

# Vendor Analysis: SAS ALM Solutions, 2025



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# 1. Report context

This Vendor Analysis is based on the Chartis quadrant report [ALM Solutions, 2025: Quadrant Update](#). This section summarizes the key theses in that report; subsequent sections take a detailed look at SAS's quadrant positioning and scoring, and Chartis' underlying opinion and analysis.

## Key thesis

Asset and liability management (ALM) activities continue to converge across geographies, institution types and organizational structures, but differences remain. Several factors have altered the ALM ecosystem in recent years, as institutions rethink the way they view this space. Once seen as a reporting-oriented function, ALM has since become a strategic capability that now requires institutions to manage internal links between market, credit, capital and liquidity. At the same time, firms must determine how to structure their hedging and risk management strategies efficiently, based on their product and liability profiles.

One of the more fundamental aspects of ALM has been the rise of financial planning and budgeting. For banks and financial institutions, taking a more forward-looking approach to profitability, managing risk appetite and examining the performance of different aspects of the balance sheet have now become integral to their general activities.

## Demand-side takeaways

Market volatility, particularly around interest rates, has significantly heightened demand for enhanced ALM analytics in recent years. Because of a growing need for enhanced structure and sophistication in their ALM systems, many financial institutions have increased their investments in ALM solution stacks, elevating the function to a strategically critical area within their operations.

There is now a marked emphasis on managing financial risks, balance sheets, interest rate gaps, duration mismatches and intricate reporting requirements. Consequently, ALM has transcended its traditional technical role and emerged as a strategic function with considerable decision support capabilities. Sophisticated systems are emerging that integrate key elements such as credit spreads, funding risk, behavioral assumptions and the operational aspects of ALM with funds transfer pricing (FTP) calculations and forward-looking cash flow analytics. As macroeconomic and market instabilities persist, this structural evolution is likely to continue, resulting in a fragmented funding environment.

Institutions' focus on ALM will continue, as they not only face increased credit exposure across sectors but also require more integrated models that reflect a more complex credit environment. In some jurisdictions, the focus will be predominantly on interest rate risk; in others, it will be on the growing interaction of credit and interest rate risks.

Banks are also actively seeking to strengthen their strategic risk-adjusted financial planning capabilities. In response, a new generation of tools is emerging. These tools often derive from traditional ALM frameworks or adapt classical financial planning methodologies to meet the specific demands of the banking and finance sectors.

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## Supply-side takeaways

Chartis views ALM as the strategic business planning and financial 'cockpit' in a bank. A variety of ALM systems can serve a range of situations, financial institutions and banks in diverse contexts. And while the ALM vendor environment has always been fragmented, there is a growing push from vendors in different market segments to move into adjacent or related areas. Meanwhile, a variety of new vendors are arriving in the landscape. Market risk vendors have started to move into the ALM space from the financial planning area, and consultants are increasingly offering ALM managed services.

Chartis has identified the key foundational elements that need to be in place to ensure that ALM systems can provide strategic business planning infrastructure. These include:

- **Sophisticated behavioral and counterparty risk frameworks.** The behavior of any counterparty is a core consideration for financial institutions, and firms now need more data about their customers and a much more real-time view of them. However, customers can be prone to rapid changes in behavior, and historically banks have been slow to pick up on runs because customers did not exchange information. Data sharing between entities allows banks to monitor sentiment and activity in real time and with more specificity.
- **A fundamentally flexible and sophisticated cash flow engine.** This can generate cash flows for virtually all product types with a reasonable degree of granularity. It can also aggregate cash flows across several dimensions.
- **Strong market alignment.** This ensures that firms can use hedge analytics, portfolio optimization and portfolio reconstruction in the context of a well-defined market structure.

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## 2. Quadrant context

### Introducing the Chartis RiskTech Quadrant

This section of the report contains:

- The Chartis RiskTech Quadrants for ALM solutions, 2025:
  - ALM.
  - FTP.
  - Liquidity risk management (LRM).
  - Capital and balance sheet optimization.
  - Hedging and risk management.
  - Financial planning and analysis (FPA).
- An examination of SAS's positioning and its scores as part of Chartis' analysis.
- A consideration of how the quadrants reflect the broader vendor landscape.

#### Summary information

##### ***What does the Chartis quadrant show?***

Chartis' RiskTech Quadrant uses a comprehensive methodology that involves in-depth independent research and a clear scoring system to explain which technology solutions meet an organization's needs. The RiskTech Quadrant does not simply describe one technology option as the best solution; rather it has a sophisticated ranking methodology to explain which solutions are best for specific buyers, depending on their implementation strategies.

The RiskTech Quadrant is a proprietary methodology developed specifically for the risk technology marketplace and it considers vendors' product, technology and organizational capabilities. Section 4 of this report sets out the generic methodology and criteria used for the RiskTech Quadrant.

##### ***How are quadrants used by technology buyers?***

Chartis' RiskTech quadrants provide a view of the vendor landscape in a specific area of risk, financial and/or regulatory technology. We monitor the market to identify the strengths and weaknesses of different solutions and track the post-sales performance of companies selling and implementing these systems. Users and buyers can consult the quadrants as part of their wider research when considering the most appropriate solution for their needs.

Note, however, that Chartis does not endorse any vendor, product or service depicted in its research publications and does not advise technology users to select only those vendors with the highest ratings or other designation. Chartis' publications consist of the opinions of its research analysts and should not be construed as statements of fact.

**How are quadrants used by technology vendors?**

Technology vendors can use Chartis' quadrants to achieve several goals:

- Gain an independent analysis and view of the provider landscape in a specific area of risk, financial and/or regulatory technology.
- Assess their capabilities and market positioning against their competitors and other players in the space.
- Enhance their positioning with actual and potential clients and develop their go-to-market strategies.

In addition, Chartis' Vendor Analysis reports, like this one, offer detailed insight into specific vendors and their capabilities, with further analysis of their quadrant positioning and scoring.

**Chartis Research RiskTech Quadrants® for ALM solutions, 2025**

Figures 1 to 6 illustrate Chartis' view of the vendor landscape in each of the following solution categories, highlighting SAS's position: ALM, FTP, LRM, capital and balance sheet optimization, hedging and risk management, and FPA.

