



Risk and Return: Striking the Right Balance

The role of business analytics in transforming banking



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Foreword

Even if we have seen the worst of the financial crisis – and that is by no means certain – we now have to contend with a global economic slowdown, which in many countries has become a recession. This series of unprecedented events has thrown up numerous challenges for us in all sectors of financial services – retail, private banking, wealth management, corporate, wholesale, capital markets, insurance, investment management and securities services. These threats, combined with the damage to our industry's reputation, jeopardize many organizations' survival, let alone prosperity.

Now every one of us in the industry is striving to redress the balance between risk and return, and between short- and long-term objectives. There has been no shortage of comment from the industry, regulators, standard-setters and governments on the causes of the crisis and the remedies. Whatever the ultimate consensus, banks must transform themselves to meet the new realities. Forward-thinking financial institutions will move vigorously to address five key areas:

- Improve customer relationships and enhance the customer experience to restore consumer/market confidence.
- Improve risk management, rebuild liquidity and overall capital positions – quickly isolating poor-performing assets to strengthen the balance sheet.
- Engage and manage regulators and other stakeholders in a new era of intense oversight and scrutiny.
- Reduce operational losses and combat financial crime in order to accurately provision capital and ensure customer confidence.
- Review business strategies for a different climate, and identify new ways to drive income and enhance shareholder value.

As executives charged with the task of putting banking on a new commercial course, you need to be armed with trustworthy, complete facts and analysis. For that, the institution needs to adopt a business analytics framework. Decisions will then be based on reliable information and predictive insight – adjusted for known risks across the institution's business units, functional areas and channels.

The technology to achieve this vision is available today. This paper looks at these five areas and how business analytics can redefine the possibilities.

In the eye of the storm:

What's next?

"In my view, the appropriate identification, assessment and handling of risks in the financial sector are the key issues to be considered most carefully amid the current global financial turmoil.

Looking back, the main factor that I would identify as underlying the turmoil is the broad-based under-appreciation of risk.

Looking ahead, the main lesson I believe we need to draw is therefore for the financial sector to establish a much more rigorous identification, assessment and handling of risk."

Jean-Claude Trichet
President, European Central Bank
 Paris, January 2009

Forecasting the financial turmoil

"The backwash from defaults in the US subprime market has been seen not just in the recent problems faced by some hedge funds exposed to this sector, but in credit markets more widely. ...We have seen shocks to credit markets in the last two summers, which were swiftly reversed. Could recent events be the beginning of a more lasting change?"

Sir John Gieve
Deputy Governor, Bank of England
 London, July 24, 2007

The necessary transformation of the banking industry

In a contentious cover story in *BusinessWeek* magazine in February 2009, the banking industry was blasted as a major cause of our current economic downturn and one of the biggest obstacles to the recovery. "... Banks and their advocates in Washington have delayed, diluted and obstructed attempts to address the problem," the article asserted ("How Banks Are Worsening the Foreclosure Crisis," *BusinessWeek*, February 12, 2009).

"The industry strategy all along has been to buy time and thwart regulation, financial-services lobbyists tell *BusinessWeek*. 'We were like the Dutch boy with his finger in the dike,' says one business advocate who, like several colleagues, insists on anonymity, fearing career damage."

The tide has been too much, and the timing too late, for such stopgap measures. In June 2009, the Obama administration proposed the most significant new regulation of the financial industry since the Great Depression, a plan that would give the government new powers to seize key companies whose failure jeopardizes the financial system, as well as creation of a watchdog agency to look out for consumers' interests.

Of course, the industry had much earlier taken notice and started charting new paths. The most comprehensive response came from the Institute of International Finance (IIF), which has more than 390 members worldwide. In July 2008, the organization had issued a report of best practice recommendations for risk management, compensation policies, liquidity management, lending, underwriting and rating of structured products, valuation of assets, and improving transparency and disclosure. At the October 2008 annual meeting of IIF, chairman Dr. Josef Ackermann reported that financial institutions had already started taking "vigorous action to strengthen their operations" in line with the report's recommendations.

