ASSESSMENT AGAINST PROPOSITION 3

"When recovery under a contract can be had without substantiating any actual loss or damage, the contract is not insurance." (Schwartz, 2007)

We have already indicated that index insurance cannot be regarded as a form of traditional indemnity insurance. However, this proposition, although obviously fully applicable to traditional indemnity insurance, also has relevance to both valued policies and contingency insurance. Although under a valued policy or a contingency insurance contract the insured does not have to substantiate the value of the loss or damage sustained, the insured must substantiate actual damage (such as, in the case of a valued policy, the loss of the insured property or in the case of a contingency contract, the death of the life insured or the loss of a finger). Under an index contract, there is no requirement to substantiate actual loss or damage. An index contract therefore fails to satisfy this proposition.

However, we do not consider that this is necessarily sufficient to result in the contract not being an insurance contract. The critical issue is whether the index is sufficiently well-designed to eliminate, or virtually eliminate, the risk that an insured will receive a payment having sustained absolutely no loss at all. Under a well-designed aggregate loss index contract, subject to the issue of mitigation loss,[34] this should always be the case. Under an indirect loss index contract, the position is not so clear. Ultimately, this will depend on the design of the index. It is difficult to argue that an index contract is an insurance contract unless, subject to mitigation, there is a very high degree of probability that if the index triggers a payment, the insured will have sustained some loss or damage. That the index does not correlate well with the amount of the damage is not so important in the case of an indirect loss index contract.

[34] Discussed further in *Chapter 4 Contract Design*

We consider mitigation costs in more detail in *Chapter 4 Contract Design*. However, in comparing the payment made under an index contract against the loss and damage of the insured, it is important to take account of monies that the insured has spent preparing for the disaster. Provided that the expenditure is effective, we would expect preparation costs to reduce the loss or damage suffered by the insured. It is theoretically possible that effective preparation would result in the insured sustaining no loss or damage, thereby failing to meet his proposition. This would be an absurd result. Therefore, in making any assessment of the recovery under an index contract against loss and damage for the purpose of assessing whether an index contract meets the criteria for insurance, it is important to also take account of mitigation costs.

In summary, we consider that contract design should enable an index contract to satisfy this proposition, provided that, where appropriate, mitigation costs are taken into account.

2.4.2.4 Assessment against Proposition 4

"Where a party can recover under a contract an amount that exceeds expenses caused by loss or damage, the contract is not insurance." (Schwartz, 2007)

This proposition focuses on an indemnity contract. As we have demonstrated, under a valued policy, an insured can recover an amount that exceeds the expenses caused by the insured loss or damage. Under a contingency insurance contract, quantum of recovery is not equated with quantum of loss or damage. We do not accept the validity of this proposition.

2.4.2.5 Assessment against Proposition 5

"Where a contract for recovery allows physical settlement, the contract is not insurance." (Schwartz, 2007)

By physical settlement, Schwartz means that the contract can be settled through the physical delivery of a commodity or financial asset as opposed to a settlement in cash. Whilst we do not fully accept the validity of this proposition, all index insurance contracts that we have seen require settlement in cash. It is most unlikely that any index insurance contract would provide for physical settlement.

2.4.2.6 Assessment against Proposition 6

"Where a contract for recovery provides for cross-payment netting under a master agreement, the contract is not insurance." (Schwartz, 2007)

This may well be the case. However, this proposition is not relevant to an index insurance contract.

2.4.2.7 Summary of Schwartz Proposition Assessments

In summary, we consider that a well-designed index contract is capable of satisfying all the Schwartz propositions, except for proposition 4, which we do not accept is valid.

However, this does not take the discussion far enough. It is also necessary to consider whether index contracts meet the criteria for one of the established categories of insurance (indemnity or non-indemnity).

2.4.3 Can Index Contracts Be Classified as Traditional Indemnity Insurance?

As discussed, most non-personal insurance, including insurance contracts that provide for consequential losses such as business interruption insurance, is sold as traditional indemnity insurance. Although generally permitted, valued policies are not commonly used for non-marine insurance. In this Section we consider whether index contracts can be classified as traditional (non-valued policy) indemnity insurance. It is useful to consider aggregate loss index contracts and indirect weather insurance contracts separately.

2.4.3.1 AGGREGATE LOSS INDEX INSURANCE CONTRACTS

Given that an aggregate loss index is designed to serve as a direct proxy for the loss of the insured, the objective of the contract is clear, i.e., to compensate[35] the insured for a particular loss, e.g., the loss of livestock or crops. How successful the contract is in achieving that objective will depend on how well the aggregate loss correlates with individual loss which, in part, is a factor of its design. The objective of an aggregate loss index insurance contract is therefore broadly equivalent to the objective of an indemnity insurance contract. However, there are important differences. In particular, as the payment is made against the value of an index, there is no strict requirement for loss and as there is no loss assessment, the index can do no more than act as a proxy for the insured's loss. It must be accepted, therefore, that there will always be basis risk: there can be no guarantee that a payment based on the aggregate loss index will precisely indemnify the insured for his loss. If the contract is not well designed, the basis risk may be high.

Basis risk is not exclusive to index insurance; rather, it is a common feature of all risk transfer products, including other forms of insurance. For example, for traditional insurance that relies on *ex post* loss assessment, in anything but the most straightforward cases, loss assessment is not a precise science. Different loss assessors, using their subjective judgment to assess the value of a given loss, are likely to arrive at different values. Basis risk increases in complex claims. Therefore, that some basis risk can be established is not, in itself, sufficient reason to conclude that an aggregate loss index contract is not insurance.

Arguably, if the underlying index can be demonstrated to be a good proxy for the loss, it can be argued that the basis risk embedded in the index-based insurance product is no more or less than other typical insurance products.

However, we accept that however good a proxy the aggregate loss index is, there is some inherent basis risk which is absent from a traditional indemnity insurance. The objective under a traditional indemnity contract is to precisely indemnify the insured, although the presence of basis risk may make the objective difficult to achieve. As suggested above, precise indemnification cannot be claimed as the objective of a contract that uses an aggregate loss index. Rather, the design objective is that the index, as far as possible, should serve as a good estimate of average loss and therefore a good proxy for each individual's loss. The degree of success will depend upon the level of correlation of the risk captured by the index. The value of the index will be reduced if individual insureds face idiosyncratic risks or if the index is too coarse to measure the presentation of the weather event at the location of specific insureds.

[35] The word, *compensate*, is used deliberately rather than *indemnify* because the latter implies a very precise matching between loss and payment that cannot be claimed for an aggregate loss index contract.

