Clearinghouse Survey

Advances in Technology and Risk Management

By Will Acworth

Global clearing firms must be working overtime to keep up with new developments in clearing. As the accompanying survey shows, there are a myriad of interesting projects at the derivatives clearinghouses in Europe, Asia and North America. Many of these developments will require complex operational adjustments by their clearing firm members, but hopefully the costs will be offset by significant advances in processing efficiency, better information about risk exposures and client positions, and the opportunity to clear a host of interesting new products and services, especially in the over-the-counter derivatives area. The survey also shows that in Europe, regulatory pressure is encouraging both competition and cooperation among clearinghouses.

The survey covers five clearinghouses in North America, three in Europe, and two in Asia. The clearinghouses range from very large to fairly small and from very old to very new. Some are focused entirely on financial products, others on commodities, and others on all of the above. Some are controlled by the exchanges they serve, others are independently controlled. Several of these clearinghouses also clear stocks, bonds and other non-derivative products, but that is outside the scope of this survey.

Clearinghouses at a Glance

Name of Clearinghouse	Average Daily Volume (Number of Contracts)	Average Daily Turnover (Notional Value)	Protections Against Default
CME	8.6 million	$3.3 trillion	Aggregate performance bond deposits $47.4 billion; market value of pledged memberships $872.9 million; surplus funds $153.6 million; security deposit requirement $1.2 billion; assessment power $3.3 billion. Total $53.0 billion.
Eurex	6.0 million	$547.6 billion	As of Dec. 31, 2006, Eurex Clearing had more than $39.5 billion in collateral, including $991 million in its default fund. The clearinghouse's financial protections also include $263.5 million in bank guarantees for clearing members and an agreement from Deutsche Börse and SWX to provide up to $922 million to cover its obligations.
JCCH	748,921	$6.1 billion	Margins $3.4 billion, clearing funds $192.5 million, default compensation reserve $1.9 million.
LCH.Clearnet	4.1 million	$2.5 trillion	LCH.Clearnet Ltd (London) default fund of $1.1 billion, backed by a $400 million insurance policy. LCH.Clearnet SA (Paris) default fund of $1.5 billion covering cash markets as well as derivatives.
Mexder (Asigna)	1.1 million	$10.2 billion	As of January 31, 2007, the total amount of financial resources available to protect against defaults was $1,475 million. This was comprised of Asigna's capital of $25.2 million, initial margin contributions of $1,080 million, a clearing fund of $129.8 million, clearing member's supervisory capital of $132 million, and additional margin contributions which may be used to cover liquidity risk of $107.8 million. (Note: the additional margin contributions are managed by the clearing members, not Asigna.)
NYCC*	159,007	$3.6 billion	Guarantee Fund with approximately $88 million, backed by assessment powers.
Nymex	1.1 million	N/A	Default fund of approximately $200 million, backed by a $115 million default insurance policy. The exchange also has established an additional protection scheme that provides at least $10 million to reimburse retail customers in the event that their clearing member defaults.
OCC	9.6 million	$10 billion	As of Dec 31, 2006, OCC clearing fund was $2.9 billion; OCC margin deposits were $76.8 billion.
OMX	568,271	$2.2 billion	At year-end 2006, OMX Derivatives Markets had committed capital resources of $204.2 million to cover potential counterparty losses. OMX Derivatives Markets had its own capital resources of $36.62 million in share capital and restricted reserves, and synthetic capital structured as insurance of $167.8 million provided by OMX Capital Insurance AG. OMX recently entered a guarantee solution with Credit Suisse of $43.8 million that provides further support for its clearing capital structure.
SGX	147,288	N/A	The fixed component amounts to $104.3 million comprising clearing capital, financial guarantee and insurance, as well as assets from a trust fund and security deposits from members. In addition, members are further assessed under the common bond system based on their market activity.

** NYCC figures for Nybot agricultural trading only*

Source: Individual Clearing Organizations

CME: 360 Degrees of Clearing

Quick Facts: CME

Number of Clearing Members:
86 (includes 40 "inactive" or not actively clearing members). Another 26 are clearing members for CBOT only.

Derivatives Markets Cleared:
CME and CBOT. Starting in mid-2007, interest rate swaps traded on its Swapstream subsidiary.

It's a truism of the futures business that having trades cleared by a central counterparty is one of the industry's best selling points. And it is increasingly true that the benefits of clearing are extending well beyond the boundaries of traditional futures trading. The Chicago Mercantile Exchange, for example, is rolling out several initiatives this year that will extend its clearing services into the over-the-counter markets for foreign exchange and interest rate swaps. It's all part of the exchange's "CME Clearing360" strategy for leveraging the value of its clearinghouse, the largest derivatives clearing organization in North America.

The first OTC clearing initiative to emerge this year will be the CME's FXMarketSpace joint venture with Reuters. The electronic trading platform will start with spot foreign exchange contracts, probably at the end of March, and expand into forwards, forward swaps and options over the next year or so. Live trading on FXMarketSpace has already begun with a small group of banks and trading firms that agreed to join the project as early adopters.

