NZ Society of Actuaries Conference 2024

26 November 2024

IFRS 17 Illiquidity Premium

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1 Executive Summary

1.1 Abstract

The new accounting standard for insurance contracts, IFRS 17, requires that future cash flows are discounted using rates which reflect the liquidity characteristics of the insurance contracts. In this paper we explore some methods used to determine:

- What the liquidity characteristics of an insurance contract are, and
- How to determine discount rates which reflect those liquidity characteristics.

We also include a summary of discount rates used from publicly available sources for insurers' first round of financial statements under the new standard.

IFRS 17 specifies different discount rates to use in different circumstances e.g. depending on whether we are accreting interest on the contractual service margin, or if there is an investment component to the contract. A wide range of guidance has already been written on this topic and we don't seek to replicate that here. Rather, this paper focuses on the difference between discount rates which do or don't reflect the liquidity characteristics of the insurance contract.

1.2 Determining the full illiquidity premium

Drawing upon research by WTW we have estimated the illiquidity premia which might be included in the returns for various assets. For short term assets of high credit quality we might see an illiquidity premium of 50-100 basis points per annum (that is 0.5% to 1%). This is referred to as the full illiquidity premium i.e. this is an upper bound to be used for the most illiquid insurance contracts.

Further details are provided in Section 4.

1.3 Proposed basis – liquidity characteristics

We propose a scoring system for determining the illiquidity characteristics of a group of insurance contracts. This system consists of eight questions regarding the Liability for Remaining Coverage (LRC), of which a subset of five are also relevant to the Liability for Incurred Claims (LIC). The response to each question is allocated a score from 1 to 5.

Each question is given a weighting based on its relevance to the group of insurance contracts. The weighting might be as simple as 0%, 50% or 100%.

Based on the scores and weightings we determine a weighted average score for the group of insurance contracts. This score translates to a percentage of the full illiquidity premium, where a score of 1 means zero illiquidity premium and a score of 5 means the full illiquidity premium is used.

Further details are provided in Section 5. We have included an example of how the calculation might be applied in Appendix A

1.4 Market survey

We reviewed publicly available data on illiquidity premia for New Zealand licensed insurers. We found that:

- Some insurers included no illiquidity premium.

- Some insurers included an illiquidity premium only for certain groups of insurance contracts.
- Where an illiquidity premium was included, some insurers used a relative basis while other used an absolute basis i.e.:
  - Relative basis: discount rate = risk-free rate * (1+x%)
  - Absolute basis: discount rate = risk-free rate + x%
- For insurers using a relative basis the adjustment varied from 0% to 0.55%
- For insurers using an absolute basis the adjustment varied from 5% to 10%. This equates to an illiquidity premium of around 0.25% to 0.60%.

Further details are provided in Section 6.

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2 What the standard says and how it applies

2.1 Discounting for the time value of money

IFRS 17.32(a)(ii) requires that fulfilment cash flows include *an adjustment to reflect the time value of money and the financial risks related to the future cash flows*. Financial risk is defined in the standard and includes the risk of future changes in interest rates. There are other components of financial risk (e.g. currency movements) but these are not discussed here.

In its simplest form, say we have a cash flow of $100 that we expect to pay in one year's time. We can invest that money today such that our original investment plus the return we have generated will be sufficient to meet the $100 payable one year from now. If we can earn a return of, say, 5% then we can invest $95.24 today so that we have $100 available one year from now.

The question arises as to what rate we should use when discounting cash flows.

2.2 Discount rates

IFRS 17.B72 lists different criteria for determining discount rates depending on what we are measuring e.g. fulfilment cash flows vs interest accreted on the contractual service margin. In addition, IFRS 17.B74(b) notes that *cash flows that vary based on the returns on any financial underlying items* (i.e. contracts with an investment component) have particular considerations. Those considerations are not discussed in this paper.

To keep things simple, let us consider the appropriate discount rates to use when discounting fulfilment cash flows at initial recognition for cash flows that do not vary based on the returns on any underlying items.

IFRS 17.B79 requires that *the discount rate reflects the yield curve in the appropriate currency for instruments that expose the holder to no or negligible credit risk, adjusted to reflect the liquidity characteristics of the group of insurance contracts.*

Elaborating on the adjustment for liquidity, paragraph B79 goes on to say that the *adjustment shall reflect the difference between the liquidity characteristics of the group of insurance contracts and the liquidity characteristics of the assets used to determine the yield curve*, specifically noting that *under some insurance contracts the entity cannot be forced to make payments earlier than the occurrence of insured events, or dates specified in the contracts.*

2.3 Adjusting for liquidity – bottom-up approach

IFRS 17.B80 notes that one approach to determining an approach discount rate is to adjust *a liquid risk-free yield curve to reflect the differences between the liquidity characteristics of the financial instruments that underlie the rates observed in the market and the liquidity characteristics of the insurance contracts (a bottom-up approach)*. In other words, if the liquidity characteristics of our insurance contract are different to that of a highly liquid risk-free investment then we would adjust the discount rates accordingly. Starting with a liquid risk-free rate and adding a premium for illiquidity is referred to as the bottom-up approach.

Coming back to our earlier example, if we have a cash flow of $100 that we expect to pay in one year's time then we could purchase $95.24 in highly liquid government bonds returning 5% so that the bonds mature at $100 when our cash flow is due. If the cash flow becomes due earlier than expected, say six months from now, then we can sell our government bonds before they mature. New Zealand government bonds are highly liquid and there is a likely to be a deep secondary market for New Zealand government bonds six months from now.

On the other hand, if we know for certain that our $100 cash flow will not come due until one year from now, then that opens up other possibilities for investments. We don't need to be concerned with whether or not we can sell our investment six months from now.