An aggregate loss index creates an incentive and the ability for an individual insured to take certain actions that increase the payment that the insured will receive under the contract, relative to the average. So, for example, under an area livestock mortality insurance contract, where bad weather causes area livestock mortality, an individual herder who, whether through additional efforts or resources, is able to take better care of his livestock than the average herder, and thus reduce his livestock mortality, will receive a higher payment than the average herder. Whilst this may be beneficial, and the antithesis of moral hazard, the result is that, however well an aggregate loss index is designed, this reduces the power of the index as a proxy for individual loss.

As already indicated, some inroads have been made into the indemnity principle which may introduce significant basis risk, for example the typical "new-for-old" property insurance contract. However, these are considered to be relatively minor exceptions to the indemnity principle and cannot, in our view, justify the argument that the basis risk inherent in an index contract is compatible with traditional indemnity insurance.

Furthermore, an aggregate loss index will usually be of area crop yields or area livestock mortality. Therefore, at most, the index is a predictor of individual crop losses or individual livestock mortality caused by the underlying event, for example severe drought or extreme winters. However, the costs and losses of an insured farmer will usually be more extensive than simply the loss of crops or livestock. The farmer will usually suffer consequential losses that may be as significant or even more significant than the direct crop or livestock losses. These consequential losses may well be covered under a traditional agricultural insurance contract, on an indemnity basis.

However good the aggregate index is as a proxy for individual direct crop or livestock losses, the most that can be said about consequential losses is that, in general, the worse the direct losses, the higher the consequential losses are likely to be. Therefore, whilst an aggregate loss index may be a good predictor of individual losses equivalent to the index, it will usually be extremely difficult to claim that the aggregate index is also a reasonable proxy for consequential losses, which will be highly dependent on individual circumstances.

In the circumstances, we consider that it is difficult, if not impossible, to successfully make the argument that an aggregate loss index can be classified as a traditional indemnity insurance contract. Even if the contract is limited to the direct losses sustained by the insured, i.e., consequential losses are excluded, it must be accepted that, however well the index is designed:

a. It is possible for there to be a payment under an aggregate loss index, even though the insured has not actually sustained any direct losses.
b. The insured may recover more than his actual loss.
c. The insured will be entitled to payment up to the maximum sum insured, even if his losses are not that high.
d. The insured may suffer losses for which he is not compensated.

On the basis of the above, we consider that an aggregate loss index contract, even though limited to direct losses, fails to meet the essential features of an indemnity insurance contract set out in Section 2.2.1. Including consequential losses significantly weakens the power of the index as a proxy, moving the contract even further from traditional indemnity insurance, but excluding consequential losses limits the usefulness of the contract as a risk transfer mechanism.

Therefore, any attempt to design an aggregate loss index as a traditional indemnity insurance contract, is likely to reduce the effectiveness of the contract as a useful and efficient risk transfer mechanism.

2.4.3.2 INDIRECT LOSS INDEX INSURANCE CONTRACTS

As discussed, the objective of an indirect loss weather insurance contract is not to serve as a direct proxy for loss, but rather as a predictor or proxy for the insured event itself, i.e., flood, drought, etc. The contract may be designed to achieve a high correlation between the payment triggered by the index and the loss sustained. For example, some index insurance contracts have been designed based on the weather risk exposure of a specific crop. The point is, however, that however good the correlation is, the index is an indirect proxy for loss. If the index is well designed, it should not trigger any payment in circumstances where the risk that the contract seeks to protect against has not occurred and where the insured has not sustained any loss at all.

It is important to note that conceptualizing the objective of the index to serve as a predictor of the event is a departure from the practice of the developers of many index insurance pilots who try to capture losses by using statistical procedures to closely match the index with crop yields. We consider this to an inefficient over fitting of data that, in the end, is likely to fail.

Indirect loss index contracts are particularly suitable where the insured will sustain a range of different costs and losses on the occurrence of the risk that the contract seeks to protect against (i.e., the risk for which the index is a predictor or proxy). These will typically include not just direct loss and damage but also consequential losses and costs, such as business interruption costs.

The arguments made in Section 2.4.2.1 against the classification of aggregate loss indexes as traditional indemnity insurance are significantly stronger when made in relation to indirect weather indexes. The basis risk is likely to be much higher, further distancing the contract from the essential features of a traditional indemnity insurance contract and, given the indirect nature of the index, it is difficult to argue that a payment under the contract is even intended to indemnify the insured in respect of loss and damage sustained.

2.4.3.3 TRADITIONAL INDEMNITY INSURANCE — SUMMARY

In summary, we consider that it is neither appropriate nor useful to view either aggregate loss index contracts or indirect loss index contracts as traditional indemnity insurance contracts and that, to do so, is likely to lead to the design of contracts that operate as limited and inefficient risk transfer mechanisms.

Once this is accepted, it is necessary to consider whether either type of index contract can be classified as some other form of insurance contract.

2.4.4 Can Index Contracts Be Classified as Contingency Insurance?

If index contracts cannot be categorized as traditional indemnity insurance, to be considered as insurance they must be categorized as either contingency insurance or as a type of valued policy. In this Section we consider whether index contracts can be categorized as contingency insurance and in the next Section we consider their possible categorization as valued policies.

As discussed in Section 2.2.2, most of the literature on contingency insurance focuses on personal lines, such as life and accident insurance. There is little general discussion on contingency insurance and, despite extensive research, we have found very little in the literature, or in decided cases, concerning other types of contingency insurance.

However, the PEICL and the accompanying Comments and Notes do provide some interesting and useful analysis.

In summary:

1. The PEICL defines insurance of fixed sums as *insurance under which the insurer is bound to pay a fixed sum of money on the occurrence of an insured event.*
2. The Comments to the PEICL state that fixed sum insurance is possible, even if the risk is not measurable in money and that the insurer is obliged to pay the agreed sum, regardless of any financial loss.
3. The PEICL restricts insurance of fixed sums to accident, health, life, marriage birth or other personal insurance and it is intended that this should be mandatory.
4. The notes to the PEICL indicate that insurance of fixed sums is a concept familiar to all European legal systems.

The comments to the PEICL indicate that, as it is possible under insurance of fixed sums, for an insured to obtain a **net profit** from insurance of fixed sums, this may give rise to undesirable incentives. The PEICL therefore restricts insurance of fixed sums to *"branches of insurance where no serious moral hazard is to be expected,"* i.e., personal lines. The Project Group considers that, under personal lines of insurance, a monetary incentive will, *"at least under normal circumstances, not be strong enough to induce deliberate causation of the insured event by the insured."* The overriding objective of the restriction, therefore, is the minimization of moral hazard.

The principal purpose of contingency or fixed sum insurance is to enable insurance contracts to be written for risks that are not measurable in money or where the amount of the loss would be very difficult to quantify.

