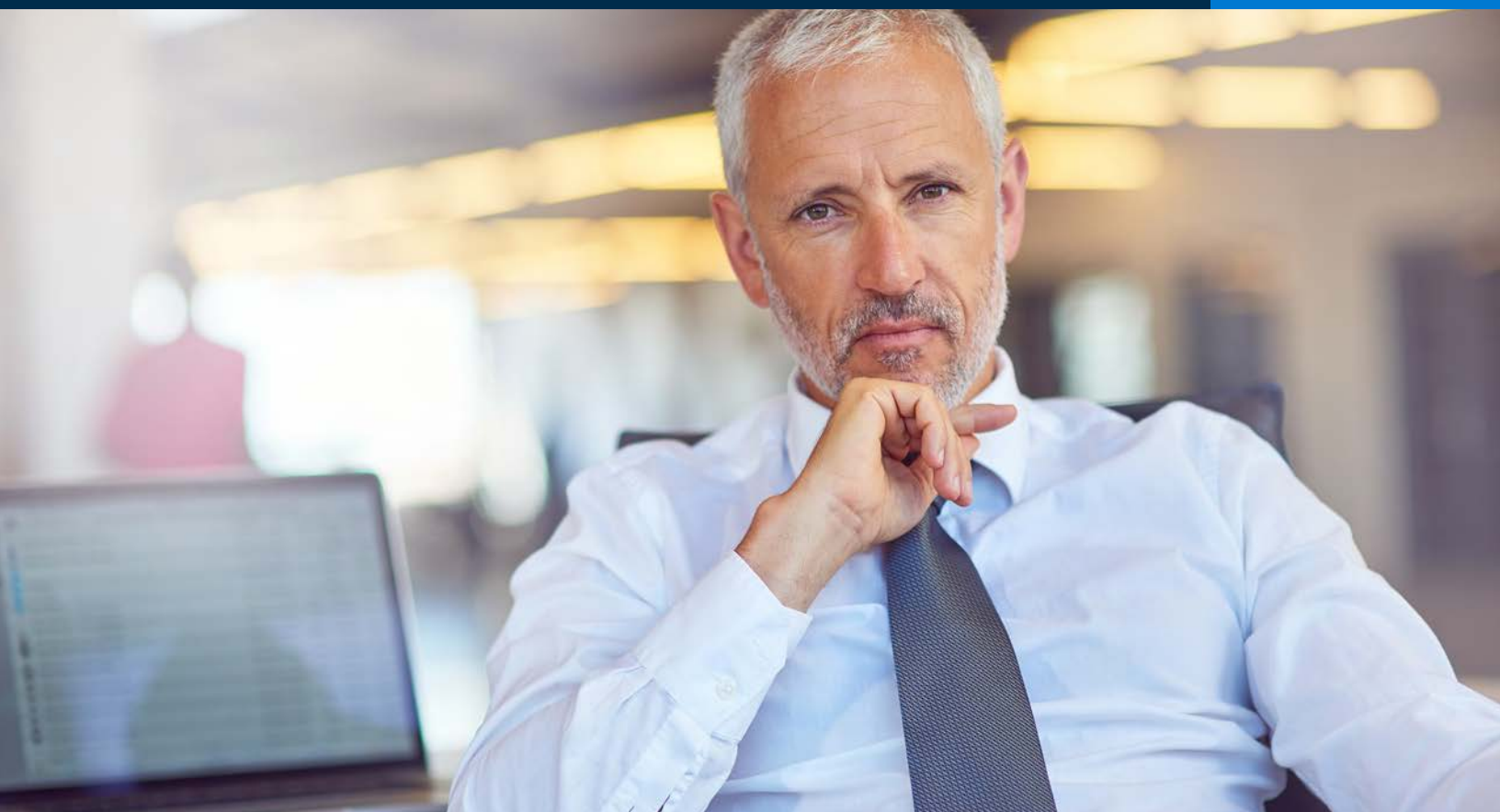


SAS® for Asset and Liability Management and Liquidity Risk Management

A powerful, integrated system for improved balance sheet management



Asset liability management (ALM) is a core discipline focused on the analysis and management of balance sheet and liquidity risk impacts resulting primarily from changes in interest rates. But as banks and other financial institutions are pushed by regulatory changes and the desire to improve business performance, many have begun rethinking their ALM and liquidity risk management processes.

