

## OTC Derivatives – Collateral Optimization Build, Buy, or Outsource – How should buy-side firms decide?



## Executive Summary

- Dodd-Frank and EMIR reforms are expected to create a shortfall in eligible high-grade collateral of over \$2T<sup>1</sup>.
- Central Counterparties (CCPs) have expanded the range of eligible collateral<sup>2</sup> to cash, treasury bills, agency securities, select mortgage-backed securities, foreign sovereign debt, and corporate bonds; buy-side firms are incentivized to optimize and pledge the least expensive collateral.
- Buy-side firms have limited collateral optimization capabilities, but remain concerned about the efficient utilization of their collateral. They are now looking at avenues to build, buy, or outsource these capabilities.
- There is a sizeable amount of collateral at stake and the financial impact to large buy-side firms could be significant.
- Buy-side firms must determine their collateral needs, review their end-to-end collateral processing capabilities, and adopt a collateral optimization solution that is best aligned with their needs.

## Background

Historically, collateral management operations have been run as siloed functions within specific product groups of banks and asset managers. This model, as presently constructed, is not ideal for collateral optimization, as it does not provide a cross-enterprise view of required collateral, eligible inventory, and outstanding pledges. Moreover, due to the largely bilateral nature of over-the-counter (OTC) swaps transactions, cash was the prominent form of collateral, placing a limited focus on retaining liquid and high-quality collateral.

The impacts of central clearing, mainly increased margin requirements combined with a shortage of high-grade collateral are compelling firms to preserve and optimize the use of their collateral. There is a clear shift in methodology and the value firms place on collateral management. The ISDA's 2013 Margin Survey indicated a growing preference among broker-dealers to use securities as collateral. While cash constituted approximately 79% of the collateral posted in the bilateral

transactions, it accounted for only 27% of the collateral delivered for Initial Margin in OTC client clearing and 59% for house clearing.

The new regulatory environment has pushed the industry to a watershed moment in deciding the choice of collateral to pledge. What was once a traditional back-office function has now become a more strategic front office imperative. Clearing brokers have begun to react by providing a highly sophisticated suite of options for managing collateral. Buy-side firms are faced with an important decision — whether to build internal collateral management capabilities, continue to rely on clearing brokers for collateral services, or completely outsource a function that is not a core competency.

## Estimating the Cost of Collateral

From T-bills to mortgage-backed securities, a range of asset types are now deemed acceptable collateral for swaps by the CCPs and the regulators. Each of these asset types has an inbuilt cost in the form of an opportunity cost or a funding cost. For example, cash posted to a CCP for Initial Margin can be invested in money markets or used to provide repo financing and source high-grade securities. Similarly, T-bills can be deployed in the repo market and agency securities could be put to work in the securities lending or repo market. Assessing the true cost of these alternative strategies for each collateral type provides an insight into the potential loss of earnings.

## Defining Collateral Cost Index

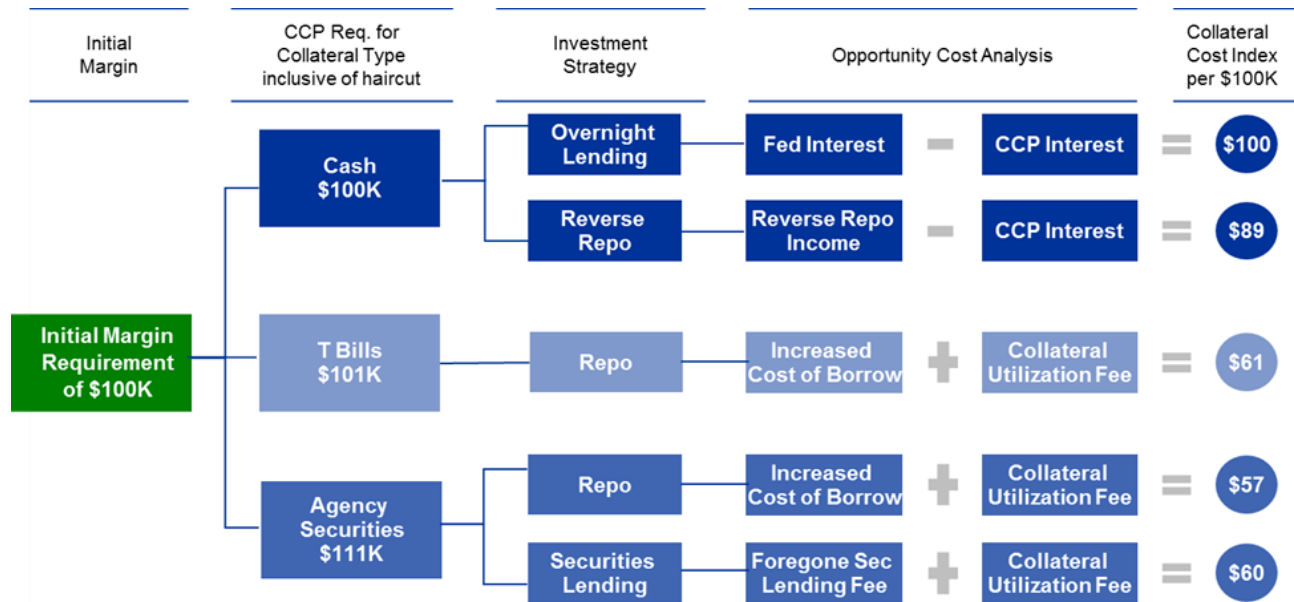
We have defined a **Collateral Cost Index** that measures the financial impact of posting an asset as collateral using likely alternative investment strategies.

