

MILLIMAN REPORT

# Observations on Emergence of Earnings under US GAAP Targeted Improvements

Long-Duration Insurance Contracts

April 2019

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The changes to the measurement and reporting of long-duration insurance contracts will have a profound impact on the emergence and volatility of earnings under US GAAP.

## Background

The Financial Accounting Standards Board (“FASB”) released Accounting Standards Update 2018-12, Targeted Improvements for Long-Duration Contracts (“ASU 2018-12” or “LDTI”) in August 2018. It represents a fundamental change in the measurement and reporting of long-duration insurance contracts that will alter the incidence and volatility of reported income and equity.

This paper illustrates the potential impacts of ASU 2018-12 relative to current US GAAP accounting (“current accounting”) with respect to four blocks of business: level term insurance (“Level Term”), single premium immediate annuities (“SPIAs”), long term care insurance (“LTC”) and universal life insurance (“UL”). We followed the income emergence over a five-year period under both accounting standards using the carryover basis approach from an assumed transition date. We replicated a valuation process a company might follow including the random termination of individual policies, issuance of new policies, cash flow assumption updates and movements in market yield rates.

We illustrate results on a base case scenario (i.e., the random termination of individual policies approximates expected, no update to future cash flow assumptions), and an alternative scenario (i.e., a large experience deviation from expected in year 3 followed by an update in a future cash flow assumption in year 5) to measure the impact under each accounting standard.

## Key Observations

### EMERGENCE OF INCOME WHEN CONSISTENT BEST ESTIMATE ASSUMPTIONS ARE USED

For the traditional products modeled, the reserve method under ASU 2018-12 accelerates the recognition of income versus current accounting when consistent best estimate assumptions are used. For in force contracts, this is primarily driven by the elimination of provisions for adverse deviations (“PADs”) which lowers the net premiums required to fund future policy benefits. Similarly, the impact on new business is more favorable under ASU 2018-12 due to lower reserve strain in the early years.

For the UL product modeled, income tends to be deferred due to (1) the amortization of deferred acquisition costs (“DAC”) and unearned revenue reserve (“URR”) on an approximate straight-line basis instead of in relation to gross profits, and (2) interest no longer accruing on the balances.

### IMPACT OF UPDATING ACTUAL EXPERIENCE

The impact of actual versus expected experience differences in early years after transition (or issue) is more muted under ASU 2018-12 as a result of spreading the impact of these variances over the life of the underlying contracts through the reserve mechanism.

### IMPACT OF UPDATING FUTURE CASH FLOW ASSUMPTIONS

The impact of updating future cash flow assumptions creates significant volatility in reported reserve balances under ASU 2018-12 for traditional products. This is not the case under current accounting unless a loss recognition event is triggered.

### IMPACT OF UPDATING DISCOUNT RATES

The updating of discount rates at each reporting period as required under ASU 2018-12 may result in significant volatility in the reported benefit reserves. However, the change in reported benefit reserves should be offset to some extent by the mark to market change of the assets classified as Available For Sale (“AFS”) that is already reflected in Accumulated Other Comprehensive Income (“AOCI”). The degree of that offset will depend on several factors, including how well the assets and liabilities are matched by duration, and the quality of assets relative to the A-rated liability discount rates. We believe there may be an opportunity for companies to use relevant observable inputs in a way that results in discount rates that align more closely with their investment philosophy.

**DISCLOSURE REQUIREMENTS**

With much of the focus being dedicated to the changes to the reserve calculation for traditional products, the work effort required to produce the disclosures required under ASU 2018-12 may be significant and will likely challenge many insurers’ ability to generate the necessary data.

**ADDITIONAL CHALLENGES FROM CALCULATION CHANGES**

We identified a wide range of challenges arising from the calculation changes introduced in ASU 2018-12. We have selected a few to present in this report.

