

Reinsurance Spirals and the Law

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This article provides a legal appraisal of reinsurance spirals with a particular emphasis on the London Market Excess of Loss Spiral.

Introduction

Many of those currently involved in reinsurance will remember the London Market Excess of Loss Spiral (**LMX Spiral**), which developed within the London reinsurance market of the 1980s. The collapse of the LMX Spiral was a key factor in the serious financial crisis the Lloyd's insurance market (**Lloyd's**) had to face in the early 1990s. Whilst the crisis resulted in a wave of litigation in the English courts, there is no legal appraisal of the additional element of risk brought by the LMX Spiral itself. The case law instead focuses on the duties of the underwriters and various agents that fuelled its development.

This situation is unsatisfactory for two reasons. Firstly, reinsurance spirals are a potential side-effect of excess of loss (**XL**) reinsurance markets and therefore other spirals may develop in the future. Secondly, this article will show that once a reinsurance spiral reaches a certain point, it becomes unsustainable, generating instability within the relevant market. This leaves a gap in the law of reinsurance contracts: spirals may develop within reinsurance markets but there is no suitable legal tool to deal with the very specific challenges they present. This article aims to fill that gap by proposing a new legal analysis of reinsurance spirals. It is split into three parts: Part I describes the LMX Spiral and its impact; Part II demonstrates how reinsurance spirals distort reinsurance markets and Part III provides a detailed legal appraisal of reinsurance spirals.¹

The LMX Spiral

In this first part, we provide a history of the development of the LMX Spiral, from its first appearance to its unwinding, the latter precipitating the near collapse of the Lloyd's insurance market (Lloyd's).

The Development of the LMX Spiral

Legal Definition

Despite the numerous cases that refer to it, to some extent the LMX Spiral is still shrouded in mystery. The most comprehensive legal description of the phenomenon is set out in *Deeny & ors v Gooda Walker Ltd*² and it has become the benchmark³ for all cases that relate to reinsurance spirals. Phillips J said as follows:

*"The working of the LMX Spiral was complex, and whether by diagrams or in words it is only possible to attempt to describe it in a simplified form. My attempt is as follows. Many syndicates which wrote XL cover took out XL cover themselves. Those who reinsured them were thus writing XL on XL. They, in their turn, frequently took out their own XL cover. There thus developed among the syndicates and companies which wrote LMX business a smaller group that was largely responsible for creating a complex intertwining network of mutual reinsurance, which has been described as the LMX Spiral. When a catastrophe led to claims being made by primary insurers on their excess of loss covers, this started a process whereby syndicates passed on their liabilities, in excess of their own retentions, under their own excess of loss covers from one to the next, rather like a multiple game of pass the parcel. Those left holding the liability parcels were those who first exhausted their layers of excess of loss reinsurance protection."*⁴

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¹ This article is based on the author's doctoral thesis titled "the London Market Excess of Loss Spiral" which is available online on <http://eprints.soton.ac.uk/372297/>.

² *Deeny & ors v Gooda Walker Ltd (in voluntary liquidation) & ors.* [1994] CLC 1224.

³ This description is quoted and relied upon in several other cases, including two major decisions concerning reinsurance spirals: *Sphere Drake Insurance v Euro International Underwriting* [2003] EWHC 1636 (Comm) and *Equitas v R&Q Reinsurance Company (UK) Limited* [2009] EWHC 2787 (Comm), [2010] Lloyd's Rep IR 600.

⁴ *Gooda Walker* (n 2) 1231.

He also said “The letters LMX stand for London Market excess of loss. The letters thus describe both the place where the business is transacted and the nature of the business.”⁵

We next focus on some of the key features of the LMX Spiral that are touched upon in the above definition.

XL Reinsurance

The LMX Spiral was based upon XL contracts: a non-proportional form of reinsurance⁶ created in the early twentieth century to provide a cheaper alternative to the more traditional proportional forms of reinsurance. Under an XL reinsurance contract, the reinsurer only provides cover above a specified amount (the **Excess Point**), usually up to a maximum figure (the **Sum Insured**).

The purpose of XL reinsurance is to limit the exposure of the reinsured either to a large individual risk (e.g. a high-value property such as a refinery) or to an aggregation of losses caused by a single event (e.g. a natural disaster such as a hurricane)⁷. An important feature of the XL format is that it allows the total exposure of the reinsured to be sold in tranches, or layers, making this a more fluid way to spread the risk. On the London market the lowest layers are known as the “working layers” and the top layers as the “catastrophe layers”. As the names indicate, the working layers are expected to be impacted more often than the catastrophe layers, and the premium is set accordingly⁸.

Currently there is no legal definition of XL reinsurance as such and reinsurance is commonly defined as “the insurance of an insurer”⁹. A tentative definition of XL reinsurance could be as follows: XL reinsurance contracts are contracts of reinsurance that cover a tranche of a risk (delineated through the use of the excess point and usually a Sum Insured) for a price that reflects the level of risk thus undertaken. Whilst these features are not “legal” criteria, they must form the basis of the legal definition of an XL reinsurance contract because what differentiates between the various types of reinsurance contracts are their commercial features. In fact, when opining on disputes concerning XL reinsurance contracts, English Courts have used the features listed above to provide legal analysis of XL reinsurance contract¹⁰.

Intertwining Reinsurances

The LMX Spiral developed within the London XL market (the **London XL Market**) which includes both the Lloyd’s insurance market and the companies market. XL reinsurers (**First Tier Reinsurers**) looked to protect themselves. Other XL reinsurers, principally from the London XL Market, provided the reinsurance (**Second Tier Reinsurers**). Those Second Tier Reinsurers also took reinsurance to protect their own liabilities, and the providers of the requisite reinsurance were, more often than not, London XL reinsurers (the **Retrocessionaires**). The Retrocessionaires also took reinsurance, and again, most of their reinsurers were to be found within the London XL Market. The XL reinsurance of a London XL underwriter was known as “**LMX Business**” which is shorthand for “London Market excess of loss Business”.

Despite the rapid expansion of the London XL Market in the mid-1980s¹¹, the number of XL reinsurers remained finite, and they all needed reinsurance for their own rising exposure. Inevitably, some reinsurers ended up reinsuring their own reinsurers. Using the terminology used above, the Retrocessionaire’s reinsurers may well have been First Tier Reinsurers or Second Tier Reinsurers. At that point, a risk initially insured by a

⁵ Gooda Walker (n 2) 1229.

⁶ XL contracts can also be used at the primary insurance level, for instance as in the case of *Teal Assurance Co Ltd v W R Berkley Insurance (Europe) Ltd and Another* [2013] UKSC 57, [2014] Lloyd’s Rep IR 56.

⁷ David Walker and others, ‘Report of an Inquiry into Lloyd’s Syndicate Participations and the LMX Spiral’ (June 1992) para 2.2.

⁸ The Insurance Institute of London, ‘Excess of Loss Methods of Reinsurance’ (Report by Advance Study Group 218, Insurance Institute of London, 1988) para 2.1.2.

⁹ This is the definition often used in textbooks (for instance *Reinsurance Practice and the Law*, para 1-1 (R 39 February 2014)) but also in the European legislation under Directive 2005/68/EC on reinsurance. The Directive defines reinsurance as “the activity consisting in accepting risks ceded by an insurance undertaking or by another reinsurance undertaking...” (Article 2.1(a))

¹⁰ For instance, by deciding that the legal trigger for the risk to attach under an XL reinsurance contract is the point in time when the excess point is reached (see *North Atlantic Insurance Co Ltd v Bishopsgate Insurance Ltd* [1998] 1 Lloyd’s Rep 459).

