Risk Management at a Time of Systemic Uncertainty: Transfer Pricing Implications of Intra-Group Reinsurance Quota Share Arrangements

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Emilia Siravo, Vikram Chand and Gerhard Foth*

This study addresses an underexplored and highly topical area regarding the international tax implications of risk management, examining some core methodological questions surrounding the transfer pricing aspects of intra-group reinsurance in depth. The study first provides an overview of traditional property and casualty reinsurance risk transfer structures. It then focuses, in particular, on proportional quota share reinsurance arrangements in both external and intra-group settings. Additionally, it highlights the key entrepreneurial risk-taking functions in the insurance sector and examines potential transfer pricing remuneration methods for quota share reinsurance arrangements in intra-group transactions. The latter points are illustrated through case studies.

1. Introduction

Vital to the (re)insurance model is the concept of risk-sharing and risk diversification.[1] Through central risk-pooling, insurance companies can diversify their portfolios while obtaining global liquidity and local capital relief benefits. Insurance companies can purchase reinsurance protection either externally though traditional reinsurance programmes or – if regulation internal risk strategies and risk appetites allow – internally via intra-group reinsurance risk transfers. Large multinational insurance and reinsurance corporations may find intra-group reinsurance to be an effective method for pooling risk and providing local entities with capital relief. If internal reinsurance risk transfers are utilized, it is necessary to provide a clear rationale for the intra-group transfer pricing remuneration method selected and identify whether and how the internal pricing has been adjusted to reflect externally priced arrangements with similar structures.

Against this backdrop, this article provides an overview of traditional property and casualty[2] reinsurance risk transfer structures and focuses on proportional quota share[3] arrangements in both external and intra-group settings (*see* sections 2.-3.). The article then highlights the key entrepreneurial risk-taking (KERT) functions in the insurance/reinsurance sector as outlined in Part IV of the 2010 Report on Attribution of Profits to Permanent Establishments[4] (*see* section 5.). In light of the foregoing discussion, the article provides two case studies that identify potential transfer pricing remuneration methods[5] for quota share reinsurance arrangements in intra-group transactions (*see* section 6.).

2. General Overview of the (Re)insurance Sector

2.1. Insurance overview

The insurance industry is critical to the stability of the world economy. With over USD 6.292 trillion[6] in gross premiums written in 2019, the insurance sector rep-

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1. M. Rischatsch, *The benefit of global diversification: how reinsurers create value and manage risk*, Swiss Re Ltd Economic Research & Consulting, p. 15 (14 Oct. 2016), available at https://www.swissre.com/dam/jcr:c03240b7-82e2-440c-a63d-2ba8ab55ff4f/Expertise%20Publication%20_The_benefit_of_global_diversification.pdf (accessed 3 Mar. 2022). In this article, Rischatsch notes that global risk diversification is a key principle in (re)insurance, and it is well established that a "well-diversified portfolio is the cornerstone of the long-term success of a (re)insurer".
2. The (re)insurance spectrum is vast, including property and casualty, life and health in both traditional and alternative arrangements. Many of the concepts outlined in this article can be applied to all lines and programmes; nonetheless, this article will focus exclusively on property and casualty in traditional structures.
3. *See* sec. 4. for a detailed overview of quota share reinsurance. The focus is on quota share reinsurance structures because they are an efficient way to pool risks while providing significant capital and solvency relief to the insured. These benefits are not as readily available as they are within non-proportional structures.
4. OECD, *2010 Report on Attribution of Profits to Permanent Establishments* Part IV: Special Considerations for Applying the Authorised OECD Approach to Permanent Establishments of Insurance Companies (22 July 2010), available at https://www.oecd.org/ctp/transfer-pricing/45689524.pdf (accessed 3 Mar. 2022).
5. *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations* chs. II-III (10 July 2017), Primary Sources IBFD [hereinafter *OECD Guidelines*].
6. https://www.sigma-explorer.com (accessed 21 Jan. 2022).

resents about 7.0% world insurance premium to GDP.[7] At its core, insurance intertwines social and capitalistic concepts. Insurance is a communal venture: many need to pool together to support the misfortunes of a few.[8] However, to ascertain how this sharing works, insurance companies need to properly manage their offers, assets and investments in a capital-effective way in order to safeguard the long-term sustainability of the protective offer.

Insurance is usually defined as the transfer of risk with a real possibility of loss[9] between two parties (insurer and insured), with the insurer promising to pay the insured an amount of money for a potential loss sustained during the set period.[10] The premium payment (from the insured) transfers the probability of risk (to the insurer). The insurer then aggregates these individual uncertainties together and, through pooling, manages the predictability of the overall group portfolio's future losses.[11] Insurance products are offered to individuals, corporations and governments in wide-ranging lines of businesses, from general household categories (e.g. accident and health, motor, home and general liability) to bespoke commercial insurance protection (e.g. nuclear facility testing protection or specialized engineering construction programmes).[12] Primary insurance is typically offered in business-to-customer (B2C) streams. Reinsurance, however, is offered in business-to-business (B2B) channels to insurance companies who need to guard themselves against single large risks or the accumulation of many small risks.[13]

2.2. Reinsurance overview

Reinsurance is defined as insurance for insurance companies.[14] While less than 5% of the total insurance gross premium (USD 260 billion in 2018)[15] is ceded to the reinsurance market,[16] reinsurance serves as a vital tool available to insurers.

At the most basic level, reinsurance is a risk management tool.[17] It enables insurers to better manage their risk appetites and limit annual loss fluctuations that they would otherwise need to bear on their own account.[18] Through reinsurance, insurance companies cede off-peak risks that stem from major catastrophic events, including hurricanes and earthquakes, or even man-made events, such as acts of terrorism. Reinsurance also provides financial relief to insurers. Risks that require capital are removed from a company's balance sheet through reinsurance arrangements. Some reinsurance products reduce local capacity requirements, allowing for the acceptance of more risk and improved solvency margins.[19] Furthermore, because of the capital relief and volatility protection that reinsurance provides, reinsurance purchasing may translate into less expensive insurance for individuals and corporations.[20]

Ultimately, reinsurance allows insurers to tap into diversification benefits by pooling risks into a central entity.[21] Diversification obtained by reinsurance ultimately leads to lower capital requirements, which translate into potentially lower-priced reinsurance coverage and, overall, more protection.[22]

2.3. Insurance-reinsurance-retrocession spectrum

As noted, insurance begins at the individual risk level, with a person or corporation purchasing insurance for protection. Through various risk management strategies, insurance companies can then opt to access reinsurance either internally (through cessions to a central group entity) or by ceding risks externally to the reinsurance or alternative capital markets.

7. Id. According to Swiss Re Institute, worldwide life and non-life insurance premiums represent about 7.0% of GDP for both 2018 and 2019. The OECD, however, indicates insurance spending (Gross Written Premium ÷ GDP) to be at 8.918% for 2018; *see* https://data.oecd.org/insurance/insurance-spending.htm#indicator-chart (accessed 21 Jan. 2022).
8. R. Strain et al., *Reinsurance: Indemnifying Insurers for Insurance Losses* p. 3 (Strain 1997): "[T]he workings of insurance can be disarmingly simple: the many pay for the loss of a few."
9. R. Downs, *Reinsurance Risk Management Testing: Methods and Management of Process* (29 Sept. 2006), available at https://www.slideserve.com/chika/reinsurance-risk-transfer-testing-methods-and-management-of-process (accessed 3 Mar. 2022). Downs cites the Reinsurance Attestation Supplement 20-1, stating: "It is reasonably possible that the reinsurer may realize a significant loss from the transaction." Downs indicates that reasonability can be measured using the 10/10 rule, tail value at risk (TVAR) or the expected reinsurer deficit (ERD).
10. Strain et al., *supra* n. 8, at p. 67.
11. J. Mangan et al., *Underwriting Principles* p. 162 (American Institute for Chartered Property Casualty Underwriters Insurance Institute of America 1995). *See also* id., at p. 6; and V. Chand, *Transfer Pricing Aspects of Captive Insurance Arrangements: Recommendations to the OECD* (IFF-HSG 2017).
12. Rischatsch, *supra* n. 1.
13. Id.
14. Id.
15. Id.; and https://www.sigma-explorer.com (accessed 21 Jan. 2022).
16. Id. Currently, there are approximately 200 reinsurers worldwide, but because reinsurers can only survive with a strong capital base and diversified portfolio, the top ten reinsurers dominate the market, with over 65% percent of total premium written.
17. Strain et al., *supra* n. 8.
18. Id.
19. OECD, *supra* n. 4, at p. 172: "Through reinsurance, insurers can manage their insurance and investment risk. By buying reinsurance, insurers can 'free up' surplus (reduce the amount of surplus needed to support reinsured business) and reduce reserves, which allows insurers to write more insurance contracts."
20. Rischatsch, *supra* n. 1.
21. Id.
22. Id.

