

# Liquidity risk management

## A good practice guide for Managed Investment Schemes

April 2020

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[fma.govt.nz](https://fma.govt.nz)



0800 434 567



[questions@fma.govt.nz](mailto:questions@fma.govt.nz)



# Introduction

## About this guide

In July 2018 IOSCO (the International Organization of Securities Commissions) recommended that regulators devote closer attention to the liquidity stress testing practices of open-ended collective investment schemes, to protect investors, ensure fair and efficient financial markets and reduce systemic risk. The recommendation was aimed at addressing some of the structural vulnerabilities in the asset management sector that were exposed during and after the global financial crisis (GFC).

The Financial Markets Authority (FMA) has published this good practice guide to provide Managers of Managed Investment Schemes (MIS Managers) with details of good practices for liquidity management and stress testing. We encourage the adoption of these practices in a manner suited to each individual fund/s.

## The current environment

Global uncertainty escalated sharply during 2019, and the ensuing slowdown in the global economy further increased this uncertainty. Strong equity markets served only to heighten the probability of a correction. Under these circumstances, preparedness for a sudden and/or sustained adverse turn of events became increasingly important for Boards, executives and risk management across the financial services sector, as well as for the FMA.

As a consequence of these developments, the FMA decided to prioritise issuing a liquidity management good practice guide for New Zealand funds. Current events, in particular the COVID-19 pandemic, have prompted us

to release this guide earlier than planned. Stress testing, with consequent development of action plans, is recognised as a necessary good practice in dealing with such extreme but foreseeable systemic risks.

This guide is intended to ensure that MIS Managers are well placed to manage liquidity risks of varying severity they may be experiencing or may experience in the near, medium or longer term. The guide contains principles and practices for liquidity stress testing and related management, sourced from a range of authoritative international sources.

## Next steps

We encourage MIS Managers in New Zealand to actively consult and use this guide to ensure they have 'fit-for-purpose' liquidity management and stress testing practices in place. We further encourage MIS Managers to engage with their Supervisor on their plans for liquidity risk management and stress testing practices.

The stress testing liquidity survey we have previously emailed MIS Managers about has been put on hold in order to prioritise this guide. Once the markets are more settled, we will send out the survey. We will update this guide following our assessment of the survey responses, and will release a new version in due course.

# Purpose of this guide

This guide has three primary purposes:

1. To remind MIS Managers we supervise of our expectations of them in relation to risk management, and in particular managing liquidity risk at a time of heightened market uncertainty and volatility globally. The information in this guide is also relevant to Supervisors in relation to their frontline regulatory oversight of MIS Managers. Recent geopolitical events, the failure and/or closure of a number of large funds, and the evolving COVID-19 pandemic highlight how market sentiment can shift dramatically, when investors' 'perceived control' is undermined by events.
2. To share good liquidity risk management practices that emerged in the wake of the GFC and that have particular relevance to current events, as well as the work of the Financial Stability Board (FSB) and IOSCO:
  - Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities – FSB (2017)
  - Recommendations for Liquidity Risk Management for Collective Investment Schemes Final Report. IOSCO (2018).
3. To provide context for MIS Managers in preparation for the survey of MIS liquidity risk management practices we intend undertaking later this year (or when it can reasonably be scheduled). The survey may ask about MIS Managers' responses to the COVID-19 pandemic.

## Scope

The definition of a Managed Investment Scheme (MIS, or fund) under section 9 of the Financial Markets Conduct Act 2013 (FMC Act) is broad, and includes what are referred to in other jurisdictions as collective investment schemes, and most schemes involving participatory securities. These schemes can be structured in different ways, and may invest in a wide range of investments. They can be open-ended (offered continuously) or close-ended (more equity-like). This guide is primarily focused on 'managed funds' as defined in section 5 of the Financial Markets Conduct Regulations 2014, given the inherent vulnerability of these funds to any market liquidity issues.

## Our expectations

Part of the FMA's role as regulator is to build and promote investor understanding and confidence. In fulfilling this obligation we have certain expectations of the MIS Managers and Supervisors.

The key responsibility for proper liquidity risk management lies with the MIS Manager. This includes:

- How their measures to address liquidity risk management take into consideration the particular characteristics of a fund, including:
  - its investment objectives and investment strategy;
  - its dealing frequency;
  - its investor base;
  - the nature of the assets under management; and
  - its liquidity needs under a range of market conditions.
- Making adjustments to implement any tools in response to deterioration in fund-specific or market liquidity conditions.

Supervisors must comply with the Financial Markets Supervisors Act 2011 (the FMS Act) and supporting regulations.

The FMC Act Part 4 specifies various provisions and obligations that apply to Supervisors. Of particular relevance to this guide are:

- oversight of investors' interests for MIS
- working with the FMA as a frontline regulator to act in the best interests of investors.

# Liquidity risk management principles

This section presents a set of good practice principles to strengthen MIS liquidity risk management capabilities and practices. The principles are directed at the level of the MIS Manager. As frontline regulators, Supervisors have a role in the oversight of the liquidity management capabilities and practices employed by MIS Managers.

