Risk Scenario Analytics
Performance Blueprint

IBM®

Introduction

Managing risk and performance requires more than just risk reporting. Financial institutions need a framework that integrates high-quality risk data from a diversity of sources, risk calculation engines and easy to use analytics and reporting platforms to provide seamless self-service analysis capabilities.

Developed to help financial institutions manage financial risks better and meet regulatory requirements, the *IBM Cognos Risk Scenario Analytics Performance Blueprint* addresses your risk scenario analysis and reporting needs consistently, transparently and securely. It provides a combination of custom-tailored risk management reports and ad-hoc interactive aggregation, what-if analysis and reporting capabilities using state-of-the-art business intelligence and information management technologies from IBM and the advanced risk analytics and algorithms from R2 Financial Technologies.

What is risk scenario analytics?

One of the most challenging problems for financial institutions is managing and measuring risk transparently, which requires:
- Consistent, well documented valuation and risk methodologies for asset classes
- Detailed modeling of credit instruments and collateral
- Assessment of counterparty credit risk and valuation
- Measurement of concentration risk, both systematic and name concentrations
- Explicit evaluation of model risk
- Robust stress testing approaches
- Explicit modeling of the interaction of market, credit risk and liquidity risk
- Consistent measurement and reconciliation of economic capital and regulatory requirements
- An integrated view of risks for various levels of the firm

Risk scenario analytics combines scenarios, simulations, calculations and financial risk models with reporting to provide accurate and reliable information on the company risk exposure level. It can help banks and financial service organizations incorporate four practices used by those who survived the recent financial crisis and turmoil in the best financial shape:

- Effective firm-wide risk identification and analysis
- Consistent application of independent and rigorous valuation practices throughout the firm
- Effective management of funding liquidity, capital and the balance sheet
- Informative and responsive risk measurement and management reporting

To take advantage of the benefits of risk scenario analytics, financial institutions need a framework that consolidates and integrates high quality risk data from a diversity of sources, risk engines and easy to use analytics and reporting platforms to provide seamless self-service analysis capabilities. The *Risk Scenario Analytics Blueprint* provides that framework.

[1]Senior Supervisors Group (2008), "Observations on Risk Management Practices during the Recent Market Turbulence." Senior Supervisors Group (2009), "Risk Management: Lessons from the Global Banking Crisis of 2008"

Introducing the Risk Scenario Analytics Blueprint

The *Risk Scenario Analytics Blueprint* is a robust solution that can help financial institutions manage financial risks and address regulatory requirements. One of the industry's first integrated risk intelligence solutions, the *Blueprint* addresses your risk assessment and reporting needs consistently, transparently and securely. It consists of modules that measure, monitor and report the:

* Incremental Risk Charge (IRC) in the trading book
* Counterparty Credit Risk (CCR) and Credit Valuation Adjustment (CVA)
* Economic Capital (EC) Allocation
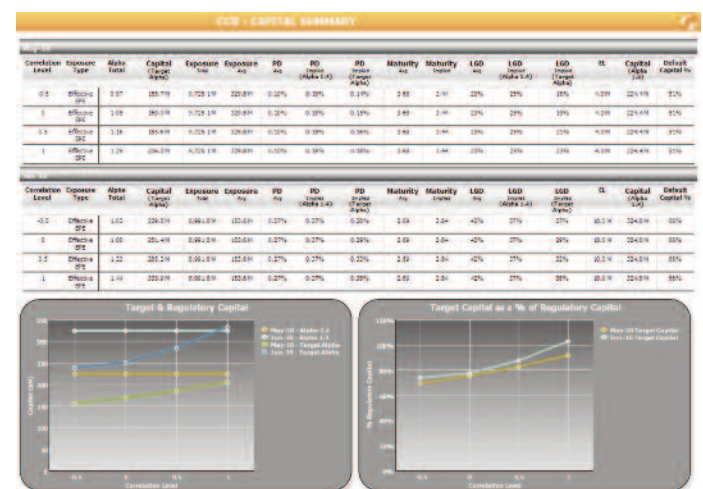* Risk Aggregation
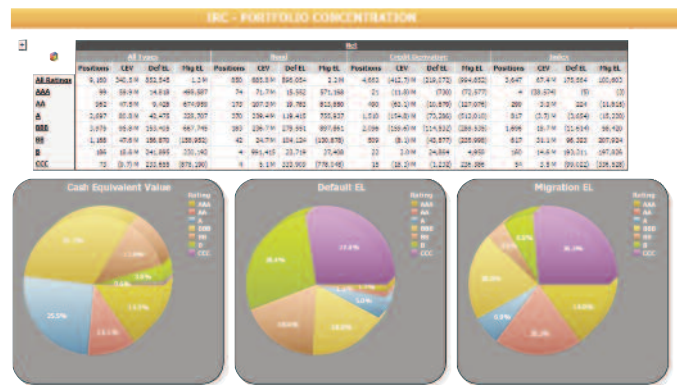
Risk Scenario Analytics for Issuer Risk and IRC

IRC captures credit default and migration risks that are incremental to the risks captured by the market VaR calculation. The Basel committee expects banks to develop their own internal IRC models and the fall-back option is very punitive. Risk Scenario Analytics for IRC integrates an advanced valuation and credit portfolio risk engine, which effectively covers the entire trading book credit activities, using an interactive dashboard with comprehensive reporting and stress testing

capabilities. You can use this module to develop custom-made reports for Risk Managers and Regulators, while other users can drill down and understand the impact of correlations, concentration risk and liquidity.