¹¹ From 6001 in 1970, the number of Names at Lloyd’s grew to 19,000 in 1980 and it continued to grow to a peak of 34,218 in 1989.

First Tier Reinsurer or Second Tier Reinsurer would have come full circle. XL reinsurers effectively recycled the same risks amongst themselves. For the purposes of this article, once LMX Business entered the spiral, it became “**Spiral Business**”.

The 1980s: an Era of Rapid Expansion

It is probable that the London XL Market already contained a spiral in the 1950s¹². In any case, the phenomenon became evident in 1965, when the losses caused by the then significant Hurricane Betsy “spiralled” amongst the London XL Market participants¹³. After Betsy, no loss was large enough to spiral within the London XL Market to the same extent until Hurricane Alicia in 1983, which took years to unravel. However, at the time only specialists XL underwriters were aware of the existence of a spiral within the London XL Market¹⁴.

This was set to change with the LMX Spiral, which developed in the 1980s. It grew exponentially: whilst Lloyd’s overall premium increased by 61% between 1983 and 1988, its LMX premium leapt by 201% in the same years¹⁵ and inter-syndicate reinsurance premiums more than doubled in five years: from £547 million in 1985 to £1275 million in 1990¹⁶. This was due, amongst other things, to a rapid rise in capacity within Lloyd’s, caused a sharp increase in membership¹⁷ which led to an oversupply of XL reinsurance and a fall in prices. Faced with increased competition and declining rates in direct insurance, many underwriters took on more XL risks in order to secure more premiums in what was considered a profitable line of business. They did so because they felt safe in the knowledge that, with all this new capacity, they would always be able to reinsure their exposure.

The fact that the number of reinsurers was much greater only served to accelerate the spiral: risks were being transferred more often, amongst a larger, but still finite, number of players who reinsured each other. A number of good years with few catastrophes in the mid-1980s had made XL reinsurance attractive and seemingly safe, fuelling more demand, a more competitive market, and leading to a decline of underwriting discipline: retentions and co-insurance reduced, accelerating even further the development of the LMX Spiral.

The exact number of reinsurers who participated in the LMX Spiral at any one time is difficult to gauge. Figures vary from 87 “LMX syndicates”¹⁸ from Lloyd’s plus about the same amount of reinsurers from the companies market (giving a total of nearly 200); to 300 to 400 reinsurers having underwritten specific LMX risks¹⁹, up to an estimated 3,000 reinsurers having been “affected” by the LMX Spiral²⁰. Those discrepancies can be explained by the fact that the above figures do not measure the same thing. As the London XL Market developed throughout the 1980s, many syndicates and companies participated in the London XL Market without truly specialising in that business. Thus, whilst the number of underwriters who wrote LMX Business must have been in the hundreds, there remained few underwriters, companies or syndicates that truly specialised in that type of business.

The Demise of the LMX Spiral

The Unwinding of the LMX Spiral

Between 1987 and 1990, an extraordinary and unprecedented series of catastrophes produced large losses that had a significant impact on the London XL Market and, ultimately, lead to the collapse of the LMX Spiral. This includes the following ones:

¹² Tony Berry, ‘The Effects and Lessons of Piper A to the Excess of Loss Market’ (undated).

¹³ LMX Working Party, ‘Excess of Loss Reinsurance of Lloyd’s Syndicates and London Market Companies’ (General Insurance Convention, August 1988) para 1.5.

¹⁴ The LMX Spiral was not generally known before 1988/1989. See *Brown v KMR Services Ltd and ors* [1995] 2 Lloyd’s Rep 513, 519.

¹⁵ Walker (n 7) para 2.10.

¹⁶ R Gilkes, ‘Lloyd’s and the changing marketplace’ (5th International Reinsurance Congress, Bermuda, 7–9 November 1991).

¹⁷ See note 11.

¹⁸ The term “LMX Syndicates” was defined in the Walker Report (n 7) as syndicates that (i) either wrote at least £1,000,000 premium income (or, if less, 10% of capacity) on XL on XL or LMX Business; or (ii) wrote at least 50% XL “of all types” and had a material involvement in XL on XL and/or LMX Business.

¹⁹ *Equitas v R&Q* (n 3) 96.

²⁰ Ipe Jacob, ‘Project Corkscrew’ (London: Grant Thornton, 2001).

- The 1987 UK windstorms (16/17 October 1987);
- Piper Alpha (6 July 1988);
- Exxon Valdez (24 March 1989);
- Hurricane Hugo (15–22 September 1989);
- Phillips Petroleum (23 October 1989); and
- The North European Windstorm (25 January 1990).

Other catastrophes occurred during those years but the ones described above were the most significant, as evidenced by the fact that they are the ones listed in the *Gooda Walker* case. Because Lloyd's Syndicates, which accounted for nearly half of the LMX Players, were allowed a period of three years to settle their accounts, the full impact of those catastrophes did not become apparent until 1990, at which point the market contracted and rates started to increase. This continued in 1991 and from then on the London XL Market entered a slow decline as the LMX Spiral started to unwind.

This decline was made worse by another major catastrophe that hit the market in 1992: Hurricane Andrew. This was the costliest hurricane in US history until Hurricane Katrina in 2005 and it remains the fourth most expensive catastrophe since 1970, ahead of the 9/11 terrorist attack on the World Trade Centre. From then onwards, the increased competition amongst the few remaining LMX Players led to considerable rate rises and the trend continued in 1993.

Thus, from about 1991 the London XL Market was in crisis and the LMX Spiral collapsed. In practice, this meant some XL reinsurers became bankrupt and many others fled the market, purposefully avoiding XL on XL cover to stay clear of the LMX Spiral. The LMX Spiral therefore stopped developing, but it was still in existence as far as the "old liabilities" were concerned.

Reconstruction and Renewal

In the early 1990s Lloyd's financial position deteriorated rapidly: its cumulative losses for the years 1988 to 1992 amounted to £8 billion. They originated from two major sources:

- (a) the collapse of the LMX Spiral described above; and
- (b) "long tail" liabilities. Those liabilities arose under insurances or reinsurances providing cover for asbestos, pollution and other long term health diseases (together known as **APH**). The 1980s saw an explosion of asbestos litigation, and the passing of legislation in the US²¹ that required companies who had caused pollution to meet huge clean-up costs. The resulting liabilities were mostly reinsured at Lloyd's.

By 1995, Lloyd's was facing insolvency. Many of its members, individuals investors known as the **Names**, who had unlimited liability, were in dispute with Lloyd's over their ever increasing liabilities from APH and LMX Spiral claims. This was a dark time in the history of the Lloyd's insurance market. In May 1995, Lloyd's published a document setting out the Society's plan for the reconstruction and renewal of Lloyd's (now known as **R&R**). This included the novel idea of ring-fencing all liabilities up to the underwriting year 1992, by reinsuring them into a new separately-capitalised reinsurance company called Equitas. The creation of Equitas required significant contributions from all those involved in the Lloyd's market but it offered an end to the crisis. A sufficient number of Names accepted the offer for R&R to be implemented. Equitas was authorised and commenced reinsurance business on 3rd September 1996²². This may have been the end of the Lloyd's crisis but not that of the "old liabilities" and the LMX Spiral as such: Equitas' successor is still going through the unwinding process, some 25 years after the LMX Spiral started to unravel.