Banking basics are back in vogue

"What the current crisis is telling us is that we need a return to some basic banking principles," said Stephen Green, chairman of HSBC in the United Kingdom. "I believe we are entering an era in which the industry's recent propensity for high leverage – together with the extreme complexity of some investment vehicles – will no longer be acceptable. This means that sustainable and profitable growth will come through strategies that get back to the basic tenets of the banking profession."

This transformation is being enforced by an era of tougher global banking regulation. This new era is characterized by higher expectations for bank capital, tighter control over liquidity, and policies designed to discourage excessive risk taking. Financial institutions need information systems that support these expectations.

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Stephen Green
Chairman, HSBC

The role of business analytics in that transformation

In this new banking scenario:

- Chief executive officers and their boards of directors are seeking strategic business directions that will maximize revenue while sustaining regulatory compliance and investor confidence.
- Marketing executives are seeking a better understanding of customers – their preferences and propensities – to maximize the profitability and longevity of valued relationships.
- Chief risk officers need to generate a comprehensive view of risk across the entire institution, and reduce the costs, burden and uncertainty of meeting regulatory requirements.
- Chief information officers are wondering, “How can we build and maintain the IT infrastructure that achieves these results, when we have smaller staffs and budgets than ever?”

The current mode of operation in many corporations doesn't provide very effective answers to such questions, or provides them at very high cost and with dubious accuracy. Banks need a more holistic approach – a validated, unified, institutionwide view of what was, coupled with accurate predictive insights about what will be.

The answers to those questions are not found in the mega-spreadsheets that still proliferate in so many institutions. Spreadsheet programs simply cannot perform consolidations fast enough for larger organizations to meet the new, shorter reporting deadlines. They also do not provide the audit trail required for full transparency, or systematic ways to maintain version control and disseminate important information throughout the organization.

The right technology foundation integrates people, processes and information to arrive at a single, reliable view, based upon repeatable, searchable and auditable processes. Coupled with advanced analytic capabilities – such as forecasting, scenario planning, optimization and risk analysis – this technology platform reduces uncertainty, quantifies variability, refines processes and optimally allocates resources. Analytically derived insights are quickly shared with the users and applications that need them, supporting better decisions to mitigate risks and maximize returns.



Figure 1: The greater the analytic strength, the more powerful and predictive the insights it delivers.

By implementing a centralized business analytics platform to serve the entire organization, rather than scattered PC-based tools, banks can ensure adherence to top-level standards of accountability, achieve the requisite levels of transparency, and provide strategic insights that guide the institution toward optimum growth and profitability.

Consider the power of having analytic intelligence with full risk context. For example:

- The board of directors has clear risk metrics embedded into every performance report, including a short- and long-term view of the market with an economic and risk-adjusted view of current and planned performance. The directors can then set the enterprisewide risk appetite, balancing risks with reward in executing business strategy.
- Marketing and sales managers can identify their most profitable markets and customers to match customer needs with the right products through appropriate and timely sales campaigns. They can ensure their strategies are appropriate for the bank's appetite for risk.
- Customer service executives can operate profitably by anticipating customer demand across channels and aligning resources with predicted demand. They can also improve the service experience by identifying process bottlenecks, channel design issues, staff training requirements and analyzing complaints.
- Collections and recovery staff can accurately price debt portfolios and identify the most effective collection mechanism, such as whether to use internal strategies, outsource or sell to minimize risk and maximize return.

Read on for an overview of how business analytics can dramatically reshape the bank's capabilities, agility and performance in the five key areas of necessary transformation:

- Customer experience.
- Enterprise risk management.
- Governance and compliance.
- Combating financial crime.
- Organizational performance.

A comprehensive business analytics framework provides critical insight not only into what happened in the past, but why it happened, what may happen in the future and how you can achieve the best possible outcome when unplanned events occur.

■ A comprehensive business analytics framework provides decision makers with critical insight, not only into what happened in the past, but why it happened, what may happen in the future and how your organization can achieve the best possible outcome when unplanned events occur.

