Neutral Citation Number: [2009] EWHC 2787 (Comm)
Case No: 2007 Folio No. 1418, 2007 Folio No. 1420

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
COMMERCIAL COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 11th November 2009

Before :
MR JUSTICE GROSS

- -

Between :

Case No: 2007 Folio No. 1418
EQUITAS LIMITED **Claimant**
- and -
R&Q REINSURANCE COMPANY (UK) LIMITED **Defendant**

AND

Case No: 2007 Folio No. 1420
EQUITAS LIMITED **Claimant**
- and -
ACE EUROPEAN GROUP LIMITED **Defendant**

- -

Alistair Schaff QC and Simon Kerr (instructed by **Slaughter and May**) for the **Claimant**
John Lockey QC and Patrick Goodall (instructed by **Barlow Lyde & Gilbert**) for the **Defendant**

Hearing dates: 15/6/2009, 16/6, 17/6, 24/6, 25/6, 26/6, 30/6, 1/7 and 2/7,

- -

Judgment

Mr Justice Gross

INTRODUCTION

1. These actions concern claims by the Claimant ("Equitas"), as assignee of the rights of Lloyd's Syndicates ("the syndicates"), under various contracts of retrocessional excess of loss ("XL") reinsurance ("the reinsurance contracts"), written by the Defendants ("R&Q" and "Ace" respectively) within the London Market Excess of Loss ("LMX") spiral.

2. Given the sensible agreement of the parties to hiving off various matters of detail, this trial is squarely focussed on the issue which arises in the R&Q action: namely, whether the fact that, initially, the (LMX) market wrongly (1) aggregated certain losses; and (2) included irrecoverable losses, precludes Equitas from recovering under the reinsurance contracts for otherwise (potentially) recoverable losses thus "tainted" - absent an ability to replicate the LMX spiral at each level without the introduction of the wrongly aggregated and irrecoverable elements. It is common ground that Equitas has not sought to replicate or reconstruct the LMX spiral in this fashion and realistically common ground that it is (at least) now impossible to do so.

3. In a nutshell, the Equitas case is that it is entitled to succeed; its recoverable losses are capable of being proved and it has succeeded in proving them to a standard of the balance of probabilities, through the use of actuarial modelling – effectively, allowing appropriate discounts to strip out the wrongly aggregated or irrecoverable elements, so leaving a minimum recoverable amount properly due under each of the reinsurance contracts.

4. By contrast, the R&Q case is that Equitas is entitled to recover nothing at all. Unless Equitas can prove that the sums claimed are properly due, contract by contract - estimating and guesswork will not do -the losses must lie where they fall. As a matter of principle, the losses of individual syndicates, with their particular requirements as to exhaustion of underlying cover, attachment points and limits, cannot be proved by a generalised actuarial model which does not replicate the LMX spiral. Moreover, even if Equitas can overcome this hurdle of principle, the model utilised by Equitas is flawed and does not achieve its purpose; it does not approximate reality or, at least, does not approximate the LMX spiral even if it has created a hypothetical spiral. It may be noted that the R&Q case relies on criticism of the Equitas model; it does not suggest any rival model.

5. Equitas retorts that the R&Q case involves a counsel of despair; it is deeply unattractive to suggest that even otherwise manifestly recoverable claims must fail, because of initial "tainting" affecting only a small proportion thereof or arising only at a late stage by when a very significant percentage of allowable loss had already been sustained.

6. I was informed by the parties that the case is, in effect, a test case. In the light of the initial erroneous aggregation and allowance of irrecoverable claims, thereafter magnified in the LMX spiral, the market is now in "lockdown". A number of other disputes and claims hinge or may hinge on the outcome. It is to be underlined at the outset (and need not be repeated) that this is in no way the "fault" of R&Q and no criticism attaches to the stance it has taken in these proceedings. Whether, of course, that stance is sustainable is another matter.

7. The background goes back some 20 years to events in Alaska and the Middle East, which continue to resonate today.

8. On the 24th March, 1989, the tanker, the "*Exxon Valdez"* ran aground in Prince William Sound in Alaska, resulting in a major spillage of oil, in turn leading to an extensive clean-up operation.

9. On the 2nd August, 1990, Iraq invaded Kuwait and by mid-morning was in control of Kuwait International Airport ("the airport") and all the aircraft there on the ground. These included 15 aircraft owned by Kuwait Airways Corporation ("KAC"), together with spares for that fleet. Also at the airport on that day was a British Airways ("BA") aircraft. In the events which happened, the KAC aircraft and spares were flown to Iraq while the BA aircraft remained at the airport, where it was destroyed in the course of the liberation of Kuwait by coalition forces (operation "Desert Storm") on or around the 27th February, 1991.

10. Both the grounding of the "*Exxon Valdez*" and the loss of the KAC fleet of aircraft (and spares) gave rise to catastrophic losses which first entered the LMX spiral in the

early 1990s. Thereafter and in events which happened, the history of the KAC and *"Exxon Valdez"* losses unfolded as set out in the paragraphs which follow.

11. *KAC*: The London market's treatment of the KAC losses became entangled, as early as 1991, with its treatment of the BA loss. The KAC and BA losses were presented to and paid by insurers and reinsurers within the LMX spiral on the basis that they arose out of one event - with a date of loss of 2nd August, 1990, namely, the Iraqi invasion of Kuwait. The initial losses involved sums of approximately US$300 million (for KAC hull losses) and US$28 million and US$15 million (for BA hull and liability losses respectively). All these losses were claimed and paid on an aggregated basis; no differentiation was made between the KAC and BA losses, which were given a single "Cat 90V" market coding. The market operated on this basis in relation to inwards and outwards claims for a period of about 5 years.

12. Subsequently, the correctness of the aggregation of the KAC and BA losses was called into question by certain retrocessionnaires within the LMX spiral. Pending resolution of the issues of aggregation, non-Lloyd's reinsurers stopped settling claims by about July 1996; Lloyd's reinsurers stopped settling non-Lloyd's claims by about January 1997; Lloyd's reinsurers stopped settling inter-Syndicate claims in about June 2002.

13. In the meantime, in 2000, the KAC spares loss of about US$259 million entered the market but, in effect, such settlements as occurred did not reach the level of XL on XL cover.

14. In *Scott v Copenhagen Re Co (UK) Ltd* [2003] Lloyd's Rep IR 696, which, I am told, was effectively a market-inspired test case, the Court of Appeal held that the KAC and BA losses ought not to have been aggregated as they did not arise out of the same event. The event in respect of the loss of the KAC fleet (and spares) was the invasion and capture of the airport. For present purposes, it suffices to say that the same could not be said in respect of the loss of the BA aircraft.

15. The *"Exxon Valdez*": The Exxon history involves the initial inclusion of losses ultimately held to be irrecoverable, rather than, as with KAC, losses wrongly aggregated.

16. Taking the matter as shortly as I can, the pollution caused by the grounding of the "*Exxon Valdez*" resulted in a number of large claims made against Exxon Corporation ("Exxon") and Exxon Shipping Corporation ("ESC"). In turn, Exxon made substantial claims against its insurers for indemnity in respect of the clean-up costs under (*inter alia*) a primary policy, the Exxon Global Corporate Excess Policy ("the GCE policy"). Claims were made under three sections of the GCE policy:

    i) Section I (property damage);

    ii) Section IIIA (marine liabilities);

    iii) Section IIIB (public and third party liability).

17. Additionally, other heads of claim were advanced and paid by the insurance market: namely: (1) P&I group losses of US$389 million, paid in December 1989 - June 1990;

(2) Atlantic Richfield losses of US$16 million, paid in November 1997; (3) BP losses of US$56 million paid in June 1998.

18. In August 1993, Exxon commenced proceedings against its insurers, in relation to its claims under the GCE policy, in Harris County, Texas. The fate of these claims was as follows:

i) On or about the 15th March, 1996, the insurers settled the claim brought under Section I (property damage) on terms involving the payment of US$303.5 million. It would appear that the insurers settled this claim on the basis of legal advice emphasising the risks of jury trial.

ii) The Section IIIA (marine liabilities) claim proceeded to trial in Texas. In the event, Exxon was successful and judgment was entered against insurers on the 3rd July, 1996, in an amount of (approximately) US$410 million. Insurers appealed.

iii) Subsequently, on the 23rd January, 1997, insurers concluded a settlement agreement with Exxon of its claims under Section IIIA (see ii) above) and Section IIIB (public and third party liability), on terms involving payment to Exxon of US$480 million (in addition to the payment ofUS$303.5 million under i) above). As is agreed before me, of the US$480 million, the parties attributed US$414 million to Section IIIA and US$66 million to Section IIIB.

19. As to questions of timing, the P&I group losses would have entered the LMX spiral in 1990. So far as concerns the GCE policy payments, these all entered the LMX spiral in 1996-7. They were followed in 1997-8 by the Atlantic Richfield and BP losses. All these losses were grouped together by the market under the catastrophe code, "Cat 89G", giving rise to thousands of individual claims dealt with on an aggregated basis.

20. These losses, it would appear, had become a highly significant part of the history of the LMX spiral. However, the scope of the cover provided to Exxon by the GCE policy under Sections I (property damage) and IIIB (public and third party liability) was challenged by various reinsurers and retrocessionnaires. Non-Lloyd's reinsurers stopped settling losses in March 1998; Lloyd's reinsurers stopped settling non-Lloyd's claims in May 2000; Lloyd's reinsurers stopped settling inter-Syndicate claims by the end of 2000.

21. Litigation followed. In *Commercial Union v NRG* [1998] 2 Lloyd's Rep 600, the Court of Appeal held that the reinsurers, NRG, had an arguable defence that the direct reinsurers had not been liable to Exxon under Section I of the GCE policy. Still more decisively, in *King v Brandywine Reinsurance Co.* [2005] EWCA 235; [2005] 1 Lloyd's Rep 655, the Court of Appeal held that neither Section I nor Section IIIB of the GCE policy provided cover for the relevant activities; accordingly, the Section I and IIIB elements of the "*Exxon Valdez*" loss were irrecoverable and ought not to have been included in claims which had entered the LMX spiral.

22. Against this background, Mr. Schaff QC, for Equitas, submitted that the choice for the Court lay between the conclusion urged by R&Q - that nothing can be done - or, as he urged, that the contracts should be enforced "...using the best evidence available in the

circumstances to quantify the amount of ... recoverable loss." This was an evidential question of fact not a question of law.

23. For his part, Mr. Lockey QC, for R&Q, submitted that the correct legal question should be framed in the following terms:

> " ... whether Equitas can demonstrate that each claimant syndicate's current ultimate net loss for correctly aggregated Kuwait loss settlements and recoverable Exxon loss settlements exceeds the relevant attachment point of the relevant reinsurance contracts and, if so, by how much? ... "

The "correct legal focus" was not how to "disaggregate" a wrongly aggregated loss but instead on the "demonstration that a correctly aggregated loss exceeds the relevant attachment point of the reinsurance contract in question and, if so, by how much."

24. With the battle lines thus drawn, I heard evidence during the trial from the following witnesses:

i) Evidence of fact from Mr. Gregory, essentially going to available underlying data.

ii) Expert underwriting evidence from Mr. Berry, called by Equitas and Mr. Emney, called by R&Q, on issues of market background and/or practice relating to the LMX spiral - both Mr. Berry and Mr. Emney being "doyens" of the LMX market.

iii) Expert evidence as to claims presentation, adjustment and handling at the retrocessional XL level of the LMX spiral, from Mr. Lloyd, called by Equitas and Mr. Cornick, called by R&Q.

iv) Expert actuarial evidence from Mr. Bulmer, called by Equitas and Mr. Sanders, called by R&Q. Plainly, this evidence was central to much of the detail of the dispute between the parties.

25. I should say at once that all the witnesses sought, so far as they were able to do so, to assist the Court. I should add that I was also most grateful throughout to both Mr. Schaff and Mr. Lockey, together with their respective Juniors and legal teams for the very high quality of written and oral submissions and the efficient conduct of the trial. This was not on any view a simple case, involving as it does, the search by the Court for an acceptable legal and sensible commercial solution in a situation where the market has been unable to devise one.

THE LMX SPIRAL

26. Before proceeding further, it is necessary to summarise the LMX spiral. Fortunately, as both parties agree, it is unnecessary to look beyond the following description of the LMX spiral, contained in the judgment of Phillips J (as he then was) in *Deeny v Gooda Walker Ltd* [1994] CLC 1224, at pp. 1231-1232, which I adopt with gratitude:

" ....The working of the spiral was complex, and whether by diagrams or in words it is only possible to attempt to describe it in a simplified form ....

Many syndicates which wrote XL cover took out XL cover themselves. Those who reinsured them were thus writing XL on XL. They, in 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 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.

So far as the individual syndicate was concerned, the effect of the spiral was to magnify many times the impact of a particular loss. That is because claims were repeatedly made in respect of the same loss as it circulated in the spiral. I was told that claims in respect of the Piper Alpha loss exceeded by a multiple of about ten, the net loss that was covered on the London market.

This gearing effect did not, of course, result in an ultimate payment of a greater indemnity than the initial loss. As the loss passed through the spiral, however, it impacted repeatedly on successive layers of reinsurance cover and ultimately concentrated on those reinsurers who found their cover exhausted.

There were at least two significant ways in which spiral business was written:

(I) *XL on XL*: this described the grant of excess of loss cover in respect of an excess of loss account;

(2) *whole account*: an underwriter who took out, without exclusion, excess of loss cover in respect of his whole account would thereby obtain excess of loss cover in respect of that part of his whole account which itself comprised excess of loss business.

The spiral effect of claims was diminished or extinguished by individual retentions, whether before reinsurance protection commenced or after it had been exhausted, by co-insurance and by 'leakage' to reinsurers outside the London market, so that the extent to which catastrophe claims spiralled depended to a degree on the size of the loss or more precisely that part of it

which entered the London market. Thus, the higher the level of the layer of excess of loss protection, the lower the risk that it would be impacted. The effect of the spiral was, however, significantly to reduce the comfort that could properly be derived from being exposed only to what appeared to be a very high layer of loss. Another effect was to transfer from the insurers to the brokers a very substantial part of the overall premiums in respect of a risk, for on each excess of loss reinsurance, brokerage fell to be paid at a rate of ten per cent of the premium."

THE REINSURANCE CONTRACTS

27. This trial is concerned with 26 reinsurance contracts, 14 of which are said to be "tainted" by the erroneous KAC/BA aggregation and 12 by the initial market allowance of irrecoverable Exxon losses.

28. Albeit briefly, something needs to be said as to the nature of the reinsurance contracts. All were retrocessional level XL contracts with limits of cover excess of a stipulated amount (or attachment point) on an "each and every loss" basis and by reference to the syndicate's Ultimate Net Loss ("UNL"). Almost without exception, they were either "back-up" contracts or contained a significant "back-up" element of cover, triggered upon the exhaustion of an underlying contract or contracts. Some of the reinsurance contracts operated excess of underlying aggregate limits, the aggregate limits reflecting the underlying limits of cover to be found in a "front-in" contract. Others were "top and drop" contracts; the "top" element provided high level "each and every loss" cover; the "drop" element "dropped down" to provide "back-up" cover once underlying "front-in" contracts were exhausted.

29. The significance of the "back-up" element of the reinsurance contracts is that the impact of the "tainting" from the wrongly aggregated or the allowance of irrecoverable losses could arise in two different ways. First, insofar as there are claims for the recovery of Exxon or KAC losses themselves, the question plainly arises as to the true amount of Cat 89G or Cat 90V losses which Equitas is entitled to recover from R&Q. Secondly, there are claims by Equitas for the recovery of other and quite separate reinsured losses - e.g., under contract 31, non-Cat 89/90V, in respect of a China Airlines crash. In such cases, no question arises as to whether the loss falls within the scope of the reinsurance; however, the question which does arise is whether but for the erroneous aggregation or inclusion of irrecoverable losses, the underlying layers would have been properly exhausted. It is perhaps noteworthy that only one of the Cat 90V reinsurance contracts (contract 1) comprised both claims for Cat 90V and non-Cat 90V losses; that contract apart, all the Cat 90V affected contracts comprise claims for non-Cat 90V losses, said to be "tainted" on account of the underlying layers having been improperly exhausted. That said, too much should not be made of this distinction. Although at the beginning of the trial there was some suggestion of a difference in approach between the Cat 89G or 90V losses and other losses, by the conclusion of the trial Equitas, rightly in my view, did not press this distinction. To my mind, throughout, the question must be whether Equitas can establish, on a

balance of probabilities, that the claim is properly within the scope of the cover and/or the underlying limits have been exhausted, as the case may be.

