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Managing Liquidity in Superannuation

Prepared by:
Julian D Gribble and Cary Helenius

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The Institute of Actuaries of Australia
Level 7 Challis House 4 Martin Place
Sydney NSW Australia 2000
Telephone: +61 2 9233 3466 Facsimile: +61 2 9233 3446
Email: actuaries@actuaries.asn.au Website: www.actuaries.asn.au

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Julian D Gribble and Cary Helenius

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Abstract

Liquidity - or more to the point, the lack of it - and its management has been a key issue emerging from the GFC. While the high profile debate on liquidity has focused on the banking system, the Australian superannuation system has not been immune. The Australian Prudential Regulation Authority (APRA) published the results of a survey, in early in early 2010, suggesting there are superannuation industry liquidity concerns.

Liquidity and its risk management have been highlighted through the stresses of the GFC. Liquidity risk is a 'consequential risk' in that it arises after other risk events (for example, inadequate valuations, entity failures) and it may have a leveraged impact. Liquidity risk therefore should not be treated in isolation and carries some elements of being a 'canary in the mine'. While the immediate stresses of the GFC may be passing, recent experience has highlighted the need to better manage the inputs to liquidity management, the management processes, and the consequences of liquidity issues. Additionally, liquidity management remains a topic of significant supervisory interest.

We start by addressing the immediate questions of 'What is liquidity?' and 'How important is liquidity?' in the superannuation context. There are a number of aspects to the definition which depend on both perspective and time frame. The importance of liquidity management is reflected by both the shorter term issues emerging from the GFC and the longer term issues of trustees needing to better understand the impact of fund demographics and member expectations.

Having established what we are aiming to manage and the importance of the issue, we examine both the tools for liquidity management and the governance processes that should guide the application of those tools and the interpretation of their outputs. Satisfying supervisory expectations should provide a 'floor' for both governance and tools used, particularly in the context of stress testing and the management of adverse 'extreme events'. We also consider the role of independent review in the processes. This highlights the pervasiveness of the issues that need to be considered in establishing an effective framework for the management of liquidity. Some of these issues may have far reaching implications for the future management of the superannuation system, especially given the compulsory nature of the basic SGC contributions and the out-workings of the major reviews (Cooper and Henry in particular) recently conducted.

We propose that it would be good, and prudent, practice for superannuation funds to establish a Liquidity reserve. In practice a liquidity reserve may be held in the same reserve as operational risk reserves, but the purpose of a liquidity reserve is distinct from that of an operational risk reserve.

To conclude, we make some observations on how the discussion relating to superannuation may be applicable in the managed investment context.

Keywords: Liquidity risk, liquidity management, superannuation, governance, risk management, cash flow, treasury, demographics, asset liability management, projections.

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1 Introduction

The issue of liquidity in superannuation funds was brought into stark relief during the Global Financial Crisis (GFC). The overall issue of liquidity or - more to the point - the lack of it, and its management, across a broad range of industry sectors has been a key issue emerging from the GFC. While the high profile debate on liquidity has focused on the banking system, the Australian superannuation system has not been immune, perhaps to the surprise of some.

Liquidity and its risk management have been highlighted through the stresses of the GFC. Liquidity risk is a 'consequential risk' in that it arises after other risk events (for example, inadequate valuations, entity failures) and it may have a leveraged impact. Liquidity risk therefore should not be treated in isolation and carries some elements of being a 'canary in the mine'. Recent experience has highlighted the need to better manage the inputs to liquidity management, the management processes, and the consequences of liquidity issues, particularly in situations of stress, be it for the entity, the industry, the country or more widely. The GFC illustrated the dangers of taking a narrow entity focussed approach (and presuming systemic stability). Additionally, liquidity management remains a topic of significant supervisory interest.

In principle, the management of liquidity is straightforward. Sufficient cash needs to be on hand, or certainly accessible, so that entities can meet their obligations in a timely manner. In practice, liquidity management is much more difficult and complex for a number of reasons, including:

- ▶ Some aspects of the process can be managed and influenced by the entity, but some may not be, and these external issues may not be predictable, manageable, or local. For example, the ageing of the population and the increasing numbers of members who are transiting to the decumulation of their superannuation, and reliance on external fund managers (for example mortgage funds).
- ▶ Lack of focus and priority
- ▶ Lack of capacity to undertake the analysis and management
- ▶ In the superannuation context, a misplaced focus on the fund as opposed to individual investment options
- ▶ The complexity of actual asset investment structures and management arrangements. In a complex structure, the impact of relatively small change in the status of a relatively small asset may be pervasive and leveraged and the management of the associated operational risks may be significant.
- ▶ Focus on a 'business as usual' view, rather than an awareness of the need to govern and manage to provide robustness of policy and process under stressed conditions
- ▶ The need to take a holistic view to the governance, management, and processes required to address liquidity risk. As noted above, it is a 'consequential risk, and its impact may pervade many other policies and issues, such as investment governance, strategic asset allocations and risks, valuation processes, member equity, operational risks and reporting of data flows (particularly in the context of outsourcing).

2 Context – Perception of importance of liquidity risk

Despite the high profile that liquidity had in the GFC, especially in the banking context, and the emphasis placed on assessing and reporting liquidity positions for superannuation funds during the GFC, the ongoing management of liquidity does not seem to have a high profile.

2.1 Industry focus

At the 2011 CMSF Conference (see Wickham 2011) the results of a survey regarding the key risks that had the attention of the CEOs and Trustees of industry superannuation funds were presented. With regard to liquidity risk we note the following:

- ▶ No aspect of liquidity risk featured in the top seven risks participants were most concerned about. It is commented that short term liquidity is one of a number of risks that ‘didn’t rate a strong mention’.
- ▶ Approximately 60% of respondents rated ‘liquidity risk – short term (markets)’, and ‘liquidity risk – medium term (ageing membership)’ as risks they were either not or only slightly concerned about.
- ▶ 67% of respondents, however, considered that ‘stress testing – liquidity’ was either quite or very useful. This response seems possibly to be at odds with the prior responses.

2.2 Overall asset allocations

A recent Towers Watson survey (Towers Watson 2011) has also reported some interesting high level results for the Australian superannuation industry:

Table 2.2.1: Towers Watson superannuation industry asset allocations (%)

Year	Equities	Bonds	Other	Cash
2000	56	29	8	7
2005	56	19	18	7
2010	49	14	25	12

These figures are for ‘total pension assets’ at the end of the year. The split between Defined Benefit (DB) and Defined Contribution (DC) for Australia is given as 19:81 for each of the three years reported. All other major countries included in the survey reported either maintaining or increasing the allocation to the ‘Other’ asset class.

From the perspective of liquidity, the trend towards the ‘other’ asset class, which includes property, infrastructure, private equity and so on, is interesting as these types of asset also typically have lower levels of liquidity.

There is also established supervisory interest in the management of liquidity risk in superannuation. During the GFC, the Australian Prudential Regulation Authority (APRA) collected information at regular intervals regarding the liquidity positions of superannuation funds and their investment options.

