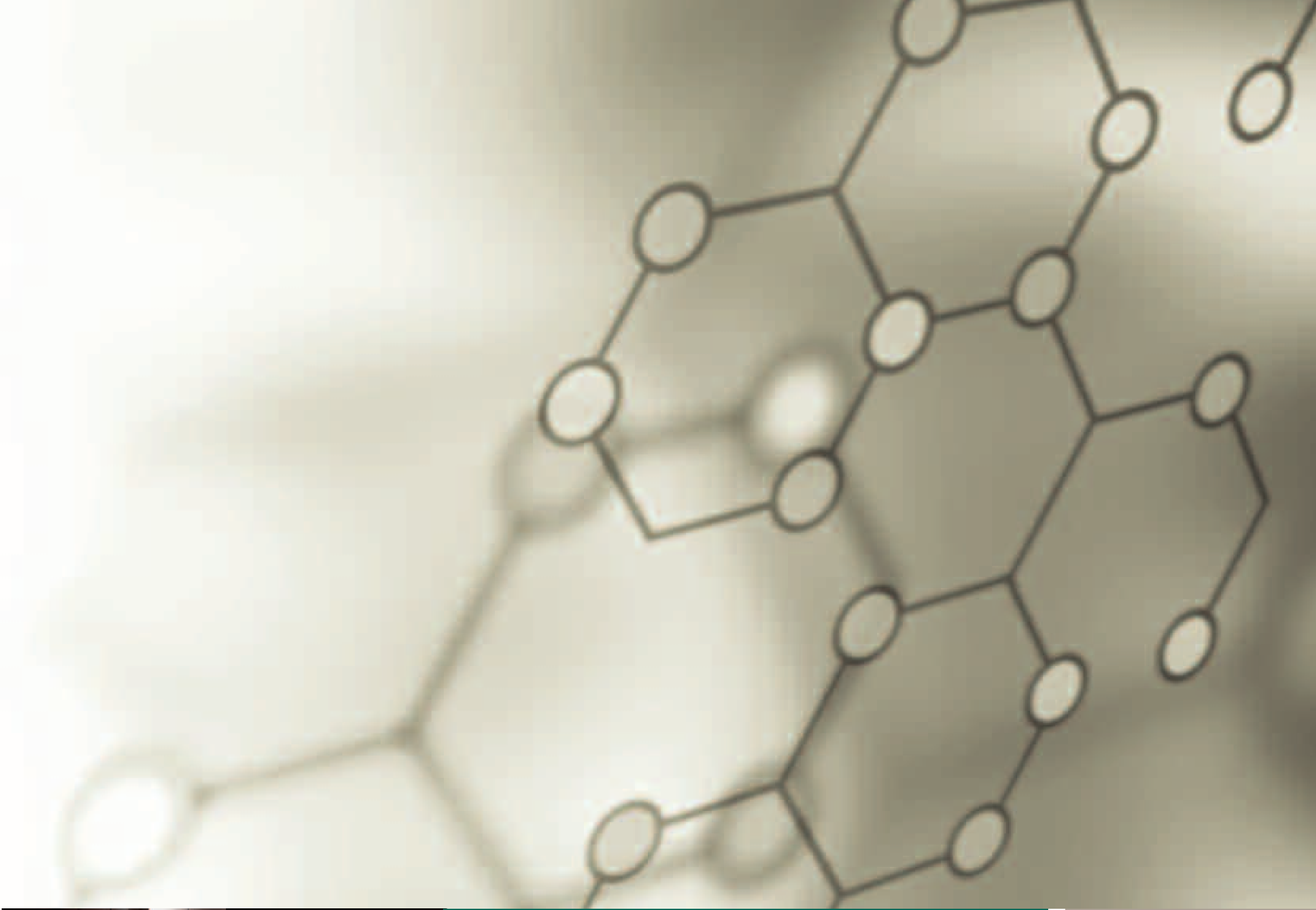


SUNGARD

ADAPTIV 360

Risk Management
and Operations
Solutions

State-of-the-Art Derivative Risk Management and Operations for Regional Financial Institutions

The use of derivative instruments as powerful risk management tools has spread well beyond large internationally active “tier 1” corporations. In an increasingly global business environment, even small to medium sized enterprises can benefit from their use. This has generated pressure on regional financial institutions to offer derivative instruments to their traditional customer-base. Failure to do so can risk losing a much broader range of traditional banking services to larger competitors. This, in turn, creates a further dilemma. Booking, processing and accounting for derivative transactions is a complex activity that is quite different from traditional banking book historical cost accounting and requires specialized valuation, processing and reporting functionality. Adaptiv 360 offers state-of-the-art derivative risk management and operations on a unified platform that is ideal for meeting these requirements of regional financial institutions.

