

Reinsurance Dialogue

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Reinsurance Dialogue

between

Christopher J. Robey¹

and

David E. Wilmot²

December 4, 1995

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**Re: Unregistered Reinsurance
 The Cost of Capacity
 Sources of New Capacity**

Dear Mr. Robey:

I congratulate you on the introduction of what must be your most audacious suggestion to date in your letter of September 6, 1995, you recommended that the Office of the Superintendent of Insurance create a new "acceptance" or "approval" category for those foreign reinsurers who wish to write Canadian business without the hassle of actually becoming licensed. You propose that financially acceptable foreign reinsurers who meet OSFI-set criteria should be allowed to enjoy a licensed or quasi-licensed status for certain classes of Canadian reinsurance such as Catastrophe Excess of Loss.

The mind reels at the thought of a torrent of cheap and unquestioning reinsurance capacity, from Armenia to Zaire, flowing into Canada. I can visualize the reinsurance broker gleefully posting his newest treaty offering on the internet at 8:10 pm to find it fully subscribed by 8:18 pm and 200%

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over-placed by 8 25 pm. I can imagine bidding wars, such as take place in hot real estate markets, in which reinsurers in Chad pitch potentially suicidal reinsurance terms on the basis of their soaring currency, or some other temporary, localised advantage. I picture myself starting a new career in vacuum cleaner sales.

628 These images notwithstanding, I may surprise you by supporting your suggestion - at least in part. Easy access to world-wide catastrophe reinsurance capacity may solve problems for Canadian insurers and Canadian reinsurers alike. There is no doubt that available insurance and reinsurance fall far short of the potential \$9 to \$12 billion insured loss that could arise out of a Vancouver earthquake.

However, I must question the reason for this "shortfall" in available capacity presented in your letter. I will introduce, as a new topic, the real reasons for this shortfall in capacity. Only then can I address your recommendation and propose a refinement that may encourage acceptance. I will then touch on alternate approaches to catastrophe capacity which recognise today's advances in technology and communications.

Unregistered Reinsurers and Earthquake Capacity

Your suggestion to ease the regulatory rules for unlicensed reinsurers is motivated by a shortfall in capacity for British Columbia and Quebec earthquake exposures. No one can dispute that a shortage of earthquake capacity creates a serious problem for Canadian policy holders and insurers. However, it would be totally incorrect to suggest that the declining number of local reinsurers has reduced the availability of catastrophe capacity and increased the price of protection.

True, the number of reinsurers has declined, and, coincidentally or not, reinsurers have experienced better results over the last two years in the absence of severe catastrophe losses. (But I trust you do not begrudge reinsurers *some* return on the capital they put at risk for our mutual clients.) Nevertheless, neither the shortage of capacity nor the rising cost of catastrophe protection can be explained by the decreasing number of

domestic reinsurers. Had the 57 reinsurers of seven years ago survived and maintained their individual underwriting offices, it is unlikely that they would exceed the capacity now offered by the stronger, healthier reinsurers who remain.

There are two clear and overwhelming reasons for Canada's capacity shortfall reasons which have nothing to do with the number of local reinsurers: awareness of the exposure and cost of the capacity.

The shortage of capacity is not a recent phenomenon. The exposure has always been present. Remarkably, the Canadian market simply failed to recognise its accumulated exposure to earthquake in the populated areas of British Columbia until the late 1980s and early 1990s. In our ignorance, catastrophe protection was purchased to woefully inadequate limits, and reinsurers gleefully sold catastrophe treaties without adding up their own enormous accumulations. Those reinsurers providing pro rata capacity gave their earthquake exposures very little thought at all. Often unaware that insurers could fill these surplus treaties with penny-and-a-half Vancouver HPR risks, reinsurers were often oblivious to these billions of dollars of ceded earthquake exposure for which no premium had been contemplated or charged. At best, reinsurers relied on cheap and abundant retrocessional capacity—often from markets who themselves had no idea of the risks they had assumed or the exposures they were aggregating.

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Had a major earthquake occurred five or six years ago, a large number of Canadian insurers would have been bankrupted. The unexpected magnitude of the loss would have swept through the limited reinsurance protection of most insurers and, in many cases, continued to climb through capital and surplus, leaving thousands of insureds with only fractional claim recoveries. In addition, many reinsurers would have become insolvent, creating gaps in reinsurance covers capable of pushing even more insurers into bankruptcy.

Fortunately, today's catastrophe reinsurance capacity is considerably greater than that available five years ago. More

importantly, it is far more controlled and secure than it has ever been in the past. But our concern for catastrophe capacity has been brought to the fore not by a loss of reinsurers, but by a loss (to some extent at least) of our naiveté .

