



INTEGRATED RISK MANAGEMENT FOR THE BUY-SIDE

**FIS INVESTMENT RISK MANAGER
FORMERLY APT**

FIS® Investment Risk Manager (formerly APT) helps your business to effectively monitor and manage its investment risks. Whatever your investment strategy, risk management is a critical requirement for an investment firm. It provides the basis for effective action to address the potential downside for you or your clients in all market conditions.

Investment Risk Manager's multi-asset class factor model is integrated with FIS' best of breed simulation engine, which enables you to model a wide range of complex derivatives using over 200 pricing models for derivative valuation and simulation.

Investment Risk Manager also provides broad analytical coverage including fair value, implied volatility and traditional greeks.

Your risk management system needs to be:

- Flexible – provide a whole range of measures for a 360 degree view of your risks
- Responsive to rapidly changing circumstances in global financial markets
- Robust – provide risk forecasts which account for fat tails

It also has to:

- Incorporate historical market shocks into your risk analysis, as well as scenarios you think may occur in the near future
- Identify the biggest contributors to your risk, either by position or by factor exposures
- Identify the best hedging strategies to mitigate the market risk aggregated at any level within the enterprise

CUSTOMERS INCLUDE:

- Market risk managers
- Private wealth managers
- Investment advisors
- Hedge fund managers
- Quantitative analysts
- Institutional fund managers
- Portfolio managers

"FIS Investment Risk Manager offers us three key advantages. First, it delivers a transparent, proven method to evaluate risk. Second, we now have a flexible set of analytics that is easy to integrate with our existing infrastructure and trading and order management system. Third, FIS' industry presence and record offers us organizational stability. As a long term partner they will continue to customize the system for us as well as develop further risk factor models addressing our changing needs."

DIRK ERDMANN,
HEAD OF RISK MANAGEMENT
AT AMPEGA GERLING.

INVESTMENT RISK MANAGER PRODUCTS ALLOW YOU TO:

- Provide your management, clients and regulators with the risk information they need
- Develop a clearer understanding of the dynamics of risk across all asset classes
- Measure and monitor the risks associated with any market position or portfolio
- Model and attribute portfolios risks so as to make better management, trading and hedging decisions
- Aggregate risk across the enterprise to identify the systematic factors which have the greatest impact on the firm

Is multi-asset class coverage important to your investment success?

Investment Risk Manager provides you with extensive instrument coverage, broad functionality and comprehensive asset class coverage from commodities to derivatives, equities, fixed income and FX to unlisted assets such as infrastructure, private equity and real estate – all from a single vendor. Investment Risk Manager is powered by a simulation engine which is well integrated within our multi-factor statistical model framework. The factor model framework helps deliver a comprehensive asset class coverage and the simulation engine with a sophisticated library of 200+ pricing models helps model any non-linear instrument, making Investment Risk Manager a true multi-asset class solution for market risk, liquidity risk, counterparty risk and performance. Investment Risk Manager's data rich multi-factor model framework of 400,000 instruments allows you to model a comprehensive set of asset classes ranging from listed equities, funds, fixed income, credit, volatility, real estate to unlisted assets like private equity and infrastructure. The integrated simulation engine allows you to price any exchange traded or OTC derivative and exotics with custom cash-flows using a library of 200+ pricing models all from a single vendor. To help with the data challenges of instruments not natively covered in our risk models, Investment Risk Manager provides a dedicated market data service for convertibles and data connectors to internal or vendor systems, portfolio management and order management systems.

Asset class coverage:

- Equities
- FX
- Fixed income
- Credit
- Volatility
- Funds
- Commodities
- Real estate
- Private equity
- Infrastructure

Instrument types:

- Exchange traded
- OTC Derivatives
- Structured products
- Other exotic

Risk reporting?

Investment Risk Manager clients can produce any number of reports, off-the-shelf and tailored. This example report includes tracking error and value-at-risk, plus a full analysis of contributors to risk. Clients run these reports at whatever frequency they desire – some hedge funds require them intra-day while some pension funds need only quarterly reporting. Investment Risk Manager also provides the ability to run batch presentation quality reports for client to distribute to their own clients.

Portfolio construction

A third key element of the Investment Risk Manager offering is portfolio construction and rebalancing via optimization. The FIS® Investment Optimization Manager allows clients to find the best trade-off between risk and return when managing any portfolio.