Consider a hypothetical scenario for a buy-side firm trading swaps where there is an Initial Margin Requirement of \$100,000. This Initial Margin requirement can be met using cash, T-bills, or agency securities. To determine the Collateral Cost Index, we consider the alternative investment strategies of each asset type and evaluate the opportunity cost (see figure 1).

<sup>1</sup>2010 TABB Group Study

<sup>2</sup>CME Group data

### Collateral Cost Analysis<sup>3</sup>



Source: Deloitte analysis

**Figure 1 – Collateral Cost Analysis**

With a conservative investment strategy, cash could be invested in overnight lending, which would yield a daily interest income of \$0.27 at roughly the Federal Reserve Board of Governors (the “Fed”) effective rate of 0.10%. If this cash is posted as collateral to CCPs, the daily interest income is lost, but the deposit earns an interest from the CCP. The CCP deposit rates are typically observed to be Fed Effective Rate – 20 bps<sup>4</sup>. Given the current low interest rate environment, cash at CCPs earns almost no interest. Hence, the opportunity cost of posting cash as collateral is **\$0.27 per day** or **\$100 per year** for \$100,000 of requirement. Similar estimation approaches can be used for T-bills and agency securities using repo and securities lending strategies (see Figure 1). Such an analysis provides a basis for comparison of costs across options.

#### Business case for collateral optimization

From the above analysis, at current interest rates, **agency securities cost \$40 less than cash per \$100,000 of Initial Margin** (ignoring the concentration limits). Firms that post cash as collateral are potentially leaving this money on the table.

Realizing the higher opportunity cost of cash, some buy-side firms are attempting a collateral optimization strategy of ranking collateral available to pledge based on liquidity and grade. Ranking collateral in this manner has some benefits but requires careful monitoring. The cheapest-to-deliver collateral, and thereby potential savings, vary greatly depending on the prevailing interest rates. Hence, a static model of preference ranking may not always help choose the optimal collateral type; a true optimization strategy requires a dynamic model that is able to account for monetary variances (see figure 2).

#### Variance of Collateral Cost with Market Rates for Fed, T-Bill, and Agency Repo



Source: Deloitte analysis using DTCC GCF Repo Index and Federal Reserve data

**Figure 2 – Three-day scenario analysis**

<sup>3</sup> Sources – Haircuts and deposit rates from CME and LCH, interest rates from Federal Reserve, Repo rates DTCC GCF Repo Index – July 2013

<sup>4</sup> LCH data

## Scenario 1: Rise in Interest Rate

Given that interest rates have largely persisted in the 0% — 0.25% range coupled with lack of clear indicators regarding the direction of interest rates, firms have been less concerned about the cost impact from rising rates. However, if interest rates rise back to 2007-2008 levels, there will be a steep increase in collateral cost (see Figure 3).

An analysis<sup>5</sup> using historic average repo spreads with the Fed rate reveals that savings from the right optimization strategy could potentially double as interest rates rise. An effective collateral optimization strategy could become a useful tool in mitigating any adverse impact arising from the higher collateral costs in a high interest rate environment.

