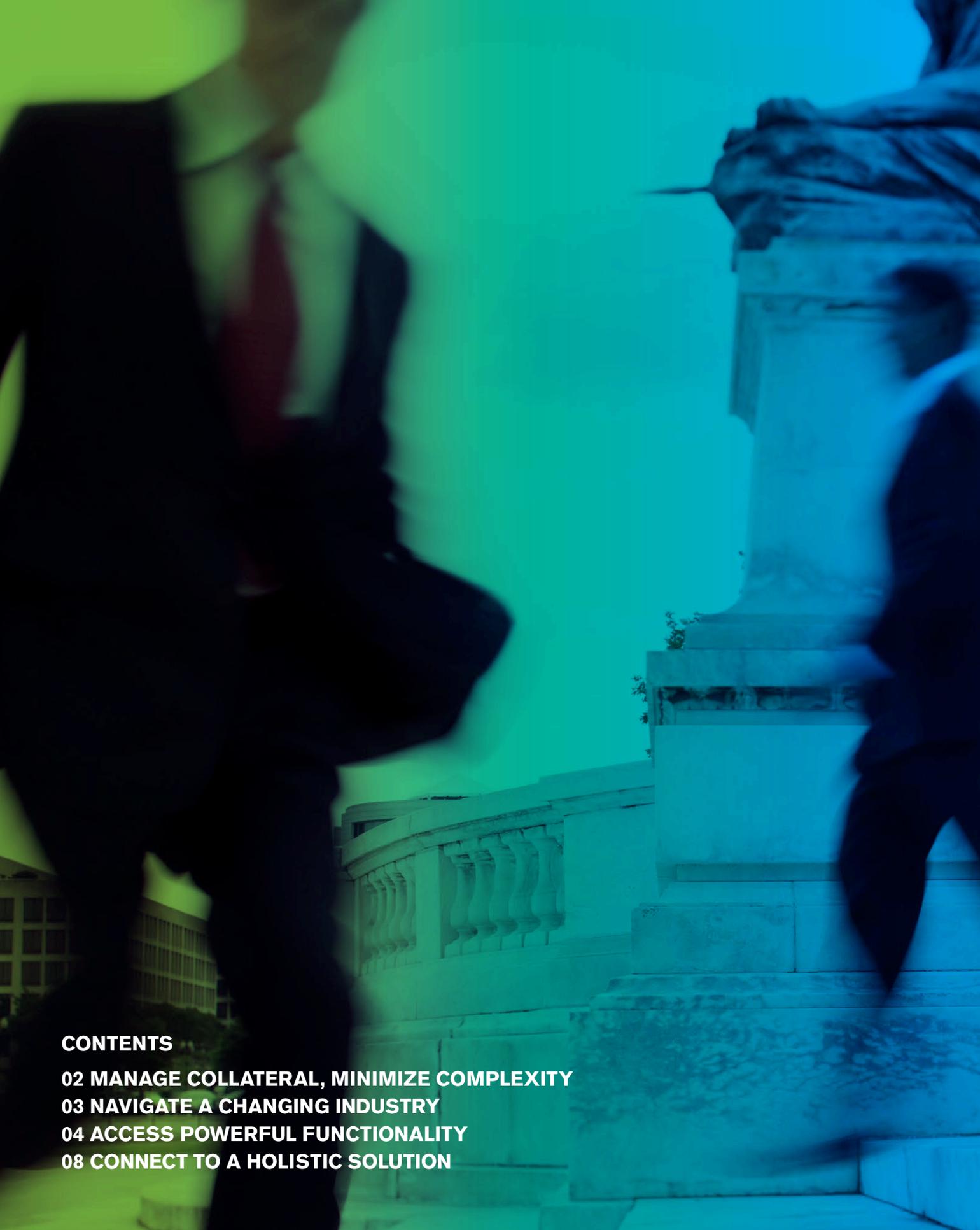


MARS COLLATERAL
MANAGEMENT

A Bloomberg Professional Service Offering

MAKE THE RIGHT CALL

Bloomberg



CONTENTS

02 MANAGE COLLATERAL, MINIMIZE COMPLEXITY

03 NAVIGATE A CHANGING INDUSTRY

04 ACCESS POWERFUL FUNCTIONALITY

08 CONNECT TO A HOLISTIC SOLUTION

MANAGE COLLATERAL, MINIMIZE COMPLEXITY

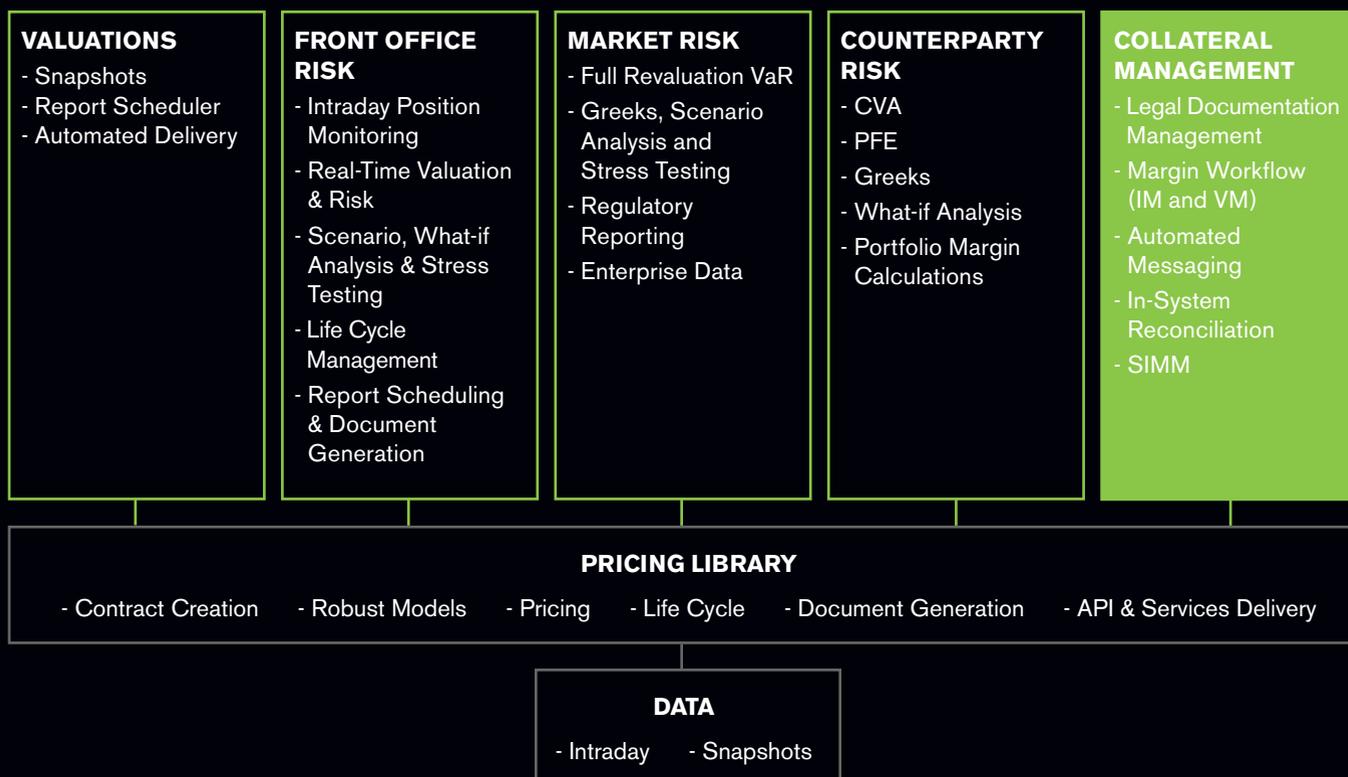
The wave of reform that followed the 2008 financial crisis has placed increased emphasis on collateral and highlighted the vitally important role it plays in the market. The amount of collateral required has increased significantly, as has the range of products and market participants covered. The Bloomberg Professional® service gives you a powerful tool to manage these constantly evolving changes and to mitigate counterparty credit risk. MARS Collateral Management is an automated, end-to-end solution that delivers everything you need to manage and monitor exposures and positions and take control in a changing regulatory landscape.