30. It is next convenient to set out some of the terms of the reinsurance contracts which loomed large at the trial. All the reinsurance contracts incorporated the Joint Excess Loss Committee Excess Loss Clauses (the "JELC clauses", of which more in due course or equivalent), which provided, insofar as material, as follows:

> "1. REINSURANCE CLAUSE
>
> 1.1..... the reinsurers hereon shall indemnify the reassured in settlement of its net loss (as defined in clause 2 below)…
>
> 1.3 It is a condition precedent to liability under this contract that settlement by the reassured shall be in accordance with the terms and conditions of the original policies or contracts.
>
> 2. NET LOSS
>
> 2.1 "Net loss" under this contact means the sum paid by the reassured in settlement of loss, damage, liability or expense….after deduction of all salvage and recovery including recovery from all reinsurances other than those specified....
>
> 2.2 Where salvage, recovery or other payment is received or recovered after a settlement under this contract, the indemnity shall be adjusted as if it had been received before settlement was made.
>
> 2.3 Nothing in this clause shall be construed to mean that a claim is not recoverable until the net loss has been finally determined.
>
> 3. EVENT CLAUSE
>
> 3.1 'Loss' under this contract means loss, damage, liability or expense arising from any one event. ....
>
> 9. INSPECTION OF RECORDS
>
> The reassured's books and records shall be open to inspection by authorised representatives of the reinsurers at any reasonable time during the existence of this contract or of any liability hereunder. "

31. Furthermore, as was common ground at the trial, many of the reinsurance contracts incorporated the following "Settlements Clause" in relation to Aviation Business (as found in *Hill v Mercantile* [1996] 1 WLR 1239 (HL), see below):

> "All loss settlements by the Reassured including compromise settlements and the establishment of Funds for the settlement of losses shall be binding upon the Reinsurers, providing such settlements are within the terms and conditions

of the original policies and/or contracts ... and within the terms and conditions of this Reinsurance."

It was not in dispute at the trial that JELC cl. 1.3 was the equivalent of the "first proviso" of this "dual proviso" (as authoritatively considered in *Hill v Mercantile*, to which I shall come).

32. Before returning to matters of legal analysis in more detail, it is convenient to record various factual features as to Cat 90V and Cat 89G losses, together with actual payments made by the syndicates.

33. As already observed with regard to Cat 90V, the underlying direct KAC/BA losses wrongly aggregated by the market, comprised US$300 million of KAC hull losses, US$28 million of BA hull losses and US$15 million of BA liability losses. These losses entered the LMX spiral (net of facultative reinsurances) in early 1991.

34. Thereafter, these underlying losses were passed from XL reinsurer to XL reinsurer, with the magnifying effect of the LMX spiral creating an aggregate market UNL for Cat 90V in excess of US$6 billion by the year 2000 (when the KAC spares loss of US$259 million first entered the direct and first tier reinsurance market).

35. For the purposes of this trial (there is no arithmetical admission), it may be taken that substantial payments were made by the syndicates in relation to (wrongly aggregated) Cat 90V "losses" and as reflected in the "UNLs" (so-called for convenience but arrived at in the light of the erroneous aggregation). On the material before me, these were as follows:

Syndicate	Contract No	UNL (undiscounted and including where applicable direct as well as spiral losses; all in millions of US$)
745	1/5	148.3m
418	38	122m
299	17	89m
744	30	76.4m
206	3	68.5m
1021	32	65.2m

735	31	41.2m
950	21	39.7m
1121	11	27.7m
298	24	25.8m
1093	23	17.3m
40	50	14.9m
902	33	10.8m

36. It is fair to Equitas to underline that there is no dispute that the KAC element of the original loss fell within the scope of the relevant R&Q reinsurance (contract 1) and within the scope of the underlying layers (as regards all the other R&Q contracts). In broad terms it may be noted that the "rogue" BA element represented about 12.5% of the losses which first entered the spiral in 1991. As it seems to me, it must follow that the overwhelming majority of the sums paid by the syndicates relating to Cat 90V losses, were paid in respect of (potentially) recoverable KAC losses and not irrecoverable BA losses.

37. When in due course I come to consider the Equitas submission that the wrongly aggregated Cat 90V losses can properly be dealt with by the allowance of an appropriate discount, it may be helpful to keep in mind (if only by way of comfort) the margin of error allowed for in the Equitas claim. The figures (albeit not admitted by R&Q) are striking. Using the same contract references as above, the discounts produced by the model could be increased to the maximum percentages set out in the table which follows and would still leave a total loss to the relevant contract or layer – so preserving the Equitas right to recover in full under the reinsurance contracts:

Contract No	Max. Discount (rounded to nearest 5%)
1	30%
5	50%

38	85%
17	85%
30	60%
3	15%
32	55%
31	60%
21	25%
11	85%
24	80%
23	75%
50	70%
33	90%

38. Turning to the Exxon Cat 89G losses, it must be recognised - and was by Equitas - that timing questions are considerably more complex and that the margins for further discounting are not of the same order as those outlined above in respect of Cat 90V losses. Nonetheless, here too there are certain noteworthy features.

39. First, as already summarised, the irrecoverable direct Section I and IIIB losses, amounting to some US$375 million did not enter the LMX spiral until 1996-7. By this time, magnification in the LMX spiral had already produced an overall “UNL” figure (so-called) comprised of recoverable losses of about US$6 billion. Of that figure the irrecoverable element (at the direct level) amounted to something in the order of 6%.

40. Secondly, the Cat 89G “UNLs” (so-called again and not admitted), reflecting actual payments made by the syndicates in relation to the Cat 89G "losses", are again of considerable magnitude.

Syndicate	Contract No.	UNL (in millions of US$)
745	2/6	146.7m
185	27	110.3m
299	42	54.6m
457	10/18	36.2m
726	7/46	35m
272	48	30.7m
1014	9	30m
65	66	22.2m
102	14	11m

41. Thirdly, the discounts allowed by the model could be increased to 50% (contract 66), 25 - 30% (all layers on contract 2), 25% (contract 10) and 20-25% (all layers on contract 6) and above 20% on a number of layers - and a total loss to the relevant layers would still be produced.

42. Pausing here, all these features - both as to KAC and as to Exxon losses - were understandably much relied upon by Equitas in posing the common sense question: how could it be said that the element of "tainting" had reduced its otherwise recoverable losses from these promising starting positions to zero? I return to that inquiry at a later stage.

LEGAL ANALYSIS

43. *Overview:* The question which arises here goes to the burden or burdens which Equitas has to satisfy in order to prove its claims.

44. For its part, R&Q seeks to strike a knock-out blow. In order to satisfy the “first proviso” of the “dual proviso” contained in the “Settlements Clause” (set out above), R&Q submits that Equitas needs to re-present correctly aggregated losses upwards through the spiral – it must show how properly aggregated and recoverable losses

would flow through the spiral. Equitas is not entitled to proceed by way of a short-cut, working backwards from wrongly aggregated losses. Impossibility or impracticability is neither here nor there. Unless the R&Q approach is adopted the magnification effect of the spiral would not be reflected. In any event, Mr. Lockey submitted that the R&Q construction of the first proviso enjoyed the authoritative support of *Hill v Mercantile* (*supra*) – by which I was bound. The terms of the contract furnished both the starting and finishing points of the inquiry. So far as concerned such reliance as Equitas placed on market practice, the standard JELC clauses (indistinguishable from the Settlements Clause) represented market consensus. These were standard terms; their meaning must be the same, regardless of the factual matrix of the individual contract. Further, in this admittedly unprecedented situation, market practice could not provide a solution – and had not done so, hence this litigation. Still further, the evidence supported the argument that ultimately, whatever the characteristics of the market, parties were entitled to rely upon and enforce the contractual terms. As Equitas did not and could not satisfy the burden thus formulated, its claims failed at the first hurdle.

45. Equitas disputes root and branch that it bears any such burden. In the light of *Hill v Mercantile (supra)*, Equitas accepts that no indemnity can be recovered as regards any part of the syndicates' settlements which fall outside the terms and conditions of the syndicates' inwards contracts or of the reinsurance contracts. It follows that Equitas cannot – and does not seek to – recover for wrongly aggregated BA losses or irrecoverable Exxon losses. But, for the recoverable element of the syndicates' settlements, Equitas submits that the burden imposed by the first proviso does not require a process of regression involving proof of loss at every underlying stage of the spiral. *Hill v Mercantile* was of course binding so far as it went. It drew a distinction between the facts which generate the claims and the legal extent of the cover. However, *Hill v Mercantile* did not decide that if the reinsured had settled on the correct legal basis, then any vice at any stage in the chain at a lower level negated the reinsured's right to recovery from its reinsurer. Moreover, clauses such as the Settlements Clause – which remained a "follow the settlements" clause - did not deal with the factual basis of claims and *Hill v Mercantile* decided nothing as to the requirements of proof of loss on a properly aggregated basis. That was a factual or evidential matter, <u>not</u> a question of law; the standard of proof was a balance of probabilities. As to the factual matrix, this did assist in the construction of the reinsurance contracts. The construction of the JELC clauses, themselves the product of market practice, was shaped by the market in which they were entered into – a market which furnished a "universal background" involving the proof of loss in a particular manner, by way of collection notes and not involving the identification of every underlying cedent, contract and proof of liability of each individual cedent, in order to prove a loss.

46. *Authority and principle:* As it seems to me, the starting point must be the recognition that contracts of reinsurance are independent bargains, separate from the underlying contracts of (re)insurance for which the reinsured is seeking cover. The fact that the insurer is liable to or has paid his insured, does not, without more, entitle the insurer/reinsured to recover from his reinsurer. In *In re London County Commercial Reinsurance Office* [1922] 2 Ch. 67, at p.80, P.O. Lawrence J expressed the matter this way:

> " The fact that the policies are reinsurance policies and that the reassured have paid under the policies which they have issued does not in my judgment operate to enable them to substantiate their claims against the company. It is well settled that (subject to any provision to the contrary in the reinsurance policy) the reassured, in order to recover from their underwriters, must prove the loss in the same manner as the original assured must have proved it against them, and the reinsurers can raise all defences which were open to the reassured against the original assured. This is equally true whether the reassured had or had not paid their assured, inasmuch it would be inequitable for them to renounce any of their defences so as to prejudice the reinsurers. "

47. However, as indeed foreshadowed by P.O. Lawrence J (in the wording "subject to any provision to the contrary in the reinsurance policy"), insurers and reinsurers have developed "follow the settlements" clauses, in pursuit of the insurers'/reinsureds' endeavour:

> " …. 'to get round the need to prove their loss by proving an insured loss of the original subject-matter.'"

Per Hobhouse LJ (as he then was) in *Toomey v Eagle Star* [1994] 1 Lloyd's Rep. 516, at p.523, cited by Mr Gavin Kealey QC, sitting as a Deputy High Court Judge, in *Assicurazioni Generali v CGU International Ins plc* [2003] EWHC 1073 (Comm); [2003] Lloyd's Rep IR 725, at [29]. At the risk of a level of generalisation, it may be that the drafting of various "follow the settlements" clauses reflects the balance struck by parties between thus assisting insurers/reinsureds, together with simplifying and hastening claims procedures on the one hand and preserving the integrity of the reinsurers' bargain from erosion by agreements over which they have no control, on the other: see too, *Assicurazioni Generali v CGU International Ins plc*, in the Court of Appeal [2004] EWCA Civ 429; [2004] Lloyd's Rep IR 457, at [10].

48. At all events, as Mr. Kealey QC put it, in *Assicurazioni Generali v CGU International Ins plc* (*supra),* at [38]:

> " The distinction between having to prove that an original loss falls within the cover provided by a contract of insurance and also by a contract of reinsurance, and having to prove that a claim that has been recognised by the insurers as falling within the cover provided by a contract of insurance also falls within the cover provided by a contract of reinsurance, is significant. In the former, one is examining what in fact happened and whether, on the basis of what actually happened, the insurers are liable to indemnify the assured under the contract of insurance and the reinsurers are liable to indemnify the insurers under the contract of reinsurance, according to their respective terms. In the latter, one is examining the claim recognised by the insurers by their settlement of it by admission or compromise and whether on that basis the claim falls within the reinsurance cover as a matter of law."

49. Against this background, a follow the settlements clause of the type encountered in the *Assicurazioni Generali v CGU International Ins plc* litigation and in *Insurance Co of Africa v Scor (UK) Reinsurance Co Ltd* [1985] 1 Lloyd's Rep 312 was authoritatively explained by Robert Goff LJ (as he then was) in the *Scor* case, at p. 330 as follows:

> " ….the effect of a clause binding reinsurers to follow settlements of the insurers, is that the reinsurers agree to indemnify insurers in the event that they settle a claim by their assured, i.e., when they dispose, or bind themselves to dispose, of a claim, whether by reason of admission or compromise provided [1] that the claim so recognised by them falls within the risks covered by the policy of reinsurance as a matter of law and provided [2] also that in settling the claim the insurers have acted honestly and have taken all proper and business like steps in making the settlement."
>
> (Numbering added)

Under such a clause, therefore, although the insurer/reinsured does need to comply with the two numbered provisos, it does not need to establish that the claim fell within the risks covered by the (underlying) contract of insurance/reinsurance as a matter of law.

50. I come next to the decision of the House of Lords in *Hill v Mercantile (supra)*, effectively contained in the speech of Lord Mustill. The follow the settlements clause found in that case (i.e., the "Settlements Clause", already set out) and in the reinsurance contracts (in this case) was plainly different from the *Scor* variety – including, as it did, the wording of the first proviso ("providing such settlements are within the terms and conditions of the original policies and/or contracts").

51. I begin with the (assumed) facts of *Hill v Mercantile*, with a view to ascertaining what it did and did not decide. The case concerned an application for summary judgment. As Lord Mustill explained (at p. 1242), four sets of contracts were involved.

> " 1. The direct contracts between KAC and the direct insurers/primary reinsurers for 12 months ending 30 June 1991, covering war, hostilities, seizure etc. (paragraph (a)) and seizure etc. (paragraph (e)), with ground risks limited to US$300m 'any one occurrence,' and with additional cover for spares under paragraph (a) above. 2. Chains of intermediate reinsurances, with the primary reinsurers at one end and the inward reinsured on the other, on terms not precisely known. 3. The inward contracts between the inward reinsured and the syndicates [the Respondents on the conjoined appeals], for cover between 1 January and 31 December 1990, on terms including the follow settlements clause. 4. The outward contracts between the syndicates and …..[Mercantile, the Appellants]…, for cover in most instances between 1 January and 31 December 1990, on terms including the follow

> settlements clause, and with the layer of cover defined in terms of 'any one event'. "

Contracts # 2, 3 and 4 were all XL contracts. The dispute arose under contracts #4.

52. At the risk of some repetition of or overlap with the facts set out earlier in this Judgment, the facts recorded in *Hill v Mercantile* were these (pp. 1242 and following). The direct contracts related to 15 KAC aircraft. On the 2nd August, 1990, Iraqi invading forces seized control of those aircraft on the ground at Kuwait airport. Within a few days, the aircraft were flown to Iraq. During January 1991 six of the aircraft were removed to Iran and one to Jordan. Of the eight aircraft remaining in Iraq, seven were destroyed on the ground by allied attacks during January and February 1991. The eight surviving aircraft were later recovered and returned to KAC.

53. In the events which happened (as summarised by Lord Mustill, at pp. 1244 and following), so far as the direct insurance/reinsurance level was concerned, there was no doubt that there had been a loss in an amount of at least US$300 million. However, whereas all the events which might have constituted losses under the direct insurance/reinsurance happened during the currency of the policies in question, the same could not be said of the inward and outward contracts (and, it was to be assumed, the intermediate contracts). There was thus, as Lord Mustill expressed it (at p.1244), "a discontinuity" between the direct insurance/ reinsurance and the remaining reinsurances in relation to the terms of the cover. A further question arose as to whether the loss was payable under paragraph (a) or (e), with ramifications for aggregation and the argument as to whether there had or had not been a single "occurrence". Further still, the way in which claims were handled was different, comprising explicit negotiations at the direct level which would have been wholly impractical going upwards through the spiral; Mr. Hill (the Respondent) spoke of having paid out over 10,000 claims in respect of this casualty or set of casualties. The system therefore employed the Lloyd's Claims Office ("LCO"), run by a Mr Fisher and his deputy, who decided on the fate of the thousands of claims which arose, relating to the inward contracts (i.e., #3 in Lord Mustill's list) and those below them in the chain. Disputes thereafter arose under the outward contracts (i.e., #4 in Lord Mustill's list).

54. The syndicates (reinsurers under contracts #3 and reinsured under contracts #4) sought summary judgment against Mercantile. They failed in the Commercial Court but were successful in the Court of Appeal. By the time the matter reached the House of Lords, it was conceded that a number of contentions raised triable issues (at p.1246):

> " (1) There was no immediate loss of any aircraft on 2 August 1990 by reason of the invasion of Kuwait; if there was any loss, it took place later. (2) Whatever losses there may have been were individual losses of individual aircraft. There was no single loss, nor did the losses arise 'from any one event', within the meaning of the outward contracts. (3) At the most, only eight aircraft have been lost (seven KAC and one BA aircraft); the remaining KAC aircraft have been recovered; and (4) these eight aircraft, if lost at all, were lost during 1991, not 1990, and

> hence were outside the periods of cover of all except two outward contracts."

55. The application being one for summary judgment, this concession was fatal subject only to the question of the impact of the follow the settlements clause. As Lord Mustill underlined (at pp. 1246-7), for the purpose of the follow the settlements clause in the outward contracts (i.e., #4):

> " …the search for a relevant settlement should be directed, not to the dealings between KAC and the direct insurers/ reinsurers but to whatever settlement within the meaning of the clause may have been reached between the inward reinsured and the syndicates under the inward contracts [i.e., #3]."
>
> (In this regard, see further, at pp. 1253-4.)

