Craig S. Donohue
Executive Chairman

January 6, 2015

Ms. Constance M. Horsley
Assistant Director
Division of Banking Supervision and Regulation
Board of Governors of the Federal Reserve System
20th & C Streets, NW
Washington, D.C. 20551

Re: Listed Option Transactions

Dear Ms. Horsley,

The Options Clearing Corporation (***OCC***) appreciated the time that you and your colleagues spent with us during our meeting on November 10. We found the exchange of information and views to be useful, and we hope that you did too. As we mentioned in the meeting, OCC is a member of the U.S. Securities Markets Coalition (***Coalition***) and is working with that group on this issue.[1]

As discussed at the end our meeting, we are following up by letter to provide additional information on behalf of the Coalition. In this letter we provide detail regarding typical trading practices in the market for exchange-traded (listed) options. This information relates to our observation, discussed at the meeting, that the risk-weighted capital rules may be particularly ill-suited when applied to the risk-limited trading strategies that characterize the listed options market. We then offer further thoughts regarding the potential for interpretive relief. As you will see, the opportunity for an interpretive approach is most clear with respect to some of the simpler scenarios that we discuss. Although challenges arise when the complexities of market-maker portfolios are considered, we hope that, working with you, we are able to help bridge the interpretive gap there as well.

[1] The members of the Coalition (together with OCC) are BATS Options, BOX Options Exchange, Chicago Board Options Exchange, International Securities Exchange, NASDAQ Options Market, NASDAQ OMX PHLX, NYSE Arca, and NYSE Amex. All of these members are regulated by the Securities and Exchange Commission (***SEC***), and OCC is also regulated by the Commodity Futures Trading Commission and The Board of Governors of the Federal Reserve. NASDAQ Options Market and NASDAQ OMX PHLX are owned by the NASDAQ OMX Group, and NYSE Arca and NYSE Amex are owned by the IntercontinentalExchange Group.

BACKGROUND

Before addressing trading practices and interpretative matters, we wish to recap the context of our discussions. Much of this information was included in the materials we provided at the meeting, but we thought it might be useful to include it here as well, particularly for readers who may not have attended the meeting.

OCC is the central clearing agency for all U.S. options exchanges, and its clearing members clear transactions for all liquidity providers (e.g., market-makers) in the listed options market as well as for public customers. Market-makers that are clients of OCC clearing members take one side of approximately 85% of all customer trades executed in this market.

Many of OCC's largest clearing members are subsidiaries of U.S. banking organizations that are required to maintain capital based, in part, on their risk-weighted assets (***RWA***) under rules adopted by U.S. banking authorities in 2013 (***Basel III Capital Rules***). To the extent these clearing members are subject to the advanced approaches under the Basel III Capital Rules ("advanced approaches banks"), they have been subject to the RWA capital floors of the current Basel I-based capital rules and, from January 1, 2015, will be subject to the RWA capital floors of the standardized approach of the Basel III Capital Rules. OCC clearing members that are not bank affiliates are not subject to the Basel III Capital Rules (although they are subject to the European Union's implementation of the Basel III requirements).

OCC's U.S. bank-affiliated clearing members are focused on the adverse manner in which exposure amounts for listed option portfolios are calculated under the Basel III Capital Rules' standardized approach. That said, OCC and its clearing members are aware of ongoing discussions regarding the "current-exposure method" (or ***CEM***) that underlies the standardized approach. In particular, as discussed at the meeting, the Basel Committee on Banking Supervision (***BCBS***) earlier this year published its final standard for a new standardized approach for measuring counterparty risk exposures (***SA-CRR***).

The SA-CRR was subsequently incorporated into the BCBS's consultative document entitled *Revisions to the Standardised Approach for Credit Risk*, which was published on December 22, 2014. We note that U.S. banking agencies announced on the same date that they would consider the proposals outlined in the BCBS consultative paper. However, even if adopted in the United States, the SA-CRR is not anticipated, per the BCBS publication, to apply before 2017. Thus OCC and its clearing members are pursuing their discussions with you and your colleagues in the hope of achieving separate relief.

TRADING PRACTICES IN THE LISTED OPTIONS MARKET

We believe that separate relief would be warranted, from an economic risk perspective, because of the unique nature of trading in the market for listed options. In 2013, listed options trading volume executed on the exchanges and cleared by OCC exceeded four billion contracts covering approximately 3,700 individual equities as well as various equity indexes. As noted above, market-makers serve as the backbone of the long-established listed options market and are on the other side of approximately 85% of all customer trades executed in the market. Frequently, these customers – who include both retail and institutional customers –

engage in risk-limited options strategies known as spread trades to achieve certain investment outcomes. They very often do so by sending a single order known as a "complex order" to an exchange for execution. A complex order typically involves the purchase and sale of multiple options (and may be coupled with purchases or sales of the underlying stock)[2] executed simultaneously as part of the same strategy.

Retail customers, who are active users of listed options, tend to engage in simpler spread trades such as vertical spreads.[3] Two examples of these kinds of spread trades are described below. Institutional customers engage not only in these simpler transactions, but also in more complex spread trades, such as box spread trades. An example of a box spread trade is also described below.