BROAD PRODUCT COVERAGE

If you can price a product on the Bloomberg Terminal®, you can manage its associated collateral. With product coverage across multiple asset classes, including equities, fixed income, commodities and FX, MARS Collateral covers the vast majority of derivatives.

POWERFUL ANALYTICS

Leveraging the power of Bloomberg market data, front-office pricing calculators and communication tools, MARS Collateral contains an extensive suite of metrics including configurable IB, collateral risk and an in-system reconciliation tool.



NAVIGATE A CHANGING INDUSTRY

Posting high-quality assets such as cash and bonds as collateral against derivatives exposures is a long-standing credit mitigation technique used by most sell-side and larger buy-side firms. In the lightly-regulated derivatives space, collateral management was carried out in silos as a back-office function. Since the introduction of regulation designed to increase transparency and reduce systemic risk in the financial industry, firms have begun to consolidate their operations with the aim of managing their collateral process more holistically and efficiently.

POST-CRISIS CHALLENGES

The transition has been accompanied by sizeable challenges, with firms required to address new questions over where their collateral is held, how it can be optimized, what action to take when they do not have eligible collateral

immediately to hand and how to independently calculate their derivative and collateral valuations using market-standard pricing models. Bloomberg's MARS Collateral Management solution directly addresses these issues.

	CHALLENGE	BLOOMBERG SOLUTION
Technology	BCOL <GO> has a built-in reconciliation tool, RSTN <GO>, that allows users to perform a proactive portfolio reconciliation to prevent or solve disputes as well as for regulatory purposes.	Calculates, aggregates and displays margin calls across products and legal entities.
Volume	Total outstanding collateral in the market is expected to dramatically increase.	Segregates collateral positions by agreement in distinct portfolios to ensure accurate record keeping.
Frequency	The number of margin calls is expected to significantly increase.	Enables you to: <ul style="list-style-type: none"> - Manage collateral agreement details - Define the frequency and timing of margin calls - Monitor all margin events - Automatically send and receive margin calls via an electronically generated message
Tracking	Firms must have a holistic view into their inventory to ensure proper allocation and optimization of collateral.	Allows you to track your exposures, collateral positions and agreement terms in real-time. If a counterparty defaults, you know exactly how much collateral you hold for recovery.

ACCESS POWERFUL FUNCTIONALITY

MARS Collateral Management is a multi-product, multi-asset collateral management and straight-through processing hub, incorporating powerful tools such as Bloomberg RecStation, RSTN <GO>, for portfolio reconciliation, Bloomberg data for risk analytics and AcadiaSoft technology for electronic messaging. All these tools are fully integrated into the Bloomberg Professional service and its wider suite of risk management solutions.

COMPONENT	FUNCTIONALITY
Legal Entity and Documentation Manager LEDO <GO>	- LEDO allows users to enter and monitor terms and conditions of their legal collateral agreements (e.g. CSAs)
Exposure Management BCOL <GO>	- Independent valuations for both initial and variation margin (regulatory compliant) - Netting set creation - Bloomberg reference data to value collateral
Margin and Dispute Management	- Margin call management - Eligibility and sufficiency monitoring - Dispute management
Portfolio Reconciliations	- Proactive portfolio reconciliations
Electronic Messaging	- Automated communication of margin calls via AcadiaSoft or email (MSG)

LEGAL ENTITY MANAGEMENT

Legal Entity Details

1) Details 12) Contacts 13) Counterparty Map

Short Name*	DEMO 1 CPTY	Entity Type*	Counterparty
Entity Id*	LEI	213800509DEMOC4ABC80	
Legal Name*	DEMO COUNTERPARTY PLC		
Industry	Banks	Country of Incorp.	GB
Counterparty Risk	Normal		
Credit Rating	Moody's	S&P	Fitch
Long Term	Ba1	BBB-	BBB+
Short Term	NP	A-3	F2

*Required Field

1) Save Cancel

LEGAL ENTITY DETAILS
Manage your legal entities on LEDO using up-to-date entity information such as LEI, legal name, industry and credit rating.

