re

Come together to make the world more resilient

Draft document subject to regulatory oversight and approval

Protocol Overview

The Re protocol provides investors access to a massive and uncorrelated asset class: insurance premiums. Retail investors and crypto asset holders alike can not easily earn yield by backing insurance policies in a way that has been functionally accomplished by Lloyd's of London for 257 years. Total capital dedicated to global reinsurance amounted to $658B USD as of the end of 2020[1] with the top 40 reinsurers accounting for Net Written Premiums of $247B USD[2]. Today, all of this premium is held within centralized entities that operate with expenses amounting to between 30-45% of each premium dollar generated before claims are settled.

Re acts as a global transaction layer for pure risk. It provides a direct way for most investors to earn insurance premiums by backing real world risks in:

- Aviation & Aerospace
- Chemical
- Communications, Media & Technology
- Construction
- Education
- Energy & Power
- Environmental
- Financial Institutions
- HealthCare
- Hospitality & Gaming
- Infrastructure
- Life Sciences
- Manufacturing & Automotive
- Marine
- Mining
- Public Entity
- Rail
- Real Estate
- Retail, Wholesale, Food & Beverage
- Sports, Entertainment & Events
- Transportation

Initially, the protocol will be ceded with millions in premiums generated by auto insurance policies written by Cover.com as the first Coverholder. Another $50-100M will be ceded by partner insurance companies and reinsurers over the next 12 months. The protocol will be expanded into new lines of business as new Coverholders and Syndicates join the protocol.

The Re protocol has four core participants:

1. Coverholders (MGAs/Insurers seeking reinsurance, otherwise policyholders)
2. Syndicates (Underwriter and/or first liquidity provider)
3. Members (Senior liquidity providers)
4. Auditors (Governance of protocol via staking; act as gatekeepers to participation on network)

Coverholders are protocol participants who seek reinsurance for insurance Programs and propose

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1 Willis Re Reinsurance Market Report April 2021: Results for full-year 2020

2 S&P Global Reinsurance Highlights | 2020

Quota Share Reinsurance Pools (QSRPs) for Syndicates to analyze. QSRPs contain proposed economic terms for a reinsurance agreement, outlining risks covered, ceding commission for originating risk, limits of exposure, maximum net written premium allowable under the Program and maximum allowable loss ratio.

As insurance premiums are earned, the QSRP is ceded with Net Earned Premium by Coverholders to act as first-loss capital held as Premiums in Trust (PIT).

Syndicates assess Programs and decide whether to supply junior-tranche capital to a QSRP. Once a Syndicate-led junior-tranche is formed, Coverholders may begin writing insurance business to the Net Written Premium limit stipulated by the QSRP.

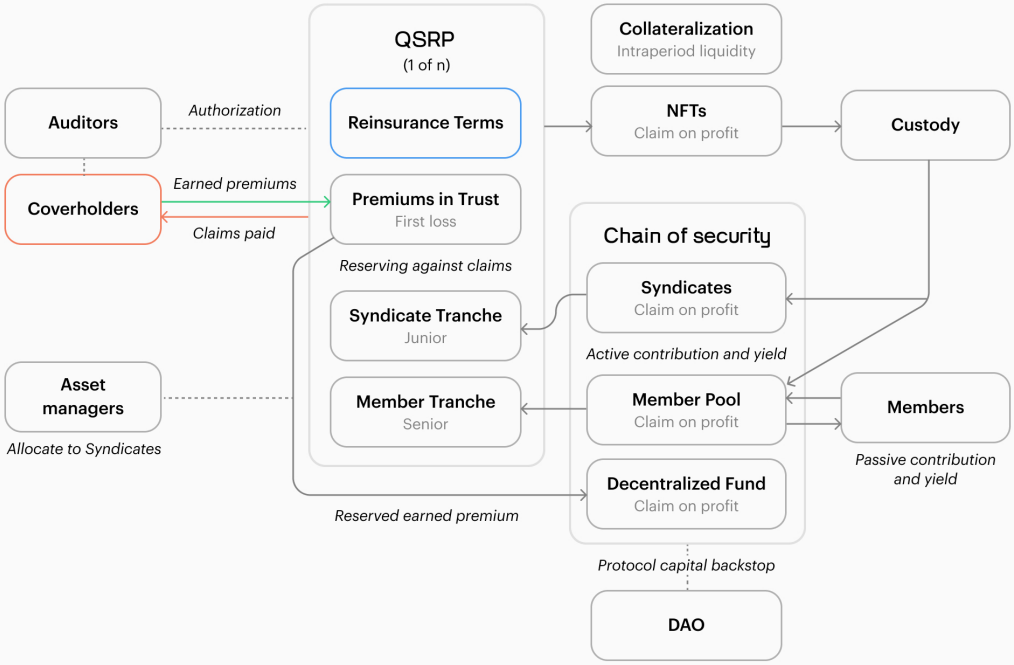
Members supply senior-tranche capital to the QSRP to earn a passive yield. The Member Pool uses the Minimum Capital Requirement (MCR) Model to automatically allocate capital to QSRPs, based on how many Syndicates are participating in them. To compensate Syndicates for assessing Programs and allocating junior-tranche capital a portion of underwriting profit to the Member Pool is reallocated to the Syndicates.