2.3 APRA industry survey

In 2010 APRA published (APRA 2010) the results of a survey of the industry. Over 420 responses were received covering all facets of the APRA regulated industry. The key findings from this survey are instructive and provide the basis of a useful framework to assess the effectiveness of liquidity risk management policies and process against. They are:

- ▶ Liquidity management must be at the investment option level
- ▶ Factors that affect the capacity to redeem investments
- ▶ Consequences of future commitments, tax and management of fee streams
- ▶ Consequences of needs of make regular payments to pensioners
- ▶ Recognition of need to manage portability obligations, including both internal switches and transfers out of the fund
- ▶ Appropriate disclosure and management in accordance with SIS, including timing of transfers and rollovers and other operational risk management issues
- ▶ Trustee and fund responsibilities with regard to investment choices made by members
- ▶ Liquidity stress testing, including crisis scenarios
- ▶ Expansion of cash-flow budgeting beyond periodic rebalancing into the longer term and avoiding over-reliance on historic positive cash-flows
- ▶ Integration with trustee and fund Risk Management Strategies and Risk Management Plans
- ▶ Contingency plans and processes for when liquidity risk events occur, including extreme scenarios

APRA defines an illiquid investment as an investment that cannot be converted to cash within 30 days or where conversion to cash within that period, by itself, would have a significant adverse impact on its realisable value.

In terms of overall industry progress in implementing liquidity risk management, the following key results were also reported:

- ▶ Only 6% of trustees undertake formal liquidity stress testing
- ▶ Only 14% of trustees actively monitored liquidity for the investment choices offer to members
- ▶ Only 36% of trustees prepare formal budgets for cash flows (and then these are generally at the 'whole of fund' level and annual)
- ▶ Around 52% of trustees undertake analysis, at varying levels, of membership data to predict future transactions, often as part of their cash-flow analysis.
- ▶ Since 29 September 2008, APRA has granted portability relief to 24 trustees for 51 superannuation funds due to underlying investments becoming illiquid. Typically the investment option invested 100% into a single underlying asset. It is our understanding that the majority of these illiquid investment options remain illiquid.

While it might be expected that some of these number would have improved since early 2010, the question remains as to the level of emphasis the industry places on liquidity risk management and its consequences.

A natural and potentially useful analogy is to compare life insurance statutory funds with superannuation investment options, especially regarding the large and default investment options. Core to the purpose of establishing statutory funds are equity considerations both within and between statutory funds. Members investing in superannuation investment options, in principle if not explicitly in regulation or practice, have similar equity issues to be addressed. APRA comments:

Trustees of some funds indicated that the defined benefit option or default option would be used to 'lend' liquidity to other investment options in times of need.

While the convenience of such arrangements may be appealing, the policy and management issues in terms of maintaining equity may be less straightforward.

3 Context – Steps to address Liquidity risk

A number of steps, short term and long term, have been proposed to address liquidity in superannuation funds. These have been primarily driven by supervisory interest.

3.1 APRA

APRA has a relatively long standing interest in the management of liquidity risk.

In a speech to CMSF (Conference of Major Super Funds) in 2008, APRA's views (APRA 2008a) on the management of liquidity risk were set out in some detail by S G Venkatramani. In terms of APRA's expectations, the following comment was made:

Liquidity Risk is one of the key risks that APRA expects to see being addressed by Trustees, and factored into their operational and strategic planning.

In the survey discussed above (APRA 2010) the following comments are made:

APRA expects trustees to have a robust risk management framework in place to effectively identify and address the risks associated with operating a superannuation fund.

...

APRA's principal finding was that trustees need to strengthen their current liquidity management practices.

...

APRA believes that it is important to raise awareness of liquidity management issues in the superannuation industry.

APRA is continuing to liaise with trustees on their liquidity management practices and other related issues.

APRA also provides some written guidance regarding liquidity. In superannuation this currently includes:

- ▶ Superannuation Circular II.D.1 – Managing Investments, and Investment Choice (March 2006)
- ▶ A number of letters to Trustees

In life insurance, so directly relevant to superannuation monies held in life insurance contracts, there are references to liquidity risk and its management in a number of prudential standards and guidelines. For example, see APRA's LPG250, APRA 2007.

With the anticipated granting to APRA of standard making powers in superannuation and APRA's stated intention of harmonising the regulatory regime (as appropriate) over the major types of financial services, there is the possibility that experience from both life insurance and banking with regard to liquidity risk and its management will be brought to bear in superannuation.

3.2 ASFA

ASFA has recognised the issue of liquidity management in superannuation funds and produced guidance for trustees through its Best Practice papers which are available to members free of charge.

ASFA's *Best Practice Paper 34, Trustee Guidance – Valuation and Liquidity of Unlisted Investments* (ASFA 2009a) provides guidance on the issues and questions that should be considered when holding unlisted investments in their investment portfolios. In particular it considers trustees obligations *in regards to liquidity and valuation of unlisted investments*.

ASFA 2009a provides a checklist of considerations for fund trustees:

- ▶ What are the cash flow/liquidity requirements of the fund and each investment option?
- ▶ How is liquidity being managed, and what analysis and scenario modelling is being undertaken for short term liquidity risks and long term demographic changes in membership?
- ▶ What proportion of the fund is exposed to unlisted investments? Which unlisted investments are illiquid or potentially illiquid?
- ▶ What is the time horizon/realisation profile of the unlisted investments and the portfolio as a whole? What are the plans for the orderly sale of investments?
- ▶ What is the maximum allocation to unlisted investments before this would have an impact on the liquidity of the fund and each investment option or the ability of the fund and each investment option to rebalance given future cash flow expectations?
- ▶ If equity or other relevant markets fell substantially (historical experience could be used as a guide), what level would the fund or the default option's weighting in unlisted investments reach?
- ▶ How do these factors interact with the commitment profile the fund has made to unlisted investments, a (conservative) expectation of the fund's future cash flow, the competitive position of the fund and the risk of member switching?

ASFA expanded on the issue in its *Best Practice Paper 35: Trustee Guidance – Managing Superannuation Fund Liquidity Risk* (ASFA 2009b). In this paper they proposed a monitoring and reporting framework that operates at a quarterly, monthly, weekly, daily and ad-hoc basis.

The questions posed by ASFA in these two Best Practice papers also provide a basis of a framework that is useful for liquidity management and can be incorporated into the development of liquidity modelling and stress testing of superannuation funds.

3.3 FSC

The Financial Services Council (FSC, previously IFSA) also makes some reference to liquidity and illiquidity in its Standards and Guidance. It does not devote a specific Standard or Guidance note to the topic of liquidity risk and its management.

See FSC Guidance Notes 26 and 28, and Standards 9.0 and 18.0.

3.4 AASB

The Australian Accounting Standards Board (AASB) is also introducing additional reporting requirements around superannuation fund liquidity. This introduces the prospect of enhanced reporting to superannuation fund members on liquidity, and this is likely to see superannuation fund product providers and investment managers rated and compared on their liquidity management strategies and superannuation fund liquidity.

The AASB Action Alert 137 (AASB 2010) states, with regard to superannuation:

...

The Board has tentatively decided ...

- (e) *a plan should provide, when appropriate, liquidity risk disclosures in relation to obligations for defined contribution and defined benefit members' benefits in accordance with the relevant principles and requirements in AASB 7 Financial Instruments: Disclosures;*

The implication of this is that this information will be available for members and could provide useful information for members.

3.5 Cooper review and Stronger Super

The Australian government's response to the Cooper Review (Cooper 2010), Stronger Super (Stronger Super 2010), provide further support for the need to address liquidity in superannuation. The focus is on governance and risk management with the Government offering 'support in principle' and so committing to further consultation with industry. The key recommendations relating to liquidity are 6.6 and 6.9 (other references are in recommendations 1.28, 2.1, 4.12 and 6.7):

- ▶ Recommendation 6.6 (Section 6: Integrity of the system): The Risk Management Plan (RMP) should explicitly include a liquidity management to ensure that trustees identify and manage liquidity component in their RMPs at both the fund level and the investment option level.
- ▶ Recommendation 6.9: The trustee's RMP should have particular regard to liquidity characteristics of investment options offered to members in the retirement phase.