Problems with Reinsurance Spirals

In this second part, we examine the most significant reviews of the LMX Spirals and we consider its effects on the London XL Market. This enables us to identify the risks inherent within any reinsurance spiral that may develop in future XL markets.

²¹ Comprehensive Environmental Response Compensation and Liability Act 1980 (US).

²² Three companies were in fact created for the purposes of running off all of Lloyd's pre-1992 liabilities: Equitas Holdings, Equitas Reinsurance Ltd (the reinsuring entity) and Equitas Ltd, the retrocessionaire of Equitas Reinsurance Ltd and responsible for the day to day running of the run-off.

Critical Reviews of the LMX Spiral

The LMX Spiral has been the subject of many cases, speeches, reports and articles, not all of which can be described here. Instead, we focus on some of the most thorough reviews of the LMX Spiral²³.

The Walker Report (June 1992)

The most significant review of the LMX Spiral is the “Report of an inquiry into Lloyd’s syndicate participations and the LMX Spiral” commissioned by Lloyd’s and published in June 1992 (the **Walker Report**, named after its chair Sir David Walker). One of the report’s key findings is that the development of the LMX Spiral could be explained through commercial factors. It was not improper trading and the market had not been purposefully distorted by conspiracy or misfeasance. The Walker Report made some important observations about the LMX Spiral, set out below.

- Because of the very large number of XL reinsurance contracts, LMX reinsurers frequently reinsured risks that they had substantially transferred outwards in an earlier layer. As a result, the Walker Report notes that “*A consequence of the spiralling of LMX Business was that the claims turnover associated with an individual catastrophe greatly exceeded the amount of the actual loss*”²⁴. This is known as the “magnifying” effect.
- The combined effect of a high claims turnover and low retention was that a very large part of the losses reached the higher layers. The report suggests that the underwriters writing those layers may have been less anxious to obtain full reinsurance for their exposure on the assumption that the risk of a claim reaching those catastrophe layers was remote. Thus many Lloyd’s syndicates were carrying a large unprotected exposure above the upper limit of their reinsurance protections and these exposures were concentrated on those writing at top end of the spiral²⁵.
- Claims would spiral until an LMX Spiral Participant had run out of reinsurance cover. According to the Walker Report, a loss rapidly made its way through the lower layers and crystallised on the higher layers where reinsurers had not necessarily obtained full reinsurance (see above). This is the “concentrating” effect of the LMX Spiral.
- The rates charged by LMX Spiral Participants diminished in successive layers²⁶. This was in accordance with the ways in which XL reinsurance had been priced over the years: the higher the layer, the less chances of a claim being made.
- The Walker report states that “*the search for additional premium income appears to have distracted the attention of some underwriters from the seriousness of the exposures that they were assuming*”. For instance, on a premium rate of 2%, which was not uncommon on the higher layers, a premium of £1 million would involve a whole account exposure of £50 million. This may be sensible if the layer is highly unlikely to be reached but the higher layers in the context of the LMX Spiral were the most exposed. Thus the pricing was irrational.
- To conclude, the Walker Report describes the LMX Spiral as follows: it would have looked like an inverted pyramid at the lower levels of reinsurance, with the risk being spread in the classical reinsurance pattern, but with the higher levels being akin to the top half of a diamond because this is where risk was being concentrated.”²⁷

The Case Law (1992-2009)

By the time of the *Gooda Walker* judgment, courts had already recognised that LMX Business was high risk²⁸. Traditionally the reason for this had been the fact that LMX Business comprised the underwriting of catastrophes, a more volatile type of risk. In the 1980s, this was compounded by the way in which the LMX

²³ For instance several expert XL underwriters have written or given speeches about the LMX Spiral. This includes Tony Berry (e.g. n 12), John Emney (e.g. ‘LMX – Farce or Futility’ Insurance Institute (11 October 1990)) and Richard Outhwaite, whose article titled ‘LMX – Mainspring or Vulnerability’ (Reinsurance Market conference, Insurance and Reinsurance Research Group Limited, 14–15 April 1988) is quoted extensively in the *Gooda Walker* judgment (n 2). The Insurance Institute of London has also described the LMX Spiral in its Advance Study Group 244 Report *Developments in Excess of Loss Reinsurance* (2000).

²⁴ Walker (n 7) para 2.14.

²⁵ Walker (n 7) paras 2.15 and 3.3.

²⁶ Walker (n 7) para 2.13.

²⁷ Walker (n 7) para 3.12.

²⁸ This is noted in *Gooda Walker* (n 2) 1227. Phillips J was referring to the portfolio selection case *Sword-Daniels v Pitel and ors, Brown v KMR Services Ltd* [1994] 3 Re LR 10.

Spiral distorted the market. In *Gooda Walker*, the following were identified as undesirable effects of the LMX Spiral:

- (a) the concentration of the risk in the hands of the few rather than dispersal;
- (b) what has become known as the “magnifying effect” on claims;
- (c) the fact that higher layers were at a much higher risk of being impacted than would usually be the case in XL underwriting;
- (d) the transfer of a substantial proportion of premium to brokers;
- (e) opacity;
- (f) irrational rating because higher layers received a much lower rate even though they were, in fact, likely to be impacted; and
- (g) unpredictability. In *Gooda Walker* Phillips J explained this was due to the fact that it was impossible to work out what level of catastrophe would “burn through” the layers. This was further developed in subsequent cases. Courts noted that Spiral Participants could not predict when a loss would impact on their layers because this depended partly on the extent to which other reinsurers would first exhaust their reinsurance cover²⁹.

Actuarial Studies

Several studies of the LMX Spirals have been carried out by actuaries: given its complexity, it is probably an interesting phenomenon to study from a mathematical perspective. Below is a brief overview of the most significant of these actuarial investigations³⁰.

The LMX Working Party Report (October 1988)

In October 1988, the “LMX Working Party” issued a study titled “*Excess of loss reinsurance of Lloyd's syndicates and London market companies*”³¹. The LMX Working Party Report includes a simplified actuarial model of a real reinsurance property account containing London Market XL business³². Whilst the aim of the study was to discuss the XL market generally, the actuarial model clearly shows the impact of the LMX Spiral. A number of different scenarios, each with varying parameters, were put through the model to analyse the effect of each of those parameters on the account and, by analogy, the London XL Market at the time. The varying parameters included claim sizes, retention levels and leakage. Below are the model’s key findings for our purposes:

- The model shows that reducing the claim size by more than half did not significantly reduce the size of the LMX Spiral. In practice, this means a loss would take as long to be paid in full. Thus, once it had entered the LMX Spiral, the size of a claim did not determine how many “turns” of the LMX Spiral it would take for the loss to come to extinction. Bearing in mind that with each turn the gross amount being claimed increased, one can see how the magnifying effect was significant for claims of all sizes, and how the higher layers of reinsurance could be impacted by even relatively small losses.
- The LMX Spiral became apparent even for claims not much higher than the deductible. This finding corroborates the one above in that it shows that the LMX Spiral had an impact on even the smallest of claims.
- According to the model, the LMX Spiral reduced mainly through reinsurance programmes becoming exhausted. This means that losses stopped circulating only when a reinsurer had ran out of reinsurance cover and that reinsurer then had to meet all claims that fell upon it, leading to a concentration of the losses upon the least protected reinsurers within the London XL Market.

