

# Illiquid liabilities: a myth or a reality?

January 2019



## INTRODUCTION

As part of the wider call for information from the EU Commission<sup>1</sup>, the European Insurance and Occupational Pensions Authority (“EIOPA”) has set up an Illiquid Liabilities Project Group (“ILPG”)<sup>2</sup> to explore any new evidence in respect of the liquidity characteristics of insurance liabilities since the development of Solvency II, with a view to determining the extent to which insurers can mitigate short-term balance sheet volatility in times of market stress by adopting buy-to-hold investment strategies. Its specific aims include, to:

- Identify criteria for the liquidity characteristics of the liabilities and a measure for insurers' ability to invest over the long term and decide the timing of buying and selling;
- Explore the link between the characteristics of liabilities and the management of insurers' assets; and
- Analyse whether the current treatment in the regulatory regime appropriately addresses the risks associated with the long-term nature of the insurance business.

In October 2018, the ILPG issued a Request for Feedback<sup>3</sup> on a range of potential methodologies for determining the liquidity characteristics of insurance liabilities. This is relevant to insurers that make use of long-term guarantee measures under Solvency II as it may provide useful pointers, and opportunities, to influence EIOPA's thinking as part of its Opinion to the EU Commission on this topic.

This paper from the ILPG is also published at a time when many firms are undertaking the implementation of the new insurance contracts accounting standard, IFRS 17. Under IFRS 17, entities are required to derive discount rates to adjust insurance contract cashflows to reflect the liquidity characteristics of those cash flows. The new standard provides very limited guidance in respect of the approach insurance entities should take to deriving these rates and, in particular, how entities might make an assessment of the liquidity characteristics of its insurance contracts. The various methodologies described in the EIOPA paper may provide insurers implementing IFRS 17 with some potential approaches to making such an assessment.

This paper explores the methodologies described by EIOPA and considers the potential implications of those approaches in both the context of Solvency II and, where possible, IFRS 17.

<sup>1</sup> Request for Information - EU Commission April 2018

<sup>2</sup> EIOPA Project Group on Long-term Illiquid Liabilities

<sup>3</sup> Request for Feedback on Methodological Considerations regarding Illiquid Liabilities – EIOPA October 2018

## BACKGROUND

The package of Long Term Guarantees (“LTG”) measures were key to the political compromise<sup>4</sup> that enabled the Solvency II Directive to be agreed. Many insurers that underwrite, or have underwritten, material volumes of long-term insurance business can be exposed, in many cases materially, to any short-term fluctuations in economic conditions. The LTG measures agreed as part of Solvency II were an attempt to limit this exposure thereby limiting the extent to which insurers would be forced into taking disproportionate, and potentially pro-cyclical, management actions in response to such fluctuations.

The final Solvency II Directive includes the following LTG measures:

- The extrapolation of the risk-free interest rate term structure using an Ultimate Forward Rate (“UFR”)
- The matching adjustment
- The volatility adjustment
- The extension to the required recovery period in the event of non-compliance with the Solvency Capital Requirement (“SCR”)
- The transitional measure on the risk-free interest rate term structure
- The transitional measure on technical provisions

In addition, a further two measures were included within the standard formula approach to the SCR for the equity risk sub-module:

- The symmetric adjustment mechanism (which applies automatically in the standard formula to all firms), which varies the equity risk shock with market conditions; and
- The duration-based equity risk sub-module (for which entities need to seek approval to apply), which permits a lower 22% shock for certain types of business.

A review of these measures is required before 1 January 2021 by Article 77f of the Solvency II Directive as amended by Omnibus II<sup>5</sup>. The current timetable set out by EIOPA suggests that an Opinion on the application of the LTG measures and equity risk measures will be submitted to the EU Commission during 2020. The EU Commission will then submit a report to the European Parliament and Council of the European Union.

As part of its review of the LTG measures and the measures applicable to equity risk<sup>6</sup>, EIOPA has been publishing annual

<sup>4</sup> Solvency II Timeline (source: Insurance ERM)

<sup>5</sup> Directive 2014/51/EU: Omnibus II amendments to the Solvency II Directive (2014)

<sup>6</sup> EIOPA - long-term guarantees review

reports, which largely focus on the uptake and impact of the different options, the most recent of which was published in December 2018<sup>7</sup>.