Imagine there is some asset we could purchase which matures one year from now, with negligible credit risk, but which we cannot sell early. Would this asset provide a different return to the 5% we can achieve on highly liquid government bonds? If so, then we need to adjust our discount rate accordingly.

2.4 Adjusting for liquidity – top-down approach

IFRS 17.B81 goes on to say *alternatively, an entity may determine the appropriate discount rates for insurance contracts based on a yield curve that reflects the current market rates of return implicit in a fair value measurement of a reference portfolio of assets (a top-down approach). An entity shall adjust that yield curve to eliminate any factors that are not relevant to the insurance contracts, but is not required to adjust the yield curve for differences in liquidity characteristics of the insurance contracts and the reference portfolio.*

Effectively, the top-down approach means starting with rates that include things which need to be removed, such as credit risk.

2.5 Bottom-up versus top-down approach

As noted above, there are two approaches to determining discount rates that reflect the liquidity characteristics of our insurance contracts:

- Bottom-up – starting with risk-free, highly liquid rates and adding a premium for illiquidity.
- Top-down – starting with the yield on a reference portfolio and eliminating factors which aren't relevant to our insurance contracts.

Most actuaries in New Zealand will be familiar with using highly liquid government bond yields to determine interest rates, and the concept of adding a premium for illiquidity is fairly simple. By contrast, it can be very challenging to determine a suitable reference portfolio for a group of insurance contracts, especially in New Zealand where the market for exotic assets is limited.

Therefore, in this paper we focus largely on the bottom-up approach.

2.6 Insurers' actual asset portfolios

Nowhere in IFRS 17 does the standard discuss using discount rates which reflect the actual assets held by an insurer to back their liabilities[1]. It is important to note that the discussion above regarding assets we could purchase in order to match our cash flow obligations is based on the hypothetical return on assets with negligible credit risk and particular liquidity characteristics, not the actual assets that insurers hold in practice.

[1] Other than contracts with an investment component, but those are not in scope for this paper.

2.7 Separation of the insurance finance component

One of the differences between IFRS 4 and IFRS 17 is the explicit quantification of the insurance finance income or expenses. IFRS 17.87(a) notes that the insurance finance income or expenses include *the effect of the time value of money and changes in the time value of money*. The insurance finance component is disclosed separately in the financial statements and readers may choose to compare this to earnings on an insurer's assets.

Going back to our earlier example, let's say that our somewhat-illiquid, negligible credit risk, asset could earn a return of 6%. In that case we might discount our cash flows at 6% and provision $94.34 in order to meet our $100 obligation in one year's time. Let's say we have $94.34 in cash and we choose to invest it in highly liquid government bonds returning 5%.

One year later when we prepare our financial statements we will show:

- Insurance finance expense = $94.34 * 6% = $5.66.
- Investment return = $94.34 * 5% = $4.72

We have an expense of $5.66 and income of $4.72, resulting in an overall loss of $0.94. This loss is because the liquidity characteristics of our liability allowed us to match these by investing at 6%, so we discounted our liability cash flows at 6%. But we chose to invest our money in very liquid assets earning 5%. The $0.94 loss is due to the difference in liquidity between our liability cash flows and our actual assets.

There are many reasons why the investment return on our assets will differ from the insurance finance expense on our liabilities[2] e.g. we may choose to take on credit risk with our assets. Differences in liquidity will be one of those reasons.

[2] Another obvious reason is that insurers typically hold investment assets in excess of their insurance liabilities, although we can address this by splitting investments assets into those which support the insurance liabilities and those in excess.

3 Existing papers on illiquidity

In order to determine a discount rate which reflects the liquidity characteristics of the group of insurance contracts, we have to answer two questions:

- What are the liquidity characteristics of the cash flows of our group of insurance contracts?
- How do those liquidity characteristics translate into an appropriate discount rate?

In the following sections we consider the existing literature in response to these questions.

3.1 Bulpitt

Thomas Bulpitt, on behalf of the Institute and Faculty of Actuaries, wrote an undated paper: *IFRS 17: liquidity characteristics of insurance liabilities*. This is the only paper we were able to find which specifically addresses the question of the liquidity characteristics of the cash flows of an insurance contract.

Bulpitt makes the important point that **we must consider the liquidity from the perspective of a policyholder.** This is consistent with paragraph B79 of the IFRS 17 which notes *that under some insurance contracts the entity* ***cannot be forced*** *to make payments earlier than the occurrence of insured events, or dates specified in the contracts*. When considering liquidity characteristics, it is not a question of whether the insurer has the ability to make payments earlier, but whether the insurer can be forced (potentially by the policyholder) to make payments earlier.

Going back to our earlier example, if we have a payment of $100 due in one year's time, and we have the option (but not the obligation) to make the payment earlier, then we can still invest in an illiquid asset today with the knowledge that we won't be forced to sell it early.

Bulpitt suggests a number of criteria for assessing liquidity characteristics of cash flows. These criteria focus largely on the likelihood that the policyholder might lapse, considering:

- their ability to lapse
- lapse penalties
- tax (dis)incentives to lapsing
- options/guarantees which might be forfeit upon lapse
- contract term (longer being less liquid)
- having to re-underwrite if the policyholder lapses and obtains cover elsewhere.

The logic of including lapses as a consideration seems self-explanatory. Regarding the contract term, Bulpitt notes that charges incurred at the start of a contract may discourage an early exit.

In Section 5.3 we suggest some more criteria that could be considered.

Bulpitt notes that there may be value in allocating products to bucket and attributing an overall score in terms of liquidity, potentially on a spectrum from "highly liquid" to "highly illiquid." Bulpitt goes on to note that the liquidity of the insurance contracts should be considered relative to the liquidity of the reference portfolio. For example, the reference portfolio needn't be "100% illiquid" to receive 100% of the illiquidity premium. Rather, "100% illiquid" simply means that the insurance contracts are at least as illiquid as the reference portfolio.