LEGAL DOCUMENTATION MANAGEMENT

1) Export to Excel		2) Contact		Legal Documentation Manager (DEMO)		
11) Legal Entities		12) Collateral Agreements				
Groupings		13) Bulk Mode	14) Add	Show Additional Columns		
Business Line	Agreement Name	Principal	Counterparty	Status	Business Line	
OTC (5)				ALL	ALL	
OTC Cleared (1)	21) DEMO 1 CPTY	Demo Principal	DEMO 1 CPTY	Active	OTC	
TBA (1)	22) DEMO 2 CPTY	Demo Principal	DEMO 2 CPTY	Active	OTC	
Status	23) DEMO 3 CPTY UMW	Demo Principal	DEMO 3 CPTY	Active	OTC	
Active (6)	24) DEMO 4 CPTY	Demo Principal	DEMO 4 CPTY	Active	OTC	
Inactive (1)	25) DEMO 5 CPTY - CLRD	Demo Principal	DEMO 5 CPTY - CLRD	Active	OTC Cleared	
	26) DEMO 6 CPTY (TBA)	Demo Principal	DEMO 6 CPTY	Active	TBA	
	27) DEMO 7 CPTY	Demo Principal	DEMO 7 CPTY	Inactive	OTC	

COLLATERAL AGREEMENT DETAILS

LEDO stores all terms relevant to margin management — valuation and timings; thresholds and regulatory compliant independent amounts/initial margins; eligibility criteria and interest terms; product coverage.

MARGIN CALL MANAGEMENT

Views		Actions		Settings		Contact		Multi Asset Risk System: Collateral (DEMO)			
11) Margin		12) Dispute		13) Interest		14) Reconciliation					
21) Summary		22) History				Hide Filters					
Reset Filters		New Events		Pending Events		Event Actions		Bulk Mode			
Event Type	Agreement	Event Type	Mgn. Type	Status	Ccy	Call Amt.	Exposure	Collateral			
Cpty. Call	41) DEMO 1 CPTY	Cpty. Call	VM	Open	GBP	-6,100,000	-6,092,780	0			
No Action	42) DEMO 2 CPTY	No Action	VM	Open	USD	0	1,682,769	1,723,526			
Prin. Call	43) DEMO 3 CPTY ...	No Action	VM	Open	EUR	0	0	0			
	44) DEMO 4 CPTY	Prin. Call	VM	Open	EUR	1,420,000	2,166,668	754,244			
Margin Type	45) DEMO 5 CPTY ...	Cpty. Call	VM	Open	USD	-281,290	-884,984	-603,695			
Prin. IM	46) DEMO 5 CPTY ...	Cpty. Call	Prin. IM	Open	USD	-153,672		-750,000			
VM	47) DEMO 6 CPTY ...	Prin. Call	VM	Open	USD	300,000	295,396	0			
Hide positions		Exposure		Collateral							
Clear Filters		Asset Type	Currency	Notional	Market Value	Mkt Val Base	Ccy	Portfolio			
Totals (6)								-6,092,780.12			
=FX (1)								-9,765.86			
↳GBPUSD		Option	GBP	-1,000,000	-9,765.86			-9,765.86 DEMO PORTFOLIO			
=Interest Rate (5)								-6,083,014.26			
↳/SWAP 2.65 11/23/20		Swap	USD	-50,000,000	-3,124,162.28			-2,521,511.38 DEMO PORTFOLIO			
↳/SWAP 2.65 11/23/20		Swap	USD	-50,000,000	-3,124,162.28			-2,521,511.38 DEMO PORTFOLIO			
↳/SWAP 2.50 06/23/21		Swap	USD	10,000,000	715,500.92			577,480.79 DEMO PORTFOLIO			
↳/SWAP 1.66 11/10/20		Swap	USD	-150,000,000	-2,869,169.56			-2,315,706.75 DEMO PORTFOLIO			
↳/SWAP 1.53 10/06/20		Swap	USD	100,000,000	865,115.17			698,234.46 DEMO PORTFOLIO			

