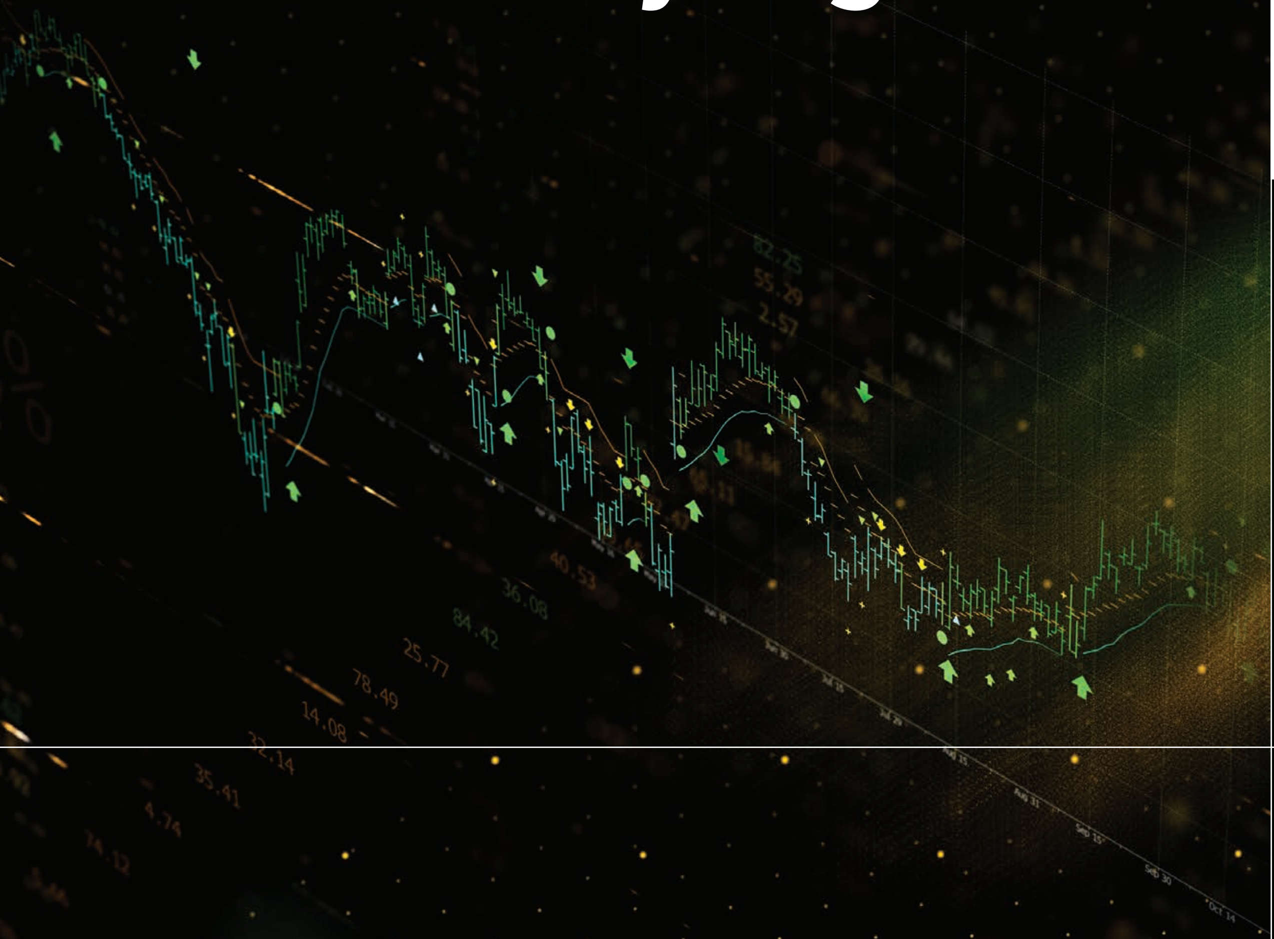
Market risk.
Cover every angle.