3.2 Actuaries Institute

The Actuaries Institute (officially the Institute of Actuaries of Australia) published an Information Note on AASB 17 (the Australian equivalent of NZ IFRS 17). Version 3.0 (the final version) of this note was released in February 2021.

The Information Note is largely of list of questions regarding IFRS 17 with answers based on various other documents, many of which were produced by the IFRS 17 Transition Resource Group (TRG). The Information Note serves as a useful compilation of many different resources.

Regarding illiquidity, the Information Note addresses:

- The difference between the bottom-up approach and the top-down approach to adjusting interest rates for liquidity characteristics.
- Starting bases for liquid risk-free interest rates.
- Possible methods for the bottom-up approach, being:
  - Credit Default Swap (CDS) basis
  - Structural model
  - Covered Bond spreads
- Whether the illiquidity premium can be negative.

The CDS basis uses the spread on an insured (via CDS) portfolio of bonds with relatively low liquidity compared to liquid risk-free bonds.

The Information Note describes the structural model approach as more complex than commonly used in Australia, model-dependent and requiring subjective estimates of parameters not directly observable.

The covered bond approach is based on analysing bonds with relatively low liquidity which have a low credit risk due to a pool of assets backing them or, in the context of the Information Note, implicit default guarantees. However, the Information Note mentions that the only issuers of covered bonds have been banks and limiting the analysis to the financial sector might understate the illiquidity premium.

For regulatory capital purposes, APRA has specified a simple formula for calculating an illiquidity premium. APRA has described this approach as conservative and not necessarily well aligned with IFRS 17's best estimate principles. Appendix B provides further information on the APRA formula.

It is noted that, whilst some approaches might produce a negative illiquidity premium, the actuary would need to consider whether this is truly reflective of market behaviours or rather is the result of a limitation in the derivation. It is difficult to imagine any reasonable scenario in which a negative illiquidity premium would actually arise; such a result is likely to be an anomaly of the method used.

The top-down approach is only briefly discussed in the Information Note and it is noted that finding a reference portfolio to reflect the characteristics of the liabilities will be challenging.

4 Determining the full illiquidity premium

4.1 Definition of illiquidity premium

We have used the following definition of an illiquidity premium:

The additional return required to allow for the possibility and magnitude of a discount to the value of an asset when liquidating under urgency.

4.2 Opening comments on illiquidity

Quantifying the extent to which an illiquidity premium exists is, by its very nature, difficult. Some assets might be completely illiquid for a fixed period of time. Other assets may appear to be illiquid on the surface, but in practice can be traded on a secondary market. Other assets may be liquid until circumstances in the market change and liquidity completely evaporates. (We saw an example of this with global credit during the emergence of COVID-19 in 2020.) Certain assets' liquidity will depend on the *amount* one is seeking to trade. They may be sufficiently liquid in small parcels but not for large amounts.

The fact is that, ultimately, a price can be found for almost any asset if the seller is sufficiently motivated (absent complete market disfunction). Illiquidity therefore needs to be thought of as a spectrum rather than a binary quality that an asset may or may not possess.

4.3 Outline of WTW process

To assist with quantification of a suitable illiquidity premium, we have been guided by a May 2016 paper by the Asset Research Team at WTW entitled *Understanding and measuring the illiquidity risk premium*. This paper outlines a methodology for determining the illiquidity risk premium available on a specific asset. WTW uses this process to define an IRP (Illiquidity Risk Premium) Index.

WTW's process is centred around determining the expected prospective yield or return on an asset and then deducting various component parts from this return until all that is left is the premium due to illiquidity. The expected return used must capture, as much as possible, all known information about the potential size and timing of cash flows (for example, linkage to inflation) and should include deduction for all fees and costs that might also apply. There is inherent subjectivity in this process.

From this expected return, an appropriate risk-free rate is then deducted. This should be determined with references to the term of the asset. The use of a bond yield as a risk-free rate of return will also mean that compensation for any interest rate uncertainty is included in this deduction.

Deductions should also be made for other risk premia as appropriate. This might include credit risk (e.g. expected losses from defaults in the case of credit) and any equity-like risks that might cause cash-flow uncertainty. Examples of this might be the risk of vacancy in the case of real estate.

4.4 Application to credit markets

While the WTW methodology can be simply stated, it relies on a significant amount of judgement to correctly calibrate the various component parts. Return expectations for more volatile assets such as shares are difficult to ascertain and thus this methodology is more suited to assets that derive the majority of their return from income (as opposed to capital appreciation). We therefore use the corporate bond sector as a relevant example to show this process in action.

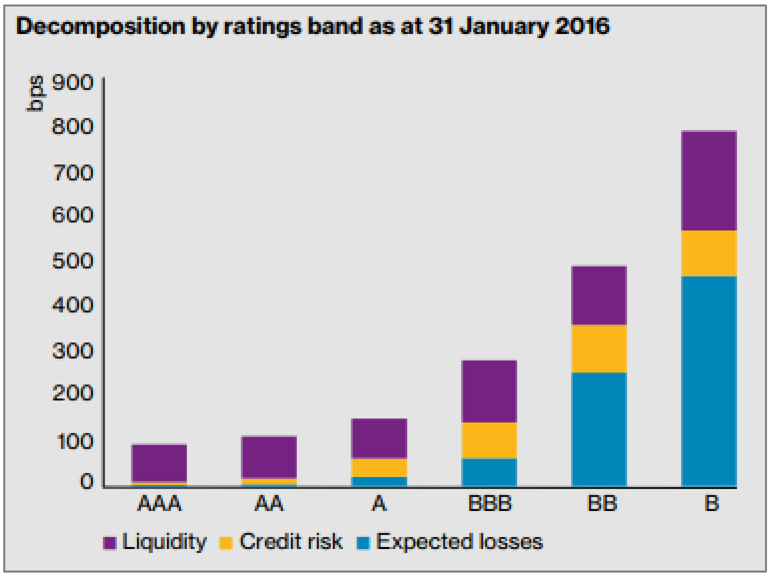
WTW considers that the additional yield available on credit relative to a risk-free asset (i.e. the credit spread) can be attributed to:

- A premium due to expected credit losses.
- A premium due to risk aversion (i.e. the market demanding more attractive pricing to compensate for the volatility of returns).
- The lower liquidity of credit compared to assets such as government bonds.