Initial Approach and Eventual Problems

When a regional financial institution first decides to offer risk management services to its traditional clients, it may start by creating back-to-back trades. In this mode, transactions are booked as offsetting pairs, with a major dealer on one side, the local client on the other and the regional financial institution as a principal to both trades. The originator charges a spread to the local customer for arranging the trade and administering the transaction through its lifecycle. Even so, it often is possible for a regional financial institution to undertake such trades at better spreads than would be offered by a large international trading bank. This is because the regional financial institution already has an existing relationship with the customer and the trade does not require additional credit research and due diligence as would be the case for a major trading bank. At this initial stage, trades may be recorded and processed on spreadsheets or other ad hoc systems.

Very quickly, however, the drawbacks of purely back-to-back business become apparent. While this initial approach effectively eliminates the problem of market risk, the hedges needed to offset each and every trade will often be smaller than the market standard quote. As a result, they will carry a somewhat larger spread than would be available for a larger trade. Furthermore, most institutions find increasing interest in, and demand for, these risk management products once they are offered. As trade volumes grow and trade types multiply, an initial ad hoc infrastructure becomes increasingly inadequate to meet the associated operational and reporting requirements.

Reporting reliability is an especially sensitive issue when the results are intended to meet the requirements of bank supervisors. Typically they will demand periodic audits to reconcile regulatory reports with the bank’s official books and records. Reporting errors can result in supervisory discipline.

Other operational mishaps can also become an issue in a heavily manual process. The impact of operational mistakes can range from mild embarrassment to an actual financial loss if an option is not exercised in a timely fashion. In addition, costs tend to mount steadily as volume grows since an ad hoc infrastructure offers very limited economies of scale. There is also the danger of relying too heavily on a small number of staff who maintain many aspects of the operational processes in their heads. In such an instance, the impact of a key employee leaving, for whatever reason, can be substantial.

Lack of a robust valuation capability is also a serious constraint, since it puts the regional financial institution at a competitive disadvantage in negotiating terms with its large trading counterparties. Soon it becomes clear that running a risk warehouse, hedged with a combination of futures positions and standard-sized market trades with professional counterparties is the only effective way forward.

Market Risk

The move from booking only back-to-back transactions to running a small market risk warehouse hedged by futures contracts is a major change. Doing so is only feasible with appropriate desk-level risk tools that reliably define the needed futures position on a regular daily basis. This usually accompanies acquisition of a front office system to book and hedge trades. Often, however, such systems do not have fully robust market risk assessment capabilities that include value-at-risk and stress testing functionality. They also may not cover all the products the bank has on its books. This leaves some transaction types in matched trade mode or leads to multiple front office systems, with the accompanying problems of data fragmentation across products and counterparties.

Consolidation of all trades in a common environment is the most effective way to perform reliable market risk simulations. Regulators expect such estimates to be prepared by an independent risk oversight function once market risk exposure becomes an unavoidable part of the business strategy. Such estimates require sophisticated analytics that provide not just an aggregate value-at-risk figure, but also offer drill-down capabilities, risk attribution, automated backtesting as well as secure audit and reconciliation capabilities.

Counterparty Credit Risk

As noted earlier, regional financial institutions often have a competitive advantage over money center rivals because they have existing credit analysis for their small and medium sized customers. Even so, dealing with the credit risk of derivatives presents a special challenge to bankers who are trained and experienced in a historical cost accounting framework. This is because the dynamic nature of derivative market value, and hence credit exposure, adds a whole new dimension of uncertainty. Many traditional credit professionals find it difficult to integrate this added uncertainty into their accustomed perspective on risk. This problem is compounded by the technical complexity of using dynamic market simulation to estimate time-profiles of potential future exposure (PFE). As a result, if counterparty exposure is quantified at all it usually is done on the basis of a mark-to-market plus add-on approach. Even many large banks have struggled to move beyond this misleading and inadequate approach to counterparty exposure measurement. It should come as no surprise that regional financial institutions often consider a more sophisticated simulation-based approach to estimating PFE to be completely out of reach.