The platform runs on Globex technology and is targeted toward high-velocity traders as well as the international banks that dominate the forex markets, and of course all trades end up at the CME clearinghouse, with the added benefit of margin offsets with the exchange's forex futures. CME is already one of the biggest platforms in the global forex market in terms of notional value traded, even though its current product set is limited to forex futures. Now, by moving into spot forex and bringing the benefits of clearing to that segment of the market, FXMarketSpace is positioning itself to become the central marketplace that the highly fragmented forex business seems to be migrating toward.

From a risk management perspective, the new products are not very different from CME's foreign exchange futures, at least conceptually, but they do require some changes in clearing operations, according to Kim Taylor, the head of CME Clearinghouse Division. She explains that CME created a new category of membership for the banks and prime brokers that are joining FXMarketSpace, and is defining the products in terms of notional value, rather than in contract units, to reflect practices in the spot forex market. Settlement will occur every day, which is a change from the quarterly currency deliveries that CME clearing firms are used to. In addition, cash foreign exchange is not covered by the segregated funds rules that apply to futures, so member funds and customer funds are not held in separate accounts. Taylor notes, however, that this platform is open only to sophisticated investors, and adds that it is regulated by the U.K.'s Financial Services Authority as an alternative trading system.

"We see this as another example of extending benefits of centralized trading and clearing to the over-the-counter market," says Taylor. "It's not our first step in this direction, but it is to date the largest effort to provide the benefits of our markets to participants in the OTC space."

CME is working on a similar initiative in the OTC interest rate swap market. In this case, however, rather than coming into the market through a joint venture, it is using its wholly owned Swapstream subsidiary. Taylor says CME is working on a link that will allow Swapstream users to submit dollar-based interest rate swaps that they trade on the Swapstream platform to the CME clearinghouse and convert them into a strip of Eurodollar futures. That service is scheduled to start this summer. The next step is to clear the swaps themselves, so that users can execute their trades on the platform and clear the transactions in a straight-through fashion. These transactions will remain outstanding at CME as swaps, and like the forex products traded through FXMarketSpace, they will not be subject to segregation requirements. She adds that Swapstream, which currently is designed for dealer-to-dealer electronic trading, is preparing to launch a separate platform for dealer-to-client transactions, though here again the customer base will be limited to sophisticated investors.

Meanwhile, CME is working on two projects that should bring significant benefits in the trading and clearing of its core futures products. Taylor says CME will introduce in the near future a "drop copy" functionality that will improve risk management with respect to high-velocity traders. The functionality will allow clearing members to receive duplicate copies of customer orders as they enter the Globex system. This is especially important for monitoring customers that use direct access to CME's electronic markets to minimize latency in the transmission of orders, she explains. These customers do not want their orders slowed down by even a few milliseconds by a pre-trade risk filter, so the "drop copy" will give the clearing firms a way to monitor these orders on a near real-time basis without causing any delays. Taylor adds that some clearing firms already have implemented similar arrangements with their customers on their own, but it requires the customers to do some work. "This will centralize the drop copy functionality and make it available to all the firms, and that's a benefit to the marketplace," she says.

The other project is the exchange's continued movement towards FIXML as an industry standard message format. The exchange has been working with the Futures Industry Association and other exchanges to promote this message format, which minimizes the impact of system changes on the flow of market data to back offices and exchange interfaces. FIXML is independent of operating systems, hardware platforms and communication methods, which leaves all involved parties free to design their internal technical infrastructure to fit their own unique needs.

"We are taking a leadership role in converting the industry to FIXML," Taylor says. "We already offer FIXML for give-up post-trade processing, and we're working to convert our users to that format. The next step is to extend FIXML to electronic trade confirmation messages." She adds that CME is continuing to support the older TREX message format for give-up processing, but the exchange expects to complete that specific conversion effort this year.

Eurex: Wider Scope, Higher Standards

Quick Facts: Eurex

Number of Clearing Members:
90

Derivatives Markets Cleared:
Eurex

Eurex Clearing is embarking on two initiatives that should be of great interest to the clearing community. On the one hand, the exchange is preparing to introduce products that expand the service range of the clearinghouse. On the other, the exchange is focusing on enhancements to its clearing technology that will provide better protection against risk during the day.

Eurex has made it a practice to bring out a new release of its trading and clearing platform each fall, and the next release will include enhancements to the clearinghouse's protections against risk. Since the middle of 2005, Eurex has experienced a distinct increase in the volume of trading on its system, and especially in the volume of quote messages. To a large degree this seems to have come about because of the increasing use of automated trading systems, the so-called "algo" traders, that are capable of generating orders far more rapidly than human traders.

In response, the exchange has reduced the system's latency by offering higher bandwidth connections and increasing throughput. As a result, the focus of Eurex Clearing is to further improve intraday risk management tools for both the clearinghouse and its clearing firm members so that they can better protect themselves against the risk that one of these automated trading machines might run amok.

This project has two main components, according to Eurex Clearing. First, improvements in pre-trade security measures will allow clearing firms and trading members to manage risk before orders are submitted to the market. In case pre-defined limits are reached, clearing firms will be able to use an "emergency stop button" to shut down traders that are exceeding their limits. As a second component, the clearinghouse is working on shortening the intraday risk management cycle by investing in more processing capacity. Currently, the complete risk exposure is recalculated every 10 to 15 minutes throughout the day. This is a huge advance over the once-a-day position checks that were typical across the industry just a few years ago, but Eurex wants to improve its performance to the point where the risk evaluation cycles can be conducted even more frequently.

