REINSURANCE PROCESS LEAKAGE: SOME OBSERVATIONS

BY MYLES TILLEY

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Abstract: The article introduces the reader to the subject of reinsurance process leakage from the buyer's perspective. Reinsurance process leakage constitutes any inadvertent and undetected overpayment of reinsurance premium or underpayment of reinsurance claims which is caused by weaknesses within the ceded reinsurance process (incorporating all of its manual and/or automated components). Evidence from real life case studies and techniques for addressing ceded reinsurance process risk are also discussed.

INTRODUCTION

The goal of this article is to introduce the reader to the subject of "reinsurance process leakage" and to present some practical evidence for consideration based on our firm's field experience in this area. Since the readership of the "Journal of Reinsurance" likely includes more production oriented types (sales and underwriting) rather than finance, claims, and administrative people, it is likely that many readers may not have even ever heard of this subject. Thus, to put the subject into perspective to begin our discussion, within the world of reinsurance, we are addressing reinsurance process leakage from the "buying" side - whether through the purchase of reinsurance (by direct writers) or of retrocession (by reinsurers) - we won't distinguish further. Further, we are dealing with those aspects of the reinsurance process that occur after a contract agreement has been finalized[1]. It is also important to understand that our focus extends only to property/casualty companies, and to reinsurance transactions involving non-affiliated entities, as transactions involving affiliated entities (e.g. pooling) do not involve the risk of real economic loss (or gain) that is necessary to create the potential for "reinsurance process leakage".

THE CEDED REINSURANCE PROCESS IN THE US PROPERTY/CASUALTY INDUSTRY

Once a reinsurance agreement has been agreed between two (or more) parties, the ceded reinsurance process begins for the buyer. For each buyer, this process includes all of the manual and automated "system" and finance related components that act together to ensure that premiums and losses for each reinsurance agreement are 1) accurately recognized on a timely basis, 2) enter the settlement process at the appropriate time, and 3) are ultimately realized in the buyer's cash flows. Consider that this usually means that the terms of the agreement must be faithfully communicated by the members of the buyer's staff who negotiated the agreement to different groups who will be tasked with carrying out the administration (accounting, finance, claims, and sometimes information technology). It also common in many companies that the administration will be further divided between premium and claims.

The typical life cycle of contract administration begins with the first ceded reinsurance premium accrual, and payment and the cycle ends when the last claim subject to the agreement is fully and finally settled and the associated reinsurance debts are fully discharged (through the routine claims process or sometimes accelerated by commutation). This life cycle will typically last from several years (for reinsurance of short tail lines) to several decades (for reinsurance of long tail lines) and sometimes for considerably longer periods (e.g. for legacy contracts providing coverage for continuous occurrence or latent claims such as asbestos liability).

Both facultative and treaty agreements pass through the same life cycle, but present different types of process challenges (with facultative agreements generally involving less difficulty provided the fact of their existence can be preserved over the years). Intermediaries involved in arranging reinsurance agreements may provide some assistance to buyers in carrying out certain aspects of the ceded reinsurance process. However, the buyer is ultimately responsible for the overall effectiveness of the ceded reinsurance process since the intermediary cannot succeed for its part without substantial buyer cooperation[2].

A FEW SIMPLE METRICS

To get a sense of the monetary value of the transactions flowing through the ceded reinsurance process, we consulted SNL Financial[3], which provides a database of information comprised of US insurance company NAIC annual statement filings. According to this source, US insurers (and reinsurers) spent about $70 billion in 2012 on premiums for reinsurance contracts with non-affiliated entities. Proportionally, the $70 billion[4] represents almost 14% of the total industry top line direct premium revenue of $516 billion for 2012. On the claims side, US insurers (and reinsurers) held $143 billion[5] in reinsurance recoverable assets (again non-affiliated entities only) on their balance sheets at year end 2012.

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Assuming an average duration for these recoverable assets of 3 years - some assets are realized more quickly (paid recoverables) - some less quickly (case reserves and IBNR), the annual claims cash flow from reinsurance may be almost $50 billion. Accordingly, there is probably a total of almost $120 billion of transactions ($70 billion in one direction and almost $50 billion in the other) flowing through the ceded reinsurance process every year.

