



Managing liquidity risk: Industry practices and recommendations for CROs

September 2019



Table of Contents

Chapter 1 – Executive summary	2
Chapter 2 – What has changed since the GFC in 2008?	4
Unintended consequences and key risks for the financial sector'	4
Liquidity risk is different for re/insurance companies	5
Chapter 3 – Liquidity crisis – drivers and the implication for re/insurers	7
Possible drivers of a liquidity crisis for a re/insurance company	7
Company specifics	8
Chapter 4 – Liquidity risk management: survey of current industry practices	10
Key survey findings	10
Chapter 5 – Recommendations for CROs	16
Governance	16
Setup and basic assumptions	17
Monitoring and reporting	19
Recommendations for groups and holding entities	19
Chapter 6 – Insurance specific regulation: an overview	21
Current state of regulatory requirements	21
Recent developments and outlook	22
Chapter 7 – Conclusion	24
References	25

Chapter 1 – Executive summary

Ten years on from the global financial crisis (GFC) in 2008–09, liquidity risk remains an important theme for the financial services industry, including for re/insurers. The CRO Forum published its first paper on best practices in liquidity risk management just before the GFC.¹ The crisis triggered changes in market dynamics and regulatory approach, and this latest paper looks at developments in liquidity risk management since. We highlight the unintended consequences of the regulatory response to the GFC, how that response has reshaped financial markets, and new uncertainties such as the spread of automated trading strategies or the shift of provision of bond liquidity to the increasingly concentrated bond investors.

The GFC and economic events since provide new insights into the drivers and nature of liquidity risk. For re/insurers, a liquidity crisis can be caused by increased and/or accelerated payment obligations; a reduction in available liquid funds; or both. The key task with respect to liquidity risk management is to ensure adequate financing to meet liquidity needs, in both normal and stress scenarios.

As part of the analysis for this paper, the CRO Forum has surveyed the working group members (17 re/insurers) to understand better current industry approaches to liquidity risk management. Key takeaways are that re/insurers use multiple time horizons (from a week to more than 2 years), different stress scenarios, and various additional stress assumptions to assess their liquidity needs.

We also present a set of recommendations for CROs and risk professionals to consider when implementing/updating their liquidity risk frameworks. The list is intentionally generic so as to be applicable to a broad range of re/insurers. For any liquidity risk framework, consistency, proportionality and flexibility are key. There is no one-size-fits all with respect to an effective liquidity risk framework. Re/insurers should align the components of their framework with their own risk profile and appetite, these in turn determined by their individual organisational, capital and investment structures, and the nature of their products.

The key takeaways of this paper include:

- Comprehensive and prudent liquidity planning and risk management is integral to running a re/insurance company and largely limit the likelihood of experiencing major liquidity issues.
- The liquidity risk profile of insurance firms is fundamentally different to that of banks. Driven by the intrinsically long-term nature of many of their products, insurers are less exposed to immediate and irrevocable liquidity shortfalls (eg, run on banks).
- Driven by the different products and business, the main purpose of holding capital is also different at banks and insurers. For banks it is to absorb losses but first and foremost to provide confidence to depositors. Insurers hold capital solely to cover possible losses.
- Liquidity should be considered in parallel to capital, with many risk types having both a capital and a liquidity impact (eg, market risk, insurance risks).

- The risk appetite and liquidity exposures are bespoke to individual insurers, and liquidity risk is best managed through tailored internal frameworks and stress testing.
- Managing the complexities of liquidity risk across multiple entities, geographies, product types and at the holding level requires considerable focus and resources.
- Assumptions and management actions used in managing liquidity risk should be regularly stress-tested and evolved as markets, regulation, risk appetites and the business changes.

The paper covers liquidity risk management from the perspective of individual firms with a focus on periods of stressed market conditions or idiosyncratic shocks.

Ongoing treasury activities are not in scope of this paper. Finally, although solvency and liquidity are closely linked, and stressed market conditions impact both, the paper focuses on the liquidity component only.

¹ Link to the document: https://www.thecroforum.org/wp-content/uploads/2012/10/croforumbrmpliquidityriskmanagement_oct08-2.pdf



Chapter 2 –

What has changed since the GFC in 2008?

The global financial crisis (GFC) in 2008 and all that followed has reshaped financial markets, with significant implications on liquidity risk. The scale of the crisis highlighted the complexity and global interconnectedness of financial markets, in which availability of liquidity is fundamental to the well-functioning of the system. As liquidity dried up, business was unable to access credit, and the real economy went into meltdown. A key takeaway from the experience is the need for effective and forward-looking risk management.

Unintended consequences and key risks for the financial sector

The monetary and regulatory policy responses to the GFC have impacted the market liquidity environment. Developments in fixed income market-making are often cited as a primary concern, but there are also other areas of concern.

In summary, the most significant changes (or, unintended consequences), in the reshaping of the financial markets since the GFC include:

- the withdrawal of investment banks as main providers of liquidity;
- the increased use of derivatives resulting in stressed collateral requirements;
- monetary stimulus and low interest rates, which have driven re/insurers to purchase more illiquid assets to improve returns and
- a significant reduction in the ability of central banks to fund additional asset purchases or reduce interest rates.
- Increased concentration on the financial markets driven by tech innovation e.g. automated trading, use of Exchange-traded funds (ETFs).



Reduced bank appetite to provide liquidity

There are indications that post-crisis regulatory changes to improve banks' capital resilience may have reduced the ability and willingness of banks to act as dealers and market makers. The changes have restricted the risk-taking capacity of banks and increased the costs of market making. There has been a stagnation of dealer balance sheets since the GFC, which occurred concurrently with dealer balance sheet deleveraging, suggesting that regulation has perhaps come at the cost of reduced available liquidity. There are conflicting views as to the extent of impact the withdrawal of banks as dealers and market makers has had on liquidity, given developments in electronic trading over this period. Non-debatable, however, is that at the very least, regulatory changes post the GFC have altered the structure of market liquidity.



Moving to centrally cleared derivatives

The transition to centrally-cleared derivatives as stipulated by the European Market Infrastructure Regulation (EMIR) has the benefit of removing single counterparty exposures on derivatives, and also improves transparency in pricing and standardisation of products. All told, the introduction of initial margins and cash requirements on variation margins has created an additional demand on companies' liquidity, and this needs to be carefully managed. In particular:

- Companies may need to hold more cash to meet increases in variation margins on derivatives. This may increase the use of the repo market. However, the International Association of Insurance Supervisors (IAIS) considers short-term funding to be a potentially systemically-risky activity;²

and companies may instead increase cash balances internally. However, the cash required for stressed collateral requirements creates an encumbrance and ultimately incurs a cost to the firm through decreasing the amount of available resources for investment in alternative assets. Where derivatives are used to hedge non-local currency investments, the potential cash collateral requirements act to reduce the overall returns of the strategy.

- From the re/insurance sector perspective the requirement to hold increased cash against derivatives collateral has also led to greater demand to enter into liquidity transformative trades with banks. Such trades allow re/insurers (for a price) to swap less-liquid assets for cash, or enter into derivative structures with no requirement to post collateral requiring additional counterparty management.
- Market-wide demand for highly liquid assets such as cash and government bonds is likely to increase as a result of initial margin requirements at the relevant central counterparty. This will compete with already heightened demand from banks given the higher liquidity requirements from their own regulators. This makes liquidity squeeze more likely at time of stress.



