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July 11, 2011

Elizabeth M. Murphy
Secretary
U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: File Number SR-C2-2011-008

Dear Ms. Murphy:

On June 3, 2011, the Securities and Exchange Commission (“SEC” or “Commission”) issued an order (the “Order”) instituting proceedings to determine whether to approve or disapprove the captioned proposed rule change filing by C2 Options Exchange, Incorporated (“Exchange” or “C2”).¹ The rule change would permit the listing and trading on the Exchange of Standard & Poor’s 500 (“S&P 500”) index options with third-Friday of the month expiration for which the exercise settlement value would be based on the index value derived from the closing prices of component securities (p.m.-settled) (“SPXPM”). This letter responds to the Commission’s request for additional information relating to this rule filing.²

Executive Summary

- The proposal is consistent with the Securities Exchange Act of 1934 (the “Act”) and the rules and regulations issued thereunder. Significantly, broad-based index options with a p.m. settlement feature, including with third Friday expirations, have previously been approved by the Commission and were deemed consistent

¹ C2 and the Chicago Board Options Exchange, Incorporated (“CBOE”) are wholly-owned subsidiaries of CBOE Holdings, Incorporated.

² We note that the comment period closes on July 11, 2011.

with the Act. Indeed, some of these approvals have occurred within the past year. The following chart highlights a number of p.m.-settled listed option products available on exchanges today.

Option Product	P.M. Settlement	Year P.M. Allowed ³
SPX Quarterly Index Expiration ("QIX")	Yes	1993
SPX End of Week Expiration	Yes	2010
FLEX Options	Yes	1993 (2010 for third Fri)
XSP QIX	Yes	1993
OEX Options	Yes	1982
OEX Short Term Option Series ("Weekly")	Yes	2005
XEO Options	Yes	2004
XEO Weekly	Yes	2005
XEO QIX	Yes	1993
Russell 2000 QIX	Yes	1993
PHLX Gold/Silver Sector Quarterly (XAU)	Yes	2006
PHLX Oil Service Sector Quarterly (OSX)	Yes	2006
PHLX Semiconductor Sector (SOX) Quarterly	Yes	2006
Equity Options	Yes	1973
ETF Options	Yes	1998

- There is nothing inherently wrong with p.m. settlement, and the proposed SPXPM contract should present no special concerns to the market. Using closing prices to value positions is standard practice in virtually all areas of the financial markets, including listed and over-the-counter ("OTC") options. Concerns in the past with p.m. settlement of index options spoke principally to the inability in the late 1980s of a manually-driven stock closing process to handle sometimes larger market-on-close ("MOC") interest on third Friday expirations.
- The Commission correctly seeks to assess proposals such as this one using evidence-based evaluations. Data collected in connection with other p.m.-settled option products reveals no evidence that p.m. settlement is likely to lead to increased and disruptive volatility at the close. The fact that this proposal is structured as a pilot program will enable the Commission to closely monitor it, as it has done with respect to CBOE's pilot programs. This in turn, will allow the

³ The dates listed in this column represent the year the applicable product type received approval to utilize p.m. settlement, some of the products in the chart were not listed for trading until a later date.

Exchange to engage in responsible product development and to offer for trading a product that is of interest to customers.

- The Exchange believes the product will be well received by retail and institutional users. Further, introduction of an exchange-listed product that is designed to attract current users of OTC S&P 500 options is in the public interest in that it adds transparency to these transactions, greatly reduces counterparty risk, helps systematically important dealer banks better manage their risk from OTC dealing, and furthers the objectives of the Dodd-Frank Act to add increased transparency and reduce systemic risk in the OTC derivatives markets.

General Comments

As a matter of law, the proposal is consistent with the Act and the rules and regulations issued thereunder that are applicable to self-regulatory organizations. The proposal seeks to allow C2 to list and trade *on a pilot basis* a standardized, cash-settled, broad-based index option. Many such index options trade on CBOE and other U.S. options exchanges and have been deemed by the Commission to be consistent with the Act. C2's proposed cash-settled S&P 500 index option would utilize a p.m. settlement convention. However, this convention is not new and has been approved and found to be consistent with the Act on numerous occasions, including *twice* within the last year.

Several p.m.-settled products of note currently trade at CBOE. OEX, a popular index option contract based on the S&P 100 index, has been continuously p.m.-settled since its inception in 1983. At its peak in 1986, OEX averaged 447,237 traded contracts per day.⁴ In 1993, the Commission approved CBOE's listing of certain p.m.-settled, cash-settled options on the S&P 100 and 500 Stock Indexes that expired on the first business day of the month following the end of the calendar quarter ("Quarterly Index Expirations").⁵ In 2006, the Commission approved a pilot program for CBOE's listing of p.m.-settled index options expiring on the last business day of a calendar quarter ("Quarterly Option Series").⁶ CBOE has substantial experience with these special-dated options and has not observed any market disruptions resulting from their p.m.-settlement feature.

More recently, in February 2010, CBOE received approval to list and trade FLEX Options that have p.m. settlements on any expiration day, including third Fridays

⁴ As late as 1995, OEX averaged 276,323 contracts per day.

⁵ See Securities Exchange Act Release No. 31800 (February 1, 1993), 58 Fed. Reg. 7274 (February 5, 1993) (SR-CBOE-92-13). These Quarterly Index Expirations have since been modified to expire on the last business day of a calendar quarter. See Securities Exchange Act Release No. 54761 (November 16, 2006), 71 FR 67665 (November 22, 2006)(SR-CBOE-2006-085).

⁶ See Securities Exchange Act Release No. 54123 (July 11, 2006), 71 Fed. Reg. 40,558 (July 17, 2006). The pilot was made permanent in 2009. Release No. 60164 (June 23, 2009), 74 FR 31333 (June 30, 2009) (SR-CBOE-2009-029).