Risk Scenario Analytics for CCR Capital and CVA

Accurately measuring and managing the CCR of a portfolio is very challenging. You must capture the stochastic nature of counterparty exposures, along with the dependence between exposures and counterparty defaults, accurately. From a regulatory perspective, the Basel II Accord permits banks to use internal models to compute CCR capital requirements based on the concepts of expected positive exposure (EPE) and the alpha multiplier. In addition, financial institutions must value their derivatives portfolios incorporating the possibility of losses due to counterparty default. The CVA is the market value of this counterparty credit risk. Risk Scenario Analytics for CCR Capital and CVA helps you compute and allocate CVA—and measure CCR economic capital. Comprehensive stress testing capabilities, along with a framework to model wrong-way risk effectively, are also part of this module.

Risk Scenario Analytics for Enterprise Economic Capital Risk Aggregation

To manage their financial risks, financial institutions have typically implemented various separate market, credit and operational risk measurement tools from various vendors and internal developments. Risk Scenario Analytics for EEC Risk Aggregation provides an integrated framework for viewing and managing financial risk across your firm. Using existing systems and infrastructure and adding advanced EC analytics, senior management can allocate capital and make decisions based on a single, integrated view of risks and reward.

Risk Scenario Analytics for Margins and Settlement Risk

Clearing houses and brokers can use this module to measure and manage their global settlement risk exposure in real time, using advanced Monte Carlo methods. The solution includes the ability to measure risk contributions for a number of dynamic dimensions, including trading counterparties, asset types and settlement periods. Risk contributions, which reflect the true economic contribution of each clearing member, are then used to measure the amount of collateral that needs to be posted by each member. Using a real-time reporting interface, you can produce comprehensive risk reports, trend profiles and exception reports to draw management's attention to the areas of concerns.
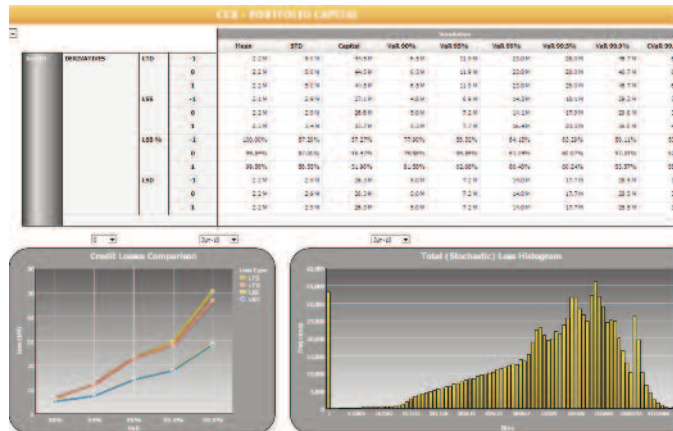
Risk Scenario Analytics features and capabilities
Valuation and risk analytics engines

- Comprehensive methods for valuation and sensitivities
- Complete coverage of credit instruments including bonds, structured finance and credit derivatives, MBS/ABSs and CDOs and equities
- Advanced stress testing and scenario analytics
- Multi-factor Monte Carlo simulation methods
- Economic and regulatory capital
- Capital allocation methodologies
- Advanced Portfolio credit risk and capital aggregation
- Counterparty credit risk measures and credit value adjustment

Risk visualization, analysis and reporting

- Pre-built templates for risk dashboards and reporting that enable easy ad hoc reporting
- Risk contributions and performance attribution reports
- Aggregation of risk and financial data from multiple sources
- Self-service reporting, analysis and risk sandbox
- "What if" scenario analysis
- Key performance indicator (KPI) scorecards, alerts, smartphone access and Microsoft® Office® integration

Risk data management

- Data mart for risk data
- Risk data models
- Business vocabulary
- Reporting requirements related models
- Logical data models
- Physical models (database tables)
- Data quality management tools
- Metadata management tools to trace data lineage
- ETL tools for data sources interfacing

Benefits of the Risk Scenario Analytics Blueprint

The *Risk Scenario Analytics Blueprint* benefits financial institutions in numerous ways. State of the art risk modeling enables comprehensive valuation and risk analyses, advanced stress testing and scenario analytics and risk framework modeling. With robust, efficient risk and capital reporting, dashboards and scorecards, the board, senior management, risk managers and regulators can view aggregated risk information, such as market and credit risks, from multiple data sources and systems on demand. Because the Blueprint features personalization, each stakeholder can receive their information in the format they prefer—online, in spreadsheets, as PDFs or on mobile phones.

Conclusion

Developed to help financial institutions manage financial risks better and meet regulatory requirements, the *Risk Scenario Analytics Performance Blueprint* provides a combination of custom-tailored risk management reports and ad-hoc interactive aggregation, what-if analysis and reporting capabilities. Using state-of-the-art business intelligence and information management technologies from IBM and the advanced risk analytics and algorithms from R2 Financial Technologies, it enables you to address your risk scenario analysis and reporting needs consistently, transparently and securely.

About IBM Business Analytics

More than 1,000 financial services institutions worldwide, including seven of the top 10 insurance companies in the United States, use IBM Business Intelligence and Performance Management to build a platform for market growth and operational excellence.

IBM Business Analytics solutions deliver world-leading enterprise planning, consolidation and BI software, support and services to help companies plan, understand and manage financial and operational performance. IBM Business Analytics solutions bring together technology, analytical applications, best practices, and a broad network of partners to give customers an open, adaptive and complete performance solution. Over 23,000 customers in more than 135 countries around the world choose IBM Business Analytics solutions.

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Business Analytics software