The principles cover three closely related topics:

- Governance and infrastructure
- Liquidity risk management capabilities
- Role of Supervisors and the FMA

## Governance and infrastructure

### Principle 1 - Governance

The MIS Manager's liquidity risk management capabilities and practices should be subject to strong governance arrangements.

- The MIS Manager's board and senior management should promote the identification, assessment and management of liquidity risks as part of its overall risk management framework.
- The MIS Manager's board and senior management should review and approve the entity's liquidity risk management framework (LRMF), ensure that adequate resources are deployed and that full regard is given to the objectives of protecting investors, ensuring fair and efficient financial markets and reducing systemic risk. Where appropriate, there should be independent oversight of the review of the LRMF, to the extent possible based on the MIS Manager's size and governance structure.
- The MIS Manager's liquidity risk management practices should be fully documented and subject to high standards of validation, and considered as part of any fund structuring, product development, and related process and change initiatives.
- The MIS Manager is responsible for determining its own liquidity risk reporting requirements. We recommend that the MIS Manager consider how well their LRMF aligns with the principles set out in this document. Liquidity risk reporting should include liquidity risk early-warning metrics (and supporting triggers and flags) and should account for the correlation between measures e.g. valuation and liquidity.
- Controls for managing the MIS Manager's liquidity risk management processes should be part of the compliance assurance programme, which should include in-depth testing of processes and controls.

## Principle 2 - Liquidity risk framework and strategy

The MIS Manager should have a sound process and strategy for identifying, measuring, monitoring and managing liquidity risk in a way that is compliant with New Zealand law and regulation. This process should be supported by liquidity risk management policies and procedures that form an integral part of the broader risk management framework to achieve alignment between the fund's redemption terms and its investment strategy.

- The minimum standard of 'Scheme formation' for MIS Managers requires the MIS Manager to consider the liquidity risk of the underlying investment products when forming an investment strategy.
- The LRMF, strategy and supporting processes should:
  - Clearly articulate a liquidity risk tolerance that is appropriate for the fund's investment strategy and its role in the wider financial system.
  - Consider and cover situations and circumstances across a range of market conditions, including extreme adverse but plausible conditions.
  - Be appropriate, relevant and sufficiently bespoke for the fund/s under management by considering and addressing particular characteristics, including:
    - investment strategy
    - target investor base
    - investor profiles
    - concentration and expected redemption patterns
    - size of the fund relative to the underlying market
    - distribution channels
    - asset selection.
  - Consider, measure, and evaluate liquidity risk at both individual asset level and portfolio level, and ensure alignment and consistency with redemption obligations (and other liabilities).
  - Include a robust framework for comprehensively projecting cash flows arising from assets, liabilities and off-balance sheet items over an appropriate set of time horizons.
- The MIS Manager should integrate liquidity management in investment decisions and consider the liquidity of individual assets/asset classes and the portfolio as a whole, as an integral and routine part of the investment management process.

### Principle 3 - Product offering and investment strategy alignment

The MIS Manager should ensure that fund dealing arrangements (subscription and redemption) are appropriate for its investment strategy and product offering, from the product design phase and throughout the entire product lifecycle.

- The MIS Manager should explicitly:
  - Assess the suitability of its product offering against the investment strategy and vice-versa, under a range of market conditions (normal and stressed)
  - Determine and validate a suitable dealing frequency for units in the fund<sup>1</sup>. This should include seeking ‘strong assurance’ that redemptions can be met under both ‘normal’ and ‘extreme but plausible’ market conditions.
- The MIS Manager should have in place tools that can be deployed if and when redemption obligations cannot be met in the ordinary course of business, so it can operate in a prudent and orderly fashion in the best interest of investors.
- The investment strategy should not rely on the availability of liquidity management tools (LMTs) – these should be designed and intended only for contingent use (see Principle 7).
- LMTs should be evaluated for appropriateness, considering asset types and investor base, and only used if their use does not compromise the fair treatment of investors.

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1. Seeking a particular tax treatment or a wider target market is no excuse for an inappropriate dealing frequency.

2. Refer to:

- [Section 142 of the FMC Act](#) *Management and administration functions of manager*
- [Section 143 of the FMC Act](#) *General duties applying in exercise of manager's functions*
- the minimum standards for MIS Managers ‘Investment monitoring’

## Liquidity risk management capabilities

### Principle 4 – Monitoring and reporting

The MIS Manager should undertake continuous monitoring and reporting of fund liquidity profiles, to ensure that appropriate levels of liquidity are maintained in its funds. This should take into account the liquidity available in the underlying asset market(s) and redemption flows or other liabilities. Relevant thresholds and targets should be established to assist in this process.