²⁹ See for instance *Wynniatt-Hussey v RJ Bromley (Underwriting Agencies) plc and ors* [1996] Re LR 310, 319–21; *Arbuthnott v Feltrim Underwriting Agencies Ltd & ors* [1995] CLC 437, 487; *Berriman and ors v Rose Thompson Young (Underwriting) Ltd* [1996] 5 Re LR 117, 127; *Nederlandse Reassurantie Groep Holding NV v Bacon & Woodrow Ernst & Young* [1997] LRLR 678, 686.

³⁰ Actuarial analysis not reviewed in this article include P White, ‘Lloyd’s: Post Reconstruction and Renewal’ (FT Financial Publishing 1997); D Sanders, ‘When the Wind Blows: An Introduction to Catastrophe Excess of Loss’ (Insurance Mathematics and Economics Volume 16, Number 3, July 1995, pp. 280-280(1)); J Stanard and M Wacek, ‘The Spiral In The Catastrophe Retrocession Market’ (1990).

³¹ LMX Working Party (n 13).

³² *ibid* ch 4.

- The size of the deductible had a much greater impact on the length of the spiral than the overall size of the reinsurance programme and its upper limit.
- The model shows that the length of the LMX Spiral increased as the following two parameters were increased: (i) the percentage of a reinsurance programme placed in the London XL Market and (ii) the percentage of this placement that was retained within the London XL Market. The actual size of the reinsurance programme made little difference. This shows that reinsurance spirals are potential features of any “closed” reinsurance market, regardless of the size of exposures being reinsured in those markets.
- The model also shows that the magnifying effect of the LMX Spiral increased if all of the following three parameters were increased: (i) the percentage of a reinsurance programme placed within the London XL Market, (ii) the percentage of this placement retained within the London XL Market and (iii) the size of the reinsurance programme (as a percentage of the upper limit of the programme). Thus the gross claim amounts would increase more for the larger reinsurance programmes that were placed within the London XL Market. This is the classic compounding effect: a higher figure (the original loss value) multiplied (claims turnover) produces higher amounts.
- Also, the size of claim which would cause a reinsurance programme to be exhausted would reduce proportionally as the above three parameters were increased. This meant that small claims could burn through the entire reinsurance programmes causing the relevant reinsurers to run out of cover.

The report concludes that reinsurance programmes would be exhausted by claims that are “*not immense*”. In this context, those with the best chances of survival were those with the highest levels of reinsurance protection. Whilst this seems obvious, it is important to note that this does not relate to the actual levels of exposure. Hence reinsurers heavily exposed to the catastrophes listed in the previous chapter could still perform well if they had sufficient reinsurance in place, whilst reinsurers with seemingly much lower exposures were still at risk of bankruptcy if they failed to protect their upper layers.

Professor Bain’s Actuarial Models (April 1999)

In an article published in 1999 Professor Andrew Bain, an economist, sought to produce a model of a reinsurance spiral and to apply it to “*the situation that existed in the Lloyd’s and the London reinsurance markets in the second half of the 1980s*”.

Professor Bain points out that once reinsurers have paid claims in excess of their deductibles, any additional claim will trigger further claims to their outward reinsurers until they run out of cover. Since an underwriter calculates the level of reinsurance he needs through his assessment of his “probable maximum loss (PML)”, Professor Bain considers the situation when reinsurers run out of cover as “PML failure”. Based on his analysis, he describes reinsurance spirals as follows:

- Reinsurance spirals are characterised by PML failure, which adds to the concentration of risk because those reinsurers whose reinsurance cover runs out first involuntarily end up retaining all losses that reach them, usually until they become insolvent.
- In addition, in a spiral the connection between the level of insured losses and the triggering of claims on the higher reinsurance layers is lost. This is because claims above the deductibles are passed on to the higher layers so that even a small claim can reach the catastrophe layers of XL reinsurance towers.
- As a result, the correlation between a layer of reinsurance cover and the probability of a claim being made is subverted. He concludes from this that premium should not reduce with each XL reinsurance layer but remain constant. This observation is mirrored in the LMX Working Party Report where it is said that the rates within the LMX Spiral should have been flat.
- Another aspect of the above is that underwriters are unable to make an objective estimate of the probability of a claim reaching their layer. The only way they could make such an estimate would be to obtain detailed knowledge of the structure of all intervening reinsurance contracts.

The article points out that the capacity of a reinsurance market is the sum of all deductibles within the market, plus layers willingly retained by reinsurers. Beyond this the risks are transferred amongst reinsurers. If a loss occurs that is greater than the sum of all deductibles and voluntary retentions, some reinsurers will run out of cover. Reinsurers calculate the level of reinsurance they require beyond their retentions and deductible through the use of PMLs, which are necessarily estimates. Accurate PMLs are therefore paramount and yet Professor

Bain argues that “in the absence of the information necessary to calculate the PML with any precision in these conditions, it will hardly be surprising if some insurers get it wrong.”

Equitas v R&Q (2009)

The most recent actuarial model of the LMX Spiral was created by actuarial expert Mr Bulmer for the purposes of the *Equitas v R&Q* case. It was common ground in the case that the LMX Spiral as a whole could not be replicated and the model was created as a hypothetical spiral to enable the claimant to verify their loss. As such the model focuses on the specific points in dispute.

Nevertheless, it was built upon a huge amount of actual data from the London XL Market gathered by Equitas and it is therefore the closest model ever created of the LMX Spiral. The model itself is confidential but the *Equitas v R&Q* judgment, which relies on the model, corroborates many of the findings describe above concerning the LMX Spiral. This includes the magnifying effect, opacity, the ways in which the spiral caused excess points and Sum Insured to be reached more quickly and the "long short tail" effect which is discussed below.

Reinsurance Spirals and their Effects

How Reinsurance Spirals Distort Reinsurance Markets

The above section describes reviews of the LMX Spiral and actuarial models produced by a cross section of experts, professionals and judges. Their analyses were based on different sources of information and written at various points in time within a period of 11 years. The facts that their conclusions have much in common provides tangible evidence that the LMX Spiral did impact the market in the ways they suggest. This is what we shall describe as the **Spiral Effects**, listed below.

The Magnifying Effect: Once a loss had made its way through the LMX Spiral, the gross claim amount had become significantly larger than the initial loss³³. A magnifying effect is a normal feature of any reinsurance market and it does not increase the net loss borne by reinsurers. Nevertheless, the sheer volume of claims adds significantly to administrative costs and it causes deductibles and excess points to be reached and reinsurance protection to be exhausted more quickly which, perversely, increases the claim turnover.

Opacity: A level of opacity is a normal feature of an XL reinsurance market given that the relationship between reinsurer and the primary insurer is more remote than in proportional reinsurance and risks may be bundled together. The LMX Spiral however created such a complex web of interconnected reinsurance contracts that, according to the Walker Report, “*transparency virtually disappeared*”. As a result the report goes on to say that there was no practicable means to establish at what size an original insurance loss would trigger a claim³⁴.

Concentration: The LMX Spiral caused losses to concentrate on those who had run out of reinsurance cover first. This was unintended and led to a random distribution of the losses.

Sum insured and layering rendered meaningless: This is another aspect of the concentration noted above. We have seen that in the LMX Spiral, losses would circulate until a reinsurer had run out of cover. As a result, claims were being made on the higher layers for even the smaller losses. By the same token, Sum Insured were reached even though the initial loss may not have been that substantial.

Irrational rating structure: Many underwriters priced LMX Business in the same way as any other XL reinsurance business, by reducing premium as the risk went up the layers. In a reinsurance spiral however claims are as likely to reach the higher layers as the lower ones. A flat rating structure would have been more appropriate. Yet it would probably have seemed absurd to many underwriters at the time since this goes against the whole notion of layering which is a defining feature of XL reinsurance.