## Long-Term Interest Rate Trend<sup>6</sup>

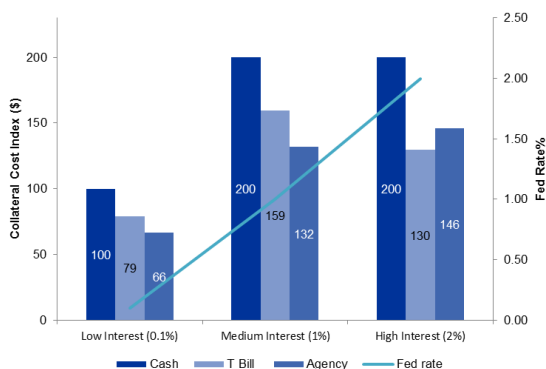


Figure 3 – Long-term scenario analysis

## Scenario 2: Rise in collateral requirements in a varying interest rate environment

In a low interest rate environment, benefits to small and mid-tier firms are modest but large buy-side firms and major swap dealers can realize substantial savings with advanced optimization capabilities (see Figure 4).

Interestingly, even as rates rise, the benefits can be significant primarily for firms that trade swaps in large volumes and post substantial amount of Initial Margin.

<sup>5</sup> Stressed and exceptional market conditions (for e.g., negative repo rates, repo consistently averaging greater than Fed) were excluded from the analysis.

<sup>6</sup> Assuming CCP deposit rates retain a constant spread of 20 bps w.r.t Fed effective rate, which caps the opportunity cost of cash. If the spreads diverge, the opportunity cost of cash will be much higher.

Our analysis suggests that with an interest rate of 0.5%, a firm posting an average daily collateral of \$800M could save close to ~\$1M annually through optimization whereas a smaller fund posting about \$100M would save only \$116K.

## Estimated Savings at Varying Interest Rates and Margin Requirements

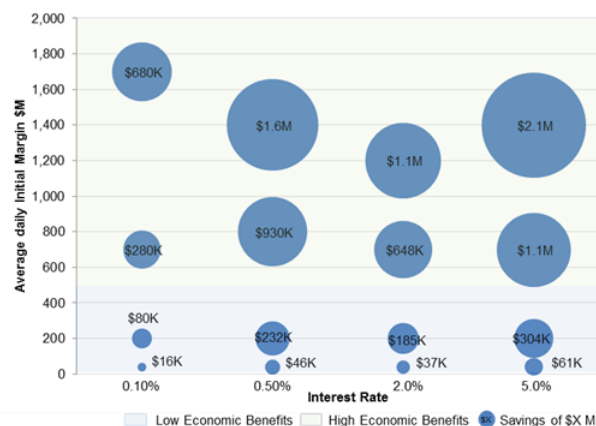


Figure 4 – Savings affect for clients of varying size

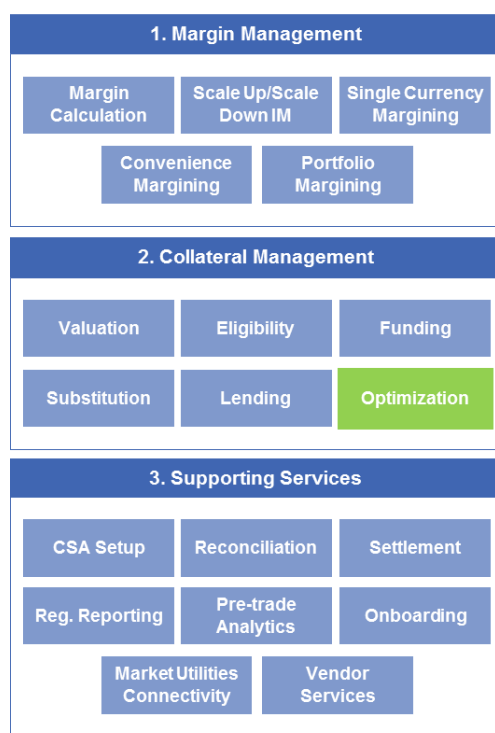
Factoring in the build and installation costs, an in-house optimization capability seems more applicable for large asset managers and funds, as they can realize benefits of scale.