It appears that, in general, the uptake of the LTG measures and measures applicable to equity risk is reducing. For example, the total number of entities electing to apply a volatility adjustment fell by 34 relative to the previous year.

It also outlines, as with previous years, that the level of take-up of certain of the measures is very low. In particular:

- The duration-based equity sub-module is used by just one entity across the whole of the EU;
- The transitional measure on the risk-free interest rate term structure is used by only 7 entities in the EU; the alternative transitional measure on technical provisions is much more popular.
- The matching adjustment also has a modest level of take-up and is applied exclusively by entities from the UK and (for legacy business only) Spain.

The low level of take-up of some of these measures may be used as evidence to support potential arguments to remove them from the Directive as part of the review process. Furthermore, in light of Brexit, any argument to make material changes to, or remove, the matching adjustment may be strengthened.

Further, the LTG package was motivated by a desire to “avoid artificial volatility of technical provisions and eligible own funds” and “prevent pro-cyclical investment behaviour”<sup>8</sup>. In other words, it was designed to achieve a particular effect. Less emphasis was placed, at the time, on the theoretical justification for the measures adopted, in what is intended to be a market consistent regime. EIOPA’s review could therefore provide a basis for a stronger theoretical underpinning of the Solvency II framework, particularly by increasing the objectivity involved in assessing the actual liquidity characteristics of liabilities, and by providing a more rigorous understanding of the consequent investment behaviour of insurers.

#### **INSURERS AS LONG-TERM INVESTORS AND PROVIDERS OF LONG-TERM GUARANTEES**

Given the nature of many long-term insurance contracts, insurers (and in particular, life insurers), require long-term assets to match their liabilities. Where those liabilities are “illiquid”, such that they have relatively predictable cash flow profiles, insurers can invest in such a manner that recognises that a forced sale of assets, in most cases, would not be required. The insurer can then, potentially, benefit from the risk premiums that can be available to long-term investors, typically called an illiquidity premium.

Furthermore, the insurer is not economically exposed to short-term fluctuations in the price of those assets, as it has no intention or need to sell them, albeit the insurer is exposed to changes in the fundamental value of the cashflows on the assets, for example an increased probability of defaults.

One way in which short-term balance sheet volatility can be reduced or mitigated in such circumstances is to reflect an illiquidity premium in the discount rate applied to the liability cash flows.

From a Solvency II perspective, the commercial (and political) desire to “avoid artificial volatility of technical provisions and eligible own funds” and “prevent pro-cyclical investment behaviour”<sup>9</sup> was very much the driving force behind the LTG package generally, and specifically the matching adjustment and volatility adjustment. Whether or not the application of such an “illiquidity premium” was fully consistent with a market-consistent approach to liability valuation may not have been considered with the same level of scrutiny. EIOPA’s review could provide a basis for giving the Solvency II framework a stronger theoretical underpinning, particularly by reference to the actual liquidity characteristics and consequent investment behaviour of insurers.

Under Solvency II, the matching adjustment is the mechanism by which insurers can increase the discount rates applied to eligible portfolios of long-term insurance business to reflect the illiquidity characteristics of the eligible backing assets that satisfy strict cash flow matching requirements.

In IFRS 17, such an illiquidity premium is permitted; however, the extent to which this premium can be applied is determined by the liquidity characteristics of the liabilities, rather than any illiquidity premium that may be available on the backing assets. For some insurance products, in particular those that may be considered to be highly illiquid, such as an annuity contract, the liquidity characteristics of the cash flow matched backing assets may be deemed to be the same as those of the liabilities; however, for many other insurance products an assessment of the liquidity characteristics of the insurance contract may not be as straightforward.

Application of the matching adjustment under Solvency II is not compulsory, rather it must be applied for from the relevant regulatory authority. Given the take-up of the measure, to any material extent, has only been from life insurers in the UK and (for legacy contracts) Spain, the concept of assessing, or deriving, a liquidity adjustment to the discount rate may well be an unfamiliar concept for many insurers. By contrast, under IFRS 17, the application of an illiquidity premium is a requirement rather than an elective option.

