FINASTRA

Fusion Risk

Achieving Global Risk Transparency

**THE FUTURE OF
FINANCE IS OPEN**

> **"**
>
> *We can now aggregate risk data at any level, from individual traders up to group-level reporting for the board. Furthermore, the system supports full drill-down so all analytics and reports can now be queried down to the level of individual transactions."*

Dr. Frederick Shen
Head of Group Market Risk
Emirates NBD Group

Fusion Risk:
Achieving global risk transparency

With market and regulatory challenges constantly evolving, creating a consistent and timely view of global exposure for the different aspects of risk across the business presents a huge challenge.

Financial institutions also confront a continuing environment of global uncertainty. This is making it increasingly important for banks to analyze possible adverse contingencies and plan for them more effectively. If all these challenges were not enough, IT budgets remain under pressure and boards are demanding greater efficiency, agility and improved ROI from risk management systems. More than ever before, banks need a target risk management architecture that provides a platform for future expansion and greater transparency across their organizations while leveraging existing systems.

In this challenging environment, Finastra has launched Fusion Risk. It has been designed to address the many risk management challenges that financial institutions are currently facing. Fusion Risk is a robust modular suite of solutions that enhance operational efficiency for achieving regulatory compliance and enterprise-wide risk transparency while accommodating the inevitable stream of future demands. Fusion Risk empowers financial institutions to address two goals in one: to meet short-term regulatory demands and to improve risk architecture longer-term.

Providing a complete view of risk across the enterprise

Key Benefits

Enhances business decision making by providing a complete view of risk across the Enterprise

Fusion Risk provides open, flexible web service APIs that can take inputs from multiple front-office systems to centralize the assessment of limits as well as market, credit and liquidity risk. Coupled with Fusion Risk's credit assessment and monitoring functionality, risk managers can monitor overall risk exposures across the trading and banking books. Risk managers can use Fusion Risk's Insight single consolidated view of risk indicators to make fully informed, active business decisions, thereby limiting losses and improving returns.

Reduces Cost, Improves Operational Efficiency

By providing a single representation of risk data across the enterprise, Fusion Risk significantly reduces the number of systems and touch points required. Risk management reporting becomes automated, streamlined and exception-based, dramatically reducing workload, time and cost. With Fusion Risk, users can update and review data and then re-run only the part of the analysis that needs correcting. The result rolls up automatically into an overall risk report. This means that users no longer need to spend time on aggregation, reconciliation, system checks and manual processes. Instead, risk managers can spend more time analyzing the data, monitoring trade activity and actively investigating the real drivers of risk.

Reduces Operational Risk and Pricing Errors

Leveraging one integrated platform, all pricing models and valuations are consistent. Errors are drastically reduced by eliminating the need for multiple manual touch points throughout the risk process. One consistent pricing model ensures there are no discrepancies in pricing between the front-office and the risk management function, further reducing the time, effort and operational risk associated with manual reconciliation and aggregation.

Enables users to anticipate and respond rapidly to market changes; improves time-to-market for new business initiatives

The advanced stress testing features in Fusion Risk enable risk managers to simulate the downgrade of a counter-party or a shift in risk factors and rapidly assess the true exposure of the bank. Fusion Risk holds base data within the product and retrieves, stores and aggregates these data in a highly efficient way. Dynamic dashboards allow users to drill down through the figures right across the business, enabling risk managers to get a full picture of risk immediately. Because Fusion Risk does not require pricing models or scenarios to be replicated, new products can be implemented quickly without amending the risk framework. This means that new assets or business lines can be added easily and rapidly, ensuring that firms have the agility and scalability they need to respond to new business opportunities as they arise.

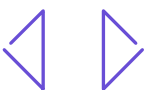### Provides Greater Transparency for Traders