The user can concentrate on identifying sources of alpha and specifying other investment preferences, while the Investment Optimization Manager utilizes the risk models to ensure that risk requirements, whether mandated by regulators or within the investment firm, are complied with.

This rigorous process is useful for both asset allocation and stock selection, and can be combined with other portfolio construction methodologies within judgemental strategies. The Investment Optimization Manager is based on efficient modern algorithms so as to provide rapid solutions to the most challenging and large scale portfolio construction problems.

"Often, the people who select risk management systems are not the people who use it. We had the advantage of picking a system we knew would work for portfolio managers!"

CYRILLE COLLET,
HEAD OF QUANTITATIVE EQUITY PORTFOLIO MANAGEMENT,
CPR ASSET MANAGEMENT.

Technology that works for you

With a robust calculation engine at its core, Investment Risk Manager can be accessed through one or more of the following:

Desktop:

Investment Risk Manager has a desktop application for portfolio construction, pre-trade analysis and interactive risk analysis. Supports a wide range of analytics including: Full range of robust risk measures such as Total Risk, Tracking error, TaR, Parametric and Monte Carlo VaR, cVaR, and implied return.

Enterprise-wide on a cloud-based or deployed basis:

Investment Risk Manager supports flexible report design across complex hierarchies of portfolio types: fund-of-funds, multi-manager, with composite or LDI benchmarks, incorporating derivatives and unlisted and illiquid assets. Built using a service oriented architecture, and backed by a 150 node grid engine, this application provides a platform for:

- Data management and warehousing with an embedded workflow for data validation and exception management, supplemented with data-visualisation tools.
- Flexible batch-based (high volume) and interactive reporting to satisfy regulatory and investor requirements.

Programmatic APIs (web services):

Investment Risk Manager offers a wide range of APIs that allow you to easily integrate APT into your internal or third party systems. They scale from embedding APT in user-generated spread-sheets for a single user to enterprise-wide deployments supporting through-puts of tens of thousands of portfolios. These APIs allow Investment Risk Manager analytics to be called directly within your applications.

Excel:

The Investment Risk Manager 's Excel add-in generates quick and accurate risk estimates and highly customized Excel-based risk reports.

Analytics available include:

- Full range of robust risk measures such as Total Risk, Tracking error, TaR, Parametric and Monte Carlo VaR, cVaR, and implied return.
- Risk attribution including RiskScan and RiskChart factor- based analysis, and position-based analysis for marginal risk, VaR, beta, and correlation.
- The easy risk reports are a suite of spreadsheets that allow portfolio managers to produce concise risk reports on their portfolios in a quick and simple way.

Each sheet has been developed around a specific type of analysis and designed to show only the essential outputs from that analysis.

Secondary platforms and third-party systems:

In addition to being used as a stand-alone risk management solution, Investment Risk Manager can also be accessed through a range of asset management and hedge fund solutions and through third party systems. This enables firms to easily access risk statistics via their existing portfolio management system, keeping operational and data migration risk to an absolute minimum.



Risk expertise

The Investment Risk Manager professional services team works closely with you pre-sale, during installation and post implementation.

We support your unique requirements by offering specialized support and consulting services, including:

- Software installation
- Product customization
- Training
- Bespoke development and integration
- Audit documentation
- Risk report generation

MAKE YOUR RISK SYSTEM WORK FOR YOU:

- Get a complete view of risk across market risk, liquidity risk and counterparty risk
- Integrate risk into the investment process by linking Investment Risk Manager with your portfolio management and performance systems for seamless processing
- Report your risk to board, management, clients and investors effortlessly and accurately

Managed services

Run by a dedicated global team of highly trained Operations Specialists, Investment Risk Manager offers a range of Managed Services:

Reporting services:

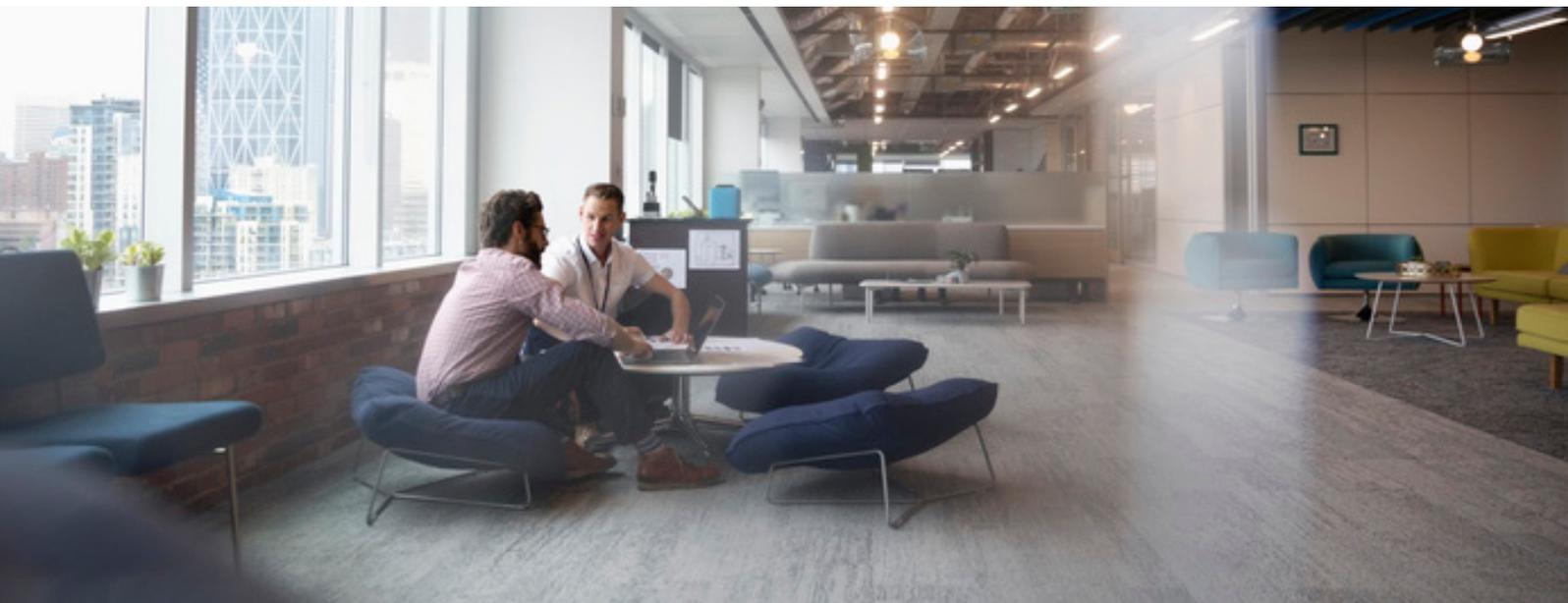
These include full data management required to calculate risk and performance analytics followed by generation of reports customised to meet internal, regulatory and investor reporting needs. In addition to these reports, you will receive a diagnostics report which provides a full insight into the handling of data exceptions, asset coverage, default rating used for FI modelling and proxy definitions for securities with insufficient history etc. This service can be further supplemented with qualitative analysis from domain experts.

Development and professional services:

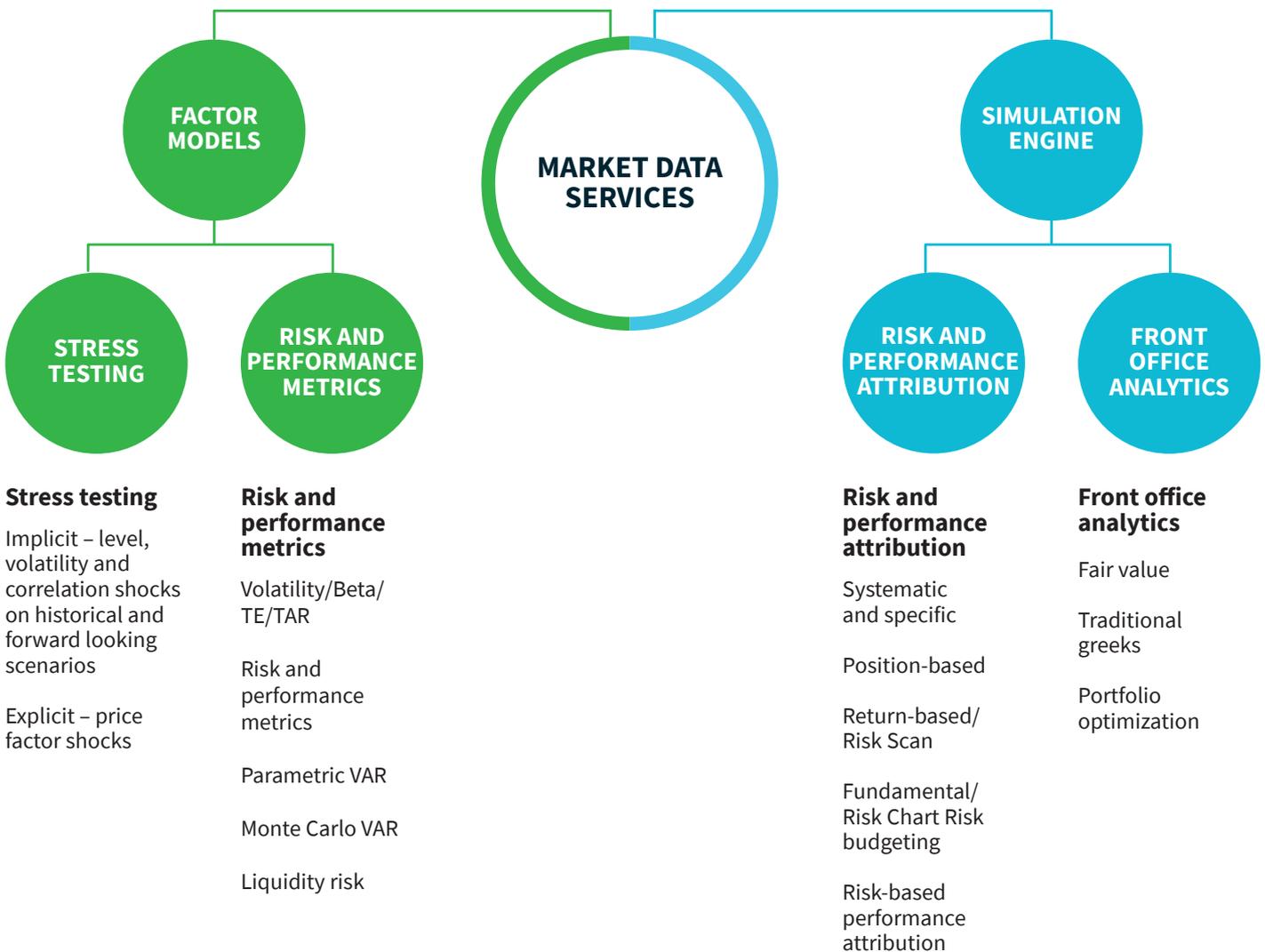
Provide on-going product customization, upgrades and system integration. We also offer custom development of portal solutions and applications directly integrated with FIS solutions, including but not limited to building data connectors to third party systems, report building and user interface white labelling.

Managed services are delivered through mature and proven SLA-based operating models for iterative and agile projects and help buy-side firms to:

- Reduce costs and improve efficiency through outsourced data management
- Improve business processes
- Build knowledge assets
- Drive technology transformation
- Redeploy resources for other strategic initiatives



The complete investment management solution



THE INVESTMENT RISK MANAGER APPROACH: THE FOUR PILLARS OF RISK MANAGEMENT

Investment Risk Manager helps investment firms to manage their risk with models and reporting that include:

Key risk measures such as portfolio tracking error, value at risk and volatility

Risk attribution enables customers to identify the underlying factors that are driving each risk measure and how individual positions or trades contribute to the total portfolio risk measure

Scenario analysis for a variety of ‘what-if’ based on historical and predicted market movements

Front office analytics such as an optimizer, calculation of exposure risk measures (“greeks”), derivatives valuation, pre-trade simulation and other portfolio construction tools

“At CPR, we talk a lot about stocks. We analyze them, we know them. But what I love doing is using FIS Investment Risk Manager to build good portfolios with these stocks.”

ERIC LABBÉ,
EQUITY PORTFOLIO MANAGER,
CPR ASSET MANAGEMENT.

About FIS

FIS is a leading provider of technology solutions for merchants, banks and capital markets firms globally. Our employees are dedicated to advancing the way the world pays, banks and invests by applying our scale, deep expertise and data-driven insights. We help our clients use technology in innovative ways to solve business-critical challenges and deliver superior experiences for their customers. Headquartered in Jacksonville, Florida, FIS is a Fortune 500® company and is a member of Standard & Poor's 500® Index.



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