³³ The most famous and often quoted example is Piper Alpha disaster, where the Gross Claim was estimated to have been as high as \$15 billion for an original loss of \$1.4 billion. In other words, the Gross Claim figure was more than 10 times the value of the original loss.

³⁴ Walker (n 7) para 2.7.

Long short tail: The term was coined in the LMX Working Party Report which points out that most of the catastrophes covered within the London XL Market were short tail losses³⁵. However, the sheer volume of claims being made within the LMX Spiral meant that a loss would take years to be fully paid. The LMX Working Party report gives the example of a loss stemming from Hurricane Alicia. Four years after the event, the reinsurer exposed to the LMX Spiral has paid 40 times the value of the original loss presented to him and he has no way of knowing when he will stop receiving claims relating to Hurricane Alicia. By contrast, the reinsurer not involved in the LMX Spiral knows its exact exposure within about 18 months of the event.

Unpredictability: In a reinsurance spiral, an underwriter is unable to predict who will bear a loss as this depends on at least two parameters that are unknown to him, namely:

- The level of protective reinsurance cover relative to exposure available to each LMX Spiral Participant; and
- the extent to which there is leakage (which also depends on the extent to which other reinsurers have run out of cover).

Reinsurers are of course not expected to know the exact position of all other market players but the financial strength of a particular reinsured or reinsurer is always a key factor for underwriters and a spiral adds a layer of complexity and unpredictability that was not accounted for in the underwriting.

How Reinsurance Spirals are a Potential Side Effect of XL Reinsurance

Some of the underwriters and other professionals embroiled in the LMX Spiral debacle argued that the catastrophes that occurred in the late 1980s/early 1990s (listed above) caused its collapse. The catastrophes were the proximate cause of the very significant losses suffered by the relevant reinsurers. However, as shown above the LMX Spiral was unsustainable because of its inherent flaws. All that was required was for a few losses, not necessarily very significant ones, to start making their way through the market for the LMX Spiral to start unwinding. This is because of the Spiral Effects, which distorted the London reinsurance market, creating an additional **Spiral Risk** that would not have existed but for the LMX Spiral.

One would hope that the LMX Spiral remains a unique occurrence in the history of reinsurance. It was, after all, closely linked to the peculiarities of the London market of the era. However, this does not mean that reinsurance spirals will not recur. Indeed, the LMX Spiral was closely followed by the PA Spiral which developed in the early nineties. The PA Spiral derives its name from the fact that it was built upon the reinsurance of Personal Accident (**PA**) insurance policies emanating from the US. The PA Spiral gave rise to a momentous legal case, *Sphere Drake*, in which Thomas J commented that:

*“Spirals can occur quite unintentionally in markets where companies write XL on XL of each other’s business; indeed there is often likely to be some spiralling in a retrocessional (retro) market where insurers reinsured the same companies and then reinsure those risks within the same market. The existence of spirals is therefore an inevitable feature of such markets...”*³⁶

XL reinsurance requires a high number of reinsurance contracts to cover a single risk because the original risk is split into tranches to be spread across a number of reinsurers and this happens indefinitely. In a market that only includes a limited number of specialists, one can see how overlap can occur. There is evidence that at least four spirals have developed within XL markets since the early twentieth century: the spiral stemming from losses caused by Hurricane Betsy in 1965; the LMX Spiral, the PA Spiral and, more recently, a spiral built upon the losses concerning the terrorist attack on the World Trade Centre in New York on 11 September 2001³⁷. It is possible that reinsurance spirals other than the four mentioned above have developed in global XL reinsurance

³⁵ For instance typical catastrophes covered would include hurricanes, windstorms or earthquakes, all of which cause the damage within a short period of time so the losses can usually be identified and quantified quickly after the event.

³⁶ *Sphere Drake* (n 3) para 166

³⁷ The 9/11 spiral is described by Mr Patrick J. Shannon during the 2003 Washington Spring Meeting of the Society of Actuary (Patrick J Shannon, ‘Managing Risk Concentration in the Post-9/11 Environment’ (Washington D.C., Spring Meeting, Washington, 29-30 May 2003)). His description of the development of the catastrophe market prior to 9/11 bears striking resemblance to the state of the London XL Market in the lead up to the LMX Spiral. For instance, he explains that over-capacity in the market had led to premium being underpriced and “irrational”; retentions were small, allowing for lax underwriting discipline with the result that some policies contained unlimited reinstatements and few exclusions, etc.

markets. For instance there may have been a spiral within the London XL market in the 1950s and there may have been another one arising from asbestos claims³⁸.

If reinsurance spirals are a possible feature of XL reinsurance markets, it is important to critically assess their legal status, most notably because use of XL reinsurance is likely to expand with the continued developments of international trade and commerce. It is submitted that the Spiral Effects would, to a smaller or greater extent, apply to all XL reinsurance spirals. This view is based on the fact that the data relied upon by actuaries to create the models of reinsurance spirals described earlier did not originate from the LMX Spiral itself. Instead, the data was based on illustrative XL accounts. Thus, those actuarial models demonstrate what might happen in any XL reinsurance market that develops a spiral. It seems clear that the Spiral Effects increase the element of risk taken on by underwriters and this additional element of risk will apply to any reinsurance spiral once it reaches a critical mass. If a reinsurance spiral continues to grow, the actuarial models show that it becomes unsustainable. Not all reinsurance spirals may reach that point. In any case, at the very minimum the Spiral Effects make the work of the underwriter more hazardous, which goes against the purposes of reinsurance, which is to reduce risk by spreading it.

Legal Appraisal of Reinsurance Spirals

In this third part, we provide a detailed legal appraisal of reinsurance spirals. We first consider relevant legal principles developed to date before proposing a new legal analysis that provides a better legal solution to the Spiral Risk.

Legal Issues with Reinsurance Spirals

Findings from the English Courts

The primary source of law concerning reinsurance spirals is case law. All relevant cases but one concern the LMX Spiral. The exception is *Sphere Drake*, where Thomas J concluded that the PA Spiral had been purposefully set up to transfer loss-making PA business to reinsurers. He made findings of dishonest breach of fiduciary duty and fraudulent misrepresentation against the relevant underwriters and brokers. Those findings are clearly based on the particular facts of the PA Spiral. The reinsurance spirals we are concerned with are unlikely to be purposefully set up. Rather, they grow organically and randomly as individual contracts are entered into by reinsurers seeking cover for their exposure.

So what does the case law concerning the LMX Spiral tell us about reinsurance spirals generally? English Judges were very critical of the LMX Spiral, even calling it an “aberration”³⁹ but they provide little by way of legal principles on how to deal with the Spiral Risk. There are two reasons for this. Firstly, in many of the cases where it features, the LMX Spiral⁴⁰ only served as factual background to analyse other legal issues⁴¹. Secondly, the cases were shaped by the idiosyncrasies of the Lloyd’s market because they arose from the Lloyd’s crisis. Thus the judgments focus on the duties underwriters and Lloyd’s agents owed to the Names when writing reinsurance contracts on their behalf. The leading case of *Henderson v Merretts* clarifies the duties of managing agents⁴² whilst the cases of *Gooda Walker*⁴³, *Wynniatt-Hussey v Bromley*, *Arbuthnott v Feltrim* and *Berriman v Rose Thompson Young*⁴⁴ expand on the duties owed by the Lloyd’s underwriters. Other cases emphasize the

³⁸ The asbestos spiral was mentioned to the author during a meeting of the reinsurance working party of the "Association Internationale de Droit des Assurances" (AIDA) in Istanbul on 3rd May 2012.