Continuing, Lord Mustill said this (at p.1247):

> " The matter accordingly came down to this. Was the effect of whatever settlement had been reached between the syndicates and those immediately below them in the chain….to make … [Mercantile]…either finally or in the alternative provisionally liable for the amounts paid by the syndicates under the inward contracts, to the exclusion of the potential grounds of defence summarised above?"

56. As it seems to me, the paragraph in the speech of Lord Mustill just cited encapsulates the issue which arose for decision in *Hill v Mercantile.* In the event, the answer furnished by the House of Lords was "no", so that the appeals were allowed, summary judgment was refused and Mercantile was given unconditional leave to defend.

57. Lord Mustill's route to this conclusion began (at p.1247) by dividing the follow the settlements clause (i.e., the Settlements Clause) into lettered paragraphs, as follows:

> " [a] All loss settlements by the reassured including compromise settlements and the establishment of funds for the settlement of losses shall be binding upon the reinsurers, [b] providing such settlements are within the terms and conditions of the original policies and/or contracts [c] and within the terms and conditions of this reinsurance."

Lord Mustill referred to [b] and [c] as the first and second provisos, respectively.

58. Next, in the well-known passage, Lord Mustill said this (at p. 1251):

> " There are only two rules, both obvious. First, that the reinsurer cannot be held liable unless the loss falls within the cover of the policy reinsured and within the cover created by the reinsurance. Second, that the parties are free to agree on ways of proving these requirements. "

59. Beyond those rules, all the problems came from the efforts of those in the market to strike a "workable balance between conflicting practical demands" (*ibid*) and to express that balance in words. As to the practical demands, "two impulses" acted in opposite directions. These, as earlier foreshadowed, involved, first, the "impulse" to avoid the investigation of the same issues twice, in particular by a reinsurer whose knowledge and ability to do so might be inferior to the direct insurer; secondly, the "impulse" to ensure that the integrity of the reinsurer's bargain was not eroded by an agreement over which he had no control.

60. Returning to the two provisos, paragraphs [b] and [c] of the lettering already set out, Lord Mustill expressed his conclusions in these terms (at pp. 1252-3):

> " The intent of these seem clear in broad outline, although it may be difficult to apply on the margins. The crucial words are 'within the terms and conditions' of the original policies and of the reinsurance. To my mind these draw a distinction between the facts which generate claims under the two contracts, and the legal extent of the respective covers; the purpose of the distinction being to ensure that the reinsurer's original assessment and rating of the risks assumed are not falsified by a settlement which, even if soundly based on the facts, transfers into the inward or outward policies, or both, risks which properly lie outside them…..The purpose of the second proviso is…to keep this foundation… [i.e., the bargain between reinsurers and reinsured]….intact, and it would be undermined if an honest attempt by those further down the chain to ascertain the legal consequences of the facts could impose on the reinsurers responsibilities beyond those expressed in the policies. So also with the first proviso. The reinsurers undertake to protect the reinsured against risks which they have written not risks which they have not written. To allow even an honest and conscientious appraisal of the legal implications of the facts embodied in an agreement between parties down the chain to impose on the reinsurers risks beyond those which they have undertaken and those which the reinsured have undertaken would effectively rewrite the outward contract: and it is this…which the provisos are designed to forestall. "

61. Lord Mustill then acknowledged – and dealt with – three responses to this conclusion (at p.1253):

> " The first is that the interpretation given to the provisos would emasculate the clause. I cannot agree. There is ample room for the clause to operate in every situation except where the settlement would bind the reinsurer to a definition of cover different from that which he has contracted to accept. Secondly, it is said that if the result proposed had been intended the clause could have said so. In my opinion it does say so. The final objection is that to allow the reinsurers to raise defences like the present would cause chaos in the market. I recognise the force of the submission to this extent, that

> allowing the defences to be maintained will leave not only the validity but also the size of the claims and their incidence on various claims in suspense, through a large section of the market; an adverse effect which is multiplied by the size of the claims and the pathological length and self-referring effects of the various spirals. Repercussions of this nature must, however, be inherent in the clause itself, unless the provisos are to be totally ignored and the clause read as delivering the reinsurers into the hands of those down the chain, to modify the terms of the clause as they honestly but mistakenly decide. This result could undoubtedly have been achieved by choosing the right words, but looking back over the decades one can see that the market has understandably shrunk from going so far…. "

62. *Provisional conclusion:* It is convenient to express a provisional conclusion at this stage – based on the terms of the reinsurance contracts and the guidance as to their construction available from authority. Thus far therefore, I have taken no account of points based on the factual matrix or on market practice – but I will do so before finalising my conclusion.

63. On this provisional basis, though with respect to the skill with which the R&Q submissions were formulated, I confess to no real hesitation in preferring the case advanced by Equitas. To my mind, the key distinction, correctly articulated by Equitas, lies between questions of law on the one hand and questions of fact or evidence on the other. My reasons follow.

64. Necessarily, *Hill v Mercantile (supra)* must be taken as my starting point. If the scope of that decision binds me to conclude that Equitas cannot succeed unless it can re-present correctly aggregated losses upwards through the spiral, then that is indeed an end of the matter – as Equitas neither attempts nor is able to satisfy that burden.

65. But does *Hill v Mercantile* decide that or is it persuasive authority of the highest order for such a conclusion? Obviously, *Hill v Mercantile* did decide that the syndicates (the Respondents on the appeal) were not entitled to summary judgment in respect of their particular claims. Plainly, however, it would be wrong and unreal to treat the authority of that decision (whether of a binding or persuasive nature) as thus confined. In considering the true ambit of the *ratio* and persuasive authority of *Hill v Mercantile*, here, as ever, regard must be had to the context. It will be recollected that the context in which this decision came to be given concerned the stark and key (if not the sole) issue as to the discontinuity between periods of cover. For the follow the settlements clause to "trump" the principal potential defences, would have involved the conclusion that both the syndicates and Mercantile incurred liability notwithstanding that the loss (arguably) did not occur during the currency of the inward and outward contracts [i.e., contracts # 3 and 4] – thus (arguably) not within the cover of the policy reinsured or the cover created by the reinsurance as a matter of law. Against this background, as it seems to me, *Hill v Mercantile* essentially stands as authority for the proposition, that the Settlements Clause requires the insurer/reinsured to satisfy both provisos (i.e., [b] and [c], adopting Lord Mustill's lettering) or, in other words, to satisfy Lord Mustill's "first rule". The burden is on the insurer/reinsured to do so, to a standard of a balance of probabilities. This issue is

one of law, so that if the insurer/ reinsured fails to satisfy either or both provisos [b] and/or [c], the reinsurer/ retrocessionnaire will not be liable.

66. The Settlements Clause, it may be noted, remains a follow the settlements clause but, unlike the variant of the follow the settlements clause found in *Scor (supra)* and in the *Assicurazioni* litigation (*supra)*, it does require proof that the settlements are within the cover of the policy reinsured as a matter of law.

67. The crucial question then follows. Does *Hill v Mercantile* go further and constitute authority for the proposition that Lord Mustill's "first rule" can only be satisfied if Equitas can re-present correctly aggregated losses upwards through the spiral? In my judgment, the answer to this question is "no".

i) First, Lord Mustill's speech nowhere says so in express terms. There is no mention of any such requirement of regression. In this regard it is important to keep in mind that Lord Mustill's reference to the "original policies and/or contracts" related to the inward contracts between the inward reinsured and the syndicates [i.e., contracts #3] – not the contracts between the KAC and the direct insurers/ reinsurers [i.e., contracts #1]: see, at pp. 1246-7 and 1253-4. So too, in my judgment, the reference in cl. 1.3 of the JELC clauses to the "original policies or contracts" must relate to the inwards policies or contracts; as a matter of language it is not to be taken as referring to the or all the intermediate or underlying contracts. In the present case, it would follow that the focus must rest upon the position of the syndicates (of whose claims Equitas is the assignee) rather than upon those at the "bottom" or at intermediate levels of the spiral.

ii) Secondly, there is to my mind nothing implicit in the reasoning of Lord Mustill which requires or points towards the conclusion urged by R&Q. It is one thing to posit that the loss must fall within the cover of the inwards policy but quite another to require proof of liability under each and every underlying contract. As a matter of logic it does not follow that because at some much lower level in the spiral a claim may have been paid outwith the cover furnished at that level, *therefore* a settlement at a higher level cannot satisfy proviso [b] and Lord Mustill's first rule. Indeed, to the extent that R&Q submitted to the contrary, there is, with respect, a circular element in its reasoning. R&Q is assuming that which it seeks to make good: namely, that an erroneous aggregation impacting upon the scope of the cover at any level cannot be cured by appropriate dis-aggregation (or discounting). But the answer to that question must be fact sensitive; regardless of the errors at the lower level/s of the spiral, nonetheless the attachment points at higher levels may be reached by properly recoverable losses. Whether they are or not seems to me to be *par excellence* a question of fact not law. At all events, I can see no sound foundation for Mr. Lockey's submission that only by the process of regression upon which R&Q insists can the "magnification" effect of the spiral be taken into account. At the risk of straying into the area of the debate to come, I cannot see why a suitable actuarial model must necessarily be incapable of addressing and accommodating such magnification.

68. This discussion leads on naturally to the distinction relied upon by Mr. Schaff for Equitas, between *questions of law* on the one hand and *questions of fact or evidence*

on the other, to which I have already referred. In the present case, as a matter of law, Equitas must make both provisos [b] and [c] good – i.e., Lord Mustill's first rule - to a standard of a balance of probabilities. But there is nothing in *Hill v Mercantile* as to how it must do so. For my part, this is hardly surprising. What are involved here are matters of fact or evidence, matters which are necessarily fact sensitive.

69. Doubtless, there could have been a contractual provision covering *how* Equitas was entitled or bound to prove *what* it must prove; but if right so far as to the scope of *Hill v Mercantile*, then the Settlements Clause did not do so at least in this regard. It is perhaps not to be forgotten that the Settlements Clause remains, as already noted, a follow the settlements clause, designed to avoid the need to investigate the same issues twice, subject of course to the requirements of provisos [b] and [c]. Both provisos [b] and [c] and Lord Mustill's first rule, it is to be underlined, deal with the legal extent of the contracts in question, in the context of losses arguably occurring outside the period of cover – not the facts which generate the claims or the quantum of any proper and businesslike settlement. Against that background, it is understandable that the Settlements Clause does not legislate, still less legislate restrictively, for the manner of proving loss on a properly aggregated basis. Doubtless too, market practice could cover this ground but, as will be seen, if anything, market practice tends to be favourable to Equitas.

70. There is a danger of over-complicating the analysis or the terminology by straying into "legal", "evidential", "shifting" and "provisional" burdens of proof (see, *Phipson on Evidence* (16th ed.), at paras. 6-02 – 6-03; *Cross & Tapper on Evidence* (9th ed.), at pp. 106-115, esp. at p.113). That said, a consideration of and the distinction between, the nature of the burdens involved may be helpful in shedding light on this issue. Adopting the phraseology of Evans J (as he then was) in *Wurttembergische v Home Ins Co* [1993] 2 Re LR 253, at p. 261, it can be suggested that the concern here lies with the "evidential and therefore a shifting burden of proof". If this be right, then Equitas is entitled to seek to discharge the legal burden resting upon it (of satisfying Lord Mustill's first rule) by the use of the best evidence it has available; should such evidence *prima facie* suffice to discharge that legal burden, Equitas does not need to undertake a process of regression; it would be for R&Q to mount a sufficient response which necessitates Equitas doing so. Of course, should the evidence relied upon by Equitas be incapable of satisfying the burden resting upon it (if say, actuarial modelling is incapable of sufficing for the purpose at hand) or if such evidence in fact falls short of doing so (if, for example, the models do not sufficiently approximate reality), then the Equitas claim/s must fail. The risk that Equitas runs, however, is one of fact or evidence; it does not fall foul of any rule of law.

71. Viewed simply and in light of the above:

i) Mr. Lockey's objection – that standard clauses (such as the Settlements Clause and the JELC clauses) must have the same meaning regardless of the factual matrix – is readily met. Such standard clauses do have the same meaning. The *legal* burden on Equitas does not alter. But those clauses say nothing as to the *evidence* required for Equitas to discharge the legal burden resting upon it. Such evidence will necessarily vary, depending on the facts of the case.

ii) The present analysis, with respect, encounters no difficulty with the observations of Rix J (as he then was), at first instance, cited in *Hill v*

Mercantile, at p.1248. There, Rix J treated the requirement, that the liability of the insurers/reinsured to reach the attachment points of the XL cover at the level above them, arguably involved a matter of law and not a mere matter of quantum (cited at p.1248). However, that approach does not prescribe the manner in which it is permissible to demonstrate to a balance of probabilities that (for example) a particular attachment point has been reached; still less is it prescriptive as to the content of the evidence required to do so, which must vary from case to case.

iii) Once it can be demonstrated that an Equitas liability does, as a matter of the balance of probabilities, fall within the cover of the policy reinsured (for instance, because the applicable excess has been exceeded), liability would be established; what thereafter remain, are questions of quantum. These are questions of fact, sometimes referred to as "jury questions": see, for example, *Municipal Mutual Ins Ltd v Sea Ins Co Ltd* [1998] Lloyd's Rep IR 421, at pp.436 and following, *per* Hobhouse LJ (as he then was). When this stage has been reached, the Court must do its best on the available evidence, bearing in mind the burden of proof resting upon Equitas and the applicable standard of proof: see too, *Chaplin v Hicks* [1911] 2 KB 786, at pp. 792 and 795. But at this stage, there can be no objection in principle to Equitas seeking a recovery in a minimum amount, provided that the minimum amount is established on a balance of probabilities; the effect is simply that Equitas foregoes any attempt to recover additional sums. The *extent* of losses, once liability has been established, need not be proved with scientific exactitude. As Lord Hoffmann observed, in *Gregg v Scott* [2005] UKHL 2; [2005] 2 AC 176, at [69], citing from a Scottish decision itself citing a Canadian judgment:

> " 'The rule against the recovery of uncertain damages is directed against uncertainty as to cause rather than as to extent or measure.'"

iv) That there may be factual situations when it might be possible and appropriate to re-construct layers of the LMX spiral is not precluded by the present analysis. There is, accordingly, no need to quibble with the contemplated re-working of the computations apparently contemplated in *Hill v Mercantile* (at pp. 1253-4). Subject, as ever, to any contractual provision or requirement of market practice, there is no rule of law either obliging or precluding the re-construction of the spiral. A claimant is left to take decisions on the manner of proving its claims, using the best evidence available and upon which the claim may or may not succeed. A claimant is not, however, bound in all cases (and R&Q's case requires no less a conclusion) to prove a loss at each underlying level in the chain – a matter of which a claimant may ordinarily have no or the most limited knowledge.

v) Although Mr. Lockey, with respect, purported to place some reliance upon it, suffice to say that nothing in *Commercial Union v NRG (supra)* tells against or undermines the present analysis and the approach which I favour, at least provisionally.

vi) For completeness and in this instance with respect to Mr Schaff's argument to the contrary, I was not persuaded that the terms of cl. 9 of the JELC clauses (Inspection of Records) advanced the argument.

72. For the reasons given, I therefore provisionally conclude that the Equitas claims, excluding wrongly aggregated BA losses and irrecoverable Exxon losses, do not fail at the first hurdle on account of its inability to reconstruct the LMX spiral.

73. *Factual matrix and market practice – principal evidential features:* In the view which I have already, if provisionally, formed of the matter, I can take this topic relatively briefly, notwithstanding the considerable volume of evidence and argument devoted to it. Essentially, in my judgment, the materials here either added nothing or, on balance, tended to support the Equitas case.

74. I turn directly to a summary of the principal material features of LMX market practice, derived from the evidence of Messrs. Berry, Emney, Lloyd and Cornick. The material time/s must be the late 1980s and the early 1990s, when the reinsurance contracts were entered into.

75. First, at the time/s in question, the LMX market was a "good faith" market, with business conducted on the basis of mutual trust. By way of example, the right of inspection existed but was seldom or never exercised.

76. Secondly, for any particular loss, any one cedent in the LMX spiral might have written thousands of inward contracts and might have made still more individual claims settlements.

77. Thirdly, against this background, as canvassed in Mr. Emney's Report, if each market participant demanded strict proof of loss at each turn of the spiral below him, the market faced the real risk of "collapse beneath a sea of inquiry", leading to reputational damage and an additional risk to solvency. It would, as Mr. Emney said in cross-examination, have been "….impossible, impractical to ask for full proof of loss on every occasion". The market thus had a collective self-interest in adopting a pragmatic approach to the collection of losses.