Lastly, Auditors vote to approve Coverholders, which is required before they can submit a Program. Auditors are randomly selected by the protocol, and they provide a human-level check to guard against fraudulent activity.

As total premium processed by the protocol accelerates, both the Member Pool and the Decentralized fund will hold sizable amounts of investable float. Subject to governance of the protocol this float may be invested to generate additional yield for protocol participants and value for RE holders.

Over time, an entirely new asset management industry could seed Syndicates, Member Pools and also directly invest into junior and senior tranches across different verticals and geographies.

Protocol Architecture



Glossary of Core Components

Auditors — Auditors — Participants who receive Re Governance Tokens (RE) rewards for securing the protocol with a human eye. Auditors must pass the Unique Entity Check confirming that they hold a CPA, Actuarial Fellowship (FCAS) or Associate designation (ACAS).

Premiums in Trust (PIT) — Coverholders cede Net Earned Premium to QSRPs, where they act as first-loss funds to settle claims, and earn yield for Syndicates and Members.

Syndicates — Participants who supply junior tranche capital to individual QSRPs.

Coverholders — Participants who seek and may be authorized to write insurance business (Programs) via QSRPs.

Quota Share Reinsurance Pool (QSRP) — Smart contract that encodes a set of reinsurance terms for a Program proposed by a Coverholder. These terms include the term, ceding commission, limits on specific perils, maximum allowable Net Written Premium and loss ratio.

Re Governance Tokens (RE) — Token used for Governance votes, Auditor staking, Auditor vote rewards, staking on Syndicates, early Syndicate rewards, and other potential rewards for all protocol participants.

Governance — Smart contract that is managed by the community DAO and has the ability to update the protocol via decentralized governance votes.

Minimum Capital Requirement Model (MCR) — A formula by which the Member Pool automatically determines how much capital to allocate to each QSRP, as well as what the minimum reserve requirement is of a QSRP.

Members — Participants who supply senior capital to the Member Pool.

Member Pool — Smart contract that accepts capital from Members and automatically allocates capital to the senior tranche of QSRPs according to the MCR model.

Decentralized Fund — A small proportion of PIT are ceded to the Decentralized Fund to act as the senior most capital backing all insurance risks accepted by the Re Protocol and are managed by decentralized Governance.

Coverholders

Coverholders are participants who seek reinsurance from the protocol. They propose terms to Syndicates to supply capital backing insurance risk and Programs outlined in Quota Share Reinsurance Pools.

QSRP Creation

A QSRP is the smart contract through which Coverholders access reinsurance capacity, and cede Net Earned Premium. Any Coverholder can create a QSRP and define the terms they want, for example:

- Line of business: Auto, home, earthquake, flood, cyber etc.
- Limits of exposure: Specifics of policies being offered and exposures covered
- Ceding commission: Commission paid to the Coverholder for originating insurance risk and premium during the treaty period (e.g. 20%)
- Capacity requested: Net Written Premium authorized (e.g. $18M during the treaty period)
- Settlement Period: The frequency at which the Coverholder remits Net Earned Premium
- Treaty period: The time period under which any acceptable risks are reinsured, plus time for runoff

Creating a QSRP is like proposing a term sheet to Syndicates. It does not guarantee the terms will be accepted, since Coverholders then need to convince Syndicates to supply junior tranche capital. The amount of insurance business Coverholders can write is based on how much Syndicates supply, combined with the amount the Member Pool allocates based on the MCR Model.

