Woodbine Associates

Capital Markets Consulting

The Fast Track to Central Clearing

And

Optimal Margin Management

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I. Are You Ready to Clear?

Category Two firms must move swiftly to finalize central clearing arrangements before the rapidly approaching June 10th deadline.

Waiting is not an option.

Firms that fail to complete arrangements with FCM, CCP, and vendor partners will not be able to trade swaps. This will restrict trading, hedging, and have a material impact on day-to-day business.

Asset managers must move swiftly and decisively to avoid potential last-minute bottlenecks and complications.

With less than four weeks until swap clearing becomes mandatory for Category Two firms, many have yet to finalize their central clearing arrangements. As this deadline draws near, firms unnecessarily risk their ability to trade through inaction and delays in account registration and onboarding with CCPs and FCMs. They also face potentially costly and disruptive operational deficiencies that can only be identified and addressed through thorough systems testing with live transactions.

Firms choosing to wait until the last minute may find selected FCMs unable to process and onboard their accounts due to anticipated industry-wide capacity constraints during the final weeks/days leading up to the June 10 deadline and thereafter. This risk is entirely unnecessary.

Regulation governing swap clearing has been finalized for quite some time and is not going to change.

The lessons that have been learned from early adopters and Category One firms have led to refinements with CCP, FCM and vendor services. External operational issues have been resolved, leaving the onus on Category Two firms to get on board and test their internal systems and connectivity.

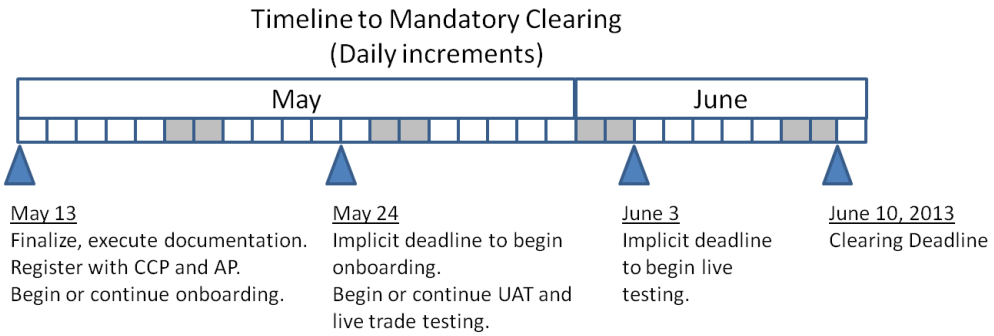
Once readiness is completed, firms can move forward to establish optimal margin management capabilities within their organization. This will enhance their ability to reduce costs, increase operational efficiency and manage risk more effectively.

Excuses and delay will be costly. It is time to get on track.

II. Fast Track to Central Clearing

Category Two firms need to assess the progress in their preparations. Management must identify outstanding tasks and allocate time and resources to complete them prior to the deadline. The deadline for completion – not initiation – is June 10, 2013. Firms must cross that finish line with onboarding, testing and problems fully resolved.

The timeline below illustrates critical deadlines firms must comply with to ensure readiness and avoid potential disruptions to trading and hedging activities with affected interest rate and credit default swaps.



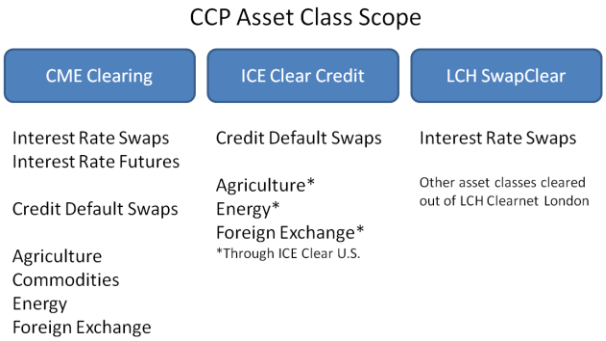
Asset managers need to take a focused and well-designed approach in making arrangements for swap clearing. The steps that need to be taken from beginning to end are:

- CCP Selection
- FCM Selection and Documentation
- Middleware Selection and Implementation
- FCM Onboarding
- System Testing

Selecting the CCP, FCM and affirmation platform best aligned with current and future business needs will ensure that firms have optimal capabilities under the new framework. Executing required documentation and integrating technology are necessary next steps that must be taken so that firms can begin FCM onboarding and testing processes. Operational and system testing with live transactions must be conducted to identify and resolve issues and shortcomings.