<sup>7</sup> EIOPA – long-term guarantees report 2018

<sup>8</sup> Omnibus II Directive, recitals 30 and 32

<sup>9</sup> Omnibus II Directive, recitals 30 and 32

## LIQUIDITY OF INSURANCE LIABILITIES

There are many factors that could be considered when making an assessment of the liquidity of insurance contracts.

One of the key factors to determining the extent to which an insurance liability can be considered liquid is the ability of a policyholder to exit a contract without significant loss in value of the contract or significant risk of a loss in value in the contract. The exit of a contract by a policyholder can impact its liquidity in two ways:

- Higher or lower surrender rates can lengthen or shorten the duration of the liability cashflows thereby altering the period of time for which an illiquidity premium may be earned; and
- Where there is uncertainty around the surrender experience this can effect whether any illiquidity premium could be earned at all.

The following factors were outlined by the EU Commission in its request for information that it wanted EIOPA to take into account when making its assessment:

- Any contractual options to (partially) surrender an insurance contract prior to maturity;
- Any related contractual penalties that would apply in the event of (partial) surrender;
- Any related tax incentives that the holder of an insurance contract may be able to benefit from in the event of a (partial) surrender;
- The coverage of any biometrical risks; and
- The average duration of the insurance contracts in practice.

Consequently, in its Request for Feedback, EIOPA analyses the predictability and time horizon of insurance contract liabilities using the following three key features:

- The terms and conditions of the insurance contracts (e.g. cancellation rights of the policyholder);
- The duration of the insurance contract liabilities in both normal, and stressed, market conditions; and
- The sensitivity of the liability cash flows when exposed to stressed conditions.

One further factor to consider when assessing the liquidity of insurance contract liabilities relates to the financial position of the insurance entity and the risk of higher surrender rates following a deterioration in financial strength. The EIOPA paper notes this point but it also recognises that if it was determined that insurance contract liabilities become more liquid in times of stress, this could result in pro-cyclical behaviour in that a lower discount rate would be applied to the liability cash flows and

hence the liabilities of the insurer would increase at a time when the entity is under financial pressure.

The following sections describe EIOPA's analysis of each of the three features described above, in turn.

### TERMS AND CONDITIONS OF THE CONTRACT

Based on the data that the ILPG has received, it suggests analysing the cancellation rights of insurance contracts by separating them into three distinct buckets:

1. Insurance contracts that do not permit early surrender or cancellation (i.e. lapse);
2. Insurance contracts that do permit early lapse but for which the insurance entity is not exposed to the lapse risk since the value paid upon a lapse event cannot, under the terms of the contract, exceed the realised value of the assets underlying the contract; and
3. Insurance contracts that do permit early lapse and for which the insurance entity is exposed to the lapse risk.

Under the first two buckets, the insurance entity is not exposed to the risk of a forced sale at times when markets are depressed. However, the EIOPA analysis indicates that the considerable majority of insurers' insurance contracts fall within the third bucket (approximately 70%). The other two buckets represents the remaining 30%, with 21% and 9% respectively.

For the third bucket, the EIOPA analysis does not consider in any particular detail the different disincentives that may exist that may discourage policyholders from lapsing their contracts early but it does set out three broad categories to consider: i) no disincentive, ii) a lapse discount (i.e. a surrender penalty) or iii) other.

Although not specifically mentioned, category iii) could include fiscal incentives such as favourable tax treatment or the presence of profit participation.

EIOPA notes that, at a very high level, from the data received there was no particular difference in the realised surrender rates across the three categories.

A similar exercise was undertaken when developing the illiquidity premium for the purposes of Solvency II in the QIS 5 study<sup>10</sup> (which evolved into what is now known as the matching adjustment). For the purposes of comparison, the output of the QIS 5 study was to apply a proportion of the illiquidity premium that existed on the backing assets based on the assumed degree of liquidity of the insurance liabilities. In particular, the following three categories were considered:

- 100% of the illiquidity premium for insurance contract liabilities satisfying the following conditions:

<sup>10</sup> [QIS 5 technical specifications](#)

- The only underwriting risks to which the insurance entity was exposed as a result of underwriting the contract was longevity and expense risk;
- The insurance entity did not bear any risk in the case of any form of lapse; and
- The premium payments had already been paid and no incoming cash flows were allowed for in the technical provisions in respect of the insurance contracts.
- 75% of the illiquidity premium for insurance contract liabilities satisfying the following condition:
  - All life insurance contracts that provide the policyholder with any form of profit participation.
- 50% of the illiquidity premium for insurance contract liabilities satisfying the following condition:
  - Any other insurance contract liabilities.