Clearly the risk management of liquidity in superannuation, at the investment option level, is acknowledged to be important in both accumulation and decumulation stages.

3.6 Recent Australian experience

Some analysis of the potential impact of liquidity can be made based on APRA data (see APRA 2011). This data is provided at the fund level, not at the investment option level, so it should be expected there is a significant element of underestimation in our results due to the averaging affect over investment options from reporting at the aggregate fund level. However, since the objective is to emphasise that liquidity risk is both ongoing and material, this is acceptable.

From the perspective of liquidity we focus on realised outflows, albeit conservatively. We estimate realised outflow by using the APRA data. We exclude capital gains reported for two reasons, firstly the need to separate realised and unrealised gains, but more importantly, gains (or losses) do not reflect the total cash flows, but the difference between acquisition and exit prices. Similarly the APRA data includes an item titled 'Other changes'. This is not necessarily a cash flow item and so is also excluded. We note that there is no information regarding cash flows resulting from rebalancing of investment mandates, changes of investment allocations, or switches within funds.

We demonstrate the potential impact of switches within a fund, but do not consider the other issues. Consequently we believe the results presented are materially conservative. It is difficult to obtain information regarding switches within funds, and we acknowledge that different funds will have different results over time. Evans et al 2006 provide some information, based on an analysis of a single fund, regarding switching activity within a fund. It suggests there is significant switching activity by members, increasing with age. This will have a leveraged effect on the amounts switched as average balances increase with age. It is not specified what percentage of each member's total investment is switched on average. This study has been based on data prior to the GFC, and it would be reasonable to expect, as supported by anecdotal evidence, that switching activity increased during the GFC.

The APRA data provides information on a quarterly basis from the last quarter of 2004 through the last quarter of 2010, so for 6 calendar years. Excluding the capital gains (losses) data essentially removes the impact of the GFC on asset values. We provide average results over those 6 years.

We assume contribution data from employers reflects Superannuation Guarantee Charge (SGC) contributions and the data from members reflects voluntary contributions. The contributions data provides a context for assessing the impact of liquidity cash-flows. We estimate outflows based on summing over quarterly data. In each quarter we compute the difference between total outflows and inflows as a starting point. To this we add a portion of the inflows which, numerically, offset outflows. The 100% offset means full offsetting is assumed, and 0% means no offsetting is assumed. In terms of managing outflows, it is not realistic to assume either 100% or 0% offsetting, so we have assumed a mid-point of 50%. We acknowledge this is approximate, but reiterate that the point of the analysis is simply to illustrate that liquidity considerations are material.

We include an estimate, which we consider is an underestimate, of switches within a fund as a percentage of total assets. From a liquidity perspective, the key issue is the amount of assets required to be made available to support switches from individual investment options. We provide estimates which reflect approximately 0.75%, 1.5%, 2.25% and 3.0% in each quarter (so multiply these amounts by four to approximate an annual switching rate within funds). For the reasons given above, we reiterate our view that the results provided are materially conservative (that is, we materially underestimate the impact of switching). We also note that experience in the GFC and subsequently has shown that the level of switching can change quickly and significantly, depending on member (and advisor?) sentiment.

We give result in terms of a percentage of net assets held in aggregate over all funds in each category.

Table 3.6.1: Summary from APRA superannuation statistics (% net assets)

Sector	Employer Contrib'n	Member Contrib'n	Net Outflows with 50% offset, with Quarterly switches of				
			0.0%	0.75%	1.5%	2.25%	3.0%
Corporate	6.2	0.8	7.2	10.2	13.1	16.0	19.0
Industry	10.1	1.8	0.7	3.6	6.5	9.5	12.4
Public	12.0	2.2	3.3	6.3	9.2	12.2	15.2
Retail	5.0	4.6	7.3	10.3	13.2	16.2	19.2
Industry	7.7	3.1	4.8	7.7	10.7	13.6	16.6

The key point in the context of liquidity is the size of the potential exiting cash-flows compared to the total contributions made, with the key driver being the level of switching. We do, however, note the variability of the result over the different sectors. We also reiterate that we have effectively excluded the impact of the GFC, in which rates of switching were significantly higher than on average.

It is clear that more work could usefully be done, both at an aggregate level and, more importantly, for individual funds, regarding the impact of switching and assessing net exiting cash-flows at the investment option level. It is clear the cash flows involved are significant. It is also clear that the view that there is a net positive inflow into funds provides spurious comfort in the context of liquidity risk management. We also note that while this net inflow position has been the case historically, as member's age and move from accumulation to decumulation, there is a strong possibility that this will not remain the case. We also reiterate the point that this analysis remains at a fund level and so averages out the impacts of movements in individual investment options.

The management of liquidity risk needs be acknowledged as a significant and ongoing risk to be addressed.

Some other actuarial work regarding liquidity has already been done. We note:

- ▶ Howes 2009. This presentation at the Institute of Actuaries of Australia (IAAust) 2009 biennial conference noted the impacts of the GFC, including switching to cash (material, but variable by funds and sector), decline of discretionary contributions (especially for retail funds), and discussed some of the consequences of the need to manage liquidity, and APRA's expectations.
- ▶ Laughlan and Tubman 2010. This presentation at the IAAust 2010 Financial Services Forum identified a number of risks and issues associated with liquidity risk management (financial, operational and governance), and put forward a framework addressing liquidity, valuation, equity and mismatch issues.

3.7 Overseas experience

There is also some overseas experience which emphasises the potential risk of (ii)liquidity in the investment context.

- ▶ A review of Wikipedia on the topic of *Liquidity risk*, Wikipedia 2011, reflects the view that some high profile failures, Ameranth (2006), Northern Rock(2007) and LTCM (1998), reflect one or both of asset and funding liquidity issues (see below for definitions).

- ▶ The case of Reserve funds in the US. The Reserve Management Company managed a number of money-market funds. When Lehman Brothers failed there was a run on these funds as a consequence of the need to write down the value of investments in Lehman Brothers with the result that fund 'broke the buck' (that is fell below the expected \$1-per-share value that money market funds seek to maintain). The suddenness and extent of this run is illustrated by the following quote (Reserve 2008) dated 19 Sept 2008, which followed Lehman Brothers filing for bankruptcy protection on 15 September 2008:

The Primary Fund, which had approximately \$62 billion in assets under management at the opening of business on September 15, 2008, has received redemption requests this week of approximately \$60 billion. The U.S. Government Fund, which had approximately \$10 billion in assets under management at the opening of business on September 15, 2008, has received redemption requests this week of approximately \$6 billion. With continued significant illiquidity in the markets, the Funds' investment advisor is unable to dispose of securities to fund redemptions without impairing the net asset value of each fund.

4 Definitions

4.1 Other definitions

We have used the term liquidity without considering what it means. As we noted initially, liquidity risk is a 'consequential' risk, a consequence of being in business and having knock-on effects in other areas.

APRA (APRA 2010) defines:

- ▶ An illiquid investment as an investment that cannot be converted to cash within 30 days or where conversion to cash within that period, by itself, would have a significant adverse impact on its realisable value.
- ▶ Liquidity risk as the risk that financial obligations cannot be met as and when they fall due – either at all or only by incurring significant expected costs.

We believe a critical element, whilst implied, is missing from this definition. That is, the financial obligation needs to be met with a cash payment. The critical aspect of the liquidity risk is the conversion of assets into cash. A liquidity risk does not exist where assets can be transferred from one party to another by way of 'in-specie' distributions.