Figure 1 – Insurance-reinsurance-retrocession spectrum

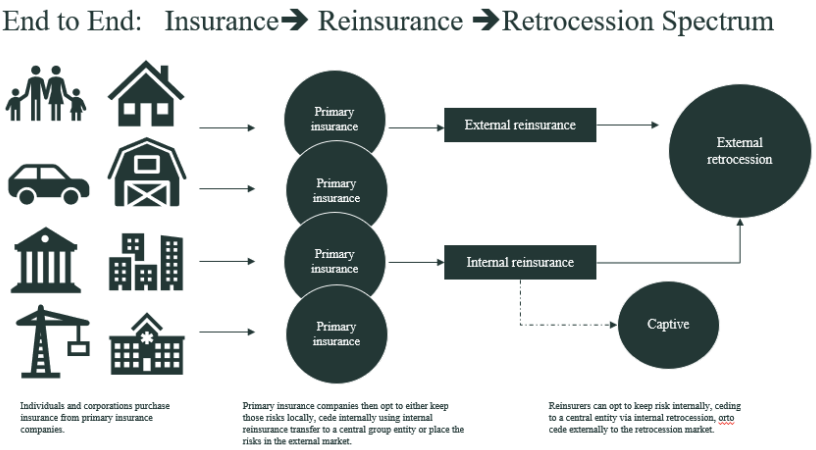


Figure 1 represents a simplified view of the insurance-reinsurance-retrocession spectrum.[23]

Given the ample availability of capital in the current market, large insurance companies are more frequently pooling risks internally via intra-group reinsurance arrangements. In recent years, insurance companies have increasingly consolidated their reinsurance programmes and started pooling risk in internal captives or with internal reinsurance programme arrangements.[24]

2.4. Open market (re)insurance organization and value chain

Insurance companies are typically arranged as proprietary companies (e.g. stock insurance companies, Lloyd's syndicate)[25] or cooperative organizations (i.e. mutual insurance companies).[26] Other forms of insurance include the use of captives, which large corporates are increasingly creating to self-insure their own risks.[27] Additionally, insurance can be organized into pools, in which several unrelated insurers bundle risks together,[28] or governmental associations, in which legislative bodies provide insurance coverage that might not otherwise be found in the open market (e.g. for terrorism).[29] In terms of market distribution, insurance business generally originates directly (direct market) or through an intermediary[30] (broker/agent).[31] The mix of direct/broker market penetration varies by jurisdiction.[32]

2.4.1. Direct insurers: Main functions

Direct insurers originate, assess, manage and maintain risk themselves. To effectively manage risks, direct insurers have the following value-creating roles and responsibilities:[33]

- policy contract development: in open-market transactions, contract wording helps outline the risk and determine the risk pricing;[34]
- underwriting: the underwriter's role consists of reviewing the risk portfolio (by assessing both the experience and exposure profiles of those risks) and, as a result, deciding which risks to accept and at what price (premium);[35]
- claims adjustment: claims adjusters play an important role in the post-acceptance of risk in that they help mitigate and minimize the amount of loss when accidents occur;[36]

23. Id. Figure 1 has been adapted to include external and internal reinsurance and external retrocession.
24. Insurance Journal, *More Firms Turning to Insurance Captives in Tightening Market: Marsh*, Insurance Journal (24 Sept. 2020), available at https://www.insurancejournal.com/news/national/2020/09/24/583949.htm (accessed 21 Jan. 2022): "More organizations are using captives for insurance protection and financial flexibility in response to today's risk and insurance landscape."
25. B. Webb et al., *Insurance Operations and Regulation* sec. 1.4 (American Institute for Chartered Property Casualty Underwriters Insurance Institute of America 2002).
26. Id., at sec. 1.5.
27. Id., at sec. 1.6.
28. Id., at sec. 1.8.
29. Id., at secs. 1.8-1.9.
30. R. Lechner & M. Raturi, *Commercial insurance and reinsurance – Love thy Middleman* (Swiss Re Economic Research and Consulting 2004).
31. Definitions between brokers and agents sometimes are blurred. Lechner & Raturi, id. state that agents represent the insurance carrier and not client. The OECD, in its 2020 document titled "Regulatory and Supervisory Framework for Insurance Intermediation", makes a similar distinction, saying that agents represent the "interest of the insurers" while "brokers act on behalf of the consumer". However, Lechner & Raturi, id., at p. 5, state that "market statistics frequently fail to distinguish between brokers and independent agents". Similarly, the OECD (at p. 35 of the cited work) states: "It is often difficult to decide whether an intermediary is acting as a broker or agent." For the purpose of this article, the author will use the terms "agent" and "broker" to represent the intermediary.
32. Lechner & Raturi, *supra* n. 30.
33. Webb et al., *supra* n. 25.
34. Id., at sec. 1.12.
35. Id., at secs. 1.12-1.13.
36. Id., at sec. 1.13.

– risk management: the risk management functions of a direct insurer include developing the company's overall risk appetite and setting its retention strategy;[37] and
– investments: direct insurers need a strong investment element that will generate investment income to balance the swings in the underwriting cycle. The investment income ultimately helps manage the cost of the risk transfer.[38]

2.4.2. Intermediaries/brokers: Main functions

Insurance intermediaries (brokers) act as facilitators in the purchase of insurance products. Brokers identify the needs of the customer and match those needs with various insurance products.[39] The broker's role may vary and includes a wide array of functions, from underwriting/actuarial functions to asset management.[40] In addition, brokers may be responsible for arranging (re)insurance contracts, holding binding authority, undertaking acceptance and underwriting tasks, as well as administrative activities, such as preparing contracts or statements of accounts.[41] Their role will likely vary according to different products and different jurisdictions, depending on regulatory law.[42] However, in all of these functions, brokers are often constricted to guidelines, rules and key risk-taking principles set by the insurer, who ultimately bears the underwriting risks.

2.4.3. Differences between direct insurers and intermediaries

In the open market, both direct insurers and the intermediary may perform the same functions, including the assumption of risk. However, one clear difference between an intermediary and direct insurer is that, while both can assume various risks (including, but not limited to, operational risks, foreign exchange rate risk and credit risks), only a direct insurer retains the underwriting risk. Brokers are viewed as "matchmakers" who highlight client risk needs and find appropriate placement in the insurance/reinsurance markets.[43] In their role as matchmakers, brokers facilitate reinsurance placement but do not bear any of the underlying underwriting risk themselves.

37. Id., at sec. 1.13.
38. Id.
39. OECD, *supra* n. 31, at p. 11.
40. Lechner & Raturi, *supra* n. 30
41. R. Carter et al., *Reinsurance: Fourth Edition* (Guy Carpenter Reactions 2000).
42. OECD, *supra* n. 4, at p. 175: "Insurance agents and brokers undertake sales and marketing functions by trying to cultivate potential clients and to create client relationships. The exact nature of the sales and marketing functions depending on the type of insurance, [and on] fact and circumstances."
43. J.D. Cummins & N.A. Doherty, *The Economics of Insurance Intermediaries*, 73 Journal of Risk & Insurance 3 (2006).

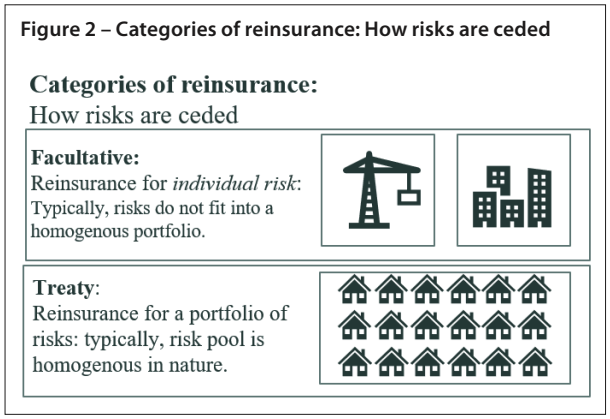
3. Traditional (Re)insurance Characteristics

Insurance companies can purchase reinsurance in a variety of forms. The forms may include facultative (single risk) or treaty (portfolio) transfers agreed to either in proportional (sharing of the risk by a set cession amount) or non-proportional (risks are indemnified only after a predefined deductible is met) programmes.

3.1. Facultative versus treaty basis for risk-sharing

At the traditional level, reinsurance programmes are typically shared under two main categories: on a facultative basis (for individual risks) or on a treaty basis (for a typically homogeneous portfolio comprised of several risks as defined in the contract).[44] Risks that do not fit within a homogenous risk profile tend to be placed in a facultative arrangement. For example, a commercial insurer may agree to place its most typical risks within a predefined profile (e.g. standard homeowners' risks) into a reinsurance treaty. However, for more atypical risks (e.g. risks from a complex engineering infrastructure project that do not fit within the normal profile), a commercial insurer will likely obtain facultative reinsurance instead (*see* Figure 2).

Figure 2 – Categories of reinsurance: How risks are ceded



3.2. Proportional versus non-proportional arrangements

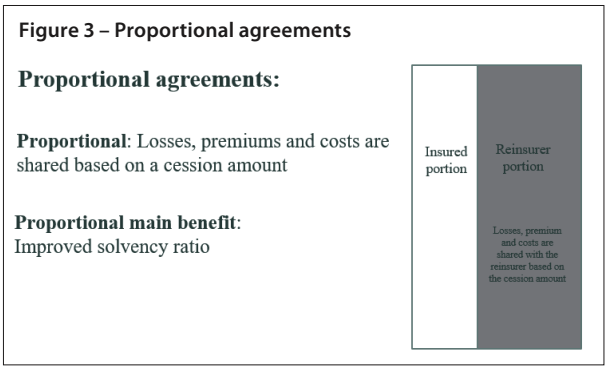
Risks (whether ceded on a facultative or treaty basis) can be structured into two main agreement types, namely proportional agreements and non-proportional agreements.[45] The main differences between proportional and non-proportional agreements have to do with how the premium, claims and costs are shared and the rationale for sharing the risk.