On the new product side, most of the attention is falling on the launch of credit derivatives at the end of March. The cash-settled contracts are based on the iTraxx indices that are widely used in the over-the-counter markets as the basis for credit index swaps. The final settlement value determination will be somewhat unusual, in that the contracts are designed to provide protection against a default or other "credit event" affecting debt issued by one of the corporations in the index. No such credit event has happened during the short history of the credit derivatives market in Europe, and the procedures for handling such an event are quite different from any other index products now on offer at exchanges.

Eurex also is preparing to offer futures and options on Russian equities in April. These contracts are based on depositary receipts listed in London, which represent ownership of shares listed in Russia, as well as an index tracking these instruments. One interesting feature of these contracts is that they are dollar-denominated, the first time that Eurex has taken this route. In addition, the options will settle into the underlying receipts, which trade at the London Stock Exchange, while the index and single stock futures will settle into cash.

Another interesting development is the clearinghouse's application for regulatory recognition in the U.K., which was formally granted by the Financial Services Authority on Jan. 16. Eurex says the recognition will allow it to widen its user base and intensify its marketing and distribution in the U.K.

JCCH: Coping With Defaults

Quick Facts: JCCH

Number of Clearing Members:
99

Derivatives Markets Cleared:
Central Japan Commodity Exchange, Kansai Commodities Exchange, Tokyo Commodity Exchange, Tokyo Grain Exchange

Of all the clearinghouses contacted for this survey, the Japan Commodity Clearing House is by far the newest. The clearinghouse was set up just two years ago as part of a comprehensive reform of the commodity futures business in Japan, and its systems are still at an early stage of development.

Even so, the clearinghouse has passed the most critical test. Two clearing brokers have defaulted since it began operations, forcing the JCCH to put into practice its procedures for liquidating positions and restoring customer funds.

Fortunately, both brokers were relatively small and there was no loss of customer funds, according to Nobuya Noguchi, a senior managing director at JCCH. The first default was in June 2005, shortly after the JCCH had begun operating, when a Nagoya-based company called Marumura filed for bankruptcy. The second came in March 2006, when an Osaka-based metals broker called MMG Arrows was unable to meet its mark-to-market payments.

The defaults were small enough that they provided a good test of the clearinghouse's risk management and customer protection schemes without causing any turmoil in the markets. In particular, the legal reforms that helped provide the basis for JCCH ensured that customer margins had been transferred to the clearinghouse, something that had not been the practice before 2005.

Noguchi expects that in the coming year there will be some serious discussion of possible improvements to the system, but he declined to be specific. Up to now the clearinghouse has concentrated on "day-to-day troubleshooting," he says. In the next phase, the clearinghouse will sit down with its member exchanges and develop some concrete proposals for the coming year.

JCCH was established in December 2004 as an independent clearinghouse operation for the Japanese commodity futures markets. It is organized as a stock company owned by all of the commodity futures exchanges as well as the Japan Commodity Futures Industry Association, which represents the brokers and holds 16% of the share capital. JCCH started providing clearing and settlement services in May 2005, giving the commodity futures industry a true central counterparty for the first time. (Interest rate and equity derivatives are traded at a different group of exchanges and cleared separately. See "Japan: The Big Bang, Finally" in the May/June 2005 issue of *Futures Industry*.)

Getting itself established and managing defaults are not the only tasks on JCCH's agenda. The Tokyo-based clearinghouse is also coping with profound changes in the overall market structure. In the course of the last year, three of the seven Japanese commodity futures exchanges have been merged into other exchanges. The Yokohama Commodity Exchange became part of the Tokyo Grain Exchange, the Osaka Mercantile Exchange was swallowed up by the Central Japan Commodity Exchange, and the Fukuoka Futures Exchange was absorbed into the Kansai Commodities Exchange. The consolidation wave has not affected JCCH's capital, Noguchi says, because all the shares were transferred to the successor exchange. But the market as a whole is still adjusting to the new structure, and he thinks it is too early to say what effect this will have on JCCH.

One definite step the clearinghouse has taken is the introduction of special margin requirements to prevent market instability. "Last year we amended our rules and introduced a new special clearing fund that will be imposed on futures commission merchants that are taking too much risk," Noguchi says. Under this scheme, the exchanges can require an FCM to pay extra money to JCCH. The amount is based on the amount of risk that the broker is taking, and it is quite a bit higher than normal requirements. To date the clearinghouse has not yet needed to use this new power, he says, as all of the FCMs are working hard to avoid triggering the higher requirements.

LCH.Clearnet: Embracing the Code of Conduct

Quick Facts: LCH.Clearnet

Number of Clearing Members:

- LCH.Clearnet Ltd - 77 derivatives clearing members
- LCH.Clearnet SA - 69 derivatives clearing members and 27 members that clear trades on Powernext

Derivatives Markets Cleared:

EDX London, Endex, Euronext.liffe (includes derivatives markets in Belgium, France, Netherlands, Portugal and the U.K.), IntercontinentalExchange (includes ICE Futures), London Metal Exchange and Powernext. LCH.Clearnet also clears OTC interest rate swaps.