COLLATERAL MANAGEMENT WORKFLOW

Use BCOL to manage your day-to-day margin call process, including sending margin calls, booking collateral, managing disputes and interest payments.

PORTFOLIO RECONCILIATION

Actions		Settings		Collateral Management Workflow				
1) Margin	12) Dispute	13) Interest	14) Reconciliation					
Hide Filters								
Reset Filters		Collateral Agreement	RSTN TEST CPTY	Valuation Date	08/29/16			
Pair Status	Pair Status	NPV Status	Deal Id	Submitter	Asset Class	Notional	Market Value	
Unmatched	10	41) Unmatched	N/A	SPRR061W Co	Principal	CDS	10,000,000	251,770
Matched	22	42) Unmatched	N/A	SPRS0VGY Co	Principal	CDS	10,000,000	-577,239
Manual	4	43) Unmatched	N/A	ES5598591 Ec	Principal	Equity	10,000	40,268
		44) Unmatched	N/A	ES5598613 Ec	Principal	Equity	50,000	1,787,595
		45) Unmatched	N/A	ES5598613 Ec	Principal	Equity	50,000	1,787,595
NPV Status	22	46) Unmatched	N/A	ES5598613 Ec	Principal	Equity	50,000	1,787,595
Unmatched	10	47) Unmatched	N/A	ES5598604 Ec	Principal	Equity	97,154	-521,300
N/A	4	48) Unmatched	N/A	ES5598604 Ec	Principal	Equity	97,154	-521,300
Matched		49) Unmatched	N/A	OPTFYR35 Cu	Principal	FX	1,000,000	31,937
Asset Class	2	50) Unmatched	N/A	TRDREF139	Counterparty	FX	-1,250,000	-22,467
CDS	6	51) Matched	Matched	OPTFYR28 Cu	Principal	FX	-10,000	-2,766
Equity	8	52) Matched	Matched	TRDREF137	Counterparty	FX	10,000	2,940
FX	20	53) Matched	Unmatched	OPTFYR32 Cu	Principal	FX	-5,000,000	-240,916
Interest Rate		54) Matched	Unmatched	TRDREF132	Counterparty	FX	5,000,000	300,428
Submitter		55) Matched	Matched	OPTH2LR9 Cu	Principal	FX	-1,000,000	-91,427
Counterparty	14	56) Matched	Matched	TRDREF141	Counterparty	FX	1,000,000	90,119
Principal	22	57) Matched	Unmatched	SL1T3K5U Co	Principal	Interest Rate	10,000,000	257,952
		58) Matched	Unmatched	TRDREF140	Counterparty	Interest Rate	-10,000,000	-351,748
		59) Manual	Unmatched	SL451PNP Co	Principal	Interest Rate	50,000,000	1,284,288
		60) Manual	Unmatched	TRDREF127	Counterparty	Interest Rate	-50,000,000	-1,705,892
		61) Matched	Unmatched	SL451PNS Co	Principal	Interest Rate	35,000,000	899,427
Exceptions								

PORTFOLIO RECONCILIATION

Integrated portfolio reconciliation tool that allows the user to quickly identify and manage any discrepancies between the user's and their counterparty's portfolios.