(pursuant to a pilot program).⁷ As several commenters noted in support of that proposal, p.m. settlement benefited institutional investors who used FLEX options for hedging purposes, because “the more flexibility/granularity we have in terms of FLEX option dates with p.m. expirations . . . , the more effectively we can [tailor] and use FLEX options for our [equity indexed annuity] hedging needs.” 75 FR at 5831.

Although the Commission identified potential “concern about the effect upon market volatility of p.m. settlements,” it “agree[d] with [CBOE] that allowing p.m. . . . settlements for FLEX Index Options . . . may allow more market participants to benefit from trading customized-type options in the Exchange’s FLEX Options market rather than the OTC market.” *Id.* at 5,832.⁸ The Commission further concluded that “CBOE’s proposed fourteen-month pilot,” which included interim and annual reporting requirements, “will allow for the CBOE and the Commission to monitor the potential for adverse market effects.” *Id.* As discussed below, no such adverse effects were identified.

Similarly, in September 2010, the Commission approved a CBOE pilot program that permits p.m.-settled options on broad-based indexes expiring on any Friday of the month, other than the third Friday of the month, as well as the last trading day of the month.⁹ Noting that it had previously approved p.m.-settled products for CBOE on at least three separate occasions, the Commission found that the proposed pilot program was consistent with the Act:

The Commission has carefully reviewed CBOE’s proposed rule change and finds that it is consistent with the requirements of the Act and the rules and regulations thereunder applicable to a national securities exchange, and, in particular, Section 6(b)(5) of the Act, which requires that an exchange have rules designed to promote just and equitable principles of trade, remove impediments to and perfect the mechanism of a free and open market and a national market system, and to protect investors and the public interest, *to allow CBOE to conduct limited, and carefully monitored, pilots as proposed.*

75 FR at 57,540 (emphasis added). Once again, no problems have emerged under this pilot.

All of the products listed above were approved by the Commission and deemed consistent with the Act. C2’s current proposal should be treated the same way. Similar to the February and September 2010 proposals, the Exchange proposes a p.m.-settled

⁷ See Securities Exchange Act Release No. 61439 (January 28, 2010), 75 FR 5831 (February 4, 2010) (SR-CBOE-2009-087) (order approving rule change to establish a pilot program to modify FLEX option exercise settlement values and minimum value sizes). This pilot has been extended once and currently expires on March 30, 2012 unless otherwise extended or made permanent.

⁸ We believe the concern referenced by the Commission was based on concerns with p.m. settlement from the 1980s and not any market developments around the time of the consideration of the CBOE Flex pilot.

⁹ See Rule 24.9(e) and Securities Exchange Act Release No. 62911 (September 14, 2010), 75 FR 57539 (September 21, 2010) (SR-CBOE-2009-075).

options product as a pilot program under which the Exchange will provide the Commission with interim and annual reports that will measure, among other things, volatility in the volume and price of orders executed at the close of trading. See Proposal at 8-9. As the Commission has previously stated, the limited duration of the pilot and the proposed reporting requirements “will enable the Commission to evaluate whether allowing p.m. settlements . . . has resulted in increased market and price volatility,” and “should help [CBOE] to monitor any potential risk from large p.m.-settled positions and take appropriate action if warranted.” SR-CBOE-2009-087, 75 FR at 5832.

We do not believe this proposal should be deemed inconsistent with the Act given that all of the other products listed above (some of which allow for expiration on third Fridays) were approved and deemed consistent with the Act. See, e.g., *Indep. Petroleum Ass’n of Am. v. Babbitt*, 92 F.3d 1248, 1258 (D.C. Cir. 1996) (“An agency must treat similar cases in a similar manner unless it can provide a legitimate reason for failing to do so.”; *FCC v. Fox Television Stations, Inc.* 129 S. Ct. 1800, 1811 (2009)). Moreover, the information provided in analysis I of the Appendix regarding the volatility effect of SPX End-of-Week p.m.-settled options (the most heavily traded of our newer special-dated expiration products¹⁰), for example, fails to show any evidence of disruptive volatility on the settlement days of these contracts. As the Appendix shows, there is no significant difference between the average price movement, or tick size, at the close, on expiration days and non-expiration days, i.e., SPX end-of-week p.m.-settlements have not resulted in increased tick volatility. These data show that approval of SPXPM on a pilot basis is appropriate, and should alleviate any concerns the Commission may have about disruptive volatility associated with p.m.-settled products. This record alone provides the Commission with the requisite “reasoned basis” for approving the current proposal.¹¹

There are other reasons as well why the Exchange’s proposal furthers the goals of Section 6(b)(5) of the Act—namely, that it is designed, among other things, to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest. The Exchange and CBOE believe that existing cash-settled broad based index options (including those that are p.m.-settled) have withstood the test of time and have proven themselves to be valuable and well-regulated financial instruments. Accordingly, by utilizing established contract specifications that already exist on CBOE and by not introducing any unique features, the proposal is designed to prevent fraudulent and manipulative practices. We also note that C2 has made surveillance representations in our filing and that, based on our long history in the options markets, our market surveillance practices are effective and appropriate.

¹⁰ Through June 30, 2011, SPX End-of-Week p.m.-settled options have averaged over 57,000 contracts per day, and have accounted for 7.3% of total SPX option volume. On 40 of the 108 days that SPX End-of-Week options were listed, SPX End-of-Week options accounted for over 10% of SPX option volume. Also, the expiring open interest in SPX End-of-Week options has averaged over 170,000 contracts in 2011, reaching a high of 240,000 contracts for SPX End-of-Week options expiring on March 4, 2011.

¹¹ *NetCoalition v. SEC*, 615 F.3d 525, 544 (D.C. Cir. 2010) (internal citation omitted).