**Figure 1: RiskTech Quadrant® for ALM solutions, 2025**



Source: Chartis Research

Figure 2: RiskTech Quadrant® for FTP solutions, 2025



Source: Chartis Research

Figure 3: RiskTech Quadrant® for LRM solutions, 2025



Source: Chartis Research

Figure 4: RiskTech Quadrant® for capital and balance sheet optimization solutions, 2025



Source: Chartis Research

Figure 5: RiskTech Quadrant® for hedging and risk management solutions, 2025



Source: Chartis Research

Figure 6: RiskTech Quadrant® for FPA solutions, 2025



Source: Chartis Research

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## Quadrant dynamics

### General quadrant takeaways

Chartis has identified several themes and dynamics in the vendor landscape for ALM solutions:

- Vendors have added many features in the past year, causing a convergence among firms in many areas, and particularly among leading vendors and their immediate competitors.
- Consequently, many regional players have lost ground, and their solutions are now being categorized as best-of-breed or enterprise platforms.
- Emerging platforms based on a new tech stack and supported by banks with which these vendors may have strong (and in some cases privileged) relationships have gained some market share. But they are chasing a rapidly improving group of companies, since all the market leaders have been investing in their ALM capabilities.
- Some specialists have moved from category leaders to enterprise solutions. This is because gaps have opened, either because others have caught up in their specialist areas or because of the way they package their complex models. At the same time, some category leaders have caught up in certain specialist areas (such as optimizing the performance of simulations or attributing complex contexts).
- Most importantly, because of vendors' renewed emphasis on ALM, category leaders and their immediate competitors have improved and converged their offerings. Recognizing that analytics are now a vital component of ALM, most vendors have enhanced their analytical capabilities.
- FPA will be an area of intense competition in the future, as many vendors of generalized financial software push into this space.

### Vendor positioning in context – completeness of offering

SAS's overarching ALM capabilities are based on several key foundations, including its traditional risk management platform, its core technology platform (SAS Viya), its data infrastructure and, most importantly, the analytical capabilities it acquired with its purchase of Kamakura. Overall, SAS's capabilities address many distinct aspects of the ALM process by combining strong functional capability with deep analytical and quantitative modeling capacity.

#### **ALM solutions**

ALM analytics – and behavioral analytics in particular – constitute a key strength for SAS across the board. Its capabilities in interest rate modeling, and specifically the impact of credit on interest rates (and vice versa), are among the most sophisticated in the space.

#### **FTP solutions**

SAS offers a high-performance framework for operationalizing the end-to-end FTP lifecycle, built on the cloud-native Viya architecture. SAS FTP, like other modules in the SAS ALM solution suite, can be independently licensable. It provides comprehensive FTP methodologies while sharing common capabilities with the other ALM solutions (including multidimensional cash flow modeling, scenario and stress testing and balance sheet forecasting). SAS's ability to enable all the operational functions of the ALM process, by providing a unified environment for multidimensional cash flow modeling and FTP, marks it out as a leader in this space.

#### **LRM solutions**

The SAS Viya architecture provides a robust framework for LRM by consolidating disparate data streams into a governed, high-frequency analytical environment. The platform's strength lies in its data lineage and extract, transform, load (ETL) orchestration. These ensure the traceability of instrument-level data from source systems to regulatory liquidity ratios (such as the liquidity coverage ratio [LCR] and net stable funding ratio [NSFR]). SAS's best-in-class capabilities in this space stem from its sophisticated data management, data lineage and data integration environment.

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### **Capital and balance sheet optimization solutions**

SAS Viya integrates advanced optimization with economic theories of risk and general equilibrium (developed by the company's research arm) to help redefine financial institutions' portfolio architecture. By transitioning from deterministic planning to a stochastic optimization framework, the platform allows firms to simultaneously calibrate the evolution of credit risk and interest rate volatility. Its strength lies in its robust workflow management and SAS's experience in building environments that enable workflow flexibility.

### **Hedging and risk management solutions**

SAS provides comprehensive support for prospective and retrospective hedging effectiveness testing, general ledger (GL) posting and formal documentation. It enables the execution of single or integrated risk-based hedging strategies alongside hedge accounting. Furthermore, by leveraging SAS optimization techniques with ALM, market risk and liquidity analysis, the platform offers sophisticated hedging optimization and advanced analytics.

### **FPA solutions**

SAS's capabilities in providing a transparent, rules-driven framework that integrates high-performance data management with multidimensional financial analysis are among the best-in-class in this category. By automating complex consolidation tasks – including intercompany eliminations and currency conversions – the environment accelerates the reporting cycle while maintaining auditability.

Tables 1 to 6 show Chartis' rankings for SAS's coverage against the completeness of offering criteria in each solution category.

**Table 1: Completeness of offering – SAS (ALM solutions, 2025)**

<b>Completeness of offering criterion</b>	<b>Coverage</b>
Capabilities and breadth of optimization	High
Scenario management systems (including, if supported, specific ESG)	High
Stress testing/reverse stress testing	High
Interest rate modeling	High
Simulation engine(s) capability	High
Liquidity risk	High
Balance sheet optimization	High
Behavioral modeling	High
Data management	High
Integration capabilities	High

Source: Chartis Research

**Table 2: Completeness of offering – SAS (FTP solutions, 2025)**

Completeness of offering criterion	Coverage
Business line management	High
Simulation	High
Data management	High
Pricing	High

Source: Chartis Research

**Table 3: Completeness of offering – SAS (LRM solutions, 2025)**

Completeness of offering criterion	Coverage
Scenario generation	High
Cash flow projections	High
Integration capabilities	High
Reporting	High
LCR + NSFR	High

Source: Chartis Research

**Table 4: Completeness of offering – SAS (Capital and balance sheet optimization solutions, 2025)**

Completeness of offering criterion	Coverage
Breadth of asset class/business line coverage	High
Optimization engine	High
Scenario and simulation frameworks	High
Data management	High

Source: Chartis Research

**Table 5: Completeness of offering – SAS (Hedging and risk management solutions, 2025)**

Completeness of offering criterion	Coverage
Balance sheet and position forecasting	High
Hedge strategy management	High
Product pricing and product risk strategy	High
Market alignment	High

Source: Chartis Research

**Table 6: Completeness of offering – SAS (FPA solutions, 2025)**

Completeness of offering criterion	Coverage
Cost allocation	High
Planning	High
Profitability analytics	High
Performance analytics	High
Data management	High

Source: Chartis Research

## Vendor positioning in context – market potential

SAS’s category leader scores in all ALM quadrants are underpinned by consistently strong performance across all four of Chartis’ market potential criteria: customer satisfaction, market penetration, growth strategy and financials.