IDENTIFY & COMMUNICATE MISMATCHES

Views		Actions		Settings		Multi Asset Risk System: Collateral			
1) Margin	12) Dispute	13) Interest	14) Reconciliation	RecStation Trade Details					
Hide Filters									
Reset Filters		Pair Status : Matched. NPV Status : Unmatched.							
Pair Status	Match Exceptions	Field Name	Principal Value	Counterparty Value	Tolerance Match	Text			
Unmatched	Market Value		-2,489	2,940	10		-444,539		
Matched							261,179		
Manual							-33,490		
NPV Status	Field Name	Principal Value	Counterparty Value						
Unmatched	Principal	Bloomberg L.P.	Bloomberg SEF LLC	2,587					
N/A	Counterparty	Bloomberg SEF LLC	Bloomberg L.P.	465,907					
Matched	End Date	05/23/2020	05/23/2020	568,559					
	Trade Date	05/24/2016	05/24/2016	-9,809					
	Valuation Date	11/09/2016	11/09/2016	305,864					
Asset Class	Notional	-10,000	10,000	970,833					
CDS	Currency	XAU	XAU	142,936					
Common	Asset Class	FX	FX	159,057					
Equity	Asset Type	Option	Option	94,221					
FX	Market Value	-2,489		18					
Interest	Mkt Val Base Ccy	-3,177,193		39					
Submitter	Principal LEI	549300B56MD0ZC402L06		40					
Counterparty	Counterparty LEI	5493003111V0H354SNS58		46					
Principal				28					
				39					
				57					
				21					
					Chat				

Test User
 Thursday, November 10, 2016
 Test User 2
 10:49:34
 PTC: RecStation
 Principal Name: Bloomberg L.P.
 Counterparty Name: Bloomberg SEF LLC
 Status: Matched
 Asset Class: FX
 Product Type: Option
 Notional: -10000
 FPV: RSTN DIS WATCHID-OPTFYR28 Curncy_20161109 (60)
 Test User 2
 10:49:34
 Please check the details of this trade

IDENTIFY & COMMUNICATE MISMATCHES

Communicate reconciliation results with counterparties and internal colleagues using the built-in IB messaging tool.

CONNECT TO A HOLISTIC SOLUTION

MARS Collateral is built on Bloomberg's Multi-Asset Risk System risk engine, providing a truly holistic, one-stop solution for collateral management. MARS consolidates positions from individual securities pricers, such as SWPM, OVME, OVML, CDSW and DLIB, into easy-to-manage portfolios. The MARS pricing engine calculates the valuations on these positions, enabling users to run many different types of risk calculations and analytics.

Valuations are fed to MARS Collateral at a portfolio level and then run through a comprehensive margin calculation process, netting valuations and collateral positions at the collateral agreement level. Users are provided with an event workflow to easily send and receive margin calls, track disputes, settle interest and reconcile their positions with counterparties. The entire, end-to-end process takes place on the Bloomberg Terminal — eliminating the need to log-in to and manage several disparate applications.

MARS COLLATERAL MANAGEMENT CONNECTS YOU TO:

Real-Time Data

- Derivative and collateral positions are valued with accurate and up-to-date data
- All exposures and positions are calculated using market-leading Bloomberg data, avoiding the need to buy-in and integrate external resources

Your Documentation

- Collateral documentation is captured field-by-field to ensure accurate calculation of margin calls
- LEDO <GO> holds collateral eligibility criteria and haircut schedules, thresholds, minimum transfer amounts and initial margin requirements