The proposal removes impediments to and perfects the mechanism of a free and open market by introducing a product that utilizes the same p.m. settlement/pricing feature that exists for individual equity and ETF options (including the Standard and Poor's Depository Receipts Trust—SPY ETF—which is also based on the S&P 500 Index) and that is overwhelmingly used in connection with most financial products including registered investment companies. This allows investors seeking to trade index options the ability to trade such options with the more logical and customer friendly (*i.e.* intuitive) p.m. settlement feature. Thus, by introducing a product that is in line (in terms of the settlement methodology) with other financial products commonly used by investors, the proposal is designed to remove impediments to the mechanism of a free and open market.

The proposal also is designed to protect investors and the public interest in that, by fashioning the proposal as a pilot and by committing to provide frequent and substantial reports containing data specified by Commission staff, the Commission will have ample opportunity to evaluate the impact of the proposal once trading commences and to gauge its impact, if any. We also believe it is in the public interest to avoid precluding certain derivative contract specifications based on concerns from over 24 years ago. Indeed, allowing pilot programs to go forward in response to customer demand fosters responsible product development which is beneficial to the public interest. Moreover, because our proposed product conforms to end-of-day valuation and marking practices that have become institutionalized in many important markets that serve millions of public investors, we believe that the pilot program will further confirm what existing evidence already shows—that the p.m.-settlement convention will not lead to any market disruption at the close.¹²

As a matter of policy, the proposal should be approved because it would confer important benefits to investors and because, as stated above, it encourages responsible product development, a hallmark of our national markets. The use of p.m. settlement for options is based on the understanding that using closing prices to value investments is expected by retail and professional investors alike. Mutual funds use closing prices to calculate net asset values every day. Index levels are benchmarked based on changes from one closing value to another. Investors and traders value their positions using closing prices. Contracts referencing or involving securities or benchmarks make overwhelming use of the closing prices of such securities or benchmarks, not the opening or intraday prices.

¹² The benefits of pilot programs are frequently highlighted. See, e.g., Commission approval order regarding options penny pilot: "The continued operation and phased expansion of the Pilot Program will provide further valuable information to the exchanges, the Commission, and others about the impact of penny quoting in the options market." See also Cass Sunstein, Office of Information and Regulatory Affairs, Speech to the American Enterprise Institute (May 26, 2011)(available at <http://www.aei.org/docLib/Sunstein-%20Transcript-Speech%20and%20QA.pdf>) "We know that institutions and anecdotes are unreliable, and that advance testing of the effects of rules, as through pilot programs or randomized controlled experiments, can be highly illuminating."

Indeed, the OTC options market, which is massive in size,¹³ overwhelmingly utilizes a p.m. settlement convention. Thus, not only would approval of the proposal allow investors greater access to the logical and intuitive p.m. settlement process, it would offer existing OTC users a liquid, transparent, exchange-traded and regulated alternative that eliminates the counter party risk associated with OTC options — a key objective of the Dodd-Frank Act. In short, we believe SPXPM provides a product that is simple, beneficial, and desirable for both retail and institutional investors.

The transition of certain derivative products over 24 years ago from p.m. settlement to a.m. settlement should not preclude approval of our proposal. The reasons for that change, almost a quarter century ago, must be clearly understood. There were no findings at the time that p.m. settlement was inconsistent with the federal securities laws.¹⁴ Instead, the transition was an expedient means to accommodate concerns expressed by the primary stock exchange for almost all of the stocks comprising the S&P 500 at the time (the New York Stock Exchange (“NYSE”)), which exchange was dominated by unitary specialists, who effectively controlled the book in their specialty stocks. I have first-hand knowledge of the transition because at the time I was the President and CEO of the Chicago Mercantile Exchange, and was heavily involved in the discussions surrounding the transition, including as a participant in a joint task force comprised of various exchange and regulatory agency officials. The rationale for the transition is discussed in greater detail later in this letter.

Twenty-four years ago, interested parties deemed the closing procedures on NYSE not suitable for handling increased trading volume associated with the expiration of index derivative products. Today’s robust and transparent closing procedures on NYSE are quite different and more than able to facilitate the orderly development of contra-side interest. Moreover, compared to 24 years ago the entire marketplace is much more capable of handling any incremental volume associated with p.m.-based expirations. We expect that any added underlying stock trading volume resulting from new SPXPM customers would be welcomed by NYSE and the other stock market venues. Further, as we have indicated previously, many other trading venues, including Nasdaq (which has its own electronic closing process), trade NYSE-listed stocks.¹⁵ We also note that after hours trading today gives traders an additional outlet to offset imbalance positions that they may absorb at the close, which outlet did not exist when the migration to a.m. settlement occurred.

In short, the marketplace is ripe for our proposed new product, the experience of other p.m.-settled options indicates no ground for concern, and the pilot feature of the

¹³ According to data available from the Bank for International Settlements (BIS), in December 2010, the outstanding notional amount of OTC equity linked derivatives exceeded \$1.5 trillion. It is our understanding that over 80% of OTC equity linked derivatives are tied to the S&P 500 index.

¹⁴ In fact, at least one study published in 1993 found that “The S&P 500 demonstrates no significant price distortions when futures and options expire (or when only options expire).” Hancock, G.D., *Whatever Happened to the Triple Witching Hour?* Fin. Analysts J. (May/June 1993).

¹⁵ In June 2011, NYSE averaged roughly 26% market share in NYSE-listed stocks - much less than in 1987.

proposal will give the Commission an additional ability to appropriately measure any impact SPXPM may have. Investors would benefit from SPXPM being made available to them.