The company’s high scores for customer satisfaction and market penetration reflect its well-established global presence and diversified client base, which spans Tier 1 to Tier 3 banks, payment service providers (PSPs) and third-party payment providers (TPPs), FinTechs and government institutions.

SAS’s strong growth strategy also contributed to its category leader placement, as adoption of its solutions expands across North America, Europe, the Middle East and Africa (EMEA) and Asia-Pacific. The company has successfully broadened its client reach across all market tiers, supported by ongoing investment in its workforce and partner ecosystem. While the market has traditionally been fragmented – with local players catering to specific jurisdictional idiosyncrasies – SAS has positioned itself well with strategic acquisitions and a cloud-native approach.

Robust, sustained demand for SAS’s advanced analytics and modeling capabilities contribute to steady business growth and strong commercial performance. This financial strength has enabled continued R&D investment that feeds into a strategic roadmap that is well-aligned with evolving market needs, particularly in the areas of interest rate modeling and ALM analytics, AI-driven analytics and platform integration. Together, these factors continue to shape SAS’s trajectory in the ALM landscape and underpin its high market potential ratings. Another notable factor is the continued integration of Kamakura Risk Manager (KRM) – widely considered the ‘gold standard’ for sophisticated yield curve modeling – into the SAS Viya ecosystem.

Table 7 shows Chartis’ rankings for SAS’s coverage against the market potential criteria in each solution category.

**Table 7: Market potential – SAS (ALM solutions, 2025)**

Market potential criterion	Coverage					
	ALM	FTP	LRM	Capital and balance sheet optimization	Hedging and risk management	FPA
Customer satisfaction	High	High	High	High	High	High
Market penetration	High	High	High	High	High	High
Growth strategy	High	High	High	High	High	High
Financials	High	High	High	High	High	High

Source: Chartis Research

## 4. Vendor context

### Overview of relevant solutions/capabilities

Table 8 provides a summary of the vendor and its solutions.

**Table 8: SAS – company information**

<b>Company</b>	SAS
<b>Headquarters</b>	Cary, NC, US
<b>Other offices</b>	<ul style="list-style-type: none"><li>• Total number of countries where SAS has R&amp;D offices: 3.</li><li>• Total number of countries where SAS has offices: 39.</li><li>• Total number of SAS regional offices in the US: 16 in 13 states.</li></ul>
<b>Description</b>	The foundation for the modernization of SAS's risk solutions is a cloud-first and application programming interface (API)-first architecture based on SAS Viya 4, an AI, analytics and data management platform. With 50 years of experience in analytics and business intelligence (BI) software, and 30 years of providing enterprise risk management solutions and practices, SAS aims to use its risk expertise, cutting-edge analytics and reporting technology to help clients analyze and manage integrated balance sheet risk effectively.
<b>Solution</b>	<p>SAS has a long history of research, solutions and practices in balance sheet risk management covering:</p> <ul style="list-style-type: none"><li>• Open, scalable technology for granular and timely analyses.</li><li>• Industry-leading risk analytics backed by SAS's analytical strength and quantitative risk research.</li><li>• A cutting-edge SAS enterprise data and AI platform.</li><li>• Research-backed thought leadership in ALM and LRM.</li><li>• Interest rate and credit spread curve analytics.</li><li>• Out-of-the-box financial product cash flow and valuation modeling.</li><li>• Comprehensive functionality across ALM, liquidity risk, funds transfer pricing, and market and credit risk.</li><li>• Market, credit and behavioral modeling.</li><li>• Multi-period balance sheet dynamics for stress testing and simulations.</li><li>• Flexible risk aggregation and reporting for insightful integrated risk.</li><li>• Data integration and quality checks.</li><li>• Process automation and governance.</li><li>• Embracing of third-party models and collaboration.</li></ul>

Source: SAS

## SAS Asset and Liability Management

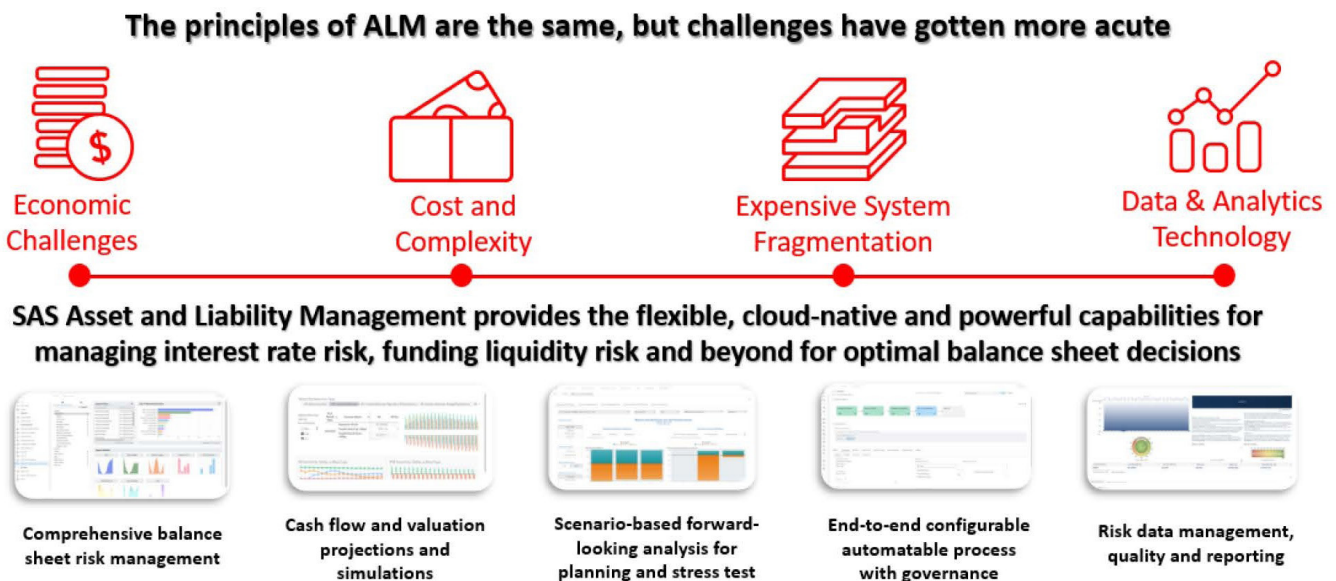
The changing interest rate environment and geopolitical and domestic political uncertainty have created issues for financial institutions' balance sheet risk management. In addition, the rapid development of data and analytics technology has introduced both challenges and opportunities, especially in the adoption of machine learning (ML), AI, digitalization and cloud-based infrastructures.