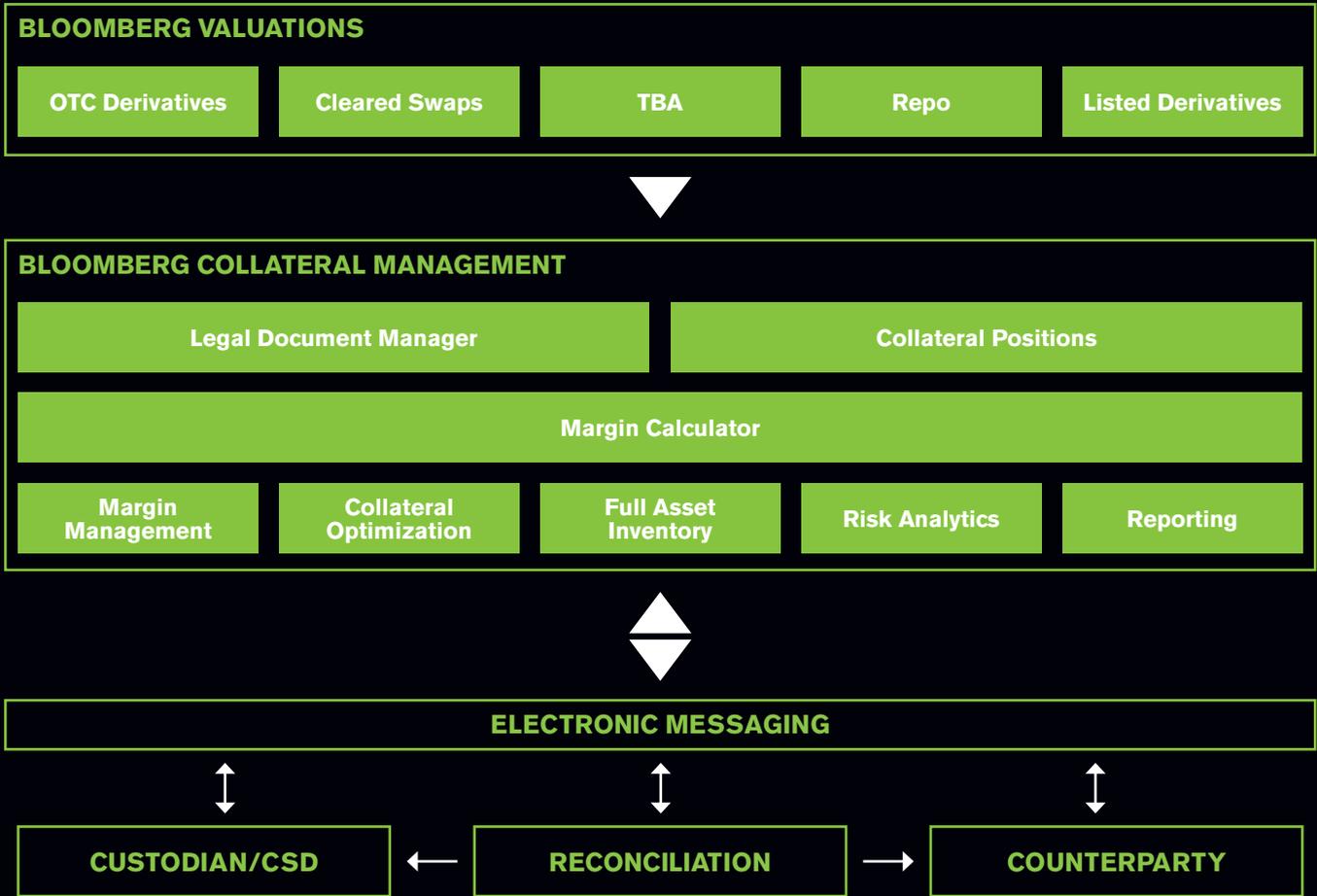
The Market

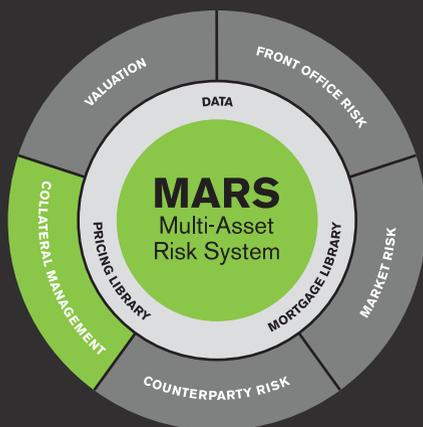
- Auto-filled Bloomberg legal entity information and agency credit ratings in LEDO <GO> help provide real-time mitigation of credit risk
- Gain direct access to the latest market data, company news CN <GO> and trading systems (e.g. Swap Manager, SWPM <GO>)