WTW uses a structural credit model to enable it to decompose the credit spread. This process involves considering a company's total equity value as a call option to acquire the company's total assets by paying the cost of its liabilities. Its liabilities (or debts) must therefore be the present value of the company's assets less the value of this option. The valuation of this option can be determined using implied market expectations for future volatility.

The resulting value of debt will take into account both the premium due to expected credit losses and the premium due to risk aversion. (In fact, these two factors can be separated out by comparing this option valuation to one calculated in a risk-neutral world.) The difference between this valuation of debt and the actual market price can therefore be taken to be the IRP.

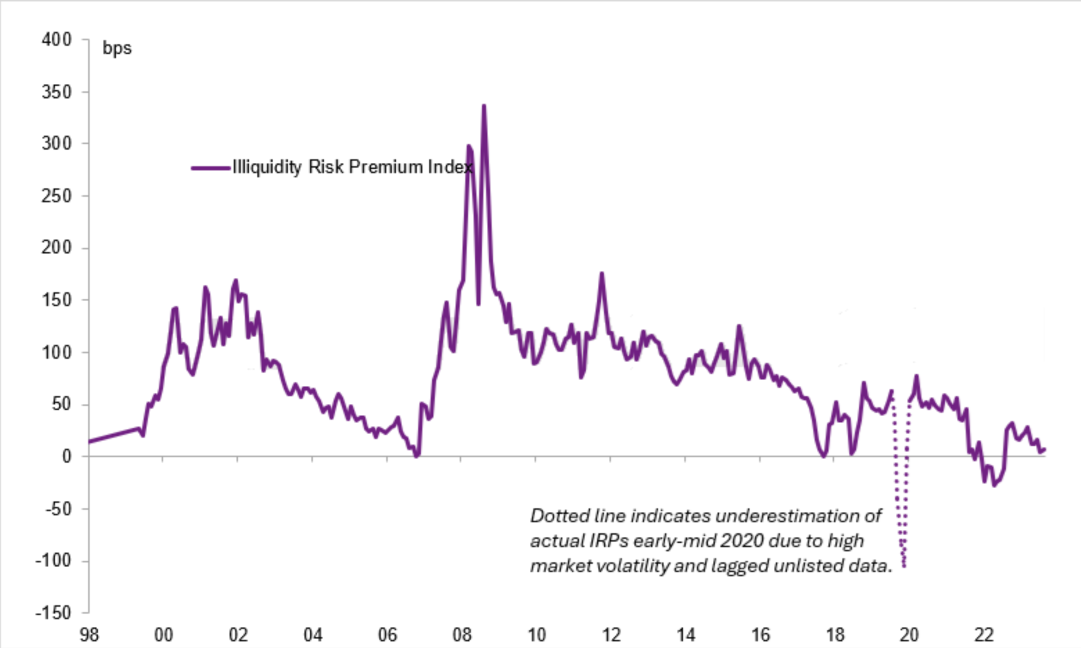
As an example of these results, the chart below shows the decomposition of corporate bond returns as calculated by WTW at 31 January 2016 across a range of credit ratings. Illiquidity typically increases as we move down the credit spectrum and, as expected, the illiquidity premium shown in purple increases in line with this.



Here, and in subsequent analysis, spreads and premia are specified in basis points (bps), one hundredths of a percentage point. (1bps = 0.01%).

4.5 Quantification of an illiquidity premium

In order to produce its IRP Index, WTW applies this methodology to various asset sectors, then takes a simple average to determine the index value. The following chart shows the value of this index over recent decades.



The chart illustrates how in times of market stress (such as the dot com bust around 2001 and the global financial crisis of 2008), investors required a much greater compensation for illiquidity. The illiquidity premium according to WTW has trended fairly steadily down since the aftermath of the global financial crisis and now sits close to zero.

This level perhaps reflects the high demand for illiquid assets recently. Intuitively, greater demand for something bids up the price. Or, in this case, lowers the premium. In today's market conditions, it would appear that investors are receiving little reward for taking on illiquidity risk.

4.6 Fair value estimates

WTW provided a "fair value IRP" in its 2016 paper. This is based on WTW's own study of the available literature as well as its own experience in investment in illiquid assets. WTW considers that the fair value will depend on the following factors:

- The volatility in the expected cash flows of an asset. (If cash flows are less certain or known, then the value of being able to liquidate that asset is higher).
- The extent to which an asset is illiquid, and
- The investor's utility function (i.e. the investor's tolerance for illiquidity risk).

WTW has provided the following estimates of required illiquidity premia, which are estimated based on the utility function of an 'average' investor.

Estimate of average required IRP		Asset cash flow volatility	
		Low	High
Level of illiquidity	Low	Lowest: 50-100 bps	Higher: 100-150 bps
	High	Higher: 100-150 bps	Highest: 150-250 bps +

Our view is that in the context of financial reporting for New Zealand insurers, it is the column relating to assets with low cash flow volatility (the left column) that is most relevant. This is because IFRS 17 specifies that insurers are to use discount rates with minimal credit risk, adjusted for liquidity differences. More speculative illiquid assets with high cash flow volatility (like private equity, for example) are less relevant here.