- The MIS Manager is responsible for managing the scheme property and investments<sup>2</sup> which includes the obligation to appropriately implement, monitor and review liquidity risk.
- The MIS Manager should be in a position to identify emerging or evolving liquidity shortages before they impact the fund, and ensure that management reports enable and support proactive and sustained visibility of liquidity risks in a reliable way.
- The MIS Manager should regularly measure, monitor and manage liquidity. The frequency should match market conditions e.g. daily and intraday during times of extreme market uncertainty or volatility. For the monitoring to be effective, it should be based on up-to-date and reliable data, and be complemented by stress testing and appropriate contingency planning.
- The MIS Manager should set appropriate liquidity thresholds which are proportionate to the redemption obligations and liabilities of the fund/s. These should include internal limits aligned with fund strategy, that consider fair treatment of investors and that drive decision-making. These thresholds should act as a signal to carry out more extensive liquidity analysis and take appropriate remedial steps if vulnerabilities are identified.
- The MIS Manager should at a minimum measure time to liquidate, the price impact of liquidation, and settlement timing and lags (including the dependence of each of these on market risks).
- The MIS Manager should monitor and manage large redemptions from investors representing significant concentration, given the impact this could have on the liquidity profile of the remaining fund.
- The MIS Manager should periodically review and assess the effectiveness and 'fit-for-purpose' nature of its LRMF, capabilities and processes. This should include challenging and validating these in the light of events and experience, and expediting any changes considered necessary as a consequence e.g. valuation models should reflect the underlying markets for the assets (that is, relative frequency of trading).

## Principle 5 – Disclosure and communication

The MIS Manager should disclose information and communicate on a regular basis to current and prospective investors, to enable them to make informed judgements about the soundness of the fund's liquidity risk management framework and liquidity position, and the relevance for their holdings in the fund.

- The MIS Manager should make sure investors are aware of the liquidity risk they could be exposed to. Investors should be provided with clear, concise and effective information to be able to assess whether the fund is compatible with their risk appetite and make an informed investment decision. For example, requirements under the FMC Act ensure that liquidity risk disclosure is provided to investors through the PDS document<sup>3</sup>.
- Where aggressive LMTs are included in the design of the fund, information on how the LMT would operate and its impact on investors should be clearly disclosed to prospective investors.
- Communications and disclosures to investors should be made proactively through the MIS Manager's distribution channels and not left to investors to read the terms and conditions.
- Communication with investors, regulators and other stakeholders during times of fund-specific or market-wide stress should be more frequent and more detailed, taking into account the significance of the MIS Manager in the financial system.

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3. Refer to:

- [Sections 61 and 62 of the FMC Act](#) *PDS must be worded and presented in clear, concise, and effective manner and PDS must comply with prescribed requirements relating to form and presentation*
- [Financial Markets Conduct Regulations 2014](#).

## Principle 6 – Use of leverage

Where the MIS Manager makes use of leverage (traditional balance sheet or synthetic leverage) to boost expected investment returns, the risks and impact for the fund/s and for the broader financial system (i.e. counterparty channel) in the event of financial distress should be well understood and provided for.

A MIS Manager using leverage should:

- Determine and document at the highest level of policy and decision-making the scope of its involvement in derivatives activities, and the policies to be applied.
- Value derivatives positions at market.
- Quantify its market risk under adverse market conditions against limits, perform stress simulations, and forecast cash investing and funding needs.
- Assess the credit risk arising from derivatives activities based on frequent measures of current and potential exposure against credit limits.
- Reduce credit risk by broadening the use of multi-product master agreements with close-out netting provisions.
- Authorise only professionals with the requisite skills and experience to transact and manage the risks, as well as to process, report, control and audit derivatives activities.
- Establish management information systems sophisticated enough to measure, manage, and report the risks of derivatives activities in a timely and precise manner.

## Principle 7 – Liquidity management tools

The MIS Manager should consider the implementation of liquidity management tools (LMTs) to protect investors from unfair treatment and/or prevent the MIS from diverging significantly from its investment strategy.

- The MIS Manager should have a range of LMTs readily available to deploy in specific circumstances, including the following:
  - Facilitating redemptions without asset liquidation or use of cash, e.g. ‘in-kind’ or ‘in-specie’ redemptions (more applicable to institutional investors than retail).
  - Protecting the interests of ongoing investors, e.g. removing ‘first-mover’ advantage by having costs borne by redeeming investors, e.g. anti-dilution levies and ‘swing-pricing’.
  - Slowing redemption pace while retaining commitment to redeem within specified timeframes, e.g. redemption gates and withdrawal limits.
  - Pre-empting or avoiding severe illiquidity and valuation issues e.g. ‘side pockets’, redemption gates, withdrawal limits or even suspension of redemption in extreme cases.
- MIS Managers should actively consider the appropriateness of the existing measures to address liquidity risk and to meet these good practice principles. Where appropriate, MIS Managers may need to introduce additional measures for this purpose, including adding any necessary LMTs through amendment to the governing documents. The need to amend the governing documents should not be seen as a reason not to add new LMTs.
- It is important for managers to bear in mind that liquidity management includes ensuring that redemption and valuation policies and practices are fair to all scheme members at all times. Liquidity management tools, such as swing pricing and buy/sell spreads, should be used when they benefit the fund and are used to ensure that costs of trading are borne by investors driving those trades rather than by the fund as a whole. The FMA is preparing communications on this topic, which will include considerations such as disclosure and the need for ongoing consideration of the appropriateness of the spread.
- The MIS Manager should consider the appropriateness of the LMT for the circumstances and ensure that any prior conditions that must be met for the use of the LMT are complied with as outlined in the governing documents. This may include approvals from the MIS Manager’s board and/or Supervisor. While in use, the LMT should be reviewed regularly to ensure it remains appropriate for the prevailing conditions.