In many ways this lack of adequate tools to quantify counterparty credit exposure is particularly problematic for regional financial institutions. This is because the average credit quality of their end-users tends to be weaker than that of international trading banks. Many small and medium sized enterprises that deal through regional financial institutions are unrated firms with little or no access to public debt markets. They also may be less sophisticated in their use of derivatives, which represents a further uncertainty for the bank. On the basis of counterparty credit quality, a good argument can be made that regional financial institutions have a greater need for sophisticated counterparty exposure measurement than their larger competitors. To date, however, few have felt able to deploy the necessary tools to accomplish this. Adaptiv 360's supports both simple and sophisticated credit tools including mark-to-market plus add-ons, dynamic simulation-based exposure estimation and credit VaR. The calculations account for netting effects and collateral. Adaptiv 360 is designed and engineered to bring the value of sophisticated credit analytics to smaller clients without the overhead of a costly technical infrastructure.

Operational Risk Control

For banks in the European Union, the advent of Basel II provides another incentive for a more robust derivative infrastructure. Since EU banks of all sizes will be subject to the Basel II Capital Accord, they will need to pay special attention to operational risk. Many regional financial institutions will not adopt the Advanced Measurement Approach to their regulatory capital calculation for operational risk. Nevertheless, Pillar II of the new Capital Accord will direct supervisory attention to the strength of banks' operational processes and controls. Such scrutiny is likely to be especially intense in the area of derivatives, since it is subject to such rapid growth and significant continuing innovation. All this reinforces the case for an effective infrastructure to manage derivative activities.

Overly Narrow Vendor Software

Not surprisingly, the initial vendor software to support derivative trading in the early 1990s targeted larger institutions that were early participants in these markets. Such software tended to develop around four broad areas of functionality:

- Front office pricing and hedging tools.
- Middle and back office applications for confirmation and life-cycle processing.
- Market risk estimation, diagnosis and control.
- Credit risk estimation, limit maintenance and compliance monitoring.

In fact, multiple and often incompatible front office systems tended to proliferate across products and geographical divisions of large institutions. To a degree the same was true of middle and back office systems, although economies of scale encouraged some consolidation in this area. Systems for independent assessment of market risk developed later, stimulated in large part by the market risk amendment to Basel I in the mid-1990's. Credit risk limit systems arrived fairly early, but for many years were confined to some variant of the mark-to-market plus add-on approach to quantification. The initial thrust was toward global coverage and global access to eliminate the need for allocating, borrowing and reconciling credit limits across numerous trading desks. Only later did more sophisticated simulation-based techniques emerge to estimate this type of exposure more effectively.

The tendency has been for these systems to develop ever greater depth and sophistication within their specialized areas, with particular emphasis on front office applications to support trading. Market risk systems have become similarly complex and sophisticated as large institutions realized the importance of independent oversight of the positional risks their traders are taking. These multiple specialized systems often tend to be too expensive and unwieldy for regional institutions that are primarily focused on providing solutions for their customers' risk management needs with only limited emphasis on proprietary trading, although such proprietary risk-taking often grows over time.

Appropriate Derivative Infrastructure for Regional Financial Institutions

A typical regional financial institution offering derivative products to its middle market clients has the following requirements:

- Full trade capture either electronically or through manual input, preferably in a single cross-product database format. Transaction volume is typically less of a challenge than for a major trading bank.
- Hedge recommendations based on portfolio Greek letter sensitivities.
- Strong functionality in support of middle and back office activities to automate confirmations, facilitate workflow, generate event driven alerts and assure the integrity of valuation and status reports to clients.
- Assurance of the accuracy of aggregated portfolio reports for bank management and bank supervisors.
- Market risk estimation functionality across a growing range of product types and innovative product features. Such features are generally intended to customize transactions to meet the special risk profiles of particular clients. In the process, however, they often make valuing, hedging and risk assessing such trades more complex. Stress testing is especially important since regional financial institutions often have less breadth and diversification across risk factors than is typical of a global trading bank's portfolio.
- Sophisticated analytics for counterparty credit exposure estimation and drill-down in light of the more uncertain credit quality of typical middle market counterparties. What-if capability to reveal the types of market events that would substantially increase exposure to specific counterparties is of particular value. Such capability can assure informed credit decisions across both a customer's traditional banking book activities and traded products.