Responses to Specific SEC Questions

In its request for comment, the Commission asks that commenters address the merits of C2's statements in support of its proposal as well as the comments received on the proposal. We stand by prior statements we have made in connection with the proposal, and to avoid restating our responses to the commenters on the filing,¹⁶ we hereby incorporate our April 20, 2011 response letter by reference. The Order also requests comment on nine specific questions relating to p.m. settlement and market structure. Those questions are listed below along with C2's responses.

1. What are commenters' views with respect to the operation and structure of the markets today in comparison to the operation and structure at the time of the shift to a.m. settlement of cash-settled index options, and whether the current operation and structure of the markets support, or do not support, allowing S&P 500 index options on C2 to be p.m.-settled? Please be specific in your response.

The impact 24 years ago of MOC orders on so-called "triple-witching" expiration days (when stock index futures, index options, and equity options expired, causing an increase in the use of MOC orders on stock exchanges) was more a function of the stock closing procedures in place at the time and the specialists' inability to efficiently handle larger closing volumes rather than a result of a derivative settlement process that was inherently flawed or inappropriate. At the time, it was easier and more expedient to migrate certain derivative contract settlements to an opening price and process (which was already structured to allow for greater imbalance dissemination and processing, and to allow for broader investor participation), than to somehow quickly change or update the manual closing procedures to better replicate the more advanced and thorough opening procedures that existed. That was 24 years ago. As we all know, the stock market today looks and operates nothing like the stock market of the 1980s.

Over the past 20 years, the equity market's ability to more efficiently process dramatically greater order volumes and the evolution of closing procedures cannot be denied. In 1990, the average daily volume in U.S. equities was approximately 301,900,000 shares, in 2010 it was 6,222,489,323 shares. Volume associated with index option expirations, by contrast, has not increased nearly as much over the same time period, and is therefore a much smaller percentage of total trading today than it would have been 20 years ago.¹⁷

¹⁶ Two of the five commenters submitted comments anonymously. Three of the five commenters stated views that were generally favorable to the proposal.

¹⁷ In 1990, CBOE's S&P index options (SPX, OEX, NSX, and SPL) daily volume averaged 319,905 contracts. In 2010, the average daily volume for SPX, OEX, XEO, and XSP was 749,171.

We also highlight that recent academic evidence shows that market quality metrics have improved over the past two decades as the operation and structure of US markets has changed. For example, Chordia, Roll, and Subrahmanyam (2010) find that effective spreads have declined substantially between the two subperiods they studied (1993-2001 vs. 2001-2008). They find that lower trading costs and new trading technology have made it easier for the market to accommodate large trading volume. They also find that since 1993 information-based trading has increased, leading to more efficient pricing, another measure of market quality. Significantly, they find this effect to be most pronounced for stocks with the highest levels of institutional holdings (which are likely to be large capitalization stocks such as those found in the S&P 500 index). Importantly, they find that:

“Further, intraday volatility has decreased and hourly/daily variance ratios indicate that prices conform more closely to random walks in recent years, which indicates that increased trading activity has been accompanied by enhanced market quality.” (Chordia, Roll, and Subrahmanyam, pages 4 and 5).¹⁸

2. In particular, what are the commenters' views on the ability of the closing procedures currently in place on national securities exchanges to manage a potential increase in volume, at the close on Expiration Fridays, if derivatives on the S&P 500 index were p.m. settled?

In the late 1980s when a.m. settlement was introduced, NYSE MOC order submission cutoffs were set at 3:45 p.m. ET and imbalances exceeding 50,000 shares triggered imbalance notifications after 3 p.m. ET. The ability for the imbalance notifications to reach a broad spectrum of investors back then was far less than it is today. Further, the imbalance announcements were not updated on a real time basis. Indeed, there was little automation and transparency with respect to the closing process. Also, imbalance interest on NYSE was overwhelmingly handled by the specialist who operated with a concern about taking on a large position at the close that could not be offset until the stock market was next open for trading.

Today, the process on NYSE is dramatically more sophisticated and largely automated. Generally under NYSE Rule 123C, MOC and limit-on-close (“LOC”) orders may only be received electronically, and they must be received prior to 3:45 p.m. ET. Further, cancellations are not allowed after 3:45 p.m. ET unless it is determined that the cancellation is warranted because of a legitimate error (such as wrong security, wrong number of shares, or wrong side). The NYSE system tabulates MOC/LOC interest to determine an imbalance and a mandatory imbalance notification is issued as soon as possible after 3:45 p.m. ET (50,000 shares is the general threshold). This notification is transmitted via the consolidated tape. Importantly, this notification is supplemented by a real time NYSE data feed that publishes a reference price in order to indicate how many

¹⁸ See Tarun Chordia, Richard Roll, and Avanidhar Subrahmanyam, “Recent Trends in Trading Activity and Market Quality,” Emory Law and Economics Research Paper No. 10-88 (2010). Available on SSRN.

shares would be needed to close the stock at that price (the calculation includes MOC, LOC, and Closing Offset interest). Beginning at 3:55 p.m. ET, the calculation provided by the data feed also includes stop orders and other interest in the NYSE system eligible to participate in the closing transaction.

The NYSE also employs informational imbalances which may occur between 3 p.m. and 3:45 p.m. ET to indicate a disparity between existing closing-only interest on the exchange. Also, NYSE Floor Brokers have access to a data feed with imbalance information between 2 p.m. and 3:45 p.m. ET. The closing print price on NYSE is system-calculated taking into account the order execution priority provisions of Rule 123C. Additionally, that Rule allows for extended order entry and acceptance after 4 p.m. ET (for up to 30 additional minutes) to mitigate any potential price disparity. Only interest that would offset the imbalance is allowed during such periods.