CCP Selection

CCP relationships play an important role in future business capabilities of Category Two firms. The primary criteria for CCP selection include: product scope, margin efficiency, risk management and cost. Other factors, such as jurisdiction and location may also be relevant. Firms should examine CCPs in the context of expected trading and hedging requirements and will want to position themselves with the flexibility to adapt to a rapidly evolving OTC



derivative market structure.

The product scope offered by CCPs dictates which products can be cleared and the potential netting benefits available. Firms should select CCPs that meet current product, currency, and asset class requirements. This will allow for position consolidation at the fewest number of CCPs and provide the greatest potential for realizing the benefits of risk netting.

Margin efficiency and netting will be key factors affecting the all-in cost of derivative transactions. Gross and net initial margin ("IM") requirements as well as portfolio margining will be key considerations for many firms, particularly those with offsetting risk in cleared swaps and futures contracts.

CCP risk management, including clearinghouse capital structure, membership composition, default waterfall and margin methodology are all factors that should be considered by potential customers. They not only have a direct effect of the financial guarantee provided by a CCP but also play a significant role determining initial margin requirements, FCM capital requirements, and clearing costs.

Portfolio Margining

Interest rates: portfolio margining is currently available at CME Clearing for centrally cleared interest rate swaps, Eurodollar futures, Deliverable Swap Futures, Treasury futures and options and Eris futures contracts.

Credit: portfolio margining for index versus single-name CDS is not available to customer accounts at ICE Clear Credit or CME Clearing due to SEC margin requirements that make margin offsetting in these instruments prohibitively inefficient.

While the operational cost of clearing is low across CCPs, other factors play a greater role in determining customer costs. These include FCM clearing costs and CCP collateral requirements. As mentioned earlier, FCM clearing costs are CCP-specific and a function of credit extension and capital requirements. Both are directly related to the CCP risk structure and required (as well as contingent) default fund contributions. Furthermore, CCP collateral schedules outlining acceptable types and applicable haircuts will affect customer margin costs and funding requirements.

Asset managers must execute documentation to register with each CCP. This is typically completed in conjunction with FCM requirements. CCP Documentation requirements vary by clearing house so firms should be cognizant of the required time and resource commitment to review and approve pertinent contracts. Firms that do not have futures clearing arrangements in place should take the opportunity to implement them at this juncture.

FCM Selection and Documentation

FCMs are key service provider for centrally cleared swaps, futures and options. In addition to their role in managing margin and providing credit enhancement for clearing customers, they can play a major role in financing collateral and sourcing liquidity in the markets. Asset managers should evaluate FCMs based on current and future business needs, existing relationships (for both listed and OTC products),

credit quality, portfolio of services offered and cost. Firms need multiple (minimum of two) FCMs at each CCP to ensure seamless trade portability in the event of a FCM default.

Negotiating specific terms for FCM clearing agreements has been a stumbling block that has delayed onboarding for many firms. Asset managers must wrap-up negotiations, finalize terms and conditions, and execute agreements. Firms late to the process may be forced to accept terms dictated by available FCMs in the interest of securing arrangements. This may be unavoidable in the last minute scramble to finalize arrangements for firms wishing to clear swaps.

Negotiating Documents

The document negotiation period is essentially over. Firms beginning or early in the process have zero leverage negotiating with FCMs and need to sign documents and begin onboarding. FCMs lack sufficient legal capacity and resources for new or prolonged negotiations with potential clients and are focusing their efforts on their most valued relationships. Firms that are not among those targeted are likely to be forced to accept boiler plate terms and may experience difficulty finding a FCM to take them.