In proportional reinsurance, premiums, claims and commissions are shared based on a cession amount. Insureds receive many benefits from purchasing pro-

44. J. Mangan & C. Harrison, *Advance Underwriting Techniques: Second Edition* sec. 1.9 (American Institute for Chartered Property Casualty Underwriters/Insurance Institute of America 2002).
45. Id., at sec. 1.10

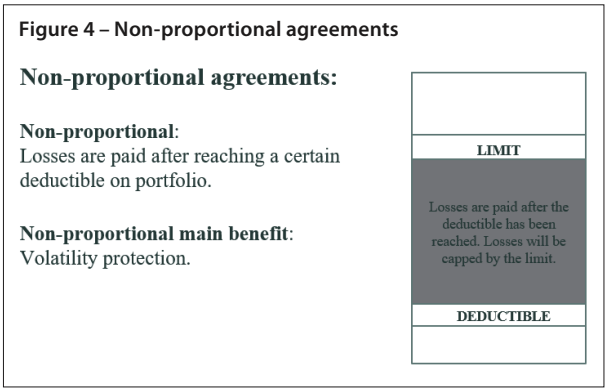
portional reinsurance, but one key benefit of and rationale for using proportional reinsurance is improved solvency ratios[46] (*see* section 3.5.).

Figure 3 – Proportional agreements



In contrast, in non-proportional reinsurance agreements, the insured pays a premium to the reinsurer based on the overall costs for the programme, and in return, the reinsurer indemnifies the insured for a loss after a predefined deductible has been met.[47] Unlike in proportional agreements, there is no sharing of premiums or costs in non-proportional agreements. However, the reinsurer will charge the insurer a premium amount for the risk transfer based on the portfolio's expected loss (*see* section 4.3.).

Figure 4 – Non-proportional agreements



Insurers typically purchase non-proportional arrangements for protection against peak events. This includes protection against catastrophic natural and/or man-made events, including, but not limited to, events like Hurricane Andrew (1992), the September 11 attacks (2001), Hurricane Katrina (2005), the Fukushima earthquake and tsunami (2011), and the HIM (Harvey, Irma and Maria) hurricanes (2017).[48]

Non-life insurance coverage claims for commercial losses due to the COVID-19 pandemic are currently under litigation.[49] The insurance industry has traditionally viewed pandemic events as uninsurable[50] and, therefore, typically omitted this coverage from policies by including virus and communicable-disease exclusions.[51] At the time of writing, some courts have deemed COVID-19 losses to be covered, despite the exclusion.[52] However, litigation is ongoing. Should COVID-19 non-life losses be deemed to be covered under the insurance/reinsurance contract, the impact will most likely be seen in non-proportional covers.

In summary, insurers will typically purchase non-proportional coverage to protect their balance sheets from the volatility of peak events. In contrast, if a global insurer wants to pool risks together centrally for liquidity and risk diversification purposes and improved solvency at the local level, they may opt for proportional coverage.

3.3. Traditional reinsurance agreements

Proportional and non-proportional agreements can additionally be split into various arrangements. These include quota share[53] (with a fixed cession amount for the entire agreement) and surplus treaties[54] (variable cession applied after a certain threshold is met) as proportional contracts. Non-proportional agreements can be structured as per-risk excess of loss/policy (reinsurer pays for each risk loss passing a deductible), catastrophe excess of loss (reinsurer pays for losses

46. Id.
47. Id., at sec. 1.10. Non-proportional reinsurance example: Assume the non-proportional reinsurance programme covers a portfolio for losses (stemming from an event) for a reinsurance programme of USD 20 million (limit) excess of USD 10 million (deductible). For this coverage, total losses from an event must exceed the USD 10 million deductible before the reinsurer starts paying. However, the reinsurer will only pay up to USD 20 million.
Example A: If an event with total losses of USD 45 million occurred, the reinsurer would pay USD 20 million. This is the minimum between the USD 20 million total limit and the difference between the USD 45 million loss and the USD 10 million deductible.
Example B: If an event with total losses of USD 15 million occurred, the reinsurer would pay USD 5 million. This is the minimum between the USD 20 million total limit and the difference between the USD 15 million loss and the USD 10 million deductible.
48. https://www.sigma-explorer.com/ (accessed 3 Mar. 2022).
49. G. Souter, *Swarm of New York restaurants sue insurers for COVID-19 cover*, Business Insurance (4 Aug. 2020), available at https://www.businessinsurance.com/article/20200804/NEWS06/912335946/Swarm-of-New-York-restaurants-sue-insurers-for-COVID-19-cover (accessed 21 Feb. 2022).
50. K-U. Schanz, *An Investigation of the Insurability of Pandemic Risk*, The Geneva Association, p. 19 (26 Oct. 2020), available at https://www.genevaassociation.org/research-topics/socio-economic-resilience/investigation-insurability-pandemic-risk-research-report (accessed 21 Feb. 2022): "The fundamental mechanism of risk pooling and redistribution – spreading the losses of the few among the many unaffected by disaster does not work with a systemic risk like a pandemic, where the destabilizing effects ripple through the entire economy.".
51. Souter, *supra* 49.
52. The National Law Review, *State of the Law for Business Interruption Insurance Coverage for COVID-19 Claims*, the National Law Review (14 May 2021), available at https://www.natlawreview.com/article/state-law-business-interruption-insurance-coverage-covid-19-claims (accessed 21 Feb. 2022).
53. Mangan & Harrison, *supra* n. 44, at sec. 1.11.
54. Id., at sec. 1.13.

Figure 5 – Categories of Reinsurance Agreements

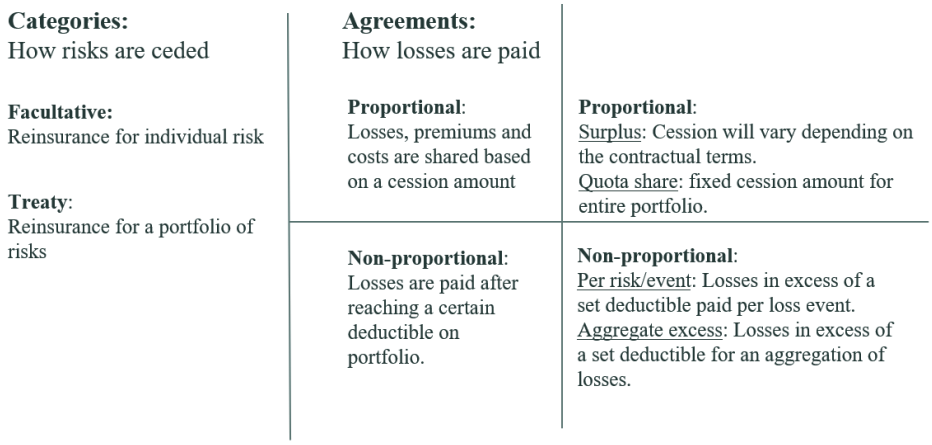


Figure 6 – Benefits by type of reinsurance

Agreement	Increased risk capacity	Stability	Catastrophe protection	Surplus relief	Market entry/exit
Quota share				x	x
Surplus	x			x	
Per risk/event	x	x	x		
Aggregate excess	x	x	x		

arising from a predefined event, usually a natural or man-made catastrophe) or aggregate excess of loss (reinsurer pays in aggregate all losses passing a certain deductible).[55]

See Figure 5 for a summary of the above discussion.

3.4. Traditional reinsurance benefits by type/agreement

The key benefits of reinsurance include increased risk capacity, financial stability, catastrophe protection, surplus relief, underwriting expertise and support in entering or exiting a market.[56] *See* Figure 6 for the overall benefits per type of reinsurance.[57]

3.5. Quota share reinsurance main benefits

Statutory accounting principles typically require insurance companies to deduct the initial expenses (acquisition costs) when the policy is written (and not over the life of a policy). Insurance companies must create an immediate unearned premium reserve as a liability equal to the full policy premium. This reserve will only release during the life of the policy.[58] These requirements limit the insurance company's surplus.[59]

Solvency ratios typically require insurance companies to hold a premium-to-surplus ratio of around 3:1. However, this ratio and the calculation thereof will vary by jurisdiction and by line of insurance business.[60] As an insurance company grows and writes more premium, the surplus will be reduced (given the statutory principles requiring the deduction of initial expenses), thus creating regulatory issues for an insurer.

