Mo.net Financial Modelling Platform
US GAAP Reporting with the Mo.net Platform

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Revision 5

Purpose

This datasheet explores how the various features of the Mo.net platform can be used to deliver the revised reporting requirements under US GAAP.

Background

Financial reporting for life insurers in the United States has undergone a profound shift with the introduction of Long-Duration Targeted Improvements (LDTI) under US GAAP. While the standard was introduced to improve transparency and comparability across insurers, its practical impact has been felt most acutely within actuarial modelling teams.

Historically, actuarial models were primarily designed to support pricing, reserving, and regulatory valuation. Financial reporting outputs were often generated through a combination of actuarial projections and downstream financial adjustments, frequently relying on spreadsheet-based post-processing. While workable in the past, this approach is increasingly unsustainable under modern accounting standards.

LDTI introduces new requirements around discount rates, assumption updates, liability roll forwards, and disclosures. Meeting these requirements demands a closer integration between actuarial modelling and financial reporting processes. In effect, actuarial models are no longer simply valuation tools; they have become a central component of the financial reporting infrastructure.

Modern actuarial platforms such as Mo.net provide the performance and flexibility needed to support these requirements. However, the success of a US GAAP implementation depends not only on the technology platform but also on how the actuarial models themselves are structured. This paper explores the implications of US GAAP reporting for insurers and discusses how actuarial models developed in Mo.net can be designed to meet these evolving needs.

The Changing Nature of US GAAP Insurance Reporting

One of the defining features of the LDTI standard is the move toward greater economic transparency in liability measurement. Under the revised framework, insurers must measure liabilities using market-based discount rates derived from upper-medium grade fixed-income instruments, typically based on corporate bond yields.

This requirement fundamentally alters how actuarial models must operate. Rather than relying on a single locked-in valuation basis, models must be able to evaluate liabilities under both locked-in and current discount rates, with the difference between the two reported through Other Comprehensive Income (OCI). The actuarial projection engine must therefore support multiple valuation bases applied to the same underlying projected cash flows.

At the same time, LDTI requires insurers to update assumptions for future cash flows on a regular basis. In earlier reporting frameworks, assumptions such as mortality, lapse rates, or expenses might have remained unchanged for extended periods. Under the new rules, insurers are expected to review and update these assumptions periodically, with the impact of changes reflected through earnings.

This shift increases the importance of model flexibility and performance. Actuarial models must now support frequent assumption updates, rapid recalculation of projections, and clear attribution of financial impacts. The ability to rerun models quickly and reliably has become a critical operational requirement.

Another major change involves the treatment of Deferred Acquisition Costs (DAC). Under LDTI, DAC is amortised on a constant-level basis over the expected life of the contract rather than being tied to projected profitability patterns. This seemingly technical adjustment has important modelling implications because it requires models to project contract lifetimes and ensure consistent alignment between projected revenue and amortisation schedules.

Finally, the disclosure requirements associated with LDTI are far more extensive than those under previous accounting rules. Insurers must provide detailed roll forwards of liabilities, explanations of changes between reporting periods, and additional information about the drivers of financial results. These disclosures place new demands on actuarial models, which must generate outputs that are both granular and auditable.

Implications for Actuarial Modelling

Taken together, these changes transform the role of actuarial models within the financial reporting process. Instead of serving as isolated valuation engines, they now function as integrated financial reporting systems that must support both actuarial analysis and accounting disclosures.

One of the most important implications is the need for multi-basis valuation capability. The underlying projection of premiums, claims, expenses, and policyholder behaviour should be calculated once, but those cash flows must then be evaluated under multiple financial measurement bases. These include locked-in discount rates, current market discount rates, and various sensitivity scenarios used for financial analysis.

Without careful design, this requirement can lead to duplicated models or complex layers of post-processing. A more efficient architecture separates the generation of projected cash flows from the valuation framework used to measure them. By structuring models in this way, insurers can maintain a single projection engine while applying different valuation perspectives as required by financial reporting.

Another important consideration is the level of granularity required for reporting. US GAAP disclosures often require results to be presented at the cohort level, with policies grouped according to characteristics such as issue year and product type. Maintaining this level of detail can significantly increase computational demands, particularly for large insurers with millions of policies.

As a result, actuarial models must be designed to aggregate and process large volumes of data efficiently while preserving the traceability required for audit and reconciliation purposes. The ability to move seamlessly from policy-level projections to financial statement totals has become a critical capability.

Perhaps the most operationally challenging requirement under LDTI is the need to explain movements in liabilities between reporting periods. Finance teams must be able to reconcile changes in liabilities and earnings through clear attribution analysis. This typically involves breaking movements into components such as expected interest accretion, assumption changes, experience variances, and the impact of new business.

Producing this analysis requires actuarial models to generate structured outputs that track these drivers explicitly. The modelling framework must therefore be designed with reporting reconciliation in mind, rather than treating attribution analysis as a downstream analytical exercise.

Designing Mo.net Models to Support US GAAP

Mo.net provides a modern modelling environment that is well suited to the computational and governance requirements of US GAAP reporting. However, the effectiveness of the platform depends heavily on the architecture of the models developed within it.

One of the most important design principles is the separation of cash flow projection logic from valuation logic. The projection component of the model should focus on generating the expected future cash flows associated with the insurance contracts. This includes premiums, claims, expenses, commissions, and policyholder behaviour such as lapses or benefit elections.

Once these cash flows have been projected, the valuation layer can apply the relevant financial measurement frameworks. This might involve discounting cash flows using locked-in discount curves for liability measurement, applying current market curves for OCI calculations, or running sensitivity analyses for financial risk assessment. By separating these layers, the model avoids unnecessary recalculation and supports efficient reporting processes.