Search for yield in low interest rate era, and inflated asset values

The unparalleled levels of accommodative monetary policy since the GFC has led to the situation that leverage has picked up again in recent years due to ample availability of cheap debt. So much so that global debt has reached record levels, even beyond that seen before the crisis. At the same time, investors searching for incremental yield have been forced into riskier assets. This includes a broad shift towards lower

² See IAIS publication: "Global Systemically Important insurers – updated assessment methodology (16 June 2016)"

³ BIS Quarterly Review March 2019 – International banking and financial market developments, page 12

rated credit assets. For example, the share of “BBB” rated credit assets of total investment portfolio assets is today much higher than in 2007³.

At the same time, accommodative financial conditions have driven a strong asset recovery. Since the lows reached in Q1 2009, asset valuations (both bonds and equities) have increased significantly, particularly in the US. This has been supported by the large central bank asset purchases, which have also helped contain volatility. Related to this, some market participants have raised concerns about increasing “one-sidedness” of markets, pointing to the risk of crowded trades and illiquidity if expectations were to change.

Another unintended consequence of the global stimulus packages and low/negative interest rates has been to compress investment returns across all assets. Especially in debt markets where some European high-yield bonds are now trading at negative yields. The search for yield has driven illiquidity premium lower due to increased demand for more direct, structured and private investments. The majority of these investments are of a much lower liquidity than traditional listed government and corporate bonds.



Impact of central banks' monetary policies

A key factor is the impact of monetary policy on market liquidity. The significant increase in debt levels and shift to risky credit assets has been facilitated by the prolonged period of accommodative financing conditions by central banks. Considering the length of the current economic expansion, a turn in the credit cycle may have significant impact on companies' ability to refinance their high levels of debt. There are further concerns regarding elevated asset valuations, which have been inflated in part by continued monetary accommodation. A broad shift in monetary policy could destabilize investors and leave assets more vulnerable.

In parallel, given the strong linkage and arguments that an abundance of credit and liquidity contributed to the GFC, there are concerns about development of a repeat scenario. Given the large scale of securities held by central banks, it is unclear how the market will react to changes in monetary policies which may represent a significant risk for market liquidity.



Potential liquidity disruptions due to automated trading and concentration of asset ownership

Financial tech innovation, with an increasing share of electronic trading and use of ETFs is another concern with respect to increased liquidity risk. This manifests through greater uncertainty, especially in times of heightened volatility when market makers have been observed to withdraw, just when liquidity is needed most. Some mechanisms involved in automated investments, such as the timing of orders placed and the mechanisms through which the positions are redeemed (eg, orders concentrated at the end of the market session), may also impact market liquidity.

There have been episodes of market fragility since the GFC, with instances of volatility spikes and flash sell-offs. The most recent example was the February 2018 flash sell-off, where crowded positioning and short-volatility strategies led to a reinforcing feedback loop: with a spike in volatility, short-volatility products were forced to unwind which further increased volatility. Other examples include the 2014 flash crash in US Treasuries, and the 2015 Bund yield reversal. The specific causes of these two events still remain unclear, but certainly they evidence potential fragilities in the market liquidity. The market did recover in each instance, but it remains untested at more extreme levels of stress. Furthermore, with existing levels of liquidity, the market has yet to experience significant stress in less accommodative monetary conditions.

A related consequence is that with the broad shift into passive tracker funds and concentrated positions, a few global asset managers have built up a significant and growing market share of corporate bonds. This had led to concerns of increasingly similar trading strategies among institutional investors, which, with the rise in concentration of bond holdings, could amplify market liquidity risk. Another reinforcing negative feedback loop could develop, with the selling of assets reinforcing negative returns and generating additional redemptions.



Liquidity risk is different for re/insurance companies

Re/insurance companies are important players on the financial markets, but the nature of their participation is fundamentally different to that of banks and other financial firms. The insurance business model is sector specific, having an inverted “production” cycle, where payments/premiums are collected upfront and services/claims/benefits provided in the future. The inverted cycle is different from that of other sectors and it makes re-insurers liquidity rich. Insurers are long-term investors, and one of their key activities is matching their assets and liabilities.

Liquidity is a key factor in re/insurers' investment strategies, but it is less of a risk for the sector players than for banks which rely primarily on the wholesale funding market and engage in maturity transformation. At a high level, insurance policyholders have little incentive to surrender their policies during market turmoil and, as insurance liabilities are better matched with assets, the risk of forced asset sales is largely reduced. In addition, insurance companies are much less interconnected than banks and by pooling a large number of risks and by retaining the bulk of the risks underwritten on their balance sheet, potential liquidity issues are likely to be idiosyncratic without industry wide impact.



Chapter 3 –

Liquidity crisis – drivers and the implication for re/insurers

The term “liquidity crisis” refers to tail events that are unlikely, but possible. There can be different drivers of a liquidity crisis, each with potentially significant impact on re/insurers. The focus in this chapter is on the impact on individual firms as opposed to market-wide consequences, while considering both idiosyncratic drivers and market-wide stress triggers. Only situations of inability to meet obligations due to lack of sufficient liquid assets are covered. Inability to meet obligations due to insolvency, as a result of a capital issue, is not in scope.

In our assessment, we assume that re/insurance companies follow prudent liquidity planning and liquidity management. Lack of these are not considered as potential drivers of a liquidity crisis. Further, situations of liquidity issues for re/insurers,⁴ such as in a breakdown of the financial system or the inability to trade any asset for any extended period, are not in scope.

Possible drivers of a liquidity crisis for a re/insurance company

Broadly speaking, a liquidity crisis can be caused by: (1) increased and/or accelerated payment obligations; (2) a reduction in available liquid funds; or (3) both (1) and (2). Therefore, matching of cash in- and outflows is important. A re/insurers’ cash inflows typically are premiums, returns on investments and cash from maturing investments or investment disposals. In normal circumstances, total inflows should be higher than expected outflows.⁵ The reverse represents crisis potential for re/insurers.

Liquidity needs

The table below lists the main drivers that could lead to additional liquidity needs for a re/insurer, and/or to an increase in liquidity needs:

Driver	Resulting liquidity needs
a Loss events, especially catastrophic events (eg, natural catastrophes, pandemics, etc).	Increased and/or acceleration of claims payments, collateral requirements of re/insurance contracts, etc.
b Change of consumer behaviour (eg, mass lapse)	Increase and/or acceleration of claims payments, collateral requirements of re/insurance contracts, etc.
c Adverse financial market developments (eg, rates, FX, etc.)	Increase in collateral for financial derivatives, additional margin requirements (due to depreciation of existing collateral)
d Significant deterioration of a re/insurer’s financial or capital position (eg, evidenced by a credit rating downgrade, reduction in capital surplus or a significant loss of equity)	Increased payment obligations and/or collateral needs (eg, loss or recapture of business, derivatives and reinsurance arrangements)
e Flawed business practices (eg, mispricing/mis-selling of products)	Increase and/or acceleration of payments due to forced lapses, payment of regulatory fines

⁴ The focus is liquidity risk for an operating company. Specific considerations for holding companies are covered in chapter 5.

⁵ Although re/insurers do not heavily rely on new business for their liquidity needs, liquidity management for run off portfolios is more challenging when there is a lack of new business.

The first three drivers (a to c) in the above table are outside of the control of any single firm (ie, external factors) and would usually impact many re/insurers. Drivers (d) and (e) are firm-specific, with impact concentrated mostly on a single re/insurer.



Catastrophic events trigger an increase of insurance payment obligations. Very large disasters and/or high frequency ones can lead to large unexpected liquidity needs and/or payment requirements within a short time. In such extreme cases, an insurer's liquidity position may be under threat, even with reinsurance cover in place because there may be a lag between insurance claims payout and disbursement of reinsurance recoverables.