While not addressed in this paper, the possibility of 'in-specie' investment distributions should not be entirely discounted. This effectively exists within self managed superannuation funds where there is no liquification of assets required in a single member fund. Similarly, specific individual investment holdings exist on many superannuation retail investment platform products. Nonetheless, this paper does not consider further 'in-specie' distributions to generate liquidity, and is focused on the commonly accepted approach of conversion of fund assets into cash to accommodate payments.

Napper et al 2009 define liquidity as:

[Liquidity is] the ability to convert asset exposures into cash to meet fund redemptions without incurring undue transaction costs or a material diminution in sale proceeds relative to current carrying values.

ASFA, in ASFA 2009b, define liquidity as:

Liquidity refers to the ability of a superannuation fund (in the normal course of its ongoing business) to meet its obligations as they fall due – that is, the ability to meet payment obligations to members and beneficiaries in a timely and efficient manner and to meet investment settlements and other fund payment obligations either at all or without incurring significant unexpected costs.

ASFA 2009b continues make the point that liquidity risk is driven by cash flows which are classified into three types: Member driven, including contributions and benefit payments; asset and investment driven, including investment income, proceeds, asset allocation and hedges; and fund driven, including expenses, taxes and insurance payments.

4.2 Our definition

We propose that liquidity risk can be well defined by combining the above points:

- ▶ Liquidity risk is the risk of an entity not being able to:
 - Meet its financial and equity obligations to all stakeholders
 - As they fall due in a timely manner
 - Through conversion of asset exposures into cash
 - Without incurring undue costs or diminution of asset carrying value

There are a number of more detailed matters implicit in our definition:

- ▶ Financial obligations come at various levels: They include member obligations in term of redemptions and benefit payments and applying investment mandates; asset management obligations of meeting commitments, rebalancing, outsource fund manager management; and fund obligations regarding expenses, taxes, insurance, settlements or other fund out-flows.

Hence the need arises to manage both liability (to members) and asset obligations.

- ▶ Equity obligations include reflecting the primacy of the best long term interests of members, balancing the interests of incoming, ongoing and outgoing members.
- ▶ A timely manner includes management of time frames and stakeholder expectations, both in typical 'Business as Usual' and more adverse 'extreme' scenarios.
- ▶ Different time frames over which liquidity is managed are important. The long-term nature of superannuation implies that trustees need to take a long-term view.

This clearly implies the need to ensure there are contingency plans in place to address the impact of liquidity risk events taking place. This is a different perspective to that of pre-emptively minimising the risk of a liquidity risk event taking place.

- ▶ The conversion of assets into cash is a key aspect of the liquidity management process. It does not, however, necessarily preclude the use of less direct methods of obtaining cash, subject to their governance and viability (particularly in situations of stress).

This also includes the specific distinguishing superannuation feature of the need to manage switches between different investment options within a fund.

- ▶ Undue costs or diminution of asset values may involve policy decisions depending on circumstances, either internally or externally driven.

Effective management of liquidity risk essentially requires the identification and modelling of each of these components and their drivers, the development of policies for liquidity management, and the regular monitoring and measuring of superannuation fund liquidity.

4.3 Link to banking work

Many of these issues have also been addressed in the higher profile work undertaken in the banking sector. The Basel Committee for Banking Supervision (BCBS) has provided guidance (BCBS 2008) which includes a number of high level principles for the management of Liquidity risk. While these principles are oriented toward banks, they remain relevant in superannuation in the high level issues they cover.

BCBS 2008 also includes the following definitions:

- ▶ Funding liquidity risk: This is the risk that the firm will not be able to meet efficiently both expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the firm.

This addresses the liability aspect of liquidity. It primarily reflects a fund’s internal obligations to their members and others.

- ▶ Market liquidity risk: This is the risk that a firm cannot easily offset or eliminate a position at the market price because of inadequate market depth or market disruption.

This addresses the asset aspect of liquidity. It primarily reflects a fund’s external interaction with fund managers and the market. This therefore includes the issue of impacting market by being a large or influential market participant and so affecting the market price by selling or buying activities.

4.4 Liquidity structure

We propose that liquidity risk and its management in superannuation be considered in terms of the following structure.

Table 4.1: Structure for liquidity considerations

		Immediate (Treasury / cash flow)	Short term (Budget, 1 yr)	Long term (projections, demographics)
Liability (member)	Accumulation			
	Decumulation			
Asset (FM)	Accumulation			
	Decumulation			

In each case, both ‘Business as Usual’ and ‘extreme’ (adverse, crisis) events should be considered. To emphasise the distinction between ‘Business as Usual’ and extreme events, we include extreme events as a separate row and column in our assessments following.

We apply a ‘heat map’ approach to assessing how well each cell in the matrix outlined in Table 4.1 is managed in the industry.

We use five point scale as follows:

- ▶ 5: Very well addressed
- ▶ 4: Addressed better than average
- ▶ 3: Addressed at an average level
- ▶ 2: Addressed poorly
- ▶ 1: Addressed very poorly.

In our view the results are as follows:

Table 4.2: Heat map of industry management of liquidity issues

		Immediate (Treasury / cash flow)	Short term (Budget, 1 yr)	Long term (projections, demography)	Extreme events
Liability (member)	Accumulation	5	3	2	1
	Decumulation	4	3	1	1
Asset (FM)	Accumulation	5	3	2	1
	Decumulation	4	2	1	1
	Extreme events	1	1	1	

4.5 Specific superannuation issues

The superannuation industry in Australia has complications and conflicts that arise with respect to liquidity. In the savings and accumulation phase, the industry has been encouraged to be long term in its thinking and approach, which includes investments that are long term in nature and inherently illiquid, for example direct holdings in large infrastructure projects or major commercial properties. Conversely, members of superannuation funds have legislated portability providing them with 30 days to convert their benefits into cash to be transferred to another superannuation investment provider.

We make the point that illiquidity is not an inherent problem if considered in a long term context. Liquidity concerns come into play when the timing requirements from the liability perspective fall out of synch with those from the asset perspective, and are of shorter duration. This leads to the observation that a liquidity management tool may need to lengthen the time frames of the liability commitments, either in general or in particular (for example, under stressed conditions). At least to some extent, this is an issue of management of expectations and disclosure. One consequence of this is that (il)liquidity is not inherently a bad thing, but allowing expectations of liquidity (immediate and unfettered access to monies - superannuation in this context - even if only to be switched around within the system) to move out of synch with the properties of the underlying assets, is a bad thing.

We acknowledge that determining appropriate levels of disclosure regarding liquidity may be difficult, and that many superannuation fund members may not understand the issues involved. However, we do not see this as a reason for non-disclosure. We suggest that, at least in part, this translates into the need to better communicate with (and educate?) the financial planners who advise members. For members who do not get advice from a financial planner, then perhaps some further responsibility lies with the

fund and its trustees in terms of addressing liquidity risk, either directly or indirectly. An example may be by strongly discouraging members investing solely or predominantly in investment options which have higher liquidity risk, such as mortgage funds. We also note that the perception of liquidity issues and risks can change and evolve. Before the GFC mortgage funds were not typically considered to be potentially illiquid (despite the evidence of the early 1990's in Australia!), and 'enhanced' cash funds were not seen as risky.

The industry at the macro level has had the benefit of 'net' inflows of cash, representing the inflow of contributions less benefit payments. However, as the industry moves towards a steady state over time, this additional liquidity provided by new cash entering the system will gradually be equalled or exceeded by outflows – which would put an additional liquidity constraint on the system, funds and individual investment options, especially investment options in which accumulation and decumulation monies are comingled. Indeed this impact is likely to be already occurring in specific superannuation funds associated with ageing membership bases and declining levels of new entrants.

