

February 10, 2014

Via Electronic Submission

Melissa Jurgens, Secretary
Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street, N.W.
Washington, DC 20581

Re: Position Limits for Derivatives; Proposed Rule (RIN Number 3038-AD99)

Dear Ms. Jurgens:

Morgan Stanley appreciates the opportunity to comment on the Commodity Futures Trading Commission's ("CFTC" or "Commission") Notice of proposed rulemaking concerning Position Limits for Derivatives ("Proposed Rule").¹ Morgan Stanley supports the comments on the Proposed Rule that have been submitted by the Futures Industry Association ("FIA Letter").² Morgan Stanley submits these further comments to provide the Commission with additional information regarding the effects of the Proposed Rule and how the Proposed Rule may be improved so as not to diminish liquidity or impair price discovery in energy commodity futures contracts or harm the ability of commercial firms to manage their risks in the energy markets.

I. Summary

- **The definition of bona fide hedging should reflect and recognize the current risk management practices within the energy commodity markets.** The Commission's definition of bona fide hedging should be sufficiently flexible to be consistent with the structure and operation of today's energy markets, accommodate well-accepted and prudent risk management practices that reduce price risks associated with energy

¹ Position Limits for Derivatives; Proposed Rule, 78 Fed. Reg. 75680 (Dec. 12, 2013).

² Letter from Walt Lukken, President, FIA, to Melissa Jurgens, Secretary, Commodity Futures Trading Commission, Re: Position Limits for Derivatives (RIN Number 3038-AD99), February 7, 2014.

commodities, and be sufficiently adaptable to incorporate future changes in market structure and permit innovation in risk management techniques.

- **Bona fide hedges for energy commodities should be permitted in the spot month.** In energy markets, because the delivery period for energy futures contracts occurs after contract expiration, prudent risk management practices call for companies to maintain hedges into the spot month. Recognizing this fact, exchange rules permit energy futures contracts to be liquidated during exchange-for-physicals (“EFP”) sessions that are conducted immediately following contract expiry. The Commission should modify the five-day rule to permit bona fide hedging positions for energy contracts during the spot month or into an exchange-for-physicals (“EFP”) trading session immediately following contract expiry.
- **Cross-commodity bona fide hedges involving energy commodities should be permitted in the spot month.** The Commission should permit cross-commodity hedges held into the spot month to qualify as a bona fide hedge where an energy futures contract is permitted to be liquidated through an EFP process following contract expiry and the commodity underlying the physical leg of the EFP is related but not identical to the commodity underlying the futures leg of the EFP.
- **Recognize exchange determinations and provide greater flexibility in determination of deliverable supply.** A designated contract market (“DCM”) is in the best position to make the determinations of the deliverable supply of the particular commodities that are deliverable under the contracts traded on the DCM. Additionally, the Commission should permit a DCM, when estimating deliverable supply, to consider within the deliverable supply a related commodity if delivery of that related commodity through an EFP process would result in the liquidation of the futures contract.
- **The Commission should not adopt a quantitative correlation factor for cross-commodity hedges.** The use of a quantitative factor as a bright-line standard to determine whether to recognize a cross-commodity hedge as a bona fide hedge differs from the Commission’s approach in other, similar circumstances, where a correlation analysis typically is one of a variety of factors in a facts-and-circumstances consideration of whether a position is a hedge. If the Commission nonetheless determines to include a specific quantitative test, the quantitative test in the Proposed Rule is fundamentally flawed and should be modified.
- **Anticipatory merchandising hedges in energy contracts should be permitted to qualify as bona fide hedging.** The Commission should recognize as an enumerated hedging transaction the use of Referenced Contracts to lock in a price differential where one leg of the underlying transaction is an un-priced commitment to buy or sell the commodity and the offsetting sale or purchase is anticipated but not yet completed. Otherwise, market participants may forego forward contracts priced based on an index or a differential to a futures contract and instead enter into more fixed-price forward contracts, so that the resulting hedges would clearly qualify as bona fide hedging

positions. Such a shift may increase credit risk and transaction costs for both parties to the transaction, and ultimately lead to increased costs to the consumer and an increase in overall systemic risk in the market.

- **The Commission should modify the Proposed Rule to ensure that firms remain able to mitigate the risks arising from Credit Valuation Adjustments.** The Proposed Rule should address the management of risk exposures that arise through the Credit Valuation Adjustment (CVA) process. The Commission should clarify that positions taken to hedge the risks resulting from CVA qualify as bona fide hedges. Alternatively, the Commission should permit firms that are required to adjust the mark-to-market value of a position by a CVA to credit risk-adjust the position size as well.
- **The Commission should adopt accountability levels for the non-spot months.** Morgan Stanley supports the FIA comment that the Commission should adopt position accountability rather than fixed limits in the non-spot months for energy commodities. The accountability levels currently in place have worked well to help maintain orderly trading on the exchanges in the non-spot months, while preserving market liquidity and the price discovery function of these markets for forward prices. The use of accountability levels rather than rigid one-size-fits-all limits also can allow firms and exchanges to more appropriately tailor the application of trading limits to particular circumstances.