Collateralization may also have a large influence on liquidity needs. Some contracts require the collateralization of reserves (eg, reinsurance contracts), either due to contractual clauses or regulatory requirements. In such cases, a reserve increase might lead to need for additional collateral. Such payments are usually due within short notice and can put pressure on capital and liquidity. Another relevant aspect are collateralisation requirements for derivatives, which might increase sharply due to capital market stress. This effect has been reinforced by the regulatory changes following the GFC. For example, the increased use of interest rate derivatives means that a move in interest rates may need to be matched with a significant amount of collateral. Other areas where collateralisation requirements have changed or increased in focus are structured finance trades, triggers linked to legal entity or group external credit ratings, liquidity facilities, Special Purpose Vehicles (SPVs), longevity and asset reinsurance, and recapture of collateral upon counterparty default amongst others. This additional complexity should be monitored as part of a robust liquidity risk management framework.

Occurrence of just one of the above drivers is unlikely to bring about a severe liquidity shock. Serious liquidity problems arise when a combination of any of the above effects occurs, concurrent with another event like financial market distress, which is likely to make external financing more complicated and expensive. Such combined effects can be accounted for in the liquidity stress testing by either (1) defining a dedicated combined stress scenario assuming all events occur at the same time; or (2) alternatively, by using shocks based on an internal capital model with modelled or assumed correlations.



Available liquidity

For any given re/insurance firm, the level of available liquidity changes continuously. The main reason is that most liquid assets held by re/insurers are traded, and have instantaneously changing prices. However, other factors could also decrease available liquidity, many triggered in times of financial market stress. These include:

- a reduction in the market value of assets;
- a decrease in traded volumes, leading to longer liquidation times and higher bid-ask spreads;
- downgrades of credit assets, making them ineligible for collateral posting against derivatives and reinsurance contracts;
- limited access to external funding (eg, reduced liquidity in the repo market);
- limited access to internal funding (eg; fungibility of liquid assets between legal entities may be restricted due to local regulations); and
- reduced funding from business operations (eg, lower than expected inflow of premium income from new business, lower profits meaning less dividends up-streamed).

Company specifics

Assessing available liquidity at any given time involves making assumptions (eg, the marketability of a given security, classification of assets). These assumptions are company-specific and should be set to reflect the specific characteristics of a given firm.

Liquidity requirements and available liquidity may differ between re/insurers, and even between subsidiaries of the same company, depending on the following characteristics:

- Reinsurance or primary insurance company
- Written business (P&C or Life)
- Geographic diversification
- Risk appetites
- Corporate structure (eg, set-up of legal entities and related local regulatory requirements. In some situations, there may be regulatory restrictions for internal liquidity transfers, and only transfers from a parent to a subsidiary company in distress may be possible).
- Corporate management (eg, asset-liability management, IFRS management)
- Assets structure (eg, share of available assets, liquidity of assets, use of derivatives)
- Internal (eg, internal loans or sale of assets) and external funding (eg issuance of debt) possibilities. A re/insurer may seek to raise only liquidity or raise both liquidity and new capital. The optimal choice depends on the company's capital management process, rating agencies/financial leverage, timing and costs considerations.



Chapter 4 – Liquidity risk management: survey of current industry practices

As part of our analysis, the CRO Forum surveyed the working group members (17 re/insurers) to understand current approaches to liquidity risk management. The survey covered the following areas:

- key concepts and concerns on liquidity risk;
- stress testing and assumptions;
- liquidity risk metrics and limits;
- monitoring and reporting;
- governance, and
- liquidity risk management planning and infrastructure.

Key survey findings

Based on the survey, our general impression is that the set-up and practices seen across the surveyed firms form a stable basis for liquidity risk management. The participating firms have improved their liquidity risk frameworks significantly in the last 10 years, and most recommendations as listed in chapter 5 are already incorporated into their liquidity risk frameworks.

The following are some key findings from the survey, and a few areas of potential improvement are presented. These findings demonstrate that a tailored, firm-specific approach to liquidity risk management is needed and appropriate.

The surveyed firms cover a broad range in terms of types of business, geographies, risk appetites, etc. As such, their exposures to liquidity risk could differ significantly, leading to different priorities and focus areas of liquidity risk management.

Figure 1:
Answers provided to the survey question: *What are your main concerns regarding liquidity risk management? Please provide your concerns in five key words.*

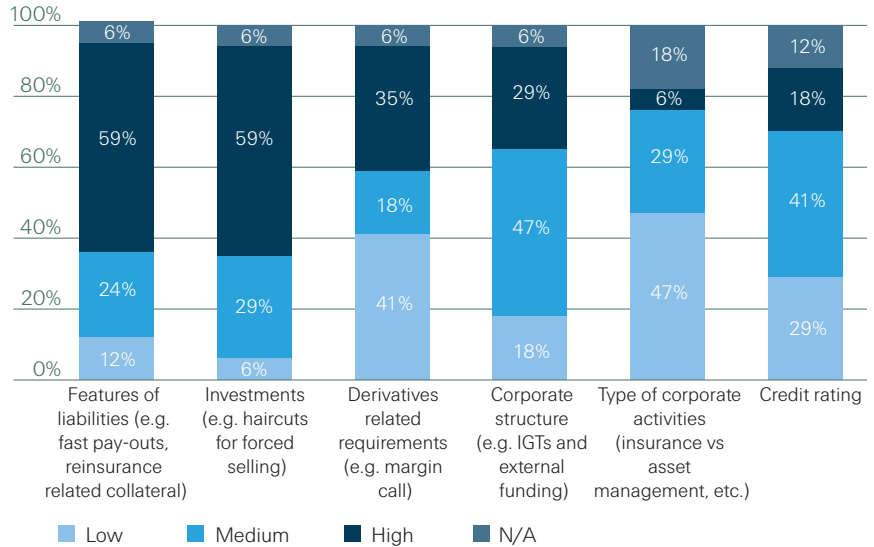


Source: CRO Forum working group survey conducted in early 2019

Perceptions of the main drivers of liquidity risk

According to the survey responses, increases in insurance claims and reinsurance collateral, and the impact of market or liquidity stress on investments are the main drivers of companies' liquidity risk, with 59% of the participants ranking these drivers as of "high importance". Next are derivative-related requirements (eg, margin calls), with 35% calling this of "high importance" (although 41% said this is of "low importance").

Figure 2:
Answers provided to question:
Rank the high-level drivers of liquidity risk based on their importance at your company



Source: CRO Forum working group survey conducted in early 2019

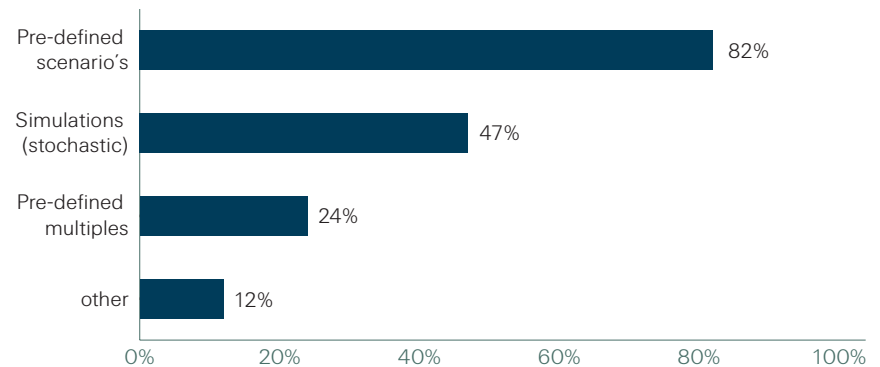
Stress testing and assumptions

To measure liquidity risk, re/insurers do stress testing. The survey covered stress testing from the following aspects: methodology and scenarios, confidence levels and time horizons, and risk metrics.

