

# Mapping the structured products landscape

Bloomberg Terminal

Sell-side





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# Mapping the structured products landscape – Sell-side.

## Why are structured products popular?

In the low-yield environment of recent years, structured products have gained much attention for their yield-enhancing structures. Structured products have performed remarkably well over the last decade, generating high returns thanks to a customizability that allows investors to tweak risk-reward profiles and create adapted hedge strategies.

## What are the driving trends?

At the core of the structured products boom are several key trends. Foremost are automation and digitization to reduce costs and increase the level of service experienced by end customers. Also part of the drive towards reducing costs is the consolidation of systems for enhanced efficiency. Furthermore, there has been a trend to standardize payoffs and facilitate innovation in newer or more esoteric underlying assets, like ESG. Meanwhile, the need for more nuanced portfolio management has seen players allocate a higher proportion of their assets to structured products which in turns improves overall performance and reduces risk.

## Bloomberg for structured products

Bloomberg offers a one-stop solution for front, middle and back office that makes trading and managing structured products a seamless process for both the buy and sell side.

Pre-trade Analysis	Execution	Position and P&L management	Risk analysis	Regulatory reporting
<ul style="list-style-type: none"> <li>Derivatives Structuring from vanillas to exotics.</li> <li>Derivatives Toolkit for back testing, matrix pricing, and historical pricing.</li> <li>What If Analysis using Terminal and API.</li> <li>IBOR transition repapering.</li> </ul>	<ul style="list-style-type: none"> <li>Secondary market multi dealer RFQ.</li> <li>Primary market multi dealer RFQ upcoming in 2022.</li> </ul>	<ul style="list-style-type: none"> <li>TOMS is a multi-asset end-to-end order management system.</li> <li>Intraday &amp; EOD Valuations Reporting.</li> <li>P&amp;L from inception, 1 day P&amp;L, month to date and year to date P&amp;L.</li> <li>Snapshot based valuations.</li> </ul>	<ul style="list-style-type: none"> <li>Intraday multi-asset class Greeks.</li> <li>Intraday tenor bucketed Greeks.</li> <li>Multi asset Stress scenarios including historical scenarios.</li> <li>Lifecycle management.</li> </ul>	<ul style="list-style-type: none"> <li>IFRS17 Liability Discounting.</li> <li>CCP Initial Margin scenarios.</li> <li>IRRBB Scenarios creation.</li> <li>Greeks based P&amp;L Explain including 1 day P&amp;L Explain, Month/Quarter/Year to Date P&amp;L Explain.</li> <li>European PRIIPs regulation</li> </ul>

# Challenges and opportunities.

## Innovation and idea generation

As demand for greater customization and personalization increases across the investment landscape, you need ever more powerful tools to find the right structure, payoff and underlying suitable to the risk profile of your customers. Differentiating your offering is paramount, as is delivering service that is highly competent and competitive.

## Custom template creation

Create a custom contract using BLAN and convert BLAN scripts into templates, with the ability to format parameters in the template and adjust the layout.

## How Bloomberg can help

### Structure your workflow with our Derivatives Library (DLIB)

**DLIB <GO>** is an award-winning system for pricing and risk that allows you to structure bespoke products on the Terminal and through API, with cross-asset coverage including stocks, ETFs, indices, precious metals, credit, rates and FX. It is integrated with market leading data and quantitative models to price any structured product including basket products and hybrids. To provide complete coverage, DLIB provides a scripting language (BLAN), a tool you can use to create any payoff structure available in the market.

## Pre-trade analysis using API

Perform idea generation using DLIB over Excel and API. For example, basket optimizer allows you to run different combinations of a basket on a phoenix note and come up with the most optimal combination.

## Back testing

Quickly generate historical back testing reports. Analyze key statistics like average/min/max total payout and historical probability of hitting barriers.



## Automation and cost reduction

We understand that cost efficiency and ease of access are your primary focus in the realm of structured products. With an automated solution, you can access products more seamlessly and spend less time and money doing it. And not just in pre-trade and execution workflows – Bloomberg helps you enhance efficiency across the entire workflow through to post trade.

