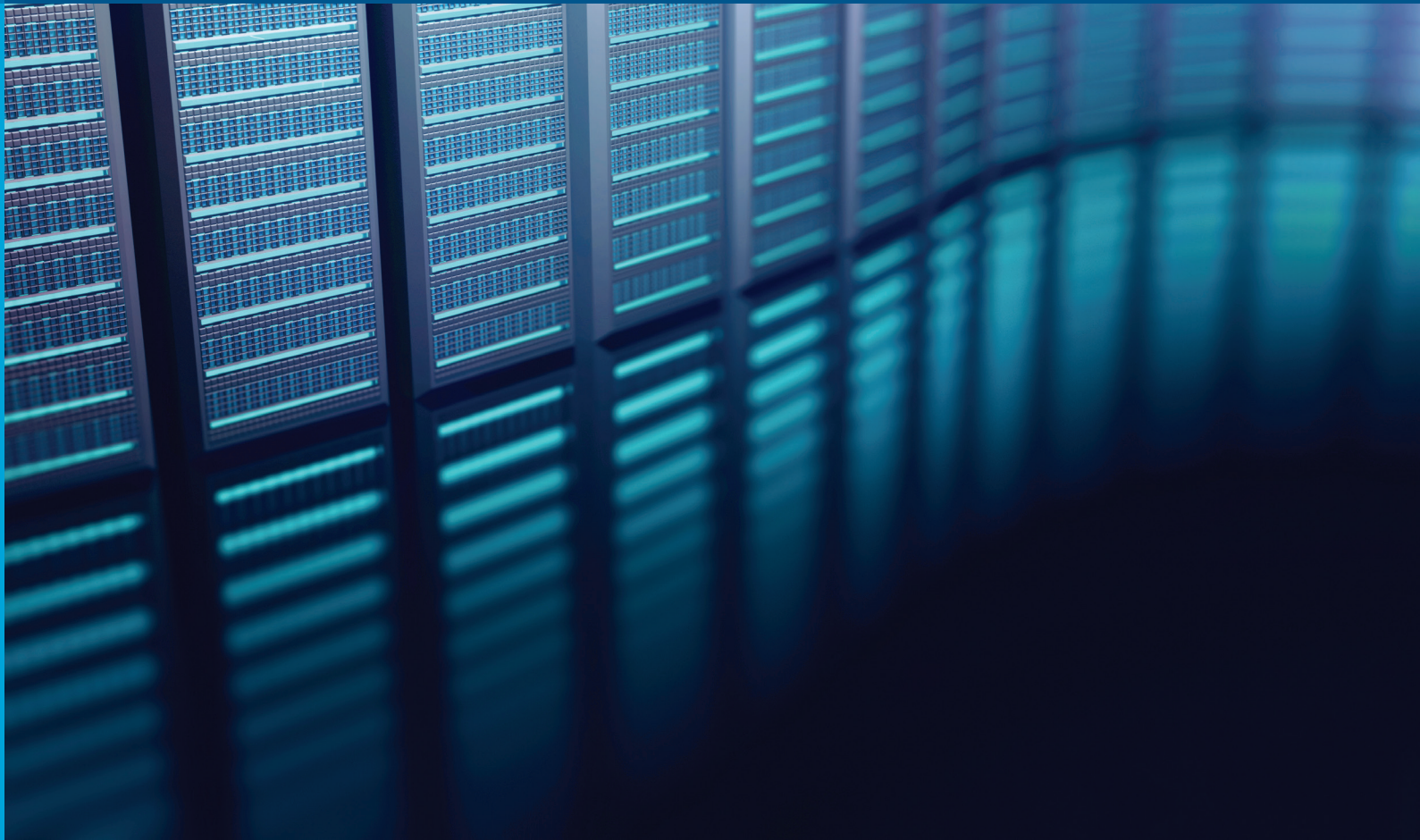


Broadridge Repo



Market Overview and Key Trends



Repo markets are undergoing significant change as new regulations such as the leverage ratio and increased capital requirements increase costs for a business that previously offered a high return on capital.

More stringent desk level pre and post-trade risk monitoring, combined with punitive penalties for breaches have changed traders' priorities.