Methodology and scenarios

The most common method to stress liquidity is via pre-defined (deterministic) scenarios. The majority of participants use multiple scenarios covering a wide range of insurance and non-insurance stress events.

Figure 3:
Answers provided to question:
Which methods are used to stress liquidity?

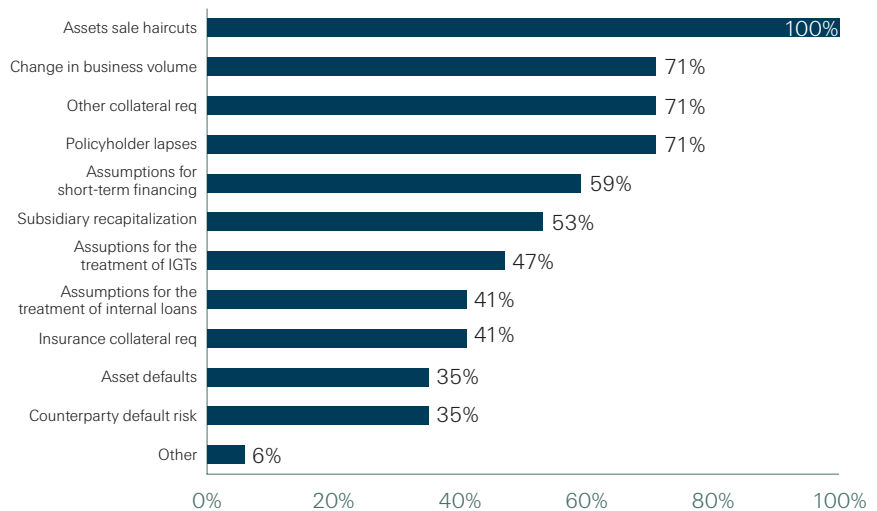


Source: CRO Forum working group survey conducted in early 2019

In addition to the scenarios, re/insurers include various additional assumptions to further stress-test liquidity. The list of such assumptions is shown in Figure 4. Prudent practice would be inclusion of all the listed assumptions in liquidity stress tests but, depending on the types of businesses covered, the set-up, the risk profile and other company specifics, re/insurers may find different assumptions more/less applicable.

Indeed, from the listed assumptions, only asset sale haircuts are applied at every surveyed firm. More than 70% of participants include assumptions for change in new business volumes, policyholder lapses and collateral requirements. For all the other listed assumptions, less than 60% of the survey participants use them in their stress test. For instance, only 41% include an assumption of own credit rating downgrade in their stress tests.

Figure 4:
Answers provided question:
On top of the stress events, which assumptions are part of your stress test?

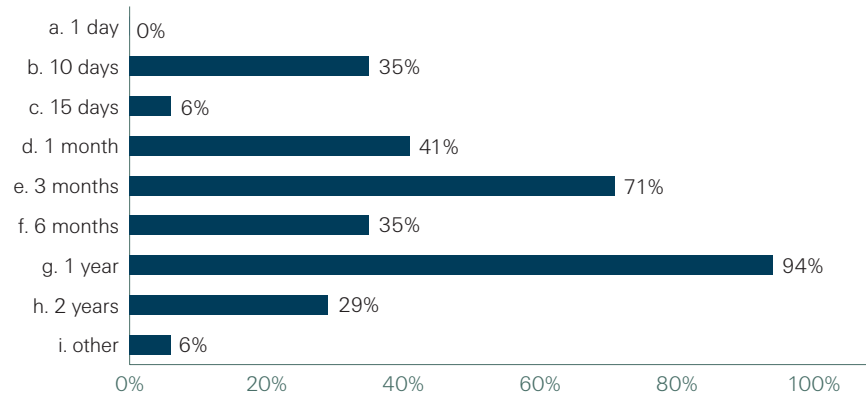


Source: CRO Forum working group survey conducted in early 2019

Confidence levels and time horizons

Around half of the participants use more than one combination of confidence levels and time horizons to calibrate stress scenarios. The most common choice is the once in a 10- to 25-year event for milder scenarios, and a once in a 200-year event for a severe scenario. Common practice is to assess liquidity risk over multiple time horizons. Almost all (94%) of the respondents use the 1-year period. Three months is the second most popular (71%). Only 35% of survey participants consider time periods beyond one year.

Figure 5:
Answers provided question:
Which time horizons are used to assess liquidity risk/coverage?



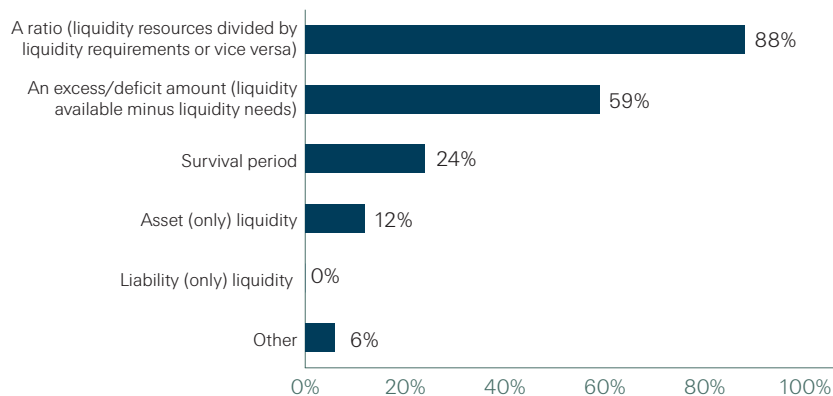
Source: CRO Forum working group survey conducted in early 2019

Liquidity risk metrics

The majority of the survey participants employ different measures of liquidity risk across the group, business units and legal entities. The traditional liquidity coverage ratio (resources over requirements) is the most popular. Sixty percent also report using a calculation covering an excess or deficit liquidity amount. Fewer calculate a survival period for liquidity stresses.

However, even with this information, comparing liquidity positions across different firms is difficult, because of absence of a standard definition of the liquidity ratio (eg, what items are classified as available liquidity vs. liquidity requirements).

Figure 6:
Answers provided to the survey question: *Which metrics have you implemented to measure liquidity risk?*



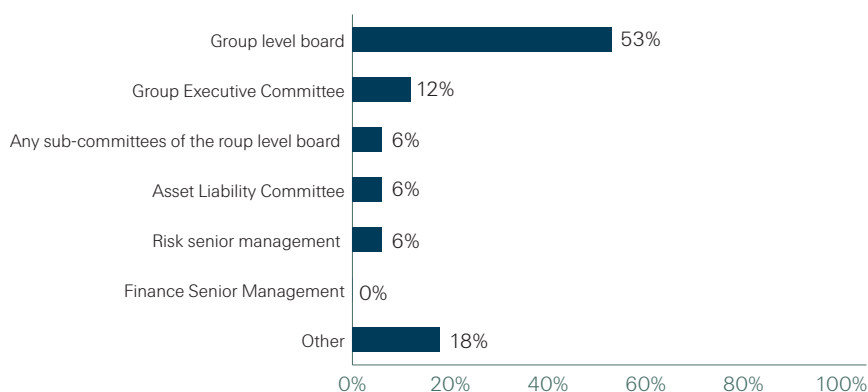
Source: CRO Forum working group survey conducted in early 2019

Organizational set-up and resources dedicated to liquidity risk management

Organisational set-up

Companies need to have appropriate governance arrangements in place such that liquidity risk management is embedded throughout the organisation. As good practice, the risk appetite framework should be set independently (eg, by the Board), supported by other Committees such as the Risk, Investment and/or the Asset and Liability Management (ALM) Committee.