Over the past decade, forward-thinking financial institutions have been working toward balance sheet integration, driven by risk data aggregation and reporting, stress testing and such scenario-based risk and finance initiatives as International Financial Reporting Standard (IFRS) 9 and Current Expected Credit losses (CECL). The question now, however, is whether that is enough. Institutions are facing the following key questions:

- Does balance sheet risk management align with their business strategies?
- Are ALM and liquidity risk analysis capabilities rich and flexible enough to provide timely and comprehensive information to executives and board members?
- Are FTP, hedging strategies and balance sheet optimization contributing to smart decision-making and adding value?
- How can advances in analytics enable better modeling with the application of yield curve analytics and behavioral models to provide granular, consistent and insightful outcomes?
- How can management encourage effective collaboration and accountability?

SAS's risk solutions provide comprehensive balance sheet risk management on a modern, cloud-native, scalable technology platform that offers timeliness, agility, flexibility and granularity (see Figure 7). As an industry-leading analytics solution provider, SAS has worked with financial institutions of all sizes to address their most pressing analytical challenges across risk and finance functions.

**Figure 7: Why SAS Asset and Liability Management?**



Source: SAS

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### ***Modern technology and a best-in-class analytics platform***

SAS is a long-standing partner of leading financial institutions, including global systemically important banks (G-SIBs). SAS's ALM solutions provide a broad range of integrated capabilities in data management, modeling, simulation and reporting, supported by the highly scalable power of cloud-native computing technology.

### ***A scalable, adaptive architecture***

SAS's ALM solutions are delivered on a modern, cloud-native Kubernetes architecture that is highly scalable and offers fast integration and deployment to accommodate different levels of sophistication and infrastructure usage. Its scalability allows timely delivery of detailed results of analyses with manageable infrastructure cost. The solution can work on cloud-based and on-premise traditional infrastructures.

### ***End-to-end process management and governance***

The SAS solution comes with an institution-configurable workflow framework in which end-to-end analysis processes can be defined for the standardization, governance and containerization of analysis artifacts. This helps with transparency and supports internal and external scrutiny. A particular version of configuration and code base can be incorporated with each of these processes via, for example, a Git repository. Each process can allow multiple iterations and analysis runs. User actions, iterations, task status, approval and sign-offs are logged and accessible in the graphical user interface (GUI). In the increasingly scrutinized risk management environment, this functionality adds value to transparency and governance for every analysis cycle. The solution offers support for multiple jurisdictions, business-line and entity-specific configurations and sandbox environments, with clear governance and specific analysis cycles in the same deployment. The incorporation of SAS Copilot into the solution promises to provide more intelligent support to users seeking to achieve their goals efficiently and effectively.

### ***Robust data management capabilities***

SAS's ALM solutions come with a predefined yet extendable data model to make data onboarding easier. The data management tool provides a flow of data loading, extraction and transformation capabilities for transparency, on-screen data mapping and lineage. SAS also provides connection tools to a wide selection of data platforms for data integration. Client institutions can also choose their own preferred data onboarding process and specify ALM analysis-specific data validation and adjustment/correction rules. SAS also advocates Basel risk data aggregation and reporting principles. Sitting on top of SAS's analytics technology are optional AI/ML and visual explorations that users can apply to their data management processes.

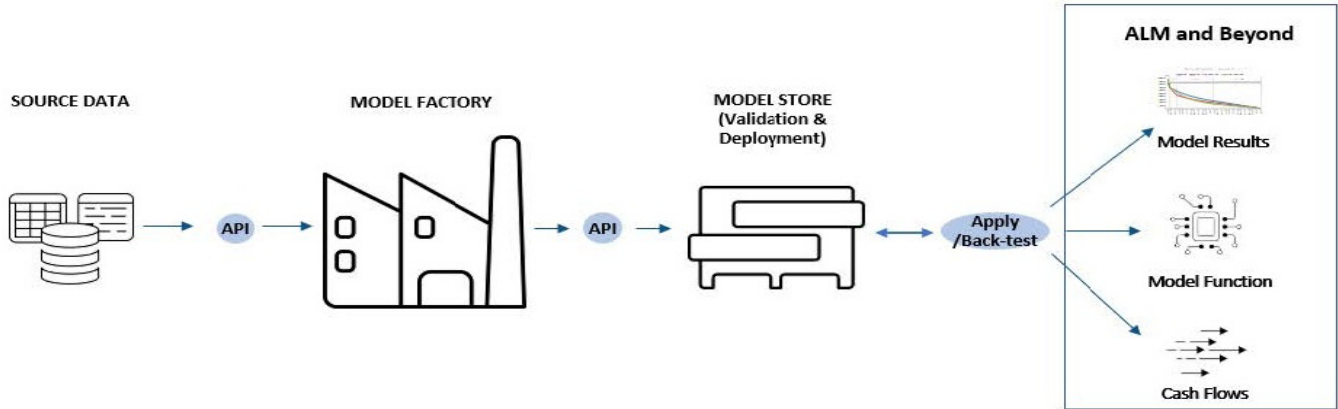
### ***Insightful risk reporting and visual analytics***

Risk monitoring and reporting on SAS's fully integrated, open and cloud-native AI and analytics platform provide users with insight and understanding, based on the results of analyses from the ALM solutions and other systems. The end-to-end process enables the timely availability of granular data for on-demand slice-dice, filtering and drill-down of the information. Regardless of role, every user of the system can benefit from specifically configured and securely deployed reports.