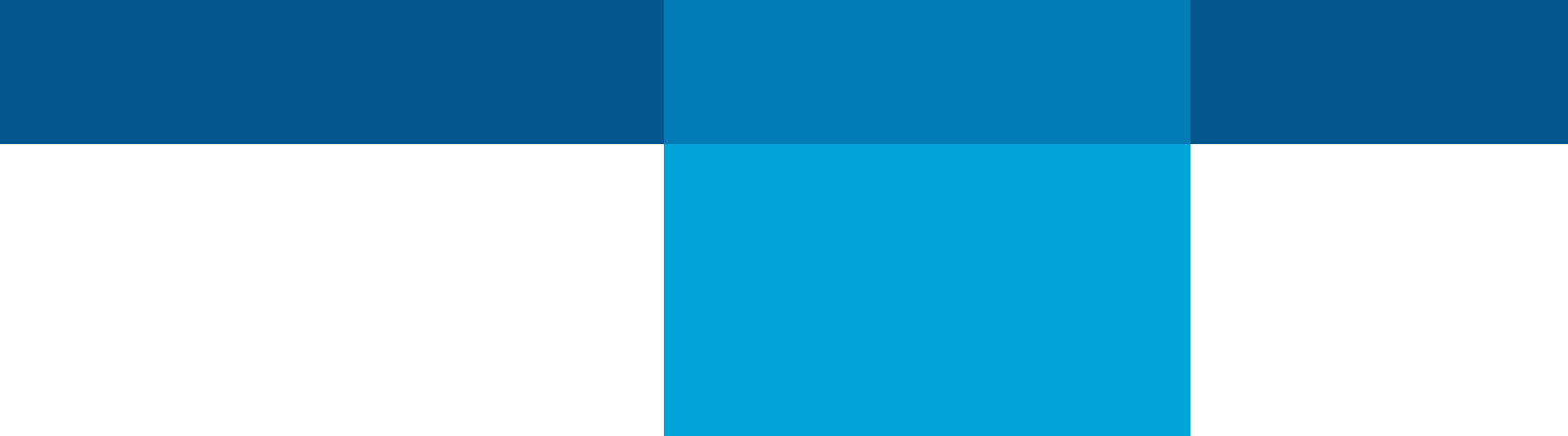
There is an increasing focus on:

- Regulatory risk
- Internal compliance
- Inventory optimization and trading decisions
- A continuing shift towards electronic trading

Greater transparency through the FSB's Securities Finance Transparency Regulation (SFTR) rules and a gradual move towards trading via CCPs are also creating added complexity for the repo business. Coupled with a low interest rate environment, this is leading market participants to seek ways to reduce costs wherever possible by:

- Increasing automation and market connectivity
- Identifying balance sheet efficiencies
- Breaking down silos

Despite this regulatory pressure, the repo markets continue to act as a vital cog in the financial system. Liquidity coverage ratios, central clearing of derivatives and added margin requirements for non-cleared derivatives are creating demand for high quality collateral.



As a result, repo has become an even more central part of the financial plumbing and a key mechanism for mobilizing collateral.

On the sell side, there is a trend for the repo desk to become the central hub in establishing a more centralized collateral and funding function that makes efficient use of assets and improves liquidity management.

For the buy side, repo also plays a role as firms look to transform securities into cash collateral for their derivatives trades. Some buy side firms are also becoming liquidity providers through collateral downgrade trades and financing long HQLA positions at term using structures such as evergreens and extendibles.

This rapid evolution in the repo markets requires improvements in technology support. Many firms are currently using either an array of fragmented and out of date in house systems or facing high upgrade costs for their vendor supplied systems. The challenge for these firms is to use technology to adapt to the swathe of new regulations, while also squeezing more value from IT budgets.

Complete support for the full repo lifecycle

The Broadridge Repo Module helps to make your repo business more profitable through faster, more efficient processing of repos.

The software offers front to back office support, from booking trades to collateral management, lifecycle processing and settlement in an integrated system. It supports agency and principal trading in a real-time, multi-currency solution for all repo types.