Figure 7:
Answers provided to question: *Who approves the liquidity risk management framework?*

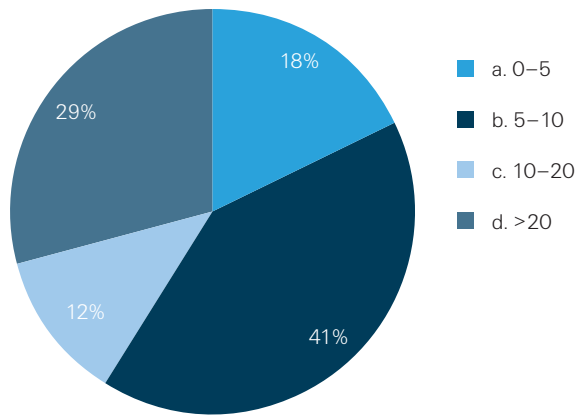


Source: CRO Forum working group survey conducted in early 2019

Resources dedicated to liquidity risk management

We believe that liquidity risk management is of vital importance to ensure that liquidity strain from financial or underwriting shocks does not cause longer term financial or solvency issues. Yet compared to other second-line activities such as capital, operational risk or conduct risk management, only a few people engage in liquidity risk management at re/insurance companies. Half of our survey participants indicated that no individuals are solely dedicated to liquidity risk management at their firms, with a further third reporting only 1 or 2 such individuals. In terms of full-time equivalents (FTE), the outcome is similar, but with larger variation depending on firm size and type of business. Almost 60% of participants have 10 or fewer FTEs managing liquidity risk as part of their overall responsibilities, while 29% indicated to have more than 20 FTEs allocated for that (see Figure 8).

Figure 8:
Answers provided to question:
How many FTEs are partially allocated to managing liquidity risk as part of their roles?

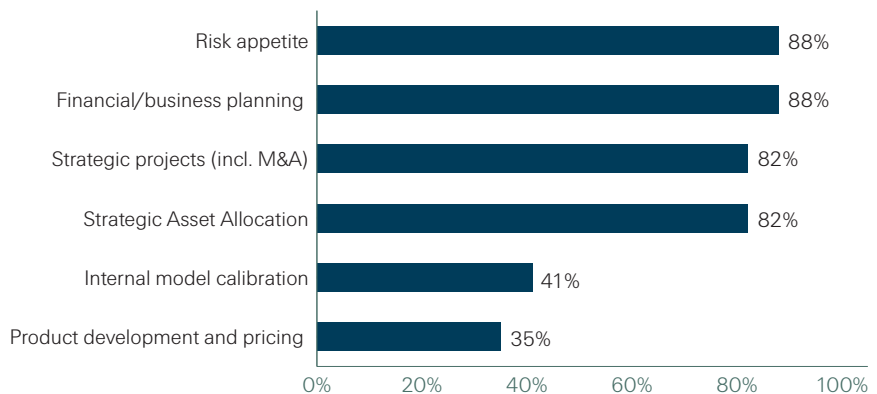


Source: CRO Forum working group survey conducted in early 2019

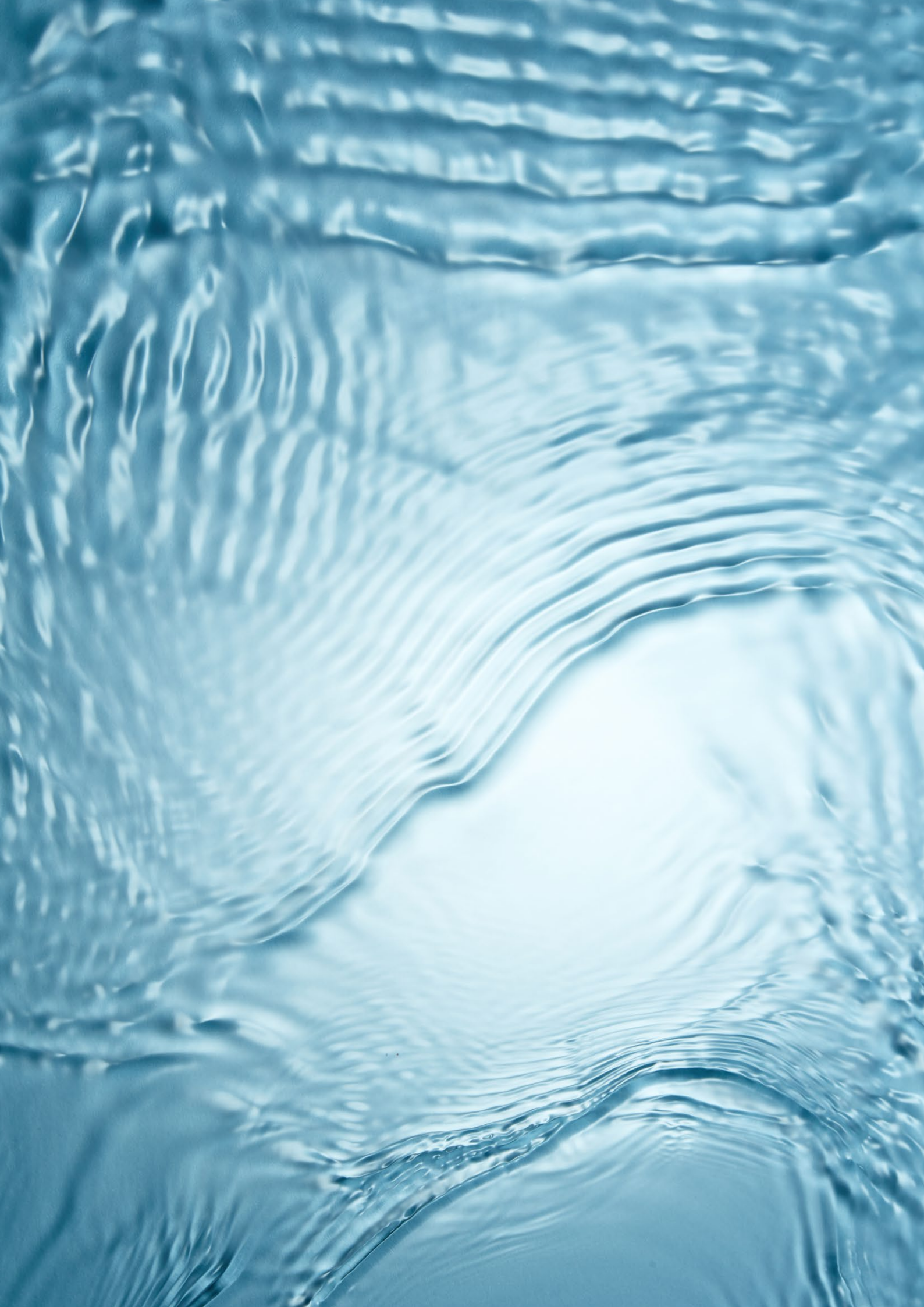
Embedding liquidity risk in business decisions

It is important that the reporting of liquidity risk management is not restricted to the Risk and Treasury teams. Rather, liquidity implications should be considered as part of all strategic decisions. Our survey shows that liquidity risk is considered in most management decisions. Two exceptions are internal model calibration and product development/pricing. In these areas, only 41% and 35% of the survey participants, respectively, indicated that liquidity risk is embedded in associated management decisions.