This year will see tremendous changes in the clearing and settlement of equity securities in Europe, thanks in no small degree to the code of conduct developed in response to pressure from the European Union. Some clearinghouses are grumbling about the initiative, but not LCH.Clearnet. In fact the clearinghouse is so supportive that it is eager to see the code applied to the futures and options markets.

"We look forward to seeing the code extended to embrace exchange-traded derivatives," says Richard Heyman, director, exchange and commodities derivatives at LCH.Clearnet. "When we implemented tariff transparency in December, as was also required under the code, we applied it not only to the cash equity markets specified in the code as it now stands, but to other asset classes that we clear and settle. We view this instance of EU intervention in a very positive light."

As described by Charlie McCreevy, the EU Commissioner who spearheaded the initiative, the code of conduct is meant to reduce the costs of clearing and settlement across the various national markets in Europe by promoting greater competition among clearinghouses. The code has three main pillars: transparency of pricing, non-discriminatory access, and unbundling of services.

LCH.Clearnet's whole-hearted embrace of the code is only one sign of its determination to win more business. Roger Liddell, the former Goldman Sachs executive who took over the clearinghouse last July, has made fee reduction one of his top priorities. The clearinghouse already has cut clearing fees for Euronext.liffe's products by 15% overall, and at the same time harmonized its fee structure across the various markets within the Euronext group, making the fee assessment and collection process much simpler for clearing firms.

Liddell has been assuring market users that more reductions are on their way in other markets served by the clearinghouse. His ability to make good on that promise increased significantly in mid-February, when Euronext agreed to sell most of its shares in LCH.Clearnet back to the clearinghouse. Michael March, spokesman for LCH.Clearnet, says that, as a result, it will be better able to deliver long term and sustainable low price services.

Another initiative that may lead to lower costs for market users is an effort to identify more opportunities for margin offsets. Heyman explains that the clearinghouse is preparing to implement some technical changes in the way that it uses the Span algorithm to calculate margin requirements. Specifically, LCH.Clearnet will apply "tiering" within the algorithm's parameters for both inter-month and inter-commodity spreads to get a better read on the risk in individual portfolios of positions. "This will lead to substantial margin reduction and improvements in margin offsets," he says.

In terms of new products, the clearinghouse is continuing to reach out to the over-the-counter markets. LCH.Clearnet currently clears interest rate swaps ($70 trillion in notional value outstanding on the clearinghouse's books), fixed income repos, cash bonds, equities and energy products. The latest addition is freight forward agreements. In that market there is no central exchange, so the clearinghouse offers its services directly to brokers and customers that trade the swaps. The dry freight side of the market has shown exponential rate of growth, Heyman says, and by the third quarter he hopes to begin clearing options on freight forwards.

Next up is OTC metal clearing in partnership with the London Metal Exchange. Martin Abbott, the metal industry veteran who took charge of the LME in October has spoken publicly about his ambitions to provide clearing services to the metals markets, focusing in particular on those segments where exchange-traded products have had little success. Heyman says LCH.Clearnet stands ready and willing to provide the necessary services to help LME develop that strategy.

Mexder (Asigna): Embracing Higher Standards

Quick Facts: Asigna

Number of Clearing Members:
5

Derivatives Markets Cleared:
Mexican Derivatives Exchange

Not many people outside of Mexico know about the Mexican Derivatives Exchange, yet it ranks among the largest and fastest growing derivatives exchanges in the world. Its TIIE futures contract, which is based on local short-term interest rates, is one of the most heavily traded interest rate contracts in the world, with more volume than futures on the Euribor or the 10-year Treasury note. The market is dominated by a handful of local banks, but the exchange is eager to attract foreign participants and is embracing international business practices and technology standards.

An important consideration for foreign brokers when considering whether to become active in an emerging market is the strength of the market's clearinghouse. In the case of Mexder, clearing is one of the exchange's principal assets. All futures and options trades are cleared by Asigna, a separately incorporated entity that has investment grade credit ratings from Standard & Poor's, Moody's and Fitch. Like the exchange, it began operating at the end of 1998. Last year Asigna processed an average of more than 1.1 million contracts per day, with an average daily value of 109.7 billion pesos ($10.2 billion).

Margin requirements are calculated by using the TIMS system, which Asigna licenses from the Options Clearing Corporation in Chicago. Asigna also carries out a supplemental analysis of risk to measure the potential impact of a financial crisis "or any kind of external or domestic macroeconomic shock," according to Jaime Díaz Tinoco, Asigna's chief executive officer. Further to this end, Asigna is now seeking regulatory approval for an "uncovered risk methodology," Alegría says, that will assess the potential impact of an extreme scenario such as the financial and economic crisis that Mexico suffered through in 1994-1995.

Asigna also recently changed its methodology for setting position limits, according to Tinoco. The clearinghouse now implements a net position limit based on all months combined, and incorporating the calculation of futures equivalent positions for options.