## Automation – throughout the life cycle

Bloomberg's goal is to make trading structured products as simple as it is for bonds. This starts with automatic deal capture, which reduces the potential for mistakes. We do this by investing in technology that allows automatic mapping of structured product codes (e.g. ISIN) into the Bloomberg Derivatives Library (DLIB). This enables structured products professionals to benefit from the suite of analytics that Bloomberg has to offer without the need to manually type in trade deals or programmatically upload trade feeds.



## Market execution

### TOMS market making – secondary market

DLIB allows structured product market-making on through TOMS, with market makers able to publish tradeable prices on ALLQ – which facilitates buy-side trading and execution in the secondary market.

Manual processing slows down the process of executing secondary-market trades, while e-trading accelerates it. Bloomberg provides a central venue for accessing all liquidity – enabling the sending of secondary market orders for structured products electronically as is the case for any bond. Once the price has been confirmed and the buy-side client has clicked and traded, the Blotter on Bloomberg is updated with the trade.

## How Bloomberg can help

### Optimize your trade workflow with Trade Order Management Solutions (TOMS)

Bloomberg TOMS is the award-winning order management system (OMS) for front-office trading, compliance and operations – fully integrated with DLIB for cross-asset structured products. The comprehensive solution enables traders to efficiently manage inventory, price securities, distribute quotes and engage the global markets. Across your trading books, TOMS helps you mitigate intraday risk, address your compliance requirements and manage your P&L and end-of-day close. Bloomberg TOMS is fully customizable and optimized for both price taking and market making, enabling sales and traders to automate both voice and electronic trading workflows.

### Key benefits

- Time saving through automation for traders and sales reducing operational risk
- Reaching a large global buy side audience
- Saving on costs in cases where listing can be avoided
- Better analytics on requests, trade frequencies, sizes and client activity
- Enhanced compliance monitoring
- Better control of low- and high-touch clients and transactions
- STP depending on OMS and servers plugs

## Robust risk management

Reliable risk management requires solutions that allow you to effortlessly integrate structured products into your portfolio. You need the right models and data to fully understand and manage the risk that comes with the nonlinear and complex payoff structures, and you need to be able to run valuations quickly and accurately without relying on a huge team of quants and engineers.

## How Bloomberg can help

### Leave nothing to chance with Bloomberg's Multi-Asset Risk System (MARS)

MARS is a comprehensive award-winning suite of risk management tools that delivers consistent, consolidated results across your entire firm. Powered by Bloomberg's world-class pricing library, market data and mortgage cash flow engine, MARS enables front office, risk and collateral professionals to analyze their trading and investment portfolios, manage and mitigate their exposure and ready themselves for any turn of events.



## TOMS/MARS integration

The entire MARS family of solutions is fully integrated with Bloomberg's other market-leading solutions, including TOMS.

Monitor the value of your portfolios in real time, conduct pre-trade analysis, analyze hedging and investment decisions and perform intraday lifecycle and cash flow management – all on a single platform. You can run Bloomberg's advanced risk analytics directly within TOMS Trader Workspace, including best-in-class Greek reports, such as key rate risk

reports for credit risk, interest rate risk, as well as Vega bucket reports to analyze optionality.

Integration also gives you the ability to book any template in DLIB into TOMS, and to enter execution price, direction of trade, sales details and notes. Upload trades from pre-canned templates and custom templates, create your own views in to view valuations and Greeks, and group by counterparty, issuers, strategies and more.

## Front office risk

Bloomberg's comprehensive suite of risk analytics deliver consistency between risk and the front office. With term structure Greeks, advanced scenario and stress test capabilities, P&L explain, as well as streamlined workflow solutions, you'll find everything you need to increase operational efficiency, gain greater consistency and thrive in a challenging business landscape.