Provided that the essential criteria for an insurance contract are met, we consider that a good case can be made for categorizing both aggregate loss index contracts and indirect loss contracts as a special form of non-personal contingency insurance on the basis that the damage and losses intended to be covered (which will often be, or include, remote consequential losses) would be extremely difficult to value and assess.

We have to accept that, if European insurance contracts legislation is brought into force based on the PEICL as currently drafted, it would not be possible to consider either aggregate loss or indirect loss index contracts as contingency insurance in European countries subject to the Law as they are not personal lines of insurance. However, both aggregate loss and indirect loss index contracts are capable of being designed to as to minimize moral hazard. As the payment is based on an objective external index, provided that an individual insured is not able to take action to affect the index, there is no moral hazard. Indeed, as discussed earlier, as payment is against an index, the incentives actually operate to encourage an insured to minimize rather maximize his personal loss.

In the circumstances, we consider that there is no sound reason for excluding appropriately designed index contracts from the permitted types of consequential or fixed sum insurance. There is no evidence that the Project Group has given any consideration to index insurance and we do not, therefore, consider that the proposed restriction can be relied upon as an indication that the Project Group has deliberately excluded index insurance from **insurance of fixed sums**. Furthermore, the Notes to the PEICL appear to suggest that few European countries currently limit insurance of fixed sums to personal lines of insurance. The restriction in the PEICL therefore appears to be a proposal for the future rather than a reflection of the current insurance law within the majority of European countries.

The PEICL protects against moral hazard by limiting contingency insurance to personal lines of insurance on the basis that, by the nature of the policy, there will not be sufficient incentive to cause the insured event to occur. However, on its own, this does not seem fully satisfactory as it seems to assume that there will always be an insurable interest in relation to personal lines of insurance. Clearly, where a person insures his own life or, for example, the life of his spouse, this is the case. However, the fact that life insurance is a personal line of insurance would not be sufficient to avoid moral hazard where a person takes out a life policy on a person who he has no connection with.

In the case of traditional indemnity insurance, insurable interest has little practical significance. The insured will be indemnified for actual loss and it is difficult to conceive how an insured may suffer actual loss without having an insurable interest. The two are inextricable linked. However, in the case of contingency insurance, there is no requirement to prove, or even sustain, a loss.

Therefore, although not specifically mentioned by the PEICL Project Team, we consider that the concept of insurable interest or a requirement that the insured risk is adverse to the insured is critical when considering contingency insurance.

Whether or not an assumption of insurable interest is justifiable when an insurance contract is a personal line of insurance, no such assumption can be justified in relation to an index contract. If a person without an insurable interest is able to purchase and receive compensation under an index contract, it seems to us that the contract is not insurance as it could be purchased for speculative purposes. In such circumstances, the index contract would be indistinguishable from a derivative. In our view, establishing the requirement for insurable interest, or at least that the insured event is adverse to the interests of the insured, is critical for an index insurance contract. We discuss this further when considering contract design issues.

Provided that an index contract meets the core criteria for an insurance contract[36], including that of insurable interest or its equivalent, we consider that under principles of general insurance law, there is nothing to prevent the contract being regarded as a contingency or fixed sum insurance contract. However, in any particular case, this will depend upon the insurance law of the country concerned and the design of the contract.

2.4.5 Can Index Contracts Be Classified as Valued Policies?

Whilst we consider that it is preferable to classify both aggregate loss and indirect loss insurance contracts as contingency insurance, we recognize that this may not always be possible, for example due to legal or regulatory constraints within a particular country. In the alternative, we

[36] Outlined in Section 2.1.2

consider in this Section whether there is a case for classifying aggregate loss indexes as a form of valued policy. For the reasons that we discuss later in this Section, we do not consider that this argument can be made for indirect loss index contracts.

The purpose of an aggregate loss index is to provide compensation to the insured that broadly equates to the insured's loss. The objective for an aggregate loss index should be to ensure that no insured person recovers a payment if he has not sustained any loss at all and to design an index that broadly compensates the insured for his loss. One of the significant advantages of any index risk transfer product is the reduction in transaction cost. We consider that, provided the index is well designed, this benefit should outweigh the increased basis risk inherent in such a product.

The valued policy provides a useful precedent for this argument. The rationale for valued policies is to enable the parties to pre-agree the value of the insured property where this would be difficult or expensive after the occurrence of the insured event, i.e., to reduce transaction costs. The court will not upset the parties' pre-agreed value, provided it is not manifestly excessive, even if the insured receives more than the loss incurred.

In our view, a strong case can be made for considering an aggregate loss index insurance contract as a type of valued policy. Under an aggregate loss index contract, the index serves not just to trigger the insurer's liability, but also as the parties' pre-estimate of the insured's individual loss, which will vary according to the value of the underlying index. By way of example, assume that under an aggregate loss livestock insurance contract the aggregate loss index equals 25 percent mortality. The effect of the contract should be that the parties agree that the loss of the individual insured is 25 percent of the total number of his animals multiplied by the agreed value of one animal.

This extends the accepted definition of a valued policy. However, there seems no reason in principle why, if the parties can agree to the value of property on the basis of a total loss, they cannot, instead, agree on the value of partial losses calculated in accordance with an agreed index.

In our view, it is difficult to argue that an indirect loss index provides a genuine pre-estimate of the insured's loss. Any attempt to design the index in this way is likely to lead to excessive overfitting of the data. We do not, therefore, consider that any attempt should be made to regard indirect loss index contracts as valued policies.

As indicated at the beginning of this section, we consider that aggregate loss indexes would be better positioned as contingency insurance. But, we recommend that consideration should be given to positioning an aggregate loss index contract as a valued policy if the legal and regulatory framework, or the regulator, does not permit classification as a contingency insurance contract.

2.4.6 Composite Products

As index insurance contracts become more sophisticated, it is possible that these contracts will be designed to make separate payments on separate indexes in an attempt to cover, for example, loss of livestock on the basis of area livestock mortality and consequential losses on the basis of a weather index.

We consider that, where an index insurance contract is a composite product, the criteria for an insurance contract, of the appropriate type, will need to be satisfied in relation to each index.

2.5 The Status of Index Insurance Contracts — Regulatory Considerations

As indicated in Chapter 1, the legal definition of an insurance contract will, in most countries, also be applicable for regulatory and supervisory purposes. However, some countries have a separate definition for these purposes or the usual legal definition is modified. This may be considered necessary to ensure that the regulator is able to fulfil its regulatory and supervisory objectives.