Transforming the customer experience

The challenge

Traditional customer strategy in retail banking has been “product-out” rather than “customer-in.” Most banks focused on cross-selling more and more products and services, rather than meeting customer needs more effectively and comprehensively.

Now that customer confidence is at a record low, it is time to adopt a more customer-centric mindset while minimizing risk. Retail bankers have to behave more like retail merchants, focusing on new ways to gain customers, keep them and maximize profitability from each – all while reducing costs and risk.

How business analytics can help

Define marketing plans that balance revenue and risk

With a business intelligence platform, you can create a unified view of customers across products and channels, identify your most valuable customers (now and over time) and better understand their preferences and predilections, so you have a better chance of reaching them. Accurate targeting vastly improves the odds of reaching high-value customers while reducing the risk of wasting resources by trying to sell to the wrong people.

Business analytics enables marketing and risk teams to collaborate in defining the marketing plan, balancing marketing objectives with risk appetite. “What-if” simulations and business optimization capabilities ensure that business objectives, such as maximizing profitability and market penetration, are achieved within risk constraints, such as keeping risk portfolio scores below certain levels, or operational constraints such as capacity and budget.

Accurately gauge the credit-worthiness of customers

Many institutions rely heavily on FICO scores as the basis for nearly all risk management decisions, from processing a loan, revising a credit limit or making the decision to pay a transaction. But credit bureau scores tell only part of the picture. They reflect a rear view of past behaviors and not the factors that explain the behaviors. The current credit crisis has called into question the viability of established techniques.

An analytics-based credit risk application scores accounts based on deeper, richer information the bank has gleaned from the customer's history and collective institutional experience. Where there are gaps in the data, a robust approach uses alternative data to narrow the information gap. Sophisticated models deliver highly predictive risk scores that can be used to classify credit risk and guide transactions in a more effective, transparent and forward-looking manner.

The ability to capture true risk has significant implications not only for resolving today's credit crisis but also for preventing future financial disruption.

Intelligently manage customer debt

As customers find it harder to satisfy their debts, and creditors compete to collect debts from the same customers, there is growing pressure to manage debt scenarios more effectively – from pre-delinquency to collections to recovery.

Advanced credit and collections applications collect data from the wider economy, industry sectors, businesses and consumers to build a comprehensive database of the credit ecosystem. Business analytics continually assesses these factors to detect changes that could influence a borrower's ability to pay – and the potential impact to the institution. With earlier clues to potential problems, the institution can make wise decisions to minimize risk, set the best collections strategy, identify the optimum time to sell a debt, and set a market-appropriate price for it.

The debt management and collection business Baycorp uses SAS® to help quantify the risks associated with buying large-scale debts by producing long-term statistically based recoveries forecasts.

■ For Scotiabank in Canada, SAS improved expected campaign ROI by more than 50 percent, compared to the expected results that would have been generated if more traditional offer selection techniques were employed. This lift allowed the bank to make better use of its channel resources and marketing dollars.

“The leading banks and telecommunications companies are among our biggest clients, and so the fact that we also are using SAS Business Intelligence tools is an obvious factor in them feeling comfortable about choosing our services.”

Andre Debakhpouve
*Head of Analytics and
Financial Reporting, Baycorp*

Transforming enterprise risk management

The challenge

In spite of the heightened climate associated with risk, many institutions cannot apply risk management coherently across the entire business. Different types of risks – credit, market, operational, liquidity and so on – are often managed in separate silos. Where these various types of risk overlap, there is frequently a gap so great that major risks go undetected. Institutions urgently need to strengthen overall risk management systems to rebuild liquidity and overall capital positions.

How business analytics can help

The answer to this problem is enterprise risk management (ERM) – an integrated approach that aligns strategy, processes, people, knowledge and IT to better understand and control risk throughout the business. With an ERM strategy, the institution can develop a single enterprisewide risk portfolio that can be analyzed to model future anticipated risk exposures, sensitivity risks and concentration risks, all from an earnings, liquidity and capital perspective.

An advanced risk analytics framework includes data integration, data quality management, enterprise risk analytics, banking and risk intelligence, as well as a Basel II analysis and reporting framework. A cohesive ERM solution detects potentially problematic relationships among disparate data sources and risk types – relationships and dependencies that even the most experienced risk practitioners may miss.