Bloomberg Terminal

Risk & Valuations



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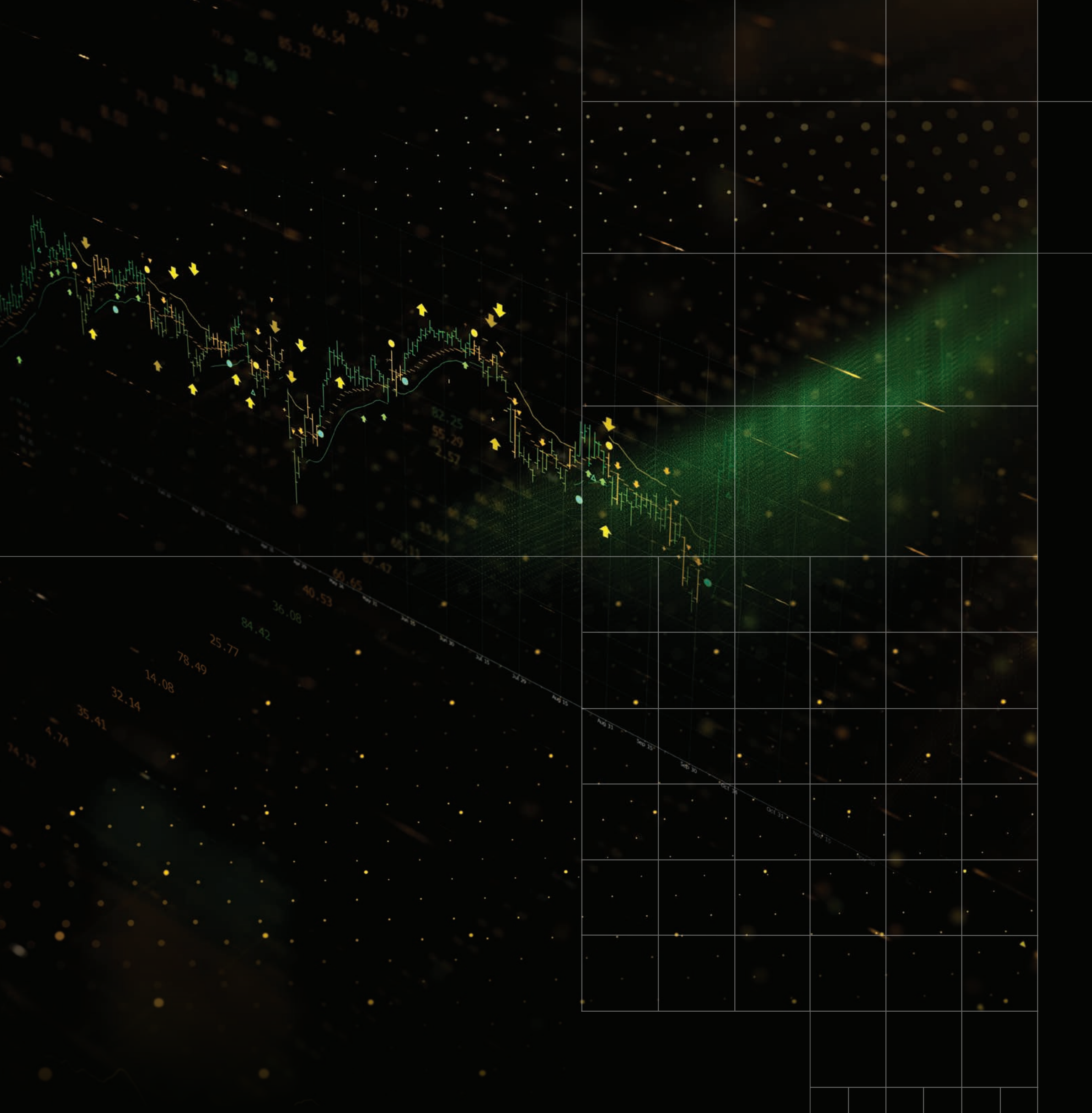


Contents

Manage risk. Create transparency. Drive compliance.

In today’s complex and interconnected markets, both buy-side and sell-side firms need a powerful solution to monitor, assess and manage intraday and end-of-day risk. Bloomberg’s MARS Market Risk solution delivers comprehensive market risk analysis in a powerful, versatile and highly intuitive experience. Broad asset class coverage empowers you, as market risk managers, to investigate situations from all angles, while innovative analytics, calculators and portfolio tools enable you to fully understand exposure and spot potential pitfalls. Additionally, an automated enterprise workflow streamlines the entire reporting process – all so you can gauge risk levels precisely and make faster, more incisive recommendations for your firm.