Another important aspect of model design involves the management of assumptions. In practice, actuarial assumptions are subject to frequent updates as new experience data becomes available. Organising assumptions within a modular framework allows these updates to be implemented without requiring structural changes to the model itself. This approach not only improves operational efficiency but also supports stronger governance and change control.

Performance considerations also play a central role in modern actuarial modelling. Financial reporting timelines are increasingly compressed, and models must be capable of processing large datasets within tight reporting windows. Mo.net's architecture allows for efficient vectorised calculations and scalable data handling, but achieving optimal performance still depends on careful model design.

Output design is another critical consideration. The model should produce structured outputs that directly support financial reporting requirements, including liability roll forwards, cohort-level results, and disclosure tables. When outputs are generated in a consistent and transparent format, they can be integrated more easily with finance systems and reporting tools.

Increasingly, insurers are seeking to integrate actuarial models directly with financial reporting platforms and data warehouses. Mo.net models can play an important role within this broader ecosystem by generating standardised data outputs that feed downstream reporting processes. This integration reduces reliance on manual data manipulation and improves the overall robustness of the reporting framework.

Strategic Benefits of Modern Modelling Architectures

Although the transition to LDTI has required significant investment in modelling infrastructure, insurers that modernise their actuarial models often realise substantial operational benefits.

Faster model run times allow reporting cycles to be completed more efficiently, reducing pressure on actuarial and finance teams during quarterly close processes. Improved model transparency and structured outputs also enhance communication between actuarial, finance, and audit stakeholders.

Perhaps most importantly, modern modelling architectures provide deeper insight into the drivers of financial performance. By producing clear attribution analyses and detailed projections, actuarial models become valuable tools for business decision-making rather than simply fulfilling regulatory requirements.

Challenges Associated with Legacy Platforms

Legacy actuarial platforms were designed in an era when actuarial modelling primarily supported valuation, pricing, and regulatory reporting, rather than the detailed financial reporting frameworks now required under Long-Duration Targeted Improvements. As a result, many insurers implementing LDTI have found that traditional modelling architectures struggle to meet the operational and analytical demands of the new reporting regime.

1. Separation Between Projection and Accounting Logic
Many legacy actuarial models built in Prophet combine cash-flow projection and valuation logic within the same model structure. This approach worked well when models were used mainly for reserve calculations under a single basis.

However, Long-Duration Targeted Improvements requires insurers to value liabilities using multiple bases, such as locked-in and current discount rates. When projection and valuation are tightly coupled, supporting these calculations can make models more complex and less efficient.

2. Limited Transparency for Financial Attribution
LDTI increases the need to explain movements in liabilities between reporting periods. Finance teams must attribute changes to factors such as assumption updates, experience variances, and discount rate movements.

Legacy models were not always designed with this level of reporting analysis in mind, which can make movement analysis more difficult to produce.

3. Performance and Scalability Challenges
LDTI reporting requires greater granularity, often tracking results by issue cohort or product group. This increases the volume of calculations required.

Models originally designed for periodic valuation may experience longer run times when used for detailed financial reporting.

4. Heavy Reliance on Post-Processing
In many legacy reporting processes, actuarial models produce core results while accounting calculations are performed outside the model.

Spreadsheets or external processes are often used to create rollforwards, DAC calculations, and disclosures. This additional processing can increase operational complexity.

5. Governance and Model Change Management
Financial reporting models require strong governance around assumption changes, model versions, and reproducibility.

Legacy workflows that rely on multiple tools or manual adjustments can make change management more difficult.

6. Integration with Modern Data and Finance Platforms
Modern financial reporting increasingly relies on integrated data and reporting platforms.

Legacy actuarial systems were not always designed for this level of integration, which can require additional data processing between actuarial and finance systems.

Overcoming These Challenges with the Mo.net Platform

While Mo.net includes numerous features to help deliver US GAAP modelling requirements, the major challenges listed above can be addressed as follows:

- Mo.net Projects can be structured to include separate projection and valuation components such that different bases can be applied to the valuation element, thereby allowing valuations to be run easily and quickly on multiple different bases.
- Mo.net includes specific functionality to enable scenario and sensitivity testing to be performed with ease
- The flexibility of model design, development and operational use within the Mo.net platform lends itself to the production of runs for analysis of change activity, with clear attribution of change elements as well as the production of roll forward runs
- Mo.net is designed to be performant under extreme operational conditions. The use of parallel distribution services only serves to increase the built-in scalability & performance.
- Mo.net has built-in governance and audit trail through integration with the Mo.net Identity Service component. Basic model versioning can be achieved at a high level out of the box or at greater depth through integration with industry-wide source control connectors.
- The Mo.net platform comes with Excel Reporting as standard. More advanced reporting & analysis can be achieved via integration with industry standard data analysis tools, such as PowerBI.

Conclusion

The implementation of LDTI has fundamentally changed the relationship between actuarial modelling and financial reporting. Actuarial models must now support not only liability valuation but also detailed disclosure requirements, attribution analysis, and governance controls.

Platforms such as Mo.net provide the technical capabilities needed to meet these challenges, but successful implementation depends on thoughtful model architecture. By separating projection and valuation logic, supporting multi-basis calculations, organising assumptions effectively, and designing structured outputs, insurers can build modelling frameworks that meet US GAAP requirements while also improving operational efficiency.

As financial reporting continues to evolve, actuarial models will play an increasingly central role in the financial infrastructure of insurance companies. Organisations that invest in robust modelling design today will be better positioned to respond to future regulatory changes and to derive greater strategic value from their actuarial systems.

Contact Us

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