Quota share reinsurance arrangements are particularly useful to insurers because they provide tremendous capital benefit. They do this because the reinsurer helps

55. Id., at sec. 1.17.
56. R.M. Cass et al., *Reinsurance Practices* pp. 56-60 (2nd ed., American Institute for Chartered Property Casualty Underwriters Insurance Institute of America 1997); and Mangan et al., *supra* n. 11.
57. Cass et al., id., at p. 56.
58. Strain, *supra* n. 8, at ch. 2; and J. Webb, *Reinsurance: The Pro Rata Treaty* p. 40 (Robert W. Strain Publishing & Seminars, Inc. 1997).
59. For example, if an insurance company writes a policy with a premium of USD 100 and the costs associated with that policy equal USD 30, the typical accounting principles would require assets (cash) = + USD 70 ÷ liabilities (unearned premium reserve) = USD + 100 and policyholder surplus= USD – 30.
60. OECD, *supra* n. 4: "The marketplace, rating agencies and regulators determine the minimum amount of surplus required in order to undertake insurance risk in various lines of business."

the insurer with the recovery of its expenses (through a ceding commission) and by reducing the insurer's unearned premium reserve.[61] Cass explains, "Quota share treaties provide surplus relief by allowing the primary insurer to cede a large amount of premium to reduce its net written premium and to receive a ceding commission to increase its policyholders' surplus. The result is an improved premium to surplus ratio".[62]

Figure 7 – Graph of 60% cession quota share

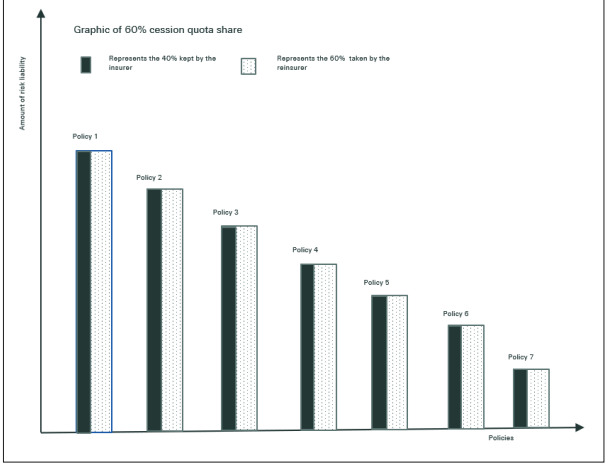
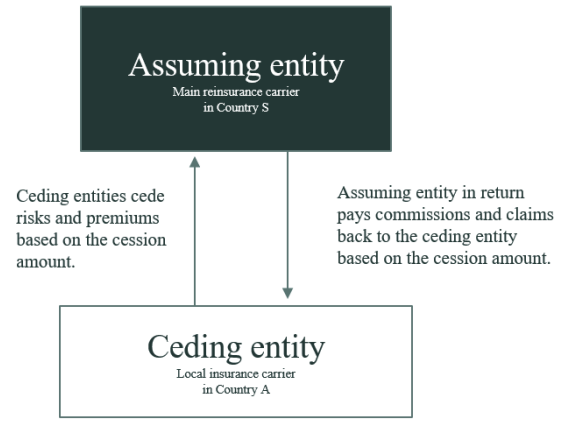


Table 1 – Example of 60% cession quota share distribution of premiums, expenses and claims

Policy	Original premium	Insurance (retains 40%)	Reinsurance (assumes 60%)
Policy 1	100	40	60
Policy 2	200	80	120
Policy 3	300	120	180
Total	**600**	**240**	**360**
Policy	**Expense**	**Insurance (retains 40%)**	**Reinsurance (assumes 60%)**
Policy 1	30	12	18
Policy 2	50	20	30
Policy 3	70	28	42
Total	**150**	**60**	**90**
Policy	**Claims**	**Insurance (retains 40%)**	**Reinsurance (assumes 60%)**
Policy 1	50	20	30
Policy 2	100	40	60
Policy 3	10	4	6
Total	**160**	**64**	**96**

Figure 8 – Theoretical visual depicting possible parties to an intra-group reinsurance arrangement



Insurance companies with an extensive global presence may be able to pool risks centrally and obtain this capital relief with the use of intra-group reinsurance quota shares.[63] Given the potential significant surplus relief that intra-group pooling via proportional quota share reinsurance may provide, section 4. will focus specifically on the open-market characteristics of quota share arrangements.

4. Characteristics of Quota Share Arrangements

4.1. What is quota share reinsurance?

In quota share arrangements, the insured and reinsurer share premiums, costs and claims for a predefined portfolio based on a set cession amount.[64] For example, if an insurance company purchased reinsurance coverage at a 60% cession amount, the insured keeps 40% of the risk in the portfolio and cedes 60% of the risks to the reinsurer. Premiums, costs and claims are generally distributed as follows (*see* Figure 7 and Table 1).

If the portfolio is foreseen as unprofitable (the reinsurer predicts a high expected loss ratio), the reinsurer may not pay the total portion of the costs (*see* section 4.3.1.).

4.2. Who are the contractual parties in quota shares?

Reinsurance transactions (either internal or external) are formed between an insured and reinsurer. In intra-group reinsurance transactions in large multinational companies, one possible scenario is that local companies cede their risks to one main central company. In this scenario, the local companies are considered the insured (also referred to as the "ceding entity"), whereas the main central entity into which all risks

61. Cass et al., *supra* n. 56.
62. Id.
63. This will depend on regulatory restrictions/approval.
64. Mangan & Harrison, *supra* n. 44, at sec. 1.11.

Figure 9 – Main steps in external quota share pricing

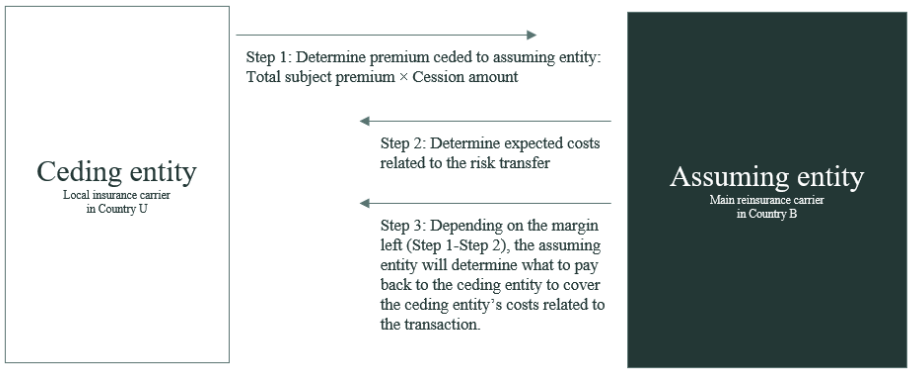
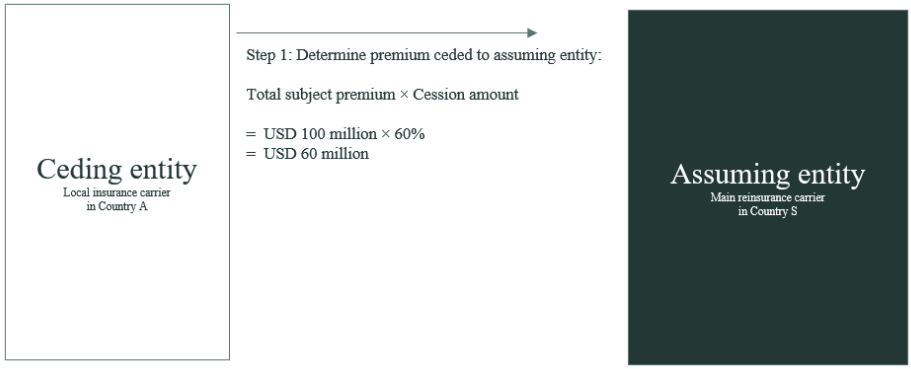


Figure 10 – Step 1: Determine the subject premium



are pooled is known as the reinsurer (also referred to as the "assuming entity").[65]

4.3. How are quota share arrangements priced in uncontrolled settings?

4.3.1. General components of reinsurance pricing

In general, reinsurance pricing should cover the expected losses estimated to arise from the risk transfer along with expenses associated with the transfer while also including a profit for the reinsurer:[66]

– Expected loss component: The expected loss is what the reinsurer expects to lose on average per year (or contract period) on the assumed business from covered losses (e.g. fires, natural disasters or liability claims as defined in the contract). This is generally a composite ratio based on a blend of past historical losses/ claims in the reinsurance portfolio (experience)[67] and the current exposure risk profile and characteristics (exposure).[68,69]

– Expenses: Expenses in a reinsurance transaction typically include any general expenses (overhead), underwriting expenses (tax, licences, fees, etc.) and other acquisition expenses (costs of processing the accounts, e.g. brokerage) that are associated with the risk transfer.[70]

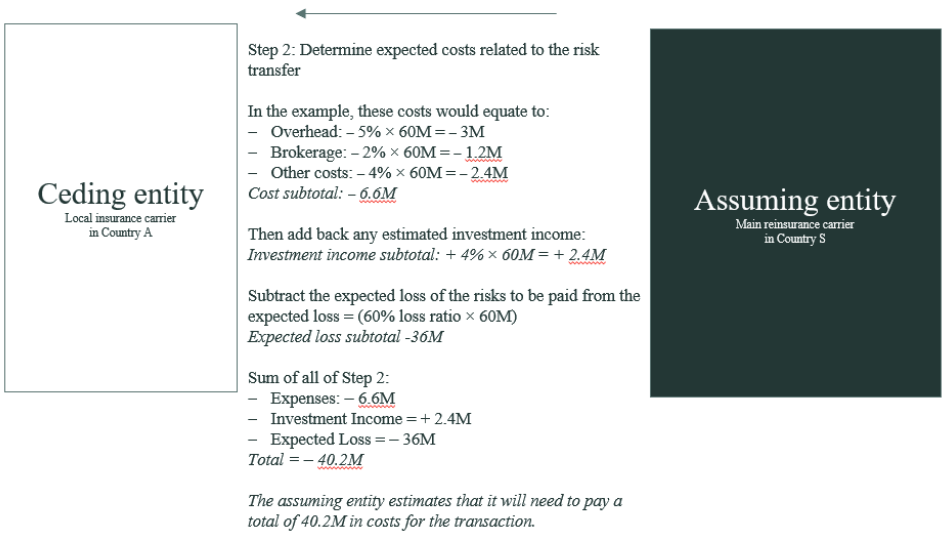
– Profits and contingencies: Underwriting profits are margins on the underwriting business, while contingencies comprise a provision that includes a loading for all other losses that could not be anticipated.[71]

4.3.2. Quota share pricing overview

The main steps in determining the pricing for the reinsurance quota share include (i) estimating the subject premium; (ii) adjusting for costs related to the transaction; and (iii) depending on what remains after (i) and

65. OECD, *Transfer Pricing Guidance on Financial Transactions* section E (10.189) (OECD 2020). Another possibility is that a multinational enterprise pools risks centrally from the ceding companies into captive insurance. The use of captive insurance is beyond the scope of this article.
66. Mangan & Harrison, *supra* n. 44, at sec. 2.2. Similar components are defined in C. Bugmann, *Proportional and non-proportional Reinsurance* p. 19 (Swiss Re 1997).
67. H. Stettler et. al., *Reinsurance Matters: A manual of the non-life branches* (Swiss Re 2005).
68. Cass et al., *supra* n. 56, at p. 105.
69. Id.
70. Mangan & Harrison, *supra* n. 44, at sec. 2.8.
71. Id.