Specifically, an ERM approach enables a financial institution to:

- Better manage credit, market and operational risk.
- Make more efficient use of capital and liquidity.
- Conduct stress testing (and reverse stress testing) in holistic context.
- Protect shareholders and debt holders from risks that should have been identified.
- Align business activities with the bank's risk appetite and a clearer picture of risk.
- Improve risk and regulatory reporting.
- Enable integrated risk analysis of income streams across all risk types.
- Provide insight into risk relationships that were not previously apparent.

Used effectively, business analytics can, for example, provide insight into the risk-adjusted return on a lending product and help predict which changing economic factors are having the greatest impact on product profitability. You will then be able to plan the best course of actions that should be taken in the future. Or you could use a deeper understanding of risk to price products and services more competitively where you can, rather than treating all customers who borrow as “guilty until proven innocent.”

Value-based pricing is not new, but as the pace of change increases, it becomes more important to explore which factors are actually influencing product profitability. These factors are not always obvious, but analytics can unlock this insight. A holistic approach to risk management will drive optimized risk decision making and further develop your ability to proactively and prudently manage risks.

Transforming governance and compliance

The challenge

The growing number of laws, regulations and standards (industry, internal and ethical) has increased the scope, complexity and burden of compliance on our industry. All too often, institutions respond in a piecemeal fashion, which leads to duplication of processes, data gathering and testing.

Banks need to take a holistic approach to legal and regulatory compliance that will minimize effort, maximize efficiency and reduce the risk of noncompliance. Integrated data coupled with advanced analytical capabilities will provide you with all the information and analysis you need to improve compliance with the multiplicity of laws, regulations and standards in all areas of financial services – retail, private, wholesale and investment banking, insurance and asset management.

How business analytics can help

With a comprehensive compliance solution backed by business analytics, you reduce the risk of noncompliance by streamlining data management processes and strengthening internal controls around high-risk process points. You can be confident that the information presented to internal users and regulators is well-organized, accurate and has been prepared using transparent and repeatable processes. Audit trails enable you to track all input sources and transformations applied to any data, even which individual was responsible.

Business analytics can fully support your Basel II requirements in credit, market, operational and liquidity risk, regulatory and economic capital management, stress testing, reverse stress testing, sensitivity and concentration analysis, and risk measurement reporting.

Another area where business analytics can play a crucial role is in assisting compliance with anti-money laundering regulations. Advanced network analysis and statistical techniques can uncover suspicious transactions, not just money laundering offenses but all types of fraud.

The first benefits of such a solution are obvious: on-time delivery of accurate regulatory submissions with significantly less cost and effort. Better compliance also reduces the risk of breaking laws and regulations, and of the legal censure, penalties and reputational damage that follow if authorities detect the breaches.

■ With more than \$152 billion in assets, BB&T is the 11th-largest financial holding company in the US. The institution chose SAS to help manage risk concentration, accounting for risk at both the transaction level and the portfolio level. With SAS, BB&T can now correlate interdependencies within the portfolio to help reduce the bank's risk and price services at a good value for customers, while ensuring an adequate return on capital.

At the same time, analytics-based compliance solutions return significant benefits for internal operations as well. Compliance risk analysts can now redirect their energies from mundane data management tasks to meaningful analysis. Drill-down reporting and data visualization techniques quickly identify areas where compliance status might need action. Loan officers and branch managers can respond to timely information about loan opportunities in low- to moderate-income neighborhoods, and examine the institution's performance relative to the competition.

In short, the solution implemented for regulatory necessity can become a genuine business advantage.

Transforming the fight against financial crime

The challenge

Banking and government entities are seeing an increase in both the number and sophistication of fraudulent activities, such as internal and external fraud, bribery, unauthorized trading, market abuse, money laundering and terrorist financing.

To fight fraud effectively, you must continually improve the monitoring of customer behavior across multiple accounts and systems. Yet few banks have strong, enterprisewide fraud management programs that can correlate a customer's behavior across all contact channels and products.