Initially, many focused on efficiency gains through automation and flexible what-if analyses. This approach improved efficiency along with quality. Now, banks are looking for ways to enhance their ALM programs so they'll provide greater strategic business value through more effective balance sheet management. This requires a broader, more dynamic perspective of ALM. To succeed, the approach must link tightly with risk management functions while remaining agile enough to accommodate changing business conditions.

Built on our industry-leading analytics platform, an asset and liability management and liquidity risk management solution from SAS readily links with other enterprise risk management and finance programs. These include stress testing, IFRS 9, CECL and capital assessment. Our solution combines the power and scalability of SAS Risk Stratum - our risk management foundation - with the functionalities of SAS Asset and Liability Management, which provides a comprehensive framework for managing interest rate risk and funding liquidity risk. Together, the SAS solution provides easy-to-use, out-of-the-box capabilities for ALM and liquidity risk management, regulatory compliance and risk-adjusted fund transfer pricing. It also provides a flexible and transparent environment to address current and future user-specific requirements.

Challenges

- **Economic uncertainty.** With the COVID-19 pandemic, uncertainty in the world economic outlook spiraled. Financial institutions struggled to quantify heightened credit losses and cash flow uncertainties – a result of surging unemployment, supply chain disruptions and government interventions.
- **Persistent low interest rates.** Interest rates have remained historically low since the financial crisis of 2008 – a trend that continues. Financial institutions face increasing profitability pressures, pushing them to improve efficiencies and establish more forward-looking balance sheet management and optimization practices.
- **Rapid technological advances.** The emergence of advanced analytics, high-performance computing and elastic IT infrastructures accelerated the pace of change and enabled a new wave of fintech companies to challenge traditional business models.
- **Increasing regulatory requirements.** Uncertain times led regulators to increase scrutiny on financial firms' risk management. The cost of compliance rises as banks seek to demonstrate timely, accurate and strongly governed ALM and liquidity risk management programs.

Capabilities

With the SAS solution for ALM and liquidity risk management, you can operate your ALM processes with a high degree of granularity and transparency. Our solution provides a comprehensive package of analytical, computational and governance capabilities for the full ALM function. Through a single, scalable platform and modular structure, you can manage workflows, capture data, execute models, and consolidate and report results. In turn, asset liability management can become a dynamic, value-enhancing component of your strategic planning processes.

Cash Flow Generation and Valuation Coverage

The SAS solution can generate both contractual and behavioral (interest and capital) cash flows for a large set of accounts and instruments. It can value the most common instruments and integrate additional pricing functions and external pricing libraries. Calculations can be performed on a traditional (static) or dynamic balance sheet, allowing you to quantify the impacts to your portfolio over multiple scenarios or simulations of market or behavioral risk factors. Risk premiums (interest risk, credit risk and liquidity risk), behavioral components and embedded optionalities can be further decomposed and aggregated for more granular analysis.

Analyses for Interest Rate Risk and Liquidity Risk

SAS provides powerful analytical capabilities to help you achieve regulatory compliance with greater efficiency. With highly scalable grid computing, you can quickly perform a wide range of calculations for interest rate risk and liquidity risk. You can compute the economic

value of equity and net interest income. Quickly perform granular calculations that incorporate exposure yields, durations and convexities. Efficiently compute interest rate risk of the banking book (IRRBB), liquidity coverage ratio (LCR) and net stable funding ratio (NSFR) measures, and perform liquidity and repricing cash flow gap analysis on user-defined time buckets. Use powerful analytics to optimize your cash flow strategy.