FCM documentation consists of three main agreements:

- FCM Clearing Agreement
- FIA-ISDA Cleared Derivatives Addendum
- FIA-ISDA Cleared Derivatives Execution Agreement

The FCM Clearing Agreement is typically the base agreement used for listed futures and options which outlines general terms of the relationship. The FIA-ISDA Cleared Derivatives Addendum supplements the Clearing Agreement with provisions for cleared swaps and addresses the treatment of customer collateral, close-out procedures and methodology, triggers for liquidating trades and other related provisions. The FIA-ISDA Cleared Derivatives Execution Agreement details the procedures for trades submitted for clearing and each party's obligations if a trade is not accepted for clearing.

Firms need to execute these agreements as soon as possible so that they can move forward with onboarding and testing.

Middleware Selection and Implementation

Middleware technology applications play an integral role in the new workflow for centrally cleared swaps. They provide connectivity and data transmission between CCPs, FCMs, execution venues, data repositories and clearing customers.

Affirmation platforms ("APs") are the essential component needed for connectivity and communication with the FCM and CCP from the point of execution through acceptance for clearing at the CCP. After a trade is executed, the AP handles communication between the asset manager and its FCM and between the FCM and CCP as the trade is confirmed, submitted and accepted for clearing. Asset managers can select from three primary affirmation platforms: Markit SERV (Markit Wire), Bloomberg VCON or ICE

Link. They may also utilize venue-based platforms, such as those provided by MarketAxess and TradeWeb.

Affirmation platforms must be integrated and tested with internal and external counterparty systems to ensure accurate and timely communications required for centrally cleared swaps. Account mapping is the most critical function that must be seamlessly integrated with the platform(s) used. Asset managers need to ensure that internal funds and accounts are mapped correctly with executing brokers, FCMs, and CCPs in order for a transaction to clear. Once relationship matrixes are mapped, they should be thoroughly tested across multiple trade, product and executing broker configurations.

Other middleware applications include those used for trade allocations and margin messaging. Allocations may be directed through the affirmation platform prior to clearing or may be done after a trade is accepted. Electronic margin messaging between the asset manager and FCM can significantly enhance margin call management and increase the degree of automation processing cleared swaps. Asset managers should consider messaging applications, such as that provided by vendor AcadiaSoft, which allow for automated margin communication between internal collateral management systems and the FCM.

FCM Onboarding

Customer onboarding and testing is the most time-critical element to address in establishing new clearing arrangements. Onboarding involves: account creation at the CCP and FCM, customer and FCM systems set-up, middleware set-up and establishing connectivity. Customer firms must set-up static data "feeds", modify internal systems and back office processing and adjust workflows to include FCM margin calls and daily collateral management.

Lessons Learned

"It will take longer than you think."

These lessons come from early adopters and other Category One & Two firms that have completed onboarding and testing.

Under normal circumstances, onboarding and testing takes from 6 to 12 weeks. With full commitment from internal resources and FCM and AP coordination, firms should be able to complete the process in 1 to 3 weeks. This assumes there are no significant complications or technology related issues.

Asset managers must establish segregated accounts with FCMs and CCPs for cleared futures and swap transactions. Traditional futures accounts "4(d)" are required to hold margin for listed futures and options contracts including Deliverable Swap Futures and Eris Futures contracts, credit futures, Eurodollar, Treasury and other contracts. Cleared swap margin must be held in 4(d)(f) cleared swap (i.e.: LSOC) accounts. These accounts provide enhanced customer protection and trade portability in the event of a FCM default. Futures positions are moved into cleared swap accounts and margined together to net offsetting risk between the products through portfolio margining.

The establishment of seamless connectivity is a critical element of the onboarding process. Required connectivity includes connection to FCM systems for margin management, connection to CCP margin models for initial and variation margin management and integration between internal systems and APs. In most cases integration requires multi-level mapping between internal funds and accounts (by legal entity), executing brokers, FCMs and AP to ensure that trades are affirmed accurately to the CCP.

