

## RESEARCH

## Options Clearing Corp.

**Publication date:** 31-Jan-2007  
**Primary Credit Analyst:** Daniel Koelsch, Toronto (1) 416-507-2590;  
daniel\_koelsch@standardandpoors.com  
**Secondary Credit Analyst:** Charles D Rauch, New York (1) 212-438-7401;  
charles\_rauch@standardandpoors.com

### Major Rating Factors

---

**Strengths:**

- Effective monopoly on clearing security options and futures
- Mutualization of risk among the membership; strong support from the capital markets
- Strong risk management function; highly effective margining procedures
- Ample financial sources; US\$2.9 billion clearing fund

**Counterparty Credit Rating**

AAA/Stable/--

**Weaknesses:**

- High degree of operating leverage
- Financial performance dependent on option trading volumes

### Rationale

---

The counterparty credit rating on the Options Clearing Corp. (OCC) reflects its critical role in the U.S. capital markets as the exclusive clearinghouse for exchange-traded stock derivatives. Further underlying the rating are OCC's conservative financial and procedural safeguards, substantial and readily available financial resources, and its members' mutual incentives to protect the organization from settlement losses. The rating applies to the OCC's obligations to clearing members and not to clearing members' option obligations to customers.

Chicago-based OCC is the sole issuer and settling agent for all stock options, equity index options, and single-stock futures listed on U.S. exchanges. OCC has an effective monopoly so it can concentrate its resources on supporting market integrity. In this capacity, the OCC maintains a proper balance between market liquidity and the safety of the clearing mechanism, while also promoting operating efficiencies for its participants. Therefore, OCC has strong support from its members and the financial community at large.

Beyond clearing and settling derivative trades, OCC also guarantees stock loan and borrow transactions among its members. This not only allows OCC to provide its members optimal margin offsets while fully integrating product cash and physical settlement obligations, but also serves to reduce systemic risk.

The OCC guarantees the performance of each clearing member to other clearing members. This guaranty does not take effect until there is a matched trade. Once it accepts a matched trade, the OCC acts as central counterparty, becoming the buyer for every seller and the seller for every buyer. In this capacity the clearing organization stands behind very large dollar settlement values.

The major risk OCC faces is a clearing member default on its contract obligations. To protect itself, the OCC sets rigorous admission standards and continuously monitors the financial condition and risk positions of all of its clearing members. Most importantly, it requires all clearing members to post liquid collateral sufficient to cover the effect of a significant one-day market move on clearing members' option and futures portfolios held for customer, market maker, and proprietary accounts. Margin is set at a

conservative level, but not so high as to cover every conceivable market move. Clearing members could be required to post extra margin if they expose the OCC to inordinate unsecured risks. Margin must be in the form of cash, liquid securities, or LOCs.

In the event of a clearing member default, market risk is introduced. To limit its exposure to fluctuating prices, the OCC moves quickly to transfer or close out the defaulted members' positions, using its margin on deposit from the defaulting party to cover any losses incurred.

If margin does not cover default losses, the OCC would fall back on a clearing fund contributed by clearing members. As their own capital is at risk, clearing members have an incentive to maintain the safety and soundness of the OCC's clearing system. Fund contributions are based on margin requirements and thus relate to overall risk exposure. All of the clearing fund deposits are in the form of cash or U.S. Treasury securities.

Beyond the clearing fund, the OCC has the power to assess members for funds to cure a clearing member's default. After one special assessment, however, clearing members can close out their positions and withdraw from the OCC. Given the mutuality of the organization and the OCC's effective monopoly on exchange-traded stock options, equity index options, and single stock futures, members have a strong incentive to cure defaults.

## Outlook

---

The stable outlook incorporates the substantial financial safeguards that protect OCC from counterparty risks even during times of significant market volatility. The clearing organization's robust risk management techniques proved their mettle following the events of Sept. 11, 2001, and the stock market's sharp fall-off during the summer of 2002. The ratings would be subject to change if the financial safeguards were materially weakened or in case of a marked deterioration of the quality of OCC's clearing membership base.

## Profile

---

Founded in 1973, OCC is a stand-alone clearinghouse that issues and clears options on common stocks, indices, currencies, and interest rate composites listed on six participating exchanges of which five are owners. OCC cleared 2,028 million options contracts during 2006, an increase of 35% from the previous year. Ninety-one percent of the contracts cleared were individual stock options and 9% were equity index options.

