Fixed Income

Optimizing Collateral:
In Search of a Margin Oasis

TABB GROUP

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Vision

'Fasten your seatbelts. It's going to be a bumpy night.' This classic Bette Davis quote goes to the heart of what we can expect when it comes to global derivatives reform and collateral management. Traders should expect a 'bumpy night' as we transition from the current over-the-counter (OTC) derivatives market to an exchange-traded, centrally cleared environment envisioned by the Dodd–Frank Wall Street Reform and Consumer Protection Act (DFA) and the European Market Infrastructure Regulation (EMIR) efforts. Both are designed to mitigate systemic risk through the introduction of exchange-traded and centrally-cleared swaps. These mandates come with some pretty hefty 'bumps,' especially when it comes to collateral and collateral availability/scarcity. TABB Group believes that reform is going to have two significant impacts on the market. Namely, it will create a multi-trillion dollar shortfall in available high-grade collateral while at the same time driving up its costs and increasing the complexity of managing it.

Swap traders want to know where they are going to find the trillion dollar shortfall in high-grade collateral they need to meet the new clearing mandates. How are they going to get their hands on it? How are they going to manage it? And what's it going to cost them?

Unfortunately, while there are a lot of questions, there are few answers. What we know is that the sell-side broker/dealer (B/D) will no longer sit in the driver's seat when it comes to collateral and the swaps market. Derivatives clearing organizations (DCOs), not B/Ds, will be responsible for leveling collateral requirements and through this leveling process providing margin relief and the offering of portfolio margining services.

To stay on top of these changes, traders are going to have to become 'collateral smart' very quickly. Optimizing collateral and the technology that drives it are going to become increasingly important, especially when you consider the added complexity associated with centralized clearing and daily margin calls. Innovative players who invest in optimization will be more able to unlock and cost effectively deliver new forms of collateral on an enterprise-wide basis. This investment process will separate the winners from the losers.

Tomorrow's marketplace will be characterized by collateral innovation. DCOs are already shaking up the marketplace in an effort to attract new clients. Clearinghouses in both Europe and the US are already working hard to establish themselves as dominant players in the global derivatives clearing space. By offering portfolio management services, and increasing the types of collateral that can be utilized, DCOs are looking to capitalize on the changes that are coming while at the same time making the market more complex.

Participants looking to take advantage of these changes will need a strong technological foundation. While collateral optimization on its own will not overcome the looming shortfall in available collateral, it will be at the heart of any solution. With it, participants will be better positioned to manage the complexities of multiple daily margin calls from multiple DCOs. Without it, swaps participants will find themselves struggling to keep up with an increasingly more difficult marketplace where finding and delivering acceptable collateral will not only be difficult, but expensive.

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Introduction

'Collateral scarcity' is the derivatives trader's buzzword of the day. Everyone is talking about it, even though nobody is completely sure of its impact. Questions abound about whether it is the next Y2K of the 21st century – suggesting that it is a much-feared, though quite possibly overhyped, phenomenon that has captured everyone's attention but which winds up being a major 'non-event'. Others proclaim it to be the equivalent of global climate change, a yet-to-be realized paradigm changer that will impact all aspects of our lives. The reality is most likely that it will be neither a 'non-event' nor a much-feared 'melting of the polar ice caps'. The truth will be somewhere in between.

The good news about collateral scarcity is that there is plenty of high-grade, liquid collateral out there. The bad news is that finding and unlocking it will be a challenge. Some of it will be in buy-side custodial accounts in the form of T-Bills, G-7 government securities (govvies) and corporate bonds. Cash-rich corporations and sovereign wealth funds are also 'collateral wealthy'. Those who rely on derivatives to help maximize returns and/or manage risk will look to tap into those resources. But it will come at a cost.

Collateral optimization aims to create efficiencies in the process that will that will achieve those two objectives," i.e., maximize returns and/or manage risk. It is one of the most promising mechanisms for tackling the multi-trillion dollar question that accompanies both the European Market Infrastructure Regulation (EMIR) and the Dodd–Frank Wall Street Reform and Consumer Protection Act (DFA). In its most basic form, collateral optimization is about enabling the efficient use of collateral across all elements of an institution. It will be relevant to all market participants, whether they are dealers, prime brokers, custodians, futures commission merchants (FCMs), derivatives clearing organizations (DCOs), long-only asset managers, hedge funds or corporate end users.

But optimization means different things to different firms, depending upon where they are in the value chain. The sell side will both need to employ optimization technologies to manage their own collateral requirements as well as deploy optimization services to their end-user clients. DCOs, also commonly referred to as Central Clearing Counterparties (CCPs) or clearinghouses, will look to deploy optimization capabilities through the use of efficient netting and cross-margining opportunities, as well as through the acceptance of a broader array of collateral types. Finally, the buy side and corporates will be looking for optimization solutions that help to mitigate the increased costs of collateral and manage the complexity of the new collateral marketplace.

To unlock optimization's potential, market participants will look to find robust technological solutions that will be able to track, maximize and prioritize available collateral. But optimization is also about harmonizing processes and reducing the industry's reliance on manual process intervention. Ultimately, optimization techniques cannot reside within a desk, and the technology cannot be treated as a stand-alone. It must become part of the overall trading operations, harnessed holistically, so that it can accurately model enterprise-wide inventory and collateral obligations, and cost effectively deliver it.