CEDED REINSURANCE PROCESS RISK

Process risk can be defined generally as the probability of loss (or "leakage" for us) inherent in a business process. For our process the "leakage" occurs whenever the business process fails to accurately recognize ceded premiums and losses (which will lead to undetected cash flow and earnings consequences). By analogy, if you think of the ceded reinsurance process as a plumbing system, the pipes (the manual and automated components of the reinsurance process) carry the water (the premiums and claims) back and forth between the buyer (cedant/retrocedant) and the seller (the reinsurer). If the pipes are not designed and constructed to properly reflect the terms and conditions of the agreements; then leaks will occur. Our assessment is that process risk associated with the ceded reinsurance process can be quite high. This results from the combination of two factors. First, as described above, the value of the transactions flowing through the process is quite large - and second, the unusual attributes of the ceded reinsurance process make for difficulty in designing effective process controls (to prevent and or detect "leakage"). For example, consider the following attributes of the process:

1. **Coordination of multiple departments/functions**
   As discussed above there is generally a "hand-off" once a new reinsurance agreement is completed. The hand-off usually involves a multitude of functions, each of which will handle different aspects of contract administration (for example, underwriting to define the subject business, accounting/finance for premiums, and claims to handle the cession of loss and loss adjustment expenses) over the life of the contract. The different functions must all share a common understanding of the reinsurance agreement in order for the overall administration to work correctly. Breakdowns in this communication process (which are easy to imagine) will inevitably lead to increases in process risk.

2. **Non-standard and complex contract terms**
   Reinsurance contracts are not subject to the extensive regulation and corresponding uniformity that exists with respect to many lines of direct insurance. Consequently, reinsurance contracts are often customized and can incorporate complex provisions which bear upon the determination of ceded premiums and losses. Accordingly the process often must address "exceptions" that would be uncommon in other more routine insurance industry transaction cycles (direct premium billing and collection and investments come to mind).

3. **Extended time span for contract administration**
   Reinsurance contract administration will always extend beyond the associated underlying policy and claim administration, and in the case of long tail lines must continue for many years and sometime decades. Organizational change (merger/acquisition, changes in management, staff, and systems') during this period can often expose the ceded reinsurance process to additional stresses.

4. **Information Technology**
   Many companies have difficulty in implementing information systems to support the process and rely instead upon fragmented process components (manual and spreadsheet based tools). For example, the 2010 Inpoint (Aon) study (see footnote 2) indicates that most of their respondent companies (68%) had only partially automated the ceded reinsurance process or alternatively relied completely on manual processes. Even if information systems are utilized, the above mentioned lack of uniformity in reinsurance contracts often presents difficulty.

5. **Depth of technical expertise**
   Ideally the staff dealing with reinsurance contract administration will be knowledgeable regarding the terms and conditions of each of the reinsurance contracts as well as the underlying policies, however, this is not always possible (especially in smaller companies) and the staff must sometimes rely instead simply on mechanical process repetition.

   Returning to our plumbing analogy; there is a lot of water flowing through this system and even a very tiny leak may spill a sizeable amount of losses, especially since the spills can occur year after year. Further, it can be very difficult to design the pipes needed to handle the transaction flow. Thus we conclude that process risk associated with ceded reinsurance can easily be relatively high in many companies. Nevertheless, if the leaks are discovered they can be fixed, the corresponding past losses can be recouped, and future losses can be prevented.

CEDED REINSURANCE PROCESS LEAKAGE - A DEFINITION

As described in the above section, the process risk associated with ceded reinsurance creates the potential for loss. The loss takes the form of overpaid reinsurance premiums and underpaid reinsurance claims which are undetected (effectively our definition of ceded reinsurance process leakage). Companies face the loss of assets if the leakage is not discovered and the assets recovered, which is just as real as if its property were stolen or damaged by fire or windstorm. Unlike other risks - which can be managed through the use of risk transfer techniques such as insurance - ceded reinsurance process leakage can only be addressed through control mechanisms aimed at prevention or detection.

Although the process risk may also result in undetected "gains" to the buyer of reinsurance (from underpaid reinsurance premiums or overpaid reinsurance claims), activities conducted by the sellers' (claims examination, premium and/or claims inspections) typically mitigate against the chances of this occurring.

RECAPTURING REINSURANCE PROCESS LEAKAGE

Over the course of the last ten years, our firm has conducted 6 different engagements aimed at detecting and realizing ceded reinsurance process leakage. The collective results of these engagements illustrates the real presence of reinsurance process leakage in most companies and provides some insights into the types of leakage that exist as well as the associated value. A summary of the results of these engagements is contained in Figure 1 below.To preserve the anonymity of our clients, Figure 1 discloses only the policyholder's surplus (PHS) size and basic information about the operations of each client.