Market-makers typically take the other side of each of these kinds of risk-limited trades, and as a result of providing such liquidity to the market, they maintain portfolios of long and short options positions on many underlying securities (and positions in the underlying securities themselves).

Bull Call Spread and Bear Put Spread

Bull Call Spread

A bull call spread (i.e., long call vertical spread) is a type of vertical spread. This strategy consists of buying one call option and selling another at a higher strike price to help pay the cost of the purchased option. The strike price of the long (bought) call is lower than the strike price of the short (sold) call, which means this strategy will always require an initial outlay (debit). The short call's main purpose is to help pay for the long call's upfront cost. The spread generally profits if the stock price moves higher, just as a regular long call strategy would, but the upside benefit is capped at the point where the short call is struck.

Both the potential profit and loss for this strategy are very limited and very well-defined. The net premium paid at the outset establishes the maximum risk of loss from the strategy, and the short call strike price sets the upper boundary beyond which further stock gains do not increase the strategy's gains. The maximum profit is limited to the difference between the strike prices, less the debit paid to put on the position.

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[2] For complex orders with a stock component, the options component of such an order is executed on an options exchange, and the stock component is executed on a stock exchange or other execution venue for stock orders. A simple example of such an order is a buy-write order: an investor submits a single complex order to an options exchange to simultaneously sell (write) a call option on a stock and buy the underlying stock.

[3] According to a relatively recent study on retail investor use of listed options, approximately 24% of the 2013 listed options volume was generated by retail investors, which equates to approximately 984 million options contracts traded by such investors in 2013. *See* TABB Group, *Retail Options Trading: It Doesn't Get Any Better Than This* (January 1, 2014) (http://www.tabbgroup.com/PublicationDetail.aspx?PublicationID=1443). We further note that the study focused solely on self-directed investors; thus the 2013 volume attributable to retail investors would likely be even higher if those retail investors who use brokers and investment advisers were taken into account.

Bull Call Vertical Spread	
Long 1 XYZ Sep 50 call @ $2.00, Short 1 XYZ Sep 60 call @ $.75	
Total Cost	Option premium paid, $125
Maximum Loss	Option premium paid, $125
Maximum Profit	Dollar value of difference between the strike prices minus premium paid, $875

Bear Put Spread

A bear put spread (i.e., long put vertical spread) is another type of vertical spread. This strategy consists of buying one put and selling another put, at a lower strike, to offset part of the upfront cost. The spread generally profits if the stock price moves lower. The potential profit is limited, but so is the risk should the stock unexpectedly rally.

The potential profit and loss for this strategy, as in the case of a bull call spread, are very limited and very well-defined. The net premium paid at the outset establishes the maximum risk, and the short put strike price sets the upper boundary, beyond which further stock losses do not increase the strategy's gains. The maximum profit is limited to the difference between the strike prices, less the debit paid to put on the position.

Bear Put Vertical Spread	
Long 1 XYZ Sep 40 put @ $1.00, Short 1 XYZ Sep 35 put @ $.25	
Total Cost	Option premium paid, $75
Maximum Loss	Option premium paid, $75
Maximum Profit	Dollar value of difference between the strike prices minus premium paid, $425

Box Spread Trade

A box spread trade comprises a call vertical spread and a put vertical spread at the same strike prices and with the same expiration dates. Considered largely immune to changes in the price of the underlying stock, a box spread trade in most cases serves as a financing transaction (and thus as an interest rate trade rather than an equity trade).

A long box spread trade is made up of a long call vertical spread (i.e., bull call spread) and a long put vertical spread (i.e., bear put spread) at the same strikes. A short box spread trade is made up of a short call vertical spread and a short put vertical spread at the same strikes.

Separated into its components, a box spread is an option position composed of a long call and short put at one strike, and a short call and long put at a different strike. For example, a long 50/60 box spread would be long the 50 call, short the 50 put, short the 60 call and long the 60 put. In effect, the trade creates offsetting forward transactions with different forward prices, resulting in the buyer of the box making a payment at the outset and then receiving repayment at expiration. The buyer and seller of the box are thus generally indifferent to changes in the market price of the underlying security. For all intents and purposes, the buyer of the box is considered to be lending money to the options market – via the net price paid by the buyer for the box – and the seller of the box is considered to be borrowing money from the options market.

Box Spread Trade	
Long XYZ Jul 40 call @ $6.00, Short XYZ Jul 40 put @ $1.50, Long XYZ Jul 50 put@ $6.00, Short XYZ Jul 50 call @ $1.00	
Total Cost	Option premium paid, $950
Maximum Loss	NA - unless options are exercised early
Maximum Profit	Dollar value of difference between the strike prices minus premium paid, $50

Options Market-Maker Portfolio

As a result of providing liquidity to the listed options market, an options market-maker is frequently long and short options on the same underlying security. In addition, an options market-maker is frequently long and short the underlying securities themselves because it uses them to hedge the risk of its options portfolio. Under the SEC's capital requirements, a market-maker is allowed to use a risk-based methodology known as TIMS (*Theoretical Intermarket Margining System*) to calculate its capital charges. TIMS is administered by OCC, and at a basic level, it allows for the grouping of options on the same underlying security, together with positions in the underlying security itself, in a "class." TIMS then allows for offsets of long and short positions within that class. In Appendix A we provide more information regarding TIMS.[4] As with the spread transaction examples above, the information regarding SEC treatment of market-maker portfolios informs the interpretive discussion that follows.

