



FINANCIAL guarantee

THE OPTIONS CLEARING CORPORATION

This publication generally discusses The Options Clearing Corporation's financial guarantee. The Options Clearing Corporation's *By-Laws and Rules*, however, govern the terms of such financial guarantee. No statement in this publication is to be construed as a recommendation to purchase or sell a security or to provide investment advice. Prior to buying or selling a securities option, a person must receive a copy of the booklet *Characteristics and Risks of Standardized Options*. Copies may be obtained from your broker or from a participant exchange.

August 2008



STRENGTH → stability

The Options Clearing Corporation (OCC) is the world's largest derivatives clearing organization. Operating under the jurisdiction of the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC), OCC issues and clears U.S.-listed options and futures on a number of underlying financial assets, including common stocks, exchange-traded funds, currencies, stock and volatility indices, and interest rate composites. In addition, OCC operates a centralized facility for administering stock loan transactions between participating clearing members. As a part of that facility, OCC guarantees the mark to market payments in respect of such stock loan transactions. In 2007, OCC cleared more than 2.8 billion contracts. 2008 options volume is more than 2 billion.

OCC's clearing membership consists of approximately 115 of the largest U.S. broker-dealers, U.S. futures commission merchants and non-U.S. securities firms representing both professional traders and public customers. OCC participant exchanges include the American Stock Exchange, Boston Stock Exchange, Chicago Board Options Exchange, International Securities Exchange, NASDAQ OMX PHLX, NASDAQ Options Market and NYSE Arca. OCC also provides clearing services to futures and security futures markets, including CBOE Futures Exchange, The Island Futures Exchange, OneChicago and Philadelphia Board of Trade.

OCC is keenly aware of its role in supporting the clearing members, exchanges, markets and other market participants that it serves. It adheres to an operating plan that emphasizes timely, reliable and cost-efficient clearing operations. OCC uses advanced technologies to gather and disseminate massive amounts of market data, while integrating a broad spectrum of participants, financial instruments and marketplaces into its broad communications network. As the common clearing facility for U.S. exchange-traded securities options and security futures, OCC has set a standard for innovative and cost-effective service. Joint ownership of OCC by five of its participant exchanges along with a Board of Directors, most of whose members are drawn from OCC's clearing members, ensures a continuing commitment to servicing the needs of OCC's participant exchanges, clearing members and their customers.

Its sophisticated systems and programs have established OCC as a leader in risk management. With a series of systems and tools to monitor clearing member credit and portfolio risk, OCC is committed to providing world class risk management services and has recently introduced its latest portfolio-based

margin methodology, the System for Theoretical Analysis and Numerical Simulations (STANS). OCC is committed to assessing the ongoing effectiveness of the principles it uses to ensure the financial integrity of the markets it serves. Sound application of prudent risk management principles is the foundation of OCC's financial guarantee.

THE FINANCIAL GUARANTEE

As world financial markets progress, expand and link into a global marketplace and as counterparty credit risk multiplies and becomes more complex, OCC's guarantee function continues to protect clearing members and their customers. OCC is the first clearinghouse worldwide to have received a 'AAA' credit rating from Standard & Poor's (S&P) because of its ability to fulfill obligations as the counterparty for exchange-traded derivatives.

OCC stands behind every cleared trade that has been executed on the markets and exchanges it serves, in addition to stock loan transactions executed through the Stock Loan program. OCC assures performance to selling (lending) and purchasing (borrowing) clearing members, eliminating counterparty risk. OCC in effect becomes the buyer (borrower) to every clearing member representing a seller (lender) and the seller (lender) to every clearing member representing a buyer (borrower). The substitution of OCC as counterparty is achieved through a legally binding novation process that has withstood the test of time. This process supports fungibility for the contracts OCC clears and facilitates a liquid secondary market.

OCC's clearing members settle independently with their customers (or with intermediaries representing customers). OCC has no responsibility for settlements between a clearing member or intermediary and its customers or for the funds or securities of a

customer that are held by a clearing member or intermediary. Public customer securities accounts are protected by the Securities Investor Protection Corporation (SIPC), which insures individual customer accounts up to \$500,000. Many firms conducting a public customer business carry additional insurance on customer accounts. SIPC protection extends to security futures positions carried in customer securities accounts. Futures positions that are not carried in a securities account are not afforded SIPC protection; however, if carried in a segregated futures account, they are protected under the segregated funds regulations of the CFTC.

Close financial surveillance of clearing members effectively reduces credit risk exposure for OCC, clearing members and ultimately, public customers and market makers/specialists. OCC further insulates market participants from clearing member credit risk by maintaining separate accounts for firm, independent market maker/specialist and customer activity for each clearing member.