Figure 11 – Step 2: Determining the costs



(ii), determining how to pay a commission back to the insurer and whether to share additional profits.[72]

4.3.3. Quota share pricing example

Assume an insurance company wants to cede a portfolio of USD 100 million at a 60% cession to the reinsurer (assuming entity). As a first step, the assuming entity will determine the premium it will receive in the arrangement. This equates to the total subject premium multiplied by the cession rate.

Once the subject premium is known, the reinsurer will need to determine which costs it will have that are related to the risk transaction. Reinsurer costs will include items like overhead related to the transaction and the expected loss (*see* section 4.3.1.) of the risk being ceded.

Assume that the reinsurer has the following cost (expenses related to this transaction): (i) 5% overhead; (ii) 2% brokerage; and (iii) 4% other costs. The reinsurer estimates it will receive 4% investment income from the premium ceded. Additionally, based on the experience and exposure profile of the insurer, the reinsurer assumes the business will run at a 60% expected loss. The assuming entity will first subtract costs from the estimated subject premium, including overhead, brokerage and any other costs. This will total USD – 6.6 million:

– overhead: – 5% × 60 million = – 3 million;
– brokerage: – 2% × 60 million = – 1.2 million; and
– other costs: – 4% × 60 million = – 2.4 million.

If the assuming entity is expected to earn investment income from the premium, it will need to consider that investment income in its calculation. In this example, investment income of 4% will lead to USD + 2.4 million (i.e. + 4% × 60 million = + 2.4 million). Additionally, because this is a risk transfer, the assuming entity will calculate the expected loss from the risks it assumes. This is calculated using a loss ratio. In this example, a loss ratio of 60% leads to an expected loss of USD 36 million (i.e. 60% × 60 million = – 36 million).

The sum of the costs, expected loss and investment income in this example equates to USD – 40.2 million:

– expenses: – 6.6 million;
– investment income: + 2.4 million; and
– expected loss: – 36 million.

The assuming entity determines that it has USD 19.8 million in margin remaining from the transaction – that is, USD + 60 million of premium came in, but USD – 40.2 million will be paid back out for costs or expected loss amounts from the risk transfer. This leaves the assuming entity with USD 19.8 million of margin, with which it should reimburse the ceding entity for the ceding entity's origination costs of the risk.

In this example, the ceding entity has a 20% expense ratio for this business. Therefore, it should be reimbursed for USD 12 million, which is determined using the total premium of the business (USD 100 million) multiplied by the expense ratio (20%), multiplied by the cession amount (60%). Given the fact that the assuming entity has USD 19.8 million of margin left, it can reimburse the ceding entity for all of its expenses (USD 12 million).

4.3.4. Two-sided economics around the commission rate

In open-market transactions, the insured (ceding entity) benefits from the risk transfer and balance sheet protection and surplus relief obtained from the risk transfer. The reinsurer (assuming entity) will benefit if the underlying performance of the assumed business

72. Cass et al., *supra* n. 56, at p. 7.

Figure 12 – Main functions of insurance

Table 2 – Reinsurance main functions activity overview

Functions	Activities[1]
Product development	Structuring of the general insurance products and activities, e.g. market research, statistical analysis and other mathematical calculations of the cover[2]
Sales and marketing	Functions relevant to the identification and analysis of the customers' needs[3]
Underwriting insured risks	"[T]he process of classifying, selecting and pricing the insured risks to be accepted", including actions like (i) setting underwriting policy; (ii) risk classification and selection; (iii) pricing; (iv) risk retention analysis; and (v) acceptance of insured risk4[4]
Risk management	Management of insurance and investment risks, liability and capital management and the decisions around the use of additional insurance/reinsurance/retrocession insurance[5]
Contracts and claims management	Client claims activities, which may include processing the claim, examining the cover and handling the claim[6]
Asset management and other support services	Investment management, asset and liability management, treasury, regulatory compliance and other back office support important for the acceptance and management of risks[7]

1. OECD, *2010 Report on Attribution of Profits to Permanent Establishments* (22 July 2010), available at https://www.oecd.org/ctp/transfer-pricing/45689524.pdf (accessed 3 Mar. 2022).
2. Id., at p. 174.
3. Id.
4. Id.
5. Id., at p. 177.
6. Id., at p. 178.
7. Id., at p. 179.

is at or below the expected loss ratio and facilitates an element of profit for the reinsurer in the long term.[73] An important part of pricing quota share reinsurance is determining what commission the reinsurer pays back to the insured. In the external market, it is not guaranteed that the reinsurer will pay back all costs associated with the ceded premium. The reinsurer will typically only pay back a commission to cover costs up to the breakeven point for the reinsurer.[74] In the example in section 4.3.3., the reinsurer would pay a 20% expense ratio (USD 12 million) back to the insured, but it would likely not pay more than USD 19.8 million in commission back to the client (should the client's expense ratio be higher). Paying more than USD 19.8 million would put the reinsurer in an economically disadvantageous position.[75]

There are exceptions to this rule for the reinsurer. In start-up insurance organizations, reinsurers may pay additional commissions in the short term, with the goal of building long-term partnerships. Furthermore, if the reinsurer wants to grow because of strategic opportunities, the reinsurer may also agree to commission terms that, in the short term, are not economical. In any event, the reinsurer will likely establish a time limit for bearing loss-making business, which, for start-ups, can reach up to about 10 years.

4.3.5. Other remarks on commission/profit sharing

There are generally three type of commissions[76] paid in open-market reinsurance quota share transactions, namely:

- flat commission: fixed commission amount based on reinsurance premiums;
- slide-scale commission: provisional commission adjusted at the end of the year depending on the actual loss ratio. A higher loss ratio will lead to a lower commission paid back to the insured, while a lower loss ratio will lead to a higher commission;[77] and
- profit commission: commission determined based on the profit-and-loss statement, used to incentiv-

73. Rischatsch, *supra* n. 1.
74. Mangan & Harrison, *supra* n. 44.
75. In contrast, the insured may still opt to purchase a quota share arrangement when it does not get the entire expense ratio back, because the insured benefits from the balance sheet protection and capital relief that the quota share provides.
76. Stettler et. al., *supra* n. 67, at p. 103.
77. Id., at p. 103.

Table 3 – Reinsurance main assets activity overview

Assets	Activities
Investment assets	Investment assets are important in helping insurance companies generate returns and are, thus, considered one of the most important elements for insurance companies. Includes the functions around short-term asset allocation, security selection and investment accounting functions[1]
Asset and liability management	Matching asset portfolios with liabilities and establishing appropriate investment guidelines by line of business[2]
Physical assets	Using offices and other processing centres for insurance activities

1. OECD, *2010 Report on Attribution of Profits to Permanent Establishments* (22 July 2010), available at https://www.oecd.org/ctp/transfer-pricing/45689524.pdf (accessed 3 Mar. 2022).
2. Id., at p. 177

Table 4 – Reinsurance main risks assumed overview

Risks assumed	Activities
Insurance risk	The potential for the actual claimed cash flows to differ from the expected cash flows[1]
Investment/ financial risks	Market risk (investment yield risks), credit risk (stemming from amounts due but not paid) and concentration risks (arising if "suitable domestic vehicles" are not available)[2]
Risk management and reinsurance risks	Basics and intertemporal risks related to differences between actual losses and payments received due to changes in the business that were not reflected in the original pricing[3]
Regulatory and other risks	Operational risks, foreign exchange rate risks and liquidity risks stemming from insurance activities

1. OECD, *2010 Report on Attribution of Profits to Permanent Establishments* p. 181 (22 July 2010), available at https://www.oecd.org/ctp/transfer-pricing/45689524.pdf (accessed 3 Mar. 2022).
2. Id., at p. 182.
3 Id.

ize the ceding entity to produce profitable business.[78]

Regardless of the commission structure, the reinsurer will need to ensure that the transaction makes economic sense and, therefore, must consider the two-sided economics of the transaction (*see* section 4.3.4.).