During deal capture, traders can check compliance with all the business's risk management rules in real-time. This ensures that they have the necessary information at hand to take advantage of opportunities as they arise.
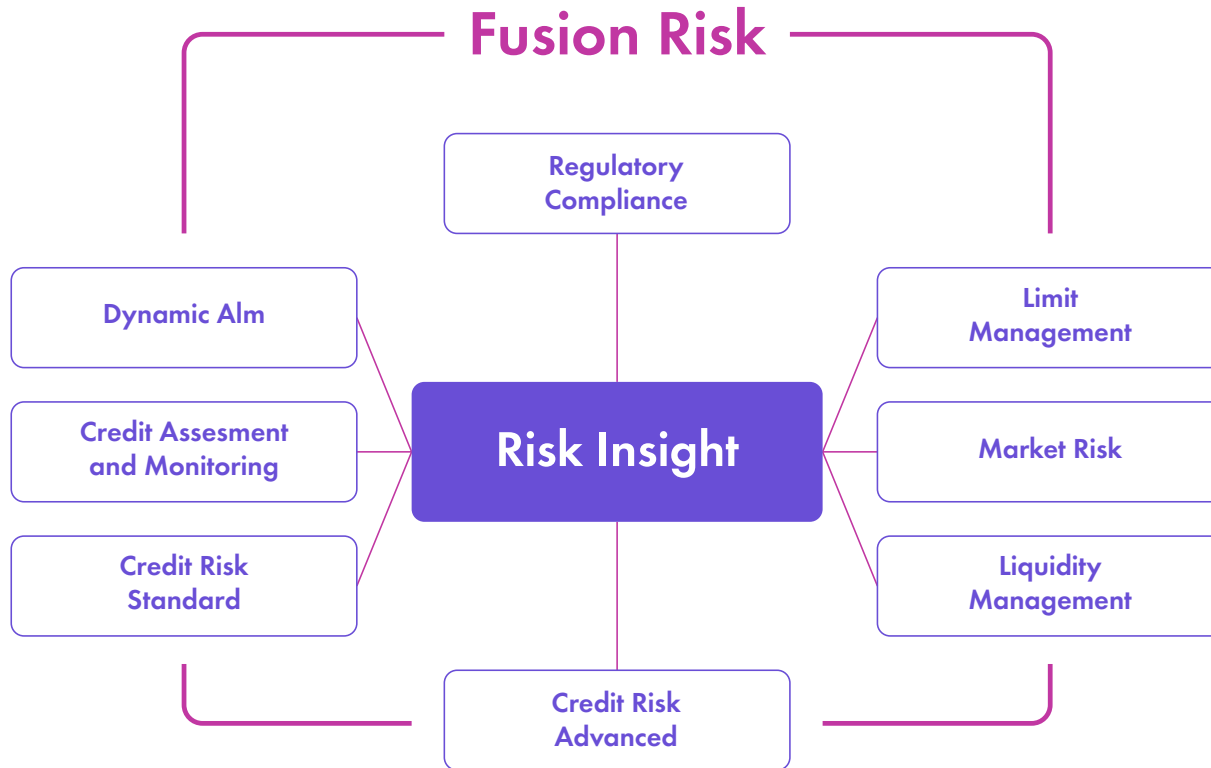
Manages Intraday Funding

Fusion Risk provides an integrated, fine-grained near realtime view of the whole institution's portfolio and its risk exposures, with the clear indication of funding sources and uses, due to the integrated liquidity Fund Transfer Pricing mechanism.

Helps Firms to Meet Regulatory Reporting and Compliance Requirements

Satisfying the regulatory reform agenda remains a priority for most in the financial sector and Fusion Risk offers a rapid route to compliance. The Fusion Risk "Basel in a Box" approach is based on an integrated but open and transparent platform designed to interface with banks' systems and deliver cost-effective compliance. This unique solution combines credit, market and operational risk functionality with McDonough Ratio and capital structure analysis.

The Fusion Risk Framework

Fusion Risk

- Regulatory Compliance
- Limit Management
- Market Risk
- Liquidity Management
- Credit Risk Advanced
- Credit Risk Standard
- Credit Assesment and Monitoring
- Dynamic Alm

Risk Insight

Fusion Risk aligns all risk management information and consolidates analytics traditionally used in separated risk and finance functions in one environment. This allows banks to achieve closer alignment of financial data and systems.

Fusion Risk's framework leverages the existing infrastructure investments of financial institutions and aligns Finastra best-in-class risk, regulatory and governance modules in a cost-effective and modular way by connecting them with existing in-house systems. As a result, all risk and regulatory information is aggregated centrally and can be analyzed and reported intra-day via Fusion Risk's Insight, the governance layer of Fusion Risk.

Fusion Risk's individual modules, as well as Risk Insight itself, are designed to form a framework to gather risk information for all banking and trading books and allow balance sheet reporting as well as on demand position and limits analysis in the front office. The result is only "one version of the truth" at any given time.

Fusion Risk Modules

Risk Insight

Fusion Risk's Insight, the governing, analysis and reporting layer, and its individual modules are designed to form an umbrella for information from all banking and trading books. This allows balance sheet reporting as well as on-demand position and limits analysis in the front office. So at any given time there is only "one version of the truth".