A comprehensive market risk solution.

Built on Bloomberg's market-leading data, pricing and analytics MARS Market Risk is a complete risk analytics and reporting solution designed for all risk managers in the middle-office risk function, from the Chief Risk Officer to the risk analyst. Our multi-asset class offering includes all the standard risk measures that buy-side and sell-side institutions rely on for internal risk management, management reporting, investor reporting and regulatory compliance – comprehensive capabilities that allow firms to consolidate all risk calculations in one place.

Broad product coverage

If you can price a product on the Bloomberg Terminal®, you can manage its market risk. With product coverage across multiple asset classes, including equities, fixed income, commodities and FX, MARS Market Risk covers the vast majority of listed instruments and derivatives.

Powerful analytics

Leveraging the power of Bloomberg market data and front-office pricing calculators, MARS Market Risk contains an extensive suite of metrics including fully configurable VaR analytics, a flexible stress testing toolkit for historical and predictive scenario analysis. A full set of Greek sensitivities suitable for managing a book and calculating regulatory measures such as SIMM and FRTB Standardized Approach is also included.

OMS integration

- Buy-side (AIM)
- Sell-side (TOMS)
- Third-party OMS

Pricing & Data

- State of the art models
- Cross-asset library
- Contract creation
- Valuations
- Real-time & snapshot data

Front office risk

- Intraday pricing & greeks
- EOD & on-demand risk reports
- P&L Explain
- What-if trade analysis
- Pre-Trade XVA & Margin
- Scenarios & stress testing
- Portfolio Margin calculations
- Lifecycle management
- Projected & stressed Cashflows
- Regulatory analytics (PRIIPs, SIMM)

Market risk

- Full revaluation VaR & expected shortfall
- Greek sensitivities
- Historical, hypothetical & predictive stress tests
- Ex ante tracking error
- FRTB regulatory capital
- Buy & sell-side regulatory reporting
- Pre & post-trade analytics for all risk measures

XVA

- Valuation adjustments for OTC derivatives incl. CVA, DVA, FVA & MVA
- Counterparty credit risk exposure metrics (PFE)
- Regulatory capital calculations (SA-CCR)
- XVA/PFE pre-trade analytics - position what-if & CSA what-if
- XVA sensitivities

Hedge accounting

- US GAAP & IFRS
- Cash flow, Fair value & Net investment hedge types
- Effectiveness tests
- Measurement reports
- Cost of hedging
- Audit reports

Collateral management

- Legal documentation management
- Dispute management
- Portfolio margin calculations & workflow (IM & VM)
- Automated messaging
- Initial margin Calculations (SIMM, CCP IM)
- In system reconciliation
- Risk analytics

MARS API

- Programmatic access
- Cross-asset data snapshot
- System integration
- Custom reporting

Customized, streamlined workflow.

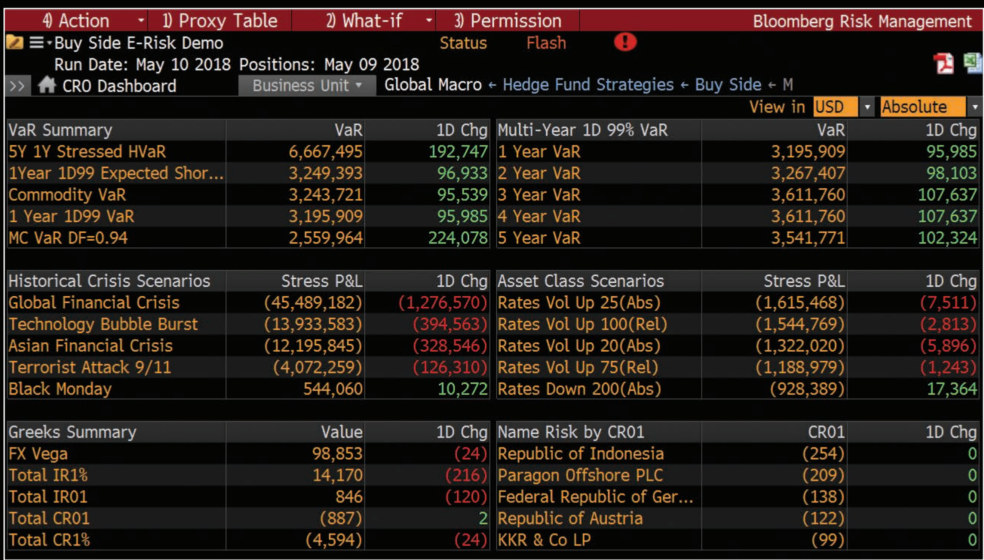
Every firm has unique regulatory, investor and internal risk management requirements, and MARS Market Risk is designed to meet those needs. Customizable, interactive dashboards make it fast and easy for risk managers to access and share important metrics, while streamlined workflows eliminate costly, time-consuming processes.