Figure 9:
Answers provided to question:
Is liquidity and liquidity risk embedded in management decisions?



Source: CRO Forum working group survey conducted in early 2019



Chapter 5 – Recommendations for CROs

A robust liquidity risk management framework is critical for re/insurers to be able to manage and mitigate existing and emerging liquidity risks, and prepare for and withstand the impact of a liquidity crisis. The framework must ensure that re/insurers maintain sufficient liquidity in both normal and stressed environments. To achieve these ends, a liquidity risk management framework should provide re/insurers with the required policies, tools, processes, strategies and governance arrangements to properly identify, measure, manage, monitor and report on liquidity risk.

For any liquidity risk framework, consistency, proportionality and flexibility are key. There is no one-size-fits all for an effective liquidity risk framework. Re/insurers should align their framework with their respective risk profile and appetite, these in turn determined by their individual organisational, capital and investment structures, and the type/nature of their products. The following recommendations are aimed for CROs and risk managers when setting up or reviewing a liquidity risk framework. Alongside the recommendations, observed industry practices are also shown, based on the CRO Forum survey.

The recommendations are intentionally generic, for use by a wide range of re/insurers.

Governance

Recommendation: As part of their liquidity risk management framework, re/insurers should define and document key governance processes around liquidity risk management. These processes should be defined according to the company specifics (business mix, legal entity structure, risk appetite etc). The areas covered should include but not be limited to:

- processes of risk identification;
- processes of risk measurement, including procedures to detect a potential liquidity stress event using early warning indicators;
- liquidity risk limits and targets;
- procedures around monitoring and reporting;
- procedures of escalation and other communications;
- roles and responsibilities related to liquidity risk management; and
- processes to periodically review and update governance procedures.

In addition, for effective liquidity risk management, the following should be integral to the governance process:

- establishment within the risk framework of a liquidity risk appetite appropriate for the business, optimally validated (or set) by the Board or a sub-committee;
- the setting of liquidity risk limits consistent with the risk appetite; and
- arrangements to ensure that liquidity risk is considered in all major business activities and decisions, including financial and business planning, strategic asset allocation, asset liability management, M&A activities, product development and pricing.



Observation: All participants in the survey have liquidity risk limits in place, mostly based on the used stress scenarios. In other cases, limits are based on exposure.

Liquidity contingency plan

We recommend that re/insurers develop individual liquidity contingency plans as part of their liquidity risk framework, comparable to an emergency procedure that clearly sets out:

- procedures to detect a potential liquidity stress event using early warning indicators;
- a pre-defined list of contingency liquidity resources in the case of a stress event, for each legal entity or segregated account as appropriate;
- procedures and governance to activate the contingency plan, consistent with the firm's risk appetite;
- procedures and governance to decide when to implement the appropriate response to a liquidity stress event, and monitor the implementation;
- the process for internal and external communication; and
- the process to periodically test and update the plan.



Observation: Most of the surveyed re/insurance firms have a pre-defined contingency plan in place.

Setup and basic assumptions

Scope and granularity

Recommendation: Liquidity risk should be measured and monitored at the appropriate level of granularity (generally legal entity or segregated account), to duly recognise liquidity requirements and transferability restrictions imposed under applicable laws, regulations or supervisory requirements.

Recommendation: Re/insurers should have the adequate processes in place for liquidity planning under normal circumstances, allowing for detailed cash flow projections of liquidity needs and resources throughout the plan period. These should serve as a basis for the liquidity stress tests (applying stress scenarios and additional stress assumptions) and when measuring liquidity risk.



Observation: Based on the findings from the CRO Forum survey, common industry practice is to assess liquidity risk both at group and at legal entity level.

Time horizon

Recommendation: Insurers should ensure that liquidity risk is measured over one- or several-time horizons that best reflect their risk profile and business model.



Observation: Common industry practice is to measure liquidity risk over a few time horizons. Our survey finds that the time horizons used range from 1 week (shortest) to the entire run-off period (longest).

Liquidity resources

Recommendation: When measuring liquidity resources, insurers should ensure that the nature and amount of the eligible resources considered are realistic and consistent with the assumed time horizon. Broadly speaking, liquidity resources should comprise cash, committed funding and liquid invested assets. When liquid assets are measured, insurers should take into account the nature, duration and liquidity of the assets, in the following context:

- time required for liquidation: only the most liquid types of assets can be liquidated at short notice; and
- only assets which can be accessed and controlled at all times can be liquidated.


For some asset classes (or ratings), the stress test should also reflect that assets could be liquidated:

- at a deteriorating price due to a shallow market; and/or
- only up to a limited volume.

Assumptions used to measure available liquidity in times of stress could be based on past experience, expert opinion, simulated shocks or any combination of these. In all cases, they should be tailored to company specifics. The assumptions should also be periodically reviewed to make sure they keep abreast of latest developments (eg, change in market dynamics, supervisory requirements, etc).

We further recommend that insurers define further stress assumptions on:

- the draw-down of existing liquidity;
- access to external funding such as new debt issuance or repo operations;
- reduction of new business inflows; and,
- reinsurance recoveries as appropriate for the insurer, depending on the time horizon.


 **Observation:** To account for the potentially limited liquidity in times of stress, all surveyed companies include assumptions for asset sale haircuts in their liquidity risk framework. The majority include assumptions for reduced funding from business inflows. There is a mixed picture with respect to the assumptions for external funding and draw-down of existing facilitates, depending on type of funding.

Liquidity needs

Recommendation: When measuring liquidity needs, re/insurers should take all relevant outflows into account, with due consideration of the time frame under which the need emerges. The relevant outflows can include:


- policyholders cash flows (claims, including catastrophe claims, lapses, surrenders);
- payments, margin calls and collateral exchanges related to derivatives and repos;
- when applicable, collateral needs from reinsurance activities;
- the maturation of financial instruments issued (eg, debt) or financial contracts (eg, repos);
- dividends to shareholders or parent company;
- tax obligations; and
- payments related to internal financing

We recommend that re/insurers also distinguish between requirements in normal and stress periods. Some payment obligations are only triggered in stress periods (conditional on the occurrence of a specific stress event, like a credit rating downgrade). On the other hand, re/insurers are able, and might decide to postpone other requirements in stress, which they would not do in normal times (eg, dividend payments).

 **Observation:** Most of the liquidity needs, listed above, are considered by all surveyed firms.


Correlations

Recommendation: Careful consideration should be given to correlations within the liquidity risk management framework. The combination of expert judgment and modelling used to derive the correlations should be subject to robust testing to ensure liquidity requirements are calculated effectively, and that sources are available in sufficient amounts to meet the company's risk appetite.

 **Observation:** Two third of the survey participants include assumptions for correlation between financial market and insurance risks in their liquidity risk management framework. These assumptions are either set explicitly, or are implicit by using shocks in the liquidity stress scenarios that are derived from the internal capital model.

Metrics to measure liquidity risk

Recommendation: For comparability, the metric used to measure liquidity risk should not vary too much over time. However, adjusting the metric for some entities of the re/insurer may be beneficial, depending on the nature of their business. Using multiple metrics consistently over time might provide more information on liquidity risk and can thus be beneficial.