There is little concentration in terms of trading volumes as the six participating exchanges list derivative instruments on approximately 3,000 underlying instruments. In 2006, the QQQQ, SPX, IWM, and SPY index contracts accounted for 5.5%, 5.1%, 4%, and 3.2% of trading volume, respectively. No other stock or index contract accounts for 3.0% of trading volume.

The OCC is a registered clearing agency with the SEC and is registered as an issuer of put and call options. As a self-regulatory agency, all of OCC's by-laws and rules, and any changes thereto, must first be approved by the SEC. The SEC gives the clearinghouse the powers to discipline, fine, restrict the business of, and even expel, members who violate clearinghouse or SEC rules.

The OCC is equally owned by five participating exchanges: the American Stock Exchange (ASE), the Chicago Board Options Exchange (CBOE), the International Securities Exchange (ISE), the Philadelphia Stock Exchange, and the Pacific Exchange. ISE became an owner-participant of the OCC in May 2000, following its approval as a registered securities exchange by the SEC. In February 2004, the Boston Options Exchange (BOX) joined as a sixth participating exchange. Unlike the other four participants that conduct open outcry trading, ISE and BOX are all-electronic marketplaces, which have been growing rapidly and, in their brief existence, have already captured significant market share from the more traditional floor-based exchanges. Because the OCC clears all listed stock options in the U.S., the migration to electronic trading from open outcry has not cannibalized total processing volumes at the clearinghouse. Similarly, dual listing has no effect on OCC processing requirements.

OCC is also the clearing agent for the following futures exchanges: Chicago Futures Exchange (CFE), The

Island Futures Exchange LLC, New York, OneChicago LLC, Chicago (OCX), and Philadelphia Board of Trade Inc., Philadelphia. OCX is a joint venture between the CBOE, the Chicago Mercantile Exchange (CME), and the Chicago Board of Trade. OCX lists more than 200 single-stock futures, as well as futures on narrow-based equity indices and exchange-traded funds. The CME maintains an associate clearinghouse agreement with OCC to facilitate the clearance of trades originating through the CME. The OCC does not provide a guarantee for trades cleared through CME and OCC does not collect margin or clearing fund deposits from the cross-town commodity exchange. The CFE is a subsidiary of CBOE and lists regular commodity futures. Clearing for CFE was added in 2004.

## Risk Management

---

### Credit risk is minimized through broad membership base

Membership in the OCC is balanced between providing broad access, which diversifies risk, and maintaining high credit standards. With 120 clearing members at Dec. 31, 2006, OCC has a sufficiently large membership base over which to spread clearing risk. The decrease in the number of clearing members (there were 127 in 2003) is mainly the result of consolidation among clearing members. The financial strength of the clearing members can be demonstrated by their collective capital, which totaled US\$219 billion at Dec. 31, 2006. The members are predominantly U.S.-registered broker-dealers owned by domestic securities firms and a handful of major European banks and investment houses.

As its first line of defense and to assure high credit standards, OCC defines membership standards spanning initial membership qualification as well as the daily monitoring of existing members. The clearinghouse by-laws set admission standards with regard to financial requirements, operational capability, and the management competence of clearing members. OCC staff conducts a rigorous on-site due diligence of all applicants who must then be recommended by the Membership/Risk Committee and be approved by the board of directors.

Clearing members are required to be U.S. broker-dealers and capitalized as listed in table 1.

**Table 1**

Options Clearing Corp. Capital Requirements	
Initial required capital (mil. \$)	2.5
Minimum net capital (mil. \$)	2
Firms providing facilities management services \$4 million + \$200,000 x number of firms >4 that it services	

Actual net capital requirements might be higher depending on the clearing member's volume and type of trading activity.

Clearing members that do not have sophisticated operational capabilities have to operate through a facility-management agreement under which another approved clearing member handles back-office operations. This process is called Clearing Member Trade Assignment and refers to a situation when one member executes a trade for a customer but gives up the trade to another clearing member (the carrying clearing member) for clearing and settlement. The minimum capital requirement for clearing members providing facilities management services is US\$4 million plus US\$200,000 for each agreement greater than four that it services (see table 1).