INTERPRETIVE DISCUSSION

Under the standardized approach, the principal interpretive issue in respect of listed options portfolios concerns the calculation of potential future exposure (***PFE***).[5] When OCC clearing members determine RWA amounts for their credit exposures to clearing clients – principally, their exposures to market-maker clients resulting from institutional and individual customer market activity – they are required in the first instance to apply the methodology applicable to portfolios of OTC derivatives. As discussed below, the related provisions of the Basel III Capital Rules, depending on how they are interpreted, may result in PFE calculations that are entirely at odds with the risk-limited nature of transactions such as those described above, which give rise to the majority of the exposures in question.

The discussion in this section proceeds as follows:

- We outline basic steps in calculating PFE under the Basel III Capital Rules as applied to OCC clearing members and their credit exposures to clearing clients, including market-makers.
- We suggest an interpretive approach to applying the Basel III Capital Rules' PFE calculation provisions to credit exposures arising from the transaction types described in the preceding section.

[4] More detail regarding the TIMS methodology can be found on the SEC's website (https://www.sec.gov/rules/final/34-38248.txt).

[5] Similar issues arise in connection with application of the Basel III Capital Rules to collateralized positions, including certain capital haircut mechanisms. In order to tailor our initial discussions, however, this letter is limited to the issue of exposure amounts before collateral adjustments are taken into account. *Cf.* §__.37 (c)(2)(i)(B) (requiring exposure amounts be determined as an initial step in applying the collateral haircut approach).

- We suggest a means of extending that interpretive approach to the credit exposures of clearing members arising due to portfolios of listed options of market-maker clients.

Steps for PFE Calculations

1. The Basel III Capital Rules define ***standardized total risk-weighted assets*** to include ***total risk-weighted assets for general credit risk***. (§__.2)[6]

2. ***Total risk-weighted assets for general credit risk*** equals the sum of ***risk-weighted asset [RWA] amounts*** calculated in respect of various kinds of credit risk. (§__.31(b))

3. Credit risk arising from ***OTC derivative contracts*** is among the kinds of credit risk for which exposure amounts must be calculated for purpose of determining ***RWA amounts***. (§__.31(a)(1))

4. An ***OTC derivative contract*** is "a ***derivative contract*** that is not a cleared transaction." The definition goes on to state: "An OTC derivative includes a transaction . . . in which a [bank] that is a clearing member provides a CCP a guarantee on the performance of the counterparty to the transaction."[7] (§__.2)

    - Thus, because OCC clearing members are obligated to OCC in respect of the performance of listed options written by their clients, such transactions are deemed to be ***OTC derivative contracts*** under the Basel III Capital Rules.

5. The ***RWA amount*** in respect of multiple ***OTC derivative contracts*** subject to a qualifying master netting agreement is based on an exposure amount equal to the sum of (i) the net current credit exposure (which is the greater of (a) the net sum of all positive and negative mark-to-market values of the individual OTC derivative contracts and (b) zero) and (ii) the ***adjusted sum of the PFE amounts*** for all OTC derivative contracts subject to the qualifying master netting agreement. (§__.34(a)(2)(i))[8]

    - Thus, in light of OCC clearing member practices regarding client documentation – which generally provides for the netting of exposures at the level of a clearing member's client accounts – an OCC

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[6] Section citations refer to the Basel III Capital Rules as published in the Federal Register in October 2013. *See* 78 Fed. Reg. 62017 (October 11, 2013). The preamble to the Basel III Capital Rules, set out in the same Federal Register publication, is referenced below as the ***Preamble***.

[7] We note that, generally speaking, the Basel III Capital Rules limit their use of the defined term "cleared transaction" to transactions in which a bank has credit exposure to a clearing organization (CCP), either as a clearing member or as a client of a clearing member that is acting as agent or as financial intermediary with an offsetting transaction as principal with the CCP. Thus, despite the fact that listed options are cleared through OCC, the undertaking provided by a clearing member to OCC in respect of client performance is not itself deemed a "cleared transaction" because the undertaking results in the clearing member having credit exposure to its clients, but not to OCC. The definition of "cleared transaction" states expressly that it does not apply to "the exposure of a [bank] that is a clearing member to its clearing member client . . . where the [bank] provides a guarantee to the CCP on the performance of the client." (§__.2)

[8] In the case of a clearing member's credit exposure to a clearing client, the exposure amount is subject to further adjustment (*see* §__.34(e)) before the exposure amount is multiplied by the relevant risk weight to determine the RWA amount for the clearing client.

clearing member's credit exposure to a given market-maker in respect of a portfolio of listed option transactions – resulting from the clearing member's guarantee of the market-maker's performance – is treated like the credit exposure that arises from OTC derivative contracts subject to a qualifying master netting agreement.