The roles of the court and the regulator are very different. In the context of insurance, the court will usually need to consider an insurance contract in the context of a dispute between the parties to the contract.[37] For the most part, decisions in such cases constitute the judicial precedents that contribute to the insurance law of common law countries. On the other hand, the regulator is responsible for regulating and supervising those who carry on business in the insurance market, whether as insurers or as intermediaries, and for policing the regulatory boundary or perimeter.[38] The terms, **insurance business,** or **insurance contract,** are defined by the regulatory framework for the purpose of establishing that boundary or perimeter in relation to insurance. The definition of an insurance contract usually feeds into, or can be derived from, the definition of insurance business. In common with other sectors of the financial services sector, supervisors are often given some discretion in determining whether or not a business is carrying on insurance business. The intention is that businesses should not be able to avoid the consequences of regulation by offering a product that, although technically falling outside the definition of the regulated financial services business, is, in substance, the regulated business. The most effective way of dealing with this problem is to provide supervisors with some flexibility, particularly in marginal cases.

As already discussed, it is important that index risk transfer products intended for sale to households, small farmers and businesses, and even to small and medium sized financial institutions are regulated and supervised as insurance products. It is therefore important, when designing an index risk transfer product, to establish at a very early stage the regulatory perimeter for insurance business. This requires not just an examination of the legal definition and the regulatory framework, but also early discussions with the regulator to understand whether or not the regulator views the product as insurance. If the regulator considers that the contract is not insurance, it may be relatively easy before the initial design is finalized to modify the product to bring it within the definition of insurance.

Although index insurance pilots have been implemented in a number of countries, the product is still relatively new and will certainly be unfamiliar to many regulators. There remain many as yet unresolved legal and regulatory issues. Therefore, regulators are understandably, and quite rightly, cautious when faced with requests to approve new products. In many rural economies,

[37] Of course the court may also be concerned with insurance in the context of a regulatory matter or even a criminal prosecution, for example for carrying on unlicensed insurance business.

[38] By policing the perimeter, we mean controlling through a licensing or other authorization system those are entitled to carry on the regulated business and taking action against those who carry on the business without such authorization.

the regulator will be aware that traditional agricultural insurance has already been tried and failed and will be even more cautious. Regular contact with the insurance regulator throughout the design and implementation process is therefore critical as it will enable the product to be fully vetted, misunderstandings to be resolved, and appropriate design changes made to accommodate the product within the country's regulatory framework.

As amply demonstrated by the financial crisis, the interdependence of financial markets means that serious financial problems in one country may spread to other countries within the same region or even worldwide. There is therefore increasing pressure for all countries to comply with international regulatory and supervisory standards and international organizations, such as the International Monetary Fund (IMF) and the World Bank, have been tasked with the job of making this happen. The IMF and the World Bank assess the compliance of countries with international standards under their jointly run Financial Sector Assessment Program. Where emerging market and developing countries are found to have a poor level of compliance, they will often be provided with technical assistance to establish and implement regulatory and supervisory frameworks that are compliant with international standards.

As indicated in Chapter 1, international standards for the regulation and supervision of the insurance market have been established by the IAIS. The essential principles of insurance supervision are contained in the Insurance Core Principles, Standards, Guidance and Assessment Methodology (ICP), published in October 2011. At the present time, the IAIS has not specifically considered index insurance and it is not, therefore referred to in the ICP or in any Issues Papers or Guidance that the IAIS has issued.

If an index contract is designed and sold as an insurance product, for the most part the business should be regulated and supervised as any other insurance business. There may be some small differences but, these differences are not usually unique to index insurance. For example, the correlated nature of the risk covered under an index contract, and the fact that the index may not be triggered every year, suggests that there should be some differences in provisioning requirements. However, this is not unique to index insurance as similar concerns relate to catastrophe insurance.

2.6 Summary and Conclusion to Chapter 2

In Chapter 2, we outline a number of issues relevant to the legal and regulatory status of an index contract. In particular, we suggest that no reasonable case can be put forward for classifying index contracts, whether based on an aggregate loss index or an indirect loss index, as traditional indemnity insurance.

However, we consider that under general principles of insurance law, both types of index contract are capable of being classified as contingency or fixed sum insurance, provided that they meet the core characteristics of an insurance contract including the requirement for insurable interest or that the insured event (i.e., the index being triggered) is adverse to the insured. Whether a particular index contract can be classified as contingency insurance will depend on the insurance law of the country concerned and the design of the contract.

We recognize that not all legal systems may permit classification as contingency insurance. If that is not possible, we consider that a strong case can be made for positioning appropriately designed aggregate loss index contracts as a form of valued policy. We consider contract design issues in *Chapter 4 Product Design*.

A legal challenge to an index insurance contract may be made many years after the implementation of an index insurance project. If that legal challenge results in a court ruling that, for example, the contract is not insurance, the consequences could be very serious, not just for the parties concerned, but also for all those whom it was designed to benefit. It is therefore imperative that legal risk is fully considered in each country in which index insurance is contemplated and that practitioners ensure that they have the benefit of appropriate legal advice, including advice for local professionals. We consider this further in *Chapter 3 Legal and Regulatory Risks*.

Chapter 3 Legal and Regulatory Risks

Although legal risk and regulatory risk are often referred to together as if a single risk, in *Chapter 1 Background*, we indicated that they are different and distinct risks and they may have different consequences.

3.1 Legal Risks and Regulatory Risks Defined

3.1.1 Legal Risk

For the purposes of this SKR, we use the following as a working definition of legal risk:

> *"A failure in the legal framework, documentation or counterparty that results in the increased probability of risk and loss." Ciro (2004).*

Ciro also distinguishes between **macro legal risk** and **micro legal risk**. He describes macro legal risks as risks that are generic in nature, rather than entity specific. As such, they may have systemic ramifications. He describes micro legal risk as risk that is entity specific. Examples of macro legal risk are:

- An index contract, though designed as an insurance contract, does not fall within the definition of insurance, or does not possess the characteristics required for insurance, under the legal framework of the country concerned and is characterized as a derivative or gaming contract; and
- In a country where insurable interest is required, the contract does not adequately provide for this and cannot therefore be enforced by persons who have purchased it.

Entity specific legal risks are those legal risks that relate, for example, to a party's capacity to contract or problems with the contract documentation, such as whether it is properly executed.

In this SKR we are primarily be concerned with macro or generic legal risk. However, entity (or contract) specific risk may also be important. For example, where the law in a country requires the insured to have an insurable interest, the contract may adequately provide for this (thus eliminating that aspect of generic legal risk), but there remains a specific contract risk that a person who does not, in fact, have an insurable interest purchases the insurance. That specific contract may then be invalid.

The consequences of legal risk will not usually become apparent until the contract is considered by a court. This could be many years after the contract is entered into.