During OCC's 30-year history, eight relatively small firms were liquidated following suspension by their designated examining authority. In only one case did liquidation result in a small loss to the OCC clearing fund.

Clearing volume is concentrated within a small group of clearing members that handle a large volume of trading activity. This concentration of trading volume does not necessarily result in more credit risk to OCC because these clearing members are required to post higher margin and have provided the OCC with the right of offset against individual market-maker positions.

The OCC staff continually monitors the creditworthiness, positions outstanding, and potential risk

exposures of its clearing members. Members having financial or operational difficulties or who have excessive position risks are placed on a Watch list. At the lowest Watch level, a clearing member might be assessed increased risk requirements (margin). At the highest Watch level, a clearing member might be restricted from booking additional business.

Clearing members guarantee the performance and monitor the creditworthiness of their customers, including market makers. Market makers are subject to a risk-based haircut computation based upon the OCC's margin methodology (see Risk requirement (margin): STANS). To the extent that the market makers' daily haircut exceeds their account equity, that clearing member must deduct the difference calculating its own net capital. The clearing member must submit daily pro forma net capital computations to the OCC that reflect the changes in the market-maker haircut deductions and any profit or loss in its own proprietary trading.

### **Market risk limited through acceptance of matched trades only**

When a market participant places an order that is filled on one of the exchanges, the exchange matches the two sides of the order and reports back to its executing members information confirming matched trades or highlighting unmatched trades. The matched order is sent to OCC, which issues a novated contract to the clearing members that represents each side of the contract. By issuing a novated contract, the OCC becomes the buyer for every seller and the seller for every buyer.

Under normal operating conditions, the OCC is not exposed to market risk because it only accepts matched trades from the participating exchanges. The only time the OCC is exposed to market risk is if a clearing member fails to meet its contractual obligations.

At the time a member defaults, OCC's mandate is to limit the length of time it is exposed to market risk. To that end, the OCC tries to transfer all the positions and all deposited collateral of the defaulting member to other clearing members. If a transfer is not feasible, OCC closes out the defaulted member's positions in open market transactions using the margin collateral as the source of funds. In the eight instances of clearing member liquidations, all unbalanced positions were closed or rebalanced within the trading day.

## **Financial Safeguards**

---

The financial safeguards of the OCC include the margin posted by clearing members, the clearing fund, and the clearinghouse's power to assess clearing members for additional clearing fund deposits.

### **Risk requirement (margin): STANS**

Option writers are required to deposit either the underlying security and/or acceptable collateral, otherwise known as margin, in approved banks or depositories for the benefit of the OCC. Margin protects the OCC against the possibility that daily option price changes, in the event of a clearing member default, would expose the clearinghouse to losses. The OCC's policy is to maintain prudent, but not excessive, margins that would impair market liquidity. Margin payments to clearing agencies are protected by law from bankruptcy claw-back.

The OCC employs its new proprietary System for Theoretical Analysis and Numerical Simulations (STANS) to calculate each clearing member's margin requirement. The system was introduced on August 4, 2006, and replaced the previous system (TIMS).

The total margin requirement consists of two parts: The net asset value (NAV) calculation or mark to market component, which is the cost to liquidate an option position at current market prices; and risk component, which provides a cushion to cover one-day market risk.

NAV is equal to the daily mark-to-market value of the option contract in which the option writer pays margin and the option buyer receives margin credit. In essence, NAV covers the credit risk of a clearing member default. In a theoretical world in which prices are held constant, NAV would fully cover the cost of a member default because the OCC could use the margin on deposit to buy an offsetting position in the open market at no gain or loss to the clearinghouse. In reality, prices are not constant and that is why there is a risk component.

The additional risk component covers the market risk portion of the total margin requirement by means of dynamic Expected Shortfall risk measures. These measures are obtained from large-scale Monte Carlo implementation of 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 the approximately 250 distinct clearing member portfolios. 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, which is supplemented by stress test simulations of perfectly correlated risk factors and independent (zero correlated) scenarios for single stock risk factors. The portfolio margin (risk) requirement is a function of expected shortfall (ES) measures from different dependence structure simulations. The ES measure is the mean beyond the 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. The new methodology generally leads to lower (higher) margin requirements for well (poorly) diversified portfolios with low (high) correlation among its holdings, compared to TIMS' requirements. As STANS is available to all clearing members, 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.