4.6 Liquidity management can be complex in practice

In the Introduction we suggested that liquidity risk management is, in principle, straightforward through holding 'enough' cash and (very) liquid assets. This implicitly presumes that funds and trustees can determine what 'enough' means (including in stressed situations) and that they can control the investment choices of members, again in particular in stressed situations.

We suggest that in practice these assumptions are not always valid. For example, it may be that the investment objectives of a particular investment option are not compatible with holding a material proportion of assets in cash or (very) liquid investments. It is not the case that, in general, funds can or will constrain member's flexibility of investment choice. It is the case that the investment structures used, at least by some superannuation funds, are complex and quite deeply nested or layered. That is, the asset structures are complex and there are many linkages at a variety of levels. An outworking of such structures, when the underlying investments come under stress, is that it is likely that a change in status of a single underlying asset can have a pervasive effect on many member investment options. This then immediately impacts the unit pricing processes through the need to manage stale and old asset valuations (including the need to determine when unit prices may need to be suspended) as well as the direct liquidity issue of actually accessing cash to make requested payments from the investment options and when such payments (on the premise they can be equitably valued in the first place) should be suspended. We therefore suggest that the simple approach of holding 'enough' liquid assets may not be adequate and other approaches need to be considered.

To properly manage and identify the extent of liquidity risk in superannuation funds it is crucial to model individual investment options and each ones interactions between the underlying liquidity of the assets, the timing of net member cash-flows and the possibility of larger than expected outflows due to portability. In this context, the impact of behavioural financial issues, as distinct from the presumption of members being rational investors, also need to be considered.

Trustees will have obligations to understand these stresses and to manage the conflict between the potential benefits of long-term illiquid assets in superannuation investment options and the requirement to be able to liquify significant components of the funds supporting investment options at relatively short notice.

In addition, following an event that liquid assets have been withdrawn from an investment option to make an unanticipated liquidity payment, a course of action needs to be determined by trustees to restore the assets in the residual investment option to a sufficient level of ongoing liquidity to meet further liquidity requirements as they arise and, at least in the medium to longer term, investment mandates are properly reflected. In other words, remaining members in a superannuation investment option should not be left in a materially less liquid position following large benefit payments or transfers of liquid assets out of a superannuation fund, and should not have their long term investment objectives compromised.

We also note that the focus of this section has been on the short term management, perhaps crisis management, of stressful liquidity situations. As we suggest in Table 4.2, there are more aspects to the overall management of liquidity than this.

5 Treasury issues and status

Liquidity management has been identified by banks as one of the major operational risks that they face. Traditional banking is based on borrowing short term and providing long term lending. In most countries globally the banking sector is highly regulated and significant focus is paid to this issue. Where regulations have been light, significant problems have emerged. For example, banks in Iceland following the GFC. Whilst the practices adopted by the banking sector to manage liquidity have significant differences to the liquidity requirements of superannuation funds, the processes and principles they have adopted to manage liquidity form a useful base for formulating principles and procedures suitable for the superannuation industry.

In the UK, the Financial Services Authority (FSA) has produced many detailed papers on liquidity risk and management targeted at the UK banking industry. Whilst these may have application in Australia for the banking sector they do not appear to have a direct application for liquidity management in the Australian superannuation industry and individual superannuation funds.

A major component of liquidity management in the UK adopted by the FSA is to apply a range of metrics that assess concentration risks and their interplay across usual and stress test conditions (Benn 2008). The principle of measuring and monitoring has application for the Australian superannuation industry and has been a key area of recent development in the industry. The key will be the development of suitable metrics that are readily measurable and monitored for the Australian superannuation fund industry.

The FSA (FSA 2009) states that the central bank position on liquidity is as follows:

The Bank of England believes that appropriate liquid asset buffers are key in protecting individual banks – and the wider financial system – against acute periods of stress. It believes that banks should maintain large buffers of high-quality unencumbered securities that can reliably be traded or exchanged in private markets, including in stressed circumstances.

The principle of reserving for liquidity, or introducing liquidity buffers, is an element of FSA requirements that we believe should be considered in the context of Australian superannuation funds.

6 Short term issues and status

There are many indicators that suggest momentum is strongly building in the superannuation industry towards increased level of formal reporting and monitoring of liquidity in superannuation funds and providing this information back to members through enhanced disclosures.

PwC 2009 focused on the platform industry, particularly on the feature of 'daily liquidity' that was offered to unit holders, despite the underlying assets often being illiquid. The paper surveyed industry investment managers and reported the key findings. As the liquid assets were drawn to meet unit holder payments the residual fund assets became increasingly illiquid. Following the GFC many funds were left with assets that were not readily realisable and required critical actions to manage investor equity and monitor on-going liquidity.

67% of investment managers questioned had no formal procedures for regularly monitoring liquidity within their funds prior to the GFC. Most fund managers now have policies in place that monitor liquidity across their products on a daily basis, and a wide range of responses have been noted in relation to the liquidity concerns that emerged, including:

- ▶ Increased frequency of reporting and monitoring liquidity
- ▶ Formalisation of liquidity monitoring procedures
- ▶ Increased weighting of liquid assets
- ▶ Monitoring and tighter management of cash flows
- ▶ Revisiting investment strategies

In terms of redesigning products and changing redemption periods, it was noted that there are challenges in complying with regulatory and fiduciary responsibilities.

The paper concluded that

... establishing liquidity policies and enhancing monitoring are critical first steps in supporting future decisions around member equity. Revisiting Constitutions and PDS's are a second step. Redesigning products so they are fit for purpose as well as more innovative solutions are also available.

The increased attention to superannuation fund liquidity from regulators, industry organisations, and product providers, combined with enhanced reporting and disclosures of fund liquidity, is likely to result in a significant uplift in superannuation fund member awareness of liquidity in superannuation funds as a significant determinant of member choice. It is also likely that this will result in superannuation product innovations design changes that particularly target liquidity, and may result in superannuation investment products that provide liquidity reserves and buffers to secure short term member liquidity whilst allowing members to adopt longer term investment strategies.

Superannuation fund managers and product providers that take the initiative in the area of fund liquidity management are likely to have a marketing advantage over those that are slow to adopt regular liquidity monitoring.

7 Role of projective modelling

The liquidity of superannuation funds should be regularly monitored through a structured assessment process. At a minimum an annual cycle approach should be applied, although a regular monitoring of potential impacts and changes to liquidity of superannuation funds should be adopted throughout the year to anticipate potential threats and adverse changes to the liquidity position.

An adverse change to the liquidity position can occur in a number of ways: unanticipated large member payments; lower than anticipated contribution inflows; or through lower than expected liquidity of the assets supporting the superannuation funds. Asset liquidity can be negatively impacted through a major global crisis or asset specific issues, particularly associated with unlisted, or illiquid asset holdings.

A potential approach, consistent with the banking industry with respect to liquidity, and the insurance industry generally, is to establish reserves to support adverse liquidity events.

The liquidity outcome involves the interaction between member cash flows (contributions, benefit payments, and switches between asset classes) and the liquidity of the asset portfolio. This implies that a model needs to be comprehensive and address all the influences on fund liquidity. In particular, especially in the longer term, this implies the need for demographic modelling of the fund's membership.

Demographic modelling should also be important and valuable to a fund in its own right as more member transit from accumulation to decumulation carrying larger balances and changing needs and investment profiles with them. The distinction between members who have rights and expectations of regular withdrawals and members who, while they have the right to switches and withdrawals, generally in accumulation phase can be thought of as being rather more discretionary in terms of their liquidity needs. Demographics are, to a point, controllable by a fund if they so choose and set their strategies appropriately.