The fraud management process itself is often fragmented. Fraud detection, alert and case management practices are still too often viewed as separate activities, when they should be managed as a whole.

How business analytics can help

Given the complexity and speed of modern banking transactions, simple rules-based methods of fraud detection and prevention are no longer enough. Business analytics with predictive modeling techniques effectively combats fraudsters while minimizing the level of false positives that can inconvenience customers.

A strong, enterprisewide fraud management approach spans all contact channels and account types and includes the following integrated elements:

- **Data analysis and alert generation** – The ability to assimilate data from multiple sources and apply predictive analytics to accurately assess transactions, activities and customer state in real time.
- **Alert management** – The mechanism for accepting, prioritizing and distributing alerts from the various fraud detection and money laundering tools used across the enterprise – and to record actions taken to determine whether actual fraud is present or suspicious activity has been identified.

- **Social network analysis** – An analysis and visualization tool for uncovering previously unknown relationships among accounts or entities.
- **Case management** – A structured environment in which to manage investigation workflows; document loss incidents; manage the collection of information and documentation in developing cases for civil and criminal prosecution, restitution and/or collections; report on fraud management performance and file necessary regulatory reports.

To more effectively prevent future losses, fraud management systems will have to become self-learning, automatically capturing the outcomes of investigations and reusing those outcomes in future scoring. Models would thereby adapt readily to new knowledge and continually be refined. This combination of adaptation and visibility would enable financial institutions to better understand emerging threats, so they can take action to prevent substantial losses before they happen.

The prospects for the future also extend beyond the scope of any single enterprise. As more organizations adopt integrated, automated fraud management systems, the potential is there to create a broad consortium of financial institutions that can draw on their collective experiences to improve fraud detection across the industry.

Transforming organizational performance

The challenge

Every institution manages performance, in one way or another, in an attempt to optimize the organization as a whole while meeting the needs of internal and external stakeholders. However, many loosely define “performance management” as a reporting effort. The organization that wants to proactively improve performance – not just report on it – must have good answers for these questions:

- Do I have all the information I need to understand performance today across the institution?
- Have I articulated and communicated the strategy in a way that reflects high-level priorities?
- Am I able to drive accountability to these priorities throughout the institution?

In seeking to answer these questions, many institutions are hindered by organizational silos, incompatible data systems and information hoarding. To further complicate matters, flux in economic conditions means that the past is not a reliable indicator of the future. Banks need more than hindsight reports to make forward decisions.

For example, in small business banking, how can static, behavioral, economic data be used to predict future resource requirements? Would the cost of an increased local presence be outweighed by better management of risk and an improved ability to lend to those customers who are thriving? How might local factors and competitor activity influence the ideal resource levels?

■ Within months, SAS delivered a 95 percent increase in check fraud detection efficiency for Commonwealth Bank of Australia. In five years, the new system has detected twice as many check fraud incidents as the legacy system, increased Internet banking fraud alerts by 60 percent, and improved check and Internet fraud loss-to-turnover ratios by 50 and 80 percent, respectively.

How business analytics can help

A business analytics framework enables a timely and consistent version of the truth – and a clear understanding of the factors that influence performance. This knowledge is delivered in a role-specific way, so managers and executives can track activity and outcomes in alignment with organizationwide strategy, not just department-level objectives.

Based on this trusted data foundation, a scorecard and its supporting strategy map articulate the institution's mission and business strategy. The scorecard can reflect what needs to change – where and by how much. The scorecard's dashboard gives executives an at-a-glance picture of the institution's health and performance. Users should be able to see within five seconds which results have the greatest impact, where to focus, and where to drill deeper to discover the root cause of an issue.

A scorecard and strategy map provide the discipline and structure for ensuring that:

- Objectives will be supported by activities.
- Each department will contribute toward goals in a particular way.
- The most important measures are paramount and driven throughout the business.