Figure 1

Client	Year	PHS Size of Client	Operations	Process Leakage Discovered & Realized
1	2011	$2 Billion	National; Multiline	3,289,672
2	2008	$2 Billion	National; Multiline	1,998,288
3	2004	$1 Billion	Regional; Multiline	182,027
4	2002	$250 Million	Regional; Multiline	1,155,444
5	2003	$250 Million	Regional; Multiline	200,000
6	2007	In Receivership	Regional; Multiline	-
Total				6,825,431
Average				1,137,572

Results of ceded reinsurance process leakage engagements

The results indicate that the process leaks commonly do exist and that efforts to address the leakage are usually well worth pursuing. In many cases the leakage discovered was recurring and thus future savings (which are not included in Figure 1) represent additional economic benefits. As indicated in Figure 1, we have encountered only one engagement where no leakage was discovered. However, this resulted from our decision to discontinue work due to the extraordinarily cumbersome condition of the company's records. On average, our clients each realized over $1 million in additional earnings, surplus, and cash flow as a result of the recapture of reinsurance process leakage (along with the associated "free" process improvement).

TECHNIQUES FOR RECAPTURING REINSURANCE PROCESS LEAKAGE

Because evaluating the ceded reinsurance process requires knowledge from so many aspects of insurance company operations (insurance products, reinsurance contracts, claims, policy, premium, and accounting systems); to be effective it requires staff with deep subject matter experience in these areas. In our experience an "end-to-end" forensic approach is the most effective tool to use, by which we mean that the analysis must be conducted as independently as possible (to avoid introducing any bias from the existing process flow components). We find that premiums can often be analyzed in a "low tech" way by reading the applicable contracts and by independently reconstructing reinsurance premium valuations for comparison with recorded and reported reinsurance premium. Alternatively, analysis of ceded claims almost always requires extraction of underlying electronic claims data to be used in the independent reconstruction.

SOURCES OF LEAKAGE - PREMIUMS

Contrary to popular expectations, significant amounts of the leakage we discovered occurred in the premium area and had continued for multiple contract years. A discussion of some examples of the types of leakage discovered is provided below.

1. OVERSTATED REINSURANCE EXPOSURE RATING BASIS

We found in several cases that a close independent reading of the applicable reinsurance agreement - when compared to the reporting rendered to reinsurers - would reveal that the exposure basis had been overstated leading to overpaid reinsurance premiums. The overstatement resulted from causes such as: incomplete accounting for premiums associated with reinsurance contract exclusions, failure to account for all inuring reinsurance, and sometimes even mechanical and clerical error in handling exposure data. These types of errors appear to be quite common and are easily overlooked.

2. ADJUSTABLE REINSURANCE PREMIUMS

When reinsurance premiums are adjusted based on losses (swing rating, reinstatement premiums, profit sharing, and the like), we have found that the calculations may not comply with the applicable contracts and/or may be overlooked from time to time, resulting in errors in the determination of reinsurance premium.

Example: One client company had originally purchased an excess of loss contract with separate property and casualty limits to provide coverage for direct policies underwritten in a single state underwriting facility. Over time, the contract was amended to provide coverage for the same classes of business written in other states in which the company was active. The company's manual accounting "template" was designed at the time of the original placement and continued in use once the additional covered states were included. Since the original state did not feature an involuntary market mechanism based on ceding policies into a pool, the template did not need to (and indeed did not) address such a situation. However, one of the added states did incorporate such a facility which was not recognized by the template. As a consequence, the company reported its subject premiums without deduction for the cessions to the involuntary market pool (effectively inuring reinsurance) in this added state leading to inadvertently overpaid reinsurance premiums for several years for the contract.

SOURCES OF LEAKAGE - CLAIMS

On the other hand, an appreciation of the risk of reinsurance claims leakage is much more common. We have found that reinsurance claims leakage surrounding claims system migrations and conversions to be the most prevalent type. A discussion of some examples of the types of leakage discovered is providedbelow.

1. **Incomplete and/or fragmented claim financials**
   Anytime reinsurance has been purchased on an excess of loss basis, a key control point will be the accurate maintenance of the complete running claim financials (loss and expense on both a paid and incurred basis) for claims subject to the

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reinsurance contract. A seemingly simple objective to achieve, this unfortunately becomes more and more difficult as time passes and the claims are migrated from system to system. Some companies also manage their coverage litigation outside of their core claims systems and consequently these loss and expense dollars (including extra-contractual obligations and excess of policy limits payments) can be difficult to consolidate and can be "lost" to the ceded reinsurance process.