In the final LTG package under Solvency II, the illiquidity premium was superseded by two separate measures that both require regulatory approval by local supervisors:

- The matching adjustment that could only be applied for a very restricted class of assets and liabilities (essentially the conditions for the 100% category described above as well as specific requirements regarding asset-liability matching); and
- The volatility adjustment which could be potentially applied to any line of business, irrespective of the liquidity characteristics.

Ultimately the approach considered within the QIS 5 study was not adopted in the final Solvency II Directive. However, an approach where a proportion of the illiquidity premium calculated on a reference portfolio that represents the similarity of the liquidity characteristics of the liability cash flows and the assets in the reference portfolio is applied to the insurance contract liability cash flows may satisfy the requirements of IFRS 17. Further entity-specific analysis would likely be required to determine the proportions to apply.

#### **DURATION OF INSURANCE LIABILITIES IN NORMAL AND STRESSED MARKET CONDITIONS**

Another metric by which the liquidity characteristics of insurance contracts could be assessed is the duration of the insurance contract cash flows. The EIOPA analysis suggests considering the duration in normal market conditions but also the change in the duration during stressed market conditions. The duration measure suggested by EIOPA is the Macaulay duration, which is effectively a weighted average of the expected timing of the cash flows where the weights assigned to the timing of each cash flow are determined as the discounted value of each cash flow as a proportion of the sum of the discounted value of all of the cash flows.

If the duration falls materially under stress this could be an indicator that the insurance contracts are not as illiquid as insurance contract liabilities under which the duration remains

materially the same under stress, as the policyholder would be expecting to receive their benefits sooner under such conditions.

Further thought should be given to whether there are any embedded options or guarantees in the insurance contracts and the impact these may have on the duration of the liabilities. Should the policyholder decide to exercise a guaranteed annuity option, for example, the duration of the liabilities would be expected to increase materially. Conversely, exercising a surrender option could materially reduce the duration of the insurance liabilities. For such circumstances, the EIOPA analysis instead suggests considering an option-adjusted duration (or effective duration) which is commonly used for calculating the duration of callable bonds.

The analysis produced by EIOPA is limited by the availability of product-specific information since annual disclosures report by broad line of business rather than individual product line. However, for the purposes of IFRS 17, insurers will have more detailed data with which to make this assessment.

#### **SENSITIVITY OF LIABILITY CASHFLOWS WHEN EXPOSED TO STRESS CONDITIONS**

Another method for assessing the liquidity of insurance contracts is to consider the sensitivity of the insurance contract cash flows under a range of different stress conditions to determine whether any particular part of the liabilities are unaffected by such conditions and are therefore more predictable. EIOPA describes two methods by which this predictable part of the liabilities could be identified from stress scenario results and also comments on the impact of allowing for the effect of discounting when performing this assessment, in particular, whether longer-duration cash flows should have a smaller impact on the predictable part than shorter-duration cash flows.

Whether to apply univariate or multivariate stress scenarios as part of this assessment is commented on by EIOPA and in particular, EIOPA notes that constructing multivariate stress scenarios can be complex. The EIOPA analysis suggests considering the Solvency II standard formula univariate stress scenarios and complementing them with additional scenarios to determine the sensitivity. It proposes the following scenarios:

- mortality scenarios (up, down, alternative rates, 100% mortality)
- longevity scenarios (up, down, alternative rates)
- lapse scenarios (mass lapse, permanent up, permanent down, 100% lapse where applicable)
- disability / morbidity scenarios
- reserve risk scenarios
- market scenarios (interest rate, spread widening and equity)

Typically, and certainly under the standard formula calculation under Solvency II, these stress tests are calibrated to a 1 year time horizon, including changes to future expectations, rather



than to changes emerging to cash flows over the full run-off of the liabilities. EIOPA points out that one limitation of such an approach is the need to determine the liquidity characteristics of cash flows far into the future and therefore that a consideration of the ultimate volatility of those cash flows over the full term of the liabilities would be required. An approach is outlined in order to scale cash flows depending on when they occur using appropriate scaling factors. No suggestion of how to determine these scaling factors is provided.