6. The ***adjusted sum of PFE amounts***, for a given netting set of OTC derivative contracts, equals the sum (***Anet***) calculated as follows:

$$Anet = (0.4 \times Agross) + (0.6 \times NGR \times Agross)$$

where:

Agross = the gross PFE (that is, the sum of the ***PFE amounts*** for each ***individual derivative contract*** subject to the qualifying master netting agreement); and

Net-to-gross Ratio (NGR) = the ratio of the net current credit exposure to the gross current credit exposure. In calculating the NGR, the gross current credit exposure equals the sum of the positive current credit exposures of all individual derivative contracts subject to the qualifying master netting agreement. (§__.34(a)(2)(ii))

- Thus, this calculation needs to be performed by clearing members in respect of each market-maker (or other clearing client).

7. The ***PFE amount*** for an individual derivative contract equals the ***notional principal amount*** of the derivative contract multiplied by a fixed conversion factor set out in a table based on the remaining maturity of the contract and the type of reference asset, rate or index. (§__.34(a)(1)(ii)(A))

PFE Calculations as Applied to Listed Option Transactions

In order for a clearing member to apply these calculation steps for purposes of determining its RWA amounts for its credit exposure to a clearing client, it must identify each ***individual derivative contract*** in the context of listed options.

As discussed above, when a market participant executes a risk-limited transaction in the listed options market, it often submits a "complex order" that results in multiple related (and offsetting) listed option positions on the same underlying equity security. The execution of such an order results in a single transaction and creates what is, from a risk perspective, a single position with a specific (limited) risk profile that is recognized as such for purposes of calculating net capital haircuts under SEC rules.[9] For purposes of this discussion, we will refer to such a transaction as a ***Composite Option Transaction***.

In this context, an interpretive issue arises with respect to the term ***individual derivative contract*** in the PFE calculation provisions outlined above. In brief, our threshold interpretive question is: For PFE calculation purposes, should the ***Composite Option Transaction*** be considered an ***individual derivative contract*** –

[9] The transaction is also considered to give rise to a single position for purposes of determining customer margin requirements under the rules of FINRA and the options exchanges.

consistent with both its execution as a single transaction as a matter of market practice and its treatment for market and credit exposure purposes – or should the transaction be viewed by reference to its components, in effect as a series of ***individual derivative contracts***? We believe that the former approach – viewing such a transaction as an individual derivative contract – is appropriate.

The phrase "***individual derivative contract***" is used only in the express definitions of "***Agross***" and "***Net-to-gross Ratio (NGR)***" (set out above)[10] and is used without separate definition. The Basel III Capital Rules define the term "derivative contract" as follows: "Derivative contract means a financial contract whose value is derived from the values of one or more underlying assets, reference rates, or indices of asset values or reference rates . . . ."

When a Composite Option Transaction is executed, it gives rise to an individual financial contract in respect of multiple listed options. In the case of a bull call spread sold by a market-maker (in order to offset a sale by a market participant), the market-maker sells a listed call option with one strike price and purchases a listed call option (on the same underlying equity security) with a somewhat higher strike price. In effect, the market-maker has sold a single "capped" call option. As discussed above, the credit risk of the clearing member to its market-maker client is limited to the difference between the strikes. No matter how much the underlying equity security appreciates, the amount owed by the market-maker is strictly limited (a consequence that may be contrasted with the credit risk that would result from the market-maker only selling a call option, in which case the credit risk would, in theory, be unlimited). The case is similar for a bear put spread transaction.[11]

Even starker is the risk profile of a box spread transaction. For the reasons discussed above, when the Composite Option Transaction is a box spread, the market-maker ends up having several offsetting long and short listed put and call options, the net result of which is no effective exposure to the price of the underlying equity security.

In considering the proper interpretation of ***individual derivative contract*** in the listed options context, it is important to recognize that, just as a Composite Option Position can be and typically is executed as a single trade, so a broker-dealer would typically liquidate the position as a single trade if its customer were to default. There are deep and liquid markets for the execution of these transactions, which may often be effected on multiple exchanges regardless of where the originating transaction takes place.

Accordingly, for any one of those transaction types, it would be appropriate to deem there to be a single ***individual derivative contract*** for purposes of the PFE calculation. This then raises the next question analytically: What is the ***notional principal amount*** of such an individual derivative contract?

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[10] These definitions appear not only in §__.34(a)(2)(ii), but also in Section §__.132(c)(6)(ii).

[11] In the case of a bear put spread sold by a market-maker (in order to offset a sale by a market participant), the market-maker sells a listed put option with one strike price and purchases a listed put option (on the same underlying equity security) with a somewhat lower strike price. The credit risk of the clearing member to its market-maker client is limited to the difference between the strikes – no matter how much the underlying equity security depreciates, the amount owed by the market-maker is strictly limited (a consequence that may be contrasted with the credit risk that would result from the market-maker only selling a put option, in which case the credit risk would be the market value of the underlying equity security when the transaction is executed).