Margin requirements can be reduced in a number of ways that promote market efficiency but without a concomitant increase in risk to the clearinghouse. For example, the OCC's hedge program allows clearing members to lend or borrow stock to reduce the risk of their options positions that are part of intermarket hedge transactions. For example, the stock loan program allows clearing members to facilitate short sales of equities that are part of option reverse conversions, a common arbitrage strategy. (A trader has a reverse conversion when he is long the call, short the put, and borrows the underlying stock.)

Stock loan transactions are negotiated between the lender and buyer, but the OCC acts as central counterparty. Nevertheless, the OCC's risk exposure is low and essentially limited to the daily mark-to-market. These securities loans are monitored in the same manner as all clearing member positions. The OCC marks the stock loan position to market value on a daily basis and has full rights to cash flows from the arbitrated positions, including liquidation.

The OCC has also set up a cross-margining arrangement with several U.S. futures exchanges. Under cross margining, a clearing member's index option position can be offset by a position in an index future or an option on an index future listed at one of the participating futures exchanges. The margin collateral is deposited in a bank account jointly held by both clearinghouses. Should the OCC or the other clearinghouse suffer a loss liquidating a cross-margined account, the loss is to be shared between the two organizations.

In another move that promotes market efficiency, the OCC has an accord with the National Securities Clearing Corp. (NSCC) for coordinating the transfer of collateral through their different settlement cycles. There had been a timing disconnect because the OCC settles in the morning, while NSCC settles in the afternoon. This meant that collateral securing equity option assignments pending settlement would be tied up at both clearing organizations for the full day. Now the OCC is able to hand off collateral at the end of its settlement to NSCC, eliminating the need for duplicate collateral at both organizations.

Acceptable margin collateral consists of underlying securities, valued securities, LOCs, U.S. Treasury securities, and cash. Index escrow receipts, which are baskets of stock that replicate major stock indices, are also held as collateral on short index call options. Valued equity securities are haircut by 30% and no one issuer can exceed 10% of the daily margin requirement in one underlying security. All U.S. Treasury bonds are haircut at a level that increases along with the maturity of the instrument. All collateral is marked-to-market on a daily basis.

The OCC faces the risk of a margin shortfall if a clearing member defaults and the LOC issuing bank is

unable to honor its financial obligations. The OCC and other U.S. clearing houses have a uniform LOC form, which requires payment within 60 minutes. In the eight episodes of clearing member liquidation, an LOC was drawn only once and without difficulty.

### **Clearing fund**

The size of the clearing fund is a direct function of the risks in clearing members' positions. The clearing fund is based on clearing member margin requirements, which in turn, are based on the size and volatilities of clearing member positions. Only cash and U.S. government securities (in other words, no LOCs) can be used to meet clearing members' obligations to the clearing fund.

Clearing fund contributions are 6% of average (NAV plus risk) margin requirement with a minimum aggregate clearing fund of US\$1 billion, subject to a cap of 7% of average margin requirement. On Dec. 31, 2006, the OCC clearing fund totaled US\$2.9 billion.

The total size of the clearing fund depends on the average daily total margin requirements during the preceding calendar month. Clearing members have to make up any shortfall in their clearing fund deposits within the first three to five days of the new month. This methodology does leave a potential for a short-term gap between actual and required clearing fund deposits, especially if volumes or volatilities had increased.

A clearing member's minimum contribution to the clearing fund is US\$150,000. The minimum contribution for execution-only members is US\$150,000 plus US\$15 times the average daily executed volume for the preceding calendar month.

The clearing fund has been used once: to close out the positions of H.B. Shaine the day after the 1987 stock market meltdown. The amount tapped was small, but was needed because of the turbulence of the market.

OCC is currently evaluating possible changes to the methodology of clearing fund requirements to align it with the concepts used under the new margining system STANS.

### **Power of assessment**

Under the OCC's rules, clearing members have agreed in advance to pay an amount of up to their original clearing deposit to replenish the clearing fund if a default were to deplete it. In a given default situation, the OCC can make further assessments against clearing members, but they can withdraw from the clearing house after closing out their positions.

## **Procedural Safeguards Are Well Established**

---

The OCC's payment schedules are short in order to minimize the amount of time before a default can be declared. Margin calls are made at 6:30 a.m. and have to be met by 9:00 a.m. Payment instructions are sent directly to the clearing members' banks, which then inform the OCC if the money is already in the account or if the bank will finance the margin on behalf of the clearing member.