78. Fourthly, that self-interest led to collections being made on the basis of "collecting notes" – i.e., invoices (hereafter, "collection notes"). Typically, the collection notes identified the appropriate reinsured and the reinsurance under which the recovery was sought, the name of the loss (which was likely already well known in the market and did not require a lengthy submission from the reinsured on each occasion), the UNL incurred by the reinsured to date and the amount now due from the reinsurance in question. As Mr. Emney put it:

> " That was the only documentation which would be generally made available to substantiate collections under XL on XL contracts, and it was on that basis that claims in the LMX market were usually settled."

79. Fifthly, it is also fair to say (Mr. Emney again) that the market did not regard collection notes as akin to a "blank cheque"; as a last resort, the contractual terms were there to be enforced. Additionally, there was evidence that strict proof of loss -

extending to losses on underlying layers - together with further documentation could have been insisted upon. That said, it is a matter of significance that, at all material times, none of the four market experts had any personal experience of ever demanding strict proof of loss.

80. Sixthly, all these experts agreed that the present situation was unprecedented.

81. *Factual matrix and market practice – discussion:* Necessarily, in a situation which is agreed to be unprecedented, there is a limit to the assistance which can be provided by market practice – either way.

82. Subject to this material reservation, such assistance as can be derived from market practice tends, on balance, to favour the Equitas case. It is correct, as Mr. Lockey submitted, that the JELC clauses (and, accordingly, the indistinguishable Settlements Clause) reflect the market consensus. But in seeking to construe the JELC clauses and to ascertain their true scope, it seems to me that Mr Schaff is entitled to say that regard is to be had to market practice – as forming part of the factual matrix. As has been seen, the market, arguably invariably and, on any view, at least in the generality of cases, relied on collection notes – rather than insisting on strict proof of loss. To put it at its lowest, it is difficult to reconcile with this market practice, the R&Q submission that the JELC clauses (and the Settlements Clause) on their true construction required, as a matter of law, the re-construction of the spiral in order to satisfy Lord Mustill's first rule. It involves quite a leap and one for which there is also no precedent. To such extent therefore, the factual matrix both informs and reinforces the construction of the JELC and Settlements Clauses to which I was in any event provisionally attracted. Beyond that I would not wish to go, given my reservations about the utility of market practice in the present circumstances.

83. I have not in all this overlooked Mr. Lockey's argument as to the manner in which refunds were ordinarily processed in the LMX market. I acknowledge that, at least at first blush, Mr. Lockey is entitled to pray in aid the following paragraph in the Joint Memorandum of the Underwriting Experts (Messrs. Berry and Emney):

> " It is agreed between us that the correct process for the treatment of refunds is for those refunds to be applied firstly as between the direct insurers and their excess of loss reinsurers. Following that process, the concomitant refunds should then be applied to the current UNL of each reinsurer, in turn, in the entire excess of loss market. By those means, the refunds will be disseminated correctly throughout the market. "

Building on this foundation, Mr. Lockey submitted that the market's "top down" manner of processing refunds essentially created the same situation "as if only the properly aggregated (or recoverable) losses had gone in at the bottom of the chain in the first place".

84. There is, however, perhaps less to this point than first meets the eye:

i) First, there is or must again be a limit on the assistance to be derived from the market's treatment of manageable refunds and the current unprecedented

situation, in which it is common ground that the spiral cannot be re-constructed.

ii) Secondly, even on the market's treatment of (relatively) simple manageable refunds, there is, as Mr. Cornick acknowledged (in cross-examination), a different pathway from that followed by the original payment of claims under the spiral. Necessarily therefore, this point as to the processing of refunds cannot carry Mr. Lockey's argument any significant distance.

85. *Final conclusion:* For the reasons already given, informed by the language of the JELC clauses and the Settlements Clause, authority and such assistance as can be derived from market practice, I am clearly of the view that Equitas does not fail at the first hurdle of the argument. Although it is a requirement of law that Equitas must satisfy Lord Mustill's first rule or fail, it is not a requirement of law that Equitas can only do so by proving a loss at each underlying level of the LMX spiral. The question of how Equitas attempts to do so is, instead, one of fact or evidence.

ACTUARIAL MODELLING

86. *(I) Introduction:* As already foreshadowed, Equitas seeks to utilise actuarial modelling to make good its case. R&Q resists this approach, both in principle and as to detail. Under this heading, I will set out the nature of the models in broad outline, before dealing in turn with, as I understood them, the major R&Q objections. All the matters which follow received (with respect) exhaustive treatment at the hearing, both in terms of evidence and submissions; in the view I take of the matter it will neither be necessary to repeat all this material in this judgment nor to deal with each and every point raised in this connection.

87. *(II) The rival cases:* In very broad outline, Mr. Lockey, for R&Q, submitted that the models were incapable of discharging the burden of proof resting upon Equitas. Equitas needed to establish, syndicate by syndicate, that the claimant's UNL for properly aggregated loss reached the relevant attachment point. Statistical evidence could not bridge the gap between the average or 10^{th} percentile (a feature of the models) and particular characteristics of the syndicate/s in question, which had not been explored in the evidence. Loss could not be proved by an approximation of reality, *a fortiori*, by that which was not a reasonable approximation of reality. Although Mr. Bulmer had modelled a hypothetical spiral, he had not modelled the LMX spiral. Simplifications in the model had come at a cost to reality. The question was not whether the models were "reasonable" but whether they proved that individual attachment points had been reached. It was neither incumbent on R&Q to assist Equitas in proving its case nor to put forward a model of its own.

88. For Equitas, Mr. Schaff submitted that R&Q had been "tilting at windmills". There was no reason of principle why a suitable model could not be used to make good the Equitas case. It was correct that the models did not seek to recreate the actual spiral; but that did not matter because the models provided reasonable representations of the relevant features of the spiral for the purposes which mattered. The models drew significantly on actual data and produced results representative of those of actual syndicates, very much including the relevant syndicates. There was no basis for any suggestion that the relevant syndicates had "extreme characteristics" which might render an averaging process unrepresentative. There could be confidence (to the

relevant standard of proof) that the attachment points for the individual syndicates had been reached. In any event, the models utilised the "10th percentile" approach (explained below), which was an actuarially and evidentially conservative tool for the assessment of the amount of the syndicates' recoverable loss; on the balance of probabilities, the syndicates would have had a KAC or recoverable Exxon loss, in the proportion or ratio of at least the relevant percentage reflected by the 10th percentile.

89. *(III) The nature of the models:* I turn to a brief description of the nature of the models prepared by Mr. Bulmer. They deal separately with the KAC and Exxon losses. Their parameters are different, reflecting, *inter alia*, the different underwriting years, markets and timing of mixing between recoverable and irrecoverable elements of losses. In simple terms, the models are computer programmes intended (1) to represent the passage of the KAC, BA and Exxon losses through the LMX spiral; and (2) to indicate the effect on the spiral losses incurred by each of the relevant participants (i.e., its UNL) of the incorrect aggregation of losses (in the case of KAC/BA) and the payment of irrecoverable losses (in the case of Exxon).

90. The models did not seek to recreate the spiral or to replicate all its features. Mr. Bulmer focussed on the aggregation or mixing of the recoverable and irrecoverable elements of loss; other aspects of the spiral which were not considered to have a significant effect on these matters were not modelled. The assumed reinsurance structures were therefore intended to be simplified representations of what would have occurred in practice.

91. On the evidence, it is plain that the input of the models is based to a significant extent on voluminous actual data, directly relevant to the syndicates as regards their inwards writings and outwards protections concerning the Cat 90V and 89G losses and the development of the relevant UNLs. Mr. Bulmer had recourse to the following:

    i) The Lloyd's Claims Office Support System ("COSS"), a very substantial database containing details of all payments made by all Lloyd's Syndicates in the London market up until about 1999. Although, to my mind, there is a need for caution with regard to the COSS data – exemplified by the corrections which needed to be made to the models on account of erroneous entries, as discussed below – such caution does not necessitate rejecting this database as a useful source of material as to what actually happened.

    ii) The "MAX" database, which contains details of the outwards reinsurance contracts purchased by all Lloyd's Syndicates. In this regard, if in passing, I should say that I am unable to accept Mr. Lockey's submission that the MAX database contained a serious omission in that layers exhausted before 1996 had not been incorporated. First, I do not think that the submission was made out on all the facts; secondly, even if it was factually correct, I agree with Mr Schaff that the representative sample was so large that the omission (if omission there was) would not have materially affected the exercise. As Mr. Bulmer explained it, this database was a starting point, giving him a very considerable volume of information about the actual reinsurance programmes of the Lloyd's Syndicates likely to have been impacted by the KAC and Exxon losses. From that material, he extracted data to generate representative reinsurance contracts for his model spiral players. The scale of the task is

perhaps illustrated by the following summary, helpfully contained in the Equitas written closing submissions:

> " ….the models are based on the analysis of actual data concerning the reinsurance of Lloyd's Syndicates, including the Lloyd's Syndicates in question, of 3,797 KAC contracts and 2,470 Exxon contracts, grouped together into 446 and 305 separate reinsurance programmes respectively. From that information, Mr. Bulmer was able to ascertain on a programme by programme basis, (i) total amounts of coverage (ii) number of layers; and (iii) excess points; and on a layer by layer basis, (iv) the number of shares or signed lines; and (v) the percentage amount of each share or signed line. The results were plotted and fitted with an appropriate distribution or probability curve."

iii) "Control Sheets", comprising snapshots, on particular dates, of the actual UNLs of 52 of the largest Syndicates in respect of the KAC and BA losses and of 39 of the largest Syndicates in respect of the Exxon losses. All but two of the syndicates in these proceedings are featured.

92. The models assume a certain number of "players" (i.e., participants) in total, in the relevant spiral: 409 in the case of KAC/BA and 300 in the case of Exxon. The number of Lloyd's players was derived from actual data, eliminating small players with UNLs of less than US$100,000 – an exclusion which Mr. Sanders in cross-examination viewed as "not unreasonable". The number was then "grossed-up" for the company market, again a matter (as I understood his evidence) with which Mr. Sanders did not quibble. Although the precise number of actual participants in the spiral cannot now be known for certain, Mr. Berry's evidence regarded the numbers at which Mr. Bulmer arrived as "reasonable" – i.e., a fair working assumption. Despite Mr. Emney's "gut feeling" that the number of players in the models was too high, I am satisfied on all the evidence that the numbers selected were reasonable, a conclusion fortified by the consideration that sensitivity tests showed that the models were relatively insensitive in this regard.

93. Further and as to the breakdown between Lloyd's and company "players", the models did not differentiate between them - save as to (1) the allocation of direct losses, based upon actual data and (2) the cut-off dates for payment of losses within the spiral, where, as a matter of fact, the dates differed (see further below). In this regard, Mr. Bulmer's approach enjoyed the support of the Joint Memorandum prepared by Messrs. Berry and Emney, to the effect that there was no difference "in the general underwriting approach of each to the underwriting of excess of loss business". In cross-examination, Mr. Emney put the point colourfully:

> " ….If there was an Emney style of underwriting, it went from one place to another…"

In cross-examination, as distinct from his written work, Mr. Sanders said that in general terms and subject to individual idiosyncrasies, the underwriting approach of Lloyd's and non-Lloyd's participants in the LMX spiral was the same.

94. As to types of players, Mr. Bulmer sought to achieve diversity by creating three broad types of marine player, writing (broadly) at the bottom, in the middle and at the top of the spiral.

95. Assumptions were then made as to the business written and the reinsurance cover purchased, by the players. The models go on to address layers, the size of each player's participation and the question of delay in reinsurance collections. Later, "leakage" of losses from the spiral is also addressed – i.e., including leakage produced by excess points, retentions or co-insurance, vertical or horizontal exhaustion of reinsurance protections, incomplete placements of reinsurance layers, reinsurer insolvencies and commutations.

96. At the first stage in the operation of the models, a complex Excel spreadsheet is utilised. The starting point involves inputting the number of players and their characteristics. Thereafter, direct KAC/BA and Exxon losses are allocated to the players designated as direct writers of the risk. The next step involves generating outwards reinsurance programmes and inwards reinsurance writings for each of the players. The outwards reinsurance programmes are randomly generated for each of the players on the basis of the input information. Mr. Bulmer was cross-examined as to why he had not used the data he had as to the syndicates' actual reinsurance programmes and then "doubled up" to cover the non-Lloyd's participants. I cannot help interposing that had he done that, he may have been criticised for proceeding on a basis which mixed actual data (for the Lloyd's syndicates) with assumptions for the non-Lloyd's participants. At all events, Mr. Bulmer said that he could have done so but it would have been more complicated; the most practical option was instead to develop assumptions. He maintained, however, that the programmes generated were "representative" not "hypothetical". In cross-examination, Mr. Sanders accepted the reasonableness of Mr. Bulmer's use of this data and the fitting of the curves in question.

97. Next, the models determine which players participate on each layer of the other players' reinsurance protection and what lines they will write. Ultimately in this regard, the models utilised a reinsurance "matrix", introduced to increase the level of "diversity"; the basis of the matrix was a linkage between the amount of reinsurance coverage purchased by a player and the writing of larger shares of individual layers. In simple terms, those who are the largest reinsurance buyers are treated as writing the largest share of inwards business – linkage, it may be noted, which Mr. Sanders, in cross-examination, accepted as realistic.

98. Pausing there, the models have thus far allocated direct losses and generated inwards and outwards reinsurance structures. All this material from the Excel spreadsheet is then "inputted" into a separate computer programme, written in a computer language called "SAS". At this stage, the SAS programme allows for "leakage" from the spiral, by selecting 5% of the reinsurance layers created in Excel and by assuming that they are only 90% placed. Next, the KAC/BA losses and Exxon losses, which were distributed amongst the writers of direct business are passed around the modelled spiral of reinsurance contracts. The SAS programme monitors (1) the spiral losses paid by each player on each day (so as to produce, cumulatively, each player's UNL as at the last day of the period modelled); and (2) the reinsurance collections made by each player on each day of the period modelled. It should be noted – a matter to which I must return in due course – that reinsurance collections are not made by each

player on a daily basis; instead, they are made periodically, with the SAS programme allocating a waiting time (or "delay") to each player before he may make a collection.

99. As to what might be termed "testing" of the models, each model was run 75 times for the purposes of Mr. Bulmer's Supplemental Final Report. A number of sensitivities were tested by adjusting what might be thought of as important assumptions (e.g., the number of players, as already discussed and the amount of leakage). Furthermore, cross-checking was undertaken, comparing the development of the models against the actual development of UNLs ("the reasonableness tests", see below).

100. The output of each of the KAC/BA and Exxon models was produced by Mr. Bulmer on two bases, "Scenario A" and "Scenario B". I shall deal separately, below, with the debate as to the appropriateness of these two scenarios; here, I do no more than introduce them and (for ease of understanding) the stance taken by the parties in this regard:

i) "Scenario A" monitors the constituent elements of the loss on the basis that both recoverable and irrecoverable elements circulated round the spiral; i.e., what actually happened. This basis seeks to reproduce the *proportion* of a notional player's UNL which would have been paid in relation to both the recoverable and irrecoverable elements of loss.

ii) "Scenario B" involves two parallel runs of the models, one with the irrecoverable element included and one with it excluded; the upshot is a calculation of the *ratio* that a notional player's UNL without the irrecoverable element bears to its UNL with the irrecoverable element included.

iii) Both Scenarios in each model yield an across the board percentage discount (varying depending on the model and on which Scenario is preferred) to which it will be necessary to return. For present purposes, it suffices to underline that these percentage discounts were <u>not</u> based on the average of the modelled results but, instead, on the "*10th percentile*" approach – i.e., the percentage below which only 10% of modelled results fall.

101. Equitas contends for Scenario A as its primary case and Scenario B as its alternative case. Whichever of Scenario A or B is adopted, Equitas submits that by applying an across the board percentage discount, expressed in terms of a proportion or ratio as the case may be, the Court can have confidence in the conclusion that, on a balance of probabilities, each syndicate will have sustained recoverable losses above both the relevant attachment points and a minimum amount. The Equitas case was that although one could not be <u>sure</u> that none of the syndicates fell below the percentage thus obtained, on a <u>balance of probabilities</u> the Court could be satisfied that none did.

102. For its part, R&Q objects to both Scenario A and Scenario B; Scenario A, on the ground that it was wrong in principle; Scenario B, because of the failings of the model/s.

103. *(IV) Evidential matters:* Before proceeding further, some observations on two evidential matters are appropriate. The first goes to the fact that R&Q has not put forward any rival model/s. Mr. Lockey was plainly right insofar as he submitted that R&Q was not obliged to do so; it was under no obligation to advance any positive

case and under no obligation to assist Equitas to make good its own case. With that there can be no quibble. But, it follows from the stance taken by R&Q, that should or to the extent that its criticisms of the models proposed by Equitas be rejected, then it has no alternative or positive case to fall back upon. That is a tactical choice R&Q has made, in contending that Equitas must either reconstruct the LMX spiral or recover nothing at all.

104. Secondly, when evaluating the conclusions which can properly be drawn on this part of the case, it will be necessary to consider the evidence of Mr. Bulmer and Mr. Sanders.