In essence, we believe that the notional amount of the individual OTC derivative contract represented by the listed option positions composing a Composite Option Transaction should not be determined by reference to the listed option positions standing individually, but should be determined by reference to the transaction taken as a whole.[12] Put another way: When a market-maker clears an individual transaction comprising multiple listed option positions on the same underlying equity security, and the listed options represent offsetting risk positions, the notional principal amount of the transaction should not simply be deemed the aggregate notional value of respective options. That result is appropriate (at least as a matter of CEM) for a simple long or simple short listed option position; the result is demonstrably inappropriate for a transaction giving rise to a trading position that is risk-constrained. An example shows this:

Transaction	Listed Options (clearing member client perspective)	Number of Underlying Shares	Market Price	Notional Principal Amount (short only)[13]
Call	Short 4 Calls ($30 Strike)	400	$25	$10,000
Call Spread	Short 4 Calls ($30 Strike)	400	$25	$10,000
	Long 4 Calls ($40 Strike)	400	$25	–
Box Spread	Short 4 Calls ($30 Strike)	400	$25	$10,000
	Long 4 Puts ($30 Strike)	400	$25	–
	Long 4 Calls ($40 Strike)	400	$25	–
	Short 4 Puts ($40 Strike)	400	$25	$10,000

Notwithstanding that the credit risk associated with the client's short call spread transaction is strictly limited – in this case, to $4,000 (the product of the number of shares and the difference in the strikes) – the notional amount would be the same as that for the short call (where the credit risk is theoretically unlimited). Moreover, the notional principal amount for the box spread is double the amount – because there are two short option transactions – despite the fact that there is effectively no credit risk associated with the value of the underlying shares.

We return to the interpretive question posed above: How should a clearing member determine the ***notional principal amount*** of risk-limiting transactions such as those described. For this purpose, we believe that it would be appropriate to determine the ***notional principal amount*** by reference to one of two calculation mechanisms drawn from other sections of the standardized approach under the Basel III Capital Rules.

1. The existing mechanism that may be most readily adapted for purposes of determining the notional amount of a Composite Option Transaction is found in provisions of the Basel III Capital Rules that address default fund contributions to a QCCP. Specifically, the Basel III Capital Rules require QCCP

[12] We note that in applying the standardized approach's PFE calculations, a bank is instructed to use an OTC derivative contract's ***effective notional principal amount***. *See* §__.34(a)(1)(ii)(D). This term was intended in the first instance to address OTC derivative contracts that are "geared" by use of a multiplier (or similar contractual mechanism) applied to a stated notional. But the term may be viewed as generally supporting an approach to adjusting the stated notional principal amount of a Composite Option Transaction in respect of listed options.

[13] Assumes the notional principal amount of a single equity option equals the number of underlying shares times the market price. As noted above, OCC clearing members have credit risk to clients only in respect of client short positions.

clearing member banks to hold capital against risks related to their default fund contributions to the QCCP, and they do so, under one methodology, by determining a hypothetical capital requirement for the QCCP itself. The first step of the basic approach is explained in the Preamble:

> "The first step is for the clearing member banking organization to calculate the QCCP's hypothetical capital requirement (KCCP) . . . . KCCP is defined as the capital that a QCCP [would be] required to hold if it were a banking organization, and is calculated using the CEM for OTC derivatives . . . ."[14]

Thus, the default fund-related mechanism starts out by determining, on a hypothetical basis, a QCCP's exposure to cleared transactions. Note that the hypothetical credit exposure of a QCCP (such as OCC) to a clearing member in respect of a cleared transaction (such as a listed option) is directly analogous to the credit exposure that a clearing member has to its client: in both cases, the credit risk relates to the potential that a market-maker (or, more rarely, a market participant that has not transacted through a market-maker) fails to perform in respect of the cleared transaction (such as when it is short a listed option). It thus follows that in determining the notional amount of a Composite Option Transaction the methodology set out in the default fund provisions is a natural resource.

The Preamble explains:

> "For derivative contracts that are options, the PFE amount calculation is adjusted by multiplying the notional principal amount of the derivative contract by the appropriate conversion factor ***and the absolute value of the option's delta*** (that is, the ratio of the change in the value of the derivative contract to the corresponding change in the price of the underlying asset)."[15]

In the case of a Composite Option Transaction, the delta of the transaction – that is, the ratio of the change in value of the Composite Option Transaction to a corresponding change in the price of the underlying equity security – could appropriately be used in the same fashion to determine the transaction's notional principal amount.[16] In effect the notional principal amount of a Composite

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[14] Preamble at 62103.

[15] Preamble at 62103 (emphasis added).

[16] We note that it seems to make little sense, in the first instance, to adjust the notional principal amount of an option transaction when calculating a QCCP's hypothetical capital charge, but not to do the same when determining a QCCP clearing member's actual capital charge, in respect to the same cleared derivative transaction. As noted above, the clearing member's actual, and the QCCP's hypothetical, credit exposures in respect of a given cleared derivative transaction are identical, inasmuch as the clearing member's exposure arises solely as a function of its having agreed with the QCCP to perform its client's obligations under the cleared derivative transaction. However, whether or not the disparity was intentional, it is embodied in the rules. The disparity should not, however, bear adversely on the approach suggested in the limited context, discussed here, of Composite Option Transactions in respect of listed options cleared by OCC. Once one acknowledges that Composite Option Transactions should be addressed from an interpretive perspective, it is acceptable, indeed preferable, to look elsewhere in the Basel III Capital Rules for guidance regarding the appropriate interpretation (as contrasted with adopting an interpretation *sui generis*).