Lessons Learned

System integration and legal-entity mapping is a messy process. Internal accounts, sub-accounts and funds trading various currencies and products with differing executing brokers create a spider web of connectivity.

Multi-level affirmation platform mapping is necessary for many firms and is more complex and error prone than many anticipate.

While APs claim short turnaround cycles for new customer registration and account set-up (as little as two days), these are not likely to be available as APs experience increased demand approaching the June 10th deadline.

Testing

Testing internal systems, affirmation platforms and external connectivity with FCMs and CCPs is critical.

Initial testing must take place in a User Acceptance Testing ("UAT") environment while subsequent verification is made through ongoing live production testing of actual transactions.

Thorough testing in the UAT environment is necessary to ensure seamless integration between internal systems, affirmation platforms and FCM clearing systems. Areas that firms should focus on during this testing include: trade capture, affirmation, initial margining, allocations, margin calls and end-of-day processing. Each of these areas needs to be tested and evaluated to ensure that the new operational workflow operates smoothly and is fully integrated with external vendor and FCM systems.

Once UAT is completed, it is critical for firms to "test the pipes" with multiple live trades (preferably ongoing production testing with a variety of trades) to fully validate system readiness. Many asset managers have identified problems and issues with live production tests that were not apparent in UAT trials. In many instances issues arose with trade affirmation, account mapping and data integration. To best identify potential issues, live trade testing should be conducted across each product, asset class, region, account, executing broker, FCM and CCP. This validates correct counterparty mapping across the myriad of potential trading scenarios. In addition, firms should actively enter and unwind trades, verify margin, ensure trades are netted down properly, and download static data and end of day reports.

Lessons Learned

Live production testing is the only true way to evaluate system readiness. Firms observed extremely high fail rates among certain affirmation platforms that were only identified through live market transactions. Firms should not assume their systems work without error until validated by multiple ongoing live transactions.

This point cannot be over-stressed: *firms need to be actively clearing on a daily basis to truly test their systems.*

A common area of operational failure for many asset managers has been incomplete or inadequate integration between the firm's internal trading systems and its affirmation platform. Connectivity issues arising from incongruent or inconsistent data field mapping between the two systems has led to connectivity problems between the asset manager and the FCM. Thorough testing at the earliest possible time is critical to the identification of connectivity problems between internal systems and affirmation platforms and to identify and correct outstanding issues.

III. Establishing an Optimal Margin Management Framework

Firms that have completed onboarding and are actively clearing swaps are positioned to look more thoroughly at cost management and efficiency. This includes managing costs around strategies and capabilities coincident with swap trading and clearing. Many firms will need to adapt business practices and enhance operational infrastructure to achieve optimal performance in the new centrally cleared market structure. Firms seeking to increase operational efficiency and to minimize costs will need to augment margin management capabilities and practices.

An optimal margin management framework encapsulates several key features:

- Capital Efficiency
- Margin Analytics
- Real Time Capabilities
- Automation and STP
- Collateral Management
- Integrated Risk Management

Embedding these features and enhancing capabilities is the gateway to more efficient and cost effective trading, processing, and risk management practices.

Capital Efficiency

Capital efficiency and minimization of initial margin for centrally cleared transactions will be an industry wide focus for the foreseeable future. Firms will seek ways to reduce margin through increased netting and by trading the most capital efficient products.

Portfolio Margining

Portfolio margining between cleared swaps, futures, options and cash securities will be an integral method for firms to reduce margin related costs.

In the interest rate markets, the opportunity exists for significant margin efficiency with offsetting risk for firms trading swaps and futures contracts. Asset managers clearing at CME Clearing can take advantage of portfolio margining across a myriad of products including cleared swaps, Eurodollar futures and options, Treasury futures and options, Deliverable Swap Futures, Eris Standard and Eris Flex contracts. Asset managers with offsetting risk among these products can derive significant reductions in IM through portfolio margining.

In the credit markets, initial efforts to offer portfolio margining to customer accounts for clearing single name and index CDS have not been successful due to SEC requirements. The Commission has set customer requirements for IM that negate any meaningful benefit derived from margining the two products together. Notwithstanding, proposed initiatives to launch credit futures contracts, if successful, could lead to portfolio margining opportunities in this asset class.