 **Observation:** Standard industry practice is to track more than one metric. The use of a liquidity ratio (liquidity resources divided by liquidity needs, or vice versa) is the most common metric, followed by excess/deficit of liquidity (available liquidity minus liquidity needs).

Stress scenario and assumptions

Recommendation: Re/insurers should assess liquidity risk under normal and stress environments, considering multiple stress events together with additional stress assumptions for example:

- distressed financial markets;
- large-scale insurance events with significant liquidity impact (eg, major catastrophes);
- assumptions on the use of external facilities or reliance on certain market instruments being available;
- a credit rating downgrade of and/or confidence crisis towards the insurance company;
- loss of new business;
- restrictions on internal flows of funds; and
- other stress factors deemed most relevant in terms of liquidity impact on the company.

Prudent practice is to implement one or several sets of stress scenarios (eg, with increasing severity).

 **Observation:** Re/insurers commonly use multiple scenarios for liquidity stress tests (either constructed based on a single stress event, or multiple stress events). Mass lapse, financial market downturn and catastrophe events are the most often used in the modelling of liquidity scenarios.

Monitoring and reporting

Effective liquidity risk monitoring and reporting processes ensure that accurate and timely information is available in both normal and stress environments, to enable informed decision making.

Recommendation: When defining processes around monitoring, re/insurers should consider the following:

- the purpose of the reporting and the target audience;
- scope and frequency of regular reporting;
- ad hoc reporting in case of unexpected external events with significant impact on liquidity;
- materiality levels; and
- reports review (key reports could be reviewed by a function not involved in report preparation).

Once again, these processes should be defined in alignment with company specifics e.g. business activities and business cycles, corporate structure, risk appetite etc.



Observation: All surveyed participants monitor and report liquidity risk in normal and stress circumstances. Quarterly reporting is the most common frequency for stressed liquidity, and monthly reporting for non-stressed.

Recommendations for groups and holding entities

Though not the main focus of this paper, we provide here some recommendations for the liquidity risk management of re/insurance groups and holding entities. Holding entities have significantly different liquidity risk profiles from operating insurance entities. We therefore recommend that holding entities monitor and manage their own liquidity position in connection with their specific activities (eg, financing and capital allocation). This entails giving thought to:

- potential capital injections to local entities in capital shortfall after stress;
- potential liquidity injections to local entities in liquidity shortfall after stress; and
- liquidity needs specific to the holding entity's own activities.

We also propose defining stress assumptions with respect to internal financing transactions, callable debt, access to short-term funding, senior- and subordinated debt programs. Such assumptions can help to make the liquidity risk framework more prudent.

Asset Liability Management considerations

Managing liquidity risk across a group's multiple entities, accounting and regulatory capital balance sheets can be a complex task. The key areas to consider are:

- How restrictions across the business impact the flows of funds under stress. The restrictions could be any of the following:
 - Local capital or regulatory requirements. For example, the matching adjustment portfolio for life insurers effectively ring-fences an annuity provider's largest pool of liquid assets, preventing it from being used to fund non-matching adjustment liquidity requirements.
 - Depending on which balance sheet is being hedged (accounting or regulatory), there will be alternative liquidity requirements based on the choice of hedge used. Insurers should recognise how hedges impact capital levels, accounting sensitivities and generate liquidity needs.



Chapter 6 –

Insurance specific regulation: an overview

Current state of regulatory requirements

Developments in management and regulation of liquidity risk for the financial services industry have their roots in the banking sector. Compared to the evolution of a wide range of liquidity risk management practices in banking during the last decade, similar developments in the insurance sector have been more limited.⁶ This is due to the very different liquidity risk profile of re/insurers than banks shaped by their different business models. With the inverted production cycle of core insurance activities, particularly in life business given the long-term liabilities there, insurers are less exposed to liquidity risks than banks. A one-size-fits-all approach to applying banking rules to insurance companies is therefore not meaningful.

All told, re/insurers have been exposed to liquidity risk in previous crises, and there are some common factors with respect to liquidity risk across financial sectors. Market trends can materially impact the liquidity situation in stressed market environments if not properly reflected in the asset structure. For example:

- An interest rate hike may change the profile of option-embedded insurance contracts.
- It could even change market fundamentals such as trading volumes, as happened after the GFC when, although overall volumes remained mostly stable, the average trading size decreased in some markets.
- These trends may affect liquidity risk through changes in funding sources and customer behaviour regarding the options embedded in financial products.
- Such liquidity risks can also be triggered by specific or external events, such as credit rating downgrades of an individual insurer or the entire sector.

The regulatory liquidity risk rules for insurers have been evolving in the wake of the GFC, but the level of detail and extent of current requirements varies widely across jurisdictions. In Asia, for example, regulators often address liquidity by issuing general guidelines. In other regions, regulations like Solvency II define liquidity risk as one of the core

areas of risk management, and specific areas of the regulation include certain liquidity requirements, (eg in relation to investment requirements (prudent person principles⁷), management of short and long-term liquidity risk⁸ and reporting requirements in the Solvency and Financial Condition Report).

An increased focus from national regulators can be observed on aspects of liquidity risk management and planning. The guidance provided by the IAIS for Global systemically important insurers (GSIs) is often used as a reference⁹. These specifically require:

- incorporation of liquidity risk in insurers' risk policies and risk appetite, and a proper risk governance and risk management framework;
- a liquidity assessment across suitable time horizons under best estimate and plausible stress scenarios; and
- dedicated reporting activities.

The following table provides a summary of current key liquidity risk requirements for re/insurers across several jurisdictions:

Table 1: Key liquidity risk guidelines and requirements across different financial regulations

	Liquidity risk covered in Risk Policy	Liquidity risk management governance	Stress scenarios / Time buckets	Liquidity risk KPIs	Reporting requirements	Liquidity plan / Cash Flows projection	Consideration in SAA and hedge strategy
International/IAIS	X	X	(X)	(X)	(X)		
Europe/EIOPA		X			X	X	X
Europe/UK		X	(X)	(X)	X	X	X
Europe/Belgium				X	X	X	
Asia/HK	(X)				(X)		(X)
Asia/Singapore	(X)	(X)	(X)				
Switzerland/FINMA		X	X	X	X	X	
USA/NAIC				X	X		

x: requirements
(x): guidance and recommendations

6 Basel Committee on Banking Supervision (BCBS), International Organization of Securities Commissions (IOSC), IAIS; The management of liquidity risk in financial groups, 2006
7 IAIS, Guidance on Liquidity Management and Planning, 2014
8 Delegated Regulation (EU) 2015/35, 2015
9 Guidance on Liquidity Management and Planning, IAIS, 2014

Most of the requirements regarding liquidity are of qualitative nature, as also indicated by the CRO Forum survey respondents. Only 6% of our survey respondents indicated that regulatory requirements include pre-defined quantitative requirements.

Recent developments and outlook

Financial supervisors are conducting various analyses and studies to investigate potential risks arising from liquidity issues in the re/insurance sector. For example, since 2017 the IAIS has been developing an activities-based approach (ABA) for evaluating and mitigating systemic risk in the insurance sector. As part of finalization of the “holistic framework for systemic risk in the insurance sector” which should be finalised by November 2019, the IAIS launched a public consultation on revised Insurance Core Principles and ComFrame, based on the results of a previous public consultation from November 2018.¹⁰



The IAIS proposes several requirements (primarily qualitative and micro-prudential), including monitoring and management of liquidity risk; establishment of a dedicated governance process; strategies, policies and appropriate metrics for the assessment of liquidity; stress-test scenarios and safeguards able to address possible liquidity shortfalls; and processes of reporting to the regulator. Potential quantitative stress-based and qualitative liquidity planning

requirements are in discussion. (Non-binding) liquidity risk metrics may be developed as monitoring tools in order to identify trends in insurers’ and sector liquidity. Data on liquidity needs is expected to be similar to inputs required by the current GSII data template and fungibility may be accounted for by either a quantitative reflection in the proposed metrics or solely by its monitoring. With respect to ALM/investment policy, re/insurers may be subject to minimum criteria for investment quality, liquidity and geographical location of their investment portfolio. The IAIS also proposes to extend the GSII requirement for a liquidity risk management plan to all insurers.