## ANALYSIS OF THE INVESTMENT DECISIONS OF INSURERS

The justification for insurers to discount their liabilities using an illiquidity premium rests on them being able, because of their predictable liability cashflows, to invest for the long-term.

The Commission's call for information therefore asked EIOPA to consider the investment behaviour of insurers, in particular holding periods of different types of investment, and the relationship to the liquidity of the liabilities. EIOPA's analysis here is rather less developed, in part due to data difficulties:

- Data under Solvency II templates is available only since the beginning of 2015, which gives only a short observation period, and not one that included a major market shock;
- In addition, it is noted that behaviour during this period may have been impacted by the introduction of Solvency II at the start of the period.

EIOPA's initial analysis also focuses on the turnover of individual assets, which could simply be a function of active investment management or of prudent risk management decisions by insurers.

But the key to earning long-term risk premiums is the ability of the insurer to have control over asset allocation, at macro rather than individual stock level, and to avoid being a forced buyer or seller. Indeed the Commission's call for advice makes this point: "the risk profile of the different investments available on capital markets depends in particular on the holding period of the investor, and on its ability to decide the timing of buying and selling" (our emphasis).

Insurers' ability to be long-term investors is also itself a function of regulatory constraints. The very existence of an illiquidity premium in regulatory liability valuations – such as the matching adjustment – reduces the pressure to buy or sell assets – for example, the need to sell corporate bonds if credit spreads widen. This was, indeed, the very reason the LTG package was introduced. Hence, it is very difficult to separate the behaviour of insurers from the regulatory mechanisms that drive that behaviour.

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<sup>11</sup> [Draft proposals for changes to the Solvency II Delegated Regulation - Commission November 2018](#)

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Given these issues and the data limitations, it is not clear that EIOPA's analysis will be able to properly test whether insurers' illiquid liabilities support long-term investment behaviour.

EIOPA also plans to consider whether there is evidence that holding assets over the long-term brings benefits and reduces risks. They set out a proposed methodology for looking at:

- The variation in excess returns over risk-free on bonds over long time horizons vs. 1-year periods
- Similarly, looking at excess returns on equities over longer time horizons

The perceived reduced risk of holding bonds to maturity is what theoretically justifies the matching adjustment.

For equities, the perceived reduced risk over long time periods is what justified the duration-based equity sub-risk module in the LTG package. However, as previously mentioned, this mechanism has had an extremely low take-up – the EIOPA long-term guarantees report shows it is used by just 1 entity (in France) across the whole of the EU.

In the proposed changes to the Level II Delegated Acts as a result of the 2018 review of the Standard Formula<sup>11</sup>, the Commission has suggested a new category of "long-term equity investments" also subject to the lower 22% shock. This requires a number of conditions to be satisfied, including:

- Ring-fencing
- Ability to hold equities for the long-term including under stressed conditions
- An average holding period of equities higher than the duration of the liabilities, and at least 12 years

However, as drafted, it could be that take-up of this new module may also be very low. For example, the requirement to hold equities for longer than the matching liabilities seems incongruous, the focus on individual holdings requires a passive rather than active approach to investment and risk management, and ring-fencing reduces the ability to benefit from diversification. Similar points are made by Insurance Europe in its response to the proposals<sup>12</sup>.

In practice, an assessment of the ability of insurers to benefit from market illiquidity premiums would require an assessment of liquidity planning, particularly under stress, at an overall level.

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<sup>12</sup> [Feedback on draft proposals for changes to the Solvency II Delegated Regulation - Insurance Europe December 2018](#)

## EIOPA ANALYSIS OF IFRS 17

EIOPA has published a separate paper<sup>13</sup> that provides their assessment of the impact of IFRS 17 on financial stability and on the product design, and supply of and demand for insurance contracts and, in particular, provides some consideration of whether any elements of Solvency II could be leveraged for use under IFRS 17.

Its analysis indicates that the overarching principles of both the matching adjustment and volatility adjustment may be acceptable in the context of IFRS 17 and, in particular, that the approach to deriving the risk-free term structure of interest rates would fall under the bottom-up approach and the volatility adjustment and matching adjustment would fall under the top-down approach. It also comments, however, that there are some slight differences between the requirements of IFRS 17 and Solvency II that may mean that some adjustments are required in order to leverage these components for IFRS reporting, where material.