Interestingly, collateral optimization in tomorrow's swaps environment will broaden the way we do business. No longer will optimization be the sole purview of the sell-side B/D or FCM. In tomorrow's centrally-cleared trading world, a good deal of optimization's potential will move away from the B/Ds, who have historically controlled portfolio margining services, and migrate to the DCOs, who are already seeing the potential of cross-product margining as a means of reducing the burden of the new collateral regimes and attracting clearing activity.

Likewise, tri-party agreements have the potential to unlock vast amounts of as-yet untapped high-grade collateral. For most, finding tri-party service partners who can facilitate the complex logistical requirements will be very important. After all, it is hard enough gaining visibility into an organization's own collateral infrastructure, but gaining visibility into a partner's infrastructure is even more difficult without the assistance of a strong service provider with superior technology.

In the end, it is DFA and EMIR that are changing the way derivatives will be traded. The vast majority of derivatives activity in the rates, credit, FX and commodity space will migrate away from the bilateral over-the-counter (OTC) arrangements, to a centrally-cleared, exchange-like environment with mandatory collateral requirements. These requirements come in the form of initial margin (IM) and variation margin (VM) obligations.

While DFA and EMIR are the primary drivers behind the looming changes, BASEL III is also playing a role. BASEL III, with its new capital requirements, will further incentivize the use of centrally-cleared derivatives, since the capital charge for bilaterally-negotiated contracts will weigh heavily on bank balance sheets. Dealers will pass these costs on to end-users, who will likely find the charges too high. In short, bilaterally-negotiated contracts may become too expensive to trade. Together, these three pieces of legislation – DFA, EMIR and Basel III – will create a derivatives trading environment dependent upon the availability of high-grade, highly-liquid collateral (see Exhibit 1).

Exhibit 1
Global Regulatory Mandates for Derivatives Trading

Mandate	Regulator	Jurisdiction	Requirement
Dodd Frank Title VII; Rule 731	CFTC SEC	USA (w/global implicaitons)	○ Clearing of swaps through CCP's (w/ available) ○ Collateral Requirements for both OTC & Bilateral swaps ○ 5 & 10 IM for cleared & un-cleared swaps; w/daily mark to market VM requirements
EMIR Rule 103	ESMA	Europe (w/global implications)	○ Similar in nature to Dodd Frank ○ Cover's OTC clearing, collateral, segregation, CCP's, interoperability, etc.
BASEL III	BASEL Committee on Banking Supervision	Global	○ Strengthens banking capital requirements for counterparty credit exposure arising from derivatives, repo's & securities financial transactions ○ Incentives movement of OTCD contracts to CCP's

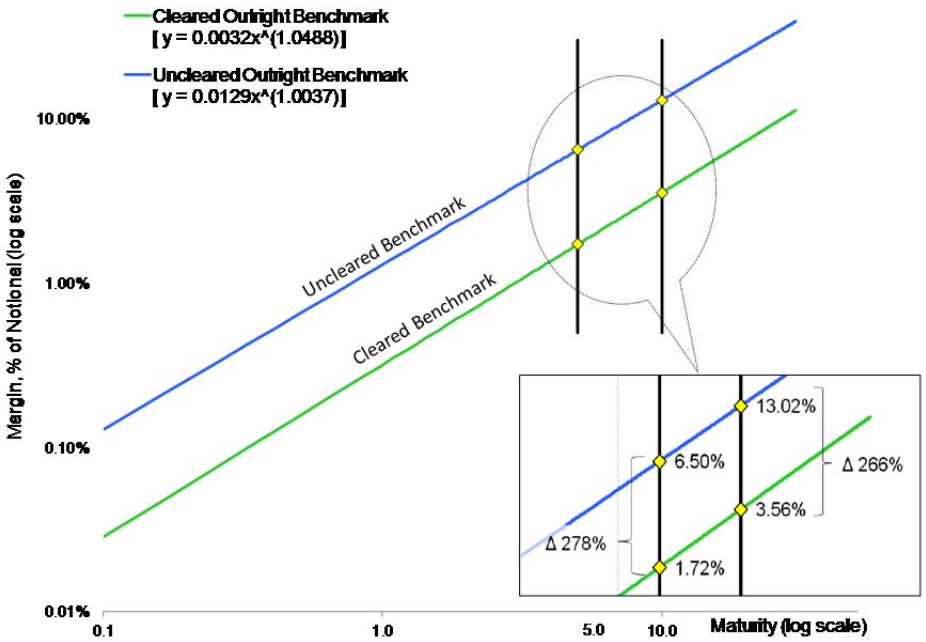
Source: BIS, ISDA, WFE, TABB Group

The Impact of Central Clearing

TABB Group estimates that if every OTC derivatives agreement is fully collateralized, participants will need to find an additional $1.6 trillion to $2.0 trillion in additional collateral to meet the new margin requirements. This estimate, based on data from the Bank for International Settlements, ISDA and the World Federation of Exchanges, is open to varying interpretations; however, the overall assessment is that market participants are going to have to find ways of unlocking a staggering amount of capital. It is equivalent to half the amount of debt that the US government issues in a year and more than twice the amount of debt that the Greek, Irish, Italian, Portuguese, and Spanish governments lent to European banks as per the European Banking Authority 2011 stress tests.

As banks and their trading partners migrate bilateral OTC derivatives agreements managed by the banks to central counterparty margin-based transactions, the amount of margin that entities will need to place will be significant. Depending upon the maturity and the product, anywhere from 1% to 20% of the nominal value of the contract may need to be collected. While that gap may sound like a lot – and it is – the final amount will, however, still be significantly less expensive, once the full capital and margin regimes are implemented, than maintaining these agreements as bilateral. TABB Group estimates that savings from migrating bilateral agreements into a clearinghouse could reduce margin requirements by as much as 10% (see Exhibit 2).