Product Selection: Futures vs. Swaps

Margin efficiency is also achievable through the product selected for hedging or trading. Futures contracts require lower initial margin compared with cleared swaps. This is due to the shorter liquidation period required by regulators in calculating IM requirements for futures contracts (minimum 1-day VAR) versus swaps (minimum 5-day VAR). The resulting capital and cost advantage for risk equivalent products provides compelling economic incentive for firms to trade futures which has the potential to significantly alter market liquidity in their favor. Furthermore, futures contracts are less expensive to clear in terms of FCM clearing fees. Futures are not subject to the same guarantee fund fees (typically 20bp to 40bp of net IM) and operational cost (est. $250 to $500 per ticket) faced with cleared swaps. Both of these factors should compel firms to increasingly use risk equivalent standardized products for risk transfer in favor of more expensive customized products.

Lessons Learned

Clearing swaps is expensive. In most cases the cost of clearing an interest rate swap is 2.5x to 3x that of a risk equivalent futures contract.

Margin Analytics

Firms will need to evaluate the full slate of products available to transfer risk as markets evolve and firms adapt to the new regulatory framework. Products available for risk transfer include: cash securities, listed futures and options, swap futures, cleared swaps and bilateral swaps. Each product has different risk, execution and cost characteristics. Operational and capital costs that were previously inconsequential, will, in some instances, become significant contributors to the all-in cost of a

transaction. These costs will impact trading and hedging, product selection and liquidity distribution among products with similar risk characteristics.

Analytics will play an important role in evaluating the attractiveness of different trading and hedging opportunities and selection of the most effective product to trade. Margin analytics will play a key and immediate role in this process. Firms will need to replicate, validate and forecast CCP and FCM margin calculations on a real-time basis to evaluate the impact of new trades and market changes on existing portfolios. FCM requirements must be validated and reconciled against CCP requirements to ensure accuracy and determine excess margin amounts held at the FCM or CCP. Pre-trade analysis of the incremental cost of available trading alternatives, including the product, CCP, FCM and counterparty will be required to determine the all-in-cost of a transaction.

A further challenge facing firms with multiple FCM and CCP relationships is generating and evaluating incremental margin requirements for new transactions on a consolidated basis that looks across the portfolios held by each of these entities.

Real Time Capabilities

Real time margin management and intra-day collateral transfer have been commonplace for futures for quite a while. These capabilities will now be required for cleared swaps. This may result in significantly larger net cleared risk positions and create substantial intra-day funding requirements.

Firms must ensure operational systems for margin and collateral management, risk management and liquidity management operate with the same real-time capabilities found on the trading desk. The impact of changing margin and collateral needs on daily liquidity management will grow as firms increase the amount of cleared risk they must manage.

Automation & STP

Firms must have automated systems that provide straight through processing for cleared swaps. Automating the post-trade workflow for margin messaging and collateral management streamlines processing, mitigates potential user delays and errors, and facilitates real-time capabilities. The need for such technology will only increase moving forward.

Firms must refine internal collateral management and margin processing systems to meet on-coming challenges or should seek outsourced or vendor supplied solutions to refine capabilities. The need to receive, validate and respond to margin calls in a timely error-free manner to meet daily FCM, CCP and counterparty obligations will only increase in complexity and importance.

Collateral Management

Collateral management and margin efficiency go hand-in-hand. While firms minimize the amount of margin needed at their CCPs, it is also necessary to minimize the cost of collateral used to meet margin obligations. As cleared swap risk increases, asset managers will post increasing quantities of collateral

to FCMs and CCPs. Over time, many firms will be challenged to minimize the cost associated with funding acceptable collateral for CCP margin. Optimal margin management practices are likely to require daily funding and allocation of securities inventory (as well as other forms of collateral) to satisfy competing external constraints. These constraints include CCP haircut and acceptability matrixes, FCM collateral-type limits and fees, and ISDA CSA terms for bilateral swaps. Minimizing the cost of collateral management will be contingent on a firm's ability to manage collateral needs and resources across all traded products and securities, including bilateral and historical swap portfolios.