## Principle 8 – Stress testing

In accordance with the ‘Selecting investments’ minimum standard for MIS Managers, a ‘stress test’ of investment strategies should be undertaken as appropriate to the particular investment strategy or scheme assets.

- The MIS Manager should conduct regular stress tests for a variety of short-term and protracted MIS-specific and market-wide stress scenarios, individually and in combination. These tests should identify sources of potential liquidity strain and ensure that current exposures remain in accordance with the MIS’s established liquidity risk tolerances. The MIS Manager should use stress test outcomes to adjust its liquidity risk management strategies, policies and positions, and to develop effective contingency plans (see Principle 10).
- The MIS Manager’s stress testing results should be integrated into all stages of the fund product lifecycle, including the product design stage (when determining the dealing and distribution arrangements and asset composition), and ongoing investment and liquidity risk management. Potential uses include:
  - To support the determination and assessment of appropriate dealing arrangements for the fund in light of its investment strategy and underlying assets, even under stressed scenarios.
  - To help identify any necessary adjustments to the fund’s dealing arrangements, investment strategy and underlying assets (including the holdings of liquid assets).
  - To help formulate action and contingency plans to deal with plausible stressed market conditions by the use of different LMTs.
- Stress tests should be carried out based on normal and stressed (extreme but plausible) scenarios e.g. atypical redemption requests. Scenarios can include backward-looking historical scenarios and forward-looking hypothetical scenarios, and can be based on parameters calculated using statistical techniques or actual past stress events (most frequently used).
- Stress tests should take account of any specific requirements or expectations of Supervisors and/or the FMA.
- Stress testing should include an effective governance structure (see Principle 1), have clearly articulated and formally adopted objectives, and be subject to challenge and regular review.
  - The performance and oversight of stress testing should be sufficiently independent from the MIS Manager’s portfolio management function i.e. should be performed by the risk management function of the fund, with inputs from other relevant functions such as portfolio management and trading.

- Stress testing results should be reviewed by the fund’s board, executive committee or senior management responsible for liquidity risk management. The ‘Governance’ minimum standard for MIS Managers requires entities to have a “high-level body responsible for overseeing compliance with market services licensee obligations, and ensure appropriate risk management.” This includes liquidity risk management.
- The MIS Manager should maintain appropriate documentation of stress testing, particularly regarding actions taken in light of the stress testing results. This is in line with the ‘Records’ minimum standard, which requires MIS Managers to have systems and procedures in place to maintain proper records, which would include records of stress testing.
- The frequency and nature of stress testing should be suited to the fund. It should capture material and relevant drivers (risks) impacting fund liquidity, and apply stresses that are sufficiently severe. Testing should take account of:
  - fund size and composition
  - investment strategy
  - underlying assets
  - investor profile
  - market factors
  - regulatory requirements and expectations
  - the nature, complexity and resources required of the stress testing.
- The MIS Manager’s resources and organisational structures should be adequate to meet the objectives of the liquidity stress testing.
- Stress testing should be supported by accurate and sufficiently granular data, and robust systems and processes (see Principle 9).

## Principle 9 – Data, systems and record-keeping

The MIS Manager should be able to generate accurate and reliable risk data to meet normal and stress/crisis reporting requirements. Data should be aggregated in a reliable manner to minimise potential errors and create a robust and holistic view of the relevant risks.

- The MIS Manager should ensure it has access to, or can effectively estimate, relevant information for liquidity management at the product design stage and on an ongoing basis. For example, in the case of a managed fund investing in other funds, there should be ability to obtain relevant information about the underlying funds, or at a minimum develop reliable proxies (see next).
- Relevant information should be both quantitative and qualitative, and include information on:
  - marketing and distribution channels
  - historical redemption patterns
  - past asset and liability characteristics and performance/behaviour.
- In instances where the ability to ‘look-through’ to underlying funds or components is constrained then estimates or proxy information should be developed. MIS Managers should also consider the heightened risk that results from this.
- The MIS Manager should ensure appropriate records are kept and relevant disclosures are made (see Principle 5) relating to the performance of its liquidity risk management process. These records should be easily accessible, and in a form suited to communications with investors and regulators, including formal disclosures, and to evidencing the performance of the liquidity risk management framework and procedures.