The Financial Community

- Communicate with internal colleagues and external counterparties via Bloomberg's chat and email tools, IB and MSG
- Easily add trade information to an IB chat and send it to internal or external parties, the so-called 'Security Pill' feature

CONNECT TO A HOLISTIC SOLUTION





MARS Multi-Asset Risk System

The Multi-Asset Risk System (MARS) 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 PROFESSIONAL SERVICE

The founding vision in 1981 was to create an information services, news and media company that provides business and financial professionals with the tools and data they need on a single, all-inclusive platform. The success of Bloomberg is due to the constant innovation of our products, unrivalled dedication to customer service and the unique way in which we constantly adapt to an ever-changing marketplace.

The Bloomberg Professional service is a powerful and flexible tool for financial professionals — whatever their needs — in cash and derivatives markets as diverse as equities, currencies, commodities, money markets, government and municipal securities, mortgages, indices, insurance and legal information. The Bloomberg Professional service seamlessly integrates the very best in real-time data, news and analytics.

In addition, Bloomberg users benefit from on-demand multimedia content, extensive electronic trading capabilities and a superior communications platform. Bloomberg customers include influential decision makers in finance, business and government. Business and financial professionals recognize the Bloomberg Professional service as the definitive tool for achieving their goals because it offers unparalleled assistance and functionality on a single platform for a single price.

LEARN MORE

To learn more about MARS Collateral Management, or to request a demo, please contact your account representative, run RISK <GO> on the Bloomberg Terminal, or email us at riskinfo@bloomberg.net.

BEIJING
+86 10 6649 7500

FRANKFURT
+49 69 9204 1210

LONDON
+44 20 7330 7500

NEW YORK
+1 212 318 2000

SÃO PAULO
+55 11 2395 9000

SYDNEY
+61 2 9777 8600

DUBAI
+971 4 364 1000

HONG KONG
+852 2977 6000

MUMBAI
+91 22 6120 3600

SAN FRANCISCO
+1 415 912 2960

SINGAPORE
+65 6212 1000

TOKYO
+81 3 3201 8900

bloomberg.com

The data included in these materials are for illustrative purposes only. The BLOOMBERG PROFESSIONAL service, BLOOMBERG Data and Bloomberg Industries (the "Services") are owned and distributed by Bloomberg Finance LP ("BFLP") in all jurisdictions other than Argentina, Bermuda, China, India, Japan and Korea (the "BLP Countries"). BFLP is a wholly owned subsidiary of Bloomberg LP ("BLP"). BLP provides BFLP with global marketing and operational support and service for the Services and distributes the Services either directly or through a non-BFLP subsidiary in the BLP Countries. Certain functionalities distributed via the Services are available only to sophisticated institutional investors and only where the necessary legal clearance has been obtained. BFLP, BLP and their affiliates do not guarantee the accuracy of prices or information in the Services. Nothing in the Services shall constitute or be construed as an offering of financial instruments by BFLP, BLP or their affiliates, or as investment advice or recommendations by BFLP, BLP or their affiliates of an investment strategy or whether or not to "buy", "sell" or "hold" an investment. Information available via the Services should not be considered as information sufficient upon which to base an investment decision. BLOOMBERG, BLOOMBERG PROFESSIONAL, BLOOMBERG MARKETS, BLOOMBERG NEWS, BLOOMBERG ANYWHERE, BLOOMBERG TRADEBOOK, BLOOMBERG TELEVISION, BLOOMBERG RADIO, BLOOMBERG PRESS and BLOOMBERG.COM are trademarks and service marks of BFLP, a Delaware limited partnership, or its subsidiaries. ©2017 Bloomberg Finance LP. All rights reserved. S752858879 DIG 0117