Notably, Coverholders need to set a limit for their QSRP, a self-imposed cap on how much insurance business they will originate. While Coverholders might ideally want an infinite limit, Syndicates want to know that they are staking junior capital only towards capacity that the Coverholder can safely write. Coverholders therefore have an incentive to set the limit only as high as they can convince Syndicates they can safely use.

In order to create a QSRP, the Coverholder must also stake an amount of RE equal to a multiple of the cost of an Auditor approval, which is a fixed rate set by the protocol. This helps guard against spam, signal to Syndicates that the Coverholder is serious, and provide RE to pay for the first Auditor approval. The RE is used for the first Auditor approval. The Coverholder can redeem their remaining staked RE at the end of the QSRP treaty period upon settlement of terms.

Authorizing capacity and ceding Net Earned Premium

Coverholders can originate insurance policies backed by the QSRP at any time during the treaty period.

The total amount they can originate is the minimum of:

1. The calculated limit based on the capital that Syndicates have supplied and the additional Member Pool leverage amount.
2. The combined total capital that Syndicates have supplied in that QSRP plus the remaining capital in the Member Pool.
3. The QSRP limit.

As Coverholders originate insurance business they cede Net Earned Premium to the QSRP according to its embedded terms.

Premium in Trust, Junior and Senior Tranches

QSRPs hold Premiums in Trust and have both a junior and senior tranche. Syndicates supply capital to the junior tranche, and the Member Pool supplies capital to the senior tranche. When claims related to insurance policies written by Coverholders are settled, the QSRP first applies claims to PIT, and calls junior and senior tranches as necessary to offset any deficit. To track the different amounts that different participants supply, both Syndicates and the Member Pool receive an NFT when they supply capital. The NFT tracks the amount that was supplied and how much of it has been redeemed. At the end of a QSRP treaty period, a Syndicate or the Member Pool can use their NFT to redeem their specific portion of remaining Net Earned Premium in the pool, or continue to participate in future terms of the QSRP.

The QSRPs use NFTs rather than fungible tokens because it allows the protocol to ensure that no one redeems more than their proportional share of Net Earned Premium as the QSRP is settled. NFTs also allow for settlement intra-period via trade, with other counterparties on the network, as well as collateralization thereby offering Syndicate NFT holders liquidity.

As an example of economics to Syndicates, let's say two Syndicates have each authorized $10M in premium to be written by a Coverholder with a target combined ratio of 92% and the Syndicates are participating equally in the QSRP.

Combined ratio in this context would be:

$$CR = \frac{PL + CC + LAE + IBNR - SS}{EP}$$

PL: Total Paid Losses related to insurance policies written under the QSRP

IBNR: Total reserving for claims that have been Incurred But Not Reported

CC: Ceding Commission paid to Coverholder for originating insurance business

SS: Losses recovered from Salvage and Subrogation

LAE: Total Loss Adjustment Expense related to the settlement of claims for insurance policies sold under the QSRP

EP: Earned premium, which is a function of time and Written Premium

Assuming this yields a 92%, the two Syndicates now have equal claim to $800,000 in profit. Assuming no participation from the Member Pool and a 10% NEP reserve requirement set by the MCR model:

$$CS = NEP \cdot RR$$

CS: Capital Supplied **NEP:** Net Earned Premium **RR:** Reserve Requirement

$10M in authorized NEP * 10% reserve requirement / 2 = $0.5M in capital locked by each Syndicate member on the protocol.

$$UP = NEP \cdot (1 - CR - DC - OF) \qquad Y = \frac{UP}{CS}$$

Y: Yield

DC: Decentralized fund contribution

UP: Underwriting Profit

OF: Origination fee

$400,000 in profit / $0.5M in reserve capital = 80% return

Which is redeemable via the NFT issued to the Syndicate at the inception of the QSRP net of any contributions to the Decentralized Fund.

Origination Fee

There may be certain participants who work with Coverholders to establish terms and bring them to the protocol. For example, traditional reinsurance brokers, and consultants may assist Coverholders in preparing a Program off-chain and submitting a QSRP. To compensate them for these efforts, QSRPs support an origination fee that is paid to the pool's originator. The origination fee is defined as a percentage of the Net Earned Premium. For example, a 1% fee for a $10M QRSP that generates $10M in Net Earned Premium would yield a $100K origination fee that is earned as premium is ceded to the QSRP.