## Principle 10 – Contingency plans

The MIS Manager should have a formal liquidity contingency plan (LCP) that clearly sets out its strategies for addressing liquidity shortfalls in emergency situations. The LCP should:

- outline policies to manage a range of stress environments
  - establish clear lines of responsibility
  - include clear initiation, escalation and withdrawal procedures
  - be regularly tested and updated to ensure it is operationally reliable.
- The LCP should:
    - include the use of any applicable LMTs, so that these can be initiated/activated and deployed (and later withdrawn) in a prompt and orderly manner
    - specify what divestment strategies are to be used and their sequence e.g. pro-rata or ‘slicing’ approach.
  - The MIS Manager should understand the legal basis and requirements (internal and external) for the appropriate use of each LMT it intends to deploy as part of its LCP. This includes knowing in advance what information must be provided to investors, Supervisors and the FMA, and being able to act quickly and with assurance.

## Role of Supervisors and the FMA

### Principle 11 - Assessment

Supervisors should regularly assess a MIS Manager’s overall liquidity risk management framework and position to determine whether they deliver an adequate level of resilience to liquidity stress to the schemes they manage. The FMA will continue to monitor the liquidity risk management practices of MIS Managers and how they relate to overall systemic risk.

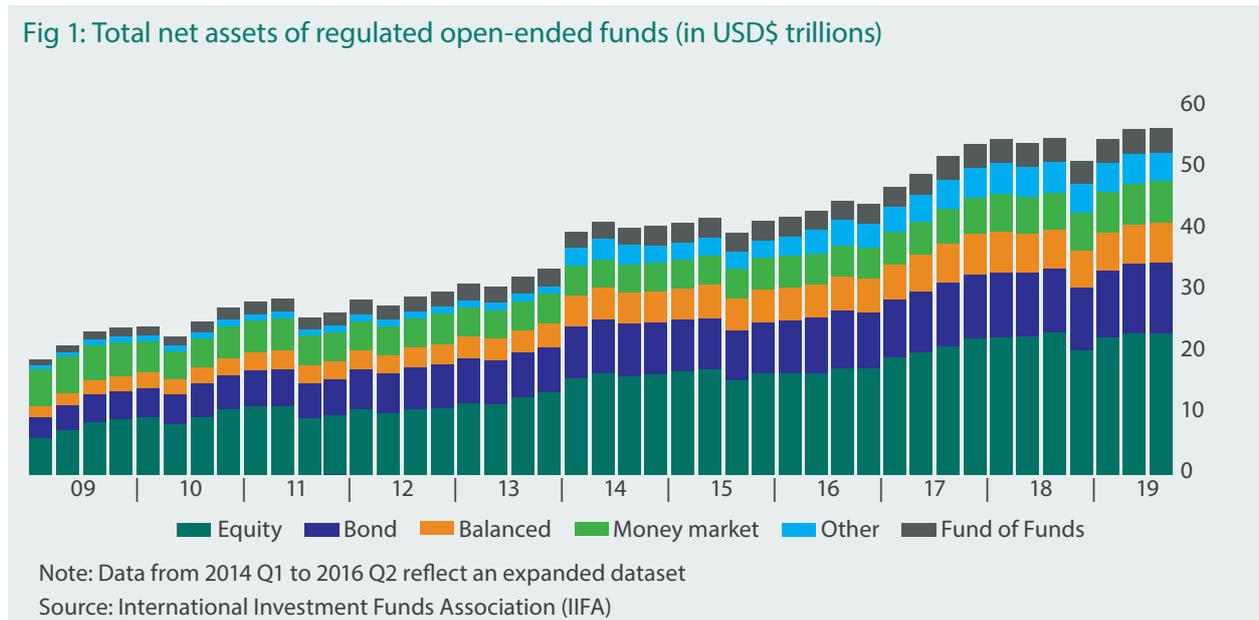
Supervisors should supplement their assessments of a MIS Manager’s LRMF and liquidity positions by monitoring a combination of internal reports, prudential reports and market information, and by conducting periodic surveys. Assessments by Supervisors will be at a scheme and individual manager level while the FMA will take this information and combine it with other information to take a systemic view.