Integrated Risk Management

Risk management systems must be fully integrated with increasingly overlapping functional areas that include but may not be limited to funding, collateral and margin management, and trading. Functional integration will assist firms in meeting the challenges faced in managing liquidity, credit allocation and managing counterparty exposure.

Daily liquidity management must encompass both cleared and non-cleared derivative portfolios with different time horizons and collateral requirements. Forecasting and monitoring liquidity will become more challenging and will need to be done more frequently to ensure CCP, FCM and counterparty margin requirements are fulfilled.

Volatility Strategies

Cleared swaps that are elements of broader trading strategies may create credit exposure that did exist in the former bilateral trading environment. This is true for delta-hedged swaptions, in which the swap must be cleared, but the swaption remains bilateral. In this case, the offsetting risk does not net and both trades must be margined separately. Exposure to the bilateral counterparty is that of the vega and delta of the swaption.

Firms will face new challenges managing credit and counterparty exposure. Credit line management must include monitoring available credit with FCM and CCP counterparties. Firms will need to actively monitor credit limits across these entities to ensure they have sufficient allocations allotted to execution venues to meet trading and hedging needs.

Counterparty exposure management will become more challenging, particularly for those with trading strategies that use a combination of mandatorily cleared swaps and non-clearable swaps (i.e.: swaptions). Increased exposure and separate, essentially double, margin requirements will result when trades are forced to be split between a bilateral counterparty and CCP.

It is likely that some asset managers will consider using alternative products, such as listed futures and options, because of the high cost and exposure created with complex derivative strategies. Firms will need to evaluate the trade-off between the basis risk introduced from an imperfect hedge and the added cost of a fully customized solution.

The opportunity exists for asset managers to reduce counterparty exposure by moving portions of existing bilateral portfolios to central counterparties. This can be an attractive strategic option for firms

to use in managing exposure with bilateral counterparties, FCMs and CCPs. It also serves to consolidate simplify trade management under a uniform workflow.

IV. Conclusion

There is no time to waste for Category Two firms that expect to trade swaps after June 10th. Meeting the requirements for the deadline is no small measure.

Category Two firms must rapidly select, register with, and put in place documentation with FCM, CCP and technology partners.

Beyond that, there is no time to waste with respect to onboarding and system testing. Internal systems and affirmation platforms must integrate flawlessly and it is imperative that these systems are tested with ongoing live transactions. Shortcomings and issues must be addressed before clearing sizable risk positions.

Operational readiness is only the starting point for trading and clearing in the new paradigm. Firms must implement key business, operational and technology features to achieve efficient, cost effective trading and hedging. The endgame is an optimal framework for margin management, cost reduction, and risk mitigation.

The capabilities put in place today will dictate how well organizations are able to adapt to change and exploit opportunities in the future.

It's time to get on track and take your position in the starting blocks.

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ABOUT THE AUTHOR

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Sean Owens is Director, Fixed Income at Woodbine Associates, Inc. focusing on strategic, regulatory, trading, risk, and technology issues that impact firms active in the fixed income and OTC derivative markets. He brings to the firm a wealth of experience in U.S. and international fixed income markets, quantitative analysis, consulting, and research.

Mr. Owens has published research in financial journals and has been widely quoted in the media and various trade publications. He has served on industry panels and roundtables and is a frequent speaker at industry events.

Mr. Owens brings more than ten years experience in the fixed income and currency markets as an interest rate derivatives trader, formerly with General Re Financial Products Corporation. During that period, he traded, structured and managed the risk for trading books within the major currencies. He also played a central role unwinding the firm's derivative portfolio during the unit's liquidation.

Mr. Owens also has experience advising a range of small businesses on strategic and tactical issues central to performance in their market segments. Mr. Owens has an M.B.A. in Finance from Columbia Business School and a B.S. in Economics from the United States Military Academy. He has held FINRA Series 7 and 63 licenses.