### ***Integration with risk modeling and model risk***

Demand is increasing significantly for analytical models for market rates and customer or counterparty behavior, and facilitating the consistent application and efficient management of risk model lifecycles is an important aspect of integrated balance sheet risk management. In addition to standard analytics capabilities (from generalized linear time series to ML models) that are included in SAS's ALM solutions. Optionally, users can also choose to leverage SAS's risk modeling and model risk management solutions to manage the model lifecycle throughout the ALM applications. Figure 8 on page 17 illustrates the model lifecycle integration in SAS.

**Figure 8: Model lifecycle management for integrated balance sheet risk management with SAS**



Source: SAS

**Comprehensive functionality**

Developed for integrated balance sheet risk management, SAS’s ALM solutions support the increasingly important role of the ALM, LRM, FTP, hedging, balance sheet planning and optimization functions in financial institutions. The solution provides comprehensive, advanced functionality based on SAS’s sophisticated analytics and risk thought leadership.

Lessons learned from the last financial crisis have been the main catalysts for the modernization of balance sheet risk management. Supervisory requirements, including regulatory stress testing, LRM requirements (e.g., LCR, NSFR and asset encumbrance), interest rate risk in the banking book (IRRBB) and recovery and resolution planning, have driven this evolution. Data integration and technological advances have also been instrumental. SAS’s mission is to help client institutions build a proper balance sheet risk management infrastructure beyond regulatory compliance, to ensure that they can withstand a variety of economic conditions.

**Advanced rate analytics**

In the past decade there has been wide variation in interest rate dynamics. After a long run of ultra-low or even negative rates, we went through an inflationary period with rapidly rising rates, and reverted to a neutral but steepening curve environment with greater future uncertainty. The level and volatility of short-term rates and the shape of the yield curve reflect this uncertainty. For a balance sheet covering multiple economic regions, the rate of uncertainty also creates considerable imparity. This unsettled condition demands a more sophisticated approach to rate analytics. A stochastic, simulation-driven multifactor model, such as the Heath-Jarrow-Morton (HJM) model for the efficacy of rate analytics, allows banks’ balance sheet risk management to remain adaptive. To address this sophistication, SAS’s ALM solutions provide out-of-the-box rate and curve analytics.

**Credit and behavioral modeling and beyond**

SAS’s ALM solutions allow credit risk models (whether operating through credit spreads implied by the market prices of traded credit or the probability of default and loss given default) to be flexibly specified or modeled. This enables firms to develop cash flow and valuation projections based on both static and dynamic assumptions. Depending on the modeling approach and business applications employed, the modeled credit risk should duly reflect the point-in-time or through-the-cycle nature of the risk. For many use cases, a more dynamic transition-model framework can prove more robust and forward-looking. SAS’s ALM solutions are now closely connected with those of its acquisition, Kamakura Risk Information Services (KRIS), which are used by a large group of central banks, banks and other financial services companies all over the world.

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Similarly, cash flow and valuation projections should accommodate the behavioral models used to capture deposit decay, limit utilization, prepayment or curtailment and other optionality embedded in the products or market instruments on the balance sheet.

While SAS's modeling analytics are robust enough to support the existing modeling framework, they also support emerging AI and ML approaches. The SAS solution provides purpose-built capabilities for 'champion and challenger' and 'what if' options, in addition to scenario-based analyses to enable effective risk management in a volatile economic environment. The consistency of application of credit and behavioral models across balance sheet risk management and regulatory and risk-based accounting standards is a vital requirement for effective risk management and reporting.

### ***Holistic scenario-based balance sheet risk management***

While traditional ALM and LRM typically assume static run-off or a constant balance sheet, this practice creates a disconnect between financial planning and enterprise stress testing. SAS's ALM solutions support forward-looking balance sheet risk management using flexibly configurable dynamic business evolution assumptions that are conditioned on a range of plausible scenarios. The solution also provides tools to support reverse stress testing and the long-duration analysis required for areas such as climate risk modeling.

SAS architects its solutions to support granular cash flow and valuation modeling and analysis and, as a result, users can apply various segmentation and modeling techniques with risk correlations. For example, given that interest rates do not act alone, an integrated risk management approach should analyze the joint impact of interest rate risk and foreign exchange, as well as market, behavioral and credit risk. Firms must consider both macro and micro perspectives of these risks and, more importantly, apply them consistently to business volume projections, as well as cash flows and value projections in a future with multiple horizons.

Execution at greater granularity (even to the account and position level) with common risk scenarios, balance sheet assumptions and consistent models enables consistent analyses across ALM, liquidity risk, FTP, hedging and planning strategies, for holistic scenario-based risk management and financial planning.

SAS's strong integration capabilities (via data and APIs) also allow users to achieve holistic outcomes across different solution systems if these systems can accommodate granularity and model assumptions at a compatible level.

### ***Risk analytics and technology expertise***

SAS's heavy investment in research and development and close collaboration with customers have been the foundation for the company's 50-year experience in analytics and technology. SAS's risk solution team comprises a group of researchers and professionals with long academic and industry records.

### ***Research and thought leadership***

SAS has served the analytics, data management and reporting needs of the financial services industry for 50 years. Leveraging its comprehensive platform and advanced risk solutions, SAS consistently delivers cutting-edge, research-backed results that enable organizations to make informed decisions and manage risks effectively.

In a strategic move to enhance its financial risk management capabilities, SAS acquired Kamakura Corporation, a FinTech leader renowned for its sophisticated methodologies and pioneering research in risk analytics. This acquisition led to the establishment of the SAS Center for Applied Quantitative Finance, a hub of innovation that fosters collaboration between esteemed academics and experienced industry practitioners. The Center pushes the boundaries of financial risk management by developing original, industry-relevant research and transforming it into actionable models and algorithms in SAS's software and data solutions.

