Financial Services Solution Brief:
Collateral Allocation Optimization

In the wake of the Global Financial Crisis of 2008 and the resulting regulatory reforms, collateral management has emerged as a critical back-office function for banks and other financial institutions. To prevent insolvency and preserve the health of the financial markets, these institutions must make sure that they set aside enough cash and securities collateral to cover credit exposure and comply with regulations.

The premise of collateral management – to ensure financial institutions always have the right amount and allocation of collateral to meet regulatory requirements and business needs and minimize risk – is simple, but the practice is complicated as it involves complex, daily decisions by stakeholders across various departments (including Operations, Compliance, and IT) on:

- Which assets to accept and leverage as collateral for loans, and

- Which assets to keep locked up as a liquidity cushion in reserve accounts,

- While taking into account various factors and constraints including the quality and risk level of individual assets, each institution's risk tolerance, capital and liquidity obligations, and asset allocation targets, and the prevailing financial regulations.

Traditionally, financial institutions have used manual collateral management tools like Excel and techniques like heuristics to help them determine their collateral allocation on a daily basis, but this method was time-consuming, prone to error, and – most importantly – couldn't guarantee complete compliance with industry regulations.

For these reasons, a growing number of leading banks and other financial institutions have begun using mathematical optimization technologies to automate, integrate, and optimize their collateral allocation process.

Collateral allocation optimization – one of the many applications of mathematical optimization in the financial services industry – enables financial institutions to automatically, instantly determine and execute an optimal collateral allocation strategy that satisfies financial regulations and business requirements, and safeguards the health of those institutions as well as the broader financial market.

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Optimizing the Collateral Allocation Process

With mathematical optimization, banks and other financial institutions can drive automation, integration, and optimization across the collateral allocation process:

Data Processing

Rapidly collect and process all relevant, real-time data on liquidity buffer reserves, asset values, quality, and risk levels, capital and collateral obligations, and lending arrangements.

Modeling

Each collateral allocation optimization application contains a detailed model of the individual institution's operating environment, with industry regulations as well as internal, institutional target allocations and risk tolerance defined and embedded as constraints in the system.

Allocation

Automatically, optimally rebalance the allocation of collateral on a daily basis to meet all regulatory requirements and business objectives.

Reporting

Generate in-depth reports that can be used by internal stakeholders or external auditors to validate and explain the automated collateral allocation decisions made by the mathematical optimization application.

Business Benefits

The use of mathematical optimization to automatically, optimally reallocate collateral delivers many business benefits including:

- Guaranteed, total compliance with all regulatory requirements compliance

- Increased visibility, transparency, and traceability throughout the collateral allocation process

- Greater operational efficiency and alignment among all stakeholders involved

- Reduced risk due to credit exposure

- Improved health of individual institutions as well as the financial markets