3.1.2 Regulatory Risk

In Section 1, we indicate that the meaning of insurance may be different or modified for regulatory purposes as the rationale for the definition is different. Just as all insurance contracts are subject to legal risk, so they are subject to regulatory risk. Although regulatory risk has different meanings for different persons, for our purposes we take regulatory risk to mean the risk that the implementation of the regulatory framework by the regulator, or future changes to the regulatory framework, will result in the product being categorized as other than insurance, or will have some other significant impact on the ability of the product to achieve its objectives.

Regulatory issues are those issues that relate to the regulation and supervision, by an insurance regulator, of entities and other persons that provide services in the insurance market. The

insurance regulatory framework of a country will always cover insurers, i.e., those companies that offer and write direct insurance business in the market, and will usually cover certain insurance intermediaries, for example insurance agents and brokers. In some countries, providers of other insurance-related services, such as loss adjusters, are also regulated and supervised.

3.1.2.1 Principal Regulatory Risk: Classification as a Non-Insurance Product

The principal regulatory risk is that a regulator, which may be the insurance regulator or another regulator, classifies a product designed as an index insurance contract as a non-insurance product. The alternative classification is most likely to be a derivative, or perhaps a gaming contract.[39]

In some countries, regulatory approval is required for new insurance products. Although usually regarded as highly inconvenient for traditional products, a requirement for prior regulatory approval substantially mitigates the regulatory risk, as the most likely adverse consequence is simply that the product will not be approved. However, increasingly, regulators are moving towards a more principles-based system for regulating insurance and other financial services products. Rather than approving specific products, the regulatory framework sets out principles and rules, and the regulator may provide additional guidance, but there is no product approval process. In this case, there is clearly a risk that the product is determined not to be insurance some time after it has been developed, marketed, and sold. This is much more serious, not just because significant costs have been incurred, but because it would throw into doubt the status of products sold.

Furthermore, if the regulator subsequently determines that the products are derivatives or gaming contracts, serious breaches of, and possibly offences against the investment business or gaming legislation may have been committed.

3.1.2.2 Other Regulatory Risks

Beyond this primary regulatory risk, other regulatory risks include that the regulator:

a. Determines the index insurance product, although insurance, to fall in a class of insurance business for which the insurer is not licensed or authorized. This could have serious consequences, as the insurer, by selling the product, may have committed a serious breach of the insurance legislation;
b. Limits the types of clients to whom the insurance can be sold (e.g., MFIs but not farmer associations);
c. Refuses to permit certain delivery systems for the product;
d. Imposes additional requirements on insurers providing index insurance, perhaps as to technical provisions or in respect of market conduct, which impose additional costs on the insurer.
e. Objects to the risk financing arrangements.

[39] *Section 2.2 Categories of Insurance Contract* reviews the principle differences between insurance contracts, derivatives, and gaming contracts.

Changes in the regulatory regime after the product has been developed and marketed could affect the product or its sale in any number of different ways. At the very least, unanticipated changes to the regulatory framework that affect index insurance products are likely to add to the cost of providing these products.

3.2 Mitigation of Legal and Regulatory Risk

3.2.1 Mitigation of Legal Risk

Whilst regulatory risk can be mitigated by engaging with the regulator (see further below), legal risk is more difficult to mitigate. In our experience, it is not always appreciated that regulators do not usually have any responsibility for resolving disputes between the parties to an insurance contract and certainly do not have the responsibility for making a legal determination as to the legal status of a contract as insurance or otherwise for the purposes of insurance contract law or other areas of law. The regulator may have discretion to determine whether a contract is an insurance contract, and sometimes to extend the definition of insurance, but these powers would be provided for regulatory purposes only. In the circumstances, whilst the regulator may have a view on legal issues, that view should not be considered authoritative. Ultimately, as legal risk concerns the contract between the insurer and the insured, any dispute would be resolved, not by the regulator, but by the Court or under an alternative disputes resolution process, such as an ombudsman. It is unlikely that the regulator would even have status to appear in any legal proceedings between an insured an insurer. If a regulator does express a view as to legal issues, it would usually be unwise to accept that view without undertaking an independent legal review.

It is not possible to seek a declaration from the court as to the legal status of an index insurance contract in advance. Therefore, the principal way of reducing legal risk is through a thorough analysis of local legislation and obtaining local legal advice. If the advice is to be worthwhile, it is important to ensure that the local legal adviser fully understands the legal issues involved, which may require additional briefing on index insurance generally and the legal issues common to index products.

Whereas legal risk can be reduced through an analysis of local legislation and local legal advice, the prospect of future adverse court decisions resulting in a legal challenge to an index insurance contract cannot be completely eliminated.

3.2.2 Mitigation of Regulatory Risk

Regulatory risk can be more easily mitigated than legal risk by involving the regulator from the outset and maintaining an ongoing dialogue. This is particularly important if the regulator has any discretion as to the classification of insurance from a regulatory perspective. Furthermore, the regulator might be able to provide an indication of future likely changes to the regulatory framework. Given that index insurance is still a new type of insurance product, dialogue with the regulator should be sought, even though the regulator may not be required to approve new insurance products.

Many index insurance products are introduced as pilots. Unfortunately, regulators may not consider proposals for pilots with the same rigor as they would an application for the introduction of an index product on a non-pilot basis. Therefore, in the case of a pilot index project, proceeding without a full regulatory review, even with the support of the regulator,

may not significantly reduce regulatory risk. It may simply postpone the issue to a later date, when the consequences could be much more damaging.

Of course, regulatory risk cannot be completely eliminated. International standards change, regulators may change their thinking regarding how to apply regulations, and the legislature, which has the ultimate control of the regulatory framework through primary legislation, may introduce or amend legislation that the regulator did not expect. In many countries legislation at the level of regulations is under the control of the government, which may also make changes that are not expected by the regulator.

We consider that regulatory risk can be mitigated by:

a. Ensuring that contact is made with the appropriate person or persons at the regulator.
b. Considering whether any other regulatory authority should be engaged, such as the securities regulator.
c. As index insurance is still relatively new and there is little international guidance, ensuring that the regulator is provided with sufficient information to understand the product.
d. Ensuring that the regulator is notified of any legal or regulatory concerns and possible problems, i.e., by making full disclosure.
e. Making such enquiries as are possible into planned future changes in the regulatory regime and assessing the impact that these plans are likely to have on the product.

As indicated above, regulators are often not required to specifically approve new insurance products. If this is the case, even if the regulator can be persuaded to approve a new product, the approval should provide no more than a degree of comfort.

3.3 Possible Consequences of Failure to Address Legal and Regulatory Risk

3.3.1 Failure to Address Legal Risk

It should be appreciated that, even where an index product is introduced as a pilot, there is legal risk. Pilots usually involve the sale of real contracts that grant each party enforceable legal rights. An index insurance product is potentially open to challenge from the time that the very first policy is sold. Implementing a pilot without a legal review, to test the technical and market aspects of the product is not, therefore a reasonable option.