5. Attributing Profits in Internal Reinsurance Quota Share Reinsurance Arrangements

Part IV of the OECD report on the Attribution of Profits to Permanent Establishments provides guidance on how profits (and losses) should be allocated in the insurance sector (mostly in head office and branch structures). Overall, there are two main steps that are key to the attribution of profits to transactions in the (re)insurance sector. The first step includes performing a comprehensive functional and factual analysis, which should lead to (i) the identification of the KERT functions with regard to the assumption of risk; (ii) the determination of appropriate investment income to support those risks; and (iii) the identification of other significant people functions with regard to other risks assumed, as well as the economic ownership of assets.[79] Additionally, the transaction should be priced at arm's length on the basis of recognized dealing.[80] The arm's length pricing should compare the dealings in the uncontrolled transaction to the controlled transaction and allow for the selection of an appropriate transfer pricing method in accordance therewith.[81]

5.1. General insurance functional and factual analysis

The OECD, in Part IV of the 2010 Report on the Attribution of Profits to Permanent Establishments, highlights the main functions, assets and risks that typically apply to the insurance sector.[82] In terms of functions, the OECD organizes the main insurance functions into the categories shown in Figure 12.[83]

These functions are defined to include the activities shown in Table 2.

In terms of assets, the items shown in Table 3 are essential.

Lastly, the main risks associated with insurance enterprises are summarized into the categories of insurance, investment, risk management, reinsurance and other risk[84] (*see* Figure 13).

5.2. KERT functions in insurance

The 2010 OECD Report on the Allocation of Profits to Permanent Establishment points out that the insurance sector has numerous important functions.[85] While the key functions for each transaction should be determined individually depending on the facts and circumstances presented, in the insurance sector, the assumption of risk has a predominate role. The OECD notes: "One area of particular significance for types of insurers that focus on accepting complex insured risks is the identification of the functions which create the greatest value and risks. Such functions require a key decision: the decision as to what insured risks to accept and on what terms."[86]

Similar language is repeated in Part IV of the Report. Paragraph 69 states that "[s]uch activities require a key decision: what insured risks to accept and on what

78. Id., at p. 104.
79. OECD, *supra* n. 4, at p. 191.
80. Id.
81. Id.
82. Id., at p. 169.
83. Id., at Part IV, B-2, i, a-g.
84. Id., at pp. 181-183.
85. Id., at p. 180.
86. Id.

Figure 13 – Main risks of insurance

Insurance risks
Cumulated/correlated risks
High-parameter risks
Geographical diversification
Moral hazards

Investment activity risks
Market risks
Concentration risks
Credit risks

Risk management and reinsurance risks
Basis risk
Retrocession risk

Other risks
Foreign exchange
Reputation risk
Liquidity risks
Other lines risks

terms",[87] and paragraph 93 states that the "assumption of insurance risk is the key entrepreneurial risk-taking function for an insurance enterprise. Other functions performed by an insurance enterprise may be important and valuable functions should be compensated accordingly, but these other functions are not functions that form part of the key entrepreneurial risk taking function".[88] As a result, the insurance KERT functions for the assumption of risk can be linked to the underwriting activities described in Part IV, section B-2, I, c, namely (i) the setting of the underwriting policy; (ii) risk classification and selection; (iii) pricing; (iv) risk retention analysis; and (v) ultimate acceptance of the insured risk.[89]

5.3. Delineating insurance KERT functions

Multinational insurance companies operate in various ways. Delineation of the facts and circumstances of the enterprises involved will determine where the KERT functions occur. While reviewing the facts and circumstances surrounding the KERT functions in insurance transactions, the following should be assessed:[90]

- setting the underwriting policy: this includes defining risk parameters to ensure insurance profitability.[91] While assessing the facts and circumstances, in the authors' opinion, it is important to (i) identify who sets, controls and manages the insurance company's underwriting policy and underwriting referral guidelines; and (ii) outline how capacity is deployed in terms of the territorial scope, line of business and risk appetite;[92]
- risk classification and selection and pricing: this includes analysing the (pricing) risks based on the risk composition, costs and market conditions.[93] In the reinsurance underwriting process, this can be classified as determining the expected loss[94] on a risk transfer in addition to any necessary profit loadings to cover all costs associated with a transaction. To determine which entity is mainly responsible for the risk classification, selection and pricing, it is important to:
  - identify whether local underwriters and actuaries are fully responsible for the expected loss determination using locally developed tools, guidelines and expertise or whether expected loss follows a strict group process using centrally created and controlled tools and platforms;
  - highlight whether the key exposure/risk assessment models (e.g. natural disaster models) and the algorithms backing those tools are created and managed by the group (centrally) or produced at the local-entity level using local expertise; and
  - assess whether the loading factors for pricing are determined locally (by local actuaries) or centrally (central standard model for the group);
- risk retention analysis: this includes determining how much of the underlying risk should be kept and how much should be ceded to reinsurance to protect the balance sheet.[95] When analysing the facts and circumstances, it is important to understand whether local risk management is determining their own underlying risk appetite or whether there are rules imposed by a central group function and assess which benefit the risk retention analysis has for the group versus the local entity; and
- ultimate acceptance of the insured risk: this includes the ability to enter the contract and

87. Id., at p. 186.
88. Id., at p. 192.
89. Id., at pp. 176 and 192.
90. This list is only exemplary and is not intended to cover all possible questions that should be reviewed. The list of questions should be determined based on the facts and circumstances of each individual scenario.
91. OECD, *supra* n. 4, at p. 176.
92. Mangan & Harrison, *supra* n. 44, at p. 13.
93. OECD, *supra* n. 4.
94. Id.
95. Id.

expose the enterprise to the underwriting risk.[96] To ascertain the level of freedom that a local underwriter or actuary has, it is important to:

- review the overall underwriting authorities given locally (i.e. analyse whether local underwriters are prohibited from accepting risks without further group referral or approvals) and understand how risk referrals are handled. If the percentage of risk referrals is high and requires strict controls, that may be indicative of a highly centralized risk acceptance protocol. If, in contrast, local underwriters can exert significant freedoms in their risk acceptance without a further need for central referrals, it may be argued that KERT functions are local; and
- determine whether underwriters and local decision-makers have the authority and expertise to override group restrictions or limits, should they occur.

Lastly, given the fact that the underwriting function is the main component for the acceptance of risk, it will determine how assets should be allocated to support those underlying risks. As noted, "[t]he part of the enterprise that is determined to have performed the underwriting function is generally to be treated in the first instance as the economic owner of the insurance policy and so is entitled to the associated underwriting and investment income".[97] It is, therefore, critical to carefully delineate the underwriting functions when allocating profits in intra-group (re)insurance transactions.

Against this backdrop, two case studies are considered in section 6. to illustrate the application of transfer pricing methods to intra-group reinsurance quota shares.

6. Case Studies on the Application of the Most Appropriate Transfer Pricing Method for Reinsurance Intra-group Quota Shares

6.1. Case A: High degree of centralization and the use of limited-risk local entities

6.1.1. Facts

Global Re is a multinational property and casualty line conglomerate with both insurance and reinsurance segments. The company is centrally organized, with all strategic underwriting decisions taking place at the head office in Country S (Company S). Global Re has 3,000 employees worldwide as part of its full-time staff; 2,500 of those employees are in Country S (Company S).

All of Global Re's underwriting strategy team (100 employees) and tool development team (50 employees) are in Country S (Company S). The underwriting strategy team's main functions include all key underwriting decisions, setting underwriting policy, setting groupwide risk referrals and capital allocation based on risk appetite. The tool development team is responsible for all underwriting tool creation, including the selection of mathematical models for loss modelling and overall tool implementation worldwide across all lines of business.

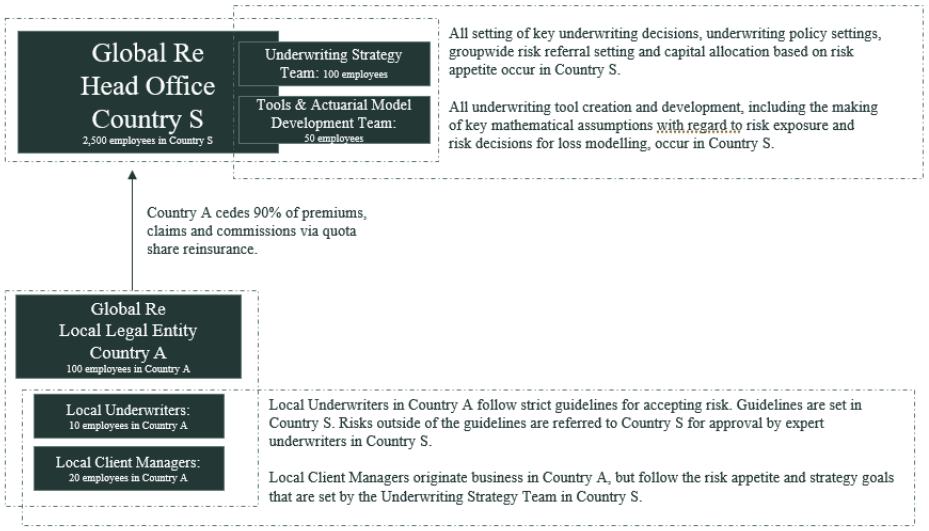
Global Re operates in various local offices (legal entities) in jurisdictions worldwide. Insurance business from the client is booked on the local legal entity carrier paper due to legal requirements. However, Global Re has determined that, through central pooling of their insurance risks into Country S (Company S) via intra-group quota share reinsurance, they can obtain significant capital relief worldwide. As a result, Global Re cedes (via intra-group quota shares) the maximum allowable (limited to regulatory constraints) underwriting risks from local entities to the head office in Country S (Company S).