Additionally, as recent experience has vividly demonstrated, changes in the financial environment, globally, nationally and individually, can come rapidly and unpredictably. This highlights an ongoing need for scenario testing and consideration of both early warning signs and approaches to managing adverse conditions. As a fund's circumstances continually change, the need for these analyses to be carried out on a regular cyclic basis is clear.

In our view, while there may be an element of 'necessary evil' about the need for funds to address liquidity issues, the effort expended in terms of better understanding both the demographics of the fund and the issues raised by considering liquidity risk management have the potential to provide funds with considerable value add in their ongoing management.

We also note that to develop a good understanding of liquidity risk and its implications, stochastic modelling of future possibilities is required. This permits the estimation of the means of future distributions of results but also explicitly provides the information regarding the level of uncertainty and shape of the distribution of those future results.

8 Asset side modelling

The modelling of the asset side of the equation should not be completed in isolation from the member contribution, payments and switches. However the approach taken to this component needs to be detailed and separately considered to member cash flows. The fund assets are the ultimate determinant of the superannuation fund liquidity. The impact of liquidity (or a lack thereof) of superannuation fund's assets impacts the ability of the superannuation fund to meet payment obligations, to members and otherwise. This needs to be assessed and managed in a structured manner.

Napper et al 2008 outline a structured process for the measurement of liquidity, which we believe offers a framework that could be applied more broadly across the industry.

They outline an approach in which a minimum liquidity requirement is set for the fund, and this is quoted as a minimum percentage of the fund assets that must be able to be liquefied within 1 month, 3 months, 6 months, 1 year, 2 years and 4 years. Whilst the paper quotes specific liquidity requirements for these periods, these are specific to the MLC Horizon 4 product. We believe that the levels of minimum liquidity should be determined on a case by case basis.

The actual percentage of assets that can be liquefied in the respective time frames is then compared to the minimum requirement and quoted as a 'multiple of required liquidity'. They also express the actual liquidities as a 'tolerance for reduced liquidity' to provide a guide to the robustness of the liquidity level relative to the minimum requirements for the different time frames.

We believe this is a useful conceptual framework for the assessment of fund liquidity. A critical element will be the accuracy in the determination of the period to liquefy assets. For example, for investments held in listed equities, whilst the equity market settles transactions in three business days, there will be practical constraints that depend on the size of the holding and the underlying liquidity of the stock that could see the effective time to liquify positions in shares much greater than the three day settlement period. This will require an analysis of specific asset holdings.

It should be noted that this analysis is still based on 'normal market trading conditions', and it becomes more difficult to ascertain the liquidity positions during a time of crisis. For example, there was a significant decline in the liquidity of highly rated corporate securities, accompanied with a significant increase in credit spreads which saw magnified declines in prices and less liquid positions.

In addition, there was a significant decline in the ability of market participants to liquify positions in some of the more complex financial instruments that had been regarded as liquid prior to the GFC.

Severe financial downturn scenarios should also be modelled to determine the impact of delivering monies to exiting members and the residual fund position following a downturn and larger than expected member benefit outflows.

Acerbi and Finger 2010 introduce the concepts of 'mark-to-exit' or 'mark-to-liquidation' values for assets in a portfolio, which is a valuation that allows for the liquidity constraints on exiting asset positions, and they suggest that using a 'mark-to-market' view provides an overly optimistic valuation of assets when measuring and modelling liquidity of an asset portfolio. They also introduce the concept of a 'liquidity policy' whereby investment managers are subject to a liquidity constraint such as 'be prepared to raise \$1 million in cash in a weeks time'.

We believe these types of approaches are useful to consider when putting together an asset model for liquidity stress testing.

QIC 2008 illustrates the impact on a balanced fund asset allocation that occurred during the month of September 2008, and highlighted a number of potential problems that could have occurred with the shift in asset weightings, and potential breaches of investment policy that resulted. It identified risks due to the switching by members into less risky options, the impact of illiquid assets, exposure to counter party risks, impacts on currency hedging programs, and the impact on prices of 'selling in a buyer's market'. It recommended sensitivity testing, frequent rebalancing of portfolios, retaining some discretion on timing for certain trades and managing exposures using derivatives (in addition to physical asset holdings) to retain flexibility to provide liquidity as required.

These papers have raised a number of valid considerations that should be considered for inclusion in modelling the assets of superannuation funds to assess fund liquidity and develop policies and strategies for liquidity management in superannuation funds.

We note that the key issue is the level of mismatch between the liability demands and the assets held, rather than the absolute level of liquidity or illiquidity in the assets. In this sense there is a strong analogy with more traditional ALM (Asset Liability Matching / Monitoring / Management). The analogy continues in that, in principle, the liability requirements should drive the asset requirements for ALM and this highlights the need in the liquidity context for the liability characteristics to impose constraints on the asset characteristics. It is not to us clear that this link has been established.

9 Liquidity reserves

We suggest that it would be good, and prudent, practice for funds to establish a liquidity reserve. This reserve would be held and managed at a fund level and be used to support investment options which encounter liquidity issues. While it may be in practice that monies to support a liquidity reserve are commingled with monies for other reserves - operational risk in particular - the purpose of a liquidity reserve is separate and distinct to that of operational risk reserves. In our view this would be consistent with the APRA guidance (APRA 2008b).

In our view, while the recent GFC may have passed and the more immediate liquidity issues and consequences it highlighted in superannuation are either resolved or at least quarantined, it would be naive to assume that there will be no liquidity risk events occurring in the future. It is therefore prudent and appropriate to put in place appropriate liquidity risk mitigation processes and to consider how liquidity risk events, when they do occur, will be managed. A liquidity reserve is part of the process for managing the future liquidity events when they occur.

The basis for funding a liquidity reserve would be based on the modelled cost for each investment option of liquidity, under adverse liquidity conditions, reflecting the asset composition of that investment option. A periodic charge would be taken from each investment option and be contributed to the central liquidity reserve. Once a specified limit to the liquidity reserve is reached, then any additional contributions would be returned to investment options in line with their contribution rates. Obviously, assets in a liquidity reserve would need to be highly liquid. When the liquidity reserve is drawn on, it would then be replenished over time by further contributions. We note that, in principle, and subject to appropriate sources of funds being established in advance, it would be possible for a liquidity reserve (at least for a period) to become negative.

An operational risk reserve can be established and the macro equity issues of making contributions to the fund are justified in the longer term for the group of members investing in the fund and its investment options. Analogously, there is a justification at the macro level for holding a Liquidity reserve.

An advantage of establishing a liquidity reserve is that it would require the explicit quantification of the potential costs of liquidity for each investment option. This would then be taken into consideration in establishing the expected return from that investment option. It may be that the cost of supporting liquidity, especially under adverse conditions, for an investment option with a certain asset allocation does not justify the adoption of that asset allocation.

We also note that a liquidity reserve does not need to be held for the full value of an illiquid asset, but only for the difference between its holding value and the value it can be liquidated for. However, a realistic value that an asset may be liquidated for, in stressful conditions, may be hard to establish.

We also note that it may be that a 'direct' liquidity reserve need not be held, or not held in full, as there may be opportunities to join some form of pooled reserve outside the fund, or there may be other insurance style options available. If such a pooling approach is viable it might be more efficient and robust than individual funds holding their own central liquidity reserve for the same reasons that the pooling and aggregating of insurance risks is fundamental to insurance.