The second and more immediate reason for Canada's capacity shortfall is based on economics as much as it is on underwriting.

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At the core of the problem is Canada's geography. British Columbia and Quebec present the insurance industry with inordinately large exposures in relation to the country's modest premium base. A Vancouver earthquake could well produce an insured loss greater than two or three times the property premiums generated across the entire Canadian industry³.

Due to this imbalance, a considerable amount of additional, foreign capacity is required. However, this capacity is only available at a price. You yourself noted that it is only with the increase in the pricing of catastrophe treaties that new markets have made their capacity available to Canada. There is a price for earthquake capacity (which I will attempt to measure in a moment), because it is commercially impossible for Canada-based capital and surplus to meet the industry's capacity requirements no matter how many licensed reinsurers there may be.

This last statement requires a somewhat more detailed explanation.

³The imbalance is so great that it should be addressed by a broad range of solutions including loss control, loss mitigation, coverage limitations and loss sharing with insureds and government. Only one of the possible solutions is increased capacity to insure anticipated losses. However, reinsurance is probably the most expensive solution of all. It is certainly more expensive (per dollar of loss exposure) than the cost of reducing loss by means of flexible buried gas lines, new fire boats or sea-water pumps for Vancouver's water supply. Insurance capacity is undoubtedly more expensive than underwriting against earthquake-prone construction or developing industry plans for loss mitigation temporary accommodation and building material controls. It is important to realise that only when the true cost of insurance capacity becomes fully understood, will alternate solutions become economically attractive so that they are more aggressively pursued.

The Cost of Capacity

The cost of capacity is driven either by an expected minimum return on equity or by a technical method of exposure rating. Since you and I are discussing *additional* catastrophe capacity, I will assume we are dealing with 200-year to 500-year loss events. From the perspective of pure technical exposure, this means a "technical" rate of from 0.5%, or payback in 200 years, to as low as 0.2%, or payback in 500 years.

While these rates may sound attractive to a reinsurance buyer, they are not practical to the capacity "lender." Reinsurers around the world expect a reasonable return from the capital they commit to catastrophe underwriting. Even though Canada has a relatively low earthquake *frequency* it nevertheless offers a loss *severity* that matches or exceeds most other parts of the world. International reinsurers will be disinclined to favour us without a reasonable return.

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A reinsurer risks its capital in anticipation of a better return on equity, and because the owners have the option to invest in alternative activities in any part of the world, they have a right to expect a much better pretax return on money used for the risky business of catastrophe reinsurance. A pretax return of 20% is frequently cited. Some would consider that to be low.

Since the reinsurer must match potential liabilities with actual funds, reinsurance premiums and capital must *at least* equal the capacity provided. Catastrophe capacity of \$100 million would require a combination of premiums and capital totalling at least \$100 million. In reality, additional premium is needed in order to cover acquisition expenses, salaries, potential claims handling fees, margins of safety and other costs. The \$100 million of premiums and capital, if invested cautiously, will return, perhaps, 7%. Therefore, a further 13% return is needed to reach the target of 20% ROE. This 13% must come from reinsurance premiums.

The problem is this: If a Canadian reinsurer uses its capital to write additional earthquake exposures in British

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Columbia, then the mathematics becomes brutally unkind. In our example, we need at least \$11.5M⁴ of reinsurance premium in order to protect \$100M of additional earthquake exposure. This equates to a very “untechnical” rate of 11.5% “on line,” or the equivalent of less than a seven year payback. If domestic reinsurers were asked to fill a \$4 billion shortfall in British Columbia earthquake capacity at this rate on line, then the required minimum net reinsurance premiums would amount to \$460 million. Gross reinsurance premium would be more like \$540 million, and primary policy premium required, after commissions, taxes and other operating expenses, would bring the required premiums to about \$770 million. Assuming there are one million homes and businesses in the earthquake effected areas of British Columbia, each policyholder would have to pay a further \$770 just for the *additional* earthquake protection. Annually.

I think it should be clear that Canada’s domestic reinsurers, no matter how plentiful, cannot address the earthquake capacity problem without recourse to world-wide capital resources.

Fortunately, international reinsurers are able to use their capital over and over again by selling catastrophe treaties in many seismically distinct parts of the world. If such a reinsurer can apply its capital to eight or ten points on the globe, then each region can be charged a lower premium, so long as total collected premiums still equal 13% of Capital. Thus, the rate on line in any one location could drop from 11.5%, in our example above, to perhaps 2% or so, and still produce the necessary ROE.