Stress Testing and Simulations

With SAS, you can perform dynamic analyses of the balance sheet under a range of business and economic assumptions. Achieve greater alignment with enterprise stress testing by projecting your balance sheet over a range of market/macro-economic and behavioral scenarios. Refine your analysis with your own balance sheet evolution assumptions. And incorporate historical and model-based simulations to further test the robustness of your portfolio.

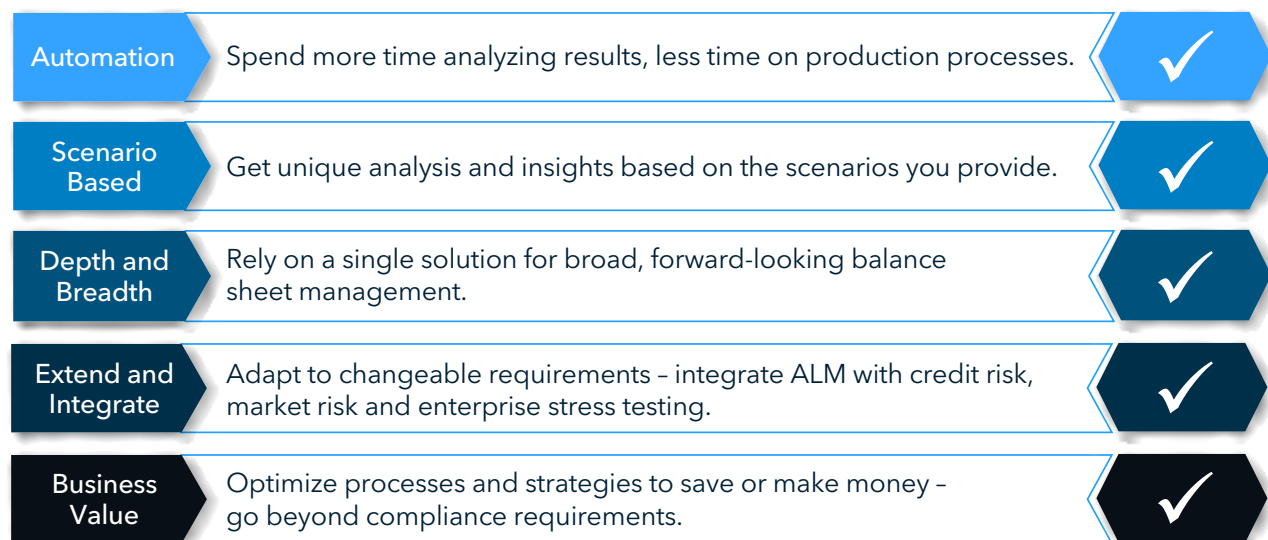
Regulatory and Internal Reporting

Reduce the burden of regulatory compliance and streamline your internal reporting processes by using visual analytics and reporting tools from SAS for report generation and filing. SAS enables you to automate standard reports while maintaining the granular computational data so you can slice and dice as needed, and drill down to unlock additional insights. For example, when using the SAS solution for ALM and liquidity risk management with SAS Regulatory Content for EBA Taxonomies, you can streamline common reporting requirements of the European Banking Authority (EBA).

Benefits

- **Gain immediate and long-term value.** Our solution includes a comprehensive suite of advanced ALM capabilities that work with a common risk framework to integrate ALM with credit risk, market risk and enterprise stress testing.
- **Improve consistency and thoroughness.** With the SAS solution for ALM and liquidity risk management, practitioners are empowered by the tight linkage of balance sheet management with strategic planning.
- **Boost efficiency and flexibility.** Our open and highly automated environment greatly improves efficiencies of the ALM process while giving you flexibility to adapt to unique business needs.
- **Make better-informed decisions.** SAS' industry-leading advanced analytics generate deep business insights that help optimize decisions. Sophisticated visual reporting tools make it easy to share results with regulators and internal stakeholders.