### Key features

- Integrated OMS & risk dashboard
- Risk, lifecycle & P&L Launchpad components
- Trading activity monitor
- Report modes: intraday, end of day, on-demand
- Market data snapshots
- Outbound feeds using Bloomberg's Trading Solutions Integration Portal (TSIP) – a single portal that allows you to monitor the status and set up details of your trading solution's batch file exports and uploads, as well as the scheduled times of all batch file exports.
- IPV Workflow

## Risk components

Access your end-of-day closing risk for your TOMS books in the same system as on-demand. All Risk components can be refreshed with the latest positions and market data to recalculate risk exposures. Settings for each component can be set independently, with positions based on the TOMS database.

## Scenario analysis

Take advantage of a flexible stress-testing toolkit for historical and predictive scenario analysis, with matrix scenarios and custom multi-asset scenarios. Choose from a group on the dropdown menu to aggregate by currency, issuer, book or to choose a custom combination.

The moment a new structured product is created through our template, market risk analytics don't take months to generate – they're immediately available.

### Scenario Manager (SHOC)

**SHOC <GO>** provides a diverse platform for cross-asset scenario management that allows you to run pre-defined and custom market-shift scenarios that stress-test ("shock") your multi-asset portfolio positions, so you can see the effects of extreme market events on your investments. SHOC can instantaneously reproduce market changes between two dates across all asset classes, and allows sharing and use in risk reports across the firm.

## Market risk analytics

For all structured products, we offer fully configurable historical and Monte-Carlo VaR, stressed VaR and expected shortfall with back testing reports. Customizable regulatory dashboards and output files. Comprehensive stress testing capabilities and multi-asset Greek sensitivities. Historical archiving of risk results. Flexible aggregation to view risk concentration and compare to limits. We also fully support FRTB for your structured products portfolio.

## MARS XVA

Counterparty risk analytics and reporting for front-office traders calculating and hedging XVA, and risk managers focused on exposure management through PFE. All XVA metrics used in OTC derivatives markets. XVA sensitivities and stressed XVA calculations. Any new product automatically works immediately with market risk and XVA.

## Transparency into inputs, market data and calibration

DLIB provides detailed lifecycle information including fixing, cashflows, exercise, corporate actions and barriers. Transparency in market data and models, including calibration analytics, is also provided. Models include Black and Scholes, Stochastic Local Volatility, Local volatility, Heston, Hull-White 1 and 2 factor models, Shifted Libor market model and Hull-White Local Volatility IR Equity hybrid model. DLIB Monte Carlo projections help analyze the probabilities of hitting barriers. DLIB also makes it quick to analyze probabilities of barrier and exercise events being hit. Finally, DLIB provides the ability to customize any additional statistics needed.

## Operational efficiency

If you're struggling with the integration of structured products and the automation of booking and risk management, you're not alone. Lifecycle management can also be a hurdle, with path dependence requiring meticulous tracking of barriers, exercise decisions, cashflows, fixing and corporate action.

## Lifecycle management

Clients can monitor the lifecycle events impacting portfolios of derivatives and structured products. Lifecycle Management provides a streamlined workflow with the automatic monitoring of events, removing the burden, cost and risk of manual monitoring. Sales, investment advisors and relationship managers can use the lifecycle management tool to provide better, more proactive service to their clients.

## How Bloomberg can help

### Automatic deal capture

Our automatic mapping of structured products directly from an ISIN code to DLIB helps save you the hassle of manually typing trade details, and reduces operational risk from mistakes when agreeing the terms and conditions of deals. It also speeds up the structuring process by making it easy to re-use existing product ideas and modify them. Overall, this allows pricing to be generated in a more streamlined way, simplifying a complex workflow to a more bond-like one.