In addition, insurance cash flows tend to be quite stable and even large systemic shocks (such as earthquakes) typically only affect cash flows over long periods of time. By contrast, the WTW analysis considered a wide range of assets, some of which are likely to be much more illiquid than our insurance portfolios. Therefore, it is probably the upper row of the table that is most relevant.

While we are mindful of the subjective and inexact nature of calculations in this area, the ranges shown above strike us as reasonable estimates for use over the long-term. However, the time series chart in the previous section illustrates how the premium that investors are willing to accept for illiquidity may vary considerably over time. Current market pricing would suggest a lower figure, however arguably markets are "expensive". (We note the last time the IRP index touched zero was on the eve of the global financial crisis.) Insurers should therefore be mindful of current market conditions when determining the most appropriate illiquidity premium.

4.7 Conclusion

We propose that the most illiquid groups of insurance contracts would probably have illiquidity premia in the range of 50bps – 100bps. In Appendix C we have illustrated some hypothetical assets which might produce an illiquidity premium in this range.

4.8 Limitations of the process

The methodology set out in this section has some inherent shortcomings:

- The total expected return, a foundational component of the calculations, is highly subjective. Moreover, over short-time horizons, even an accurate estimate of returns can be wildly wrong due to market volatility, regime changes, etc.
- Since the IRP is being calculated as a residual item after accounting for other factors, temporary inefficiencies which result in mispricing in the market may be incorrectly attributed to the size of the IRP.
- When determining the total expected return from an asset sector, an allowance must be made for the extent to which outperformance of the market is present in the return. This is an inherently judgemental component.
- The extent to which this process can be applied to an asset class depends on data availability.
- The index is derived from a simple average of the asset sectors covered by WTW, which is ad hoc. It is biased towards those sectors for which data is readily available as well as the sectors for which an attractive illiquidity risk premium is available.

5 Liquidity characteristics of an insurance contract

In this section we expand on the work of Bulpitt and suggest a range of criteria to assess the liquidity characteristics of an insurance contract. Underlying these criteria is the question:

If we were to invest money today in order to meet our estimated future cashflows, how much certainty could we have that we would not need to liquidate our investment earlier than expected?

We consider this question separately for the Liability for Remaining Coverage (LRC) and the Liability for Incurred Claims (LIC).

5.1 Liability for Remaining Coverage

In the context of the LRC the fulfilment cash flows might include:

- Upfront premium receipts
- Ongoing premium instalments
- Premium refunds upon cancellation
- Outward claim payments
- Inward claim recoveries (salvage and subrogation, but not reinsurance, which is addressed separately)
- Operational expenses (policy administration and claims handling costs)

Bulpitt's criteria focus largely on the LRC and we suggest those criteria could be summarised as:

- Contractual ability to lapse.
- (Dis)incentives to lapse.
- Contract term.

The focus here is clearly on lapse rates. We suggest that these could be refined based on uncertainty regarding lapse rates, rather lapse rates overall. For example, if lapse rates are high but very stable then the insurer could have reasonable certainty over the estimated future cashflows (which will include estimates of future lapses). On the other hand, if lapse rates are typically low, but irregular events might cause them to increase (e.g. an economic downturn) then the insurer would have less certainty over the cash flows.

In addition to lapse rates, we suggest some further criteria that could be considered:

- Predictability of claims payments, including:
  - Volume of business (more policies => greater stability)
  - Predictability in the number of claims
  - Distribution of claim sizes
  - Impact of inflation (including inflation specific to the insurance product)
- Predictability of operational expenses (e.g. whether external factors can impact operational costs)
- Predictability of recoveries
- Ability of the policyholder to influence the timing and/or amount of claims payments.
- Ability for external factors (beyond the control of the insurer) to influence the timing and/or amount of claims payments.

5.2 Liability for Incurred Claims

For the sake of liquidity considerations, we consider the LIC to be effectively a special case of the LRC. When an insurer writes a policy it establishes a LRC which includes, among other things, the cost of claims which will be incurred in future. Once those claims are incurred we refer to the associated liability as the LIC.

We suggest, therefore, that the criteria for assessing the liquidity characteristics of the LIC are largely a subset of those for the LRC. Specifically:

- Lapse considerations are no longer relevant
- The number of claims is fixed (although there may be uncertainty regarding the number of IBNR claims)
- Now that claims have been incurred, is there more or less uncertainty regarding the amount and timing of claim payments and recoveries?

Regarding the last point, whilst more information in known about the claims, this doesn't necessarily mean that the relative uncertainty has reduced. For example, consider a domestic building portfolio. The cash flow estimates for the LRC include a number of perils which eventuate. Some of these perils will result in claims of predictable size and timing (e.g. small accidental damage claims) whilst others will be more uncertain (e.g. earthquake claims). If there is a large earthquake event then the bulk of the LIC will relate to earthquake claims and the relative uncertainty in the LIC might be more than it was in the LRC prior to the event.

5.3 Proposed criteria

We propose the following criteria for assessing the liquidity of the LRC:

Proposed criteria - LRC

1	Is the volume of business small and subject to high random variation?
2	Are there factors beyond the insurer's control which could cause lapse rates to significantly increase?
3	Is there a lot of uncertainty regarding the number of claims which might be incurred?
4	Is there a lot of uncertainty regarding when claims might be incurred?
5	Is there is a lot of variation in the size of claims which might be incurred?
6	Are there factors beyond the insurer's control which could affect when claims are to be settled?
7	Are there factors which might cause the insurer to recover less and/or take longer to recover than expected?
8	Is there uncertainty regarding the quantum of operational costs (policy administration and claims handling) and when the costs will be incurred?