Global Re has large insurance operations in Country A (Company A). A detailed functional analysis of the company's operation by comparing operations in Country S (head office, Company S) and Country A (legal entity, Company A) shows the following:

- all key decisions on capital allocations, market penetration, overall underwriting policy and line of business risk appetite are made at the head office in Country S, Company S. This function is owned by the underwriting strategy team, which employs 100 people in Country S;
- all underwriting tools[98] with a focus on determining the expected loss on the underlying risks are made in central teams at the head office in Country S, Company S as part of the tool development team, which employs 50 people in Country S. The tool development team includes both actuarial staff to assess overall underwriting risks and IT staff to develop groupwide tools for risk assessment;
- detailed underwriting guidelines are provided by the underwriting strategy team in Country S, (Company S) to the local underwriting teams. There are ten local underwriters in Country A. However, there is a central underwriting strategy team in Country S (Company S)that performs various control functions to ensure that underwriters strictly adhere to these guidelines;
- local underwriting teams determine the expected loss of risks using central tools (developed in Country S (Company S)). The expected loss from these tools is based on specialized underwrit-

96. Id.
97. Id., at para. 193.
98. This example is not meant to cover the remuneration of potential intellectual property (IP) but focuses rather on underlying underwriting risk.

Figure 14 – Global Re overview



ing algorithms developed centrally in Country S (Company S) (by the tool development team);
- after determining the expected loss, local underwriting adds relevant pricing loadings that have been predefined by the head office using centrally created (in Country S (Company S)) underwriting tools;
- local underwriters can only accept large or complex risks through referral to the head office in Country S (Company S). All other standard risks strictly follow the head office's underwriting rules;
- there are 20 local client markets in Country A (Company A). Local client marketing teams work to originate the business in Country A and handle all client relationships in Country A (Company A)and sign the business in Country A (Company A) following the controls and guidelines set out by the central underwriting strategy team in Country S (Company A);
- local underwriters in Country A (Company A) sign the contracts and book the risk locally. However, all of these risks are then ceded centrally to the head office through an intra-group 90% quota share. Local regulators in Country A set the maximum amount of reinsurance possible at 90%;
- Country A (Company A) writes USD 100 million in premium annually and has USD 20 million in acquisition and administrative costs associated with writing this business; and
- Country S (Company S) estimates that the business coming from Country A (Company A) will run at an average 60% loss ratio, and Country S has costs related to the transaction at 10% of premiums.

The main aspects are summarized in Figure 14.

6.1.2. Potential solution for 90% quota share arrangement between Country A and Country S

Although underwriting teams are present in Country A (Company A) and risks are being signed and booked locally, the functional and factual assessment of this case shows that the KERT functions regarding the assumption of risk take place in Country S (Company S).[99] Specifically, because Country S (Company S) is setting the underwriting policy, determining the expected loss and setting the pricing loadings, it can be argued that even though Company A is booking the risks locally, Company S is effectively accepting the underwriting risk and performing the KERT functions.

It may be suggested that, from an entity characterization perspective, the legal entity in Country A is acting as an intermediary (*see* section 2.4.3.) rather than a full-fledged insurer because it:
- originates the business (with the client market teams managing clients locally);
- performs basic underwriting activities (using centrally created tools and following central guidelines); and
- keeps limited underwriting risk local (net 10%), given the large cession (90%) through the quota share.

6.1.3. Applicable transfer pricing method

In the authors' opinion, the profit split method does[100] not apply to this case, as:

99. OECD, *supra* n. 4, at Part IV, C1, para. 92: "[T]he results of such booking practices should not be respected where they are inconsistent with the functional and factual analysis."
100. OECD, *Revised Guidance on the Application of the Transactional Profit Split Method* (OECD 2018). *See also* European Commission, EU Joint Transfer Pricing Forum (EU

- the local entity does not make unique and valuable contributions (especially in the form of unique and valuable intangibles);[101]
- the local entity does not share the assumption of economically significant risks, i.e. it does not "control" the underwriting risk, nor does it separately assume closely related risks, as the underwriting risk as well as the other main risks are borne by the head office;[102] and
- the associated enterprises are not engaged in highly integrated activities,[103] as the local entity does not jointly or equally contribute to the core income-generating activities.

As a result, the potential remuneration of the local office in this scenario could be determined by using the transactional net margin method (TNMM) in the absence of direct comparable prices for such intra-group insurance premiums.[104] The method is the most appropriate when one party to the transaction is less complex. In the case at hand, the less complex entity is the entity in Country A/ Company A.

Following the TNMM, Company A would be remunerated for all costs (both administrative and acquisition costs) related to the transaction, plus an additional net profit margin based on market benchmarks for intermediaries. In this example, this would translate into USD 20 million in costs × 90% cession amount + additional net profit margin as in the market for agents.

The profit margin for an intermediary will vary by line of business and by geographical area. In the US market, for example, profit margins for US brokers generally range from 8% to 12%, but vary by line of business.[105] Transfer pricing teams need to gather comparable market data (e.g. from AM Best Company Aggregates and Averages)[106] for a detailed look at market brokerage rates that could be used for additional net profit margin.

6.1.4. Economics of TNMM in Case A

A benefits from using the TNMM in this scenario because:

- 90% of their risks are transferred to Company S, providing significant protection for their balance sheet;
- the additional net profit margin will guarantee steady returns in Company A;
- without the 90% quota share, Company A would have to allocate more capital and assets to protect their risks locally, and this would make the cost of insurance they provide in the local market more expensive; and
- without the 90% quota share, Company A would have more volatile results and would suffer losses in years with catastrophic insurance events.

Company S benefits from using this method because, with a large cession amount, Company S pools risks into one central carrier obtaining significant diversification and liquidity benefits. The economics around business stemming from A (60% loss ratio and 10% costs) leave ample margin for Company S to remunerate Company A for all of its costs (associated with the transaction) in addition to a net margin while still potentially making profit.[107]

The TNMM may be an appropriate remuneration method if the insurer (the ceding entity – in this example, Company A) is acting as an intermediary (originator of business) rather than a full-fledged insurer. If Company A acts as an intermediary (or originator of business), but the key functions, assets and risks are performed/assumed by Company S then Company S will need to remunerate Company A accordingly. Company S would compensate A for all of its costs (in relation to the transaction) in addition to a mark-up or brokerage. However, if Company A acts like a full-fledged insurer and the transaction is more comparable to an external market quota share between an insurer and reinsurer, A's remuneration is dependent on the expected loss ratio. That is, if the expected loss ratio is low (i.e. expected profitable business), Company A will likely be remunerated for all of its costs plus a profit margin element. In contrast, if the expected loss ratio is high (i.e. not expected profitable business), Company S will likely not remunerate A for all of its costs (*see* section 4.3.)

6.2. Case B: Decentralized operations

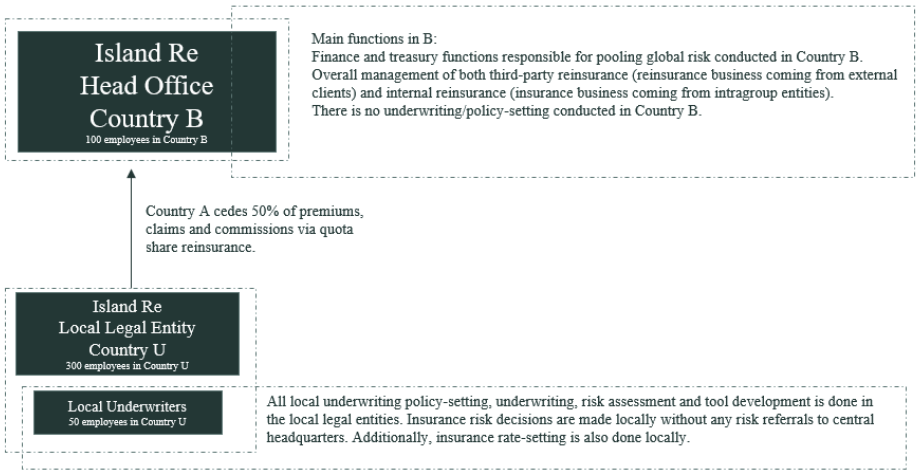
6.2.1. Facts

Island Insurance is a multinational property and casualty insurer focused on underwriting specialized engineering, nuclear, aviation, marine and liability risk in both the primary insurance and reinsurance sectors. Island Insurance is headquartered in Country

JTPF), *The Application of the Profit Split Method within the EU*, Doc JTPF/002/2019 (2019).

101. OECD, id., at paras. 2.130-2.132; and EU JTPF, id., at pp. 7-8.
102. OECD, *supra* n. 100, at paras. 2.139-2.140; and EU JTPF, *supra* n. 100, at pp. 12-13.
103. OECD, *supra* n. 100, at paras. 2.133-2.138; and EU JTPF, *supra* n. 100, at pp. 8-12.
104. *OECD Guidelines*. According the OECD Transfer Pricing Guidelines (2017), the transactional net margin method examines the net profit relative to an appropriate base (e.g. costs, sales or assets) that a taxpayer realizes from a controlled transaction (or transactions that are appropriate to aggregate under the principles of paras. 3.9-3.12).
105. Lechner & Raturi, *supra* n. 32. The referenced US brokerage profit margin range was from 1993-2002. The authors did not have access to more recent benchmarks, which may be purchased from AM Best.
106. Cummins & Doherty, *supra* n. 43, at p. 376.
107. Note that Company S assumes the risk that, in a particular year, the loss ratio may turn out higher than expected. Therefore, in some years, the economics for the reinsurer may not be positive. However, in the long term, if the loss ratio expectations are correct on average, the economics for Company S should be positive.