Because of these procedures, today's closing process on the NYSE is much more systematized and, hence, more orderly and efficient than it was 24 years ago. Information regarding order imbalances at or near the close is more detailed and readily available than it was previously. Notably, the real time data feed is a feature that adds significant transparency to the closing print process. Additionally, NYSE has implemented the ability to "extend" order acceptance after 4 p.m. in order to offset extreme imbalances. Another significant difference is that the gathering and dissemination of the mandatory imbalance is handled by NYSE systems today and is less reliant on the specialist. Indeed, specialists no longer exist on NYSE (although NYSE now designates Designated Market Makers or "DMMs," which have certain similar responsibilities). We believe that dedicated liquidity provision on a security-by-security basis is much more dispersed on NYSE today than 24 years ago in that numerous entities can and do provide liquidity in a stock at the same time. Moreover, trading volume in S&P 500 stocks is dispersed across multiple exchange and non-exchange venues, a dramatic difference from 24 years ago when the majority of order flow in a stock passed through a specialist on NYSE.

3. Even if commenters believe that the current closing procedures would be sufficient, what are commenters' views as to the incentives or inclination of market participants to offset liquidity imbalances at the close of trading on Expiration Fridays?

Importantly, in today's market, participation in the close involves more than just an NYSE specialist to offset imbalances. We assume that this question was likely not specifically directed to C2, but we have not received any feedback from large liquidity providing firms that our product would create unmanageable imbalances or one-sided end of day orders that would be left unfilled due to a lack of contra-side interest. To the contrary, stock trading firms we consulted expressed confidence that the participation of significant and sophisticated participants well-practiced in arbitrage strategies coupled with the transparent, efficient, and technologically advanced closing process on NYSE could easily withstand added MOC volume resulting from p.m.-settled derivative products.

4. What are the commenters' views on whether volatility or the potential for market disruptions would be more likely to be caused by or connected with p.m. settlement of cash-settled index derivatives compared to a.m. settlement?

There is no evidence that market disruptions would be more likely to occur with the introduction of an additional p.m. settlement option product. We have found no correlation between periods of greater p.m.-settled index option volume and an increase in disruptive market volatility at the close (see analysis II of the Appendix). Indeed, the chart attached as analysis II shows that even during a time period dominated by p.m.-settled index options (March 1983 to August 1992), there was no significant difference between cash market index option returns on expiration days and returns on the same index options on the day or week prior to expiration days. The efficient closing (and opening) procedures in place in the stock market today coupled with the dramatically broader participation by numerous liquidity providers allows the stock markets to handle order surges at the open, close and throughout the trading day without market disruption. If anything, the coexistence of a.m. and p.m. products will act to somewhat distribute volume to both the open and the close. We also note that a multitude of factors contribute to market volatility, many of which do not confer the benefits of products like SPXPM, products that assist investors because they provide a tool to hedge market volatility.

In addition, we believe that p.m. settlement offers significant and desirable benefits to investors due to increased transparency of the component pricing and mechanisms used to arrive at a final settlement value. The special opening quotation of SPX, which is the final settlement value for a.m.-settled SPX contracts (as well as S&P 500 futures) can be confusing for investors because the value is calculated differently than intraday SPX values.¹⁹ P.M.-settlement would eliminate this confusion because the final settlement value would indeed be the very last (closing) reported index value.

5. What are commenters' views on the potential impact, if any, on the underlying cash equities markets, particularly at the close, if the futures markets introduce a p.m.-settled S&P 500 index future subsequent to C2 introducing a p.m.-settled S&P 500 index option? If commenters think there may be an impact, do changes in market structure mitigate or exacerbate that impact relative to the experience pre-1987 when p.m. settlement was standard? Please provide data in support of your conclusion.

We feel strongly that changes in market structure (namely the growth and evolution of trading in the marketplace) should eliminate the concerns that existed almost 25 years ago. As stated above in response to question No. 1, those concerns related to the ability of the stock market, namely one particular exchange, to handle a larger than normal influx of MOC orders on expiration days. Today, that exchange is easily able to handle considerable MOC interest and is likely eager to process any new business associated with p.m.-settled derivative products. Also, as mentioned above, trading today

¹⁹ The SPX opening settlement value is calculated using the opening prices of index components, regardless of the time of that opening transaction. Intraday SPX values reflect a contemporaneous "snapshot" of component prices.

is more dispersed than ever and other exchanges and market centers compete for MOC business.²⁰

CBOE has provided the Commission with data pursuant to existing p.m. settlement pilot programs, and this letter provides the Commission with additional data demonstrating that existing p.m.-settled options do not create problematic volatility. Further, we believe the proposed SPXPM pilot program will afford the ability to compile additional data that could be used to evaluate the impact, if any, of SPXPM on stock market volatility. To the extent a p.m.-settled S&P 500 index future is introduced in the futures markets, it would seem appropriate for the SEC and CFTC to work together to fashion the p.m. futures product as a pilot program. In both cases, pilot status would allow the agencies to compile current data and to make reasonable evidence-based decisions based on the actual impact of p.m. settlement.

6. How has trading and volatility on expiration Fridays, in particular during the open and during the close, and particularly on the quarterly expiration cycle (i.e. December, March, June, and September) changed over the last 30 years? Please provide data to support your answer. How much of the change do commenters think is attributable to the transition to a.m. settlement for cash-settled index options?

Please see the attached analysis of expiration day volatility at the close (analysis II of the Appendix) for a more comprehensive review of expiration day market activity. These data demonstrated that the standard deviation of closing index returns is similar on expiration days and the week before expiration days. We believe equity markets today do not experience disruptions resulting from the expiration of a.m. or p.m. settled derivative contracts because they are technologically dramatically more advanced and equipped to handle order volumes that far exceed those that existed almost 30 years ago. Equity markets today are designed to handle high volume thresholds, and any extra volume associated with derivative expiration can be absorbed without disruption. We also note that because today's closing processes provide for the orderly dissemination and matching of orders, and because of the global nature of our markets and the existence of after hours trading, much of the rationale provided by the Commission in various approval orders related to the switch to a.m. settlement is no longer relevant.