Before leaving the subject of disparity in the context of QCCP hypothetical capital charges, we observe that there is another adjustment made in that context which is not available to QCCP market-makers, even though the risk is

Option Transaction would be the number of underlying shares multiplied by two factors, the market share price and the delta for the Composite Option Transaction.[17]

2. A second set of provisions under the Basel III Capital Rules also informs the interpretation of the ***notional principal amount*** of Composite Option Transactions, and such provisions effectively reinforce the default fund-related approach described above. The provisions of the Basel III Capital Rules that apply to a bank's equity exposures[18] determine, for "the off-balance sheet component of an equity exposure," how to calculate the "***effective notional principal amount of the exposure***." The term is defined as the "hypothetical on-balance sheet position in the underlying equity instrument that would evidence the same change in fair value (measured in dollars) given a small change in the price of the underlying equity instrument."[19]

   This calculation is effectively the inverse of the delta calculation described above in the discussion of default contributions. Both calculation methodologies recognize that derivative transactions may or may not change in value on a one-for-one basis when the security or other asset underlying the derivative transaction changes value. Given that the purpose of PFE calculations is to take into account the potential future changes in exposure, it is appropriate to adjust calculations for options accordingly.[20]

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effectively the same. In the case of QCCP hypothetical capital charges, up to 85% of the hypothetical PFE amount for a QCCP is subject to reduction by reference to qualifying netting arrangements; by contrast, the maximum for QCCP clearing members is 60%. *Compare* §__.35(d)(3)(i)(A)(1) (QCCP hypothetical calculations) *with* §__.34(a)(2)(ii) (CCP clearing member calculations); *see also* Preamble at 62094 (expressly declining to extend the 85% relief limit to OTC derivative contract netting sets generally, but not addressing whether an extension solely to QCCP clearing members would be appropriate); §__.34(e) (permitting a limited offset for clearing member exposures).

[17] The delta for a Composite Option Transaction can be thought of as a weighted average sum of the deltas for the individual options that compose the Composite Option Transaction.

[18] Separate provisions of the Basel III Capital Rules are applicable to the equity exposure that arises from an equity derivative contract to which a bank is a party. These provisions address *equity exposure per se*, rather than the *credit exposure* arising in connection with the derivative contract. Indeed, if a bank treats an equity derivative contract as a "covered position" under the market risk rules in Subpart F of the Basel III Capital Rules, it must also calculate a risk-based capital requirement for counterparty credit risk under §__.34 (*see* §__.34(d)(2)). By contrast, when an OCC clearing member clears a listed option for a clearing client and ensures performance of the client's obligations to OCC, the clearing member's exposure is limited to credit exposure to the client (as it has no interest economically in the listed option position). Technically speaking, then, the exposure of a clearing member to its client in respect of a listed option is treated as an OTC derivative contract (per the definition thereof), but the resulting OTC derivative contract is not deemed an "equity derivative" subject to the separate provisions of the Basel III Capital Rules that address equity exposures. Put differently, though the definition of "OTC derivative contract" is relevant to an OCC clearing member's credit exposure to its clearing clients in respect of an equity derivative such as a listed equity option, the definition of equity derivative contract does not bear on the related capital requirements.

[19] §__.51(b)(3).

[20] As noted above, the proposal that CEM, as incorporated in the Basel III Capital Rules' standardized approach, be replaced by the SA-CRR methodology may address a range of issues associated with derivatives, including those discussed here. The issues discussed here, however, are narrowly limited to irregularities and uncertainties associated with applying the Basel III Capital Rules to credit exposures that OCC clearing members have to their clearing clients

If the first methodology suggested above is applied to the transaction examples set out in the table immediately above, the resulting ***notional principal amounts*** will be as follows:

Transaction	Listed Options (clearing member client perspective)	Number of Underlying Shares	Market Price	Delta (net)	Notional Principal Amount (short only)[21]	Notional Principal Amount of Composite Option Transaction
Call	Short 4 Calls ($30 Strike)	400	$25	75%	$10,000	–
Call Spread	Short 4 Calls ($30 Strike) Long 4 Calls ($40 Strike)	400 400	$25 $25	50%	$10,000 –	$5,000
Box Spread	Short 4 Calls ($30 Strike) Long 4 Puts ($30 Strike) Long 4 Calls ($40 Strike) Short 4 Puts ($40 Strike)	400 400 400 400	$25 $25 $25 $25	0%	$10,000 – – $10,000	$0

We note that the notional principal amount for the box spread transaction is reduced to zero. Although this may at first glance raise a concern, we would point out that it is consistent with the economic realities of such a transaction. As discussed above, the market participant that enters into a box spread transaction effectively takes no exposure to the underlying equity security, but enters into a lending transaction with market participants. Thus a zero notional principal amount is appropriate, particularly given the high equity-based factors that are applied to resulting exposures to general RWA amounts.[22]