As of December 31, 2007, OCC held approximately \$115.8 billion in margin deposits. Total shareholder equity was \$35.5 million. OCC maintains lines of credit with major domestic and foreign banks; at year end, these amounted to approximately \$370 million.

Since its inception in 1973, OCC has promoted stability and financial integrity in options markets by focusing on effective risk management. OCC's ability to effectively measure, monitor and manage risk provides sound protection in light of uncertain market conditions. To strengthen the financial integrity of its cleared markets and protect the interests of its clearing members and their customers, OCC has implemented a comprehensive system of safeguards. These safeguards, which enable OCC to guarantee performance for all products it clears, consist of rigorous ini-

tial and ongoing membership standards, prudent margin requirements and a substantial Clearing Fund. S&P's has continued to grant OCC a 'AAA' rating based on this three-tiered backup system and the collateralization that stands behind its guarantee.

FIRST LINE OF DEFENSE: MEMBERSHIP STANDARDS

ADMISSION STANDARDS OCC evaluates the initial creditworthiness of each potential member through an application and approval process. Each clearing member applicant is assessed on operational capability, experience and competence of personnel, and financial condition in relation to predefined standards. This includes a minimum requirement equal to the greater of \$2.5 million in initial net capital, 12.5% of aggregate indebtedness or 5% of aggregate debit items (in the case of a registered broker-dealer) or \$2.5 million in adjusted net capital (in the case of a registered futures commission merchant).

U.S. BROKER-DEALERS Each U.S. applicant that is fully registered as a broker-dealer under the Securities Exchange Act of 1934, as amended, must compute its net capital in accordance with the SEC's "Uniform Net Capital Rule." This requirement establishes a standard of liquid net worth which is adjusted for asset quality and increases in proportion to the type and volume of business conducted by the clearing member. U.S. broker-dealer applicants that desire to clear transactions in security futures must also either be fully registered or notice registered as U.S. futures commission merchants (FCMs).

U.S. FUTURES COMMISSION MERCHANTS

Fully registered U.S. FCMs may become clearing members of OCC for the purpose of clearing futures, options on futures and commodity options. FCMs are required to compute net capital in accordance with the regulations of the CFTC. FCMs that desire to clear transactions in security futures must also either be fully registered or notice registered as U.S. broker-dealers.

NON-U.S. CLEARING MEMBERS Non-U.S. firms may also become OCC clearing members. All non-U.S. firms are required to submit financial reports. Non-U.S. firms of certain countries are permitted to file financial statements consistent with the financial responsibility standards of their home countries. All other non-U.S. firms must meet the same financial reporting requirements as U.S. clearing members.

MANAGING/MANAGED CLEARING MEMBERS In order to open the self-clearing process to applicants with limited in-house operational capabilities, OCC accepts a facilities management relationship, an arrangement whereby one clearing member (the managed firm) authorizes another clearing member (the managing firm) to provide certain back-office services on its behalf. The arrangement is evidenced by a Facilities Management Agreement, which specifies services to be performed and the responsibilities of each party. Managing clearing members must also meet higher than normal financial requirements.

THE APPROVAL PROCESS Following the receipt of an application and the required financial information, OCC conducts an on-site examination and an operations orientation. All clearing members must maintain adequate facilities and personnel to

transact business in an orderly manner with OCC and its clearing members.

Staff's findings, along with information from the applicant's designated examining authority, are submitted to the Membership/Risk Committee of OCC's Board of Directors. This Committee is also responsible for establishing and reviewing OCC's admission standards, which strive to balance the creditworthiness of an applicant versus providing broad and equal access to the clearance and settlement services offered by OCC. Final approval for membership requires a majority vote by the Board of Directors.

ONGOING MEMBERSHIP STANDARDS

OCC monitors the ongoing creditworthiness of its clearing members. Each member firm is required to file monthly financial statements with OCC's Financial Surveillance Department. The clearing member's financial condition is then evaluated in relation to predefined standards that are reviewed annually by the Membership/Risk Committee. Clearing members are also required to submit annual audited financial statements.

OCC has a financial reporting requirement known as an early warning notice. Clearing members must promptly notify OCC of certain material adverse changes in its financial condition.