³⁹ *Arbuthnott v Feltrim* (n 29) 443.

⁴⁰ As part of the research for its thesis on the LMX Spiral the author has identified 120 judgments arising from the Lloyd’s crisis, 42 of which refer to the LMX Spiral.

⁴¹ The “Clementson” dispute is a good illustration of the point. Mr Clementson, a Lloyd’s Name since 1976, alleged that the Central Fund at Lloyd’s operated to distort competition and encourage moral hazard. These allegations, explored in no less than three full judgments (*The Society of Lloyd’s v John Stewart Clementson* [1994] CLC 71 (first instance), [1995] CLC 117 (Court of Appeal) and [1997] LRLR 175 (House of Lords)), required a detailed review of the ways in which the Lloyd’s market operated in the 1980s and early 1990s, which necessarily involved an analysis of the LMX Spiral. The findings, however, focus on anti-competition law.

⁴² *Henderson and Others v Merrett Syndicates Ltd and Others* [1997] LRLR 265.

⁴³ *Gooda Walker* (n 2)

⁴⁴ *Wynniatt-Hussey v Bromley*; *Arbuthnott v Feltrim*; *Berriman v Rose Thompson Young* (for all cases see n 29).

inherent risks of Spiral Business and the reasons why it had to be given ‘special consideration’ by underwriters⁴⁵ but they provide no findings about the LMX Spiral itself. Likewise, the most recent case on the LMX Spiral, *Equitas v R&Q*, was all about the ways in which Equitas could verify its loss: it was not a decision about the LMX Spiral.

The one way in which English courts have addressed the Spiral Risk is by prescribing a number of prudential steps underwriters ought to take when engaging in Spiral Business, as follows⁴⁶:

1. actively managing the portfolio’s exposure and balance;
2. following an underwriting plan;
3. monitoring aggregates and PML;
4. purchasing the appropriate amount of reinsurance;
5. matching reinstatements and
6. charging suitable rates.

Most reinsurance underwriters would recognise the above as sound practices for any type of reinsurance. The case law however emphasises that Spiral Business is more risky than standard reinsurance, which explains the need to follow specific prudential steps.

The Case Law Conundrum

The above findings enabled courts to make findings as regards the cases they had to deal with. However, following the prudential steps may not have been sufficient to protect against the Spiral Effects. In fact, it may have made little difference to the end result of the relevant Lloyd’s syndicate. This is explained below. We now know that the LMX Spiral reached a point where it was not possible for an underwriter to predict what level of catastrophe would impact on its account because small claims would burn through the various reinsurance layers, rendering the layering and Sum Insured almost redundant. The magnifying effect contributed to this by turning small claims into large ones. Moreover the underwriter could not know whether other reinsurers would exhaust their protection first. These difficulties were made worse by the opacity prevalent within the London XL Market at the time. Finally, the irrational pricing gave the misleading impression that the market functioned as a normal XL market with smaller rates at the higher layer being a true reflection of the reduced chance of a claim reaching those layers.

A reasonable underwriter may have followed the steps required by case law to have a sound underwriting plan in place (point 2 in the list above); a good grasp of its aggregate and PMLs (point 3), a decent level of reinsurance (point 4) with matching reinstatements (point 5) and he may have charged what seemed to be suitable rates (point 6). Yet all this could not protect against the risk that the layering and Sum Insured may have become redundant and that some of his reinsurance protections might in fact prove to be illusory. As a result, all the steps described above would have provided little-if any- protection: the contracts may not fit within his underwriting plan any more; his aggregate, PML calculations and pricing would be incorrect; and finally some of his reinsurance protection, including reinstatements, would be non-existent.

An underwriter’s best protection against some of those risks, most particularly “unpredictability”, may have been to spread his portfolio (point 1 above) so as to limit exposure to a market or reinsurer that might appear weak. However, this may not have worked if the risk in question could only be reinsured by a limited number of specialist reinsurers. Sometimes the weakest market also happens to be the main reinsurance market – as was the London market at the time of the LMX Spiral.

Of course, all transactions contain an element of unpredictability and markets cannot be expected to perform without some element of risk. The point about the Spiral Effects, however, is that they add an element of risk that would not exist but for the spiral. There is no doubt that the element of unpredictability within the LMX Spiral was much greater than the usual amount of uncertainty a reinsurer could have expected in a healthy reinsurance market. In fact in the late 1980s, some saw the role of the underwriter in the London XL market as being “entrepreneurial” because of the way the market operated⁴⁷.

⁴⁵ These cases include *Nederlandse Reassurantie Groep Holding NV v Bacon & Woodrow Ernst & Young* [1997] LRLR 678, *Aneco Reinsurance Underwriting Ltd v Johnson & Higgins Ltd* [1998] 1 Lloyd’s Rep 565, *Norwich Union Life Insurance v Qureshi and Qureshi* [1999] Re LR 263 and *Avon Insurance Plc and ors v Swire Fraser Ltd and another* [2000] Re LR 535.

⁴⁶ These prudential steps were first set out in *Gooda Walker* (n 2) and then expanded on in subsequent case law.

⁴⁷ LMX Working Party Report (n 13) 51.

The case law leaves us with a conundrum in that the reasonable underwriting prescribed by the Courts is not an effective solution to reduce the additional Spiral Risk caused by the Spiral Effects. **There is therefore a gap in English reinsurance law: reinsurance spirals are a potential side effect of XL reinsurance markets but there are no legal rules to deal with the very specific challenges they present.**

Other Legal Devices

The judiciaries' hands were tied by the ways in which cases were pleaded. How, without those constraints, could judges have apprehended the Spiral Risk better? The most radical tool courts have at their disposal to eradicate unwanted developments is to declare those to be illegal. **Illegality**, however, is a blunt instrument. Under English law, contracts may be found to be illegal because they were entered into to commit a crime or civil wrong (such as fraud) or they may be contrary to public policy. A reinsurance spiral that is purposefully set up to defraud innocent participants can be found to be illegal on its particular facts⁴⁸ but many reinsurance spirals develop within XL markets simply as a side effect of normal market trading. Reinsurance spirals are not illegal pyramid scheme either because they are built upon genuine business and not created as a scam to enable the founders to misappropriate investments made by later recruits. If there is no fraud, an argument that reinsurance spirals are illegal would therefore have to be founded on grounds of public policy. Arguably reinsurance spirals may lead to market collapse, but this is too far-fetched to be a compelling argument. Moreover, such a finding would have undesirable consequences given that any payment under an illegal contract is *ex gratia*, meaning that cover could be denied under the outward reinsurance contracts: entire reinsurance chains would be tainted by the illegality.

If reinsurance spirals are not illegal, is it then possible to argue that those who engage in this type of business are automatically **negligent**? The difficulty with such an argument is that some underwriters did write Spiral Business successfully and proof of loss is a fundamental requirement of the law of negligence⁴⁹. This explains why in none of the cases was it ever argued that writing Spiral Business was negligent *per se*. This is also the reason why, in *Gooda Walker*, Philips J concluded that a competent underwriter could write a book which included Spiral Business⁵⁰.