When supported by analytics, a strategy map can also validate interdependencies and also show the strength of each relationship. Managers can recognize the chain of events that trigger costs related to people, materials, equipment and facilities. They gain new insight into cause-and-effect relationships that link resources and processes to results. For example, product marketing activity and credit limit decreases can be planned in unison to maximize the business objectives for each part of the business, not just a single silo.

■ A successful bank is ultimately about collaborative progress toward a shared vision, based on dynamic knowledge of the full business impacts of processes and relationships, and understanding and satisfying all stakeholders.

Closing thoughts

The banking industry grows more competitive all the time, and volatile markets have eroded consumer confidence and loyalty, putting a premium on superior service and strong incentives. To succeed, banks must better manage their information and find new ways to turn that information into business intelligence.

However, as mergers and acquisitions reshape banks' information networks, it's common to see multiple, incompatible information platforms even within a single functional area. The competitive and regulatory pressures of today's banking environment require a more holistic technology infrastructure, one that supports a unified view of the organization, its customers, risks and rewards.

Does that mean that the bank's investment in traditional, transaction-based systems is obsolete? No. Those systems just need to share their information through a business analytics architecture that brings the parts into a cohesive whole.

SAS delivers an integrated platform and suite of software and services tailored to meet the unique needs of the financial services industry. SAS solutions draw on the vast amounts of data generated by your existing systems and apply banking-specific analytic models to transform that data into meaningful intelligence about strategic performance, customer relationships, credit decisions, risk management and regulatory compliance. All of these solutions are integrated through an enterprise data architecture designed specifically for banks.

With SAS, you can gain new insights into customer and business information, infuse intelligence into strategic business decisions, and increase your success in generating profits, managing risk and delivering rapid return on investment.

The SAS® Business Analytics Framework

The SAS Business Analytics Framework seamlessly integrates the fundamental elements of business intelligence:

- **Centralized data repositories** synthesize data from currently incompatible data silos on any platform and any format, using common metadata.
- **Sophisticated ETL (extract, transform and load) processes** maintain data quality, so you can have faith in the accuracy of plans, reports and analyses based on that data.
- **Banking-specific business analytics** enable non-statisticians to surface meaningful intelligence from vast amounts of information about customers, products, market conditions and risks.
- **Predictive and descriptive analytics** deliver more accurate forecasts, optimization and resource allocation plans – looking not just at what happened, but what will happen.
- **Query and reporting tools** give users the highest quality of information in role-based interfaces – where and when needed, via multiple platforms and channels.
- **Targeted business solutions** support key areas of your business, such as customer relationship management, marketing, compliance, risk management and more – specifically for financial services.
- **Strategic performance management** enables institution-level guidance, accountability and integrity.
- **Professional services, training and ongoing support**, with extensive banking domain expertise, help your organization get rapid results and maximize the value of its SAS solutions.

With the SAS Business Analytics Framework, you can address your most critical business issues right now and then add new functionality over time – all from one vendor, all through one integrated framework, to help transform the institution to prosper in a changing industry arena.

Turnkey and hosted solutions deliver results fast, in months rather than years. Prebuilt solutions are ready-made for specific functions, such as anti-money laundering and compliance with fair banking regulations. The software works with data from existing systems and shares it securely on existing networks. In short, the obstacles that made business analytics seem so daunting in the past have been diminished or dissolved.



About SAS

SAS provides all the capabilities described in this document, based on the proven platform for SAS Business Analytics. Compared to niche or point solutions, SAS integrates solutions across the institution to bring disparate functions together into an institutionwide, customer-centric view.

SAS has worked closely with top financial institutions for more than 30 years to create solutions to address critical business needs. In the financial services industry alone, SAS data integration, fraud detection, risk management, regulatory compliance, CRM and other software is used by more than 3,000 financial institutions worldwide, including 97 percent of banks in the FORTUNE Global 500®.

Our award-winning solutions handle the challenges specifically associated with the volatile financial services industry, and we can help institutions better manage their strategy, risk, customers and channels to maximize profitability, achieve greater shareholder value and gain a clear competitive advantage.

Across industries, SAS solutions are used at 45,000 sites in 118 countries. Since 1976, SAS has been giving customers around the world THE POWER TO KNOW®.

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