Exhibit 2
Risk and Liquidity Premiums: Cleared vs. Non-cleared Swaps



Source: CME, LCH, TABB Group

Collateral Damage

Margin requirements will hit those firms the hardest that trade derivatives which cannot be offset by the clearing house. An oil driller may want to hedge their future oil production, or a multinational company may wish to hedge their currency exposure. Since both of these firms' hedges offset real-world business risks, they will not have an offsetting oil or currency risk that can be placed in the clearing house. Hence, their cleared exposure would look one-sided and have no margin offset to harvest. A hedge fund, however, looking to capitalize off the price difference of European vs. US oil, may have two offsetting clearable agreements, which would help lower the margin needed on both the long and the short position.

For many buy-side firms, the new collateral requirements will radically change the way in which they invest in swaps, as the collateral implications hit home. For those end-users who can sustain a neutral position, balancing risk through careful application of portfolio management techniques, the collateral implications should be manageable. However, for those who take on directional risk, or whose hedges do not fall into the same clearinghouse, the implications of the new collateral regime will be significant, especially if they use both cleared and un-cleared products. Not only will they be unable to offset risk by netting margin exposures, but regulation will require DCOs and FCMs to collect initial margin to cover at least a 10-day period on un-cleared swaps, compared to five days on centrally-cleared swaps. Regulators have set these levels based upon the amount of time it will take the DCO or FCM to close out a defaulted position.

Insurance companies will also be hit hard by the collateral requirements, which have not been required to post IM or VM in the past. Based upon TABB Group's estimates, current investments, sans-netting, would require insurance companies to post US$10 billion – US$15 billion in initial margin, plus a significant amount of VM based upon the individual investment and the overall condition of the market. Insurance companies, which normally invest in less-liquid, longer-term assets, tend not to keep large amounts of highly-liquid securities on their books. Finding and posting the new margin requirements will mean that they become exposed to significant opportunity costs associated with posting collateral, and the clearing requirement may well require a re-thinking of how they use these types of instruments or what types of assets they keep available to support these types of investments.

The New Playing Field

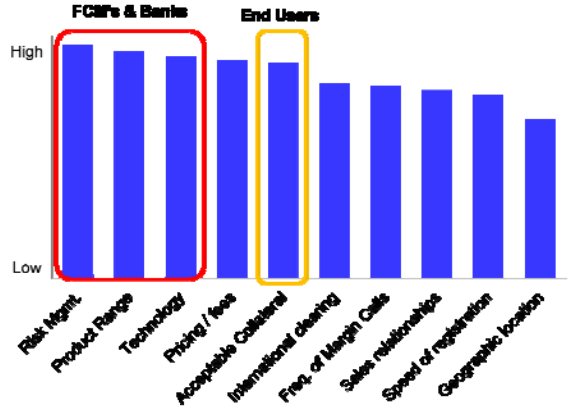
In many respects, DCOs will drive collateral optimization in the future. Clearinghouses recognize the benefits of providing as much collateral relief as possible. The larger the DCO and the more products it accepts and clears with a given participant, the greater the offset capacity.

Historically, the FCMs and prime brokers provided collateral optimization through the use of portfolio margining and portfolio risk management services. These players were well-positioned to assist clients in managing their overall risk profiles because they could see everything 'on the books', which allowed them to efficiently calculate risk based upon the entire portfolio of activity, no matter what the product. However, with derivatives reform, sell-side institutions are no longer in the driver's seat; that responsibility has been transferred to the DCOs.

Unlike the prime brokers of yesterday, DCOs are somewhat removed from the end-users, and their ability to provide direct collateral relief is limited by a lack of visibility into the end-users' overall activities. Individual DCOs can only provide offsets on what they manage and what they see. Unlike the prime brokers, who saw everything, clearinghouses have only limited visibility into the overall positions held by an end-user. Their level of visibility ends at the clearing member. As such, DCOs will be hard-pressed to provide the same level of offsets.

DCOs are acutely aware of this; and to attract end-user flow they need to innovate. Creating market differentiation will be challenging, especially given the limitations DCOs face when it comes to the diversity of services. However, when it comes to differentiation, DCOs are focused on risk management tools, product types and technology (see Exhibit 3).

Exhibit 3
DCO Differentiators Ranked Highest to Lowest Among Swap Participants



Source: TABB Group

When it comes to innovation, clearing houses will need to focus on providing value-add services that will attract end-users to clear with them. Clearinghouses in the US can really only generate income through the fees they collect on clearing swaps. In order to increase that activity, DCOs will look to increase the services they provide around collateral management. Specifically, DCOs will look to:

- Improve operational efficiency by making it easier to post and substitute collateral as required;
- Improve client services through the creation of more touch points;
- Extend the range of acceptable collateral;

- Unify services across multiple products (e.g., rates, credit, fx, etc.);
- Identify and offer cross-product margining opportunities through the use of a single pool system (e.g., single end-users clearing multiple products assigned a single margin call); and
- Improve collateral management through innovation and improved automation.

By developing new models, and expanding acceptable collateral types, clearinghouses can allow users to maximize cross-product margining and collateral offsets. Focusing on these efforts will enable optimization and drive business.

Offsets, Cross-Product and Cross-Asset Margining

DCOs are developing new and effective methods to alleviate the collateral pain. Clearinghouses are going to play an important role in determining how much of the US$1.6 trillion is actually needed, and they will do that through the development of offsets and cross-product portfolio margining. In the end, the ability to generate optimal collateral requirements will be based upon the swaps user's ability to find products, FCMs and clearinghouses that offer the widest possible array of offsetting opportunities.