# Appendix 1: Background and context

## Trends in the asset management sector

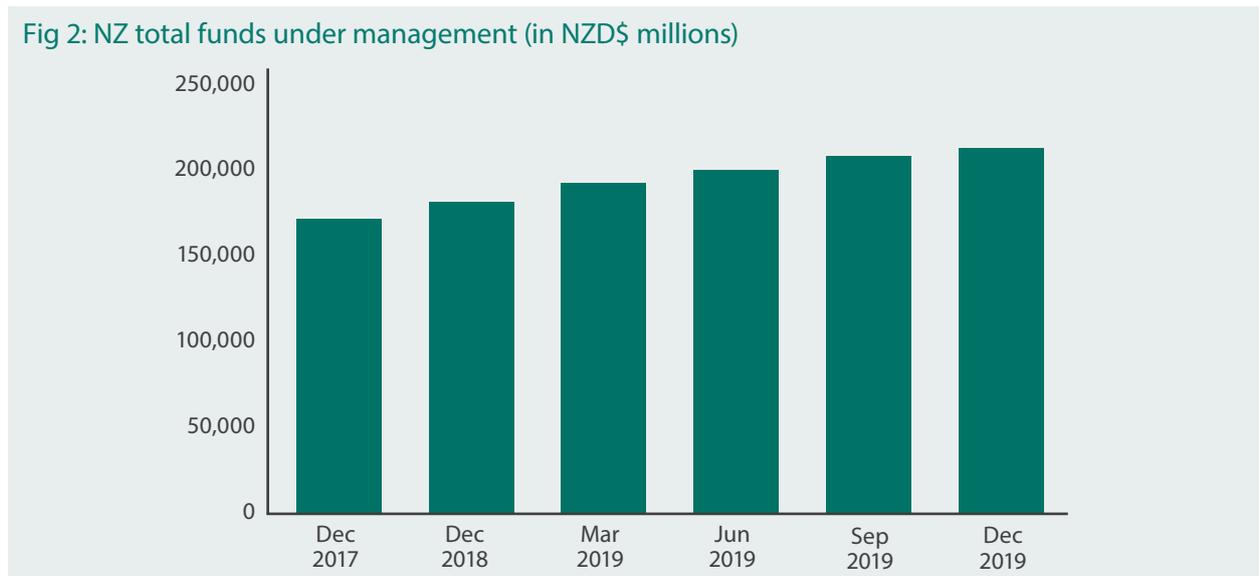
The asset management sector globally has experienced strong growth in assets under management (AUM), growing from USD53.6 trillion in 2005 to USD91.5 trillion at the end of 2018, of which \$USD50.4 trillion (55%) was invested in regulated open-ended funds<sup>4</sup>.

Fig 1: Total net assets of regulated open-ended funds (in USD\$ trillions)



This strong growth is mirrored in New Zealand, with total AUM increasing 24% between December 2017 and December 2019 (17% alone in the year to December 2019)<sup>5</sup>.

Fig 2: NZ total funds under management (in NZD\$ millions)



4. Based on total AUM of the world's 500 largest asset managers, estimated by Pensions & Investments (P&I) and Willis Towers Watson.

5. Source: RBNZ

## Global experience

The evolution of the asset management sector reflects broader trends affecting financial markets as a whole, particularly policy responses in the wake of the GFC.

The GFC was a defining moment for risk management and prudential oversight for financial markets globally. Forceful policy actions from governments and regulators focused initially on banks. Given the interconnected nature of the systems and consequent contagion effects experienced during and after the crisis, this later expanded to cover other participants in the global financial system.

While improvements were made, there were unintended consequences of central banks' intervention through slashing policy rates and introducing a new set of policy instruments, now collectively referred to as 'unconventional monetary policy' (UMP)<sup>6</sup>. These include:

- An intense and accelerating search for yield (likely reflecting excessive risk-taking by investors).
- Increasing debt accumulation (in emerging markets and the corporate sector in particular), largely through the bond markets with associated retrenchment of bank intermediation.

- Asset manager expansion into assets and markets that may create an illusion of appropriate liquidity, but are prone to evaporate in volatile times. Significant expansion into particular asset classes can reverse sharply if market conditions change (reminiscent of the Asian Financial Crisis of 1997).

## The New Zealand experience

The global trends referred to above, as well as current events, explain why we are reviewing MIS liquidity risk management at this time.

Prior to the GFC, a significant number of investors in search of higher yields invested in local property finance companies (property being a notably less-liquid asset). At the height of the expansion these non-bank lenders had assets of about \$25 billion and made up 8% of lending by financial institutions. By late 2013 the finance sector was half its previous size and accounted for only 3% of institutional lending. A Parliamentary inquiry estimated losses at over \$3 billion that affected between 150,000 and 200,000 depositors.

The Reserve Bank of New Zealand (RBNZ) is advancing preparations for the potential future use of UMP, as the pandemic drives further

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6. With its three main components: quantitative easing, forward guidance and negative interest rates.

central bank and Government interventions to calm markets and sustain growth. As at early April 2020, the RBNZ is deploying additional tools to provide liquidity to the corporate sector and support smooth market functioning.

A significant difference between the GFC and current events is that the stakes have grown exponentially. KiwiSaver was established in 2007, and the assets held under the scheme have grown to more than NZ\$60.9 billion at September 2019. Other retail, superannuation and workplace savings schemes take this total to NZ\$130.6 billion<sup>7</sup>.

### Why this is important

The growing size of the asset management industry can increase the 'availability of liquidity' illusion, where market liquidity seems to be ample in normal times, but dries up quickly during market stress. Additionally, when asset prices fall, asset managers often face redemptions by investors. This phenomenon is emphasised for bond funds investing in relatively illiquid corporate or emerging market economy bonds. Central banks' asset purchase programmes may also contribute to the

availability of liquidity illusion in some bond markets.

Another related development has been the exponential growth of exchange-traded funds (ETFs). ETFs have grown faster than actively managed funds over the past decade and continue to attract investors because they charge lower fees than traditional managed funds, an important advantage in an ultra-low interest rate environment. They also provide liquidity on an intraday basis, while managed funds provide it only daily. However, intraday liquidity can have negative consequences. ETF investors can 'run' (sell their ETF shares immediately) in response to negative news or an unexpected fall in the underlying asset price, thereby adding to the downward pressure on market prices and possibly increasing the volatility of the underlying asset market.