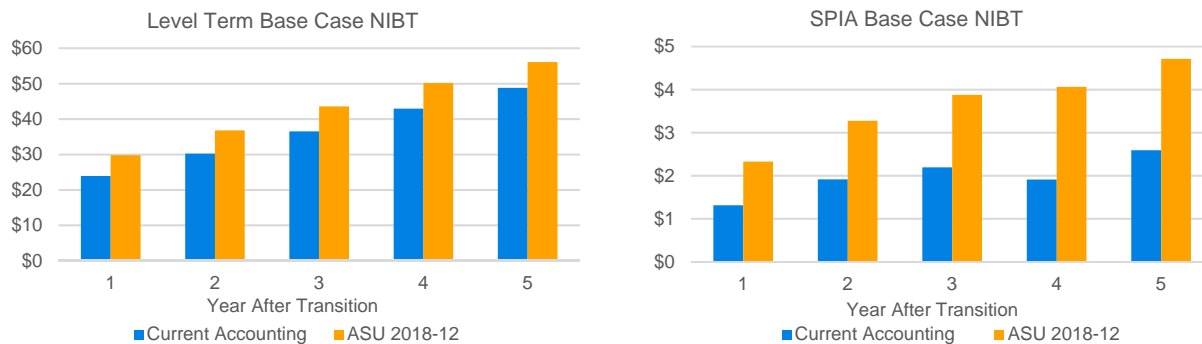
For traditional products, the benefit reserve under ASU 2018-12 requires the use of historical cash flows at the same level at which the net premium ratio (“NPR”) is calculated. Insurers have flexibility to combine similar products together to reduce the number of groupings but ASU 2018-12 imposes a restriction that contracts issued more than one year apart must be grouped separately. In many cases, this level of detail may be more granular than what companies are currently capable of producing.

For LTC and similar products such as disability insurance (“DI”), insurers who follow a total lives claim cost approach to set active life reserves (“ALR”) under current accounting may face significant challenges as the requirements of ASU 2018-12 demand a reserve approach that identifies the expected timing of cash-flows for all policies. This may accelerate the need for first principles models.

For limited-pay contracts that have an explicit deferred profit liability (“DPL”), the DPL can be reduced to offset potential increases in the benefit reserve within the same grouping of contracts. Companies that have taken the simplified approach of not recognizing an explicit DPL at contract issue by lowering the discount rate may be at a greater risk of having to adjust the balance of retained earnings.

**Emergence of income when consistent best estimate assumptions are used**

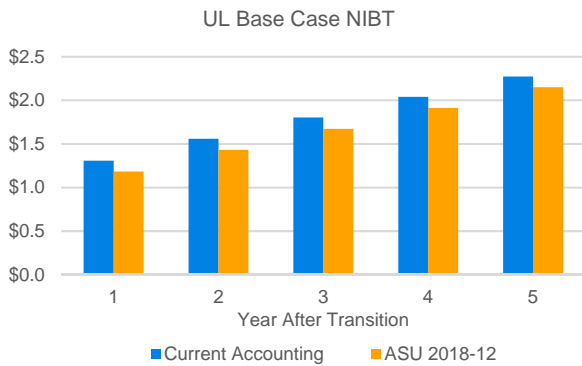
The tables below show a comparison of expected net income before tax (“NIBT”) under ASU 2018-12 and current accounting for Level Term and SPIAs (amounts in millions). We include the business in force at transition and new business issued in each year after transition.



For Level Term, the higher income under ASU 2018-12 is due to lower net premiums resulting from the removal of PADs and maintenance expenses from reserves. For the products modeled, the amortization of DAC is delayed due to using units of insurance as the amortization basis versus premiums.

For SPIAs, the increase in income relative to current accounting is larger due to the absence of future net premiums over which to spread the impact of removing PADs and maintenance expenses from the reserve, resulting in a faster release of the net actuarial liability (i.e., liability for future policy benefits plus DPL less DAC). The ability to defer acquisition costs under ASU 2018-12 does not have a material impact on new business because of the offsetting increase in DPL at issue.

For UL, the income under ASU 2018-12 is lower in each year versus current accounting as shown in the table below.

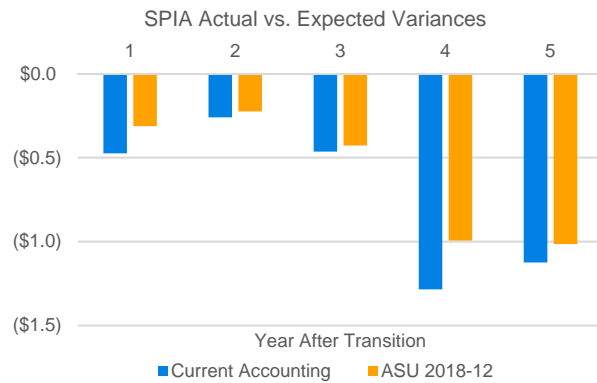
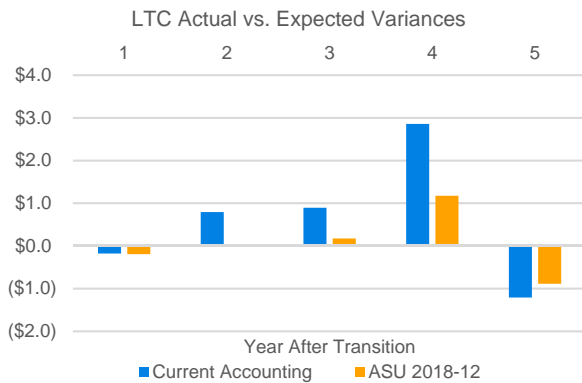