Portfolio margining allows firms with offsetting risks to offset their margin. For example, given a calendar or credit spread where the firm has taken both a long and a short position on two similar but different products, the long position's margin can be used to offset the margin on the short side. TABB Group estimates that margin offsets from portfolio margining can potentially reduce the amount of margin needed by over 50%.

Portfolio margining will most significantly benefit parties with the largest offsetting risks. This will most likely be dealers who act as market makers and middlemen between end-users, asset managers, insurance companies, and hedge funds. Since under the Volcker Rule (if implemented) banks will not be able to take proprietary positions, banks will not be in the business of taking massive one-sided risks. Because of this, most banks' trading positions should offset, enabling them to gain significant margin relief. Other parties that should gain significant margin relief will be firms whose exposure will be limited to various spread strategies and do not have significant hedged physical or business risks.

Fortunately, DCOs will be able to grant the same type of collateral relief as the primes. However, because individual clearinghouses tend to clear only selected products, their ability to generate collateral relief will be correlated to the amount of open interest and the range of offsetting positions a given party has with a specific house. The broader the range of open interest, the more opportunities a clearinghouse has to deliver collateral relief. Unfortunately, one area where relief will not come is in the area of netting cleared and un-cleared swaps. Thanks to regulatory disagreements in the US between the CFTC and the Prudential Regulators, market participants will be unable to offset the risk profiles of cleared and un-cleared products.

TABB Group estimates that cross-product netting and margin offsets could reduce individual end-user collateral requirements anywhere from 15% to 65%, depending upon market

developments, individual CCP size and the mechanics and usage of collateral optimization (see Exhibit 4).

Exhibit 4
Estimated Collateral Impact of Netting within the Swaps Market

				Estimated Benefit Gained from Netting											Estimated Margin Posted ($Bn)		
				99.5%	95%	85%	75%	65%	55%	45%	35%	25%	15%	0%			
	Gross Notional ($Bn)	Avg. Margin (%)	Gross Margin ($Bn)	Estimated Impact on Initial Margin (in $Bn)											High Offsets	Average Offsets	Low Offsets
Dealers (w/CCP)	$257,000	1.50%	$3,855	$3,836											$19.0	$19.0	$19.0
Other Dealers	$316,000	1.50%	$4,740					$3,081	$2,607	$2,133					$1,659.0	$2,133.0	$2,607.0
Financial Institutions	$62,000	1.50%	$930						$514	$418	$325				$419.0	$512.0	$605.0
Noh Financial End Users	$35,000	1.50%	$525								$184	$131	$79		$341.0	$394.0	$446.0
Total	$670,000		$10,050										Total		$2,438.0	$3,058.0	$3,677.0
													Estimated Current OTCD Margin		$1,340.0	$1,340.0	$1,340.0
													Estimated Margin Shortfall		$1,098.0	$1,718.0	$2,337.0

Source: BIS, ISDA, WFE, TABB Group

In this chart, we break down total notional values in OTC derivatives by key demographic segments. These include dealer exposures cleared through a DCO, dealer exposures that remain uncleared/bilateral, other financial entity exposures (such as insurance companies, asset managers, hedge funds, or non-dealer banks), and non-financial end-users like corporations. From there we apply an approximate average initial margin rate of 1.5% to these notional breakdowns. The resulting figures are the gross margin estimates for each demographic segment. Next, we estimate the amount of margin relief that is available to each segment through netting of exposures. The cleared segment receives the greatest level of margin offsets (99.5%) and the non-financial end-user segment receives the least (15%-35%). When we subtract the margin relief estimate from the gross margin estimate for each segment, we arrive at the net margin estimate. The sum of these net margin estimates less the estimated margin posted already is what gives us our total margin shortfall estimate for global OTC derivatives.

Standing Out from the Crowd

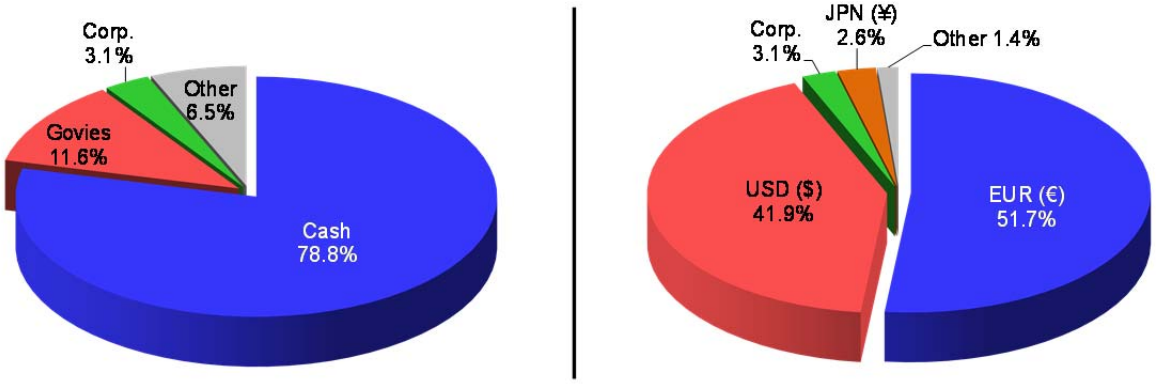
DCOs recognize that to consolidate their position as a leading player, they have to do whatever they can to differentiate their service offerings. This means that they will need to create service offerings and pricing incentives that will attract end-users to clear with them.