Modern ALM Capabilities From SAS®



The SAS® Difference

As an industry-leading analytics solution provider, SAS has successfully worked with financial institutions of all sizes to address their most pressing analytical challenges. Our ALM and liquidity risk management solution provides:

- **Best-in-class analytics platform.** SAS provides a broad range of integrated capabilities in data management, modeling, simulation and reporting supported by the highly scalable power of grid computing technology.
- **Comprehensive ALM functionality.** Our solution offers a wide variety of ALM functions, including interest rate risk and foreign exchange risks, liquidity risk stress testing and optimization, risk-based funds transfer pricing analysis and regulatory reporting.
- **Flexible, out-of-the-box capabilities.** You can easily configure our industry-leading capabilities to address your unique business requirements while maintaining transparency and traceability.
- **A scalable, adaptive architecture.** SAS solutions scale to the size and complexity of your organization and its processes.
- **Constructive collaboration with SAS experts.** SAS has centers of excellence around the world that are staffed by subject-matter experts, so you get support at all stages of your analytics journey.

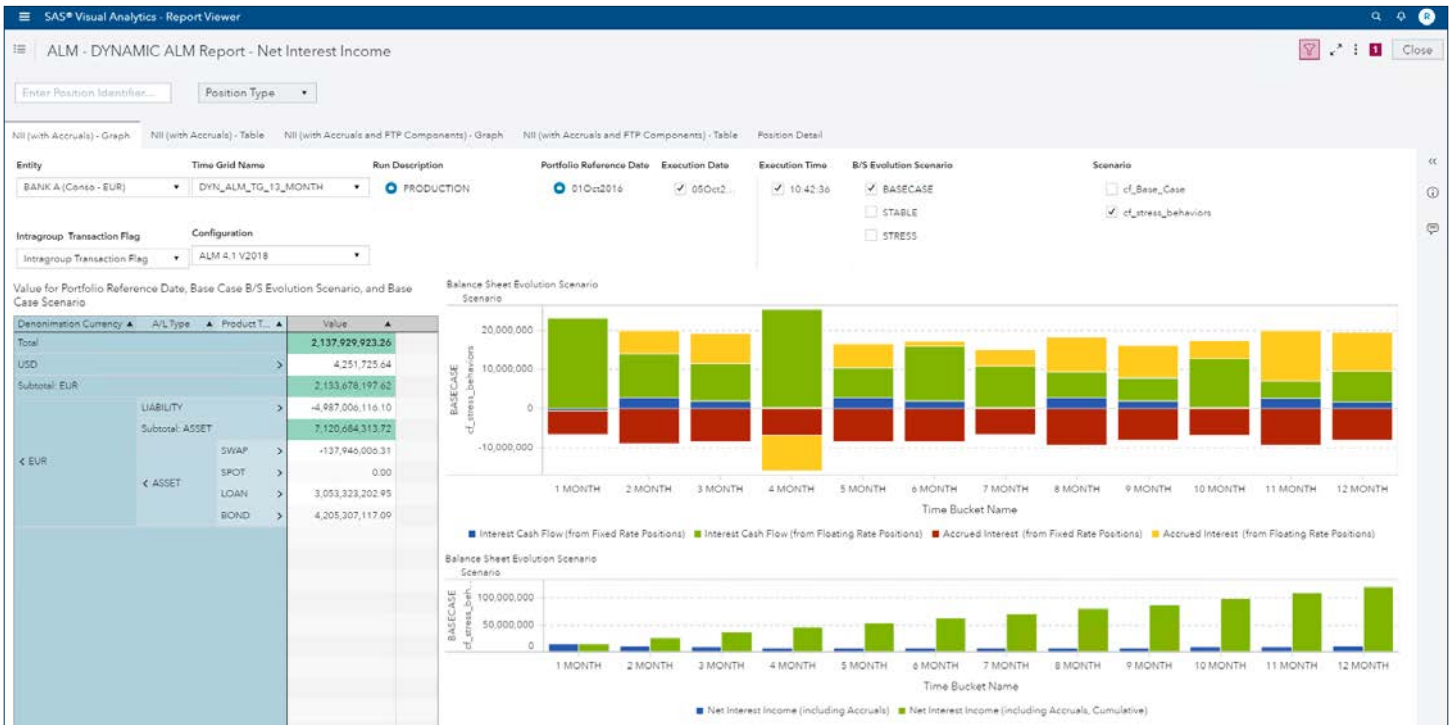


Figure 1: Easily manage interest rate risk and funding liquidity risk.