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7. For comparison, the New Zealand Superannuation Fund, established in 2003, has funds under management of approximately \$45 billion.

## Why now?

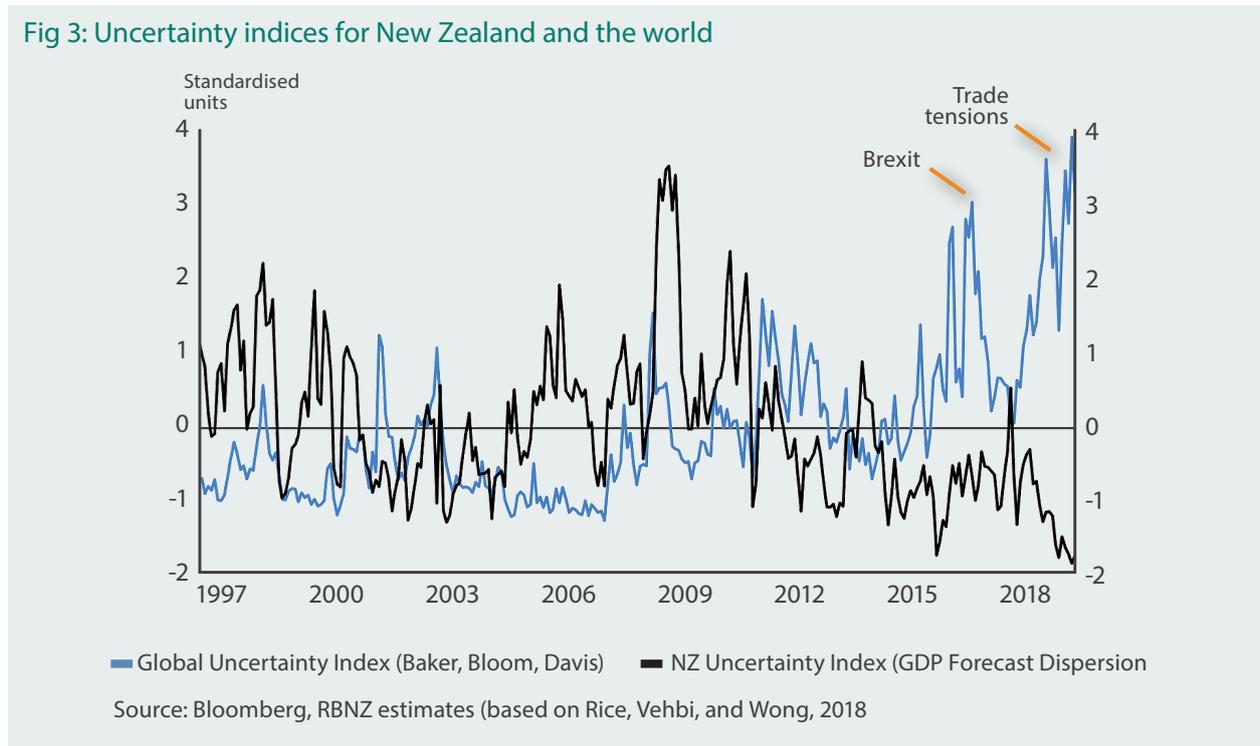
The GFC showed how adverse the real effects of a severe and largely unanticipated change in market sentiment can be. While realised volatility had dropped significantly since the GFC, perceived uncertainty has remained high, largely related to geopolitical global developments and trade tensions between countries. The evolving COVID-19 pandemic is adding a new dimension, further compounding uncertainty and risk (see Fig. 3).

As a regulator we need to ensure that our licensed market participants, and their

Supervisors, are well prepared for such turns in sentiment and the potential consequences (including escalating fear) – particularly in relation to liquidity risk, given that liquidity transformation is a key structural element to investment funds.

Many jurisdictions have in place regulations and requirements for asset managers to develop robust liquidity management frameworks, which deal with this issue throughout the lifecycle of a fund, including in its design phase, its implementation, and day-to-day operation. There is a particular focus on managed funds.