Personalize your market risk perspective

Detailed views can be set up to show the most important results for your trading strategies, while flexible risk aggregation and reporting allows clients to interactively slice, dice and visualize data and drill down through complex hierarchies. In addition, risk models can be configured at a highly granular level, enabling you to implement custom risk calculations and consolidate all your risk calculations in one system.

Enhance speed, efficiency & enterprise productivity

MARS Market Risk enables firms to use internal resources more efficiently, streamlining daily operations and helping make teams more productive. Our robust enterprise workflow includes automated daily position feed handling, exception reporting and downstream file delivery for enterprise-wide use. Additionally, historical results archiving enables trend analysis and storage of risk analytics.



VaR Summary	VaR	1D Chg	Multi-Year 1D 99% VaR	VaR	1D Chg
5Y 1Y Stressed HVaR	6,667,495	192,747	1 Year VaR	3,195,909	95,985
1Year 1D99 Expected Shor...	3,249,393	96,933	2 Year VaR	3,267,407	98,103
Commodity VaR	3,243,721	95,539	3 Year VaR	3,611,760	107,637
1 Year 1D99 VaR	3,195,909	95,985	4 Year VaR	3,611,760	107,637
MC VaR DF=0.94	2,559,964	224,078	5 Year VaR	3,541,771	102,324

Historical Crisis Scenarios	Stress P&L	1D Chg	Asset Class Scenarios	Stress P&L	1D Chg
Global Financial Crisis	(45,489,182)	(1,276,570)	Rates Vol Up 25(Abs)	(1,615,468)	(7,511)
Technology Bubble Burst	(13,933,583)	(394,563)	Rates Vol Up 100(Rel)	(1,544,769)	(2,813)
Asian Financial Crisis	(12,195,845)	(328,546)	Rates Vol Up 20(Abs)	(1,322,020)	(5,896)
Terrorist Attack 9/11	(4,072,259)	(126,310)	Rates Vol Up 75(Rel)	(1,188,979)	(1,243)
Black Monday	544,060	10,272	Rates Down 200(Abs)	(928,389)	17,364

Greeks Summary	Value	1D Chg	Name Risk by CR01	CR01	1D Chg
FX Vega	98,853	(24)	Republic of Indonesia	(254)	0
Total IR1%	14,170	(216)	Paragon Offshore PLC	(209)	0
Total IR01	846	(120)	Federal Republic of Ger...	(138)	0
Total CR01	(887)	2	Republic of Austria	(122)	0
Total CR1%	(4,594)	(24)	KKR & Co LP	(99)	0

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Bloomberg Risk Management's interactive dashboards can be tailored to your company requirements.

Seamless regulatory risk reporting.

MARS Market Risk provides everything chief risk officers and market risk managers need to drive regulatory compliance, including wide-ranging reporting solutions to satisfy both buy-side and sell-side regulation. Coupled with full support from our dedicated Risk Specialists team, you can have complete confidence in meeting all your regulatory needs. MARS Market Risk also supports compliance with future regulations as the Basel Committee's Fundamental Review of the Trading Book (FRTB). MARS Market Risk helps firms maintain transparency in their risk processes in order to meet regulatory reporting requirements, while improving operations and reducing technology spend.