OCC's surveillance staff employs a variety of automated systems to continuously monitor the operational and financial condition of each clearing member in relation to general market conditions and that clearing member's exposure to market risk. First, OCC identifies those clearing members whose financial or operational condition has deteriorated over time by analyzing the trends in key financial ratios evidenced in monthly financial statements. Then OCC identifies those clearing members whose uncollateralized

exposure relative to capital proves excessive. The ultimate goal of the analysis is to provide corrective action in the form of higher margin requirements, reductions in the member's positions or increased capital.

SECOND LINE OF DEFENSE: MARGIN

OCC's second line of defense against clearing member default is a clearing member's margin deposits. Margin refers to cash, letters of credit, eligible U.S. and Canadian government securities, debt securities of eligible government-sponsored enterprises, corporate debt and equity securities, money market fund shares or other forms of eligible collateral deposited by a clearing member to satisfy its margin requirement with OCC. At the end of 2007, OCC held approximately \$115.8 billion in aggregate clearing member margin deposits.

OCC's rules state that clearing members representing options sellers or futures holders must collateralize positions either by making a deposit in lieu of margin (in the case of options) or by depositing margin in one or more of the forms listed above.

All margin deposits except letters of credit are held at securities depositories or banks. All obligations and non-cash margin deposits are marked to market daily. OCC haircuts the value of securities held as margin to provide a cushion against price fluctuations.

OCC was the first clearing organization in the world to develop a margin system based on options price theory and modern portfolio theory. In 2006, OCC introduced a new proprietary risk management system, STANS, as a replacement to the TIMS methodology. OCC's margin system measures clearing member position risk and establishes margin requirements, which provides protection to clearing members and OCC against possible defaults.

The total margin requirement for an account consists of two parts: the Net Asset Value (NAV) calculation or mark to market component, which is the cost to liquidate a position at current market prices; and the risk component, which provides a cushion to cover two-day market risk. The additional risk component covers the market risk portion of the total margin requirement by means of dynamic expected shortfall (ES) risk measures. These measures are obtained from a large-scale Monte Carlo implementation of a copula-based approach with heavy-tailed marginal distributions.

STANS simulates a set of 10,000 hypothetical market scenarios to produce a profit/loss distribution for each distinct clearing member portfolio. These simulated scenarios incorporate information extracted from the historical behavior of each individual security (risk factor) as well as its relationship to the behavior of other securities (risk factors). Scenarios are generated for more than 7,000 risk factors, including a broad range of individual equities, exchange-traded funds, stock indices, currencies and commodity products. OCC uses a dynamic model to update volatilities on a daily basis. Dependence among risk factors is reflected in three ways. The base case is historical copula-based dependence, estimated from the historical data. The base case is supplemented by stress test simulations for single stock risk factors assuming perfectly correlated and independent (zero correlated) scenarios. The portfolio margin (risk) requirement is a function of ES measures from different dependence structure simulations. The ES measure is the mean beyond the Value at Risk (VaR) cut-off level and reflects the expected tail loss. The total margin requirement for a given portfolio is the sum of NAV and risk component as described above.

SEGREGATION OF SECURITIES CUSTOMER POSITIONS Long securities options positions carried in clearing members' customers' accounts are segregated from other positions, free of any lien in favor of OCC, unless the clearing member submits spread instructions to OCC designating customer long positions to be released from segregation. A clearing member may only submit such instructions if it simultaneously carries a short position in options for the same customer and the margin required to be deposited by the customer on the short position has been reduced as a result of carrying the long position.

PORTFOLIO REVALUATION OCC continuously monitors intra-day price changes and is empowered to issue intra-day margin calls, should market or other conditions warrant such action. The net asset value of every account is recalculated multiple times throughout the day using start-of-day positions and current market prices and losses are compared to start-of-day risk requirements. If losses exceed a predetermined threshold, an intra-day margin call is initiated to collect the full amount of the loss.

STANS and Portfolio Revaluation enable OCC to maintain adequate but not excessive margin requirements. Inadequate collateral requirements threaten market integrity while excessive requirements discourage trading and reduce liquidity. All of OCC's risk management systems and policies are continually monitored and enhanced. Backtesting results are reviewed daily, and the overall adequacy of OCC's margin methodology is reviewed at least yearly.

The STANS RISK application is available to all clearing members via a secure Web site and it allows them to measure, monitor and manage the level of risk exposure of their portfolios. It is also designed to be used as a flexible risk analysis tool to identify areas of

increased risk and dependence and to offer a new set of analytical tools to analyze the risk of clearing members' portfolios at much more detailed levels. OCC staff uses dynamic functionality in the application to recalculate risk exposure using hypothetical changes to clearing member portfolios.