Since the runoff of insurance in force is flatter than the runoff of gross profits for this block, the change in amortization base from gross profits to insurance in force leads to slower amortization of the DAC and URR balances. However, interest no longer accrues on the DAC and URR balances under ASU 2018-12, which has a larger impact on DAC than URR due to the substantial size of acquisition costs relative to loads. The loss of interest accrual outweighs the slower amortization of DAC and results in a smaller increase in DAC net of amortization in each year, leading to lower income.

For all examples illustrated, the patterns of income will eventually reverse over time since all balances are equal at the transition date and will eventually amortize to zero under both accounting bases.

### Impact of updating actual experience

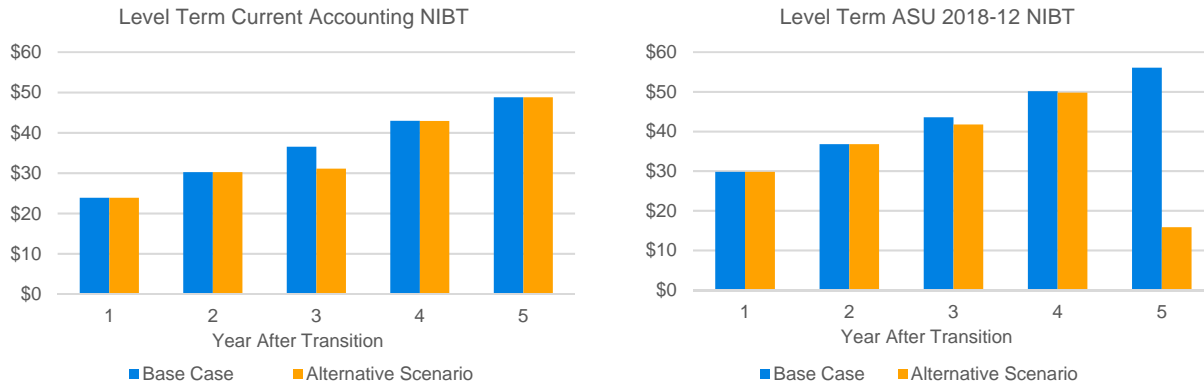
The random process of selecting individual policies to terminate resulted in small differences between actual and expected in force movements. The tables below illustrate actual minus expected income differences on LTC and SPIAs (amounts in millions).



The impact of actual to expected differences is smaller under ASU 2018-12 than current accounting because of the respective reserve calculations. In general, reserves per unit and DPL do not change under current accounting as assumptions are locked in; the impact of the different mix of business is reflected by applying a different volume of units to the locked in reserves per unit. Under ASU 2018-12, per unit reserves and DPL are recalculated retrospectively to reflect actual experience, resulting in spreading a portion of the impact to the remaining life of the contracts. In the case of SPIAs, because there are no future net premiums, the impact is spread through the unlocking of the DPL.