For the LIC we narrow these criteria to a subset:

Proposed criteria - LIC

1	Is the volume of claims small and subject to high random variation?
2	Is there is a lot of variation in the size of future claims payments?
3	Are there factors beyond the insurer's control which could affect when claims are to be settled?
4	Are there factors which might cause the insurer to recover less and/or take longer to recover than expected?
5	Is there uncertainty regarding the quantum and/or timing of claims handling costs?

5.4 Proposed scoring system

Estimating the liquidity characteristics of insurance contracts is highly subjective and it would be spurious to use a highly sophisticated scoring system. We propose a relatively simple 1-5 score which can be attributed to each of the questions in Section 5.3. The criteria are all posed as yes/no questions and we suggest the following range of responses:

Proposed scoring system

Score		
1	Strong YES	High or very high uncertainty regarding the amount and/or timing.
2	Moderate YES	High uncertainty but with some limiting factors.
3	Neutral	Some uncertainty but neither particularly higher nor lower than the average across all insurers and all products.
4	Moderate NO	Low (but not minimal) uncertainty regarding the amount and/or timing.
5	Strong NO	Low or very low uncertainty regarding the amount and/or timing when compared to other groups of insurance contracts.

In some cases it may be appropriate to use a different score for different durations. For example, lapse risk may be more significant at early durations whereas later cash flows may be more subject to inflation risk.

Having determined a 1-5 score for each question we then take the weighted average across each group of insurance contracts. We suggest a simple weighting system:

Proposed weighting system

Weight	
100%	Criterion is relevant to this group of insurance contracts
50%	Criterion is relevant but is of lower importance
0%	Criterion isn't really relevant to this group of insurance contracts

Having determined the weighted average score we suggest the following mapping to illiquidity premium:

Proposed score-liquidity mapping

Overall score	Percentage of full illiquidity premium
1	0%
2	20-30%
3	40-60%
4	70-80%
5	100%

The definition of the full illiquidity premium is discussed in Section 4.

An example of how to implement this framework is given in Appendix A.

6 Survey of New Zealand insurers

MJW reviewed the accounts of 49 insurers in New Zealand (those that had published their first set of IFRS 17 accounts). A summary of their discounting / illiquidity premium approaches is shown below.

Illiquidity premium approach		Count	Rate range
Bottom Up	Absolute adjustment	28	0% - 0.55%
Bottom Up	Relative adjustment	4	5% - 10%
No discount due to short term		6	
Approach not specified		11	
Total		49	

- Most insurers have made some adjustment for liquidity.
- No insurer appears to be using the top-down approach.
- Of those that did make an adjustment, most used a fixed illiquidity premium of between 0 and 55bps.
- Some used a relative adjustment of 5-10%. With current interest rates this translates to an illiquidity premium of around 25bps – 60bps.

A Example calculation

To illustrate how the liquidity characteristics might be assessed in practice we have provided an example of how one might calculate the score for two groups of insurance contracts for a general insurer:

- A large, mainstream private motor portfolio
- A mid-size liability portfolio

The table below summarises the calculation for the LRC.

Example calculation - LRC

	Private motor		Liability	
Criteria	Weight	Score*	Weight	Score*
Is the volume of business small and subject to high random variation?	100%	5	100%	2
Are there factors beyond the insurer's control which could cause lapse rates to significantly increase?	50%	3	50%	2
Is there a lot of uncertainty regarding the number of claims which might be incurred?	100%	5	100%	2
Is there a lot of uncertainty regarding when claims might be incurred?	100%	4	100%	3
Is there is a lot of variation in the size of claims which might be incurred?	100%	4	100%	1
Are there factors beyond the insurer's control which could affect when claims are to be settled?	100%	3	100%	1
Are there factors which might cause the insurer to recover less and/or take longer to recover than expected?	100%	3	50%	2
Is there uncertainty regarding the quantum of operational costs (policy administration and claims handling) and when the costs will be incurred?	100%	4	100%	2
Weighted average score	**3.9**		**1.9**	
Full illiquidity premium	**0.50%**		**0.50%**	
Percentage of full illiquidity premium	**80%**		**40%**	
Illiquidity premium for GIC	**0.40%**		**0.20%**	

*(1=strong YES, 5=strong NO)

In determining the weights and scores we considered the following:

- Most of the questions are relevant, although lapse rates (distinct from renewal/retention rates) aren't often an important consideration for these classes.
- A large motor portfolio will have stable claims outcomes but the volume of business required to achieve stable outcomes for a liability portfolio is very high (and even then is subject to systemic risks).
- The number and timing of motor claims is typically very stable, but this isn't the case for liability.
- Volatility in the cost of motor repairs and inflation introduces some uncertainty into claims costs, but claim motor sizes are still typically quite predictable.
- For liability claims the sizes vary considerably, often depending on court outcomes.

- Claim settlement patterns for motor are often beyond the insurer's control, but tend to be quite stable.
- For liability claims, there are many factors beyond the insurer's control that can affect settlement timeframes e.g. court backlogs, willingness of parties to settle.
- Motor recoveries are a function of agreements with other insurers as well as the ability of uninsured third parties to pay. Many of these factors are beyond the control of the insurer but are typically quite stable.
- For liability claims, recoveries tend to be rarer, less predictable and subject to court outcomes.
- The stability of claims outcomes for motor insurance also means that operating costs tend to be stable.
- For liability claims, the uncertainty regarding quantum and timing of claims outcomes means that operational costs can be incurred at higher rates and for longer than anticipated.
- Our proposed range for the full illiquidity premium is 50-100bps. The analysis in Appendix C sets out some potential assets which might command an illiquidity premium in this range. We suggest that the most illiquid general insurance portfolios would be consistent with the lower end of this range. Therefore we have used 50bps as the full illiquidity premium.
- This equates to illiquidity premia of 0.40% and 0.20% for motor and liability respectively.