One-click 'slice and dice' functionality allows for a highly intuitive understanding and monitoring of all risk exposures. Extensive reporting capabilities provide standard, customized and what-if reports.

Dedicated 'excess management' workflows allow risk managers to drill down quickly to identify and act on the causes of a limit breach.

Market Risk

Market Risk provides a comprehensive enterprise-wide solution for measuring and managing market risks across all trading activities. Understanding the impact of potential market changes allows firms to make more informed business decisions and gain a competitive edge through proactively managing market risk while staying regulatory compliant with Basel IMA or Solvency II regulation.can spend more time analyzing the data, monitoring trade activity and actively investigating the real drivers of risk.

Dynamic risk dashboard and visualization tools	Intuitive and flexible analysis screens provide a real-time view of market risks, with lightning fast slice-and-dice and drill-down to the underlying information. Fusion Risk incorporates a number of intuitive dashboards include VaR and present value explainers, VaR reporting, back testing and stress testing.
Leverage front office pricing	Fusion Risk provides a flexible API to enable rapid integration with third party and in-house developed libraries used in the front office. The distributed and optimized architecture where Front Office Pricing functions are used to evaluate trades in risk simulations eliminates the time spent by risk managers to reconcile discrepancies between the Front Office and the Risk Management System. Pricing models need not be duplicated, allowing hardware, software and staffing costs to be kept at a minimum.
Market risk analysis engine	The highly efficient scenario analysis and stress testing engine provides historical and Monte Carlo-based scenario generation and VaR calculation. A market data repository and flexible scenario generation tools support all calculations and testing in order to respond to regulatory constraints. All analysis can be stored for future reuse or reference using Fusion Risk's automatic archiving functionality.
Rate management module	Fusion Risk provides market data storage for the management of a wide range of rate types and risk factors from any data source. Visualization and control functionality delivers capabilities including time series display, gap filling for missing data and rate exceptions to manage inconsistencies of market data.

Fusion Risk Modules

Credit Risk Standard

Fusion Risk's Credit Risk Standard enables Credit Officers to understand each step in the loan and/or facility inception and their approval workflows. It offers a way to aggregate global exposure for counterparties, countries, industry segments and others, and is able to block and allocate collateral to any given transaction. The solution captures complex workflow approvals for all counterparty credit risk transactions.

Dynamic risk dashboard and visualization tools	Intuitive and flexible analysis screens provide a real-time view of credit risk, with fast slice-and-dice and drill-down to the underlying information. Fusion Risk incorporates a number of intuitive dashboards such as the EAD explainer.
Credit risk analysis engine	The highly efficient scenario analysis and stress testing engine delivers notional, replacement cost, PFE, linear and BIS methodologies. It supports credit mitigation techniques and meets Basel III economic capital calculation and reporting requirements. The credit risk analysis capabilities of Risk Insight allow detailed analysis of the credit exposures and monitoring of their evolution.
Collateral management	Fusion Risk provides enterprise-wide collateral management using an automated workflow that includes IS DA & CS A agreement margin terms, computation of margin calls and a wide range of other reports for better control practices..

Fusion Risk Modules

Credit Risk Advanced

Fusion Risk's Credit Risk Advanced offers real time risk transparency to all current and future credit exposures (PFE/CV A). This includes infinite levels of risk aggregation (across counterparty, country, portfolio, industry or instrument level) which can be analyzed and reported as required to different target audiences, such as front office, accounting, the board or regulatory bodies.

**Potential future exposure**

The Fusion Risk Credit Risk Advanced engine calculates the potential future exposure of the bank's derivative business through advanced Monte Carlo simulation. Fusion Risk is built on a Tier 1 architecture providing full instrument pricing with Finastra Parallel Technology, which achieves ultra-fast performance. This technology allows the PFE exposures to be calculated quickly using cost-effective hardware. The PFE capabilities are fully integrated with MGR limit management and enable Credit Risk Advanced functions to define and actively monitor full MC simulated credit exposures versus limits.

This is complemented by real time PFE/EPE pre-deal checking using incremental CV A/ DVA capabilities. Traders are able to see the impact of their trade on PFE, EPE , CVA or DVA before executing the trade, which allows them adjust prices accordingly or, for hedging transactions, to select the most appropriate counterparty. This way, the most profitable business decisions are instantly aligned with the banks' risk appetite and CV A desks can actively manage their accounting P&L volatility.

Fusion Risk's Insight provides transparency into the PFE profiles, the effectiveness of credit mitigation techniques and all calculation details. The user can drill down to the impact of individual transactions, view market scenarios and simulated prices and estimate what-if cases.