It is one thing to establish a liquidity reserve at a fund level to address liquidity issues that arise at the level of an individual fund. However there are also issues which may arise at a national or international, systemic, level. Such issues cannot be addressed by individual funds. This raises the question of whether, to address systemic issues, the establishment of some type of national liquidity reserve should be considered. The essence of how such a fund may set its contributions would be the same as that used for investment options contributing to a single superannuation fund's central liquidity reserve. The pricing basis and management would be analogous to those used for a central liquidity reserve for a fund, just on a larger and broader scale. It may also be that an 'account' is maintained for each participating fund, to improve the equity between participating funds.

An alternative approach, which may be intermediary between individual funds holding their own central liquidity reserves, and a national reserve focussed on systemic risks, is to take an approach akin to that used for the so-called 'reinsurance reserve' for private health insurance. This is a redistribution mechanism amongst a group of funds (not necessarily the whole industry) which takes in a premium from each fund, reflecting that fund's risk profile, and then redistributes the monies received on a periodic basis (perhaps annual) to the participating funds, reflecting industry experience.

Another approach may be to use the analogy of property funds. That is, a separate fund is established with a primary purpose of providing other investment vehicles with liquidity. Units in this fund could be held and then redeemed or traded on notice. An analogy to the listed version of property funds, in contrast to unlisted, would likely be appropriate as the key objective is to provide liquidity in stressful situations, not in 'business as usual' situations. Whether there should be any level of compulsion regarding participating in such a fund (or funds) is a matter for debate. We also note that this option is not, and probably should not, be restricted to superannuation funds.

10 Long term issues and status

10.1 Governance and management

As with other risks faced by superannuation funds, liquidity risk needs to be placed in an appropriate governance and risk management framework. As stated by APRA, we would expect superannuation funds to develop and maintain liquidity policies and to put in place the processes and controls to ensure these policies are effectively implemented. The different aspects of liquidity may require different approaches to their management.

Core to an actuarial approach is the use of an actuarial practice and control approach (Gribble 2006). This consists of two cycles:

- ▶ Analytic Cycle. This provides the standard 'Identify, Solve, Monitor' process. Key to its success is its repetitive cyclic nature, with each element linked to both the others, and is driven by the Monitor component which links execution back to intention for review. In a broader context than the traditional actuarial model building perspective, this idea can be taken across to governance and rephrased as 'Policy, Implementation, Review'.
- ▶ Professional Cycle. This surrounds the Analytic Cycle and provides it with both context and linkage with the wider business perspective. It consists of four elements, each linked with the other. These elements are Professionalism, Governance, Implementation, and Environment.

A natural management tool for liquidity risk, but also more widely in superannuation is the concept of a Financial Condition Report. This is well developed in life, general and health insurance in Australia. The core concept is to provide the owners of the business, the Board, or in the case of a superannuation fund, the Trustees, with a holistic and independent document assessing the current state and future prospect of the business on a regular annual basis. In the superannuation context it might be better to title such documents differently to remove the overt 'financial' aspect. A more encompassing name such as Business Condition Report may be more appropriate.

In a superannuation context, liquidity and demographic projections would be two of the key topics to be addressed.

Of course, the level of governance and depth of longer term modelling would need to be tailored to each fund. A 'one size fits all approach' is not appropriate.

10.2 Impacts of liquidity risk

As we have noted, liquidity risk is a consequential risk which has implications in a number of areas:

- ▶ Strategic asset allocation, with more emphasis on how assets may behave in stressed situations
- ▶ Selection and management of fund managers
- ▶ Asset management and unit pricing/crediting rate determinations
- ▶ Product development, particularly for decumulation products
- ▶ Pricing and charges, especially if a liquidity reserve is established.
- ▶ Member education and disclosure
- ▶ Trustee fiduciary responsibilities regarding member investment choices

- ▶ Improved understanding of fund's member demographics and the impact of future changes in them
- ▶ Investigation of insurance or risk sharing opportunities in the event of a significant liquidity risk event occurring, either at a fund level or more broadly

The possibility of systemic liquidity mismatch risk has been raised, although it does not appear to have been given a high priority. This is the risk of a broader loss of confidence due to a single fund's failure to meet its 'at-call' obligations triggering a run in the wider superannuation community. The experience of the GFC has shown that loss of investor confidence can be sudden and profound (Eagleton 2009).

10.3 Factors leveraging liquidity risk

We observe that there are several factors which may leverage liquidity issues.

Data we have presented has been at an aggregated level over investment options. Since some investment options, such as (real) cash ones, have no or minimal liquidity issues, this implies that the impact of liquidity issues on those investment options which are impacted will be stronger. That is, the averaging impact of examining liquidity at a fund level understates the real impact of liquidity at the investment option level.

As superannuants age, especially as they move from accumulation to decumulation status, the impact of the need to rebalance assets to possibly reflect changes to more conservative investment positions and options may also trigger internal asset flows that do not result in member withdrawals. If those asset flows require the realisation of illiquid assets then liquidity management issues may arise. That is, the impact of changes in demography and the aging population may be leveraged through older members having larger balances and those same older members changing their asset mix requiring the liquidation of illiquid assets if asset mandates are to be adhered to.

In situations of financial stress, the right of superannuation fund members to portability in a short time frame is contradictory to longer term perspectives which should be necessary conditions for the investment into illiquid, or potentially illiquid, assets.

10.4 Acknowledge need minimise the impact of investment 'troughs'

We acknowledge that liquidity risks typically arise in adverse conditions. In this contest we also acknowledge that the liquidity risk management process is therefore more about minimising the impact of the troughs from stakeholders, fund members in particular. This, however, highlights the need to take a healthy but sceptical view of liquidity risk management. This contrasts with a more typical 'business as usual' and 'best estimate of the future' perspective.

We observe that there are many sophisticated investment approaches and methodologies promoted to, and used by, superannuation funds. We have no objection to this but we do ask whether the implicit liquidity assumptions that appear to be made under a 'business as usual' premise have been stress tested under adverse conditions. If the impact of adverse conditions are not assessed and managed, the prudence of trustees and their investment policies may be open to question.

We also observe that liquidity risk management, in principle, should depend on stochastic modelling. In the context of managing the investment and liquidity troughs, the future is unpredictable and non-linear, and consequently there is a need to understand the variability of possible outcomes, especially if they are adverse for either the member or the fund.

11 Potential for actuarial contribution

Superannuation fund liquidity came under increased scrutiny following the GFC. As liquidity returns to the investment markets, some of those initial concerns in the industry may subside. The industry may begin to heave a sigh of relief and be tempted to adopt the ‘status quo’ position. Alternatively there may a temptation to adopt overly conservative and highly liquid positions in superannuation funds to address liquidity management, but this may be to the detriment of long term member benefits.

Liquidity in superannuation funds will remain a critical issue that should be addressed by superannuation funds. The demographic changes in funds, increased portability of member benefits, higher levels of member switching, and the temptation of large funds investing in illiquid assets, and assets with liquidity that changes over time will require the management of liquidity in superannuation funds to remain a key ongoing focus for the industry.

The modelling of the interactions of fund in-flows and out-flows and the liquidity of the superannuation investment portfolio will be critical to the management of liquidity in superannuation funds. The development of suitable metrics, and processes for the reporting and monitoring of fund liquidity to trustees and regulators and fund members will become increasingly important.

Actuaries are well placed to be in the forefront of this developing area. To focus on where actuaries may best contribute, we use a heat map approach, with the numeric criteria as give described in section 4.4.

We have included a final line in the table which is more broadly based than liquidity risk. The purpose of this line is to recognise the broader actuarial skill set than that which might be specifically linked to addressing liquidity risks.