## Impact of updating future cash flow assumptions

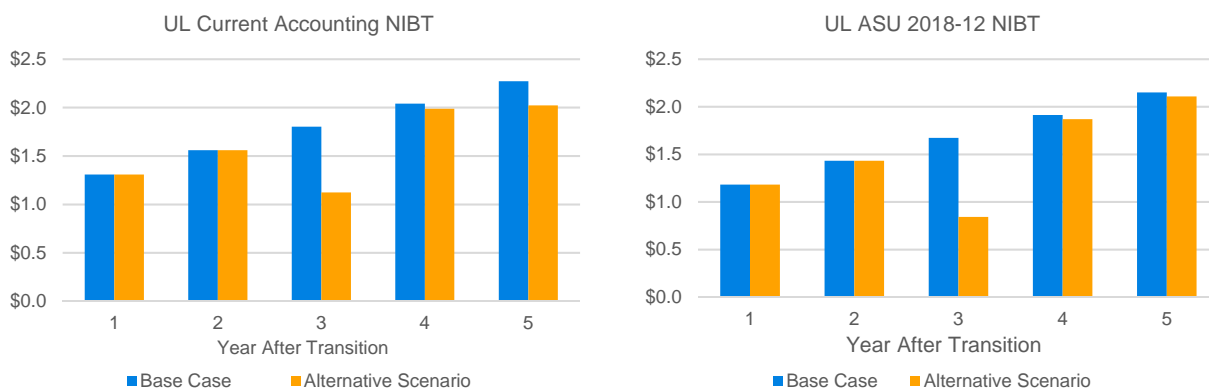
Under the alternative scenario, actual experience is significantly worse than expected in year 3 and a future cash flow assumption is updated at the end of the fifth projection year. In the tables below, we compare the Level Term net income before tax between the base case and the alternative scenario for both current accounting and ASU 2018-12 (amounts in millions).



Under current accounting, the additional claims in year 3 reduce income without much change in the reserve or DAC. The change in best estimate future mortality assumption at the end of year 5 does not affect income as the reserve assumptions are locked in and the change in assumption is assumed to not generate a loss recognition event.

Under ASU 2018-12, the additional claims in year 3 are partially offset by a reduction in the benefit reserve caused by the increase in the NPR. The additional claims also result in excess DAC write-off in that year but the amount is small. The impact on the reserve is larger than the impact on DAC and results in a smaller impact to income compared to current accounting. The change in best estimate future mortality assumption at the end of the fifth projection year has a large impact on net income as the ending reserve balance reflects current best estimate assumptions.

For UL, the pattern of income differences under the alternative scenario is similar to that under the base case other than year 3. Under current accounting, the additional claims in year 3 reduce the gross profits being used to amortize DAC and URR but the impact is spread over the entire amortization period, which reduces the impact of the additional claims in that year. No such adjustment to DAC and URR exists under ASU 2018-12. The additional claims lead to excess DAC and URR write-offs in that year and income is more severely impacted. This can be seen in the comparison below.



Updating the mortality assumption at the end of the fifth year causes a decrease in DAC and URR balances under current accounting as revised future gross profits are expected to be less, and the impact is reflected in the current period. As ASU 2018-12 does not use gross profits as a basis of amortization, the amortization of DAC and URR in the current year is unchanged by the assumption update. However, future period amortization will be affected by the new persistency pattern.

## Impact of updating discount rates

For the base case scenario, we also illustrated the impact that changes in the market yields on assets would have on the ASU 2018-12 liability for future policy benefits reported on the balance sheet. Specifically, we assumed parallel basis point (“bps”) shifts in the treasury yield curve of +40bps, +10bps, -30bps, -30bps, -10bps at each of the valuation dates after transition.

This resulted in significant volatility in the reported benefit reserves. In the table below we show the impact for LTC but the magnitude and direction of the impact are similar for the other blocks (amounts in millions).

### ASU 2018-12 LTC ALR AT ORIGINAL AND CURRENT DISCOUNT RATES

	AT TRANSITION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Reserves at original discount rates	\$122.1	\$125.0	\$125.7	\$124.0	\$120.3	\$113.9
Reserves at current discount rates	126.3	122.6	123.1	127.5	128.7	122.9
Difference = pre-tax AOCI	(4.2)	2.4	2.7	(3.6)	(8.4)	(9.1)
Pre-tax OCI = change in pre-tax AOCI		6.6	0.2	(6.2)	(4.8)	(0.7)

While this is not illustrated, the change in the reported benefit reserves should mitigate the impact on AOCI caused by similar movements in the mark to market of the assets classified as AFS. Basis mismatch is still likely to emerge due to differences between a single liability exposure to an upper medium grade fixed income credit risk versus a portfolio of various asset types and quality. This mismatch would introduce volatility in AOCI and the resulting impact on equity returns may be potentially significant and challenging to explain.

It is worth monitoring whether a market will emerge for companies to use published discount curves rather than creating their own, similar to the discount curves that are often used today to calculate pension liabilities.