Credit value adjustment

Fusion Risk leverages the Credit Risk Advanced application's use of ultra-fast Graphics Processing Units (GPU's) in calculating CV A for the bank, for individual desks and for individual counterparties. It also can evaluate the impact of individual deals and supports Wrong-Way Risk analysis.
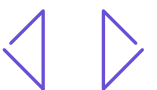
Fusion Risk Modules

Liquidity Management

This real-time liquidity management system is designed for enterprise risk and enterprise cash. It is able to aggregate, simulate and forecast liquidity risk across banking and trading books within seconds and allows users to instantaneously visualize the impact of newly executed intra-day deals.

Scenario driven real time market and liquidity risk engine	The engine allows risk managers and other users to create realistic stress/what if scenarios combining multiple stress events caused by exposure to different risk types (e.g. market risk, interest rate risk, liquidity risk, FX risk, etc.) and their inter dependencies.
Dynamic reporting environment	A reporting and analytics environment with dynamic (OLAP) analysis of multidimensional data. The environment is able to deliver all relevant information down to the single cash flow level (dynamic drill-down, slice & dice) and the underlying market data.

Credit Assessment and Monitoring

This module is designed for financial institutions that need to improve their in-house limit and risk monitoring and transparency It helps institutions to avoid corporate default risk, and can be deployed at desk level or across an entire enterprise.

Credit assessment and monitoring	Fusion Risk – Credit Assessment and Monitoring significantly improves financial institutions' in-house limit and risk monitoring capabilities through comprehensive and dynamic management of credit lines. This component can be used either within individual business units, e.g. corporate and investment banking, or across the entire enterprise to build a unified risk management framework across trading, banking and insurance businesses.

Fusion Risk Modules

Limit Management

Limits management: Fusion Risk Limits Management is a real-time solution that enables the flexible monitoring of bank-specific rules. With proactive management of exceptions and immediate alerts to any discrepancy, issues can be resolved before loss of reputation and cost penalties are incurred.

Fusion risk limit management	A powerful and flexible rules engine enables users of all skill levels to define a wide variety of rules, limits and warning triggers ranging from the simple to the extremely complex. Conformance to these criteria can be monitored constantly on an intraday basis to thwart end-of-day "window dressing" and enforce risk governance and compliance. Users can be notified by any combination of real-time dashboards, email, SMS and desktop alerts. Downstream systems can be alerted automatically via messaging. Once breaches are identified they enter a user-defined workflow for case assignment, escalation and business processing until approved or otherwise resolved.
Limits rules engine	A powerful rules builder to structure virtually any type of limit (including concentration limits) using any combination of internal business hierarchy, counterparty hierarchy, country, industry, rating, currency, instrument, user and positions. The solution covers trading, core-banking and operational limits.
API for real-time limit management in the front office	The Fusion Risk API supports deep, two-way integration with front office systems. Simulation functions allow users to examine the effects of trades before they are placed, request on-line authorizations to exceed a limit, with the credit manager then approving or rejecting the request.

Fusion Risk Modules

Dynamic ALM

Asset liability management has become dramatically more complex in recent years. When more clarity around the correct calculation of interest rates, holding of foreign currencies and liquidity reporting is needed, Fusion Risk Dynamic ALM proactively manages balance sheets by limiting risk and attributing earnings appropriately to the bottom line financial margin.

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Trading and banking book integration	Fusion Risk can import and process data representing the full bank portfolio, including trading and banking book instruments, allowing an integrated analysis of funding sources and uses.
Fund transfer pricing	The methodology applies cost to individual cash flows of analyzed positions allowing for the best possible assessment of funding cost and profit. Both interest rate and liquidity FTP rates are considered and attributed as cost factors. The framework supports complex products including non-maturing products, products with irregular cash flows and embedded options.
Net interest income	Net Interest Income simulation is delivered within a scenario framework and thus allows testing the impact of run-offs, rollovers and new production on the balance sheet as influenced not only by interest rate perturbations but also by cash flow haircuts and prepayment assumptions as well as other events like counterparty downgrades, delinquencies and delayed repayments.
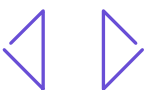
Fusion Risk Modules

Regulatory Compliance

With more scrutiny on regulatory reporting, this module helps organizations to become more flexible and thorough in their measuring and reporting. Whether it is capital adequacy ratios (CAR) in different jurisdictions, or credit, market, operational, liquidity and concentration risks, the time frames requested for reporting are becoming increasingly shorter. Fusion Risk Regulatory Compliance helps financial institutions to stay compliant with changing regulatory reporting requirements.