They are expanding the collateral horizon, allowing new forms of collateral (including historically unsupportable assets) to be used to secure positions for the future. Acceptable collateral varies according to the clearinghouse in question, but can include: cash, T-Bills, US & EU agency-related debt, selected mortgage-backed securities (MBS), letters of credit, gold, blue chip stocks, selected investment-grade debt, selected foreign sovereign debt and other specialized assets. Haircuts are set by each individual clearinghouse and can vary depending upon market conditions.

Because of the existing market structure and the reliance upon threshold variation margin, as opposed to IM and daily mark-to-market VM, most swaps participants have used cash as

collateral. It is easy to get hold of, is highly liquid, and the logistics associated with moving cash are simple and well understood. Currently, the majority of swaps participants are using US$ and EUR €s as the primary asset to secure swap transactions. Of the US$1.6 trillion in collateral that is sitting on the books with global custodians and FCMs, approximately US$1.25 trillion is supported by dollars, euros, yen and sterling (see Exhibits 5 & 6)

Exhibits 5 & 6
Current Breakdown of OTC Collateral Allocations / Breakdown of Allocated Cash Collateral



Source: ISDA

Corporate end-users such as insurance companies are very excited about the expansion of acceptable collateral, especially when it comes to accepting corporate bonds; other players are less excited about corporate bonds, but are pleased that DCOs are looking to expand the world of acceptable collateral – even if that comes with a 20% haircut.

A prime example of this type of innovation can be seen in CME's announcement on accepting corporate bonds. CME will allow clearing members to post up to US$3 billion in high-grade corporates, totaling a combined collateral pool of up to $48 billion. Some have complained that the clearing-member limit is too small and that the corporates come with a 20% haircut and the inherent risk of unplanned-for margin calls in the event of collateral downgrades. The CME counters this by noting that the use of high-grade corporates will effectively unlock approximately $1.2 trillion of as-yet untapped collateral resources.

On the positive side, DCO innovations along the lines of the CME's decision to accept high-grade corporate bonds, as well as selective high-grade mortgage-backed securities (MBS), including agency MBS and agency debentures as collateral, will play well with those holding these securities. Corporate players tend to have greater access to these types of securities, and the CME's decision to allow clearing members to post up to US$3 billion in corporate collateral will cover approximately $1 trillion in notional value.

Collateral Casualties: Hypothecation & Portfolio Margining

With paradigm shifts come paradigm casualties, i.e., those who are caught on the wrong side of the 'knife's edge'. One of the more striking casualties of the post-DFA collateral environment will be rehypothecation in the US, and its resulting impact on collateral velocity. Prior to DFA, rehypothecation, or the re-use of pledged assets that have been posted as collateral by a bank or a broker, was a fairly common practice. Rehypothecation represented a 'win/win/win' scenario for the industry by:

- Enabling clearing participants to lower their costs through rebates by allowing rehypothecation;
- Enabling B/Ds to generate additional returns through the lending of the pledged assets; and
- Increasing global liquidity and lowering the overall cost of collateral through the re-introduction of 'fallow' or dormant assets back into the marketplace.

However, following the 2008 meltdown, US regulators re-examined the 'win/win/win' scenario and determined that DCO rehypothecation was just too risky. According to regulators, DCO rehypothecation increases collateral velocity and adds to systemic risk through increased leveraging. Regulators reasoned that allowing US-based DCOs to rehypothecate would undermine both the financial stability and the perception of security that DCOs offer. For DCOs to work, clearing members have to have confidence that DCOs can in fact mutualize risk and that if a failure occurs, they have the resources necessary to step in. Allowing DCOs to 'leverage up' through rehypothecation undermines both that ability and that belief, and therefore it is deemed unsuitable in the US. It should, however, be mentioned that while the US and DFA forbid DCO rehypothecation, EMIR does not.

While it is too early to determine the overall impact that rehypothecation limits will have on the markets, most expect that it will negatively impact collateral availability. By eliminating the reuse of DCO pledged collateral; regulators are shrinking the available pool of 'good' collateral and thus raising its price.

Another collateral casualty in the reform effort is sell-side portfolio margining. Historically the purview of the sell-side broker/dealer, portfolio margining has been an important tool within the B/D's service offering. Uniquely positioned, the B/D had unparalleled transparency into an entire end-user's book of business, and with the use of portfolio margining services, was able to deliver significant risk mitigation and collateral relief.

Historically the purview of the sell-side B/D, DCOs are now getting into the portfolio margining picture. DCOs are using portfolio margining to develop market differentiation and attract new clearing customers by offering offsets and cost reductions. DCOs that offer the best portfolio margining solutions with the greatest levels of offsets will attract the most business.

Optimization Technologies

Creating a collateral optimization program requires that the user – be it sell-side or buy-side – be able to identify, track, distribute, and manage both its existing collateral requirements and collateral reserves. At its core is the inherent understanding that not all collateral is created equally. Furthermore, participants who use optimization strategies will strive to hold onto their highest quality collateral for as long as possible. Delivering less qualified, but equally acceptable collateral, whenever and wherever possible is the goal.

As we transition into the post DFA/EMIR trading environment, understanding what constitutes acceptable collateral versus unacceptable collateral will become more challenging, especially for the larger players. Historically, while collateral management has been an automated process, it involved a considerable degree of manual intervention. As participants transition to a central clearing model, larger participants will need to either develop more robust automation to manage the multiple margin calls they will receive on a daily basis, or purchase optimization software or services to help manage the process. This is especially true for major market participants, including FCMs, large B/Ds and major swaps participants (MSPs) who will most assuredly face multiple DCO margin calls on a daily basis. This increase in complexity has been characterized as 'staggering' by one market professional who indicated that unless they optimize their collateral management, they will never be able to handle all of the complexity that surrounds collateral messaging and movement.