While the analysis presented here is primarily driven by potential economic value, collateral optimization can provide other benefits, such as tighter risk management, asset preservation, and liquidity management. Along with funding costs and investment strategy, choice of collateral to post is guided by the terms of the Credit Support Annex (CSA), acceptance by the CCP, concentration limits, perceived future demand for the chosen collateral type, credit risk policy, and the ease of locating and delivering the collateral. These dynamic choices are difficult to achieve through a manual process and would require an automated technology-driven collateral management and optimization capability.

## Core capabilities for collateral optimization

Collateral optimization is just one piece of a large collateral management puzzle that both buy and sell-side firms are attempting to solve. Robust collateral optimization capabilities are predicated upon a few core functional, technical, and process-related requirements. Each has its own degree of complexity (see Figure 5).

### Margin and Collateral Management Capabilities



## People challenges:

- Most buy-side firms view collateral management as a back-office function. But optimization requires a front office mindset – an ability to react to changing market dynamics. Whether firms position their optimization group within front office, or equip operations to handle optimization with guidance from front office, the choice should find a balance between risk management and economic benefits.

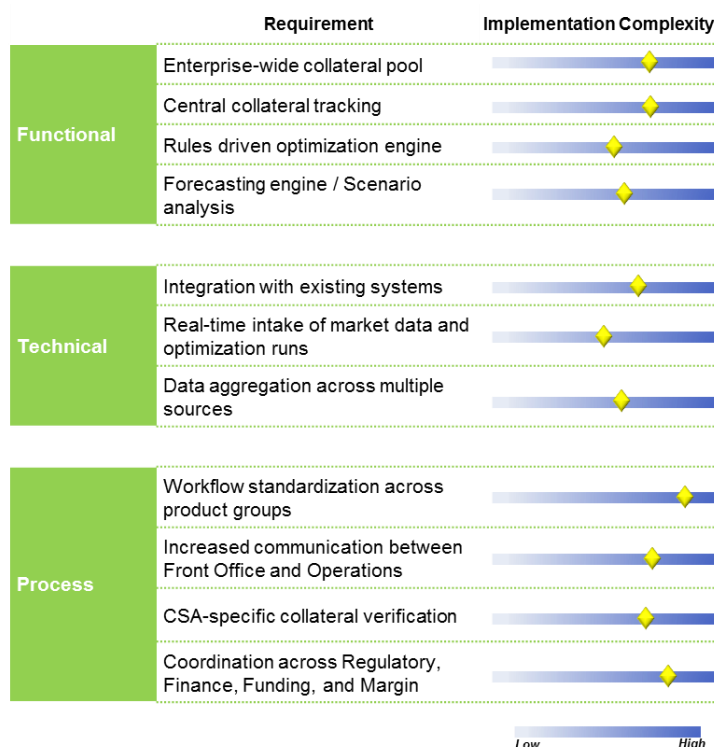


Figure 5 – Margin and collateral management core capabilities

## Challenges in building collateral optimization capabilities

As firms look closely at building collateral optimization capabilities, practical challenges across people, process, and technology become apparent.

- Optimization calls for seamless integration of margin, funding, and trading teams across product groups. Communication regarding funding rates, spreads, and collateral preferences must be transmitted swiftly and potentially frequently. Teams will have to adjust to this new intra front-middle-office operating model.

### Technical Challenges:

- Allocation strategy will interface with systems and platforms at various stages of maturity. Creating a seamless straight-through processing solution across systems will be complex.
- Many buy-side firms lack a firm-wide master reference data, which means that every product desk uses its own market data source for collateral calculation. Harmonizing these disparate data sources to arrive at common collateral valuations will require changes across many different platforms.

### Process Challenges:

- Optimization is as much about redefining organizational workflow as it is about technology. It requires a standardized workflow that cuts across product groups and geographies and breaks the silo barriers that limit optimization. Reengineering the workflow across groups with its innate timing, jurisdictional, and business-specific uniqueness would require focus and commitment from the organization's leadership.
- Very often, the 'cheapest-to-deliver' collateral depends on the terms of the CSA. As a part of optimization, operations group will now have to match eligible collateral for a CSA with the cheapest collateral type.