One unusual feature of clearing at Mexder is that the exchange has only five clearing members—four large Mexican banks owned by foreign financial institutions and S.D. Indeval, the settlement house for the local stock exchange. Mexder therefore has sought to expand the number of clearing firms by attracting more foreign brokers, and has taken a number of steps to make itself more accessible.

For example, last year the exchange made available an interface based on FIX so that brokers and their customers could trade on the exchange remotely, using an internationally accepted communications protocol. Mexder also made it possible for foreign brokers to establish omnibus accounts at the exchange, the preferred arrangement for executing customer business on an international basis. This naturally required changes at the clearing level to include these accounts in Asigna's risk management framework, according to Tinoco.

Finally, the clearinghouse has conducted a comprehensive overhaul of its technology over the last two years, reducing the number of systems and platforms in use and moving its clearing and settlement applications onto IBM AS/400 computers. Looking ahead, the clearinghouse plans to migrate its technology platform to a service-oriented architecture that will allow members to access the central functions through the Internet.

NYCC: Adjusting to Electronic Trading

Quick Facts: NYCC

Number of Clearing Members:
30

Derivatives Markets Cleared:
Nybot

The New York Clearing Corporation, the clearinghouse that serves the New York Board of Trade, is going through one of the biggest changes in its history. Since the beginning of February, the Nybot has made its commodity futures and options contracts available on the electronic trading platform owned by IntercontinentalExchange, the Atlanta-based company that acquired Nybot last year. Electronic trading in its flagship products—coffee, sugar, cocoa, cotton and orange juice—immediately took off, and the exchange has been shattering volume records ever since.

From a clearing perspective, the introduction of electronic trading has stimulated increased interest among Nybot clearing members in using more advanced technology to analyze market data, confirm trades and manage risk.

George Haase, NYCC's president, says the clearinghouse's FIXML trade feed is being used by more and more clearing members and expects its use will be universal by the end of 2007. The FIXML feed allows firms to obtain their trade data as soon as it is received by the clearing system, which means they can send back corrections to the clearinghouse electronically and in real time. NYCC will be looking to provide more of its clearing data in

FIXML format, he adds, mentioning option expiration results in particular.

NYCC recognizes that it is important to provide members with a post-trade management system now that the Nybot products are on the ICE electronic trading platform. "We are working with the firms to provide them with the tools they need to be able to easily manage transfers, mechanical adjustments, give-ups and average price processing," he says.

NYCC is also making improvements to the clearing of the Nybot currency products, which at the moment are still traded exclusively on the floor. Haase expects that the currency delivery application will be modified and become part of the clearinghouse's ECS clearing system. "This will allow the firms to complete their delivery process more quickly, efficiently and greatly reduce the chance of reporting errors," he predicts.

Internally, NYCC is developing an interactive risk system to work directly with its ECS clearing system. "This will enable us to run VAR (value at risk) reports directly through the system rather than using third-party software, and provide more comprehensive detail on positions and spread relationships," he explains. "In addition, it will provide one-step analysis of clearing member profit and loss information and concentration issues."

When ICE announced the agreement to acquire Nybot, analysts quickly pointed out the value of Nybot's clearinghouse. ICE has no clearinghouse of its own and relies on LCH.Clearnet to provide clearing services for both its energy futures exchange in London and its over-the-counter energy derivatives platform in North America.

Haase says that OTC clearing is on his agenda. ICE pioneered the clearing of OTC transactions in the energy business and ICE's chief executive Jeffery Sprecher has talked enthusiastically about extending it to the Nybot markets. Haase won't go into detail on what plans are afoot for OTC derivatives, but he observes that there are "a number of opportunities to complement the Nybot suite of contracts across its soft commodities and foreign exchange complex."

Nymex: Many Enhancements Underway

Quick Facts: Nymex

Number of Clearing Members:
40

Derivatives Markets Cleared:
Nymex and Comex divisions of Nymex

As more and more of the trading at the New York Mercantile Exchange is done electronically, the pace of change in its clearing technology is accelerating. Sam Gaer, the exchange's chief information officer, and Sean Keating, the head of the Nymex clearinghouse, say Nymex is implementing several changes that will provide for much better information flow between clearing firms and the clearinghouse. The exchange is also making significant changes to the system for processing trades at Comex, the precious metals division of Nymex.

The most recent change is the exchange's introduction of a two-way API for trade allocations. The first firm began using the new API in mid-February and more are in the pipeline, according to Gaer. "With the additional volume that we are now seeing, the amount of messages that clearing members are dealing with is rising very rapidly," says Gaer. "This interface allows them to process the business more efficiently. It complements all FIX-based APIs and it is integrated with the middle and back office vendors. So the clearing firms won't have to go into the Nymex clearing system to allocate trades, and that is very helpful to the firms, especially the ones doing business with hedge fund clients and commodity trading advisors."

Another change driven by the conversion to electronic trading is the need to provide more anonymity. Keating explains that in the open outcry environment, it was critical to know the opposite side of the trade in order to sort out broken trades. But as the exchange moved to electronic trading and firms adopted the exchange's cleared trades API, "we started receiving calls from members saying that they could see the opposite side of the trade in the post-trade data," Keating says. And that created the potential for a trading firm to set up a system for scanning this data and using the information to develop a trading strategy. "So as the business has moved to more real-time trading, we had to make changes to preserve anonymity," he says, by limiting traders' access to counterparty information in the clearing data.