To create an optimization program, participants need to buy, build or acquire the necessary technology or services that will allow for the efficient use and allocation of collateral on an enterprise-wide scale. For it to be effective, collateral has to transition from a line-of-business resource, to an institutional resource; one that is managed with as much care as the overall balance sheet. Best practices call for the creation of a single front office group to manage all collateral activity. Often labeled either a 'collateral trading group' or 'collateral front office group', these departments will have overall responsibility for managing all of the participant's collateral and collateral obligations. Their role will be to gain 100% transparency into how collateral is managed, manipulated, delivered and obligated across all cash and non-cash operations.

In addition to creating a centralized front office group, swap participants who are looking to optimize their collateral will need to define all of their collateral, from best to worst, and determine which collateral they want to use and which they want to hold back. Since cash is king, it is never advisable to give it away when a lesser quality asset will do. Other forms of collateral, such as T-Bills and corporate bonds, may come at a haircut, but the discount may yet be preferable to the choice of relinquishing cash.

There is a broad range of collateral optimization technologies that exist within today's market environment, including most of the usual risk and technology suspects who provide purpose-built enterprise optimization platforms. There are four basic elements that comprise a collateral optimization technology platform:

- **Collateral Tracking** identifies, locates, defines, and prioritizes all available collateral on an enterprise-wide basis;
- **The Rules Engine** identifies and defines existing collateral obligations, including limits, restrictions, priorities, and substitutions; ranks collateral types and tracks individual FCM/DCO restrictions, haircuts and limits;
- **An Optimization Engine** is an algorithm that manages the day-to-day allocation of collateral across the enterprise; calculating available collateral, identifying and prioritizing collateral substitutions and assisting traders in identifying the least universal collateral and allocating it to the most pressing need, thus enabling optimal trading decisions that will generate alpha and reduce opportunity cost;
- **The Simulation Engine** allows users to model future growth as well as model changing collateral landscapes.

These systems require constant upkeep. Users will have to continually maintain the data that drives these engines. This is not an easy task, as it involves integrating multiple sources of structured, semi-structured and unstructured data into a single platform. Specifically, optimization engines need to track all trading activity that involves collateral movement (structured data). Similarly, they need to understand what type of assets are available at any given time and where those assets are located, what their event horizon looks like including, such elements as expirations, obligations, and changes in value (semi-structured data). These systems need to be able to send and receive movement and confirmation messages, which are completely unstructured and often involve e-mail and faxed information (semi-structured and unstructured data). Finally, they need to integrate completely unstructured data such as DCO collateral acceptability rosters, and haircut information that is disseminated in constantly changing formats. While these systems hold out great promise, they require deft programming to ensure that they are properly configured. Sloppy configuration will result in significantly degraded performance, resulting in computational times that render the platform useless (e.g., linear increases versus exponential increase in time).

The vast majority of buy-side firms will not have the budget to buy optimization technologies. Only the largest asset managers and hedge funds will be able to buy or white-label such technologies. Sell-side firms, such as FCMs and custodians who have not built their own in-house systems may also look to third-party providers. Meanwhile, to attract customers, DCOs will need to invest in new technologies that both enable their clearing members to access the DCO with greater efficiency as well facilitate the optimization tools they have deployed.