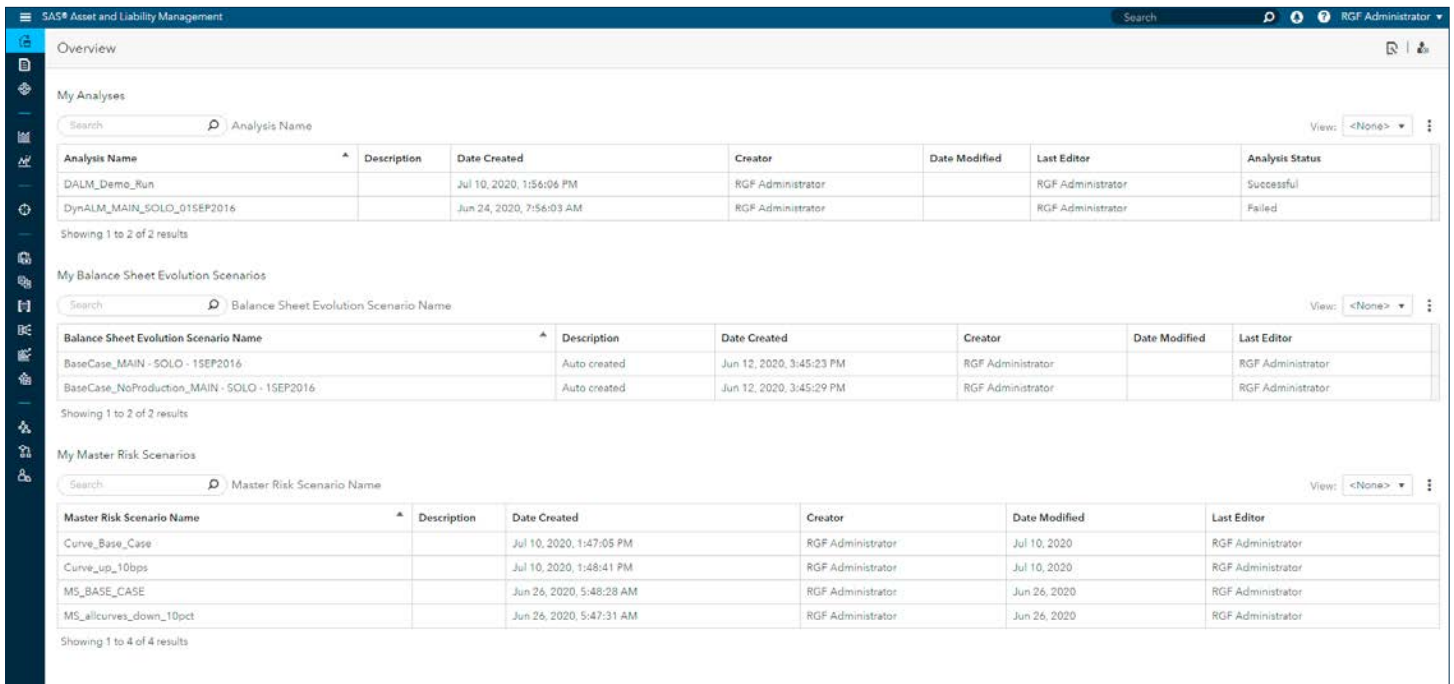


Figure 2: SAS Asset and Liability Management provides a browser-based graphical user interface where adjacent functional components can be accessed.

For more information, please visit [SAS® Asset and Liability Management](#)