Summary of Coverholder Incentives

A key question is what incentives Coverholders have to produce sufficient Net Earned Premium to cover claims and generate a margin for capital providers.

The first incentive is that Coverholders likely want to write insurance Programs that continue to renew to cover their cost of acquiring and underwriting insurance business. If Coverholders fail to generate underwriting margin for capital providers repeatedly, it is unlikely they'll be able to expand their authority to write insurance business via any QSRP. If a Coverholder is not remitting Net Earned Premium, Syndicates will likely stop supplying capital, effectively stopping the Coverholder from writing more insurance policies.

The second incentive is that because Coverholders need to publicize their address when proposing pools to Syndicates, their on-chain history becomes public to future Syndicates, even those off-chain.

Thirdly, Syndicates may ask Coverholders to accept a sliding scale ceding commission, which eats into Coverholder margin when Loss Ratios are poor, in an effort to protect Syndicate and Member Pool profits, while sharing in upside if realized Loss Ratios outperform the target Loss Ratio stipulated in the QSRP.

Lastly, while not explicitly supported by the protocol, Syndicates may form off-chain legal agreements with Coverholders. Syndicates may require such an agreement to be in effect, either with them directly or with another Syndicate, in order to be willing to reserve capital. In these cases, the legal agreement and potential recourse are another important incentive for Coverholders.

Syndicates

Syndicates evaluate Coverholders and reserve junior tranche capital on their QSRP. Syndicates can achieve higher returns when the Member Pool leverages them with additional senior tranche capital.

Supplying to QSRPs

Syndicates look at QSRPs as investment opportunities. They evaluate the information Coverholders provide and decide if they want to reserve capital to the junior tranche of a QSRP. The Member Pool provides additional senior tranche capital to the Member Pool according to the MCR Model. To account for the lower risk of the senior tranche, 25% of the senior tranche's proportional claim to underwriting profit is reallocated to the junior tranche. In addition, the protocol retains 0.5% of all Net Earned Premium as reserves, which are managed by the decentralized Governance.

By worked example:

CS = $10M in authorized NEP * 10% reserve requirement = $1M

20% participation by Syndicate, and 80% by Member Pool

$200K contribution by Syndicate
$800K contribution by Member Pool

Assuming the Program generates a combined ratio of 92%, NEP of $10M, and 0.5% of NEP is reserved for the decentralized fund, $750K of profit is generated and held within the QSRP.

Syndicate participation in profit would yield:

$$UP_s = UP_T \cdot \frac{CS_S}{CS_T} + UP_T \cdot \frac{CS_M}{CS_T} \cdot K \qquad Y_S = UP_S / CS_S$$

Where K represents the 25% kicker, or incentive for Syndicates to take a junior position, and assess the QSRP.

$750K * ($200K/$1M) + $750K * ($800K/$1M) * 25% = $300K

Effective yield = $300K / $200K = 150%

Member Pool participation in profit would yield:

$$UP_M = UP_T \cdot \frac{CS_M}{CS_T} \cdot (1 - K) \qquad Y_M = UP_M / CS_M$$

$750K * ($800K/$1M) * 75% = $450K

Effective yield = $450K / $800K = 56.25%

Early Syndicate Rewards

It is easier to feel confident supplying to a QSRP when other Syndicates are already supplying to it and the Member Pool is already adding leverage. It is riskier to be the first one in a QSRP. To incentivize Syndicates to supply early on, the protocol provides an additional RE reward to all Syndicates who contribute early on, with the reward amount decreasing for later Syndicates as the QSRP reaches its limit. The protocol assigns the reward when a Syndicate reserves, but the reward is not immediately claimable. The reward is claimable only if the QSRP generates a combined ratio that meets or exceeds that specified in the QSRP. This ensures the Syndicate only receives the early Syndicate reward after the QSRP proves valuable to the protocol.