Fig 3: Uncertainty indices for New Zealand and the world



## Appendix 2: Common liquidity risk management terms

Term	Explanation
<b>Anti-dilution levies</b>	An extra charge may be levied by fund managers on investors subscribing or redeeming a substantial number of units or shares of a fund, to offset any potential effect on the value of the fund related to such subscriptions or redemptions.
<b>Asset- or fund-specific stress test</b>	An asset- or fund-specific stress test is designed to assess the impact of an adverse scenario on a fund's positions in, or market for, a financial asset or portfolio as a whole. Test scenarios can include (but are not limited to) liquidity constraints, investor behaviour, cash flows, credit ratings, or contract terms. These stress tests can help identify and quantify risks associated with new or modified funds/assets/portfolios.
<b>Buy/sell spread</b>	The buy/sell spread is an adjustment to the net asset value paid by buyers (or received by sellers) to allocate transaction costs, incurred when buying or selling underlying assets, to those investors trading in fund units.
<b>In-kind redemptions</b>	In-kind redemptions (sometimes referred to as 'in-specie' redemptions) are a mechanism by which funds can distribute the underlying assets generally on a pro-rata basis to investors, as opposed to paying cash to honour redemptions.
<b>Leverage</b>	Borrowing by the fund for the purpose of increasing fund investments beyond 100% of net asset value, whether through any sort of direct borrowing or through synthetic leverage via derivatives contracts. A technique aimed at managing the economic exposure of an investment fund by either borrowing cash/assets (created by borrowing money or securities from counterparties – sometimes called 'financial leverage') or by using derivative instruments such as options, futures or swaps (sometimes called 'synthetic leverage').
<b>Liquidity management</b>	Any decisions made on an ad hoc or routine basis to maintain balance between asset liquidity and liability requirements.
<b>Liquidity management tools</b>	Any tool used to aid the MIS Manager in liquidity management. Generally, this term refers to tools used on an extraordinary basis.

Term	Explanation
<b>Liquidity risk</b>	Liquidity mismatch between fund investments, and redemption terms and conditions for managed fund units i.e. the risk that a fund could not meet requests to redeem shares issued by the fund without significant dilution of remaining investors' interests in the fund.
<b>Liquidity stress test</b>	The process of assessing the impact of an adverse scenario on a fund's cash flows, as well as on the availability of liquidity sources and market prices of liquid assets.
<b>Notice period</b>	A requirement imposed on investors who wish to redeem their shares, to allow the asset manager to obtain the liquidity needed to pay for the redemptions in an orderly fashion.
<b>Redemption gate</b>	A tool used to place partial restrictions on the ability to redeem investments, usually on a pro-rata basis, with any non-executed requests carried over to the next dealing day. For example, a 5% redemption gate on a fund would mean that if orders at a given cut-off exceed 5% of the fund's net assets, then the orders, based on the decision of the MIS Manager, are only partially executed, with the non-executed part either cancelled or carried over to the next valuation/dealing day.
<b>Redemption suspension</b>	An action taken by a fund or its manager which prevents investors in the fund from withdrawing their capital. A suspension should be used only in very exceptional cases, as a last resort, given its consequences. In most cases, it is a temporary measure for a short period of time. Its purpose is to prevent a run on a fund in times of market stress. It can also be necessary when the valuation of the portfolio cannot be properly performed (e.g. during exceptional market events affecting a large proportion of the underlying assets).
<b>Reverse stress test</b>	The process of assessing a pre-defined adverse outcome for a fund/asset, such as a breach of prudential ratios (self or externally imposed) or illiquidity, and identifying possible scenarios that could lead to such adverse outcome. A reverse stress test helps to understand underlying risks and vulnerabilities in the fund's business and offerings that pose a threat to its viability and the financial wellbeing of investors and helps to identify scenarios that could threaten resilience.
<b>Scenario analysis</b>	The process of applying historical and/or hypothetical circumstances to assess the impact of a possible future event on a fund portfolio or specific asset (class) holding. Scenarios are not necessarily forecasts; rather, they are coherent and credible narratives, describing potentially different paths a particular set of circumstances could take. Scenario analysis incorporates many economic and financial parameters in a consistent manner, in contrast to sensitivity analysis, which may focus on a subset of parameters.

Term	Explanation
<b>Scenario severity</b>	The severity of a scenario is the magnitude of the stress applied to the components (or risk factors) that characterise the scenario. The analysis of historical behaviour of risk factors often helps identify worst case scenarios and the probability associated with those scenarios, which can also serve as a benchmark for comparing the severity among scenarios. A severe scenario may not necessarily translate into material stress liquidity.
<b>Side pocket</b>	A mechanism by which a fund manager establishes a separate account (a 'side pocket') for the sole purpose of segregating specific assets from the fund's overall portfolio. Often, side pockets are used hold illiquid securities and used in times of uncertainty where fair valuation of an asset is temporarily very difficult or impossible, with the intention that these be sold at a later date under the best market conditions and in the best interest of investors. They are most often used in funds investing in less liquid assets, such as private equity, venture capital or hedge funds.
<b>Stress testing framework</b>	A stress testing framework describes the context in which stress tests are developed, evaluated and used within the decision-making process. A stress testing framework includes elements such as governance, resources, documentation, policies, processes, infrastructure and methodology that may guide and facilitate the use, implementation and oversight of stress testing activities. This framework may also be referred to as a stress testing programme.
<b>Stress testing methodology</b>	A stress testing methodology is a set of tools and techniques that are necessary for carrying out a stress testing process. It includes stress testing models, scenario definition, results analysis, and all the tools and factors associated with them. It is the set of assumptions on which the tools and models rely.

## Appendix 3: Bibliography

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## **Auckland**

Level 5, Ernst & Young Building  
2 Takutai Square, Britomart  
PO Box 106 672, Auckland 1143  
Phone: +64 9 300 0400

## **Wellington**

Level 2, 1 Grey Street  
PO Box 1179, Wellington 6140  
Phone: +64 4 472 9830

**fma.govt.nz**