Adaptiv 360

SunGard's Adaptiv 360 is designed to meet or exceed the requirements of a regional financial institution's derivative infrastructure across all the functional areas described above. It provides financial organizations of all sizes with access to SunGard's best of breed functionality for:

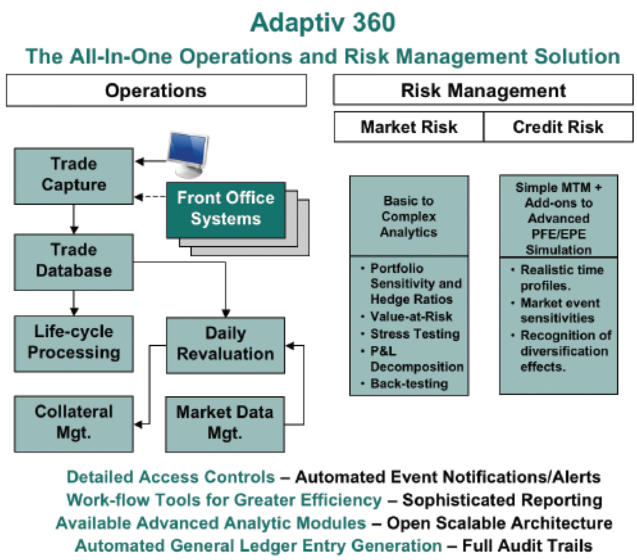
- derivatives trade capture
- straight-through-processing and operations support
- portfolio sensitivity and hedge recommendations
- market risk estimation and stress testing
- sophisticated credit exposure calculation and what-if analysis
- economic capital calculations

in an integrated package on a single platform. Adaptiv 360 provides all financial institutions access to the same sophisticated, real-time risk analytics and derivative processing capabilities available to the world's largest banks. As such, it is an ideal comprehensive platform for regional financial institutions that provide derivative transactions to meet their customers' risk management needs. Being deployed on standard Wintel hardware, the equipment needed is both familiar, configurable and affordable for banks of any size.

Adaptiv 360 is capable of capturing – either manually or from electronic feeds – a wide range of transactions and products and can act as the "front-office" where a dedicated trading system is not available or not required – such as low volume structured products. Additionally, other elective components from across SunGard can be fully integrated within Adaptiv 360. These components include:

- Infrastructure around advanced derivative pricing services as well a pricing libraries and a scripting language which have been integrated with market data management and the ability to run risk calculations for complex structured products using these tools.
- Industry standard pricing libraries and analytics for convertible bond analysis.
- Sophisticated mortgage-backed security pricing and risk management tools.
- Use of a client's own models or of licensed third-party models also is possible.

Together these providing access to a wide range of functionality and expertise beyond the capabilities of any other solution provider.



Dynamic Efficiency

The rapid rate of innovation in derivative markets continues unabated. Assuring that market risk systems can keep pace with the growth in volume and complexity of the underlying transactions has become an essential business challenge. Adaptiv 360's market risk engine includes a partial revaluation framework that allows both grid pricing and Greek sensitivities to be used in driving Monte Carlo and historical simulation VaR calculations. This allows inclusion of new complex trade types in risk simulations even when full re-pricing in each replication is prohibitive in terms of the necessary computer processing this would involve.

Consolidated Trading Infrastructure

Traditional trading support software was segmented by function. This compounded the problem of data fragmentation that has accompanied the thirty year migration of computing power from mainframes to minicomputers and then to PCs. In Adaptiv 360, SunGard started with existing proven tools and consolidated them into a broadly comprehensive trading support infrastructure. It provides middle and back office processing with all the essential security requirements, audit trails, reporting, workflow and event tracking tools required by auditors and banking regulators. It also offers state-of-the-art analytics for market risk and, more importantly for banks focusing primarily on customer facilitation, for credit risk. It provides banks with the type of expected and potential future credit exposure information, including key market drivers of such exposure, needed to assemble a meaningful single customer view.

In essence, Adaptiv 360 is designed to provide banks that are offering the risk management instruments demanded by their traditional customers with the type of sophisticated infrastructure and risk information once available only to major trading banks.

www.sungard.com/adaptiv

For more information on Adaptiv 360, please contact us at: adaptiv.marketing@risk.sungard.com
Visit www.sungard.com/adaptiv

www.sungard.com/adaptiv

SunGard Adaptiv
Exchequer Court
33 St. Mary Axe
London
EC3A 8AA
United Kingdom
Tel: +44 (0)20 7337 6000

SunGard Adaptiv
560 Lexington Avenue
9th Floor
New York
NY10022
USA
Tel: +1 212 745 9400

SunGard Adaptiv
8 Temasek Boulevard
#39-02/03 Suntec Tower 3
Singapore 038988
Tel: +65 6227 6400