Staking on Backers

In addition to evaluating individual QSRPs, Syndicates may also evaluate other Syndicates in order to give them leverage. Syndicates can do this by staking RE directly on another Syndicate. Based on the amount of RE staked on a given QSRP, the Member Pool uses the MCR model to calculate a leverage ratio and allocate capital whenever that Syndicate supplies to QSRPs. For example, if a Syndicate has a Reserve Requirement of 20% based on who has staked RE on them, then anytime they supply to a QSRP, the Member Pool will allocate 4.0X of that amount. The Member Pool provides this leverage up to a maximum total that is calculated as the leverage ratio multiplied by the total value of RE staked on that Syndicate. For example, if the Syndicate has $1M worth of RE staked on them with a 4.0X leverage ratio, the Member Pool will allocate up to $4M total leverage. When RE is staked on a Syndicate, that RE serves as collateral against potential defaults for that Syndicates positions in QSRPs. When a Coverholder generates a negative underwriting profit via a QSRP, the RE staked on all the Syndicates in that pool are reallocated to the senior tranche until the senior tranche is made whole. This incentives Syndicates to stake on other Syndicates who reserve to safe QSRPs. To reward Syndicates for staking RE on other Syndicates, the protocol distributes RE to them on a regular basis. The protocol allocates the distributions in proportion to the interest their leveraged RE earns. This incentivizes Syndicates to stake on other Syndicates who supply to high-yielding QSRPs.

Summary of Syndicate Incentives

Syndicates have an incentive to reserve junior tranche capital to QSRPs because they can receive both early Syndicate rewards and higher effective yields based on Member Pool leverage. They also have an incentive to stake RE on other Syndicates because they can earn additional rewards when

that Syndicate supplies to QSRPs.

Auditors

Auditors perform human-level checks on Coverholders to confirm they are legitimate, helping to secure the protocol against fraud. Coverholders need the approval of Auditors to generate insurance business via QSRPs.

Approval Votes

Coverholders need an approval vote from Auditors in order to start generating insurance business. Auditors stake RE in order to be selected for votes, and they earn RE rewards when they vote with the majority of other Auditors, according to the rules described below. Given the specialized nature of assessing Coverholders and QSRPs, Auditors must stake a minimum amount of RE and pass the Unique Entity Check confirming that they hold a CPA, Actuarial Fellowship (FCAS) or Associate designation (ACAS). When a vote is requested, the protocol selects 9 Auditors on a random basis weighted by the amount of RE they have staked. When selected for a vote, Auditors evaluate whether Coverholders appear to be legitimate. In this vote, the Auditors are providing a confirmation that the Coverholder does what they claim to do and that they do not appear to be colluding with any other participants. Auditors can do whatever they like to decide how to vote. In practice, they may review off-chain documents provided by Coverholders and communicate with Coverholders directly through channels such as forums, email, and video calls. This can all occur off-chain on a variety of platforms. The protocol only needs the final vote and is agnostic to how Auditors arrive at their vote.

Approval Vote Requests

Coverholders can request an approval vote once their first QSRP has reached at least 20% of its limit and they have staked enough RE to reward Auditors for the vote. If more than 2 Auditors vote “No”, their full RE staked amount is slashed.

In addition to the Coverholder making their first approval request, anyone can use RE to pay for an approval request at any time. This is helpful if someone believes a prior approval vote had an incorrect result, or if someone believes the Coverholder has started to act fraudulently and should lose their approval.

Approval Vote Outcomes

Once selected, auditors have 48 hours to provide a “Yes”, “Unsure”, or “No” vote. Their RE is slashed if they

A. don't vote within the 48 hour window,
B. vote "Yes" when the majority vote "No", or
C. vote "No" when the majority vote "Yes"

If they vote "Unsure", there is no penalty but also no reward. Based on the way Auditors vote, there are three potential outcomes:

1. **Full Approval:** This occurs when there are at least 6 "Yes" votes and no more than 1 "No" vote. The Coverholder is approved to write insurance business, and the Capital Pool allocates capital to their QSRP.
2. **Syndicate-Only Approval:** This occurs when there are at least 6 "Yes" or "Unsure" votes, and no more than 1 "No" vote. The Coverholder is approved to write insurance business, but the Member Pool does not allocate capital to their QSRP. This severely limits the ability of a Coverholder to write business, and decreases the incentive of Syndicates to participate without Member Pool leverage.
3. **No Approval:** This occurs when there is more than 1 "No" vote, or when there are not enough votes to meet the above approval thresholds. The Coverholder is not approved to issue any insurance policies.