Elsewhere, the European Insurance and Occupational Pensions Authority (EIOPA) has been analysing liquidity risk in a step-wise approach,¹¹ which should identify measures for enhanced reporting, options for enhanced monitoring and (currently assessed as unlikely) liquidity requirements. EIOPA aims to use the work in order to address the macroprudential topic on “liquidity risk management planning and liquidity reporting” contained in the Call for Advise in relation to the Solvency II Review 2020. The discussed measures for enhanced reporting should help identify those products and activities more prone to liquidity risk, and may require further data disclosures from re/insurers beyond those applicable to current Quantitative Reporting Template (QRT) reporting under Solvency II (eg, more detailed information regarding

derivatives or data on liquidity of insurance liabilities). As far as liquidity monitoring by supervisors is concerned, appropriate metrics would be required to assess the liquidity of assets vs liabilities, sources vs needs, and unencumbered vs total assets. Possible minimum liquidity requirements supplemented by time-varying add-ons during times of stress is another potential area of investigation.

In the UK, meanwhile, the Prudential Regulatory Authority (PRA) initiated a consultation in early 2019 on proposed new requirements for liquidity risk management in re/insurance.¹² Requirements with respect to risk strategy and appetite (including contingency plans) are expected to be formalised in a written policy, which insurers will need to adhere to in their organisational structure. Regular liquidity risk reporting to senior management requires consideration of normal and stressed (single and combined) conditions under different time horizons, and use of quantitative measures able to serve as early warning indicators for emerging risks. Materiality analysis for liquidity risk should include on and off-balance sheet positions, risk concentrations, FX risk where relevant, funding and franchise risk. Liquidity risk should be analysed at legal entity and fund level (eg, non-profit, participating and unit-linked funds), and should also consider group-specific risks, collateral and other transaction risks, where an exchange of assets has a material difference in asset quality (eg, stock lending). A liquidity risk and controls system should be in place for such transactions.

¹⁰ IAIS, Activities-Based Approach to Systemic Risk, IAIS 2017; Holistic Framework for Systemic Risk in the Insurance Sector, IAIS 2018, Public consultation: Revisions related to the Holistic Framework for Systemic Risk in the Insurance Sector, IAIS 2019

¹¹ Other Potential, Macroprudential Tools, EIOPA 2018; Discussion Paper on Systemic Risk and Macroprudential Policy in Insurance, EIOPAMarch 2019

¹² PRA, Liquidity risk management for insurers, 2019



Chapter 7 – Conclusion

The GFC prompted an unparalleled monetary stimulus and regulatory reform response. Central banks have purchased large amounts of assets in order to support the markets and promote economic growth. In doing so, they have increased the size of their balance sheets significantly, leading to an era of artificially low market volatility and broad liquidity availability.

A number of regulations have been introduced as a result of the GFC, designed to prevent a repeat experience. While shoring up bank balance sheets, arguably the regulations have also introduced new uncertainties around liquidity management. New mechanisms like automated trading have yet to be tested in periods of high stress and where accommodative monetary policy support is removed. After initiating a gradual pull back of accommodative monetary conditions implemented since the great financial crisis, central banks seem to have reversed their stance in 2019 and willing to renew their accommodative measures, e.g. the US Fed cutting its benchmark rate for the first time in over a decade. However it remains uncertain whether the buying support will continue in the long term and there may be circumstances where bonds will need to be reabsorbed by the market, which could have an adverse impact on the continued functioning of markets.

We believe the issue of how liquidity conditions adjust to monetary policy normalisation will remain a prominent theme for market participants for a while yet. Additional uncertainties arise as the provision of bond liquidity has shifted from dealers to bond investors, the latter increasingly concentrated in asset management funds. There are concerns that self-reinforcing dynamics of liquidity conditions during periods of market stress could amplify the fragilities in the current liquidity system.

Re/insurers need to have a robust liquidity risk management framework tailored to the firms' specifics in place, one that ensures liquidity adequacy in both normal and stress environments. A re/insurer that can identify emerging drivers of liquidity risk, and monitor, measure, and manage liquidity risk and future gaps for the purpose of escalating/reporting on liquidity risk and associated events, is best positioned to recognise a developing liquidity crisis and to mitigate adverse impact. Those firms not well prepared could face a hit to both sides of the balance sheet in the event of a liquidity crisis.

Insurance regulators have become much more aware of liquidity risk since the GFC. Supervisory authorities in many jurisdictions are conducting analyses on liquidity risk, and these will likely yield new regulatory requirements. Although the guidance given by the IAIS is often used as a reference, quantity and quality of regulatory requirements differ significantly across different jurisdictions. It also remains to see if new requirements will bring unintended side effects for individual insurers and/or the whole sector.

Although our understanding of liquidity risk, as well as the tools and methods used to assess it, have improved significantly since the GFC, the ever-changing landscape in which liquidity risk needs to be managed will present risk managers with new challenges.

Emerging market mechanisms and the unintended consequences of the reactions to the GFC have led to new uncertainties. The resulting market dynamics are yet to be tested in periods of high stress. In order to prepare for such times, risk managers should ensure that prudent liquidity planning and good liquidity risk management practices are implemented.

References

- > BIS – market liquidity – sp160506
- > BIS FI market liw cgfs55
<https://www.nber.org/papers/w16609.pdf>
- > NYFed paper
https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr796.pdf
- > FASANARA Capital - Financial Complexity Book
- > BIS Quarterly Review March 2019 – International banking and financial market developments (https://www.bis.org/publ/qtrpdf/r_qt1903.pdf)
- > The Field Effect – BNY Mellon: Collateral Management (Oct 215)
- > https://www.esma.europa.eu/sites/default/files/library/esma50-165-639_esma-rae_asr-derivatives_2018.pdf
- > https://www.bis.org/publ/qtrpdf/r_qt1806b.htm – CDS market
- > https://www.bis.org/publ/qtrpdf/r_qt1706b.pdf
- > https://www.bis.org/publ/otc_hy1810.htm

Disclaimer:

Dutch law is applicable to the use of this publication. Any dispute arising out of such use will be brought before the court of Amsterdam, the Netherlands. The material and conclusions contained in this publication are for information purposes only and the editor and author(s) offer(s) no guarantee for the accuracy and completeness of its contents. All liability for the accuracy and completeness or for any damages resulting from the use of the information herein is expressly excluded. Under no circumstances shall the CRO Forum or any of its member organisations be liable for any financial or consequential loss relating to this publication. The contents of this publication are protected by copyright law. The further publication of such contents is only allowed after prior written approval of CRO Forum.

© 2019 CRO Forum

The CRO Forum is supported by a Secretariat that is run by KPMG Advisory N.V.
Laan van Langerhuize 1, 1186 DS Amstelveen, or
PO Box 74500, 1070 DB Amsterdam
The Netherlands

www.thecroforum.org