Make sense of complex data

The primary reason front office desks choose Broadridge's Repo system is because we provide the ability for traders to "Slice and Dice" positional data to achieve front office goals. This means the ability to do the following:

- Group, sort, filter and aggregate global, real-time inventory containing 100% of all cash, firm, GMRA, GMSLA and ISDA trades and other sources/uses of inventory to create a view of the world aimed at a given trading outcome.
- Save, name and share the view of the world as a re-usable template.
- Repeat the above to create a library of re-usable templates to perform scenario analysis.
- Apply your templates to real scenarios and achieve your goals.

Example scenario

The following screenshot provides just one real-world example of these Broadridge Repo principles driving a front office optimized trading goal identification of a basket of low haircut, cheapest to deliver, HQLA assets to deliver to a client asking for a Basel III LCR-driven collateral upgrade trade.

The screenshot displays the 'Inventory Ladder' software interface. The top menu bar includes 'Home', 'Inventory', and 'Collateral / Exposure'. Below the menu, there are tabs for 'Collateral Only', 'Collateral Upgrade (LQR)', and 'Collateral Upgrade (LQR)'. The main window shows a table of assets with columns for 'Instrument Name', 'ISIN', 'Quantity', 'Unit', 'Label', 'Qty Price', 'C', 'E', 'Category', 'Maturity', 'Availability', 'Collateral Type', 'Estimated Cost', 'Actual Cost', '22 Line', and 'Manual Price'. The table lists various assets, including 'HQLA Asset 1 (3 items)', 'HQLA Asset 2 (3 items)', 'HQLA Asset 3 (3 items)', 'HQLA Asset 4 (3 items)', 'HQLA Asset 5 (3 items)', 'HQLA Asset 6 (3 items)', 'HQLA Asset 7 (3 items)', 'HQLA Asset 8 (3 items)', 'HQLA Asset 9 (3 items)', 'HQLA Asset 10 (3 items)', 'HQLA Asset 11 (3 items)', 'HQLA Asset 12 (3 items)', 'HQLA Asset 13 (3 items)', 'HQLA Asset 14 (3 items)', 'HQLA Asset 15 (3 items)', 'HQLA Asset 16 (3 items)', 'HQLA Asset 17 (3 items)', 'HQLA Asset 18 (3 items)', 'HQLA Asset 19 (3 items)', 'HQLA Asset 20 (3 items)', 'HQLA Asset 21 (3 items)', 'HQLA Asset 22 (3 items)', 'HQLA Asset 23 (3 items)', 'HQLA Asset 24 (3 items)', 'HQLA Asset 25 (3 items)', 'HQLA Asset 26 (3 items)', 'HQLA Asset 27 (3 items)', 'HQLA Asset 28 (3 items)', 'HQLA Asset 29 (3 items)', 'HQLA Asset 30 (3 items)', 'HQLA Asset 31 (3 items)', 'HQLA Asset 32 (3 items)', 'HQLA Asset 33 (3 items)', 'HQLA Asset 34 (3 items)', 'HQLA Asset 35 (3 items)', 'HQLA Asset 36 (3 items)', 'HQLA Asset 37 (3 items)', 'HQLA Asset 38 (3 items)', 'HQLA Asset 39 (3 items)', 'HQLA Asset 40 (3 items)', 'HQLA Asset 41 (3 items)', 'HQLA Asset 42 (3 items)', 'HQLA Asset 43 (3 items)', 'HQLA Asset 44 (3 items)', 'HQLA Asset 45 (3 items)', 'HQLA Asset 46 (3 items)', 'HQLA Asset 47 (3 items)', 'HQLA Asset 48 (3 items)', 'HQLA Asset 49 (3 items)', 'HQLA Asset 50 (3 items)', 'HQLA Asset 51 (3 items)', 'HQLA Asset 52 (3 items)', 'HQLA Asset 53 (3 items)', 'HQLA Asset 54 (3 items)', 'HQLA Asset 55 (3 items)', 'HQLA Asset 56 (3 items)', 'HQLA Asset 57 (3 items)', 'HQLA Asset 58 (3 items)', 'HQLA Asset 59 (3 items)', 'HQLA Asset 60 (3 items)', 'HQLA Asset 61 (3 items)', 'HQLA Asset 62 (3 items)', 'HQLA Asset 63 (3 items)', 'HQLA Asset 64 (3 items)', 'HQLA Asset 65 (3 items)', 'HQLA Asset 66 (3 items)', 'HQLA Asset 67 (3 items)', 'HQLA Asset 68 (3 items)', 'HQLA Asset 69 (3 items)', 'HQLA Asset 70 (3 items)', 'HQLA Asset 71 (3 items)', 'HQLA Asset 72 (3 items)', 'HQLA Asset 73 (3 items)', 'HQLA Asset 74 (3 items)', 'HQLA Asset 75 (3 items)', 'HQLA Asset 76 (3 items)', 'HQLA Asset 77 (3 items)', 'HQLA Asset 78 (3 items)', 'HQLA Asset 79 (3 items)', 'HQLA Asset 80 (3 items)', 'HQLA Asset 81 (3 items)', 'HQLA Asset 82 (3 items)', 'HQLA Asset 83 (3 items)', 'HQLA Asset 84 (3 items)', 'HQLA Asset 85 (3 items)', 'HQLA Asset 86 (3 items)', 'HQLA Asset 87 (3 items)', 'HQLA Asset 88 (3 items)', 'HQLA Asset 89 (3 items)', 'HQLA Asset 90 (3 items)', 'HQLA Asset 91 (3 items)', 'HQLA Asset 92 (3 items)', 'HQLA Asset 93 (3 items)', 'HQLA Asset 94 (3 items)', 'HQLA Asset 95 (3 items)', 'HQLA Asset 96 (3 items)', 'HQLA Asset 97 (3 items)', 'HQLA Asset 98 (3 items)', 'HQLA Asset 99 (3 items)', 'HQLA Asset 100 (3 items)'. The table also shows 'Required' and 'Remaining' values for each asset.