Effectively manage regulatory risk reporting

MARS Market Risk can help you comply with a number of key regulations, including but not limited to:

- FORM PF stress testing
- AIFMD regulatory reporting
- UCITS regulatory reporting
- FRTB Standardized and Internal Models
- Basel-compliant market risk analytics
- CCAR stress testing

Regulatory risk functionality includes:

- Historical and Monte Carlo VaR, stressed VaR and expected shortfall, with flexible risk horizons and backtesting reports
- Customizable regulatory dashboards and output files
- Historical archiving of all risk results
- Exposure and leverage calculations, including both gross and commitment approaches for UCITS and AIFMD
- Flexible aggregation to view risk concentration and compare to limits
- Full FRTB Standardized Approach capital calculation, including SBM with delta, vega, and curvature; DRC; and RRAO
- Comprehensive stress testing capabilities with an extensive library of scenarios


4) Action 1) Proxy Table 2) What-if 3) Permission Bloomberg Risk Management
FRTB Demo Status Flash
Run Date: Mar 09 2018 Positions: Mar 09 2018
Total Capital C... Business Unit Firm ← M
Stat As Noted Breakdown By Firm HIGH Position View in USD Thousands

		GIRR				FX	CSR	CSR S
Firm Hierarchy	SBM	Total	Delta	Vega	Curvature	Total	Total	Total
Portfolio	614,491	331,430	272,633	15,017	43,780	26,253	2,853	151,
Fixed Income	489,424	331,848	273,052	15,017	43,779	2,746	2,575	151,
CMBS	305,161	153,171	153,171	--	--	--	--	151,
Govt/Agency/IRD	7,454	4,547	4,370	177	0	754	2,154	
NY	3,738	1,650	1,473	177	0	57	2,030	
London	4,226	3,128	3,128	--	--	710	388	
Asia	179	179	179	--	--	0	--	
Credit	3,278	590	487	32	71	1,797	200	
ABS	193,120	193,045	126,286	15,116	51,643	--	0	
Muni	1,662	611	559	52	0	697	295	
Exchange Traded	1,781	273	273	0	0	1,023	485	
Future	573	34	34	0	0	512	--	
Govt/Agency/IRD	1,316	251	251	--	--	580	485	
Currency	35,226	870	869	0	1	26,711	--	
FX	34,625	760	760	--	--	26,857	--	
Future	255	222	221	0	1	--	--	
Cash	1,663	--	--	--	--	1,663	--	
EQUITY	104,410	1,221	1,221	--	--	1,142	--	
AMERICAS	104,178	1,221	1,221	--	--	1,004	--	

Easier reporting
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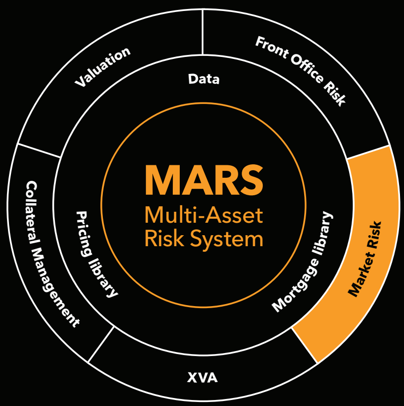
Includes reporting tools to manage compliance with FRTB and other regulations.

MARS Multi-Asset Risk System



The Multi-Asset Risk System provides consistent and consolidated valuation, product lifecycle analysis, market risk, counterparty risk and collateral management.

MARS is powered by Bloomberg's world-class pricing library, market data and mortgage cash flow engine and enables front-office, risk and collateral professionals to analyze their trading and investment portfolios, mitigate risk and prepare for the unexpected.

About the Bloomberg Terminal.

Since 1981, business and financial professionals have depended on the Bloomberg Terminal for the real-time data, news and analytics they need to make the decisions that matter. The Terminal provides information on every asset class – from fixed income to equities, foreign exchange to commodities, derivatives to mortgages – all seamlessly integrated with on-demand multimedia content, extensive electronic-trading capabilities and a superior communications network.

Learn more

To learn more about Bloomberg's risk solutions, visit **RISK <GO>** on the Bloomberg Terminal or contact us at riskinfo@bloomberg.net.

Take the next step.

For additional information, press the <HELP> key twice on the Bloomberg Terminal®.

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