7. If given the opportunity to trade both an a.m. and a p.m.-settled S&P 500 index option, how would market participants react and what might trading in each product look like?

We expect that SPX—an a.m.-settled product—will continue to be a strong and popular index option product valued by institutional users. We expect to attract new customers and order flow with SPXPM. We believe this new business will come from users currently trading OTC S&P 500 option contracts, from users interested in the C2 electronic trading model, and from users seeking a p.m.-settled S&P 500 option that does

²⁰ To that end we note that the primary listing venue for S&P 500 stocks is less concentrated than it used to be. On May 31, 1988, 470 of the 500 S&P 500 stocks were listed on NYSE (accounting for 97.6% of the aggregate component weight). Today, 403 of the 500 S&P 500 stocks are listed on NYSE (accounting for 80.7% of the aggregate component weight). See also *supra* n.15.

not entail the risk of early exercise associated with American-style p.m. settled products such as options on the Standard and Poor's Depository Receipts Trust (SPY). Additionally, the last trading day for a.m.-settled contracts is the day before the settlement value is determined. As a result, investors who choose to hold positions to expiration are exposed to overnight risk; investors who choose to close their positions on the last trading day transact at prices that reflect the overnight risk. P.M.-settled contracts not only provide investors with an extra day to trade, they offer the opportunity to trade out of expiring positions without the risk of overnight events.

We do not believe that any particular trading anomalies will arise by virtue of both a.m. and p.m.-settled index options on the same index being available for trading. As we pointed out in our filing, for roughly five years from 1987 to 1992, CBOE offered for trading an a.m.-settled S&P 500 index option contract at the same time as a p.m.-settled S&P 500 index option contract, and CBOE did not observe any market disruptions or unusual trading conduct as a result of offering both products.

8. To what extent do market participants currently trade S&P 500 index options OTC with p.m. settlement? To what extent would market participants currently trading S&P 500 index options in the OTC market consider switching to a p.m. settled standardized option on the S&P 500 index?

We have conducted numerous inquiries regarding the characteristics of OTC option contracts. The responses we received from a mix of institutional OTC users indicate that roughly 95% of OTC options based on the S&P 500 are p.m.-settled.

Although we cannot predict the extent to which OTC users will choose to switch to an exchange-listed p.m. product, we spend a great deal of time and resources trying to bring business into the transparent exchange-listed marketplace and are hopeful that if SPXPM is approved, it will attract business that is currently handled OTC, including the residual positions of OTC S&P 500 swap dealers. We are confident that SPXPM will help them better manage their dealing risk (since the underlying swap reference indexes are likely tied to the p.m. reference point) and also help mitigate the risks faced by OTC dealer banks—a systematically important market participant. We believe this outcome would be a positive development, good public policy, and consistent with the objectives of the Dodd-Frank Act.

9. Finally, the Commission requests any additional data or analysis that commenters think may be relevant to the Commission's consideration of C2's proposal for p.m.-settled options on the S&P 500 index.

Please see analysis III of the Appendix for additional data relating to historical intra day volatility. Specifically, these data show that the "daily range returns" of p.m.-settled options products, a measure of price volatility over the course of a trading day, are no greater on expiration days than on non-expiration days. In particular, from March 1983 to August 1992, when almost all of the index options traded were p.m.-settled,

intra-day volatility on expiration days was lower than volatility during the week before expiration day.

* * * * *

As we have stated before, the Exchange anticipates that a p.m.-settled index option would be a positive addition to the marketplace. The p.m. settlement convention is practical and intuitive for investors, and it is the standard practice in financial instruments. We believe that the proposal is entirely consistent with the requirements of the Act. The vast OTC index options market utilizes p.m. settlement, and we believe extending its use to more listed option products would allow retail investors this same benefit enjoyed by large institutional OTC traders. In addition, offering SPXPM will help OTC dealer banks — banks that are systematically important financial institutions — better manage their dealing risks. Moreover, the pilot nature of the proposal is appropriate, prudent, and makes it particularly consistent with investor protection and the public interest.

C2 appreciates the opportunity to respond to comments on its proposed rule filing to list and trade p.m.-settled S&P 500 index options pursuant to a pilot program. We also wish to convey our respect for the SEC's desire to thoroughly review all information in connection with this proposal. Please do not hesitate to contact me at (312) 786-7001, Joanne Moffic-Silver, Executive Vice President and General Counsel, at (312) 786-7462 or Angelo Evangelou, Assistant General Counsel, at (312) 786-7464 if you would like to discuss our views further or if you would like additional information.

Sincerely,



William J. Brodsky

cc: The Honorable Mary L. Schapiro, Chairman
The Honorable Luis A. Aguilar, Commissioner
The Honorable Kathleen L. Casey, Commissioner
The Honorable Troy A. Paredes, Commissioner
The Honorable Elisse B. Walter, Commissioner
Robert W. Cook, Division of Trading and Markets
James A. Brigagliano, Division of Trading and Markets
Heather Seidel, Division of Trading and Markets
Richard Holley III, Division of Trading and Markets

Appendix

I. PM-Settled SPX End-of-Week Options

The following analysis is intended to measure market volatility at the close resulting from the settlement of End-of-Week (EOW) SPX Options, which have used p.m.-settlement since December 2, 2010. The data used is S&P 500 "tick data," intraday values of the S&P 500 Index updated approximately every 15 seconds. The analysis measures SPX volatility on a tick-by-tick basis; i.e., the change from one intraday value to the next intraday value reported 15 seconds later.