Inventory View Showing LCR HQLA Liquidity Class

Broadridge Repo can provide templates for front office users to perform scenario analysis and problem solving directly in the system for many pre and post-trade use cases.

For example:

- Ability to model LCR and volatility factors directly in the system inventory
- Ability to forecast on demand balance sheet consumption and impact on proposed and current trade sets
- Ability to forecast the on demand RWA capital cost impact on proposed and current trade sets
- Ability to include trading constraints and forecast absolute, NAV or quantitative credit, trading concentration limit headroom and potential breaches

Broadridge's aim is to improve a firm's ability to:

- Make informed decisions about use of GC, Govt, credit and high yield inventory to achieve financing, flow or collateral trading targets
- Identify suitable inventory to maximize F.I and equity trading opportunities and increase alpha whilst mitigating risk, maintaining compliant with regulations and reducing costs of collateralization

Increase volumes and save time

Broadridge Repo allows you to book trades and manage lifecycle events more smoothly with fewer errors. Reducing manual effort gives you more time to focus on core business goals such as improving customer service, complying with regulation and managing risk.

The software also enables the repo desk to increase trading volumes, driving your current and future growth plans.

Process higher volumes of trade lifecycle events

The Broadridge Repo Module allows you to manage trade lifecycle events in bulk from a single screen. This enables your repo desk to control larger volumes of trades whilst also reducing operational risk. By reducing the chance of fails and missed events, Broadridge Repo improves your internal performance and enhances your reputation as a reliable counterparty.

BondLend

Broadridge provides a full service interface with BondLend allowing straight through processing automation for repo, borrowing and lending.