## Disclosure requirements

Under ASU 2018-12, various disclosures will be required such as disaggregated liability rollforwards, significant inputs, assumptions, etc. These requirements are not trivial and the undertaking necessary to produce them may be substantial. For example, the figure below illustrates how separate rollforwards for the ALR and claim reserve (“DLR”) may be presented for LTC in order to meet the disclosure requirements of ASU 2018-12. The base case is illustrated (amounts in millions).

### LIABILITY ROLLFORWARD FOR FIRST YEAR AFTER TRANSITION

RESERVE COMPONENT	ALR	DLR	TOTAL
Reserve, beginning of period	\$126.3	\$23.2	\$149.5
Reserve, beginning of period (original discount rates)	122.1	23.2	145.3
+ Impact of updating actual experience	(9.2)	9.4	0.2
+ Impact of updating future cash flow assumptions	0.0	0.0	0.0
Reserve, beginning of period (adjusted)	113.0	32.6	145.5
+ Net premiums	8.3	0.0	8.3
+ Interest credited to reserve	5.6	0.9	6.5
- Reserve released for benefits	1.5	6.1	7.7
- Reserve released for expenses	0.4	0.0	0.4
Reserve, end of period (original discount rates)	125.0	27.3	152.3
+ Cumulative impact of updating discount rates	(2.4)	0.0	(2.4)
Reserve, end of period	\$122.6	\$27.3	\$149.9

The actual adjustment includes the impact of status changes within the year. In this case, more people went on claim than recovered from being on claim resulting in a net transfer from ALR to DLR.

## Additional challenges from calculation changes

The use of actual experience in the reserve calculation for traditional products under ASU 2018-12 represents a significant departure from current accounting. Tracking of actual experience for traditional products by groupings of policies will likely pose significant challenges for insurers as actual cash-flows typically reside in policy administration systems while the data in general ledgers is typically not available at the level of granularity required to update the NPR. A top-down approach to allocate actual cash flows to groupings may not be adequate as ASU 2018-12 dictates that estimates of historical experience may not be substituted for actual historical experience.

In this research, we observed that LTC and DI insurers who use a total lives claim cost approach to set the ALR under current accounting most likely would conclude they have a significant gap in terms of modeling capabilities. Under this approach, the timing of claims is implicit due to the incidence, persistency and recovery assumptions being based on expectations of the block as a whole rather than being reflective of the current status of each policy. ASU 2018-12 requires the NPR to be recalculated at least annually in order to reflect actual experience and current best estimate assumptions as to future experience. This requirement raises several questions that are unique to products with long claim periods such as LTC and DI. For example:

1. What should be included in the liability for future benefits – where the NPR is updated – given that the claim reserve requirements are not changing under ASU 2018-12?
2. What constitutes actual experience for purposes of calculating the NPR?
3. How should changes in status (e.g., going on claim, recovering from being on claim) be handled in the liability for future benefits?

We found that using a first principles LTC model to determine the ALR was the most straightforward way to address the requirements of ASU 2018-12 and ensure that the NPR remains stable under the base case scenario.

For many SPIA blocks, the best estimate assumptions that were locked in at contract issue (such as discount rate and mortality) have not been realized. Situations where SPIAs have been grouped with other blocks of business with sufficient reserves for loss recognition testing have often resulted in little to no additional reserves being required. With the elimination of loss recognition testing for traditional products under ASU 2018-12, updating the mortality assumption for SPIAs could result in a reserve increase. The magnitude of the increase would be larger under the carryover basis approach for companies that have eliminated the DPL at issue by lowering the discount rate. Decisions made in the past for practical reasons may end up causing unintended consequences under ASU 2018-12. Companies may find it beneficial to explore the feasibility of retroactively separating the DPL from the total liability at issue.

## Conclusion

ASU 2018-12 represents fundamental changes to the accounting of long-duration insurance contracts. Key decisions need to be made well in advance of the January 1, 2021 implementation date, such as defining the level of aggregation for policy groupings, selecting product specific amortization bases for DAC/URR and discount rates. These decisions need to be made using accurate information, which for many insurers may not currently be available due to data and system limitations.

While we generally observed from this research that earnings emerge more favorably in the nearer term under ASU 2018-12 when consistent best estimate assumptions are used, increased earnings volatility is expected going forward, particularly as cash flow assumptions and discount rates are updated. This will require increased attribution analysis in order to clearly explain results from one reporting period to the next.

As the impact of ASU 2018-12 on balance sheet items comes under scrutiny, the work effort to implement the new disclosure requirements and associated data demands will be material.



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