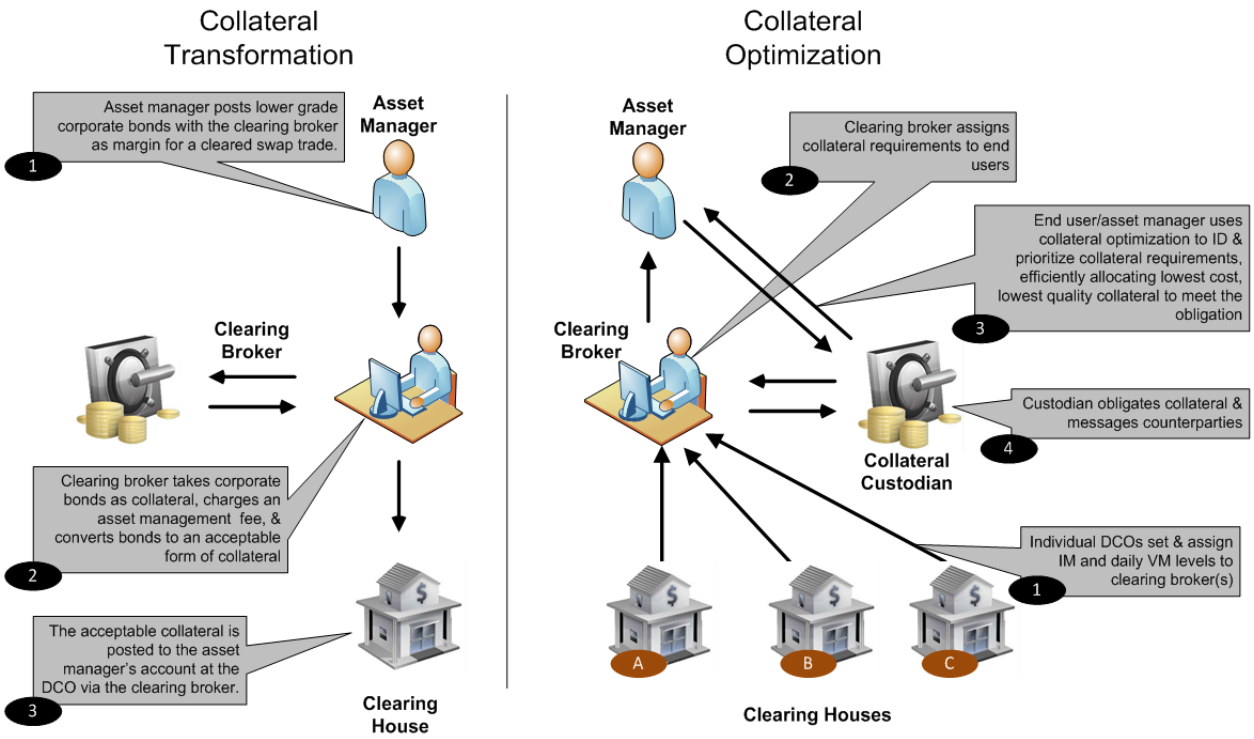
Optimization Services

The majority of the investment community will look to their FCMs, prime brokers and custodians to provide service-oriented solutions, which will focus on facilitating new ways of upgrading existing lower-quality collateral into higher-quality collateral that can and will be accepted.

In its most basic form, this is known as margin financing. Margin financing is nothing new; hedge funds and directional position takers have been managing collateral requirements to secure their positions for a long time. As a result, several leading investment banks have in-house systems specifically designed to reduce the collateral burden. This has been a competitive differentiator and a key to winning hedge fund trading flow and market share in the prime brokerage space, so investment banks in this space are well versed in the art of collateral management and optimization.

Margin financing is generally defined as a broker posting margin at a clearinghouse for a client in the form of a loan. These loans can be both secured and unsecured. Secured margin financing is also referred to as collateral transformation or collateral upgrade. This process requires the client to post non-cash financial assets (assets that are not acceptable clearinghouse margin) with their broker who, in turn, posts the cash margin at the clearinghouse. This process is very similar to a typical repo transaction (see Exhibit 7).

Exhibits 7
Collateral Transformation versus Collateral Optimization



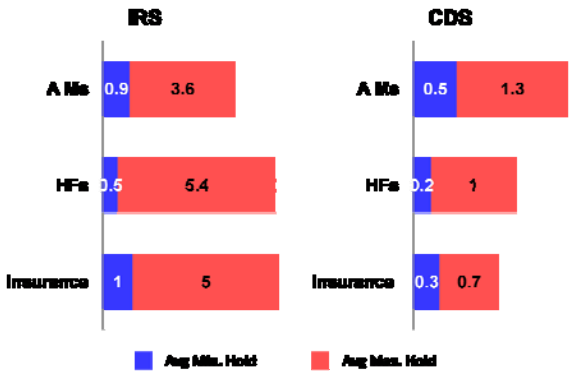
Source: TABB Group

Historically, FCMs and prime brokers have provided collateral transformation services to hedge funds for a 'de minimis' fee. Many assumed that they would do the same for the new, centrally-cleared derivatives markets. It was hoped that dealers might be able to help mitigate the loss of netting benefits for portfolios that become partially cleared, look at the total positions held in the buy-side portfolio and determine the appropriate collateral level required. If clearinghouse margin requirements are higher, the prime broker would make up

the difference by lowering collateral requirements on bilateral trades or via a suitable financing mechanism.

But this hope has not manifested itself. First, it remains unclear to what extent regulators will allow this kind of portfolio margining. Second, since DCOs have started to accept a broader array of securities as collateral, the need for transformation services has been somewhat mitigated. Finally, while swaps and futures may share certain characteristics, they are different products, with different life cycles. As an example, the average hold time for an IRS can range from 6 months to more than 5 years; while the average hold time for a CDS product can range from three months to 15 months (see Exhibit 8).

Exhibit 8
Minimum & Maximum Hold Times for IRS & CDS Products



Source: TABB Group

Dealers are concerned about the increased risk associated with the size and duration of these agreements. Under the weight of Basel III, many bank balance sheets are too weak to sustain significant transformational activities, except in cases involving a bank's most important customers; and then only on a limited basis.

Welcome to the Tri-party

To offset the limited availability of transformational services to the market, sell-side brokers are actively exploring other options for unlocking high-grade collateral. Specifically, tri-party collateral agreements allow counterparties to partner with each other, while not having to put their balance sheet on the line. Sell-side firms will be looking to connect their clients with new sources of collateral, sources that have historically not needed or wanted to use their assets to fund these types of investments. Cash-rich corporates like Apple, Microsoft and others that are unsure of the best ways to achieve better returns, may be useful suppliers of collateral to the investment management community.

Swaps participants will need to engage their brokers and corporate bankers to find the right collateral counterparty. When it comes to the mechanics of the trade, participants have a number of options, but they should look to structure their tri-party agreement along the lines of a tri-party pledge agreement versus a tri-party title transfer agreement, as a pledge agreement may mitigate some of the legal and bankruptcy risks that could result from a default. The reason for this is that unlike a transfer agreement, where the title of the collateral in question is actually transferred to the recipient, in a pledge agreement, the collateral in question is merely obligated, and thus the recipient has rights but not explicit ownership of the asset. This mitigates some of the bankruptcy risks associated with a

default, which as we learned in the case of Lehman Brothers and MF Global, can be considerable.