Gaer says 86 firms are currently using the cleared trades API, which provides a direct feed from the clearing system as trades are executed and allocated. The exchange recently began offering this in FIXML, an industry standard message format, but only a few firms have realized how valuable this is and it has been slow to take off, he said. He adds that the exchange has upgraded its hardware to cope with the increasing amount of data coming though the system. The delivery of clearing data may not be as fast as a trade match, but it takes place "within seconds," he promises.

Meanwhile, at the Comex division, the exchange has begun phasing out the old system for trade processing in favor of the TMS system used in the Nymex division. The change should result in several benefits to clearing members, including real-time reporting of cleared trades and a single trade management system across the entire exchange. The migration started in February with copper and aluminum trades, with gold and silver coming in a subsequent phase. Gaer expects the migration to be completed by the end of April, and possibly sooner.

Regarding collateral, Keating says Nymex is setting up a custodial relationship with one of its settlement banks that will allow clearing firms to post fully paid equity securities as collateral, provided that they meet certain standards that are established by the clearinghouse. This arrangement could be operational as soon as the second quarter of this year, he says.

One area that hasn't changed is the clearinghouse's stance on market risk. Even though two well-known hedge funds were wiped out last year by losses in energy trading, Keating says there have been no changes in how the Nymex clearinghouse views risk. "Nymex has the ability to tell clearing firms and customers that we are not comfortable with what we are seeing," he says. "If necessary we can go to 200% margin. That has been done to a couple of trading firms over the years, and it has been very effective." In fact, he adds, Nymex could go even higher on the margins if the situation justified such a move.

OCC: Change Is More Than Symbolic

Quick Facts: OCC

Number of Clearing Members:
120

Derivatives Markets Cleared:
Amex, Box, CBOE, NYSE Arca, OneChicago and PHLX

In 2007 clearing firms in the U.S. equity options business will see several major projects at the Options Clearing Corporation reach fruition. This year also will see the beginning of a huge leap forward in a new area—the conversion to a new symbology for options products.

Changing the symbols used to identify what options are being traded and cleared may sound minor, but the OCC warns that the effects will ripple across the industry. For one thing, every firm in the industry uses these symbols as the master file for tracking transactions as they move through their systems, from order entry all the way to customer statements. And not just the clearing firms; Reuters, for example, said in a comment letter last year that the use of these symbols "is embedded in literally tens of thousands of nodes, replicators, servers and other hardware devices globally, not to mention thousands of applications, both our own and our customers."

So quite a lot of planning and preparation will be needed to make sure all the necessary operational changes are done properly, which is one reason for the three-year timetable for the transition. The OCC emphasizes that it is not undertaking this project on its own. Rather, its role as the industry clearing utility is to coordinate the effort as an industry-wide initiative.

More importantly, the conversion to a new set of symbols opens the way for a big improvement in operational efficiency, says Mark Baumgardner, vice president for industry initiatives at the OCC. "We think the symbology initiative is going to bring about more accuracy in corporate action adjustments and greatly reduce back office errors," he says. He also believes the initiative will provide more flexibility for new product development, especially with respect to options with non-traditional expirations. That could help the exchanges attract more over-the-counter trading in quarterly and weekly options, in his view.

In terms of timing, the plan was set in December when the OCC's board of directors, which includes representatives of the options exchanges and clearing members, approved a framework developed in consultation with the industry. Now the OCC is focusing on specific technical issues, such as message length, the types of fields, and the handling of corporate actions. The plan is to carry out most of the analysis in 2007, then move to development in 2008, and testing and implementation in 2009.

To make sure the industry is on board, the OCC has set up a committee to steer the process that includes IT and operations people from exchanges, broker-dealers and market data vendors. The group also includes the Montreal Exchange and the Canadian Derivatives Clearing Corp., which may adopt the scheme for their equity derivatives products.

One project that has been completed is the transition to using the FIXML protocol for outbound market data and clearing information. The OCC has set a deadline of April 2 for cutting off the old data feed, which means that after that point, all of the clearing firms will be receiving near real-time data coming into their back office systems. Baumgardner says some firms are taking advantage of this to improve their internal risk management processes. For example, it should be possible to identify the trades with inaccurate information that do not reconcile properly within a few minutes after execution, rather than at the end of the day.

Another project that has been completed is the migration to the STANS system for calculating the margin requirements for clearing firms. OCC says that STANS does a better job than TIMS, the previous system, of measuring portfolio risk. An example of this is when a clearing member is long and short two different securities. STANS looks at potential price movements against both of those positions simultaneously, where TIMS would only look at up moves in both or down moves in both, but never up in one and down in the other. As a result, STANS will set a higher margin requirement than TIMS on a long/short strategy, based on the possibility that prices move in divergent directions and both positions lose money.

In general, OCC expects the application of STANS to lead to lower margin requirements, especially for large diversified portfolios, because it can measure correlations more accurately. On the other hand, highly concentrated positions are likely to have higher margin requirements because STANS can assess the potential effect of a more extreme market move than TIMS.