The Center’s current research initiatives have a direct impact on ALM capabilities, focusing on:

- Extension of the HJM interest rate modeling and simulation framework to multi-curve and currency systems.
- Hedging optimization.
- Valuation of non-maturing deposits and illiquid assets.
- Credit risk modeling of corporate and sovereign entities.

**Customer advocacy**

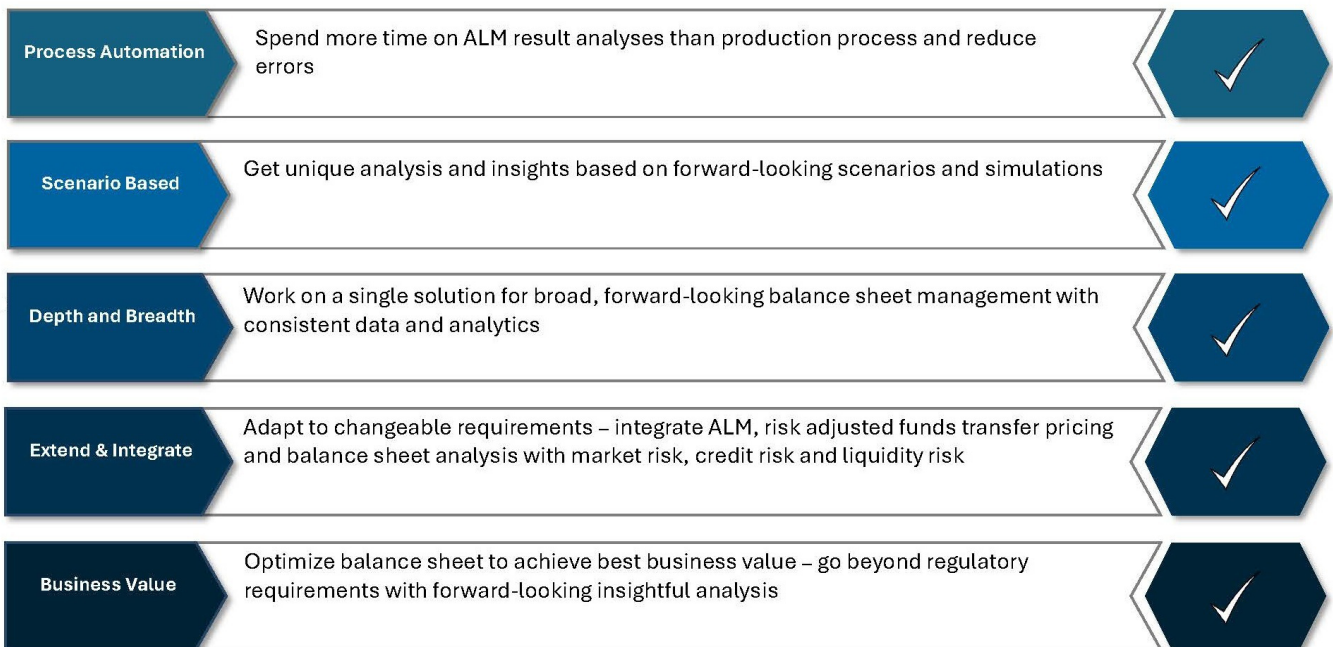
SAS builds long-term partnerships with its customers via its products and services. Solution documentation, education and technical support are the integral components of its success with customers. The company staffs its offices and training centers in many regions and countries with risk, solution and technical consultants who understand local regulations and business environments, and who have deep solution knowledge for fast, localized support.

**A constructive network of partners**

SAS’s carefully selected business consulting and IT partner networks bring the added benefits of expanded knowledge and support capabilities to customers. SAS also allows customers to utilize their preferred business consultants and technical infrastructure vendors in SAS solution implementations.

Figure 9 and Table 9 summarize the key capabilities of SAS’s ALM offerings.

**Figure 9: How SAS Asset and Liability Management helps**



Source: SAS

**Table 9: SAS’s ALM solutions – an integrated balance sheet risk management solution suite with modular offering**

<p><b>Cash flow modeling and valuation</b></p>	<ul style="list-style-type: none"> <li>• Flexible risk factor, curve and grouping configurations for any market, macroeconomic and institution-specific risk assumptions and models.</li> <li>• Coverage of a wide range of banking book and trading book products and their underlying features, with advanced out-of-the-box methodology, serving as the common backbone of integrated balance sheet risk management.</li> <li>• Yield curve smoothing and modeling for both interest rate and credit spreads.</li> <li>• Flexible, forward-looking credit and behavioral modeling.</li> </ul>
<p><b>ALM and LRM</b></p>	<ul style="list-style-type: none"> <li>• Extensive standard and advanced analytics for interest rate risk, earnings risk, economic value of equity (incorporating basis risk, spreads, repricing and embedded option risks).</li> <li>• Modified, effective and key rate duration analysis.</li> <li>• Bottom-up cash flow and repricing risk projection and gap analysis at a highly granular level.</li> <li>• Stress testing and simulation with multi-period dynamic balance sheet assumptions, liquidity funding scenarios and hedging strategies.</li> </ul>
<p><b>Market risk management</b></p>	<ul style="list-style-type: none"> <li>• Advanced market risk methodologies that allow users to apply scenario, sensitivity and simulation analyses of portfolio valuation, P&amp;L and accounting.</li> <li>• Out-of-the-box and configurable risk metrics.</li> <li>• Risk grouping and attribution.</li> <li>• Purpose-built, on-demand risk slice-dice exploration capability.</li> </ul>
<p><b>FTP</b></p>	<ul style="list-style-type: none"> <li>• FTP rate calculation and forecasting capability to help measure risk-adjusted performance.</li> <li>• Wide coverage of standard FTP methods with many configurable parameters.</li> <li>• Multiple risk adjustments, including accounting for the cost of embedded options.</li> <li>• Flexible replicating portfolio approach for deposits and similar products.</li> <li>• Forward-looking FTP projections with impact analysis on net interest income (NII).</li> </ul>

Source: SAS

**Table 9: SAS’s ALM solutions – an integrated balance sheet risk management solution suite with modular offering (continued)**