Interestingly, Philips J's judgment suggest the competent underwriter may well have needed to rely on arbitrage to make a profit within a reinsurance spiral and yet an underwriter's ability to do this features nowhere on his list of prudential steps. Arbitrage in reinsurance is the ability to make a profit purely on the premium differential. The LMX Working Party report makes it clear that this was indeed a feature of the LMX Spiral, describing it as "gearing". Arbitrage was also used by those who set up the PA Spiral. Thomas J found that this was acceptable provided it was done transparently. He did however express doubt as to whether a reinsurer would agree to underwrite a risk, knowing that he is being "arbitraged" against. Indeed this seems to sit uneasily with the requirement of "good faith" or the Lloyd's motto of "fidentia", which means trust and which was traditionally seen as a key element of reinsurance markets.

This brings us to the question: could the age-old requirement of **good faith** provide a better legal solution to the issue of reinsurance spirals? The duty of good faith requires reinsureds to disclose material circumstances to their reinsurers prior to the conclusion of the contract⁵¹. In reinsurance, what is material includes not only the original risk itself but also the activities of the reinsured⁵². In the *Sphere Drake* case, Thomas J took the view that a reinsured had to disclose the fact that the business being presented had a "spiral content"⁵³. The PA Spiral however was not a market phenomenon but a man-made spiral comprising only a few reinsurers engaged in a specific type of business. A reinsurance spiral that reaches critical mass would arguably become common

⁴⁸ The question of the legality of reinsurance spirals has not been explored in the English courts. It was not raised, as such, in any of the case law concerning the LMX Spiral although it came close in the context of the PA Spiral. In the *Sphere Drake* case, the claimant told the Court they would not raise issues of illegality concerning the relevant contracts because the other party to those contracts was not present at Court and Thomas J agreed with this approach (*Sphere Drake* (n 3)) para 322.

⁴⁹ Negligence belongs to the law of tort, where a cause of action is only established if the claimant can prove that the defendant owed him a duty of care, the defendant was in breach of that duty and, critically, the breach has caused the claimant harm which, in this case, would be the financial loss.

⁵⁰ *Gooda Walker* (n 2) 1252.

⁵¹ Marine Insurance Act 1906, s 17.

⁵² *Reinsurance Practice and the Law* (n 9) para 10.6.

⁵³ *Sphere Drake* (n 3) para 8.

knowledge, at which point no disclosure is required⁵⁴. Indeed, in *Gooda Walker*, Phillips J was clear that underwriters who specialised in LMX Business ought to have known about the LMX Spiral. In any case, the issue with a reinsurance spiral is not so much its existence but its effects. Some of the more experienced underwriters who wrote LMX Business understood the dangers of the LMX Spiral but some clearly did not. The duty of good faith does not require an underwriter to educate others as to the dangers of certain types of business⁵⁵. On that basis, disclosure that the risk includes some exposure to a reinsurance spiral would comply with the duty. Yet this will make no difference if the other party is unaware of the Spiral Risk.

Nowadays underwriters may be more aware of the risks associated with a reinsurance spiral and they are subject to much more stringent regulation that requires them to have a proper understanding of their exposures. Nevertheless, good faith does not deal address the impact of the Spiral Risk. Rather, it requires the risk to be flagged, leaving it up to the market to decide what to do with this information. Whilst this is a step in the right direction, but it does not deal with the Spiral Risk.

A Proposed Legal Analysis

A New Perspective

There is no obvious legal device familiar to the insurance lawyer that provides an effective legal solution to the issue of reinsurance spirals. A change of approach is therefore required. The Names who took their grievances to Court wanted justice from the agents they had entrusted with their money. English courts responded by requiring minimum standards of care and behaviour from those agents and their underwriters. Professional standards in parts of the market at the time were particularly low and therefore the courts were able to make the findings the Names were seeking at the time.

However, we have shown that even underwriters who followed the prudential steps set out in case law may have been caught out by the Spiral Effects. This is because individual underwriters, no matter how cautious, have no control over the underwriting of others and the development of reinsurance spiral. The problem with reinsurance spirals does not lie solely in the people who built them. One would hope that nowadays the majority of these people act with good intentions and with skill.

The problem with reinsurance spirals is the Spiral Risk: that additional risk created by the spiral itself. The only effective way to tackle the Spiral Risk is not to focus on the people who create the spirals but to consider the effect the Spiral Effects have on the XL contracts at the core of every reinsurance spiral (**Spiral Contracts**). So far, English courts have not had an opportunity to do so.

How the Spiral Effects distort Spiral Contracts

We start our study of the Spiral Contracts by considering again some of the basic features of XL reinsurance touched upon earlier in this article. We have seen that XL reinsurance is a mechanism to spread risk amongst a larger number of reinsurers by splitting large risks into smaller parts that can be transferred independently of each other. Its key characteristic is the way the risk is layered and sold in tranches. Each layer then acquires a different risk profile and it is priced accordingly. The specifics of the reinsurance policy such as reinstatements, excess point and Sum Insured, are also absolutely key to the pricing since they delineated precisely the risk undertaken.

Charging the appropriate rate is essential because, even though reinsurance products are becoming more sophisticated, the fundamentals remain unchanged: the reinsurer must ensure he has collected sufficient premium to pay claims and run his business.

Yet we have already demonstrated how the Spiral Effects can distort reinsurance markets to the point when it is near impossible for a underwriter to properly assess a risk. The same analysis leads to similar conclusions when one considers the impact the Spiral Effects have on Spiral Contracts.

The most significant Spiral Effect from our perspective is the fact that a reinsurance spiral renders Sum Insured and layering meaningless. It has been said that because of this, within reinsurance spirals the rating structure should be flatter. When considering how significant the layering ought to be in XL reinsurance markets, the need for a flat rating structure suggests that the contracts are not functioning as XL reinsurances. This links in to the Spiral Effect titled the “irrational pricing structure”.

⁵⁴ Marine Insurance Act 1906, s 18(3)(b).

⁵⁵ *Simner v New India* [1995] LRLR 240.

Another Spiral Effect of significance is the Unpredictability point. This is the effect whereby a reinsurer cannot know exactly which reinsurer within the spiral will first exhaust its reinsurances. Arguably this does not impact on the risk at the point when it is underwritten under the inward reinsurance. Nonetheless, the possibility that the reinsurer may not have reinsurance protection for that particular contract makes it more risky for him to write, which ought to be reflected in the premium charged.

Opacity is another Spiral Effect of importance. Given that the relationship between the underlying risk and the reinsurer is more remote in XL reinsurance, XL underwriters place more reliance on factors other than the minutiae of the risk itself including, for instance, the identity of the reinsured and its underwriting policy, the state of the market, the situation of the contract within the reinsurance tower, etc. In the context of the LMX Spiral, there was such opacity in the market that it has been said the only information a reinsurer had at his disposal were the deductible, the Sum Insured and the premium⁵⁶. We know that in a reinsurance spiral the Sum Insured is meaningless and premium misleading. This leaves the underwriter with virtually no reliable information, other than the deductible, to properly appraise the risk he is underwriting.

Where does this leave us in our analysis of the Spiral Contracts? They provide for a reinsurer to underwrite a risk at an agreed price. Other than that, they bear little resemblance to XL reinsurance contracts. In a usual XL contract, the risk is delineated by clear parameters including the nature of the risk, the retention, the Sum Insured and the layering. This enables the reinsurer to quantify the risk he is underwriting and to charge an appropriate premium. It also enables him to consider how the contract fits within its underwriting plan. The Spiral Contracts within a reinsurance spiral contain those elements. Nevertheless, the Spiral Effects render those parameters ineffective such that the scope of the risk being underwritten is uncertain.