## Road ahead for buy-side firms

### Options for Buy-Side Firms

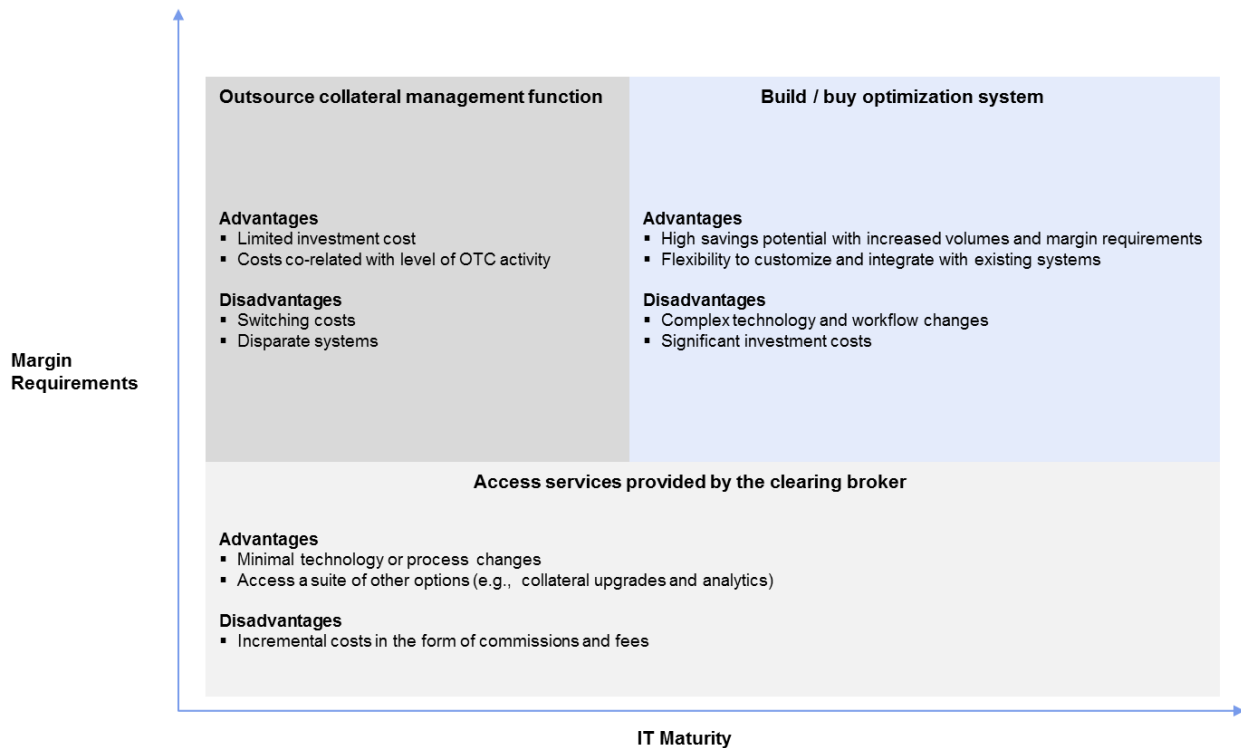


Figure 6 – Options for buy-side firms

# Conclusion

Increased collateral requirements could fundamentally change the way firms trade swaps. It is imperative that buy-side firms inventory their enterprise-wide collateral pool and analyze the cost of their collateral. Such an analysis can provide greater visibility into the estimated benefits from investing in optimization capabilities and the level of sophistication that will be needed.

Buy-side firms that use swaps primarily as a part of their hedging strategy might be able to neutralize the effects of higher margin requirements through techniques like portfolio margining. Such firms could depend on the collateral transformation services provided by their clearing broker for effectively managing any spikes in collateral requirements.

Given the ever-changing business and regulatory landscape, few IT departments can walk in lockstep with the business. As firms evolve and embrace higher volumes, and with that, increased collateral needs, managing operational complexity becomes a daunting challenge. Outsourcing collateral management function to a trusted third-party provider can lend the necessary experience and capabilities to strike a balance between cost of operations and client service expectations.

But firms that are purely chasing alpha with directional positions could see a substantial increase in collateral requirements over time. Large firms that fall in this category should undertake a phased approach to upgrade their collateral management capabilities. Fundamental technological capabilities, such as real-time market data intake, enterprise-wide collateral view, and rules-driven optimization engine, will have to be built and integrated across systems. Firms that can leverage assets across silos through integrated technology (across listed, OTC, and repo businesses) and standardized business processes can position themselves to emerge as leaders on the collateral management highway.

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