The most obvious legal challenge to an index contract would be one brought by a policyholder (for example a policyholder who sustains significant loss from a natural disaster, but who receives no payment because the threshold was not reached). However there other ways in which an index contract could come before the Court for consideration, for example a dispute over appropriate tax treatment.

If a subsequent court ruling determined that an index contract was not an insurance contract, the consequences could be very serious, not just for the parties concerned, but also for those whom it was designed to benefit, especially if sales of the product have to cease. At the very least, an adverse court ruling would result in much of the time and money invested in the development of the product being wasted.

An even worse outcome would be a determination that the contract is an illegal contract (such as a gaming contract). In common law countries, illegal contracts are usually not enforceable by

either party to the contract (in the absence of specific legislation to the contrary). This may leave all insured policyholders having paid premiums for contracts that would not be enforceable in the event of a natural disaster.

An adverse ruling is also likely to damage the credibility of index insurance, and perhaps in a developing or emerging market country, insurance generally.

Unfortunately, legal risk is less visible than regulatory risk. Like a latent design defect in a building, legal risk can materialize many years after the product was first designed and fully implemented, very possibly after the project development team is no longer involved.

3.3.2 Failure to Address Regulatory Risk

The consequences of a failure to address regulatory risk could be serious, particularly if the regulator has not been fully engaged in the development of the product. For example, a determination by the regulator, after products have been sold, that an index product is not insurance, but a derivative, could result in the insurer having engaged in unauthorized investment business. In many countries this would be a criminal offence. If the regulator has been fully engaged as the product develops, there is a reasonable likelihood that, even if this was the case, neither criminal nor regulatory enforcement action would be taken against the insurer.

It is more likely that regulatory issues will relate to how the product is sold (for example, additional market conduct requirements or limitations on delivery channels), which would add to the transaction cost.

Chapter 4 Contract Design

Index risk transfer contracts can be written as insurance or as a derivative. Where the legal and regulatory frameworks of a country permit an index risk transfer contract to be classified as insurance, its actual classification will depend principally on contract design. In this Chapter we consider some issues concerning contract design that have arisen in relation to our own index insurance projects which may assist in developing index products that have a better prospect of being classified as index insurance.

However, we first consider some of the benefits that flow from classifying an index insurance contract as contingency insurance as these too should be taken into account when designing the contract.[40]

4.1 Benefits of Positioning Index Contract as Contingency Insurance

4.1.1 Close Correlation between Index and Individual Loss Unnecessary

As previously discussed, many index insurance pilots have been developed and designed on the basis that a close correlation must be established between the value of the index and the individual loss of the insured. This is presumably because the designers of the product have considered the product as either traditional indemnity insurance or a form of valued policy. In our opinion, it will usually be very difficult to establish such a correlation for an aggregate loss index, even where the loss and damage is restricted to direct losses of crops or livestock[41] and most likely impossible for an indirect loss index. This has resulted in considerable unnecessary work and in the overfitting of data to establish a correlation.

Contingency insurance developed to enable insurance to be provided in relation to risks where the loss and damage cannot be quantified or is very difficult to quantify. For this reason, there is no requirement under a contingency insurance contract for the insured to prove the amount of his loss and damage.

Perhaps the most important consequence of this for the design of an index product is that it removes the necessity to establish a close correlation between the value of the index and the loss of each individual insured. Although, as we discuss later in this Chapter, the index cannot be completely separated from individual loss and damage, this should not only reduce development costs but also extend the possible uses of index insurance. This key feature of contingency insurance results in index insurance contracts having a number of advantages over traditional indemnity insurance, including those set out in *Sections 4.2.2 to 4.2.5*.

4.1.2 Consequential Losses Can Be More Easily Covered

A traditional indemnity insurance contract will often provide cover, which may be optional, for some consequential losses. For example, a business property insurance contract covering physical damage to property may permit the insured to optionally take out business interruption cover.[42] A typical business interruption contract will provide cover for loss of profits or loss of

[40] We use the term, **contract design**, to mean the design of the legal document.

[41] I.e., indirect losses are excluded.

[42] The summary of business interruption insurance set out in this Section draws on the very useful guide produced by the London Business Interruption Association (LBIA, 2011).

revenue. Certain increased costs would be incorporated in the calculation of loss profits, but a business interruption insurance contract may provide optional cover for other increased costs. The types of costs that may be included in a business interruption contract, whether as part of the calculation of loss of profit or separately, include:

- Additional staff costs;
- The cost of alternative premises or equipment;
- Storage costs
- Continuing costs in relation to a building or equipment that can no longer be used;
- Other temporary costs.

Specialist stand-alone business interruption insurance is also available to cover business interruption risks not associated with damage to property.

Business interruption insurance is indemnity insurance[43] that is designed to put the insured in the same trading position after the interruption, as he would have been had the loss not occurred. The LBIA neatly sums this up in its Guide:

> *"The phrase 'not a penny more, not a penny less' often comes to mind as the spirit of indemnity when dealing with business interruption losses."*

Given that a business is dynamic, with underlying individual and business trends, calculating an appropriate payment on the basis of the spirit of indemnity is far from a straight forward exercise. Business interruption claims can therefore be expensive to assess, which will be reflected in the premium, and can take a long time to settle.

Furthermore, as in respect of any indemnity insurance, the insured must elect to purchase cover for specified types of loss or damage; the more types of loss or damage covered, the higher the premium. If the insured sustains consequential loss or damage as a result of the occurrence of the insured risk, he will clearly only be indemnified if that type of loss or damage is covered by the contract.

An index policy written as a contingency insurance contract allows the insured to select a level of cover, which is in effect a fixed sum payment that varies between lower and upper bounds, depending on the value of the index, without having to specify individual types of consequential loss. If the insured event occurs, the insured will receive payment under the contract without having to prove any loss and without any concern that his loss or damage is of a type that is not covered by the contract. The choice of how much cover to purchase is for the insured and his consequential losses will only be covered in full if he has selected a sufficiently high sum insured.

It should be appreciated that an index policy is only intended to provide cover in relation to loss and damage arising out of the natural disaster for which the index is designed as a proxy and, even then, due to basis risk the insured may not recover in the event of the insured natural disaster taking place. Therefore an index contract is not a substitute for business interruption insurance covering any risk other than the natural disaster risk for which the index contract is designed.

[43] Although a business interruption insurance contract may include some contingency insurance, this is usually minor in relation to the contract taken as a whole.

For the reasons set out in this Section, an index insurance contract should provide an insured with an efficient way to obtain cover against a wide range of consequential losses arising out of a particular natural disaster, which do not need to be specified in the contract.