Last but not least, OCC is working with the industry on coming changes to customer margin requirements. New rules will go into effect in April that will permit portfolio margining for equity options, exchange-traded funds, cash equities and various other equity products. Susan Milligan, head of government relations for the OCC, explains that the clearinghouse is working with clearing members to set up the right account structure for portfolio margining. The OCC is also responsible for providing the "risk array" data necessary for margin calculations. She adds that more than a dozen broker-dealers have applied for regulatory permission to provide this service, and some firms are expressing interest in putting foreign stocks and over-the-counter equity derivatives into these accounts.

OMX: The Linkage Strategy

Quick Facts: OMX

Number of Clearing Members:
44

Derivatives Markets Cleared:
OMX Derivatives (includes derivatives markets in Denmark, Finland, Sweden, and Iceland starting in May) OMX also has clearing links with LCH.Clearnet and Norway's VPS.

OMX stands apart from the rest of the clearinghouse world. The Scandinavian market operator has never had a history of being a mutual organization, and consequently its clearinghouse has never been able to rely on member capital for its default fund. Second, its technology efforts have always had a commercial orientation, in that the group wanted to make a return on investments in its trading and clearing technology by selling that technology to other exchanges.

As a result, clearing at OMX is advancing on two fronts. One group is focused on enhancing the Secur clearing platform, which is now in use at nine other exchanges in addition to OMX. The other group is focused on the development of OMX' own markets, and in particular on the commercial benefits of clearinghouse linkages.

On one level, the issue of linkages is driven by political pressure from the European Union, which is determined to reduce the costs of cross-border clearing. All the major clearing and settlement houses in Europe agreed last fall to a "code of conduct" that will require significant changes over the next year or so. One of those changes is "interoperability" meaning the implementation of linkages among clearing and settlement houses so that market users have choice in where their positions settle.

This code of conduct only applies to equity markets, but Henrik Paulsson, head of OMX Derivatives Markets, is among those who believe that it will be extended to derivatives markets. Paulsson is reluctant to make any predictions, but linkages play a big role in his business strategy.

One clear example is the group's recent introduction of Russian options and futures. The contracts are based on the handful of high-profile stocks that are listed on the London Stock Exchange as well as an index based on those stocks. To capture demand for these products in both London and its home market, OMX offers its customers a choice: their trades can be cleared at either LCH.Clearnet in London or the OMX clearinghouse in Stockholm. Customers also have a choice in trading platform: they can access the products through OMX or through EDX, the group's joint venture with the London Stock Exchange. In both cases, however, all orders end up in the same order book.

Each clearinghouse has full control over clearing firm margins, and each operates with its own set of rules in accordance with its local legal environment. On the other hand, the product specifications—expiration dates, manner of settlement and so on—have to be the same, and the clearinghouses have to have a system in place to manage margin flows and risk positions on a constant basis.

OMX also has a similar linkage with VPS, the Norwegian clearinghouse, and Paulsson believes that more will come, not because of the political pressure, but rather because these linkages make commercial sense. From his perspective, the ability to offer a choice in clearing solutions allows OMX to expand its network and serve more customers. He estimates that roughly 25% of all the trades processed by OMX come into the group via the linkages, and adds, "I expect that figure to grow over time."

He concedes that the linkages may not be critically important to the large clearing firms that cover a wide range of markets and have the resources to become members of many different clearinghouses. Where he sees the main value is in second tier clearing firms. "The average member of the Oslo bourse can access our Swedish derivatives at their local bourse, using their ordinary connections and clearing set-up. This makes the product very local and very easy," he explains.

"Yes, these links are part of the future solution in the code of conduct world," he says. "There is pressure for increased competition with links and interoperability. But we have proven with the links we have in place that they are commercially viable. It is a way forward that people should be looking at, even without regulatory pressure. We are actively looking for more markets to link with, and we are also continuing to explore the potential of our existing links."

Meanwhile, on the technology side of the group, several important changes are in the works for its Secur clearing platform. The technology is now more than a decade old, and it is currently in use at 10 clearinghouses. That gives OMX feedback from a wide range of markets, and a constant flow of requests for new features and functionalities.

One of the biggest changes is the introduction of Genium, a new technology platform that covers trading, post-trade and information services. Genium includes a planned move to the Linux operating system. The existing clearing solution, Secur currently runs on Hewlett Packard's open VMS system, and OMX intends to continue supporting that system for as long as its customers are using it. But the trend across the financial markets is towards Linux, which among other things allows users to save money and increase capacity by running their operating systems on standard hardware. OMX is not setting a definite date for the move, but Jörgen Brodersen, the product manager for Secur, says it likely will happen within three years and possibly sooner if the demand is there.

Another important change will affect the ability to manage risk during the trading day. This has become increasingly important as electronic trading has increased the velocity of trading, and the speed at which risk can accumulate. Brodersen explains that Secur is set up to make intraday calculations at certain intervals during the day. The goal is to give users more flexibility in how they configure the timing of those calculations.