Summary of Auditor Incentives

Auditors are incentivized to participate and vote correctly in order to earn RE rewards. Also, by staking RE, they are both incentivized to avoid having their stake slashed and are naturally aligned with the long term success of the protocol.

Members

Members supply capital to the Member Pool in order to earn passive yield. The Member Pool automatically allocates their capital to the senior tranches of QSRPs.

Supplying to the Member Pool

Members supply capital to the Member Pool in order to earn passive yield. The Member Pool then automatically allocates that capital across the senior tranches of QSRPs according to the MCR Model. The Member Pool thereby provides both diversification across QSRPs and seniority to the junior-tranche capital of Syndicates. Reserving capital to the Member Pool is also fully permissionless. To compensate Syndicates for both evaluating QSRPs and providing junior-tranche capital, 25% of the Member Pool's proportional claim to underwriting profit within a QSRP is reallocated to Syndicates.

USDRE

When Members supply to the Member Pool, they receive an equivalent amount of USDRE. USDRE is an ERC20 token. At any time, Members can withdraw by redeeming their USDRE for USDC at an exchange rate based on the net asset value of the Member Pool, minus a 5% withdrawal fee. This exchange rate for USDRE increases over time as underwriting profits ceded back to the Member Pool. It is possible that when a Member wants to withdraw, the Member Pool may not have sufficient USDC because it has been reserved by Coverholders via QSRPs. In this event, the Member may return when new capital enters the Member Pool through QSRP settlement or new Members. To improve predictability of redemptions, and reinsurance capacity available to Coverholders via QSRPs a 30 day notice period is required when USDRE is unstaked.

Summary of Member Incentives

Members are incentivized to supply capital to the Member Pool in order to earn passive yield.

Trust Through Consensus

In order to determine how to allocate capital from the Member Pool, the protocol uses a principle of "trust through consensus." This means that while the protocol doesn't trust any individual Syndicate or Auditor, it does trust the collective actions of many of them. At a high level: when more Syndicates supply to a given QSRP, the Member Pool increases the ratio with which it adds leverage. Because this approach relies on counting individual Syndicates, the protocol must ensure they are in fact represented by different people. Therefore, all Syndicates, Coverholders, and Auditors require a "unique entity check" to participate (see the Unique Entity Check section).

MCR Model and Leverage Formula

Two fundamental questions must be answered when managing the solvency of the protocol:

1. What is the minimum of % of NEP that must be reserved? What is the mechanism that determines that % and ultimately leverage on total capital supplied? (Leverage on yield)
2. What proportion of the NEP of a QSRP should Syndicates be required to reserve for to determine leverage on Syndicate capital supplied? (Leverage on capital base)

MCR Model

It is required that each QSRP conform to the reserving requirements set out by regulators:

Class B(iii)	General: US$200,000 Long-term: US$400,000 Composite: US$600,000	General: 15% of NEP to first US$5,000,000 7.5% of additional NEP up to US$20,000,000 5% of additional NEP in excess of US$20,000,000 Long-term: PCR = MCR Composite: amount required to support the general business plus MCR

Prescribed Capital Requirement (PCR) — The level of solvency above which a supervisor does not intervene on capital adequacy grounds. Defined such that assets will exceed technical provisions and other liabilities with a specified level of safety over a defined time horizon.

Minimum Capital Requirement (MCR) — a solvency control level at which, if breached, the supervisor would invoke its strongest actions, in the absence of appropriate corrective action by the insurance legal entity.

PCR capital modeling is commonplace at reinsurance firms, and can be provided by Auditors with this capability.

Leverage Model

The Leverage Model determines how much capital the Member Pool allocates toward each QSRP, based on how much it "trusts" each QSRP.

The leverage amount, M, that the Member Pool allocates is determined by the formula, where:

$$M = S \cdot D \cdot L$$

S is the total capital supplied by Syndicates.

D is the distribution adjustment on a scale of 0 to 1, which accounts for how evenly distributed the Syndicates are

- **D** is closer to 0 when the distribution is skewed and closer to 1 when the Syndicates are more equally distributed. This ensures no single Syndicate has an outsized influence.