Spiral Contracts Distinguished from Wagers

Given that we are questioning the true nature of Spiral Contracts, it seems logical to consider whether they are wagers. There are similarities between reinsurance and wagers and historically, the requirement for an insurable interest for an insurance contract to be valid was the need to differentiate between insurance and wagers. To consider the issue, we need to understand clearly what constitutes a wager. The best known definition is to be found in the case of *Carlill v Carbolic Smoke Ball Co*⁵⁷ where it was said that:

"A wagering contract is one by which two persons professing to hold opposite views touching the issue of a future uncertain event, mutually agree that, dependent upon the determination of that event, one shall win from the other, and that other shall pay or hand over to him, a sum of money or other stake; neither of the contracting parties having any other interest in that contract than the sum or stake he will so win or lose, there being no other real consideration for the making of such contract by either of the parties."

Even though the subject of a wager is often an uncertain future event, the parties may choose instead a past event or a fact that is not uncertain, provided they hold opposite views on it⁵⁸. We can see from this that wagers are of a wider scope than insurance and reinsurance contracts. Also, parties to a reinsurance do not necessarily hold opposite views on the chances of the event happening. Finally, wagers do not relate to the transfer of an existing risk from one party to another. Instead, they artificially create a risk of loss for the parties that would not exist but for the existence of the wagering contract.

By contrast, in reinsurance a reinsured must have some sort of connection to the uncertain event. Legally the connection takes the form of an insurable interest. In practice, this connection is the reinsured's liability to indemnify its own reinsured under the inward reinsurance agreement. This liability ties the fortune of the reinsurer to that of the original policyholder. If the event materialises, they both suffer loss. Critically for our purposes, this connection, through the principle of indemnity, is a key factor that differentiates XL reinsurance contracts from wagers.

⁵⁶ Walker (n 7) para 2.7.

⁵⁷ *Carlill v Carbolic Smoke Ball Co* [1892] 2 Q.B. 484, 490; affirmed [1893] 1 Q.B. 256.

⁵⁸ For instance, the following have been found by courts to have been the subject of wagering contracts: which horse won the Derby the previous year (*Pugh v Jenkins* (1841) 1 Q.B. 631), the price of a previous lot of rags (*Rourke v Short* (1856) 5 E. & B. 904) or even the question whether the earth is flat *Hampden v Walsh* ((1876) 1 Q.B.D. 189).

The True Nature of Spiral Contracts

We have established that, from a legal perspective Spiral Contracts and neither XL reinsurance contracts nor wagers. So, what are they? We have shown that the parameters usually relied upon to define the risk are ineffective but the duty to indemnify remains. Indeed, this duty is the backbone of the huge web of interconnected and overlapping payments made within a reinsurance spiral. The loss payable under each contract is an indemnity for the reinsured's own loss, which is the indemnity he himself had to pay his own reinsured. From one indemnity to the next, going down the chain of contracts, we reach the original loss suffered by the policyholder under the primary contract of insurance. The exact parameters of the indemnity may not be those of a typical XL reinsurance contract and the Spiral Effects will make payments more random than would be expected in an orderly XL reinsurance market. The payments, however, are driven by the duty of the "reinsuring" party to indemnify the other party for its loss.

It is therefore submitted that **once a reinsurance spiral develops, from the moment the Spiral Effects take hold all Spiral Contracts are, from the outset, contracts of indemnity.** This argument is based on the premise that XL reinsurance contracts can be legally defined according to the criteria set out above i.e. they provide cover for a tranche of a risk, delineated through the use of the excess point and usually a Sum Insured, at a price that reflects the risk thus undertaken.

It is not the case that the contracts may first be XL reinsurances that are turned into indemnities as the spiral develops. Rather, from the moment an underwriter is unable to rely on the usual criteria that define XL reinsurance to set an appropriate premium, the contracts entered into are indemnities because the duty to indemnify is the only effective clause of the contract.

This is a simple proposition but it has significant consequences. Firstly, the legal principles applicable to reinsurance contracts, such as the duty of good faith, have no more relevance and the Spiral Contracts are governed instead by the general rules of contract law. Secondly, there may be serious regulatory consequences: the reinsured and reinsurer may find that they are in breach of their regulatory licence if they enter into contracts that are not reinsurance. This issue will not be explored in detail because regulation is outside the scope of this article.

Of course, in practice it is difficult to identify the exact point when new Spiral Contracts being entered into are, in fact, contracts of indemnity. These practical difficulties, however, are not insurmountable. A possible solution would be to take one specific criteria, say the Sum Insured, and consider whether it is still, within the relevant contract, a reliable parameter. If small claims reach the Sum Insured in what ought to have been a catastrophe layer, this would be a good indication that the Spiral Effects have started to take hold. It is all a matter of degrees, and there will be grey areas where it is unclear whether the reinsurer can still rely on the layering and other information usually of relevance in the context of XL reinsurances. The law, however, is no stranger to grey areas; these are a necessary side-effect of seeking to apply uniform rules when the reality is diverse.

These difficulties ought not to detract from the fundamental point being made. XL contracts are a specific type of reinsurance defined by clear parameters. A reinsurance spiral blurs those parameters to the point where they become irrelevant and the contract stops functioning as XL reinsurance. Applying the usual rules and principles of reinsurance in such cases is flawed, as evidenced by the "case law conundrum" described above. The prudential steps are ineffective because they were prescribed by the courts on the presumption that the Spiral Contracts are XL reinsurance contracts.

Recognising that Spiral Contracts are of a different nature makes it clear that success in the context of a reinsurance spiral is not necessarily dependent on following usual reinsurance underwriting procedure. Instead, the most likely to succeed are those underwriters who can identify the point when the contracts they enter into are not XL reinsurances any more. This is what happened to some extent in the context of the LMX Spiral: the more sagacious underwriters chose to limit their exposure to the London XL Market to avoid the spiral. They recognised the point where they were unable to assess the risk in the usual way.

Conclusion

This article provides a legal appraisal of reinsurance spirals generally, based on a detailed analysis of the LMX Spiral. It shows that the LMX Spiral was unsustainable because of its inherent flaws. This is because of the Spiral Effects which created a new Spiral Risk that would not have existed but for the spiral. The article also

notes that reinsurance spirals seem to be a side-effect of XL reinsurance and that any reinsurance spiral may reach a point where the Spiral Effects take hold.

The case law on reinsurance spirals is almost exclusively about the LMX Spiral. Whilst judges were very critical of its development, because of the way the cases were pleaded the judgments focus on the duties of the underwriters and agents who engaged in Spiral Business. This served the purposes of the claimants but it did not deal with the Spiral Risk since underwriters, no matter how diligent, cannot avoid the Spiral Effects once they take hold.

This article considers whether other legal devices, such as illegality or good faith, may be more effective to deal with the Spiral Risk, only to conclude that they are not. This calls for a change of perspective. Instead of considering that everything stems from the people who create reinsurance spirals, the law ought to focus more on the Spiral Contracts at the heart of any reinsurance spiral. A close analysis shows that once they take hold, the Spiral Effects turn Spiral Contracts into something other than XL reinsurance because they cancel out the key features of XL reinsurance contracts. Since the only effective remaining feature of Spiral Contracts is the duty to indemnify, it is submitted that the Spiral Effects turn Spiral Contracts into contracts of indemnity. Underwriters may still be blamed for failing to recognise this. Nevertheless, in addition the law ought to identify that the real issue with reinsurance spiral is their distorting effect on the Spiral Contracts at their core.