Credit risk charge	Standardized and IMM methods for computing the RWA of the banking and trading book
Market risk charge	Standardized and IMA methods for computing the RWA of the banking and trading book
Liquidity risk ratios	Liquidity reporting as required by the FSA and prescribed by Basel III
Regulatory reporting	Standard integration of any national discretion

Technical highlights

Fusion Risk is built on a modular, distributed architecture that supports multi-site, global implementations. It features the following technological innovations and core components:

Misys parallel technology	Finastra Parallel Technology minimizes the need for server farms for computation of reports and analysis.Misys Parallel Technology uses graphics processing units (GPUs) for fast generation of results and uses NoSQL storage for simulated results allowing for fast interactive querying on the global dashboard. These innovations greatly improve the user experience and reduce hardware costs. MGR supports a wide range of commodity hardware, databases and operating systems, which further reduces the total cost of ownership. More information on Finastra Parallel Technology can be provided on request.
Real-time data aggregation platform	Designed from the outset to accept and distribute data in real-time, Fusion Risk acquires, cleanses and stores the total range of trade, market and counterparty data required for the analysis of market and credit risk.
Asset class agnostic data model	Built from the ground up to be asset class agnostic, Fusion Risk handles any instrument type and enables the rapid on-boarding of new asset classes.
Distributed architecture integration	Fusion Risk is built on a modular, distributed architecture to support multi-site global implementations.
API	The comprehensive product API supports deep two-way integration with in-house and third-party trading and banking systems. MGR also can be proposed with a full integration of Finastra front-office systems (Summit, Sophis, Kondor+).
ETL	Fusion Risk includes a distributed integration/workflow tool designed for coordinating workflows with existing front-office and legacy systems.

Why choose Fusion Risk?

Fusion Risk's Insight – an Intuitive and dynamic risk governance module
Fusion Risk centralizes all risk positions from all connected modules (be they Finastra's own systems, in-house applications or third party software) on one consolidated and interactive governing module called "Risk Insight". Users are able to drill down to any level of granularity and analyze risk information intraday and on demand, making sure the latest risk information is always available. Its powerful analysis screens plus an intuitive and advanced data aggregation engine make it easy to find relevant information when it is needed.

Improved Risk Collaboration
Enterprise Risk Management can be as much a data and numbers problem as one of networks and people. A solution is needed that can connect the dots, break down silos and enable people to make informed, risk-based decisions. MGR enhances collaboration between risk and system experts in different locations and enables improved workflows between the finance, risk and audit functions, thereby enhancing the usage and magnifying the impact of risk intelligence within an organization.

Use Front-Office Analytical Libraries in Risk Reporting
Fusion Risk ensures data consistency by using the actual analytical libraries running in the front-office. These can be combined with independent Finastra, in-house or third-party pricing analytics to establish whatever mix the client considers optimal.

Credit, Market and Liquidity Risk Engines in One Product
Fusion Risk delivers real-time access to all risk factors, whether credit or market-based, with sophisticated analysis tools.

Sophisticated and Flexible Stress Testing
Fusion Risk includes an advanced stress testing engine that allows users to model exposures to different historical, event driven and client-specified scenarios over any time period.

Highly Flexible Limits Rules
Fusion Risk supports sophisticated limits rules that allow users to structure any kind of limit, internal business hierarchy and counterparty hierarchy. It also allows risk managers to re-allocate limits on the fly.

Powerful Data Aggregation and Analysis Engines
MGR offers powerful and flexible data aggregation via "Finastra Parallel Technology" with rapid analysis engines to build and run complex scenarios. Users can update data and re-run the relevant parts of any report. These elements are then automatically rolled up into the overall result without the need for other time consuming recalculations.

Open, Flexible and Generic Data Model
Fusion Risk's open and generic data model gives risk managers the data integrity needed to produce a "single version of the truth". True alignment requires common data standards and flexibility to model any exposure using proprietary measures of risk. Any banking activity can be simulated and counterparty risks fully explored.
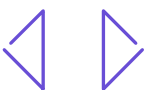
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About Finastra

Finastra is building an open platform that accelerates collaboration and innovation in financial services, creating better experiences for people, businesses and communities. Supported by the broadest and deepest portfolio of financial services software, Finastra delivers this vitally important technology to financial institutions of all sizes across the globe, including 90 of the world's top100 banks. Our open architecture approach brings together a number of partners and innovators. Together we are leading the way in which applications are written, deployed and consumed in financial services to evolve with the changing needs of customers. Learn more at **finastra.com**

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