PFE Calculations as Applied to Listed Option Portfolios

The interpretation outlined above for separate Composite Option Transactions should be extended to market-maker portfolios of listed options resulting from such transactions.[23] However, OCC clearing members are not, as a practical matter, able to distinguish which positions in a market-maker's listed options portfolio relate to a specific Composite Option Transaction. We note, however, that at two of the largest options exchanges almost 50% of their 2014 contract volume resulted from spread trades; moreover, it is not unusual for market participants to "leg into" different components of a Composite Option Transaction over a short period of time, and the statistic cited does not include these transactions. Given that market-makers are the predominant source of liquidity in the listed options market (e.g., they are on the other side of approximate 85% of customer trades), it is reasonable to assume that a significant percentage of their portfolios - 50% or more -

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when listed option transactions are cleared, particularly the irregularities and uncertainties that arise when Composite Option Transactions are executed.

[21] Assumes the notional principal amount of a single equity option equals the number of underlying shares times the market price. As noted above, OCC clearing members have credit risk to clients only in respect of client short positions

[22] An alternative approach to box spread transactions (which effectively generate no equity exposure) would entail treating them as interest rate (rather than equity) OTC derivative transactions subject to conversion factors that range from 0 to 0.015 (rather than from 0.06 to 0.10). *See* §__.34 (Table 1).

[23] Although we focus in this letter on clearing member exposures to market-makers, the analysis would apply equally to other clearing member clients.

arise in the connection with Composite Option Transactions.[24] Given this proportion, it is appropriate to extend interpretive effort to the portfolio level.

Moreover, such an outcome is appropriate given the critical liquidity role that market-makers play in the listed options markets. The SEC and the options exchanges have recognized this role and consequently have subjected options market-makers to exchange rules obligating them to be on both sides of the market throughout the trading day (i.e., to provide both bid and offer quotations) in those options series for which they have registered as a market-maker. Those obligations are largely designed to ensure that market-maker liquidity is available in all market conditions, including times of market stress. In return for providing this liquidity, market-makers seek economic returns based on option trade spreads while they maintain risk-neutral portfolios. Subjecting their portfolios to the manifestly excessive capital charges would be inconsistent with the largely risk-neutral profile of their portfolios and ultimately could undermine the critical liquidity role that they play in the listed options market.

To extend the interpretive analysis from the level of a single Composite Option Transaction to the level of a market-maker's portfolio, one must determine a means that is consistent with the Basel III Capital Rules. We believe that elements of the TIMS methodology are instructive for this purpose. We are not, it should be emphasized, proposing the replacement of one regulatory methodology (the standardized approach under the Basel III Capital Rules) with another (the SEC-approved TIMS methodology). The proposal is simply to reference TIMS when answering the acknowledged question: In interpreting the Basel III Capital Rules in the context of clearing member capital requirements for exposures to listed option clearing clients, how can the approach taken for individual Composite Option Transactions be applied on a portfolio basis.

The simpler elements of the TIMS methodology support extending, to a portfolio level, the delta-adjusted approach for individual Composite Option Transactions described above. When TIMS is applied to listed options on single stocks, it permits offsets among options in respect of the same underlying equity security; it does not permit offsets in respect of options on different single stocks (irrespective of correlations or other typical inputs for valuation models). For purposes of determining potential exposure amounts, TIMS hypothetically re-values listed options assuming different market stress scenarios. Where the listed options relate to the same underlying single stock, TIMS permits offsets. As noted, it does not permit valuation offsets for listed option positions on different single stocks.

This suggests an interpretive approach for determining clearing client exposure amounts for OCC clearing members in respect of market-maker clients:

1. The listed options in a given market-maker's portfolio are grouped by underlying equity security (as they are by TIMS).
2. The net delta of that grouping of transactions is calculated (in the manner analogous to that suggested above for an individual Composite Option Transaction).

[24] In this regard, Composite Option Transactions include both those multiple position transactions that are executed simultaneously, and those created over relatively short periods of time by a market participant that "legs into" a Composite Option Transaction.

3. The delta so determined is multiplied by the aggregate notional amount of the listed options in the grouping that give rise to clearing member credit exposure to the market-maker (i.e., all options on the respective underlying security where the market-maker is short).
4. This resulting product – gross notional times delta – is considered the ***notional principal amount*** for the listed options in the grouping – effectively treating the grouping as an ***individual OTC contract*** for purpose of the calculation.
5. The notional principal amount so determined is multiplied by the appropriate factor from Table 1 to __.34 to determine the ***PFE amount*** for the respective listed options.[25]
6. The sum of the resulting PFE amounts (across the market-maker's portfolio, which will include listed options on more than one underlying equity security) is deemed to be the gross PFE for the portfolio – "***Agross***."
7. The ***adjusted sum of PFE amounts*** – "***Anet***" – is calculated using Agross as so determined.
8. The ***RWA amount*** for the clearing member's credit exposure to the market-maker is the sum of the net current exposure plus Anet as so determined.

Please let us know if you would like us to provide a relevant set of calculations for a hypothetical market-maker portfolio to assist you in your consideration of the requested interpretive relief.