Although not explicitly mentioned in the EIOPA paper, a few of the areas that may not be considered to be appropriate include:

- The ultimate forward rate approach to extrapolation of the risk-free term structure beyond the last liquid point. IFRS 17 requires firms to derive discount rates from observable market data and therefore any extrapolation method may require a careful assessment relative to the requirements.
- The ultimate forward rate as derived by EIOPA for any specific currency. As this was on the of the long-term guarantee measures under Solvency II, this is not strictly market consistent nor is it derived directly from observable market data.
- The use of a market-wide representative portfolio of assets to derive a liquidity adjustment as in the volatility adjustment calculation. IFRS 17 requires that discount rates are derived based on the characteristics of the liability cash flows and not the assets used to back those liabilities. In addition, the volatility adjustment might be considered more as a volatility dampener rather than a liquidity adjustment.
- The parameters, as derived by EIOPA, for the adjustment for credit risk in the matching adjustment calculation. For such a top-down approach, an entity would need to make a credit risk deduction that is representative of the relevant group of insurance contracts and this would not necessarily be equivalent to the EIOPA-derived rates.

This list is by no means exhaustive. A number of other considerations would need to be made before applying any Solvency II measures to IFRS 17 disclosures, both from a compliance perspective but also from an optimisation perspective.

Milliman has previously published a paper<sup>14</sup> that considers the use of discount rates in IFRS 17 and covers areas including the derivation of rates at long durations, the use of illiquidity premiums and a comparison to the methods available in Solvency II.

## CONCLUSION

The LTG measures and measures on equity risk were developed as a regulatory measure, largely driven by political forces, in order to dampen the balance sheet volatility that arises as a result of applying market-consistent measurement techniques. The theoretical justification for adding a premium to the discount rate for so-called “illiquid liabilities” may not have been given the same level of focus.

At this stage, this paper from EIOPA is very much an information gathering exercise, with a number of key limitations particularly with regards to data, but it may give an indication of the direction of travel for EIOPA’s upcoming full review of Solvency II.

The paper seems to be trying to determine whether a theoretical justification can be given for including such a illiquidity premium, whilst setting out some possible approaches for measuring what any premium may be.

As discussed previously, the existing LTG measures and measures on equity risk were designed and calibrated more for their impact on the volatility of insurers’ balance sheets than on a theoretically justified market consistent approach. Given this, in the forthcoming review there may be a desire to move away from these measures particularly given the low take-up of a number of the measures and the simplification it would bring. Brexit may also add further fuel to the fire given that the UK is, by far, the industry that is most reliant on the matching adjustment, for example.

IFRS 17 looks to be trying to adopt a more theoretically justified market-consistent approach whilst not really providing any guidance on how to go about deriving a market-consistent illiquidity premium. Some of the approaches outlined in this paper may act as some level of guidance for firms looking at this problem from an IFRS 17 perspective.

At the core of it, the ability of insurers to be able to continue to meet its obligations during times of stress without being forced to sell assets at a loss is the true test. This puts an emphasis on liquidity planning and ensuring sufficient liquidity is available under a range of stressed conditions.

<sup>13</sup> [EIOPA's analysis of IFRS 17 - October 2018](#)

<sup>14</sup> [IFRS 17 Discount Rates - Milliman \(2018\)](#)

## HOW CAN MILLIMAN HELP

Milliman has a wide range of experience in global insurance markets and, in particular, in Solvency II and IFRS 17. Milliman's experts have, and continue to, closely follow the development and implementation of both regimes.

Milliman can provide a range of services to assist with many of the issues discussed in this paper, including:

- IFRS 17 support and advice:
  - Methodology development and implementation;
  - Training;
  - Gap analysis;
  - Implementation of an IFRS 17 systems solution through our award-winning Integrate platform which can be implemented with cashflow output from any actuarial system. For more information see: [IFRS 17: The Integrate Solution](#).
- Brexit, including development of strategic plans and outcome analysis.
- Liquidity planning.

If you would like to discuss any of the above, or anything else, with us, or if you have any questions or comments on this paper then please contact one of the named consultants below or your usual Milliman consultant.



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