We undertook a similar assessment for the criteria relevant to the LIC.

Example calculation - LIC

	Private motor		Liability	
Criteria	Weight	Score*	Weight	Score*
Is the volume of claims small and subject to high random variation?	100%	5	100%	1
Is there is a lot of variation in the size of future claims payments?	100%	4	100%	1
Are there factors beyond the insurer's control which could affect when claims are to be settled?	100%	3	100%	1
Are there factors which might cause the insurer to recover less and/or take longer to recover than expected?	100%	3	50%	2
Is there uncertainty regarding the quantum and/or timing of claims handling costs?	100%	4	100%	2
Weighted average score	**3.8**		**1.3**	
Full illiquidity premium	**0.50%**		**0.50%**	
Percentage of full illiquidity premium	**80%**		**20%**	
Illiquidity premium for GIC	**0.40%**		**0.10%**	

*(1=strong YES, 5=strong NO)

- By and large the answers are the same as that for the LRC, except for the first criterion regarding volume. For liability insurance, even a mid-size portfolio will typically result in a small number of claims, and over time the LIC will be dominated by a few large, long-tail claims.

B ARPA specification

APRA's capital adequacy standard for life insurers, LPS 112, specifies a methodology for calculating an illiquidity premium for life insurers. This methodology is specified by APRA in their role as prudential regulator and isn't necessarily appropriate for financial reporting purposes. Nor is it necessarily appropriate for the New Zealand market. Nevertheless, it serves as a useful reference point.

B.1 LPS 112 wording

APRA specifies that, when calculating risk-free best estimate liabilities, an illiquidity premium must be added to the risk-free discount rate for policies that are:

- immediate life annuities;
- immediate term certain annuities;
- other types of annuities where there are no insurance risks other than longevity and servicing expenses;
- fixed term/rate business; and
- funeral bond business.

For the first 10 years after the reporting date the illiquidity premium is to be calculate as:

Illiquidity premium = 33 per cent x (A yield 3 year – CGS yield 3 year)

Where:

- 'A yield 3 year' is the yield on A-rated non-financial corporate bonds with a duration of 3 years.
- 'CGS yield 3 year' is the yield on Australian Commonwealth Government Securities with a duration of 3 years.

In other words, we assume that one third of the overall spread relates to the illiquidity premium (the other two thirds being credit risk, including margin for credit risk aversion).

APRA specifies some additional parameters/constraints:

- The illiquidity premium must be between zero and 150 basis points.
- The illiquidity premium beyond 10 years is 20 basis points.

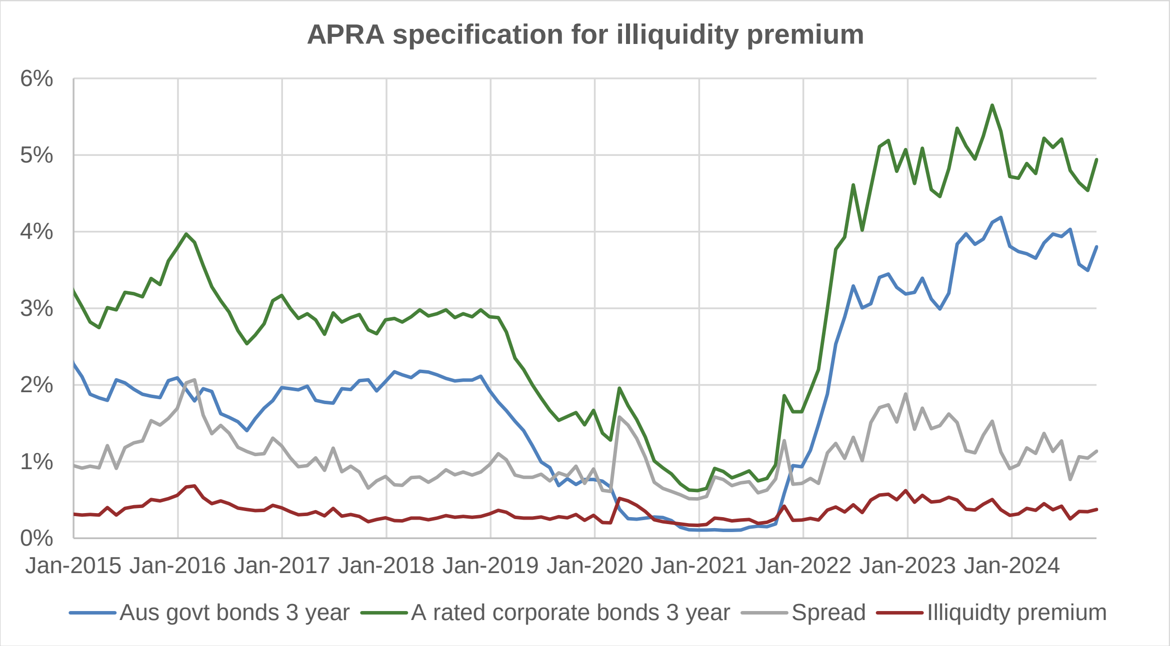
B.2 Conclusion

On the following page we should how the calculation plays out using recent data. In the context of financial reporting under IFRS 17 we see the key messages here as:

- APRA's methodology only applies to certain classes of business. In practice we might apply varying illiquidity premia to different classes (or a weighted average across classes).
- APRA's formula usually produces an illiquidity premium of around 25-50 basis points.
- The Actuaries Information Note describes APRA's methodology as conservative and not necessarily consistent with best estimate principles. This suggests that 25-50 basis points might be a lower estimate for the illiquidity premium for financial reporting purposes.
- At long durations (10+ years) APRA's view is that the illiquidity premium is likely to be lower.
- The illiquidity premium changes over time and isn't necessarily proportional to the risk-free rate.