Date	Security	Deal ID	Type	Level	UndPx	Distance	Formula	Event Status	Des
02/27/19	BLAN-HKD EQT-XDAABPE0 Corp							Active	Star
02/27/19	BLAN-USD AAPLXDAABP3X Corp		Discrete	192.69	153.30	-26%		Active	Star
02/27/19	BLAN-USD AAPLXDAABP3X Corp		Discrete	96.345	153.30	37%		Active	Star
02/27/19	BLAN-HKD EQT-XDAABPE0 Corp							Active	Star
02/27/19	BLAN-USD AAPLXDAABP3X Corp		Discrete	3,156.752	632.90	-20%		Active	Star
03/15/17	BLAN-USD IBM XDAABP4F Corp		Discrete	228.436	122.52	-86%		Active	Dail
02/27/20	BLAN-USD AAPLXDAABP3X Corp		Discrete	96.345	153.30	37%		Active	Star
02/27/20	BLAN-HKD EQT-XDAABPE0 Corp							Active	Star
02/27/20	BLAN-USD AAPLXDAABP3X Corp		Discrete	192.69	153.30	-26%		Active	Star
02/27/20	BLAN-USD AAPLXDAABP3X Corp		Discrete	3,156.752	632.90	-20%		Active	Star
02/27/20	BLAN-HKD EQT-XDAABPE0 Corp							Active	Star
03/01/20	BLAN-USD AAPLXDAABP3X Corp		Discrete	1,367.922	632.90	48%		Active	Star
03/01/20	BLAN-USD AAPLXDAABP3X Corp		Discrete	83.499	153.30	46%		Active	Star
03/01/20	BLAN-HKD EQT-XDAABPE0 Corp							Active	Star
03/01/20	BLAN-HKD EQT-XDAABPE0 Corp							Active	Star
03/01/20	BLAN-HKD EQT-XDAABPE0 Corp							Active	Star
03/30/20	REVERSE.CONVEXDAAB4XR Corp		Continuo	103.88	122.52	15%		Active	

### Key features

- Monitor past, current & upcoming lifecycle events for fixed income and derivatives, including structured product portfolios
- Generate historical lifecycle reports by setting the as-of-date in the past
- Track cash flows, fixing, barrier, exercise and corporate action events
- Slice and dice events with advanced filtering and grouping
- Get full transparency on lifecycle events with formulas for future cash-flows and barriers

## Collateral management

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

### Key features

- ISDA-like setup:
  - Legal entities
  - Master agreement
  - Collateral agreement
- Multiple collateral agreement per client if needed

## Collateral agreement details

**LEDO <GO>** allows you to display and manage the collateral agreements you have made with your trading partners, so you can capture the details of the collateralized relationship, monitor counterparty exposure, and document the collateral received or posted in one place.

Business Line	Agreement Name	Principal	Counterparty	Status	Business Line
OTC (5)				ALL	ALL
OTC Cleared (1)	DEMO 1 CPTY	Demo Principal	DEMO 1 CPTY	Active	OTC
TBA (1)	DEMO 2 CPTY	Demo Principal	DEMO 2 CPTY	Active	OTC
Status					
Active (6)	DEMO 3 CPTY UHV	Demo Principal	DEMO 3 CPTY	Active	OTC
Inactive (1)	DEMO 4 CPTY	Demo Principal	DEMO 4 CPTY	Active	OTC
	DEMO 5 CPTY - CLRD	Demo Principal	DEMO 5 CPTY - CLRD	Active	OTC Cleared
	DEMO 6 CPTY (TBA)	Demo Principal	DEMO 6 CPTY	Active	TBA
	DEMO 7 CPTY	Demo Principal	DEMO 7 CPTY	Inactive	OTC

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

## Margin calculations

Determine the initial margin for each SIMM-based margin event associated with a CSA agreement in your portfolio – with full transparency in terms of exposure and SIMM calculations. You can also drill-down on margin call details and reconcile a discrepancy in the numbers. Discrepancies can arise due to differences among the netting set universe of trades, mark-to-market price, or SIMM sensitivities. You also have the ability to export exposure and CRIF files\*.

\* After a trade is decomposed, the underlying sensitivity data must be held in a normalized format before the SIMM calculations can be performed. The CRIF file (Common Risk Interchange Format) is the industry template used to hold and exchange sensitivity data.