4.1.3 Quick or Immediate Payment

We have already indicated that claims under business interruption insurance contracts can take a long time to settle due to their complexity. Although the insured may receive an interim payment, pending final loss assessment, this may not be sufficient to meet ongoing costs.

Claims under an insurance contract can be settled immediately the value of the index has been verified by the insurer. Where the Index is of variables maintained by an external third party, such as a Government, verification can be almost immediate. Even where verification relies on a model, e.g., an earthquake index, external verification should be relatively quick. This should enable full payment of the claim to be made very soon after the claim has been triggered.

Where the index is, in effect, a measurement of the natural disaster (e.g., a wind speed index or a rainfall index), the insured will receive a payment very soon after the disaster has taken place, when he needs the money most.[44]

4.1.4 Mitigation Costs

Under an index contract, an insured who takes additional measures to mitigate loss may receive a payment that exceeds the value of the loss. However, it is most likely that the insured will have incurred additional costs in taking these measures.

Although the costs of mitigation of loss are not usually covered by an insurance contract, they may be. An express term that the insurer will cover mitigation costs would be strictly enforced (Clarke, 2005).

In some civil law countries, the law imposes an obligation on an insured to mitigate damage and requires the insurer to pay the cost. For example, the PEICL provides[45]:

> *The insurer shall reimburse the costs incurred or the amount of damage suffered by the policyholder or the insured in taking measures to mitigate insured loss, to the extent the policyholder or the insured was justified in regarding the measures as reasonable under the circumstances, even if they were unsuccessful in mitigating the loss.*
>
> *The insurer shall indemnify the policyholder or the insured, as the case may be, in respect of any measures taken in accordance with para. 1, even if together with the compensation of the loss insured the amount payable exceeds the sum insured.* (Restatement of European Insurance Contract Law Project Group, 2009)

Under the law of some countries, therefore, under a traditional livestock insurance policy, herders who incur additional costs in protecting their livestock would be entitled to recover those costs, as far as justified. In other countries, the contract could expressly provide that the payment is intended to cover, not just the loss sustained by the insured, but reasonable

[44] Otherwise, see Section 4.2.6 Forecast Insurance.

[45] Article 9:102

mitigation costs.[46] However, it may be difficult for an insured to justify costs as reasonable, particularly if they do not in fact reduce the loss.

As the insured chooses the sum insured under an index policy, he may choose to include an amount to cover the costs, or part of the costs, of preparing for the insured natural disaster risk. In the event that there is a claim under the contract, the insured is not left with the possibly difficult task of justifying to the insurer that the mitigation costs were reasonable.

4.1.5 Property Portfolios

Under a traditional property insurance contract, a person owning a portfolio of properties may find that certain property in the portfolio is uninsurable or difficult to insure. For example, some of the properties in the portfolio may be in an area which has previously flooded or may not be in a good state of repair. As an indemnity insurance contract insures specific properties, it would not be possible, or would be very expensive, to obtain insurance cover in relation to those properties.

As the premium payable under an index contract depends on the sum insured, the index and the lower and upper index values, the location of the property and its condition is not relevant. This, in effect, enables the property owner to take account of the value of uninsurable and difficult to insure property when selecting the sum insured under an indirect loss index insurance contract.

Furthermore, assuming some risk diversity between the properties in the portfolio, the property owner does not need to purchase a sum insured equal to the total value of the portfolio as it is likely that not all the properties will be sustain equal amounts of damage. If the natural disaster occurs, and the index contract pays, the insured may use the payment to repair those properties that have been damaged. Under a traditional property insurance contract, the cover, and premium, would be based on the total value of the portfolio.

4.1.6 Forecast Insurance Possible

As indicated in Section 2.4 Legal Assessment of Index Insurance Contracts, an indirect loss index is an index of either a variable that is a cause of the loss (such as wind speed or rainfall) or of a variable that is a predictor of another variable that causes the loss (e.g., SST may be a predictor of heavy rainfall or an index of upstream river levels may be a predictor of flooding). In the case of the former, the index will trigger at, or very close to, the time of the natural disaster.

In the case of a predictive index, the index will trigger before the natural disaster occurs. The time lag will depend on the index used but, in the case of SST, the time lag may be two or three months. This enables index contracts to be use as a form of forecast insurance, where the intention is that the payment under the contract is made before the natural disaster enabling the monies, or part of the monies, to be used to prepare for the disaster. For example, where the triggering of the index is a precursor to heavy flooding, the payment under the contract may be used, at least in part, to clear ditches with a view to mitigating the flooding and the damage caused.

We are not aware of any traditional indemnity insurance contract that is designed to cover the costs of preparing for a natural disaster.

[46] As previously indicated, the costs of mitigation are to be distinguished from a policy that is intended to cover the costs of preparing for a natural disaster, even though that natural disaster may never happen.

4.2 Contract Design — Contingency Insurance

It is important that an index contract is designed to minimize the legal and regulatory risks outlined in Chapter 3 Legal and Regulatory Risks, especially the legal risk is that a court will subsequently determine that the contract is not an insurance contract or that the regulator will classify the contract as a non-insurance contract.

In *Section 2.4.5 Can Index Contracts be Classified as Valued Policies?* we indicate that, in our view, it is preferable to classify both indirect loss index contracts and aggregate loss index contracts as contingency insurance. This will only be possible if the insurance law of the country concerned recognizes contingency, or fixed sum, insurance. The first task when designing an index contract is therefore to verify this from a review of the local insurance law.

4.2.1 Insurable Interest

We argue in this SKR that, if an index contract is to be positioned as a contingency insurance contract, it is not necessary to demonstrate a good correlation between the index and individual loss. However, in the absence of such a correlation and as there is no requirement for the insured to prove actual loss or damage, we consider it essential that either the insured has an insurable interest or, where an insurable interest is not required in a country, the occurrence of the insured risk (i.e., the triggering of the index) is adverse to the interests of the insured.

The fact that a person without an interest purchases an insurance contract does not necessarily mean that the contract is not insurance. However, we consider that the contract should state clear criteria qualifying a person as able to purchase the contract that reflect this principle, as appropriate for the country concerned. If a person who does not meet these criteria purchases the contract, the contract may be unenforceable by that person, but it would not necessarily affect the legal status of the contract. We consider that insurers should take all reasonable steps to ensure that index contracts are only sold to those who have an insurable interest or equivalent.

As discussed in earlier in this chapter, the definition of insurable interest is wide in some countries and may include, for example, a contingent interest in property. Given the possible complexities, it is important to seek local legal advice when designing any index insurance contract.