<p><b>Regulatory and compliance</b></p>	<ul style="list-style-type: none"> <li>• IRRBB coverage of standardized and internal model approaches, as well as supervisory outlier tests.</li> <li>• Basel liquidity risk ratios – LCR, NSFR and jurisdictional variations and extensions.</li> <li>• Minimum capital requirement for market risk (Fundamental Review of the Trading Book [FRTB]).</li> <li>• Fair valuation and expected credit loss.</li> <li>• European Banking Authority (EBA) IRRBB and liquidity risk reporting.</li> </ul>
<p><b>Balance sheet dynamics and optimization</b></p>	<ul style="list-style-type: none"> <li>• Balance sheet segmentation, modeling and rule-based rebalancing.</li> <li>• Scenario-based balance sheet evolution modeling, supporting business-as-usual and stress scenario planning and hedging strategies.</li> <li>• Run-off, static and changing volume with new business, rollover and reinvestment, as well as their impact across valuation and profitability.</li> <li>• Leveraging SAS’s optimization analytics on balance sheet planning and hedging strategies.</li> </ul>
<p><b>Hedging and risk management</b></p>	<ul style="list-style-type: none"> <li>• Cash flow projection and valuation of embedded and explicit optionality.</li> <li>• Effective and key rate durations that consider optionalities.</li> <li>• Support for a ‘what-if’ hypothetical portfolio for hedging analysis and testing.</li> <li>• Limit-based or allocation-targeted portfolio rebalance; partial transactions at instrument level.</li> <li>• Hedging effectiveness and accounting.</li> </ul>
<p><b>Financial planning and budgeting</b></p>	<ul style="list-style-type: none"> <li>• Easy to integrate with SAS and third-party financial planning, profitability and budgeting solutions.</li> <li>• Risk-adjusted profitability analysis and risk-aware financial planning.</li> <li>• Stress testing capabilities to enhance the planning and budgeting process.</li> </ul>

Source: SAS

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## 4. Methodology

### Overview

Chartis is a research and advisory firm that provides technology and business advice to the global financial services industry. Chartis provides independent market intelligence regarding market dynamics, regulatory trends, technology trends, best practices, competitive landscapes, market sizes, expenditure priorities, and mergers and acquisitions. Chartis' RiskTech Quadrant® reports are written by experienced analysts with hands-on experience of selecting, developing and implementing financial technology solutions for a variety of international companies in a range of industries, including banking, insurance and capital markets. The findings and analyses in our quadrant reports reflect our analysts' considered opinions, along with research into market trends, participants, expenditure patterns and best practices.

Chartis seeks to include RiskTech and FinTech vendors that have a significant presence in a target market. The significance may be due to market penetration (e.g., a large client base) or innovative solutions. Chartis uses detailed vendor evaluation forms and briefing sessions to collect information about each vendor. If a vendor chooses not to respond to a request for information, Chartis may still include the vendor in the report. Should this happen, Chartis will base its opinion on direct data collated from technology buyers and users, and from publicly available sources.

Chartis' research clients include leading financial services firms and Fortune 500 companies, leading consulting firms and financial technology vendors. The vendors evaluated in our quadrant reports can be Chartis clients or firms with which Chartis has no relationship.

Chartis evaluates all vendors using consistent and objective criteria, regardless of whether they are Chartis clients. Chartis does not give preference to its own clients and does not request compensation for inclusion in a quadrant report, nor can vendors influence Chartis' opinion.

### Briefing process

We conduct face-to-face and/or web-based briefings with each vendor.<sup>1</sup> During these sessions, Chartis experts ask in-depth, challenging questions to establish the real strengths and weaknesses of each vendor. Vendors provide Chartis with:

- A business update – an overview of solution sales and client satisfaction.
- A product update – an overview of relevant solutions and R&D roadmaps.
- A product demonstration – key differentiators of their solutions relative to those of their competitors.

In addition to briefings, Chartis uses other third-party sources of data, such as conferences, academic and regulatory studies, and publicly available information.

### Evaluation criteria

We develop specific evaluation criteria for each piece of quadrant research from a broad range of overarching criteria, outlined below. By using domain-specific criteria relevant to each individual risk, we can ensure transparency in our methodology and allow readers to fully appreciate the rationale for our analysis. The specific criteria used for ALM solutions, 2025 are shown in Table 4.

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<sup>1</sup> Note that vendors do not always respond to requests for briefings; they may also choose not to participate in the briefings for a particular report.

**Table 4: Evaluation criteria for Chartis' ALM solutions, 2025 report**

Completeness of offering	Market potential
<p><b>ALM</b></p> <ul style="list-style-type: none"> <li>• Capabilities and breadth of optimization</li> <li>• Scenario management systems (including, if supported, specific ESG)</li> <li>• Stress testing/reverse stress testing</li> <li>• Interest rate modeling</li> <li>• Simulation engine(s) capability</li> <li>• Liquidity risk</li> <li>• Balance sheet optimization</li> <li>• Behavioral modeling</li> <li>• Data management</li> <li>• Integration capabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Customer satisfaction</li> <li>• Market penetration</li> <li>• Growth strategy</li> <li>• Financials</li> </ul>
<p><b>FTP</b></p> <ul style="list-style-type: none"> <li>• Business line management</li> <li>• Simulation</li> <li>• Data management</li> <li>• Pricing</li> </ul>	
<p><b>LRM</b></p> <ul style="list-style-type: none"> <li>• Scenario generation</li> <li>• Cash flow projections</li> <li>• Integration capabilities</li> <li>• Reporting</li> <li>• LCR + NSFR</li> </ul>	
<p><b>Capital and balance sheet optimization</b></p> <ul style="list-style-type: none"> <li>• Breadth of asset class/business line coverage</li> <li>• Optimization engine</li> <li>• Scenario and simulation frameworks</li> <li>• Data management</li> </ul>	

Source: Chartis Research

**Table 4: Evaluation criteria for Chartis' ALM solutions, 2025 report (continued)**

Completeness of offering
<p><b>Hedging and risk management</b></p> <ul style="list-style-type: none"> <li>• Balance sheet and position forecasting</li> <li>• Hedge strategy management</li> <li>• Product pricing and product risk strategy</li> <li>• Market alignment</li> </ul>
<p><b>FPA</b></p> <ul style="list-style-type: none"> <li>• Cost allocation</li> <li>• Planning</li> <li>• Profitability analytics</li> <li>• Performance analytics</li> <li>• Data management</li> </ul>