105. So far as Mr. Bulmer is concerned, it is right to proceed with caution. The evolution of his evidence took time and was accompanied by a number of errors and revised assumptions, which, with respect, it would have been far better to avoid. Ultimately, however, I am of the view that considerable reliance can be placed on Mr. Bulmer's evidence. That evidence was both fair and measured; moreover, Mr. Bulmer was throughout careful to confine his opinions to matters within his field of expertise. He was searchingly tested in cross-examination and, in my judgment, his evidence withstood that test well. In short, Mr. Bulmer's evidence provides a foundation for utilising the models with confidence.

106. The evidence from Mr. Sanders came in two distinct parts. His very fluent written evidence articulated a variety of emphatic objections to the approach adopted by Mr. Bulmer. But in his oral evidence, under cross-examination, a good many of these – as already touched upon and as will be seen further – fell away. That is not intended as a criticism of Mr. Sanders; an expert should keep his opinions under review and, if appropriate, should not hesitate to revise those expressed in his written reports when giving oral evidence. However, the retreat of Mr. Sanders from his written evidence was a notable feature of this part of the case and does have the result of significantly reducing the evidence based objections to the approach adopted by Mr. Bulmer. In fairness to Mr. Sanders, I should make clear that I did not understand him to abandon his opposition to the models in what might be termed a "wholesale" fashion; but the clarification or weakening of certain of the bases for his opposition did (it has to be said) go some considerable way to undermining its force.

107. *(V) An objection of principle?* As foreshadowed, Mr. Lockey objected to the use of the models as a matter of principle. With respect, I am unable to accept this argument. As a matter of principle, Equitas must be free to deploy such evidence as it chooses to satisfy the burden of proof resting upon it (see above). Though actuarial models are regrettably expensive and undoubtedly add to the cost and complexity of a case in which they are used, I can see no proper logical or principled objection to the use of the models here. If the choice facing Equitas was to abandon its claims (because the LMX spiral could not be reconstructed) or to seek to make good its claim by using a model, I see no reason why it should be precluded from making the attempt. As it seems to me, the question is not so much one of principle but is instead functional in nature: are the models capable of and do they succeed in establishing the Equitas (i.e., the syndicates') claims? In that regard, I come in a moment to a most important issue at this stage of the argument: namely, whether the modelled output permits conclusions to be drawn with confidence and to the requisite standard of proof as to the recoverable losses for each syndicate? (I shall term this issue, "from the general to the particular".)

108. If the models do permit an answer of "yes" to that issue, then it does not – and cannot – matter that they do not recreate the LMX spiral. Manifestly, for example, while (as already recorded) the models generated outwards reinsurance programmes randomly, actual underwriters are unlikely to write books of business randomly. But the question remains as to whether this and other like examples matter. What, for my part, the models need to do is to provide reasonable representations of the relevant features of the spiral for the purposes which matter – the degree of mixing of KAC/BA or recoverable/irrecoverable Exxon losses in a spiral player's "UNL" (so-called) and the effect of stripping out the BA or irrecoverable Exxon elements from a spiral player's "UNL" (so-called).

109. *(VI) From the general to the particular:* Throughout the trial Mr. Lockey mounted a skilful and sustained challenge to Equitas's reliance on the models and Mr. Bulmer's evidence. The thrust of this attack has already been noted: whatever the models produced by way of global figures, these could not be translated into proof of the losses for which the syndicates were individually liable. The Equitas reliance on the models was, as Mr. Lockey at one point put it, "misconceived as a matter of law". As it seemed to me, this was a key battleground. In my judgment, Equitas has surmounted this challenge. On a balance of probabilities, subject only to consideration of the detailed grounds of challenge to the models (see below), I am satisfied that the modelled output does permit conclusions to be drawn with confidence as to the recoverable losses for each syndicate. In short, the models, which started with real (or actual) data finish with answers which are representative of the actual position. My reasons follow.

110. First, I am satisfied that, as Mr. Bulmer insisted in cross-examination, there was indeed a relationship between the model spiral players and reality, even though there was not a precise correspondence between a model player and any individual actual spiral participant.

111. Secondly, Mr. Sanders ultimately did not dispute that this was so, unless the syndicates had extreme characteristics. In one of his written reports, Mr. Sanders had said:

> " The chances of the model generating a model player that is remotely similar to a real spiral participant is extremely remote…."

Mr. Bulmer's response was to this effect:

> " ….I consider that it would be true to state that it is not possible to achieve a precise correspondence between an individual player in any run of the KAC/BA or Exxon models and an individual actual KAC/BA or Exxon spiral participant…..This is because the models are intended to represent the passage of the losses through the spiral, and are not an attempt to replicate or unbundle the spiral."

112. Pressed on the same topic in cross-examination, Mr Sanders agreed (as already noted) that Mr. Bulmer had been "entirely right" to use the data he had for generating the model reinsurance programmes. There then followed this sequence:

" Q. The reinsurance programmes that are generated as a result of that exercise, whilst they do not coincide exactly with specific actual reinsurance programmes in the market….nonetheless they are derived from the process which is founded on actual data and is therefore likely to give rise to reasonably representative or typical outwards reinsurance programmes of players in the market at that time?

A. Yes. They centre to the averaging of the process, yes.

Q. So although in that strong comment….you say that the chances of the model generating a model player which is remotely similar to a real spiral participant is extremely remote, wouldn't it have been fairer to say that the chances of the model generating a model player that is exactly coincident with the characteristics of a real spiral participant is extremely remote? Wouldn't it be fairer to say that if there is going to be no exact coincidence….with an actual player?

A. I agree there would be no exact coincidence with an actual player.

Q. But wouldn't you accept that it is likely that amongst all these reinsurance programmes for these 409 players and 300 players respectively, that the generation of these programmes based on this actual data is going to throw up reinsurance programmes which are reasonably typical of the sort of reinsurance programmes that they would be expected to have had?

A. By the use of the model we have an averaging effect which would have produced reinsurance programmes which are typical of the averaging, yes.

Q. ….Is your point that there might have been extreme players, or rather players with extreme characteristics which would not have been replicated by this process, but that in the main the averaging process would have given rise to players of fairly typical reinsurance programmes? Is that your point?

A. That is my concern, yes."

113. In my view, Mr. Sanders is here accepting a relationship between the reinsurance programme for a model player and a typical or average reinsurance programme for an actual spiral participant. Put another way, the fact that there is no precise correspondence (or "exact coincidence") between a model player and an actual individual spiral participant – some of whom would be "winners" and some "losers", to adopt Mr. Berry's remark – does not entail the conclusion that there is no or no sufficient relationship between the model and reality. Indeed, by this stage, it would seem that Mr. Sanders' concern has shifted to a different matter: namely, that the concentration of the model on the *average* might mean that it was not representative

of "outliers" with extreme characteristics. The position reached was fairly summarised by Mr. Schaff (in his oral closing submissions), as follows:

> " …the results of the [model] players are going to be representative of the results of the actual syndicates in the market as regards the things that matter, i.e. proportions and ratios….unless you have a real player….of extreme characteristics…."

114. Thirdly, I agree with Mr. Schaff that there is no evidential basis for supposing that there is anything extreme or exceptional about the relevant syndicates, insofar as relevant to the mixing of KAC/BA losses or recoverable/irrecoverable Exxon losses. In particular, all the syndicates had UNLs in excess of US$10 million, so that none of them were exceptionally small players. If this conclusion is well-founded, the ramifications are at once apparent. The models produced reinsurance programmes representing, or "reasonably typical" of, those expected to be found in the actual LMX spiral, at least for participants without extreme or exceptional characteristics; the syndicates were LMX spiral participants without extreme or exceptional characteristics.

115. Fourthly, the need for Equitas to demonstrate that attachment points for the individual syndicates had been reached (as Mr. Lockey rightly urged), is catered for in the models. I start with the *inwards* attachment points. As Mr. Bulmer's report/s made clear, minimum excess points were built into the reinsurance generator programme. The modelled outputs therefore explicitly assume and take into account the application of underlying and inwards excess points in calculating the UNLs of modelled players. Accordingly, the UNLs of the modelled players represent UNLs which already fall within the terms and conditions of a player's inwards contracts (as regards the KAC and recoverable Exxon losses). If the modelled output does not reasonably represent reality, then the Equitas case would by now have broken down; but if – as, for the reasons already given, I am inclined to think – the models do provide a reasonable approximation of reality, then there is no need for further regression, to the syndicates' cedents or beyond. So far as concerns the syndicates' *outwards* attachment points (i.e., those found in their contracts with R&Q), the question is, if anything, conceptually more simple. It turns on the legitimacy or otherwise of the use of discounting to strip out irrecoverable losses, whether under Scenario A or Scenario B, as applied to the syndicates' actual "UNLs" (for these purposes, as before, meaning the losses actually paid) – the topic to which I next turn.

116. Fifthly, I am satisfied (subject again to the matters of detail still awaiting consideration) that the Equitas reliance on across the board discounts, generated by the models and supported by the adoption of the 10th percentile approach, does suffice to show on a balance of probabilities the minimum allowable losses of the relevant syndicates.

i) It is of course right, as R&Q contended, that the precise recoverable losses sustained by any actual syndicate cannot be assumed to be the same as that yielded by the use of an across the board discount, whether by the application of Scenario A (proportions) or Scenario B (ratios). But that, in my view, is not the relevant question. Instead the question is whether the Court can be satisfied, on the balance of probabilities, that each of the syndicates must have

had a KAC or recoverable Exxon proportion or ratio of at least the relevant percentage reflected by the 10th percentile.

ii) Once again, the evolution of the evidence is not without interest. In one of his written reports, Mr. Sanders expressed strong objections to the use of an *average* percentage discount, applied to each real spiral participant's UNL, supposedly (as he put it) to reflect the result of removing irrecoverable losses. The objection came to this:

> " …in principle, the true discounts to real spiral participants' UNLs produced by removing [ir]recoverable losses could lie anywhere from 0% to 100%."

iii) Pressed with these views in cross-examination, Mr. Bulmer accepted them as correct in principle – but added, importantly in my view, that it would require a spiral participant to have "extreme characteristics" for the ratio to be 0%.

iv) In turn, Mr. Sanders came to be cross-examined on the same issue, leading to the following exchange:

> " Q. I understand the theoretical examples, and indeed Mr. Bulmer accepted the theoretical examples, but treating the spiral as this complex interlocking exchange of pass the parcel…..the prospects of someone getting down to the theoretical levels you have talked about, reducing their UNLs to these low levels, are minimal?
>
> A. Yes."

v) With regard to the use of the 10th percentile, Mr. Sanders agreed in cross-examination that, from an actuarial point of view, it was a conservative figure – and more conservative than a weighted average output.

vi) Against this background, there seems to me ample material for concluding that *it is more likely than not* that the syndicates would not have incurred any lower proportion or ratio of recoverable loss in their actual UNLs than that indicated by the 10th percentile. To recap, I keep in mind the matters already canvassed: (1) the relationship between the model players and reality; (2) the expectation that the results of the model players will be representative of actual market participants without extreme or exceptional characteristics; (3) the fact that the syndicates did not have such characteristics; (4) the in-built features of the models as to inwards attachment points; (5) the conservative nature of the 10th percentile approach, thereby enhancing confidence in the discounting process. Moreover, the standard of proof does matter here. I could not be *sure* that no syndicate would fall below the 10th percentile; it is *possible* that some might; but, in my judgment, the models are capable of demonstrating, on the balance of probabilities, that none do.

117. At all events at this stage, I am satisfied, for the reasons given, that the models are capable of establishing a minimum figure for the recoverable losses of each syndicate, to a standard of a balance of probabilities. The models are capable of moving from the

general to the particular. The challenge to the model on this ground fails on the evidence. I shall return later to the debate as between Scenario A and Scenario B - and the approach which I favour with a view to maximising evidential confidence or comfort.

118. *(VII) A postscript as to authority:* If right so far as to the facts, I cannot see that there is any independent objection to the use of the models as a matter of law. For completeness, however, I ought to mention, if only in the briefest terms, some of the authority and writing to which I was referred.

i) With respect, I do not think that *Rhesa Shipping SA v Edmunds* [1985] 1 WLR 948 (*The "Popi M"*) takes the matter further. It is of course right that if Equitas failed to satisfy the burden of proof resting upon it, then its claims must fail. However unattractive it may be to decide a case on the failure to discharge a burden of proof, had that been my view on the matters canvassed thus far, I would have done so. But, for the reasons already given, that is not my view.

ii) The decision of Tomlinson J in *The "Darya Radhe"* [2009] EWHC 845 (Comm); [2009] 2 Lloyd's Rep 175 is of interest with regard to its discussion of the discharge of the burden of proof. With respect, the decision in that case appears to be plainly right, involving as it did "more shippers than rats": see, at [5]. There can be no quibble with the arbitrators' conclusion, upheld by Tomlinson J, that the time charterers could not show which shippers were responsible for the rats in the vessel's holds. But in the present case, as I have already concluded, the models are capable of establishing a minimum figure for the recoverable losses of each syndicate, to the requisite standard of proof. Nothing in *The "Darya Radhe"* precludes my conclusion as a matter of law; the facts of the two cases are simply very different. Indeed, Tomlinson J specifically left open the possibility of the use of statistical evidence to discharge the burden of proof in an appropriate case: see, at [41]. To my mind, this is such a case.

iii) Fascinating, with respect, as is the discussion, in "*The Mathematics of Proof – I"*, by Glanville Williams in [1979] Crim LR 297, esp. at pp. 304-5, I am not at all persuaded that the examples there given – essentially, even if not solely, focussing on the *identity* of the wrongdoer - meet the case advanced by Equitas here.

119. *(VIII) The question of dates:* It is common ground that the cut-off dates of the models are the 31st December, 2000 (Exxon) and the 1st June, 2002 (KAC/ BA) ("the cut-off dates"). Equitas selected those dates on the basis that all relevant transactions (including inter-Syndicate transactions) had effectively stopped by those dates. The models further reflected the earlier stopping of company transactions. In the circumstances, Equitas took the view that to have continued running the models after the cut-off dates:

> " …would have distorted the output by representing (contrary to the fact) that the spiral had continued to develop and the UNLs had continued to grow."

The Equitas case was that nothing had happened subsequently to impugn the validity of the models.

120. This matter too gave rise to dispute. I put to one side the issue of the United Nations Compensation Commission Refunds ("UNCC Refunds"), with which I deal entirely separately, below. Quite apart from the UNCC Refunds issue, the Equitas approach was criticised for failing to evaluate how the modelled UNLs of spiral participants changed after the cut-off dates. R&Q's case was that it was liable, if at all, only for the syndicates' current UNLs. Even if all the other R&Q defences failed, then, on this ground alone, Mr. Lockey submitted that the claims must fail in their entirety: Equitas had not done what the reinsurance contracts required it to do.

121. For its part, Equitas acknowledges that it is required to establish the syndicates' current UNLs but maintains (questions of the UNCC Refunds apart) that the current UNLs have not developed at all or significantly beyond the cut-off dates. All that has happened since the cut-off dates has been the making of a few (inwards) commutations by the syndicates; the amounts are relatively small; they form no part of the syndicates' current UNLs for the purposes of the claim against R&Q and do not warrant treating the spirals as having continued beyond the cut-off dates. Likewise, insofar as there have been any refunds, these have been dealt with by giving appropriate credit.

122. As it seems to me, R&Q is making far more of any difficulty in this area than is realistically warranted.

i) First, this issue only arises if I am otherwise in favour of the Equitas case on the use of the models.

ii) Secondly, such legitimate concern as R&Q has, must relate to passing on of refunds received by the syndicates whose claims have been assigned to Equitas or those "down" the line from them.

iii) Thirdly, notwithstanding the uncertainty surrounding some of Mr. Gregory's evidence on this point, my inclination is that there is very little involved here, leaving the UNCC Refunds to one side.

iv) Fourthly, I have little doubt that had Equitas run the models until the commencement of these proceedings (as Mr. Lockey urged in opening), Equitas would have been roundly criticised for modelling losses when the spirals had for all or most practical purposes come to an end. I do not therefore think that any concern about dates or refunds either calls for re-modelling up to the date of commencement of proceedings or, still less, for the claims to fail.

v) Fifthly, Equitas assures me, through Mr. Schaff, that refunds which have been received have been passed on. If any refunds have not been processed, it is because the spiral has "frozen"; if this judgment "kick-starts" it, then any blocked refunds will start flowing. There will be, said Mr. Schaff, no "funny business" involving the crediting of refunds.

vi) Sixthly, building on Mr. Schaff's assurances, I am satisfied that the question of dates can be dealt with as follows. On a balance of probabilities, I am persuaded that there is no problem with the dates used because there has been no or no significant development of the UNLs since the cut-off dates. But to guard against any possibility of injustice by reason of some subsequent refunds not thus far having been credited, then, with the help of counsel, suitable declaratory orders and undertakings can be drafted here – as they will be (see below) in connection with the UNCC Refunds, where the matter will be dealt with in a little more detail.

123. *(IX) Closed spirals:* A feature of the models is that they were "closed spirals". In simple terms, this means that each (model) player's reinsurance programme is written by one or more of the other players in the model. It follows that the sum of outward reinsurance must equal the sum of inwards exposures; the model reinsurance programme did not, for instance, depict business going to overseas reinsurers who did not thereafter feature in the spiral. Nor, at this initial stage in the model, was there any allowance for such or any other leakage - though an allowance for leakage did feature but at a later stage. A further consequence of the "closed" nature of the models in their final version is that (1) some players were assumed to have purchased significantly less reinsurance protection than their total inwards exposures, while (2) other players were assumed to have purchased significantly more protection than their total inwards exposures.