DCOs and settlement houses are also developing tri-party solutions that help match collateral-providers and collateral-takers. These solutions are based upon a broad offering of technology and services designed to provide participants with collateral transparency and the necessary flexibility to identify and obtain readily available assets which can be used as collateral. The technology works by syndicating information gained from participating banks and analyzing that information, along with pre-programmed eligibility rules, haircut information, restriction and limitation data across all of the acceptable forms of collateral that exist within the marketplace. These systems can then identify and match potential collateral-seekers and collateral-providers. Initially the system was designed around a niche need; however, with the implementation of DFA and EMIR, the service provider is looking to expand the offering to meet fresh global demand. However, expanding these types of offerings is tricky and requires considerable technological investments. More participants equal more data, and more data equates to greater complexity.

Conclusion

For market participants looking to succeed in tomorrow's post DFA/EMIR world, managing collateral and overcoming the impacts of the upcoming collateral scarcity crisis will be of paramount importance. The structural changes enabled by DFA and EMIR are game-changing; and the new collateral requirements that both reform packages usher in will require market participants to 'get smart' fast. Finding and delivering top-quality collateral for the lowest price will be instrumental for firms looking to maintain their position within the derivatives marketplace. For those firms that are able to rapidly adjust to the new operating models, opportunity awaits; for those firms that fail to adjust, the consequences may be dire. In any case, TABB Group assesses that the impact on product selection (i.e., exotics vs. vanilla swaps vs. ETD vs. etc.) will be significantly impacted as a result of new margin requirements that accompany central clearing of these products.

For the firms that participate directly in the $700 trillion swaps market, finding new ways to unlock the $1.6 trillion to $2.0 trillion in collateral shortfalls we expect to encounter is one of the most compelling challenges they will face. Those looking to their FCMs and B/Ds for transformational services will most likely be disappointed, as sell-side institutions will be unwilling to accept the risk associated with massive collateral transformation. Participants are going to have to rely upon new and innovative approaches to meet the changes that are coming. Collateral optimization will be a key component in achieving that goal.

In concept, collateral optimization is relatively simple: deliver the lowest grade and least expensive form of acceptable collateral in a timely fashion across an entire institution, no matter what the class, geography or requirement. However, while the concept may be simple, the application of that concept in the face of the changes that are coming is exceptionally complex. That will be especially true for those firms that trade multiple products within multiple asset classes across multiple geographies that clear on multiple clearinghouses.

From a technological standpoint, collateral optimization requires cutting-edge technology to identify, prioritize and deliver the lowest grade of acceptable collateral across an entire organization. From an organizational standpoint, it requires significant process harmonization and improvement across organizational elements that have existed in operationally and geographically separated silos that have paid minimal attention to collateral management in the past. Those days are toast.

While technology is an important component of the solution, it cannot make up for the looming collateral shortfall on its own. Participants are going to have to re-imagine and re-engineer the way in which they look at collateral within the swaps world. No longer will most participants be able to trade swaps without significant collateral obligations, and while cash is still king when it comes to collateral, the looming collateral shortfall and recent DCO collateral innovation efforts will force players to use other types of assets, including high-grade corporate bonds, gold, G-7 paper and US Government T-bills to meet their obligations. For some end-users, finding these types of assets will not be a problem; however, for others, tri-party agreements may hold the key to unlocking new sources of

high-grade collateral. However for tri-party agreements and service providers to fulfill their promise, participating members will need to invest in new and improved technologies that will help streamline this otherwise cumbersome process. Without improvements to the existing technology base, tri-party service providers will find it difficult to 'keep up' with the new normal, as their systems were never designed to meet the new mandates, such as T+0 collateral delivery requirements or multiple daily margin calls from multiple DCOs.

While this innovation is great news for many, including a good many end-users who will face monumental changes when it comes to margin requirements, it will require participants to either invest in collateral management and optimization or get out of the market. No longer will FCMs, swaps dealers and end-users be able to rely upon older technologies that require significant and time-consuming manual intervention to manage their margin calls and collateral requirements. In short, an operational efficiency upgrade is sorely needed.

In the end, collateral complexity will become increasingly more important as new forms of acceptable collateral are used to meet multiple clearinghouse-imposed daily margin calls; effective collateral management will require strong optimization capabilities. And while it is too early to determine with any degree of precision where or how market participants will unlock the trillions of dollars in additional collateral that will be needed to meet these new obligations, everyone agrees that optimization will play a key role in ensuring that today's participants can continue to play in tomorrow's global risk transfer market .

About

TABB Group

TABB Group is a financial markets research and strategic advisory firm focused exclusively on capital markets. Founded in 2003 and based on the methodology of "first-person knowledge," TABB Group analyzes and quantifies the investing value chain from the fiduciary, investment manager, broker, exchange and custodian. Our goal is to help senior business leaders gain a truer understanding of financial markets issues and trends so they can grow their businesses. TABB Group members are regularly cited in the press and speak at industry conferences. For more information about TABB Group, go to www.tabbgroup.com.

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Alexander Tabb is a Partner at TABB Group and runs TABB Group's operational consulting services that focus on providing pragmatic solutions to operational challenges within the financial services vertical. Alex joined TABB in May 2004 from Kroll Inc. where he served as an Associate Managing Director in their Security Services Group. Alex served as the Group's executive officer and assisted leadership by running many of the day–to-day functions within the organization, including product delivery. Prior to joining Kroll, Alex served as a Foreign Service Officer with the US Department of State. Alex served as an Economics and Commercial Officer in Lusaka, Zambia and Dar es Salaam, Tanzania, as well as being a member of the US Mission to the United Nations.

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