The OCC establishes all its payment schedules so that it receives any payments due from paying clearing members an hour before it pays any credits to receiving clearing members. When customers buy options, the premium is paid to the OCC an hour before it pays premium to option writers.

The OCC keeps three groups of accounts--customer, market makers, and proprietary accounts--separated to prevent the inappropriate use of margin collateral. In addition, the long positions in one customer's account are not allowed to be used as a risk offset for positions in another customer's account. This procedure increases the margin requirement and protects the clearing member and its customers from the default of another customer.

Intraday margin calls are a key way to limit risk during periods of market turbulence. OCC rules authorize OCC to require additional collateral to protect OCC, other clearing members, or the general public, typically when extreme market moves lead to significant unrealized portfolio losses. Intraday collateral calls are currently made when unrealized losses exceed the larger of 100% of the VAR level or 75% of total risk charges.

In the days after the stock markets reopened following the attack on the World Trade Center, OCC made intraday margin calls for US\$1.97 billion on Sept. 17, 2001, and for US\$2.28 billion on Sept. 19, 2001.

### Liquidity

In the case of member default or liquidation, OCC rules require that it convert margin assets to cash in order to transfer, close out, or repurchase positions. The clearinghouse views the clearing fund as one source of liquidity should margin assets take too long to monetize. The OCC also maintains various lines of credit with a group of domestic and foreign banks of about US\$370 million as of Dec. 31, 2006.

The OCC has never tapped these lines. No borrowings were outstanding under this facility as of Dec. 31, 2006.

## Financial Performance: Highly Scalable, High Degree Of Operating Leverage

Profitability is not a major ratings factor as OCC operates as a utility for its members, focusing on cost recovery rather than on maximizing profit. There is a high degree of operating leverage because revenues are variable, highly unpredictable, and dependent on the volume of options activity, and expenses are generally fixed. The clearinghouse also faces the cost of technology improvements, introducing new products, and expanding services to its members. As a mutual service organization, however, the OCC has tremendous flexibility to reduce rebates, and if need be, raise clearing fees. Bottom-line profitability after refunding clearing members historically has been, and is expected to remain, flat.

As a business, the OCC is capable of very strong profitability, but a large part of the transaction fees it collects are refunded to clearing members. At Dec. 31, 2006, and Dec. 31, 2005, rebates equaled 62% and 51% of clearance fees, respectively.

In recognition of the continuing strong volume in securities options, OCC has reduced its clearing fees several times in the past years. Clearing fees are now about half of what they were at the beginning of 2004. The changes benefit clearing members and other market participants by further reducing trading cost and adding to a more efficient market. As its business is highly scalable, such fees changes do not adversely affect OCC's ability to meet its expenses and maintain acceptable levels of retained earnings.

The OCC's retained earnings, which stood at US\$48.9 million on Dec. 31, 2006, are small compared with its daily financial obligations. Standard & Poor's Ratings Services does not look to OCC's own capital for protection, but rather at the financial safeguards and credit standards of clearing members. The OCC pays no dividends on its common stock.

## Operations: Well-Established Redundancy And Disaster Recovery Processes

The OCC operates duplicate computing systems using multiple power sources and secure, leased communications lines between its primary data processing site and its local disaster recovery site.

The OCC's operations were not directly affected by the events of Sept. 11, 2001, on the World Trade Center, although the clearinghouse did need to reconnect telecommunication links with the ASE and certain clearing members whose own operations were affected. Even under these extreme conditions, the OCC collected all margin requirements on time. Similarly, the Aug. 14, 2003, east coast blackout did not directly affect the OCC, but again, the clearinghouse collected all margin in a timely manner.