124. R&Q criticised this feature of the models, essentially along the following lines. In the original models, the players were assumed to have a minimum 35% ratio of outwards protections to inwards exposures. Mr. Berry had said that he would be surprised if syndicates had had a lower ratio. In the final versions of the models, however, that 35% minimum ratio had been abandoned – the minimum ratio, in Mr. Bulmer's opinion, being unnecessary as a result of the introduction of the reinsurance matrix (already mentioned). Mr. Bulmer had considered introducing the matrix and retaining the 35% minimum ratio but had decided against it on grounds of diversity. As R&Q put it, "additional diversity in the revised models….. [had been] bought at the cost of realism". For his part, in cross-examination, Mr. Berry said that he was "exceedingly surprised" at some of the very low ratios (beneath the minimum) in the revised models. The potential for early vertical exhaustion was thus increased. Moreover, the corollary of some players being assumed to be under-reinsured was that others were assumed to be over-reinsured. The models were, said Mr. Lockey, artificial, a poor reflection of reality and completely unrealistic.

125. Focussing as it does on the models' alleged poor reflection of reality, I have anxiously considered this criticism. Having done so, notwithstanding a measure of attraction at first blush, I do not think it goes anywhere – or at least nowhere near far enough to cast doubt on the utility of the models.

126. First, the fact that the model did not allow for the use of overseas reinsurers can be dealt with at once. It is not in dispute that participants in the actual LMX spiral did purchase protection from such reinsurers. However, the evidence of both Messrs. Berry and Emney was to the effect that the significance of this matter was of a very limited nature at most – the reason being that insofar as overseas reinsurers sought protection for themselves, the only available market was the LMX spiral, so that the business came back to London. In effect, therefore, such reinsurers were themselves

market participants. For my part, I do not think that this aspect of the matter impinges on the reliability of the models.

127. Secondly and more importantly, Mr. Bulmer was asked about the fact that some players would have too much reinsurance protection and others, on the face of it, too little. He began by explaining why he had decided to construct a closed model:

> " I built a closed model because I considered that ….[it]…would enable me to investigate the degree of mixing between the Kuwait and the BA losses, and also the degree of mixing between the recoverable and irrecoverable Exxon losses. One of the consequences of a closed spiral is that some players have more reinsurance protection allocated to them than the inwards business that they have written. To my mind, the consequence of that is simply that there is outwards reinsurance protection which will just not be utilised in the model. It does not seem to me that that will change the distributions of the proportions and ratios which emerge from the model. "

Later, Mr. Bulmer was asked about the converse (or counterpart) case, namely, some players having insufficient reinsurance protection. Mr. Bulmer accepted that some of the ratios of this nature found in the model would not have been observed in the actual market but at once added:

> " ….I do not think it matters, because in practice a significant proportion of those inwards exposures will not be impacted because they represent the players' writings of those players who have too much reinsurance protection. I think my suggestion would be that this does not at the end of the day affect the level of mixing between the Kuwait and BA losses or the recoverable and irrecoverable Exxon losses within the model."

He went on to put the matter succinctly in this way:

> " …we have a closed spiral here. There are some players who have too much reinsurance protection, and the counterpart of that is that other players will have reinsurance which they have written which will not be utilised…."

In a nutshell, Mr. Bulmer was plainly of the view that none of this mattered from the perspective of mixing the KAC /BA losses and the recoverable and irrecoverable Exxon losses.

128. I am persuaded by and accept Mr. Bulmer's evidence. As it seems to me, this criticism is another facet of the argument that the models did not replicate the LMX spiral. Of that itself, there is no dispute – they did not. But I am not persuaded that it matters, at least for the (principal) relevant purpose, namely, the mixing of KAC/BA and recoverable and irrecoverable Exxon losses. I agree with Mr. Schaff that the fact that the modelled players had unused outwards and thus unused inwards cover does not affect the mixing of the losses under the cover which was used.

129. This is manifestly so in the case of model players who are depicted as "over" reinsured. So far as concerns players who were "under" reinsured, there remains the question of vertical exhaustion leading to net retention.

130. However, put shortly and as I understood Mr. Sanders to agree in cross-examination, vertical exhaustion was neither a problem for the KAC (actual) loss nor for the KAC model output, at least for the larger players. In any event, some reassurance at least is provided by the fact that the ratio of outwards reinsurance to inwards UNL (for the loss in question) was not very low, as Mr. Bulmer underlined; Mr. Sanders agreed that this was a "real comparison".

131. So far as concerns Exxon, the position is not quite so straightforward, in that vertical exhaustion was more of a problem both in the (actual) market and as reflected by the model. That said, save insofar as the model did not reflect the prior exhaustion of Gooda Walker Syndicate 298, on the evidence, the model conformed well with reality – a matter with which I again understood Mr. Sanders to agree.

132. Turning finally on this topic to Gooda Walker Syndicate 298, it was a significant (actual) player. However, for this syndicate, vertical exhaustion took place in 1993. As a matter of fact, given the development of the Exxon losses, that must have taken place purely as a result of recoverable losses. It follows that when the irrecoverable losses entered the LMX spiral in 1996, Gooda Walker's significant (or not insignificant) share of those losses would not have been circulated around the spiral; these must have been retained net by Gooda Walker by reason of prior vertical exhaustion. As it seems to me, the result may well be that the model, if anything, may have over-stated the spiral effect of the irrecoverable losses by reason of its failure to reflect the prior exhaustion of this Syndicate – the upshot being an error, if one there was, that in this litigation could only benefit R&Q. Against this background it is perhaps unsurprising that Mr. Sanders in cross-examination agreed that the omission of Gooda Walker Syndicate 298 from the Exxon model was "probably not" a significant omission in terms of the output of the model.

133. *(X) Leakage*: To recap, basic leakage is assumed to occur in the models by reason of (1) minimum excess points (retention) and (2) the vertical exhaustion of reinsurance protections. These matters have already been considered. Under this heading, I seek to address the provision made by the models for other forms of leakage. Mr. Bulmer's approach was to introduce into the models, at the stage of the SAS programme, the assumption that 5% of the reinsurance layers were only 90% placed. The issue is whether this assumption was representative of reality.

134. The additional leakage intended to be covered in this way was that expected to occur by reason of:

i) Partial placement of layers;

ii) Placement of proportional reinsurance outside the LMX spiral (though, as already discussed, much of this might be expected to come back into the spiral);

iii) Co-reinsurance;

iv) Horizontal exhaustion of layers;

v) The effect of reinsurer insolvencies and schemes of arrangement;

vi) Commutations.

135. This additional leakage resulted in (on average) 0.5% of leakage during each turn of the (model) spiral. Mr. Berry's evidence was that this was a fair working assumption.

136. For his part, Mr. Bulmer's evidence was that his modelled assumption as to the percentage of leakage was built on a foundation of fact:

i) Direct KAC/BA losses of approximately US$343 million (excluding the KAC spares loss) accumulated to produce aggregate UNLs (including direct losses) in COSS, grossed up to allow for non-Lloyd's players, of approximately US$6.6 billion in 1999.

ii) Direct Exxon losses of approximately US$389 million accumulated to produce aggregate UNLs (including direct losses) in COSS, grossed up to allow for non-Lloyd's players, of approximately US$6 billion in 1996.

iii) It would not have been possible for the aggregate UNLs to reach these levels by the dates in question if there had been a substantial amount of leakage.

137. In his written work, Mr. Sanders was critical of Mr. Bulmer's assumption. In his opinion, based on various tables, there was significantly more leakage in reality than had been allowed for in the models.

138. In my judgment, that criticism did not survive Mr. Sanders' cross-examination. In the course of cross-examination, Mr. Sanders very fairly accepted the following:

i) In his calculations, Mr. Sanders had omitted some US$40 million which was retained in the Exxon model through leakage and some US$30 million in respect of the KAC/BA model.

ii) If the amount of the direct losses for KAC/BA relating to the KAC Spares loss is left out of account, then the model does reasonably represent the development of the KAC/BA aggregate UNLs up to 2000. I should add that the KAC Spares loss had, in the events which happened, relatively little opportunity to develop between its entry into the spiral in 2000 and the end of the modelled period in 2002.

iii) As to Exxon, Mr. Sanders' table had very substantially failed to reflect the model's development between 1990 and the introduction of the irrecoverable elements of loss in 1996.

139. I should make it plain that there was (rightly) no suggestion that Mr. Sanders had set out to mislead; the data in this case and the evolution of the experts' reports was such that errors of this nature are eminently understandable. Nonetheless, the effect of these proper concessions in evidence was such as to invalidate the criticism of the models that Mr. Sanders had sought to advance.

140. For completeness, I did not think that there was anything of substance in such criticisms as were suggested of the leakage assumption going to co-reinsurance, horizontal exhaustion or insolvencies or commutations. While it is fair to say that short placement was probably worse at least for some underwriters in 1990 than 1989, there was a greater degree of horizontal exhaustion in 1989 than 1990 – so giving rise to an element of what might be termed swings and roundabouts and justifying Mr. Bulmer's use of the same assumption throughout.

141. In these circumstances, Mr. Lockey was essentially left in his closing submissions with the argument that the modelled assumption was too imprecise to be of value and that as leakage would vary from one underwriter to another, a uniform assumption was inappropriate.

142. I am, with respect, unable to accept this criticism. Of course the leakage for each syndicate would not have been identical. On all the evidence including that from Mr. Berry – even accepting that both parties were able to derive some support from passages in his evidence – I am, however, persuaded that the modelled assumption for "other" leakage was a fair working assumption. It may not have been mathematically precise. But as a matter of probability, I am satisfied that it was fairly representative of reality for all the syndicates with which this case is concerned. In his closing oral submissions, Mr. Schaff put it this way:

> " We've got vertical exhaustion which is dealt with separately, we've got retentions, which are dealt with separately, and of course it's a round number. And no one's pretending – Mr. Berry frankly said that one can be sure it's not exact figures….but across all layers 0.5% is being taken out. That is a reasonable figure. And the sensitivity tests increased the figure from 0.5 to 1% and didn't dramatically increase the figures either…"

Suffice to say, I agree.

143. *(XI) Delays:* The calculation of delays between reinsurance recoveries (or collections) is an important part of the modelling process; the length of such delays determines how quickly the spiral turns and therefore the extent to which the players' UNLs accumulate during the relevant period.

144. Mr. Bulmer approached this task by extrapolating average delays from the available COSS data. His starting point was, again, actual data. In doing so, he analysed some 11,982 delays in the case of the KAC/BA model and 10,812 delays in the case of the Exxon model. The average delays were different as between the KAC/BA and Exxon models. The pattern in the case of both models also suggested that as the loss grew older, the delays grew larger and the spiral slower.

145. This was not an easy exercise. First, as Mr. Berry accepted, it was impossible to be precise about the average delay over the relevant period. Secondly, there was inevitably a concern about the employment of average delays when there was evidence (from Mr. Berry) that a most important factor in the length of a delay was the size of the collection in question and the identity of the company making the collection – a powerful market participant would apply pressure to speed up the

recovery of larger amounts. Thirdly, it is appropriate to underline what is and is not modelled. The delay modelled is that between successive reinsurance collections in respect of an individual layer; the models do not cover the delay between the time when an inwards claim is agreed and an outwards claim is made or the time between the making of such an outwards claim and its payment.

146. All this gives pause for thought. A feature of the models in this regard was that Mr. Bulmer adjusted the average delays from the actual data having regard to the development of the actual LMX spiral UNLs. In particular, Mr. Bulmer adjusted the final probability distributions so as to achieve a similar development over time of aggregate UNLs (including direct losses) of all the players in the models to the actual aggregate UNLs (including direct losses) of market participants as demonstrated by the COSS database (grossed up to allow for non-Lloyd's players). Mr. Bulmer's stated aim was to achieve development which was "reasonably consistent" with the development of the grossed up COSS UNLs (corrected, as discussed below). Plainly, an exercise of judgment was involved.

147. In cross-examination, Mr. Bulmer was vigorously challenged in this regard. The following passage captures the essence of the exchanges:

> " Q. So far as assumed payment delays are concerned, they have varied quite considerably…over the lifetime of the models?
>
> A. Yes, I would agree with that.
>
> Q. They have been changing because, in a nutshell, you have been trying to fit the modelled aggregate UNL over time to the real total UNL over time as represented by the grossed up COSS data?
>
> A. That is correct, and I think that is important because in developing the distributions of the proportions and the ratios, the degree of mixing of the Kuwait and BA losses in the Kuwait model, for example, I think is crucial.
>
> What affects the level of mixing? I think it is three or four things. One thing is how many times the spiral turns. It will also reflect the number of layers into which a programme is divided, it will reflect the number of participants in a layer and it will also reflect to some extent the extent of vertical exhaustion of reinsurance protections which will dampen the spiral.
>
> I think all of those are significant inputs into the degree of mixing of the two components in the losses.
>
> It seemed to me that it was important that the model spiral should turn approximately the right number of times between the inception of the loss and 1999 when the COSS data is no longer available. Initially the model was producing model

> UNLs which were too high, and it was for that reason that I increased the waiting times and hence reduced the speed at which the model spiral was developing.
>
> Q. ….this may …be an offensive phrase to you but isn't that '*reverse engineering*'…? [Italics added.] You are not actually using the payment delays information that you have derived from the COSS database but as assumptions, you are working backwards from the answer you want to achieve?
>
> A. No, I think I have been very dispassionate…. I have always taken the view that the resulting distributions of proportions or distributions of ratios are whatever they are, the results are whatever they are. But ….it is important that the model UNL should develop in a way which is similar to the COSS UNLs….
>
> Q. Isn't it fair to say that the assumed payment delays which you have used in your models have been chosen not to reflect the data in the COSS database as to reinsurance collections, but in order to generate a closer fit of the modelled UNL to the real UNL as represented by the COSS database?
>
> A. I would respond …that the real UNL from the COSS database is an important piece of data which I think I need to take into account. "

148. I understand the charge of "reverse engineering". But untutored, I would have been minded to conclude that Mr. Bulmer's approach was permissible rather than illegitimate. In simple terms, alive to the difficulties facing the models, he was seeking to adjust the modelled data having regard to the data available as to the actual development of market participants' UNLs. I do not think that is a cause for criticism; to the extent that actual data was available, he was, in my judgment, right to adjust the development of the model so as to accord with it.

149. Any doubts in this regard which I might otherwise have had were assuaged by the answers given by Mr. Sanders in an important passage in his cross-examination. These answers, if anything, gain in significance because of the debate between counsel which arose in the course of this passage, so that Mr. Sanders had every opportunity to reconsider his views; very fairly he did not. Mr. Sanders made it clear that it was not unreasonable for Mr. Bulmer to rely on the actual data available. Nor did he have any problem with Mr. Bulmer fitting a curve to the data. Mr. Bulmer's approach was reasonable, albeit that Mr. Sanders thought that some of the curves did not fit as well as he would have expected.

150. Mr. Sanders' attention was specifically drawn to the following passage in Mr. Bulmer's Supplementary Final Report:

> " The updated distributions were selected to achieve a similar development over time of the aggregate UNLs (including direct losses) of all the players in the KAC/BA model to the actual aggregate UNLs (including direct losses) of market participants

> as demonstrated by the COSS database (grossed-up to allow for non-Lloyd's players during the period when they were still paying Spiral Losses)….. When following ….[the process of selecting the updated distributions]…., I had regard to:
>
> (A) The updated COSS database which had been provided to me by the Claimant; and
>
> (B) The corrected development of the actual aggregate UNLs (including direct losses) of market participants as demonstrated by the COSS database (grossed-up to allow for non-Lloyd's players during the period when they were still paying Spiral Losses)."

151. There followed this exchange in the cross-examination of Mr. Sanders:

> " Q. But you accept the approach that he has taken to the calibration of the curves to the data that he has looked at?
>
> A. That is the red line.
>
> Q. Yes.
>
> A. Sometimes it is a bit difficult to get that. There are obviously better calibrations, but it's the way he has done that.
>
> Q. But you don't criticise any aspect of his approach?
>
> A. I don't criticise any aspect of his approach."

152. Picking up on certain other matters:

i) The evidence supported the use of different average delays for KAC/ BA and Exxon.

ii) The evidence from both Mr. Emney and Mr. Sanders supported the pattern of increasing delays as the losses grew older – with the qualification (rightly) introduced by Mr. Sanders that here it was necessary to leave aside the "kickstart" to the Exxon spiral in 1996 and, as I understood him, the introduction of the KAC Spares loss in 2000.

iii) To my mind, Mr. Bulmer's introduction of constraints, requiring waiting times to be discarded if they exceeded 1,000 days in the KAC/BA model and 1,500 days in the Exxon model was reasonable and justified; the aim was to reduce the scope for players to have excessive outstanding recovery times. Once again, in introducing these constraints and differentiating between the KAC/BA and Exxon models, Mr. Bulmer had regard to actual data.