Manage collateral more effectively

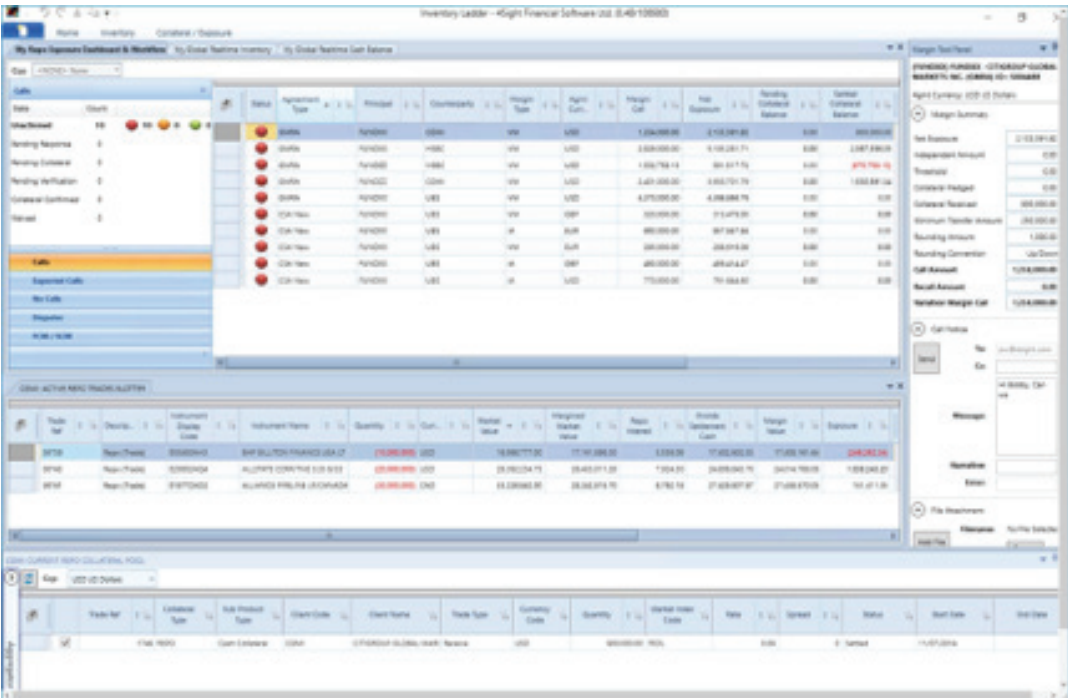
The Broadridge Repo Module integrates with the Broadridge Collateral Management Module. This provides a company wide view of exposure across repo, securities lending and derivatives business lines.

The Broadridge Collateral Management Module supports complex rule-sets for collateral haircuts, concentration levels, optimization and eligibility.

Collateral availability is calculated and displayed within the global Broadridge Inventory Manager. From here users can create a range of templates and views to optimize the use of inventory, both from a collateral management and repo trading perspective.

Improve communication and transparency

A web-based reporting module allows you to run, schedule, email and automate all of your reports. You can create your own reports, customize existing ones and white label them to your own internal and external requirements. You can also improve transparency and customer service by giving your clients access to run their own reports.



View Exposures and Margin Calls at a Cross-Product Level

Balance sheet usage calculator

Balance sheet is a finite resource and determines the balance sheet owner's trading capacity. In the current operating environment, financial institutions can gain significant benefits from using this finite resource as efficiently as possible.

Broadridge's Balance Sheet Usage Tool provides an analysis of the balance sheet usage (BSU) for securities lending and repo trades using configurable netting rules, including the International Financial Reporting Standard (IFRS) framework.

The screenshot shows the 'Risk Analysis Module - ERM Financial Software Ltd. (2017-10-01)' interface. The main window displays a table of balance sheet usage (BSU) for various securities and transactions. The table includes columns for Transaction Type, Symbol, Quantity, and Balance Sheet Usage. The right-hand pane shows a list of netting rules, including 'Netting Rule: Collateral (Product)', 'Netting Rule: Collateral (Maturity)', 'Netting Rule: Collateral (Currency)', and 'Netting Rule: Collateral (Country)'. The interface is titled 'Risk Analysis Module - ERM Financial Software Ltd. (2017-10-01)'.

Identify Balance Sheet Efficiencies

Key Features

Front to back office repo processing

Real-time position and cash management

All repo trade types, terms and rate types

STP (integration with BrokerTec/LCH RepoClear etc.)

Tri-party interfaces

Quick and easy trade entry

Bulk event processing of all repo lifecycle events

Full audit trail

Agency or principal trading

Automated settlement

Profit and loss reporting

50MM breakdown

General collateral funding

Evergreen and extendible functionality

Basel III LCR support

Benefits

Faster trading

Increased profitability

Better decision making

Fewer errors

Greater STP

Stronger risk management

Higher trade volumes

Reduced costs

Increased transparency

Reputation for operational efficiency with clients and counterparts

Multi-market connectivity

Easier regulatory compliance

Broadridge, a global fintech leader with over \$9 billion* in market capitalization, provides communications, technology, data and analytics solutions. We help drive business transformation for our clients with solutions for enriching client engagement, navigating risk, optimizing efficiency and generating revenue growth. *As of November 2017

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Communications
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