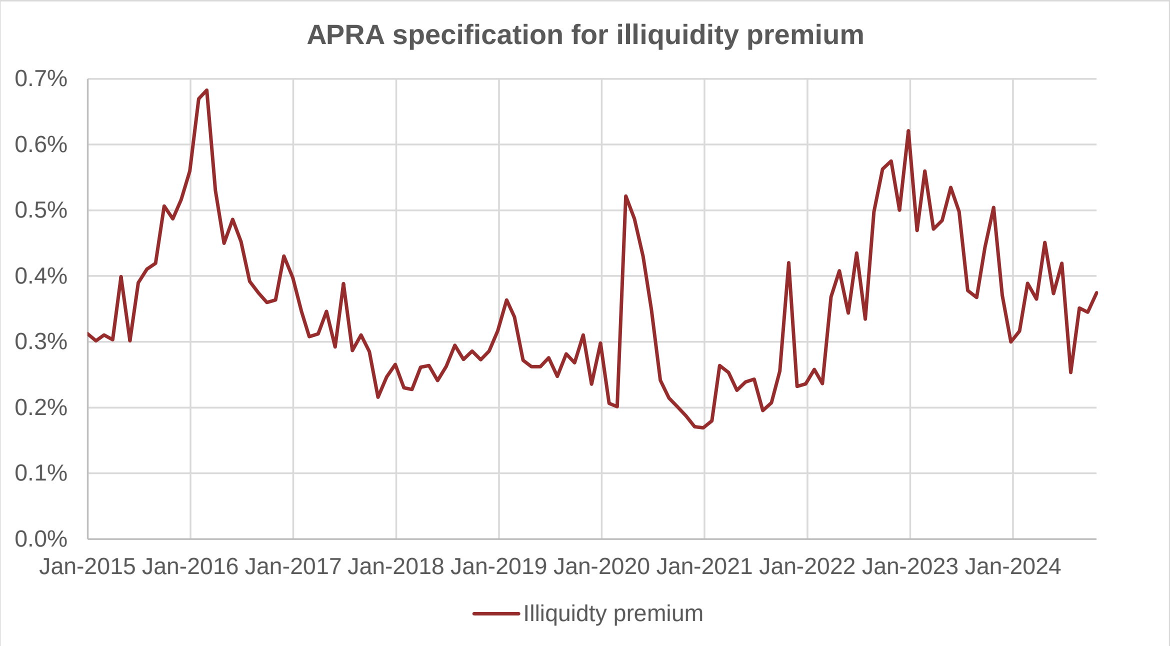
B.3 The calculation in practice

The chart below summarises the calculation based on data up to October 2024.



- Interest rates and spreads were fairly stable from 2017 to 2019 but changed rapidly between 2019 and 2023, particularly with the start of COVID-19 and the subsequent efforts to contain inflation.

Zooming in on the illiquidity premium we get the following chart.



- The illiquidity premium varies between around 25-50 basis points, occasional spiking out of this range.
- During periods of volatility the spread (and therefore APRA's specification for illiquidity premium) tends to increase.

C Illustrative illiquid asset return

To give some idea of what sort of asset might command the 'full illiquidity premium' we constructed a handful of hypothetical assets and modelled the return on each asset. We used the following parameters:

- Our hypothetical asset has a term of greater than one year.
- Our hypothetical asset has minimal credit risk but some illiquidity. We express that illiquidity as:
  - Some probability that the asset will not be able to be liquidated easily after just one year.
  - If this occurs, then there will be a haircut on the price due to the limited resale market.
- In expectation, the illiquid asset commands a higher return than the risk-free rate of return due to its illiquidity, that is:
  - Expected (mean) value of the haircut that might be required, plus
  - Volatility introduced by the possibility of a haircut.

Illiquid means that an asset can't be easily liquidated at short notice. In practice this could mean anything from a small haircut on its face value to complete write-off of the asset. We built a model to illustrate different haircut size/probability combinations which might produce illiquidity premia in the 50-100bps range. This model assumes the following:

- The investor unexpectedly needs to liquidate the asset prior to maturity, after one year has elapsed.
- The risk-free rate of return on very liquid assets (e.g. New Zealand Government bonds) is 5.0%.
- Expected interest rate movements have no impact on volatility of the market value of this asset.
- The market value of the asset includes an allowance for the risk-averse nature of investors, which we have quantified with reference to our medium-term investment modelling assumptions. To do this, we have used our forward-looking estimation of equity risk premium to derive the market's required compensation for volatility, assuming a linear relationship between risk and return over this interval.

The table below summarises the results:

Probability of haircut on asset %	Size of haircut on asset %	Risk-neutral return required on asset % per annum	Risk-averse return required on asset % per annum	Implied illiquidity risk premium % per annum
5.00	5.00	5.26	5.70	0.70
2.50	10.00	5.26	5.89	0.89
1.00	15.00	5.16	5.76	0.76
0.05	100.00	5.05	5.95	0.95

To illustrate the first row/scenario:

- There is a 5% chance that, upon liquidation after one year, there will be a 5% haircut on its value.
- This means that, on average, we expect 99.75% of the capital to be returned.
- In a risk-neutral world we would require a return of 5.26% (c.f. 5.0% liquid risk-free) to compensate for the expected loss of capital.

- However, the possibility of losing some capital via a haircut introduces volatility. Using our proprietary investment model to estimate this volatility would see the required return increase to 5.70%. This represents an illiquidity premium of 0.70% in excess of the liquid risk-free return.

We've also illustrated some other haircut size/probability combinations which result in illiquidity risk premia in the 50-100bps range. Whilst this table is far from definitive, it hopefully gives some indication of the sort of scenarios that 'full illiquidity' might represent.