Table 11.1: Potential actuarial contribution for liquidity risk management

		Immediate (Treasury / cash flow)	Short term (Budget, 1 yr)	Long term (projections, demography)	Extreme events
Liability (member)	Accumulation	1	2	4	5
	Decumulation	2	3	5	5
Asset (FM)	Accumulation	1	2	4	5
	Decumulation	2	3	5	5
Fund	Overall	2	3	5	5
	Extreme event	5	5	5	

In our view, the actuarial contribution to the immediate aspects of liquidity management, reflecting the immediate and short term issues which are important for the ongoing effective management of superannuation funds, is relatively low. That is not to say they are unimportant, just that they are not in the standard actuarial paradigm.

Regarding the short term perspective on liquidity, the actuarial approach has value but needs to be set in the context of other issues funds need to consider. In the longer term, the potential for a valuable actuarial contribution is strong, reflecting established actuarial skills.

In all cases when extreme events occur, we suggest that there is the opportunity for an actuarial contribution, in terms of monitoring and implementing mitigating actions, and in terms of managing the events when they occur.

12 Conclusion

Liquidity risk management has emerged as an important issue in superannuation for a variety of reasons. It is a 'consequential' risk of being in business and can have a pervasive impact.

In principle, the management of liquidity is straightforward. Sufficient cash needs to be on hand, or certainly accessible, so that entities can meet their obligations in a timely manner. In practice, the governance and implementation of effective liquidity risk management is much more difficult and complex for a variety of reasons. Both 'business as usual' and extreme scenarios need to be addressed.

In this paper we have:

- ▶ Noted that the common perception of ongoing liquidity in the industry, based on, generally, there being historic net inflows into superannuation funds, is misplaced, spurious, and may not continue in the future
- ▶ Observed that the liquidity position of funds and, more to the point, investment options, may change rapidly and materially in stressful situations
- ▶ Explained why the management of liquidity risk is important, despite some indications that it is not highly regarded in the industry
- ▶ Defined liquidity risk and provide a structure in which liquidity risk can be assessed
- ▶ Clarified that, while conceptually liquidity management is straightforward, in practice its implementation is difficult, complex and subject to other influences
- ▶ Provided a framework and criteria for the management of liquidity risk
- ▶ Proposed that, as a matter of good and prudent practice, a liquidity reserve, at a fund level, be established. At the least, this would require an explicit assessment of the cost of the liquidity risk for each investment option offered by a superannuation fund. The purpose of a liquidity reserve is distinct from that of operational risk reserves.
- ▶ Suggest that an increased focus on the management of liquidity risk can provide value add for funds through a better understanding of the member demographics and improved robustness of their asset management processes
- ▶ Provided a heat map reflecting key criteria assessing the potential for actuarial contribution to in managing liquidity in superannuation
- ▶ Suggested that a Business Condition Report for superannuation funds would be a natural mechanism for the ongoing management of liquidity risk (as well as other superannuation risks and issues)

We also observe that the majority of what we have said has not depended on being in a superannuation environment, rather an investment environment. Consequently we suggest that the assessments made and conclusion reached here are broadly applicable. By the same token, this suggests that liquidity analyses made in other areas, perhaps banking in particular, may well have relevance in the superannuation context.

13 Limitations

This paper provides a general discussion and should not be interpreted as providing specific advice or recommendations for a particular situation that may arise in practice. Each situation arising in practice will have its own set of specific circumstances and business management issues to be addressed.

This paper does not constitute financial product advice under the Australian Financial Services licensing regime.

Author details

Jules Gribble, PhD FIAA FSA FCIA CERA MAICD FASFA is a Director of Enterprise Metrics Pty Ltd, based in Melbourne, Victoria, Australia. Jules can be contacted by:

- ▶ Email: Jules.Gribble@enterprisemetrics.com.au
- ▶ Mobile +61 408 127 624

Cary Helenius, FIAA, is a Director of Equity Risk Management based in Melbourne, Victoria, Australia. Cary can be contacted by:

- ▶ Email: Cary.Helenius@equityriskmanagement.com.au
- ▶ Mobile: +61 403 125 014

References

- AASB 2010, *AASB Action Alert: Meeting 110 of 30 July 2010*, Issue 137, Australian Accounting Standards Board, August 2010.
- Acerbi and Finger 2010, Acerbi C and Finger C, *'The value of liquidity; can it be measured?'*, RiskMetrics Group, June 2010.
- ASFA 2009a, *ASFA's Best Practice Paper 34: Trustee Guidance – Valuation and Liquidity of Unlisted Investment'*, Association of Superannuation Funds of Australia, July 2009.
- ASFA 2009b, *ASFA Best Practice Paper 35: Trustee Guidance – Managing Superannuation Fund Liquidity Risk*, Association of Superannuation Funds of Australia, October 2009.
- APRA 2007, *LPG 250 - Asset and Liability Management Risk*, Prudential Practice Guide, Australian Prudential Regulation Authority, March 2007.
- APRA 2008a, *Liquidity, licensing and superfunds: What's on APRA's agenda*, presentation by S G Venkatramani at CMSF Conference, Australian Prudential Regulation Authority, 17 March 2007.
- APRA 2008b, *Unit pricing: Guide to good practice*, Australian Prudential Regulation Authority, August 2008
- APRA 2010, *Liquidity management in superannuation*, Australian Prudential Regulation Authority, APRA Insight, Issue 1, 2010.
- APRA 2011, *Statistics: Quarterly Superannuation Performance*, December 2010, Australian Prudential Regulation Authority, March 2011.
- BCBS 2008, *Principles for Sound Liquidity Risk Management and Supervision*, Basel Committee on Banking Supervision, BCBS document 144, 2008.
- Benn 2008, *Liquidity Risk Metrics – letter to the Liquidity Risk Standing Group*, March 2008.
- Cooper 2010, Cooper J et al, *Super System Review: Final Report*, (the 'Cooper Review'), June 2010.
- Eagleton 2009, Eagleton S, *Superannuation fund liquidity: The elephant in the room*, Mercer, June 2009.
- Evans et al 2006, Evans J, Foster F D, Tan, K, *Drivers of Investment Choice: Some evidence from Australian superannuation participants*, Actuarial Studies unit, University of New South Wales, undated (but post 2005).
- FSA 2009, *Strengthening liquidity standards*, PS09/16, October 2009.
- Gribble 2006, Gribble J, *Unit Pricing, Governance and Control Cycles*, Actuary Australia, Issue 116, December 2006.
- Howes 2009, Howes M, *Accumulation Funds Managing Liquidity Risk in a volatile world*, Institute of Actuaries of Australia Biennial Convention, April 2009.
- Laughlan and Tubman 2010, Laughlan I and Tubman W, *Illiquid assets - are they worth it?*, Institute of Actuaries of Australia Financial Services Forum May 2010.

Napper et al 2009, Napper K, Sukhla J, and McCaw B, *Liquidity and Equitable Unit Pricing*, MLC Investments Ltd, March 2009.

PwC 2009, *'Managing investor equity in illiquid markets'*, May 2009.

QIC 2008, *Red Paper – Liquidity in superannuation funds: Effectively managing the risk of illiquidity*, QIC, December 2008.

Reserve 2008, *A statement regarding the Reserve Primary and U.S. Government Funds*, September 19, 2008.

Stronger Super 2010, *Stronger Super*, Australian Government, December 2010.

Towers Watson, 2011, *Global Pension Asset Study*, Towers Watson, February 2011.

Wickham and Jeffrey 2011, Wickham D and Jeffrey B, *Super Risk Management Roundtable: Survey and Current Issue*, CMSF Conference, March 2011.