Source: Chartis Research

**Completeness of offering**

- **Depth of functionality.** The level of sophistication and number of detailed features in the software product (e.g., advanced risk models, detailed and flexible workflow, domain-specific content). Aspects assessed include innovative functionality, practical relevance of features, user-friendliness, flexibility and embedded intellectual property. Firms that achieve an appropriate balance between sophistication and user-friendliness receive high scores. In addition, functionality linking risk to performance receives a positive score.
- **Breadth of functionality.** The spectrum of requirements covered as part of an enterprise risk management system. This can vary for each subject area, but special attention is given to functionality covering regulatory requirements, multiple risk classes, multiple asset classes, multiple business lines and multiple user types (e.g., risk analyst, business manager, CRO, CFO, compliance officer). We also consider functionality within risk management systems and integration between front-office (customer-facing) and middle/back office (compliance, supervisory and governance) risk management systems.
- **Data management and technology infrastructure.** Chartis considers the ability of risk management systems to interact with other systems and handle large volumes of data to be very important. Data quality is often cited as a critical success factor and ease of data access, data integration, data storage and data movement capabilities are all important factors. Particular attention is given to the use of modern data management technologies, architectures and delivery methods relevant to risk management (e.g., in-memory databases, complex event processing, component-based architectures, cloud technology and software as a service). Performance, scalability, security and data governance are also important factors.
- **Risk analytics.** The computational power of the core system, the ability to analyze large amounts of complex data in a timely manner (where relevant in real time), and the ability to improve analytical performance are all important factors. We also address the difference between 'risk' analytics and standard 'business' analytics. Risk analysis requires such capabilities as non-linear calculations, predictive modeling, simulations, scenario analysis, etc.

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- **Reporting and presentation layer.** The ability to present information in a timely manner, the quality and flexibility of reporting tools, and ease of use are important for all risk management systems. Particular attention is given to the ability to do ad hoc 'on the fly' queries (e.g., 'what if' analysis), as well as the range of 'out of the box' risk reports and dashboards.

## Market potential

- **Business model.** Includes implementation and support and innovation (product, business model and organizational). Important factors include the size and quality of the implementation team, the approach to software implementation, and post-sales support and training. We give particular attention to 'rapid' implementation methodologies and 'packaged' services offerings, and also evaluate new ideas, functionality and technologies to solve specific risk management problems. Speed to market, positioning and translation into incremental revenues are also important success factors in launching new products.
- **Market penetration.** We consider volume (i.e., number of customers) and value (i.e., average deal size) important. We evaluate companies' rates of growth relative to sector growth rates and assess brand awareness, reputation and the ability to leverage current market position to expand horizontally (with new offerings) or vertically (into new sectors).
- **Financials.** We consider revenue growth, profitability, sustainability and financial backing (e.g., the ratio of license to consulting revenues) to be key to the scalability of the business model for risk technology vendors.
- **Customer satisfaction.** We also evaluate feedback from customers regarding after-sales support and service (e.g., training and ease of implementation), value for money (e.g., price to functionality ratio) and product updates (e.g., speed and process for keeping up-to-date with regulatory changes).
- **Growth strategy.** We evaluate recent business performance, including financial performance, new product releases, quantity and quality of contract wins, and market expansion moves, and consider the size and quality of the sales force, sales distribution channels, global presence, focus on risk management, messaging and positioning. Finally, we view business insight and understanding, new thinking, formulation and execution of best practices, and intellectual rigor as important.

## Quadrant construction process

Chartis constructs its quadrants after assigning scores to vendors for each component of the completeness of offering and market potential criteria. By aggregating these values, we produce total scores for each vendor on both axes, which are used to place the vendor on the quadrant.

### Definition of quadrant boxes

Chartis' quadrant reports do not simply describe one technology option as the best solution in a particular area. Our ranking methodology is designed to highlight which solutions are best for specific buyers, depending on the technology they need and the implementation strategy they plan to adopt. Vendors that appear in each quadrant have characteristics and strengths that make them especially suited to that category and, by extension, to certain users' needs.

### Point solutions

- Point solutions providers focus on a small number of component technology capabilities, meeting a critical need in the risk technology market by solving specific risk management problems with domain-specific software applications and technologies.
- They are often strong engines for innovation, as their deep focus on a relatively narrow area generates thought leadership and intellectual capital.
- By growing their enterprise functionality and utilizing integrated data management, analytics and business intelligence (BI) capabilities, vendors in the point solutions category can expand their completeness of offering, market potential and market share.

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### ***Best-of-breed***

- Best-of-breed providers have best-in-class point solutions and the ability to capture significant market share in their chosen markets.
- They are often distinguished by a growing client base, superior sales and marketing execution, and a clear strategy for sustainable, profitable growth. High performers also have a demonstrable track record of R&D investment, together with specific product or 'go-to-market' capabilities needed to deliver a competitive advantage.
- Because of their focused functionality, best-of-breed solutions will often be packaged together as part of a comprehensive enterprise risk technology architecture, co-existing with other solutions.

### ***Enterprise solutions***

- Enterprise solution providers typically offer risk management technology platforms combining functionally rich risk applications with comprehensive data management, analytics and business intelligence (BI).
- A key differentiator in this category is the openness and flexibility of the technology architecture and a 'toolkit' approach to risk analytics and reporting, which attracts larger clients.
- Enterprise solutions are typically supported with comprehensive infrastructure and service capabilities, and best-in-class technology delivery. They also combine risk management content, data and software to provide an integrated 'one stop shop' for buyers.

### ***Category leaders***

- Category leaders combine depth and breadth of functionality, technology and content with the required organizational characteristics to capture significant share in their market.
- They demonstrate a clear strategy for sustainable, profitable growth, matched with best-in-class solutions and the range and diversity of offerings, sector coverage and financial strength to absorb demand volatility in specific industry sectors or geographic regions.
- They will typically benefit from strong brand awareness, a global reach and strong alliance strategies with leading consulting firms and systems integrators.