153. Finally, with regard to delays, when dealing with Scenario B, it will be recollected that the models used two parallel runs to calculate the ratio; on the first, both recoverable and irrecoverable losses were fed into the spiral; on the second, only the recoverable losses were included. In the case of each of the models, Mr. Bulmer had

used the same payment delay for the two parallel runs (i.e., the same delay for each of the runs on the individual models, not the same delay for both the KAC/ BA and Exxon models). This approach was the subject of criticism, essentially along the lines that delays were likely to be longer in the second model run (i.e., the run confined to recoverable losses).

154. To my mind, this criticism is best dealt with separately as between the KAC/ BA and Exxon models. So far as concerns the KAC/BA model, I am not persuaded that this is a criticism of substance. The ratio of BA to KAC loss was small and the BA loss was paid very soon after the KAC loss. It is unlikely that the removal of the BA loss would have significantly altered the pattern of development of the KAC loss.

155. The Exxon model is a different matter. A fair summary of the evidence of both Messrs. Bulmer and Sanders as to this complex spiral is that neither *knew* whether the payment delays here would have been different had the irrecoverable losses not entered the market. That said, in the opinion of Mr. Sanders, the delays were likely to have been longer, had the irrecoverable losses not entered the market. The effect of longer delays would have a downwards impact on the 10th percentile figure for Scenario B in respect of the Exxon model. Against this background, Mr. Bulmer introduced "sensitivities 22 and 23" to demonstrate this reduction in the 10th percentile figure. I come to Scenario B later and when I do it will be right, in my judgment, to treat the Exxon 10th percentile figures as reduced in accordance with sensitivities 22 and 23, thus acknowledging the need for caution and the force of the criticism in this area.

156. *(XII) Reasonableness Tests:* Mr. Bulmer conducted three "reasonableness tests", comparing, in graphic form, the UNLs produced by the models with the available data regarding actual UNLs. The tests were as follows:

i) *Aggregate (total) UNLs (Test 1):* Mr. Bulmer compared the development, over time, of the aggregate UNLs of all players in the models against the development of the aggregate UNLs of actual market participants.

ii) *UNL Profiles (Test 2):* Mr. Bulmer compared the final UNL figures for each player in the models against the corresponding UNLs for actual participants.

iii) *Vertical Exhaustion (Test 3):* Mr. Bulmer compared the amount of reinsurance cover left available to the largest players in the model (at the end of the modelled period/s) against the cover left available to some of the largest actual participants (at the same date) – though derived from data obtained from the 31st December, 2007 control sheets. It will be recalled that those control sheets contain data on 52 of the largest syndicates (by "UNLs") as regards KAC/BA and 39 of the largest syndicates (again by "UNLs") as regards Exxon.

157. As to the purpose of the tests, Mr. Bulmer was understandably alive to the need to guard against the results of the models reflecting the chosen assumptions rather than reality. The reasonableness tests, individually and in combination, were a part of the process by which Mr. Bulmer questioned whether the results emerging from the model corresponded to the actual data available. The graphs do not show and, I accept, could not have been expected to show, complete congruence between the lines

representing the output of the models and the lines representing the relevant sources of data. Accordingly, caution – or modesty – as to the nature of the exercise is appropriate at and from the outset. As Mr. Bulmer emphasised in his evidence, he was not seeking to replicate the LMX spiral; he was, instead, trying to do some "reality checks" to explore whether certain of the features of the actual spiral were approximately reflected in the model spiral/s; in other words, did the model results conform reasonably to reality – were they broadly consistent with it?

158. *KAC/BA:* It seems convenient to consider in turn all three reasonableness tests, model by model. As to *KAC/BA Test 1,* I am amply satisfied that once the data is properly evaluated, the overall amount of loss generated during the relevant period by the model is broadly consistent with the overall amount of loss which is known to have developed for the actual participants. The important point here is the need – explained by Mr. Bulmer and which I accept - to take into account approximately US$0.4 billion of erroneous, duplicate loss entries in the COSS database for the early-mid 1990s, subsequently corrected by corresponding negative entries. The need to make this correction is not lessened by the fact that making it serves as a reminder of the caution to be exercised when dealing with the COSS data. For the initial period, the inclusion of these erroneous entries caused the gradient of the curve for the COSS data to be steeper than that derived from the model; in the later period, the negative entries necessarily dampen the development of the COSS aggregate UNLs when compared with the modelled UNLs.

159. In the course of his evidence on this Test, I asked Mr. Bulmer the following question:

> "What is a good fit…?"

Mr. Bulmer's answer was in these terms:

> " I think what I am looking for is a model – the two or three things which I am looking for are for the model UNLs to develop in a similar way to the COSS UNL, subject to two provisos. The first is that the COSS UNL contains the duplicate entries and negative entries which cause the COSS UNL to increase too fast in the early years and then to flatten out too much in 1995 and 1996. Also, for Kuwait, the control sheet UNLs, which I consider to be the most reliable indicator of syndicate UNLs, again lie above the COSS UNLs for 52 of the largest Lloyd's syndicates participating in the Kuwait spiral. "

160. A visual inspection of the graphs, admittedly imprecise, supports the same conclusion, of a good fit, once the necessary adjustments to the data are taken into account. For his part, Mr. Sanders agreed.

161. Here, as before, there was a suggestion that Mr. Bulmer had been guilty of "reverse engineering", on account of the importance he attached to actual data. I do not think that criticism is well-founded. Mr. Schaff said this of the criticism:

> " …this criticism confuses the results of the models (the proportions and ratios) with the development of the UNLs which are an important evidential input."

I agree.

162. For completeness, I have not overlooked the point Mr. Lockey raised for the very first time in his oral closing submissions that the US$0.4 billion correction itself needed to be grossed up. As Mr. Lockey frankly recognised, the point was an afterthought and not one supported by Mr. Sanders or put to Mr. Bulmer. No application was made for Mr. Bulmer's recall. In the circumstances, I am not willing to accept it to be self evident that grossing up of the correction must follow and I am in any event satisfied overall as to the reasonable fit for this Test between the model and actuality.

163. Turning to *KAC/BA Test 2*, this can be taken briefly. The issue here goes to "diversity"; namely, whether the models produce sufficient players with low, medium and high UNLs. On the evidence, it appears that the position had much improved since the introduction of the "matrix" (already mentioned). Necessarily, there were still difficulties, arising from the constraints of modelling; there is a need, recognised by Mr. Bulmer, to strike a balance between avoiding over-complexity and furnishing a good representation of reality. Even so, it seems to me that no or no significant criticism can be made of the KAC/BA model with regard to the outcome of Test 2. For completeness, Mr. Sanders' "scattergram" was based on one run of the model alone and does not cause me to doubt the conclusion I have just expressed.

164. As to *KAC/BA Test 3*, it can likewise be taken shortly. Mr. Bulmer's evidence was that there was not a significant difference between the model and the outcome suggested by the Control Sheets. Further, in part at least, the difference between the graphs flowed from the model being a "closed spiral", as already discussed. For my part, I think the fair conclusion is that KAC/BA Tests 1 (in particular) and 2 reveal a better fit than Test 3. But I do not think that matters, not only because of some reservations about the utility of Test 3 (see below) but because in the case of KAC/BA there was not much vertical exhaustion in fact (as Mr. Sanders agreed).

165. Taken in combination, in my judgment, the reasonableness tests provide a useful measure of reassurance as to the reliability of the KAC/BA model, if perhaps no more than that – the assistance given by these tests should not be overstated.

166. *Exxon:* I turn next to *Exxon Test 1*. Here, the model has been calibrated both in respect of waiting times (discussed above) and to allow for the difference between the information available from the control sheets and the COSS database – the control sheets providing in Mr. Bulmer's opinion the most reliable data, albeit and unfortunately, only available at a limited number of dates. As Mr. Bulmer put it in cross-examination:

> " ….I was looking for the model UNLs to be higher than the COSS UNLs at the end of the period for which the COSS database is applicable because…..the control sheet UNLs are the most reliable source of syndicate UNLs available to me ….and the control sheet UNLs are higher than the COSS UNLs…."

It is unnecessary to say more of the charge of "reverse engineering", with which I have already dealt. Even after the calibration, it is fair to say that there is a significant lack of congruence between the model runs and the line representing the COSS data for the period up to 1995; the graph shows the COSS line developing more quickly than the model lines. As in the case of KAC/BA, here too there is a need to make a correction to the COSS data for erroneous entries; in this instance, an allowance of some US$0.1 billion is to be made. But that correction goes, at most, only part of the way to explaining the lack of congruence.

167. Mr. Bulmer's opinion was that, even so, though the fit was not as close as it could be, nonetheless it was "broadly reasonable". For my part, I would be minded to reach the following conclusions. First, that the fit was not nearly as bad as Mr. Lockey suggested, especially with regard to the later periods when the difference between the control sheets and the COSS data is taken into account. Secondly, however, I confess that I would not find much by way of positive reassurance based on a visual comparison between the model and the COSS lines. Thirdly and perhaps interestingly, there is the question of the inference to be drawn from such lack of congruence as there is, for the period up to 1995. Having regard to the timings of the Exxon losses, there is, as it seems to me, force in the point made by Mr. Schaff: namely, that during this period, the model is understating *recoverable* losses. The corollary is that when the irrecoverable losses later enter the spiral, the model is, if anything, over-stating them.

168. It seems to me to follow that while, looked at in isolation, *Exxon Test 1* does not furnish positive support for the model, it also does not serve or serve significantly to undermine it; moreover, the ramifications from the lack of congruence in the early period do not lend support to the R&Q argument either that the modelled discounts for irrecoverable losses are unreliable or need to be increased.

169. As to *Exxon Test 2,* upon consideration, there is much less in the R&Q criticism than might first meet the eye. As already noted, the point here goes to diversity. First, so far as the model produced too few players with small UNLs, the shortfall related to model players with UNLs smaller than US$5 million. However, the syndicates in the present case did not have UNLs of less than US$5 million, so that although the model produced fewer players in this category than the number suggested by the COSS data, the practical impact on the output (and reliability of the model) is at most insignificant. To my mind, this point was no or little more than a distraction. Secondly, as to the suggested shortfall in players with large UNLs, some care is needed. It is correct that there was a shortfall. It is not correct, in my judgment, that the shortfall was as much as suggested by R&Q; the scattergram produced by Mr. Sanders is of only limited assistance, confined as it was to run 1 of the model. When consideration is given to the diagram representing all the model runs, it can be seen that the model did contain players with UNLs up to and including between US$130 – 140 million. Accordingly, the most that can be said is that the model did not produce players with UNLs in excess of US$150 million. Once again, however, the syndicates in the present case did not have UNLs of that size. The practical impact of this shortcoming of the model, if shortcoming it was, is, at best, marginal.

170. There is a further point. On all the evidence and contrary to an initial suggestion from Mr. Sanders, the effect of the later Exxon losses (so including the irrecoverable

losses) was proportionately greater on participants with small UNLs, not large UNLs. In consequence, as Mr. Schaff put it:

> " …the big UNLs are actually sustained by players who are proportionately more affected by the earlier recoverable losses than the later irrecoverable losses….So…the absence of a few big players with UNLs above 150 million simply does not affect the reliability of the proportions and ratios as applied in this case…."

171. Pulling the threads together, it may be that *Exxon Test 2* does not significantly enhance the reliability of the model; that said, the R&Q criticisms in this regard, do nothing or nothing significant to cast doubt upon it.

172. Coming finally to *Exxon Test 3*, the comparison is between the ratio in question (aggregate UNLs to total outwards reinsurance coverage) for the 39 largest players in the Exxon model, as at the 31st December, 2000 with 39 of the largest Lloyd's syndicates, as to whom the data is derived from a control sheet "as at 31.12.2007…". It can at once be noted that as regards vertical exhaustion, i.e., at the point on the graph where 100% of a player's UNL is the subject of outwards reinsurance, the Exxon model is entirely congruous with the data. The position is less satisfactory if regard is had to 80-90% exhaustion.

173. Probing a little further and as I understood Mr. Bulmer's evidence, this Test does not compare the actual level of reinsurance exhaustion in the model with the actual level of reinsurance exhaustion suggested by the control sheets. He compared instead the number of players who had exhausted their coverage. He did not think that this Test was pointless. He drew instead the conclusion:

> " …that the number of the biggest players exhausting their coverage in the model is similar to the number of the biggest players exhausting their coverage in reality."

174. For my part, I confess that I found Test 3 of very limited utility. In particular, I have misgivings about any comparison between modelled assumptions relating to one date with data derived from a document dealing with a significantly different date – a concern highlighted by Mr. Bulmer's answer as to actual participants and model players exhausting their cover at a different time. For the avoidance of any doubt, I do not think that the difficulty pertaining to this test assists Mr. Lockey in his submission (already dealt with) as to the dates of the models; in that regard and for the reasons given, I remain firmly of the view that the "dates" point does not undermine the reliability of the models.

175. Pausing here to consider the Exxon Tests in combination, I do not think that they significantly advance the case for the reliability of the model; conversely, I do not think that the criticisms under this heading go in any way significantly to undermine the confidence previously expressed in their reliability. Overall, I am of the view that the Exxon Tests did not greatly advance the argument, either way.

SCENARIOS A AND B

176. Leaving aside the question of the UNCC refunds, I have by this stage sought to canvass the principal criticisms made by R&Q in respect of the models. I now turn to evaluate the product of the models and to consider the issues which arise in that connection.

177. *(I) The two Scenarios:* The models are run on alternative bases – "Scenario A" and "Scenario B"; these assess the affect of the incorrect aggregation of the KAC/BA losses and of the recoverable/ irrecoverable Exxon losses in different ways.

178. To recap, in the case of Scenario A, each of the models is run on the basis that (1) the KAC and BA losses and (2) the recoverable and irrecoverable Exxon losses, are incorrectly aggregated (mixed) together – as in fact happened. By tracking the BA and irrecoverable Exxon element in each payment through the spiral, the proportion of each player's final UNL which relates to the BA or irrecoverable Exxon element can be calculated. For the purposes of determining the constituent elements, the models assume, in my judgment, appropriately, that each player makes outwards reinsurance collections in respect of KAC/BA and recoverable/ irrecoverable Exxon losses, in the same proportions in which it receives inwards claims. As Mr. Bulmer explained, Scenario A:

> " …looks at the mixed whole and splits it out into its component parts so that the proportion of the whole made up of each of those parts can be calculated. "

The principal output of the models (at the end of the modelled period), on Scenario A, is the proportion of the modelled UNL of each player attributable to the KAC loss (in the case of the KAC/BA model) or to the recoverable Exxon loss (in the case of the Exxon model).

179. Scenario B models what happens to losses when the BA or irrecoverable Exxon losses, as the case may be, are not included in the Cat 90V or Cat 89G claims. In order to do so, Scenario B relies on two parallel runs of the model. The first run models the situation in which (1) the KAC and BA losses and (2) the recoverable and irrecoverable Exxon losses are incorrectly aggregated (mixed) together. Here, however, the constituent elements of these aggregated losses are not tracked through the spiral. The second run of the model is performed with only KAC and recoverable Exxon losses, respectively. Accordingly, there is no incorrect aggregation or mixing of losses. A comparative calculation can then be performed, for each player, showing the difference produced by the exclusion of the "rogue" elements. This is done by comparing the values of each player's final UNL for each of the two runs. The difference between the two values is expressed in terms of a ratio, for each player, of its UNL excluding the "rogue" elements to its UNL including the "rogue" elements.

180. *(II) Testing the outputs:* An often ventilated criticism on the part of R&Q was that more should have been done to check the working and outputs of the models. A fair retort is that that is a counsel of perfection. Be that as it may, it would be quite wrong to underestimate the extent of the work done by Mr. Bulmer. This has, in no small measure, given me increased confidence in the reliability of the models. In this

particular context, the point can be illustrated by reference both to model runs and sensitivity tests.

181. There were 75 runs for each model. For each run, there were five changes as follows (taken from Mr. Bulmer's cross-examination):

> " The first is that the direct losses are redistributed between the individual direct only and mixed players.
>
> The second thing is that the layer generator is redone, albeit based on the same total coverage, number of layers, number of participants in layers, parameters, as underlies the original run.
>
> Thirdly, a new seed is used to generate the waiting times, which means that although the same mean and standard deviation is used, the losses will follow a different path through the spiral.
>
> Then, fourthly, the reinsurance layers which are assumed to be partly placed, there is a recollection …of those layers.
>
> Then, fifthly, …..the allocation of players within the different reinsurance share groups or reinsurance layer groups to share groups are redistributed in each run of the model.
>
> So the difference between the 75 runs, the five differences are those five elements which are generated by the use of a random generation process are regenerated, essentially. That is the difference between the 75 runs. "

The upshot was that the losses spiralled through the models by different pathways and in accordance with different timescales, on each of the runs.

182. In addition to these multiple runs, sensitivity tests involved a further 21 runs of the KAC/BA model and 23 runs of the Exxon model. These were undertaken in order to test the sensitivity of the results to the adjustment of certain values used in the key underlying assumptions. Examples included (1) adjusting the number of players, (2) increasing and decreasing the average delay and standard deviation of delay between reinsurance collections, (3) increasing the amount of leakage.