## Regulatory compliance

Fragmentation between risk management systems and regulatory solutions has always been a challenge – and it can be even more difficult for firms dealing with structured products, where the complexity of considerations and the quantity of regulations can be greater.

## Fundamental review of the trading book (FRTB)

MARS Market Risk provides a complete, holistic solution powered by Bloomberg analytics and data. This includes data, such as risk classes and factors, bucketing, and verification of modellable/non-modellable risk factors (MRF/NMRF), configured specifically for FRTB. Additionally, clients who also use Bloomberg TOMS benefit from consistent analytics between front office and risk to help align hypothetical and risk-theoretical P&L for the P&L attribution tests required to maintain IMA desk approval for all securities, including derivatives and fixed income. Like with many other risk outputs, you can innovate and create new products leveraging the flexibility of DLIB and immediately compute FRTB analytics on the newly created deals.

## How Bloomberg can help

### Uncleared margin rules

Bloomberg has licensed the SIMM methodology from ISDA, and provides solutions for a variety of different market participants, tailored to single-security, portfolio and collateral management workflows, leveraging the Terminal's powerful suite of derivatives functionality, including MARS.

One of the key features of Bloomberg solution is that you can create any product through our scripting language and immediately book it in MARS to compute SIMM analytics.

Firm Hierarchy	SBM	Total	Delta	Vega	Curvature	FX	CSR	CSR S
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	--	--

Bloomberg's FRTB SA solution features capital numbers calculated bottom up from their risk factor and individual position components

## EU regulations

### MiFID II – sales trader workflow

Under MiFID II, the sales trader workflow will have new real-time obligations to capture and record all methods of voice communication surrounding price negotiation. After the buy-side client reaches out through IB chat, over the phone, or by email, the sell side raises an internal RFQ for the dealer to price. The dealer then prices each leg and sends a quote to the salesperson who submits it over IB to the buy-side client. When the client agrees to do the trade, the Sales will hit "Trade accepting on behalf of the client the transaction.

### PRIIPs

The PRIIP(s) tab in **DLIB <GO>** allows you to compute key information for Packaged Retail and Insurance-based Investment Products (PRIIP(s)). Examples of PRIIP(s) include funds and structured products with interest rate, equity, FX, and credit underlyings. DLIB provides a PRIIP(s) solution that generates the required PRIIP(s) information for structured products. All DLIB templates and scripts are supported, with products categorized as per regulatory standards.

Model Input		Risk Indicator Output				
Model	Bootstrap	Summary Risk Indic	5	VEV	21.64%	
Valuation Date	05/27/2021	Mkt Risk Measure	5	VaR Price	4,514.17	
Paths	10000	Crtd Risk Measure	1			
Window Length	5					
Start Date	05/26/2016					
End Date	05/26/2021					
PRIIP(s) Input		Performance Scenarios				
Category	3	Scenario	05/27/2022	05/27/2023	05/28/2024	
Capital Protection	0%	Favorable	After Cost	10,691.66	10,900.48	11,000.00
Credit Quality Step	0		Average Return	5.86%	3.97%	2.97%
Bid Price	99.00	Moderate	After Cost	10,400.67	10,500.00	10,500.00
Mid Price	100.00		Average Return	2.98%	1.98%	1.32%
Ask Price	101.00	Unfavorable	After Cost	10,277.92	9,945.43	10,000.00
Annual Running Costs	0%		Average Return	1.76%	-0.77%	-0.33%
Notional	EUR 10,000	Stress	After Cost	1,022.01	4,271.09	4,248.11
			Average Return	-89.88%	-28.88%	-19.29%
		RIY				
		RIY Breakdown	05/27/2022	05/27/2023	05/28/2024	
		Moderate	RIY Entry	1.04%	0.52%	0.35%
			RIY Exit	1.00%	0.00%	0.00%
			RIY Ongoing	0.00%	0.00%	0.00%
			RIY Total	2.03%	0.52%	0.35%







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## Take the next step.

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

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