Figure 15 – Island Insurance Group operations overview



B (Company B). It offers primary insurance through separate legal entities in 30 jurisdictions worldwide. Island Insurance offers reinsurance products only out of Country B (Company B). Island Insurance has 1,000 employees worldwide.

6.2.1.1. Island Insurance primary insurance model

Island Insurance writes highly specialized and jurisdictionally focused risks and employs a decentralized underwriting insurance model. All local underwriting policy-setting, underwriting, risk assessment and tool development is done at the local legal entities. Insurance risk decisions are made locally without any risk referrals to central headquarters. Insurance rate-setting is also done locally.

Island Insurance headquarters are in Country B (Company B), and there are 100 employees working at the headquarters. The main functions in Country B include the overall management of both third-party reinsurance (reinsurance business coming from external clients) and internal reinsurance (insurance business coming from the intra-group entities). Additionally, the financial management and treasury teams that focus on pooling global risks to more efficiently manage capital sit at the headquarters in Country B (Company B). The central pooling of diversified risks provides local legal entities with capital relief and provides the entire group with global risk diversification and liquidity benefits. There is no central underwriting function or underwriting policy-setting conducted in Country B (Company B).

Island Re's main line of business is specialized liability lines underwritten in Country U by Company U. Overall, Company U has 300 employees, 50 of which are specialized liability risk underwriters who are familiar with local laws, legal developments and other market developments that impact the determination of Company U's liability risk expected loss. These employees are highly skilled liability risk underwriters and have both local legal degrees (focused on Country U's liability legislation) and specialized risk underwriting know-how. All key decisions regarding the liability risks written are made by employees in Country U (Company U). All underwriting tools specializing in these liability risks are developed[108] locally in Country U. The tools are controlled by local teams and are updated regularly depending on local legislative changes. Underwriting guidelines for these risks are set in Country U by underwriters in Company U, and there is no need for additional referrals to other parts of Island Insurance.

The expected loss on the risks in Company U are strictly calculated by the underwriting teams in Company U based on their market and risk knowledge. Local client marketing teams work to originate the business in Country U (Company U). Local underwriters in Country U sign the contracts and book the risk locally (Company U). The strategic underwriting and management team assesses their overall balance sheet liabilities and determine that it does not want to keep all risks local. They determine that the best way to protect their balance sheet and improve their solvency ratios would be to purchase reinsurance. Similarly, at the group level, the treasury department in Country B (Company B) would like to pool underwriting risk from all 30 jurisdictions into the central carrier in Country B (Company B) to obtain both capital and liquidity benefits. Company U and Company B agree to set an intra-group 50% quota share for Company U's liability portfolio.

The group's operations are summarized in Figure 15.

108. This example is not meant to consider additional IP remuneration costs; that is beyond the scope of this article.

6.2.2. Remuneration of the 50% quota share from Company U to Company B

The functional and factual assessment of this case indicates that the KERT functions surrounding the assumption of risk take place in Country U (Company U)[109] – that is, in Company U, underwriters are highly skilled and have the capability to accept the risk. Additionally, they set the underwriting policy, determine the expected loss, develop all underwriting models and calculations related to the risk and ultimately take on the risk. As a result, it can be argued that, in this case, Company U acts as a full-fledged insurer. One possibility is to use the comparable uncontrolled price (CUP) method to determine whether the 50% paid by Company U to Company B is at arm's length.

6.2.3. Quota share pricing: External market pricing or CUP[110]

In quota share intra-group arrangements, if the facts and circumstances deem the ceding entity to be acting as a principal, it could be argued that the remuneration should follow the same pricing approach as in the external market (*see* section 4.3.). While there is no direct comparable price in this case (because it is difficult to find a comparable book with similar underlying risks), the approach adopted in the open market could serve as a useful tool to price the intra-group transaction.

6.2.3.1. Further facts relevant to the case

Company U writes a total premium volume of USD 500 million and has an expected loss ratio of 65% and an expense ratio of 20%. Country B has a total USD 50 million in costs related to the insurance, but obtains USD 15 million in investment return based on the premium transferred. In external market pricing, quota share arrangements are priced considering (i) the subject premium; (ii) the costs related to the transaction; and (iii) depending on (i) and (ii), the total commissions paid back from the reinsurer to the insurer (*see* section 4.3.1. and Figure 9).

Step 1 is determining the subject premium. This includes taking the total premium volume subject to the transaction (USD 500 million) multiplied by the cession rate (50%). This will equate to USD 250 million.

Step 2 is reducing the premium by the costs but adding back any investment income. The reinsurer will reduce the premium by their expenses for the transaction, which amount to USD – 50 million. However, because the reinsurer obtains investment income from the incoming premium, the reinsurer will need to add that investment income back to the premium. In this case, that means adding USD 15 million. However, the reinsurer will also need to subtract the expected loss from the risk transfer. The expected loss from the risk transfer is determined by taking the loss ratio (65%) multiplied by the premium of this transaction (USD 250 million; *see* step 1). This will equate to USD – 162.5 million (65% × 250 million premium). The sum of the reinsurer's costs and income from the transaction is as follows: USD – 50 million (expenses) + USD 15 million (investment income) – USD 162.5 million (expected loss of risk) = USD – 197.5 million.

Step 3 has to do with the available commission. The reinsurer now has USD 250 million in premium income, but it will pay out (either from costs or expected risk loss) USD 197.5 million. Therefore, the reinsurer is left with an initial margin of USD 52.5 million. That is USD 250 million (step 1) – USD 197.5 million (step 2).

To originate the business, Company U has total expenses of USD 100 million. Company B will need to remunerate Company U for 50% of the USD 100 million (50% cession × expenses), equaling USD 50 million. Company B will then have an additional USD 2.5 million left in margin from the transaction (USD 52.5 million – USD 50 million). Depending on the type of commission it negotiates (*see* section 4.3.), it may give part of the margin back as part of a profit share, or keep the margin if a fix commission is determined. As a full-fledged insurer originating this business, if the business is traditionally very profitable, Company U may push for a profit commission. If the business is volatile (expressed when the loss ratio varies greatly from year to year), the insurer may negotiate a flat commission (covering its costs on a fixed basis per year). The case shows that in these types of decentralized operations, most of the profits (or losses) remain at the local level.

6.2.4. Two-sided economics of the CUP method in Case B

Company U benefits from using the CUP method in this scenario because:

- 50% of their risks are transferred to Company B, providing significant protection for their balance sheet;
- the quota share will provide Company U with capital relief;
- without the 50% quota share, Company U would have to allocate more capital/assets to protect their risks and would make the cost of insurance they provide in the local market more expensive; and
- without the quota share, Company U would have more volatile results and would suffer losses in years with catastrophic insurance events.

109. OECD, *supra* n. 4, at Part IV, C1, para. 92.
110. *OECD Guidelines*. The CUP method compares the price changes for property or services in a controlled transaction (internally) with those in comparable uncontrolled transactions (external).

Company B benefits from using this method because the economics surrounding the business stemming from Company U (65% loss ratio) leave ample margin for Company B to remunerate Company U for all of its costs (from the transaction) while still potentially making long-term profit.

In addition to the above method, depending on the exact facts, another possibility would be to treat the Company B as the tested party and apply the TNMM, as that entity acts as a pooler as opposed to a full-fledged insurance provider. Moreover, depending on the exact facts, it could very well be that the profit split method applies when both entities make substantial contributions towards profit generation. A discussion of these additional methods transcends the scope of this article.

7. Summary and Conclusion

The insurance sector is vital for global economic stability. Economies that are better protected through insurance are more resilient against the negative impacts of overall risk accumulation and catastrophic peak events.[111] Without risk-pooling, the insurance sector cannot survive. Risk-pooling enables insurance companies to diversify their portfolios while obtaining peak catastrophe protection, maximizing global liquidity and optimizing local capital relief benefits. Therefore, exploring the various risk-pooling avenues, either through internal pooling or through external reinsurance placement, is essential for any insurance company.

Internal quota share proportional reinsurance arrangements are an efficient way to pool risk internally. In this article, the authors outlined the basic concepts around how the external reinsurance market prices quota share arrangements. They then identify the KERT functions (as outlined by the OECD) that should be considered when determining remuneration methods for intra-group reinsurance.

In two different case studies, the authors linked external insurance pricing concepts to the functional analysis to identify different remuneration methods that could be applied based on the facts and circumstances outlined.

Overall, the article highlights the key attributes of both external and internal reinsurance arrangements and outlines considerations that should be made for the remuneration of property and casualty traditional internal quota share programmes.

111. Swiss Re, *Insurance is bucking the downward trend. Here's how it can boost our economies*, Swiss Re Institute (11 Nov. 2020)., available at https://www.swissre.com/risk-knowledge/building-societal-resilience/insurance-is-bucking-the-recession.html (accessed 21 Feb. 2022).