Like everyone else in the derivatives world, OMX is working hard to make its systems faster. Brodersen says OMX recently made the necessary changes to allow the Secur technology to run on much faster servers, namely the HP Integrity servers running on Itanium processors. OMX still supports customers using Alpha machines, previously the standard hardware solution, but expects customers to upgrade to the newer equipment. A test on one computer showed a throughput of 500 trades per second per server, including both position updates and sending broadcast messages to the participating member, Brodersen says. That compares with around 150 trades per second a year ago.

Not all of the technological enhancements are coming from the technology side of OMX. Paulsson says the OMX clearinghouse is planning to introduce a web interface later this year for customers across the Nordic markets. "This will allow the buy side to look at their positions. At first it will only give you basic reports with net positions and trade history, but later on we will add more functionality," he explains. "So if for example you are an institutional fund trading and clearing derivatives at OMX, you can monitor your positions yourself with this web tool." He emphasizes that OMX is not trying to bypass the trading intermediaries. In fact, he sees the interface as particularly useful for local offices of clearing firms that might want to give its sales and customer support staff access to specific customer accounts.

OMX' ability to offer this service comes directly out of an unusual aspect of its membership structure. The clearinghouse maintains separate accounts for end customers, rather than lumping customer positions into the clearing member accounts. This means that all of the end users are in its system, and access to each account can be managed at the clearinghouse level.

SGX: Focus on OTC Clearing

Quick Facts: SGX

Number of Clearing Members:

21

Derivatives Markets Cleared:

SGX, Joint Asian Derivatives Exchange (JADE), AsiaClear

One of the hottest trends in the derivatives exchange landscape in recent years has been the introduction of over-the-counter clearing. Transactions are negotiated on a bilateral basis, then the resulting contract is booked into a clearinghouse, giving participants the best of both worlds. The Singapore Exchange was not the first to offer this service, but the exchange has become one of the principal exponents of OTC clearing in Asia.

The exchange launched its AsiaClear service in May 2006 and it has been growing steadily ever since. Currently AsiaClear covers nine types of oil swaps and 12 types of forward freight agreements, with pricing derived from third-party information services such as Platts and the Baltic Exchange. The service is supported by 16 clearing members, including Barclays Capital, Calyon Financial, Fimat, Goldman Sachs, Man Financial and UBS, and 14 inter-dealer brokers. The latter group plays a key role in bringing the business to SGX, accounting for more than 90% of the trades that are registered with the clearinghouse.

Benjamin Foo, the head of clearing and commodities business at SGX, says the service offers more than the standard advantages of using a central counterparty. He says the service provides a 20-hour network of more than 60 counterparty accounts for OTC clearing, giving market participants a wide choice of Asia-based counterparties for their transactions and thus better price opportunities. "We are finding that people are attracted by having access to a much larger number of counterparties than they would on their own in the over-the-counter market," he says. "All they need is a clearing agreement with one of our members, and straight away they can trade with any counterparty on the system."

Looking forward, Foo says SGX is extending AsiaClear's coverage to a few additional contracts in response to market demand. In particular, the exchange is adding more balance-of-the-month contracts to AsiaClear. These contracts, which commonly trade in the OTC markets, are based on the average price for the underlying commodity, typically fuel oil, from the day the contract is struck to the end of the month. Foo says these contracts do not pose any greater risk to the clearinghouse than monthly contracts, but adding them did require some refinement to its systems.

The bigger emphasis going forward will be on marketing the service across Asia. In many respects this is pioneering work, and SGX is investing in marketing and educational events wherever it senses potential demand. One of the high-priority target markets is China, where according to Foo the exchange has been "very active" in promoting the service through seminars in Guangzhou, Shanghai and other cities. India is another country where SGX is exploring the potential for this service.

Beyond rule changes to facilitate OTC clearing early last year, the exchange has just completed a major overhaul of its rules for derivatives trading. Foo says this project, which took effect last September, was intended to bring the rulebook up to date with changes in the marketplace as well as changes in its own products and services. In addition, the exchange recently extended its trading hours well into the evening in order to cover the European time zone and enable members to manage their risk exposure. To ensure that the monitoring of risk keeps up with the change, SGX adjusted its clearing system technology to conduct four clearing cycles a day instead of three.

The SGX clearinghouse is also preparing to handle a new commodity futures contract. The Joint Asian Derivatives Exchange (JADE), a joint venture between the Chicago Board of Trade and SGX, will be launching the crude palm oil futures contract this spring. The contract will be traded on the eCBOT trading platform and cleared by SGX derivatives clearinghouse. This contract will specify physical delivery at settlement into two Indonesian ports, and that makes for a very different type of business than clearing financial futures and options. Foo, who was recently named chief executive of the joint venture, says the SGX clearinghouse is fully prepared to handle this new contract, and has consulted with the industry to make sure that the delivery specifications meet the needs of the market.

Looking farther ahead, Foo says the exchange has begun charting a "road map" for a more advanced clearing system. Although SGX relies on OMX for its trading engine, the clearing side of the exchange runs on a proprietary system. Foo says it is too early to get into the specifics of what the new system might look like, but he says SGX is actively working on the project. "We are very mindful of the dynamic and evolving business landscape. Part of the reason for this project is to ensure that we are prepared for the coming changes in the industry's business and regulatory requirements." ■

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