Since December 2, 2010, there have been 20 SPX EOW expirations. The analysis uses two data sets. The first data set includes all trading days between December 1, 2010 and June 23, 2011 that were not EOW SPX options expirations (113 days) and excludes all standard SPX expiration days. The second dataset includes the 20 trading days for which there was an SPX EOW expiration.

Each data set divides the trading day into 3 periods; the first being the opening 15 minutes of trading (open), the second being the final 30 minutes of trading (close) and the final being the balance of the trading day (intraday). The selection of these periods reflects the assumption that each period displays different volatility on a tick-by-tick basis. For each of these trading periods, the mean change of the SPX index level on a tick-by-tick basis (average tick size) along with the standard deviation of the tick size is calculated. These statistics are reported in tables 1 and 2 below.

A Welch's t-statistic is calculated in order to test whether the average tick size on SPX EOW expiration days was different than on non-expiration days. The calculated t-statistic was 0.450, which is less than a Student's t-statistic at 50% confidence. As such, there is no statistical significance in the difference between the average tick size at the close on expiration versus non-expiration days. In other words, SPX EOW pm-settlements have not resulted in increased tick volatility.

Table 1. Results for trading days without an expiring S&P 500 option

Time Period	Number of Ticks	Average Tick	Standard Deviation	Minimum Tick	Maximum Tick
close	13,553	0.1194	0.1360	0	1.77
intraday	155,767	0.0979	0.1261	0	4.15
open	6,667	0.2239	0.3481	0	7.97

Table 2. Results for trading days with an expiring S&P 500 EOW option

Time Period	Number of Ticks	Average Tick	Standard Deviation	Minimum Tick	Maximum Tick
close	2,386	0.1207	0.1297	0	0.92
intraday	27,304	0.0978	0.1269	0	2.68
open	1,160	0.2069	0.3078	0	6.66

Welch's t-statistic	0.450
Student's t-statistic at 50%	0.674

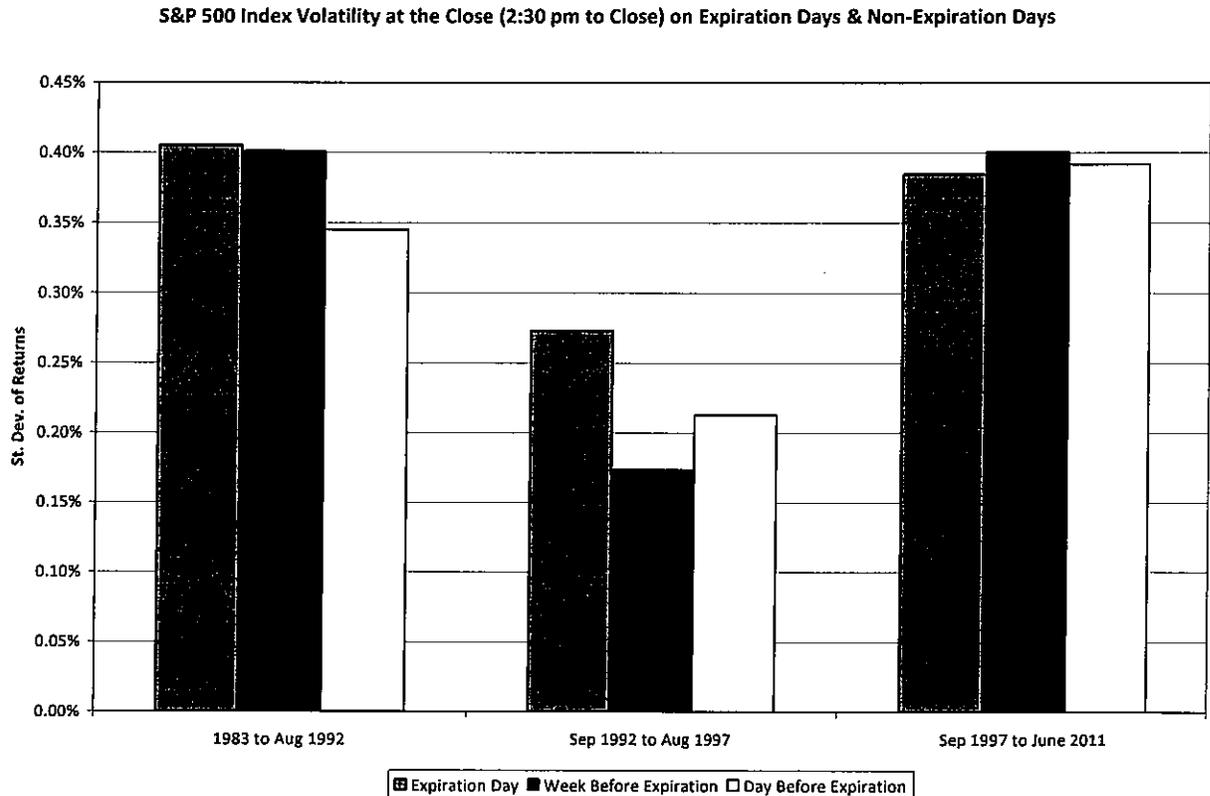
II. Expiration Day Volatility at the Close

The following chart reflects the closing market volatility, as represented by the standard deviation of S&P 500 cash market index returns during the half hour of trading preceding the close. The volatility measures displayed below compare three measures across three periods. The three measures are 1) volatility before the close for third-Friday expiration; 2) volatility before the close for days in the week preceding third-Friday option expirations; and 3) volatility before the close for one-day prior to third-Friday expiration days.

The three time periods covered, relying on data covering a 28-year period from 1983 to 2011, are:

1. January 1983 to August 1992
2. September 1992 to August 1997
3. September 1997 to June 2011

The three time periods were chosen based on the volume and share of trading activity in p.m.-settled index options vs. a.m.-settled index options.