2. **Claim occurrences involving multiple policies and/or claims**
   Companies obtaining reinsurance that applies on an occurrence basis must preserve the ability (which is quite difficult to achieve) to associate multiple claims into an occurrence so that the claim financials can be aggregated for purposes of applying the reinsurance coverage. In such cases, we commonly discover the existence of "stray" claims that were overlooked in compiling the consolidated claim financials for a loss event.
3. **Incorrect application of basic reinsurance contract terms and conditions**
   From time to time we have learned that even the most basic contract terms can be applied incorrectly. For instance the attachment basis of claims to reinsurance contracts (as between risks attaching and loss occurring), the coverage basis for loss adjustment expenses (whether included, excluded, or pro rated), and even the reinsurance coverage effective dates can be misapplied.

Example: One client company utilized a direct claims system that contained an in-built technology constraint on the maximum number of claim financial transactions (a figure adequate for most (but not all) claims) that could be associated with any one claim reference number. In the case of workers compensation or unlimited PIP claims where indemnity and/or medical payments could continue for decades, the claim would sometimes reach its maximum transaction limit, at which point subsequent transactions would be recorded in a new and different claim reference. As such, the complete "ground up" claim financials would only be accessible by combining together the related claim financials for each such connected claim. This understandably led to an inability to detect that certain claim occurrences (combining two or more claim references) had reached an excess layer involving reinsurance; and to detect that additional amounts of loss for other claim occurrences were subject to reinsurance.

IN CLOSING

In the current insurance company operating environment, with depressed levels of investment income and the resulting pressures on margins, the tightening up of business processes in general is receiving additional management attention. In this vein, the ceded reinsurance process represents an operational area within most companies that can benefit from a fresh assessment. Within this article we have attempted to present evidence based on our experience that illustrates that reinsurance process risk can be relatively high in many companies, that the resultant reinsurance process leakage commonly exists (in large quantities), and can be recaptured through the enhancement of preventive and detective control mechanisms.

Indeed, our findings indicate that most companies can generate earnings, surplus, and cash flow gains along with "free" process improvement. In this way, reinsurance process leakage presents a tactical opportunity to industry participants and not a grand strategic opportunity, but the benefits which can be obtained are no less valuable. We hope that this article will serve to at least increase awareness of ceded reinsurance process leakage among industry participants. As far as recommendations for control mechanisms for addressing reinsurance process leakage, we offer the following concluding thoughts.

1. Involve finance, claims, and IT resources upfront in reinsurance purchasing (before contracts are finalized). Too often it seems that reinsurance contracts are finalized without any involvement by the very people who will need to administer the terms for the entire life of the contract. Their early participation can be invaluable and bring to light administrative issues before they become show-stoppers.
2. Staff reinsurance operations positions with experienced well-rounded personnel (with knowledge of your insurance products and direct policy, claim, and premium systems, and reinsurance contracts and accounting). Inexperienced staff cannot be effective (no matter the level of their raw talents) unless they have access to more seasoned personnel.
3. Centralize reinsurance processing as far as possible and reduce reliance on specialized "satellite" systems. This will assist in minimizing problems related to process fragmentation and in confining the span of control for handling the process to a more manageable level.
4. Implement a revolving cycle of reviews (by technically experienced reinsurance staff) for your key reinsurance contracts based on a comparison of the reinsurance contract documents to the accounting, claim, and reporting templates. Nothing will be as effective as periodically getting a "fresh look" at the overall process. Ceded administration activity has a tendency to become rigidly "ritual" over time and can easily become disconnected from the related contracts, without anyone taking notice.

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[1] We note that there are other important risks demanding of management attention which are attendant to the "selling" side and to aspects of the process that occur before a contract agreement is finalized, but this article does not address those risks.

[2] For further detail surrounding the ceded reinsurance process, its challenges, and how different companies (particularly based on size) address these challenges, in 2010 Inpoint (an Aon subsidiary) published an excellent study which summarizes the current state of the industry. See www.inpoint.com/documents/Ceded-Reinsurance-Operation-Survey-Report.pdf.

[3] See **www.snl.com**

[4] Essentially the aggregate amount of all filers for the NAIC 2012 Annual Statement, Underwriting and Investment Exhibit, Part 1B, Col 5 – Reinsurance Premiums ceded to non-affiliates (US and Foreign)

[5] NAIC 2012 Annual Statement, Schedule F, Part 3, Col 7 – 12, for non-affiliates (US and Foreign)