There is a temptation to conclude that, through easy access to more and more unlicensed reinsurers, Canadian

⁴Premium P plus capital C must at least equal exposure of \$100M

Premium P must be at least 13% of capital C

	$P + C = \$100M$
	$P = 0.13 C$
Therefore	$0.13C + C = \$100M$
Therefore	$C = \$88.5M$
and	$P = \$11.5M$

insurers could benefit from world-wide spread and enjoy even lower catastrophe rates. Could a reinsurer protecting 20 locations reduce its rate on line to 1%? The answer is no, because theoretically speaking, the technical rate overtakes the ROE rate somewhere around eight or ten locations. By writing in ten earthquake regions, we saw the reinsurer get its rate on line down to 2%. However, by reinsuring ten regions, each with a technical 500-year payback, the reinsurer's portfolio of catastrophe treaties has itself climbed to a theoretical payback of 50 years (500÷10). This 50-year payback equates to 2% on line, and so we discover that the minimum technical rate crosses the minimum investment rate at that point and is prevented from going any lower. This is why we see the widespread use of 2% rate on line for most top layer catastrophe treaties - in Canada and in those other parts of the world that do not command more.

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(When I see a rate on line of less than 2%, I must conclude that the quoting market is prepared to live with a lower ROE despite the considerable risk, that the reinsurer is making a short-term concession for commercial reasons, that no one has explained the cost of capacity to the individual underwriter, or perhaps some combination of these possibilities. But I digress.)

It must be appreciated that Canadian reinsurers cannot survive on an exclusive diet of 2% premium-to-capital ratios. Even with access to overseas parents and foreign retrocessionaires, domestic reinsurers cannot satisfy their shareholders' demands with such inefficient use of their Canadian-based capital. The highest layers of catastrophe reinsurance must remain the domain of international reinsurers, and for that reason, international reinsurance capacity should be made as accessible to Canadian insurers as possible. This is why your proposal deserves serious study.

I agree with the concept of creating a defined "acceptance status" for unlicensed reinsurers wishing to write Canadian catastrophe exposures. I also agree with you that carelessly opening the doors to quasi-licensed reinsurers could create problems if guidelines are not carefully defined and

monitored. I do not want to discover the quasi-licensed catastrophe writer suddenly quoting automobile excess and property surplus treaties. You suggest that OSFI would find it hard to define the point at which a "catastrophe specialist" had crossed the line and become a "general reinsurer." However, I disagree. Or rather, I offer a simple solution that establishes unequivocal parameters while accomplishing precisely what you set out to achieve.

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The special licence should apply solely to the class of Earthquake Reinsurance.

I see no problem in the fact that there is no such class within OSFI's current definitions. Certainly, that fact has not prevented reinsurance brokers from marketing "earthquake only" catastrophe covers for the last two or three years. The description leaves no room for ambiguity, and there is no possibility of the unlicensed reinsurer dropping down into the "all perils" catastrophe layers where such unneeded capacity could be counter-productive. Personally, I think this is an elegant solution. I leave it to brokers, OSFI and industry lobbyists to work out the details and the financial qualifications for acceptable earthquake writers.

Sources of New Capacity

Earlier in this letter, I described how the insurance/reinsurance industry has calculated the price of capacity. Unfortunately, 2% on line may still seem rather expensive. Even at this rate, a further \$4 billion of British Columbia earthquake protection could require additional premiums of \$140 from every policy holder in Vancouver. Although this is no longer a ridiculous price, it is still too high.

A government-sponsored earthquake pool, devoid of premium taxes, brokerage and most other acquisition costs, could address some of the capacity shortfall. The pool would be efficient to the extent that most premium collection costs are eliminated. But it must be understood that, until the fund is built

up over the next 200 years, its “capital” is simply a government promise that taxpayers will pay any loss.

More promising solutions will come from imaginative new ways of buying and selling risk. The Chicago futures market hints at faster and more efficient means of sharing and transferring catastrophic risk. If our industry does not find creative ways of financing and trading capacity, then other financial industries may soon step in and offer less expensive alternatives to reinsurance. We must explore more efficient ways of balancing exposures and spreading the investment risk over wider areas and longer periods of time. These steps would reduce costs and could introduce balance safety sufficient to justify lower ROEs. This, if you accept the mathematical arguments above, would allow a significant reduction in the minimum acceptable rate on line for the highest additional layers of earthquake reinsurance.

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At the very least, technological advances will make the world-wide distribution of reinsurance far more efficient and correspondingly less expensive than it is today. I was only partially joking about treaty proposals on the internet.

Yours sincerely,



David E. Wilmot