Specifically, between March 1983 and August 1992, p.m.-settled index options accounted for about 98% of all cash-settled index options traded on CBOE. Even though a.m.-settled SPX contracts became available in 1987, trading in these series never exceeded 4.15% of total index option volume. Beginning in September 1992, trading in a.m.-settled index options began to increase, ranging from 5% in September 1992 to just under 50% in August 1997. From September 1997, a.m.-settled index options accounted for more than 50% of all index option activity, and currently represents over 95% of all index options traded across all options exchanges.

The chart above shows that the standard deviation of closing index returns on expiration days from March 1983 to August 1992 – a period dominated by p.m.-settled options – is virtually the same as the standard deviation of closing index returns observed one week prior to that expiration.

During the p.m.-to-a.m. “transition period” from September 1992 to August 1997 – a period marked by generally declining index option volume, but increasing share of a.m.-settled index options – the standard deviation of closing index returns was higher than the standard deviation of closing index returns observed one week before.

From September 1997 to the present – a period dominated by a.m.-settled index options, as well as growth in index options activity generally – there is no discernable difference between the standard deviation of closing index returns is about the same on expiration days and the week before expiration days.

III. Daily Index Ranges

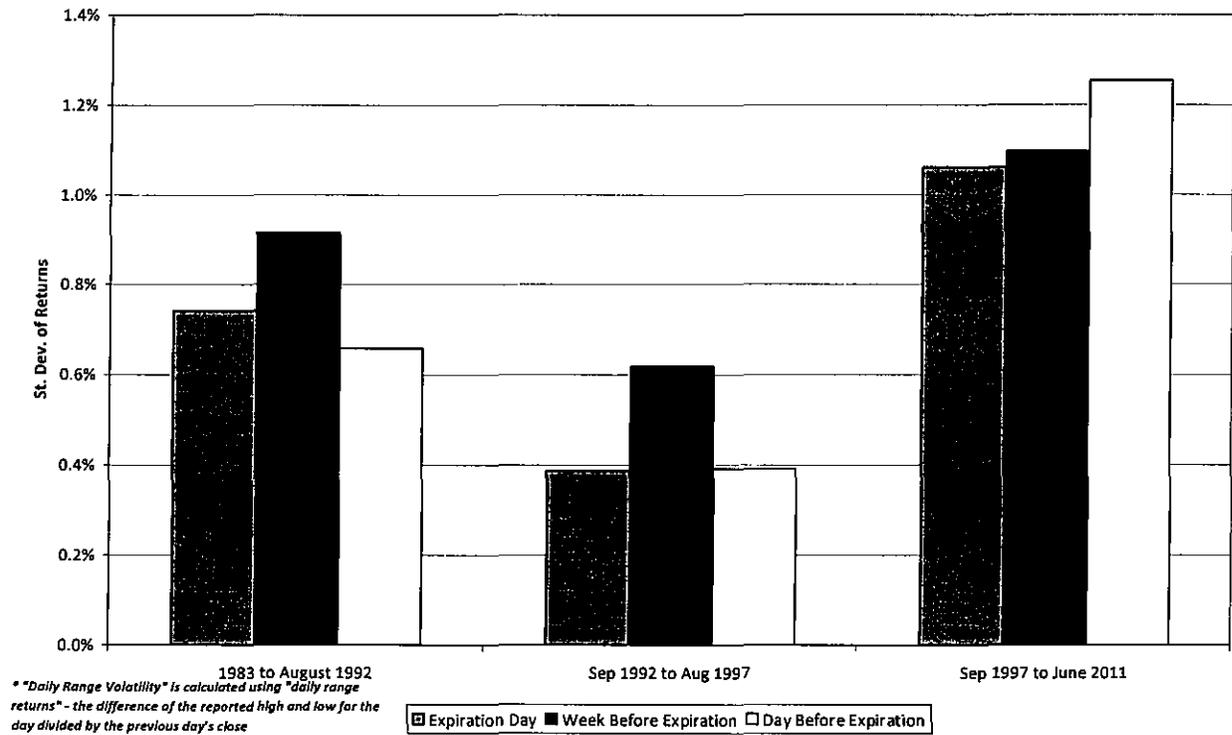
The following chart shows that intra-day volatility, as measured by the high/low range of the S&P 500 Index, has generally been lower on expiration days than on non-expiration days (one week prior to expiration and one day prior to expiration).

Specifically, the chart shows the standard deviation of “daily range returns” in the three periods covered in the analysis. A “daily range return” is calculated by taking the difference of the reported high and low of the S&P 500 Index for the day (“daily range”) and dividing that value by the closing level of the S&P 500 on the previous day.

The chart illustrates that in the period from March 1983 to August 1992, when almost all of the index options traded were p.m.-settled, intra-day volatility on expiration days was lower than on the week before expiration day. During that period, the daily range on expiration days never exceeded 6% of the previous day’s SPX closing level. Likewise, in the period from September 1992 to August 1997, a “transition period” during a majority of index options traded p.m.-settled, intraday volatility was less on expiration

days than on the day one week before expiration. During that period, the daily range on expiration days never exceeded 3% of the previous day's SPX closing level. Finally, from September 1992 to June 2011, a period in which trading activity in p.m.-settled options fell to about 5% of all index option trading, intraday volatility on expiration days was about the same as on days one week prior to expiration.

S&P 500 Index Daily Range Volatility* on Expiration Days & Non-Expiration Days



During that period, the daily range on expiration days never exceeded 8% of the previous day's close.

By way of comparison, since January 1986, there have only been six days on which the daily range of the S&P 500 Index exceeded 10%:

Date	Daily Range Return
October 19, 1987	20.5%
October 20, 1987	13.0%
October 28, 2008	11.2%
November 13, 2008	11.1%
October 10, 2008	10.6%
October 13, 2008	10.5%