The following specific contract design issues relating to insurable interest should be considered:

a. What is required for an insurable interest? Must the interest be financial or is the definition broader, including a wider economic interest?
b. Are there special rules relating to insurable interest in the case of property and if so, is the index insurance properly regarded as form of property insurance (for example insurance of a crop or livestock)? In the case of property insurance, the insured is often required to have an interest or a right to an interest in the property insured.
c. When does the law require the insurable interest to be held: at the time that the contract is entered into, at the time of a claim or both?
d. Does the contract design adequately provide for insurable interest?
e. The contract should be available for purchase only by persons who would, under the law of the country concerned, be lawfully able to purchase traditional insurance protecting against the same risk. How will this be achieved? If many policyholders without an insurable interest purchase the product, the credibility of the product will be damaged.

This will certainly be of concern to the regulator, but the refusal to make payments to policyholders due to lack of insurable interest will also damage the credibility of the product in the market. There is also a risk that, if an insurable interest is not clearly required, the contract would not be considered an insurance contract.

f. Where the laws of a country do not require an insurable interest, we consider that the contract should contain clear provision indicating the criteria for entitlement to purchase the contract, which should relate to the requirement that the insured event will adversely affect the insured, and provide for the consequences should the insured not meet these criteria.

4.2.2 Appropriate Index and Payment

Although we do not consider that there needs to be a correlation between the index and individual loss, we consider that the index must be appropriate.

In the case of an indirect loss index, we consider that the index must correlate well with, and therefore be a good predictor of, the risk that the contract seeks to protect against. Put another way, the index should not trigger payment unless the insured risk occurs. If a payment is triggered in circumstances where the insured risk has not occurred, there is a significant risk that the contract will not be considered an insurance contract.[47] Where there is any uncertainty, it may be advisable to include a separate trigger for the insured event, leaving the role of the primary index to determine the payment due under the contract. For example, where wind speed at particular weather stations is used as an index for a hurricane policy, the index is indirect, with respect to damage caused. However, provided that the wind speed threshold for payment is under the contract is appropriately set, the insured event (the hurricane) will have occurred. Where another index is used to predict a hurricane (perhaps SST earlier in the season) a careful assessment should be made of the prospects that the index threshold will be met resulting in a payment in circumstances where the true insured risk, the hurricane, does not occur. This is to be distinguished from a contract designed, in part to cover preparations for an anticipated event.

Under a traditional contingency contract, there is no requirement that the payment matches losses, and there is no requirement for losses to be assessed. However, we consider that all steps should be taken to ensure that payment under the contract is not manifestly excessive, including that the maximum payment does not exceed maximum loss.

Finally, the contract should clearly establish its primary purpose, i.e., to transfer risk from the insured to the insurer.[48]

[47] However, as already discussed, we consider that there is nothing to prevent an index contract providing insurance cover against the costs incurred in preparing for a natural disaster, even though that may not ever occur. In that case, the insured event is not the occurrence of the natural disaster, but the index itself.

[48] However, it should be appreciated that courts normally look to substance not form and where, from the design and terms of the contract, the dominant purpose is clearly not the transfer of risk, inserting such words is unlikely to be effective.

4.3 Contract Design — Valued Policies

If an aggregate loss index is to be positioned as a valued policy, it is important that the index is a genuine pre-estimate of the losses of individual insureds. If the index is inappropriate, or badly designed, increasing the prospects of an insured receiving considerably more than the actual loss, there is a risk that a court, or regulator, would regard the insurance contract as having a speculative element, and therefore being either a derivative or a gaming contract.

As a valued policy is an indemnity insurance contract, the rules for insurable interest in relation to indemnity contracts are fully applicable. Where the laws of a country require insurable interest, it is very important that product design takes this into account. The product should be designed to be sold only to persons with an insurable interest in the intended subject matter of the insurance and the design should incorporate safeguards to minimize the risk that it will be purchased by other persons. For example, in the case of a contract relying on an area livestock mortality index, the product should be designed to safeguard against its sale to persons who would not have an insurable interest in the insured livestock, if the contract was a traditional indemnity contract. It would be advisable for the contract to contain a declaration by the insured that he has an interest that would be regarded as an insurable interest and it would be prudent to provide for the consequences should this not be the case.

Where the laws of a country do not require an insurable interest, we consider that the contract should contain clear provision indicating the criteria for entitlement to purchase the contract, which should relate to the requirement that the insured event will adversely affect the insured, and, again, provide for the consequences should the insured not meet these criteria.

The following specific contract design issues should be considered:

a. An aggregate loss index must serve as a reasonable proxy for the loss of individual insureds. Unless this criterion is met, it cannot reasonably be argued that payments against the index are intended to compensate the insured for loss.
b. There should be evidence to demonstrate that the payment rate at different levels of the index will approximate to likely monetary loss at that level of the index.
c. The payment at the highest level of the index should not be manifestly more than the maximum expected loss, at that level of the index. This implies that the insured should not be able to insure a value greater than the value of his crop, animals, etc.;
d. There may be a particular problem in some civil law countries where the civil code contains an absolute provision to the effect that payment made under an insurance contract shall not exceed the amount of the loss sustained by the insured. Such a provision could be construed as requiring all insurance contracts to be indemnity contracts. Careful consideration, with the benefit of local legal advice, will have to be given to the effect of such a provision to ensure that it does not preclude an aggregate loss index contract
e. The wording of the contract document needs to clearly establish the proper basis for a valued policy and, in particular, great care should be taken to ensure that the index is intended to be a pre-estimate of loss and not simply establishing the maximum sum insured. By way of explanation, as we indicated earlier, there are a number of reported English cases where a contract has been held by the court to be an ordinary indemnity contract, not a valued contract, because the agreed amount was held to be the maximum sum insured, not the agreed value of the property insured.

4.4 Other Contract Design Issues

There may be a particular problem in some countries where the insurance law contains an absolute provision to the effect that payment made under an insurance contract shall not exceed the amount of the loss sustained by the insured. Such a provision could be construed as requiring all insurance contracts to be traditional indemnity contracts. Careful consideration, with the benefit of local legal advice, will have to be given to the effect of such a provision to ensure that it does not preclude either a contingency contract or an aggregate loss index contract positioned as a valued policy.

More generally, care should be taken to understand the differences between common law and civil law legal frameworks.[49]

Consideration should be given to the following questions that may present difficulties in designing an index insurance contract:

a. Do insureds have a legal right to cancel a contract on notice for a partial return of the premium, which is clearly inappropriate for an index insurance contract?
b. Is there a legal requirement for a formal notice of claim to be submitted by the insured, which again is not appropriate for an index insurance contract in which the knowledge is vested in the insurer?

[49] Please refer to *Section 1.4.2 Common Law and Civil Law Systems*.

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