The formula for D uses the percent supplied by each Syndicate, s_n , and is based on the Herfindahl-Hirschman Index:

$$D = 1 - \sum_{i=1}^{n} s_n^2$$

L is the leverage ratio on a scale of 0 to the maximum potential leverage ratio. Based on the number of Syndicates, s, the leverage ratio increases linearly from Smin, the minimum number of Syndicates necessary for leverage, to Smax, the maximum number of Syndicates necessary to achieve the maximum potential leverage, Lmax :

$$L = L_{max} \cdot \frac{max(0, s - S_{min})}{S_{max} - S_{min}}$$

Unique Entity Check / KYC

Since the Leverage Model relies on trust through consensus, it is critical to avoid sybil attacks by having confidence that each Coverholder, Syndicate, and Auditor is a unique entity. Therefore, they must each be verified with a "Unique Entity Check" before they can participate. Governance approves the protocol's Unique Entity Check providers. This will start with oracles that perform off-chain checks to validate that the wallet addresses are unique entities. However, this design does not require oracles. If and when on-chain decentralized IDs mature, Governance can vote to migrate the protocol to these new providers.

Governance

Governance is managed by a community DAO and has the ability to perform maintenance functions and parameter adjustments via decentralized governance votes, including:

- Upgrading contracts
- Changing protocol configurations and parameters
- Selecting Unique Entity Check providers
- Setting the rewards and distribution of RE
- Pausing protocol activity in the event of an emergency

Discussion of Fraud Resistance

Because the protocol does not require crypto overcollateralization, this opens up new potential vectors for fraud. It is worth discussing each one in depth, and how the protocol builds resistance against it. Note that these scenarios focus on malicious or dishonest activity, not poor performance

of well-intentioned reinsurance. To start, the protocol will be ceded with known risk, predicated on observable loss ratio trends from Cover.com underwritten insurance policies. These policies have delivered an underwriting margin of 8.5% (levered 10X to 85%) to Cover's reinsurers, and a significant portion of future premium from Cover will be ceded to the protocol.

Fraudulent Coverholder, Honest Syndicate

A fraudulent Coverholder could attempt to fool both Auditors and Syndicates into thinking they are legitimate, and access reinsurance capacity by misrepresenting past program results or the program being developed. The first guard against this are the Auditors, who must approve Coverholders before a QSRP is approved. Because Auditors are randomly selected, it is difficult to collude with them. The second guard are the Syndicates, who are highly incentivized to analyze their investments closely, since they supply higher-risk junior capital. It is likely that Syndicates will want to do extra research on Coverholders and potentially communicate with them directly. Lastly, Syndicates may sign off-chain legal contracts with Coverholders, which opens Coverholders to legal recourse.

Coverholder Collusion with Syndicates

A Coverholder could collude with people they know to act as Syndicates and supply to their QSRP. This would artificially increase the leverage ratio and fool the Member Pool into allocating additional capital. The first guard against this are the Auditors, who must approve Coverholders before borrowing. Because Auditors are randomly selected, it is difficult to collude with them. The second guard is that it requires many individually verified Syndicates to supply significant amounts of upfront capital in order for the Member Pool to provide leverage, which makes such collusion difficult and expensive. Lastly, the Unique Entity Check adds sybil resistance by making it difficult to programmatically create fake Syndicates.

Coverholder Collusion with Auditors

A Coverholder could collude with Auditors to obtain approval for creating QSRPs when they are not legitimate. The first guard is that the Unique Entity Check prevents a sybil attack where fake Auditors are programmatically created. The second guard is that Auditors must stake RE, which is slashed if they vote differently than the majority of Auditors. The third guard is that Auditors are randomly selected, weighted by their staked RE, so it would require staking a significant amount of upfront capital to be chosen enough to skew the votes. The fourth guard is that anyone can request an approval at any time, so it would require colluding for all potential future votes rather than just one. Lastly, even if a fraudulent borrower successfully colludes with Auditors, they must also convince many Syndicates to risk their own capital.

Fraudulent Syndicates, Honest Coverholders

An individual or group of Syndicates might supply to a particular QSRP even when they don't view it as a good risk. This would artificially increase the leverage ratio and fool the Member Pool into allocating additional capital, boosting the Syndicate returns. The first guard against this is that the Unique Entity Check requires each Syndicate to be verified, preventing a sybil attack and requiring the coordination of many people. The second guard against this is that it requires the Syndicate to take real risk by supplying junior capital. The Syndicates only achieve higher returns if the Coverholder does in fact generate underwriting profit via the QSRP, in which case it is beneficial to all participants in the protocol, including the Member Pool.