Table 2

Options Clearing Corp. Statistics						
	Year ending Dec. 31					
Market statistics	2006*	2005	2004	2003	2002	2001

**Volume (mil. contracts)**

Equity	1,844.2	1,369.0	1,083.6	830.3	709.8	722.7
Index	183.5	135.1	98.2	77.3	70.3	58.0
Currency	0.1	0.2	0.2	0.3	0.4	0.6
Total	2,027.8	1,504.3	1,182.0	907.9	780.5	781.3
Open interest (mil. contracts) (year end)	232.4	193.0	158.1	128.5	98.5	86.0
Approx. notional value (bil. \$)	2,544	1,721	1,200	870	600	700
Approx. market value (bil. \$)	79.4	58.1	41.0	33.7	29.8	39.8

**Membership**

Number of members	120	122	122	127	127	131
Equity and sub. debt (bil. \$)	219	198	177	158	140	141

**Margin collateral**

Margin requirements (year end) (mil. \$)	46,673	44,118	37,675	30,189	21,296	20,184
Margin collateral after haircuts	39,981	49,804	40,701	34,340	24,938	24,712

**Collateral holdings (year end) (% of total)**

Cash	0.9	0.4	0.3	0.7	0.3	0.3
Gov't. securities	30.8	19.7	26.3	21.6	26.0	19.6
Letters of credit	12.4	11.6	13.0	14.8	12.8	18.5
Valued securities	55.9	68.3	60.5	62.9	60.9	61.6
Underlying securities	18,002	14,311	14,273	10,122	6,269	8,948
Index escrow receipts	14,580	11,574	5,271	2,621	1,880	2,319
Total collateral	72,562	75,689	60,245	47,083	33,087	35,979
Equity contracts w/ specific deposits (mil.)	4.58	3.71	4.12	2.95	2.16	2.42
Index contracts w/ specific deposits (mil.)	0.14	0.12	0.05	0.03	0.03	0.02
Market value/contract (\$)	341.59	301.10	259.33	262.26	302.54	462.79
Margin requirement/(contracts less specifics) (\$)	205.02	233.27	244.75	240.51	221.12	241.55
Margin collateral/(contracts less specifics) (\$)	175.62	263.33	264.41	273.58	258.93	295.74

**Clearing fund**

Total deposits (year end) (mil. \$)	2,917.8	2,440.3	2,048.3	1,633.5	1,358.5	1,381.6
Deposits/contract (\$) (year end)	12.56	12.65	12.96	12.71	13.79	16.07
Deposits/margin req. (year end) (%)	6.3	5.5	5.4	5.4	6.4	6.8

**Performance (mil. \$)**

Clearance fees	277.6	209.6	175	145.4	128	126.7
Other income	17.9	17.2	10.9	9.2	8.8	10.3
Expenses and taxes	124.1	119	126.2	121.4	114.5	105.6
Rebates or discounts	171.4	107.8	59.7	33.1	14.1	26.7
Net income	0	0	0	0.05	8.2	4.8
Rebates/clearance fees (%)	61.7	51.4	34.1	22.8	11.0	21.1
Retained earnings (year end)	48.9	48.9	48.9	45	44.9	36.7

\*Performance data is preliminary and unaudited.

**Ratings Detail (As Of 31-Jan-2007) \*****Options Clearing Corp.**

Counterparty Credit Rating

AAA/Stable/--

**Counterparty Credit Ratings History**

28-May-1997

AAA/Stable/--

19-Jan-1993

AAA/--/--

## Sovereign Rating

United States of America

AAA/Stable/A-1+

\*Unless otherwise noted, all ratings in this report are global scale ratings. Standard & Poor's credit ratings on the global scale are comparable across countries. Standard & Poor's credit ratings on a national scale are relative to obligors or obligations within that specific country.

Analytic services provided by Standard & Poor's Ratings Services (Ratings Services) are the result of separate activities designed to preserve the independence and objectivity of ratings opinions. The credit ratings and observations contained herein are solely statements of opinion and not statements of fact or recommendations to purchase, hold, or sell any securities or make any other investment decisions. Accordingly, any user of the information contained herein should not rely on any credit rating or other opinion contained herein in making any investment decision. Ratings are based on information received by Ratings Services. Other divisions of Standard & Poor's may have information that is not available to Ratings Services. Standard & Poor's has established policies and procedures to maintain the confidentiality of non-public information received during the ratings process.

Ratings Services receives compensation for its ratings. Such compensation is normally paid either by the issuers of such securities or third parties participating in marketing the securities. While Standard & Poor's reserves the right to disseminate the rating, it receives no payment for doing so, except for subscriptions to its publications. Additional information about our ratings fees is available at [www.standardandpoors.com/usratingsfees](http://www.standardandpoors.com/usratingsfees).