183. Against this background, as it seemed to me, the fact that the output figures fell within a relatively narrow range of results furnished comfort as to the consistency of the models, rather than a ground for criticism. Mr. Schaff, not unfairly, made the observation that the models would have been criticised by R&Q either way, whether the results fell within a narrow or much larger range. At all events, I was not attracted to the R&Q suggestion that this narrow range of results was in some way attributable to lack of diversity of input. It is perhaps convenient to note here that the range of results was narrower for KAC than Exxon and narrower for proportions (Scenario A) than ratios (Scenario B) – matters to which I shall shortly return.

184. Overall, I agree with the Equitas submission, that the consistency of results, in the light of these various runs and tests, demonstrates that the precise make-up of the spiral is "largely immaterial" to the issues of mixing. This was attributable to the considerable time available for mixing, especially in the case of the KAC/BA losses and also (if in a more complex fashion) in the case of the Exxon losses. Mr. Bulmer said this, with particular reference to the KAC/BA model:

> " I do think that the narrow distribution of the proportions ….is a reflection of how thoroughly the loss components in respect of Kuwait and BA had mixed by this stage. The original direct loss was round about US$343 million excluding the spares loss. By 1996, say, that figure had increased to US$6 billion, so the spiral had turned on average nearly 20 times. And I think it is worth considering what happens on each turn of the spiral. What happens is that a loss is passed on by a cedent to its reinsurers. Typically, a reinsurer will have 25 separate companies participating on the outwards reinsurance contract. So in the first turn of the spiral a portion of direct loss is split 25 times. Take one of those 25 components. It is amalgamated with other small portions of loss and then passed on to another reinsurer and it is split a further 25 times. And a further 25 times. The process continues through each turn of the spiral. So what happens is that the Kuwait and the BA losses are divided into what would seem to be microscopic portions or components by the time the spiral has turned nearly 20 times and the spiral UNL for Kuwait is US$6 billion. It seems to me that the reason why the distribution of proportions is so narrow…is because, by 2002, the Kuwait and BA losses would have been thoroughly mixed at that stage, and that is the reason why the distribution is narrow…. "

185. *(III) Results:* Before proceeding further, it is convenient to record the relevant figures for each of the models, expressed in proportions and ratios.

186. *KAC:* The average 10th percentile *proportion* of *KAC* loss for all players across 75 runs produces a figure of 90.2%. Equitas, pragmatically here, as elsewhere in this context, is content to see this figure rounded down to *90%*.

187. The average 10th percentile *ratio* of recoverable KAC loss to total Cat 90V loss across all 75 runs, produces a figure of 86.9%. Equitas is content to see this figure rounded down to *86.5%*.

188. It is perhaps instructive that Mr. Bulmer tested 1 million times (the "Monte Carlo" method) the robustness of the average 10th percentile (i.e., the 90.2% and 86.9% figures) over all 75 runs, as regards a random sample of 14 players (the number of affected syndicates). Mr. Sanders accepted that this was a "relevant actuarial exercise". With regard to proportions, only 11 of the 1,000,000 samples produced an average falling below the 90.2% figure. With regard to ratios, only 2 of the 1,000,000 samples produced an average falling below the 86.9% figure.

189. *Exxon:* The average 10th percentile *proportion* of recoverable Exxon loss for all players across all 75 runs, produces a figure of 81.2%. Equitas is content to see this figure rounded down to *79.5%*.

190. The average 10th percentile *ratio* of recoverable Exxon loss to total Cat 89G loss across all 75 runs, produces a figure of 80.6% for all players. In his oral submissions, Mr. Schaff indicated that Equitas was content to see this figure rounded down, having particular regard to Sensitivities 22 and 23, to *75%*.

191. So far as concerns the Exxon model, it may be noted that Mr. Bulmer had available a total of 21,375 individual player results (75 runs x 285 marine writers).

i) With regard to proportions, only 3 outlier 10th percentile proportions for any single player on any run (0.014%) fell below 70% and only about 95 such outliers (0.44%) cumulatively fell below 75%.

ii) With regard to ratios, only 7 outlier 10th percentile proportions for any single player on any run (0.03%) fell below 60%; only about 75 such outliers (0.35%) cumulatively fell below 70%; only about 475 such outliers (2.2%) fell below 75%.

192. When considering the *probabilities* of any of the syndicates falling below the "discount" levels referred to above, it is helpful to keep these figures for "outliers" in mind.

193. *(IV) Proportions v Ratios:* Mr. Schaff contended, as the Equitas primary case, that I should accept the proportions approach, contained in Scenario A, which seeks to establish what the syndicates will actually have paid in relation to the recoverable elements of their losses. The choice between the two Scenarios gave rise to a question of law or principle. The proportions in Scenario A were robust evidentially; there was no or no serious challenge, as a matter of fact, to the outcomes demonstrated by this approach. The only assumption (one which I have already held to be well-founded) was that each player makes outwards reinsurance collections in respect of KAC/BA and recoverable/irrecoverable Exxon losses, in the same proportions in which it receives inwards claims. Scenario A answers the question of what the syndicates lost, in terms of KAC and recoverable Exxon losses. The answer would be no different if the question was re-phrased to ask for what the syndicates were liable. The reason the answers are the same is because the syndicates were liable for and are only claiming to recover, the KAC and recoverable Exxon proportions of its losses – not the BA or irrecoverable Exxon elements of their losses. By contrast, Scenario B involved a "but for" causation approach: what loss would have been suffered if the BA and irrecoverable Exxon elements had not been introduced into the spiral? This was a "counterfactual" - approach because the BA and irrecoverable Exxon losses were not in fact excluded from the (actual) spiral. Scenario B (see above) produced more outliers than Scenario A and it could also give more credence via the backdoor to Mr. Lockey's argument that proof of liability at each underlying level was required. All that said, if I was against him on Scenario A, then Mr. Schaff commended Scenario B as the Equitas alternative case. Scenario B shows what probably would have happened to the syndicates' UNLs had the irrecoverable elements never entered the spiral and, in so doing, demonstrates the effect of stripping out the BA and irrecoverable Exxon losses.

194. Mr. Lockey agreed that the question was one of law or principle but contended for a very different outcome. In his submission, Scenario A was completely misconceived. The issue was not as to what the syndicates had paid but what each syndicate (individually) was liable to pay. The relevant inquiry went to stripping out irrecoverable losses rather than to any question of mixing recoverable and irrecoverable losses. Scenario A failed to answer the relevant question: what was the liability of each syndicate under its inwards contracts for the properly aggregated loss if that loss alone had been processed through the spiral and presented to them? Logically, if the models were to be used at all, that test led to Scenario B not Scenario A. While Scenario B was therefore not misconceived, it failed to establish the syndicates' recoverable losses because it did not replicate reality; a model which did not and did not purport to replicate reality could not show what the true position would have been.

195. With respect, I fear that I take a different view from both counsel as to the correct categorisation of this issue. To my mind, the relevant question is one without Mr. Lockey's suggested adornment: namely, what are the (minimum) losses for which each syndicate was liable? If Equitas is otherwise right, then either Scenario A or Scenario B could permissibly be used to establish the recoverable losses; they furnish different methodologies to establish those losses. But I would not elevate the choice between them into a question of law or principle. I think instead that the choice between the Scenarios is a question of evidence or fact. Ultimately, for me, it is a question of confidence, comfort, conservatism or margin. Acknowledging though I do the force of Mr. Schaff's point as to the "robustness" of Scenario A, I prefer to take the lower of the figures. Approached in this fashion, the Equitas case, if otherwise well-founded, has been tested by two very different methodologies; there can be more confidence in pragmatically adopting the lower and hence more conservative figures yielded by the two Scenarios. In this way too, I am able to reflect the requirement of increased caution concerning the Exxon model. The figures are of course minimum figures, so there is no question of guesswork or uncertainty; Equitas simply renounces any claim to a higher figure.

196. For completeness but importantly:

i) First, as already intimated, I am unable to agree with Mr. Lockey's suggested formulation of the relevant question; this disagreement goes back to my earlier reasoning as to the manner of proving the losses in question. For my part, I do not think that the acceptability of Scenario B involves an acceptance of the need to trace the exact pathway of the losses all the way up through the spiral. I am not persuaded that the approach of Scenario B in stripping out the irrecoverable elements from the syndicates' UNLs points to the conclusion contended for by Mr. Lockey.

ii) Secondly, there remained a debate as to the use of the 10^{th} percentile approach. Mr. Lockey's submission was that the use of this measure implied that one out of ten players would be below it; therefore one out of ten of the syndicates would be below the minimum figure claimed; accordingly, none of the syndicates could recover anything, because it could not be said which of the syndicates would fall below the minimum. With respect, I do not think so. On all the evidence (already discussed, including, not least, the absence of evidence as to the syndicates having extreme or exceptional characteristics), I

am satisfied that the use of the 10th percentile, a conservative measure, provides reassurance for the conclusion that, on the balance of probabilities, all the syndicates will have recoverable losses above the minimum figures involved. I repeat: I accept of course that there is a *possibility* that a syndicate might be an outlier, falling below the 10th percentile figure; but I do not accept that conclusion as a matter of probability.

iii) I remind myself of the matters remarked upon much earlier, as to the manner in which the original losses entered the spiral. In the case of KAC/BA, they did so in the proportions US$300 million KAC to US$43 million BA. In the case of Exxon, before the introduction of *any* irrecoverable losses in 1996, the total Exxon UNL was standing at some US$6 billion – by itself about 60%, for the larger UNLs of the 2007 figures. To my mind, such common sense considerations do represent as Mr. Schaff submitted, "high level reality checks". These recoverable losses cannot properly and should not simply be disregarded; it really is, to my mind, a counsel of despair to suggest that no means is available of establishing a minimum recoverable amount so that nothing at all can be recovered.

197. In my judgment, on a balance of probabilities, the syndicates in question will have incurred at least:

i) An 86.5% ratio of recoverable to total Cat 90V UNLs, by reference to the recoverable KAC element of the loss;

ii) A 75% ratio of recoverable to total Cat 89G UNLs, by reference to the recoverable element of the Exxon loss.

198. Subject only to the remaining question, going to UNCC refunds and predicated on the conclusion otherwise in favour of Equitas to which I have now come, Equitas is entitled to declaratory relief accordingly.

UNCC REFUNDS

199. The United Nations Compensation Commission has provided compensation to direct insurers (and reinsurers) in relation to the loss of the KAC and the BA aircraft ("the UNCC refunds"). Those refunds have been processed as far as the first tier reinsurance level (i.e., the first XL reinsurers), but there matters have come to a halt, while the market remains in "lockdown". Some of the syndicates involved in these proceedings have received refunds, as indeed has R&Q. So far as concerns the syndicates in question, I am assured by Mr. Schaff that credit has been given for all refunds received, in accordance with cl. 2.2 of the JELC clauses.

200. The issue before me related to the UNCC refunds not yet processed through the spiral. It concerns the KAC claims not the Exxon claims. As part of its submission that Equitas had used the wrong dates for the models and had wrongly failed to model current UNLs, R&Q submitted that the impact of the UNCC refunds should have been modelled. Insofar as these refunds reached the direct insurers, they post-dated the cut-off date of the KAC model. I have already dealt with the "wrong dates" argument and need not repeat my conclusions here. But those conclusions left open the question as to the proper treatment of these substantial refunds, amounting, so far as concerns the

Equitas share, to some US$139 million in relation to the KAC direct losses. R&Q submitted that the processing of those refunds should have been modelled, so as to bring those sums into account – and thereby significantly reducing the syndicate losses relating to KAC.

201. There is no dispute that the further processing of the UNCC refunds has not been modelled. However, Equitas submits that there is no need to model the processing of these refunds and indeed that it would be wrong to do so; that would be to take into account refunds not yet received. The relevant obligation was to refund what had been received; neither the syndicates (nor any other market participants) were under an obligation to refund what they had not received. As and when the logjam is broken and the refunds come to be processed and received through the spiral, credit will be given.

202. R&Q replied to the effect that Equitas was seeking to have the plums without the duff. It was unjust to exclude the further processing of the UNCC refunds from the model. Even if this judgment broke the current deadlock in the market in other respects, there was a very real chance or likelihood that the refunds would not be processed (and magnified) through the spiral – so that the syndicates would not be giving proper credit. The reason was the significant level of commutations, so that the refunds would remain at the direct level and not go through the spiral. To obviate such injustice, either I should dramatically increase the discount in respect of the KAC claims or, at the least, make any relief conditional on undertakings from Equitas (1) to process any amounts in respect of the UNCC refunds received by or on behalf of any syndicates through the successive turns of the spiral and (2) to seek to recover UNCC refunds due to it or to the syndicates from non-Lloyd's entities and to process such refunds through the successive turns of the spiral.

203. To all this, Mr. Schaff responded in these terms (already touched upon when dealing with the "wrong dates" issue), which are worth recording:

> " …everyone knows that once the spiral gets started again and claims are processed, refunds can then be processed on a correct basis, top down…, reflecting the amount of UNLs properly calculated, reflecting the refunds, and they will start to move. R&Q can start to move their refunds and we can start to move our refunds.
>
> I can assure your Lordship that Equitas has no intention whatsoever of sitting on refunds to which they are not entitled…..The whole system is frozen at the first tier level because nobody is paying claims, but once the spiral starts to move I can assure your Lordship that there is going to be no funny business within Equitas to prevent some sort of unjust enrichment…. The reason why nothing has happened…is you can't give refunds to people (a) when claims aren't being paid and (b) until you know how the spiral is going to develop and the thing is going to be kickstarted. Once it is kickstarted, things will start to move…."

The concerns expressed by R&Q were, said Mr. Schaff, not real concerns. If there were "roadblocks" created by commutations preventing refunds being credited further up the spiral, there was an element of swings and roundabouts - in that the same "roadblocks" barred claims being passed on up the spiral. Further and in any event, the obligations as to processing refunds needed to be reciprocal; R&Q should be under the same obligation, *mutatis mutandis*, as Equitas. Mr. Schaff repeated the assurance that Equitas would pass on any refunds received and, in principle, would agree to do the best it could to chase non-Lloyd's participants for refunds; the proceedings had, after all, been brought to move the spiral on.

204. Having set out the debate at some length, I can state my conclusions very shortly. First, I am unable to accept the R&Q criticism as to the failure to model the further processing of the UNCC refunds. In my view, such modelling would have involved giving credit for refunds not yet received. I am not deterred from this conclusion by the fact of the commutations which have taken place; there is indeed a swings and roundabouts element flowing from such commutations. For completeness, I am also not persuaded by the R&Q submission that a further discount should be granted, reflecting the possible future ramifications of the UNCC refunds.

205. Secondly, I am, however, anxious that everything that can be done should be done to ensure and, thereafter, bring into account the further processing of UNCC refunds once the spiral is, as I hope it will be, "kickstarted" by this judgment.

206. Thirdly, given Mr. Schaff's assurances, I am confident that the matter can be fairly and justly dealt with by the incorporation of appropriate undertakings in the declaratory relief to be granted to Equitas in accordance with the conclusions to which I have already come. It will be recalled that I was of the same view with regard to the "wrong dates" issue more generally.

207. Fourthly, while the undertakings will need to be drafted and fine tuned by counsel, they should incorporate three features:

i) They should impose obligations on both Equitas and R&Q and should be reciprocal in that regard.

ii) They should oblige Equitas to process any amounts in respect of UNCC refunds received by or on behalf of any syndicates through the successive turns of the spiral.

iii) They should in principle oblige Equitas to use its best endeavours to seek to recover UNCC refunds due to it or to the syndicates from non-Lloyd's entities and, after any such recovery, they should oblige Equitas to process such refunds through the successive turns of the spiral.

OVERALL CONCLUSION

208. I have in this judgment sought to address the principal objections raised by R&Q in respect of the models – ranging from the objection both as a matter of law and more widely that actuarial modelling could not be utilised at all to establish the Equitas losses, to detailed criticisms of the models in question. I accept that actuarial modelling is complex, expensive, imperfect and, for my part, not ideal in the context

of this litigation. It is plainly necessary to proceed with caution – and even more so in connection with the Exxon than the KAC model. However, for the reasons I have given and in a nutshell, I am persuaded that the models are both capable of making the transition from the general to the particular and do go on to provide a reasonable representation of reality. Through the use of the conservative 10th percentile approach and appropriate discounting, I am satisfied that the models furnish an acceptable, soundly based route to establishing the properly recoverable minimum losses sustained by the syndicates, having regard to the applicable burden and standard of proof. The models therefore assist in doing practical justice in this case – a solution emphatically preferable to leaving the losses to lie crudely where they fall.

209. For completeness, I should record that the success of the Equitas claims *may* well have entailed that R&Q was itself entitled to advance a counterclaim in these proceedings. However, for its own reasons, R&Q chose not to do so - a matter expressly reaffirmed during the hearing.

210. I shall be grateful for the assistance of counsel in the drafting of a suitable order for declaratory relief, incorporating undertakings as discussed above. Finally, I shall be grateful for the assistance of counsel on all questions of costs.