CONCLUSIONS

Our proposed approach stands on its own as a reasonable interpretation of the Basel III Capital Rules in a context where their application – to Composite Option Transactions and related portfolios – is not clear. Moreover, the specific interpretation proposed is consistent with existing elements of the Basel III Capital Rules, namely those that address (as discussed above) the means by which, under the standardized approach (as well as advanced approaches), banks are required to calculate capital in respect their default fund contributions to a QCCP and their equity exposures. In addition, the interpretive approach to Composite Option Transactions would go some distance toward adjusting QCCP clearing member exposure calculations so that the outcome better resembles – at least in one limited context, that of listed options cleared by OCC – the hypothetical exposure calculations as adjusted for QCCPs themselves. This would be an appropriate outcome because, as noted above, the credit risk being measured is effectively the same though the treatment is disparate.[26]

We believe that interpretive relief can be narrowly tailored to listed options cleared by OCC. As discussed above, the cleared options market is unique in its trading patterns and instruments. An interpretation of the Basel III Capital Rules as applied to OCC clearing member exposures is necessary because it is simply not clear how the term ***individual OTC derivative contract*** should be applied in the case of a Composite Option Transaction. The need for interpretation in this context can be addressed without opening to question the Basel III Capital Rules as applied in significant other trading contexts, particularly the context of actual OTC

[25] If the expiration dates of the options span the remaining maturity categories set out in the table, a weighted average conversion factor would apply.

[26] *See* footnote 16 and accompanying text.

derivative portfolios. It is the predictability and prevalence of Composite Option Transactions in the OCC cleared environment that drives a unique need for interpretive relief. The appropriateness of that relief from a risk perspective is underscored by clearing members' ability to close positions in single trades on an exchange where a liquid market is provided. As noted above, we estimate that upwards of 50% of the portfolio composition of market-makers for listed options arise from Composite Option Transactions.

A corollary of there being a *unique need* for interpretive relief is there being a *unique context* to which the relief would apply. Comparable trading environments simply do not exist. Listed options are hybrids, with characteristics of both OTC derivatives and cleared equity securities. The latter comparison is driven by commonalities: both listed options and underlying equity securities are designated by CUSIP, are quoted on securities exchanges, are traded in large part through market-makers, and are cleared by an SEC-regulated clearing organization on a "T + trade date" basis. Moreover, listed options are treated as securities, and OCC is treated as their issuer, for federal securities law purposes. A regulator adopting an interpretation in the context of listed options may confidently draw a principled line that excludes both exposures generated directly by OTC derivative transactions (as contrasted with credit exposures arising due to clearing member guarantees) and exposures generated in other cleared derivative environments, none of which generate trading in the pattern of Composite Option Transactions comprising positions in individual series of listed options/securities.

* * *

We once again wish to thank you and your colleagues for meeting with us in November and for your consideration of this request. We of course stand ready to answer any questions you may have and to provide any further information that you might find useful.

Very truly yours,

Craig S. Donohue
Executive Chairman
The Options Clearing Corporation

cc: Jeffrey C. Marquardt, Deputy Director, Division of Reserve Bank Operations and Payment Systems
Stuart E. Sperry, Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems

Appendix A

TIMS Methodology

In order to administer the TIMS methodology, OCC first collects the following information on a daily basis: (1) the dividend streams for the underlying securities, (2) interest rates (either the current call rate or the Eurodollar rate for the maturity date which approximates the expiration date of the option), (3) days to expiration, and (4) closing underlying security and option prices from various vendors. Using this information and TIMS, OCC measures the implied volatility for each option series. The implied volatility for each option series becomes an input for the TIMS methodology. For each option series, TIMS calculates theoretical prices at 10 equidistant valuation points within a range consisting of an increase or a decrease of the following percentages of the daily market price of the underlying instrument:

- +(-) 15% for equity securities with a ready market and narrow-based indexes,
- +6/-8% for high capitalization diversified indexes
- +(-) 4.5% for major market currencies,
- +(-) 10% for non-high capitalization diversified indexes, and
- +(-) 20% for currencies other than major market currencies.

After the model calculates the theoretical gain/loss valuations, OCC provides the valuations to a clearing member. The clearing member uses this information in a spreadsheet application from which it calculates the profit/loss for each position within each market-maker account (as well as the much smaller accounts of non-market-maker clearing clients). The greatest loss at any one valuation point would be the haircut.

Depending upon the type of positions a clearing member on behalf of its client sought to offset, a percentage of a position's gain at any one valuation point would offset another position's loss at the same valuation point. TIMS allows the following offsets:

- within any portfolio type involving the same underlying stock, index, or currency, 100% of a position's gain at any one valuation point would offset another position's loss at the same valuation point;
- between qualified stock baskets offset by index options, or futures, or futures options on the same underlying index, 95% of gains would offset losses at the same valuation point;
- among high-capitalization diversified index options, futures, and futures options, 90% of the gain on one high-capitalization index position in the same product group would offset the loss on a position on a different high-capitalization diversified index at the same valuation point; and
- among non-high-capitalization diversified index options, futures, and futures options, 75% of the gain on one non-high-capitalization diversified index position would offset the loss on a different non-high-capitalization diversified index at the same valuation point.