CROSS-MARGINING OCC originated the concept of cross-margining for intermarket hedged positions. OCC operates Cross-Margin programs with the Chicago Mercantile Exchange Inc. and ICE Clear US, Inc., which provide for the calculation of margins for eligible index options, options on exchange-traded fund shares, futures and options on futures as if they were held within a single account. OCC also offers internal cross-margining for intermarket hedge positions where OCC is the clearing house on both the securities and futures side. OCC is currently seeking regulatory approval to add security futures to such Cross-Margin programs, as applicable.

Cross-margining involves a sophisticated analysis of the economic risk inherent in a clearing member's intermarket positions when viewed on a combined basis. This analysis results in overall savings in clearing member margin requirements. At the end of 2007, the Cross-Margin program reduced participants' combined daily margin requirements by approximately \$3.2 billion, while enhancing the financial integrity of the clearance and settlement system. Cross-margining increases the pricing efficiency and liquidity of options and futures markets while decreasing the over-collateralization of intermarket hedged position risk at the clearinghouse level.

THIRD LINE OF DEFENSE: CLEARING FUND

The third line of defense against clearing member default is the members' contributions to the Clearing Fund. A member's Clearing Fund deposit is based on its proportionate share of positions, computed monthly. Clearing Fund deposits must be in the form of cash or government securities, as the Clearing Fund is intended to provide OCC with a pool of highly liquid assets. The entire Clearing Fund is available to cover potential losses in the event that a defaulting member's margin and Clearing Fund deposits are inadequate or not immediately available to fulfill that member's outstanding financial obligations. The Clearing Fund may also be used to reimburse OCC for losses sustained due to the failure of a bank or another clearing organization to meet an obligation to OCC. At the end of 2007, OCC's Clearing Fund totaled nearly \$4.5 billion.

The overall size of the Clearing Fund is tied to average daily margin requirements. Therefore, OCC's Clearing Fund expands and contracts in size in relation to market exposure. An individual clearing member's Clearing Fund deposit is based on the relative size of its open positions, subject to a minimum required deposit. In most instances, the minimum required deposit is \$150,000. The Clearing Fund mutualizes the risk of default among all clearing members. Therefore, each clearing member is required to share proportionately in any Clearing Fund assessment.

In the unlikely event that Clearing Fund deposits prove to be inadequate to cover OCC's losses, each clearing member may be assessed an additional amount equal to the amount of its initial deposit. A clearing member is liable for further assessments until the balance of OCC's losses are covered or the clearing member has withdrawn from membership in OCC.

CLEARING MEMBER SUSPENSION OR DEFAULT

OCC's Board of Directors or Chairman may suspend any clearing member that has been expelled or suspended by any self-regulatory organization; is in default on any obligation to deliver securities or pay funds to OCC; or is experiencing financial or operational difficulties that warrant suspension in order to protect OCC, other clearing members or the general public.

OCC has a lien on contracts, securities, margin and funds maintained in respect of clearing members' accounts to the extent specified in OCC's rules. In the event a clearing member is suspended, OCC promptly converts all of the clearing member's margin collateral and Clearing Fund contributions to cash. This cash is deposited in an applicable liquidating settlement account, from which the suspended clearing member's obligations in respect of such account are met. Any remaining assets are distributed in accordance with the rules.

OCC closes the suspended clearing member's open long and short positions (other than short positions covered by specific or escrow deposits) using one of two methods: 1) long and short positions within the same series are netted at a price equal to the current marking price for that series, or 2) closing transactions are effected in the marketplace.

OCC's ability to net, or close positions by offset, applies not only to long positions on which OCC has a lien but also to segregated and pledged long positions. All proceeds of the segregated or pledged positions are segregated and forwarded to the trustee or the pledgee, as the case may be.

OCC may determine that the immediate closing of some or all of the suspended clearing member's open

positions would not be in the best interests of OCC, other members or the general public. In such an event, OCC may arrange to neutralize position risk by hedging open positions instead of liquidating them.

SUMMARY

OCC's role as the common clearing organization for listed securities options and security futures is critical in an environment characterized by world financial market growth and increased counterparty credit risk. OCC's guarantee function, supported by a comprehensive system of safeguards, eliminates trading counterparty risk.

OCC relies primarily on collateralized systems. OCC protects itself against the risk that collateral proves to be not immediately realizable or inadequate through a Clearing Fund of highly liquid assets immediately available to OCC.

OCC's guarantee function, system of safeguards and sophisticated risk management systems provide safety and operating efficiencies to its clearing members and their customers. OCC's constantly evolving clearing and risk management systems serve the complex needs of its clearing members and their customers and adapt to ongoing changes in world capital markets.

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