II. Morgan Stanley's Interest in the Commodity Markets and the Proposed Rule

Morgan Stanley provides risk management and investment products and services to a large and diverse group of clients and customers. These customers include commercial producers and industrial users of physical commodities, institutional investors, small businesses, and private individuals. In connection with these activities, Morgan Stanley and its customers rely heavily on the futures and swaps markets to manage the financial and commodity risks that arise in the course of their commercial businesses.

With respect to energy commodities, Morgan Stanley provides a broad range of risk management products and services to producers, processors, merchants handling, and commercial users of energy commodities.³ To manage the risks associated with its energy business, Morgan Stanley takes positions in the spot, forward, futures, options, and swaps markets for energy commodities, including crude oil, natural gas, electricity, and petroleum distillates, such as gasoline and heating oil. Morgan Stanley's presence and expertise in the physical and financial energy markets enable it to provide oil and natural gas producers, governmental entities, refiners, airlines, petrochemical companies, railroads, utilities,

³ On December 20, 2013 Morgan Stanley announced its intent to sell the Global Oil Merchandising unit of its Commodities division to a 100 percent subsidiary of Rosneft Oil Company. The sale includes a dispersed international network of oil terminal storage agreements; inventory; physical oil purchase, sale and supply agreements; equity investments; and freight shipping contracts. The transaction does not include Morgan Stanley's client-facilitation oil trading business and Morgan Stanley will continue to facilitate client demand for risk management services.

investors and other commercial clients with high-value, cost-effective risk management solutions (such as customized hedging programs relating to production, consumption, and reserve/inventory management) and structured transactions (such as the monetization of energy contracts). Morgan Stanley's energy clients rely on these risk management products and services to conserve capital and to reduce the risks associated with operating their commercial businesses.

Morgan Stanley and its customers have a significant interest in ensuring that any position limits that may be imposed by the Commission do not impair market liquidity, price discovery, or the ability of market participants to effectively manage and mitigate risks arising through the use of energy and other commodities.⁴ Morgan Stanley submits the following comments as to how the Proposed Rule could be improved to further these objectives.

III. Discussion

A. The definition of bona fide hedging should reflect the current structure of and risk management practices within the energy commodity markets.

Congress directed that in setting any position limits, the Commission shall, to the maximum extent practicable, in its discretion, “ensure sufficient market liquidity for bona fide hedgers,” and “ensure that the price discovery function of the underlying market is not disrupted.” To maximize these objectives consistent with the statute, the Commission should adopt a flexible framework that recognizes and accommodates the characteristics of commercial practices within each of the markets that will be affected by the Proposed Rule.

The framework for bona fide hedging in the Proposed Rule is inherited, and largely unchanged, from the framework that was initially developed for the agricultural futures markets as they existed in 1977. At the time, the Commission updated the framework to reflect changes that had occurred in the agricultural sector. In 1977, the only energy futures contract in existence was the NYMEX Heating Oil futures contract, which had just commenced trading two years earlier. If the Commission determines to proceed with a final rule that is applicable to energy commodities, it should update the framework for bona fide hedging once again to reflect the characteristics of today's energy markets and the manner in which risks are being managed in those markets. By doing so, the Commission would ensure that commercial energy firms will be able to continue to manage and mitigate risks associated with energy commodities in conformance with well-accepted and prudent commercial practices.

In the energy markets, liquidity is concentrated into the four main energy futures contracts—crude oil, natural gas, heating oil, and gasoline. These central sources of liquidity

⁴ Morgan Stanley submitted specific comments with respect to the two previous position limits rulemakings. *See* Letter from Simon T.W. Greenshields, Morgan Stanley, to David A. Stawick, Secretary, CFTC, Re: Notice of Proposed Rulemaking Regarding Position Limits for Derivatives, (RIN 3038-AD15 and 3038-AD16), March 28, 2011; Letter from Colin Bryce and Simon T.W. Greenshields, Morgan Stanley, to David A. Stawick, Secretary, CFTC, Re: Proposed Federal Speculative Position Limits for Referenced Energy Contracts and Associated Regulations, 75 Fed. Reg. 4144 (January 26, 2010), April 26, 2010.

enable firms to manage the risks associated not only with respect to the standardized energy commodities specified in those Core Referenced Futures Contracts, but also with respect to numerous particularized energy commodity products that have a variety of specific characteristics, grades and locations of delivery. Energy firms generate and centralize liquidity for the main energy futures contracts through the use of basis differential contracts and the EFP process involving the more particularized contracts. By failing to account for the various strategies through which market participants use this pooled liquidity to manage the risks of related commodities, the Proposed Rule could have the unintended consequence of fragmenting the existing liquidity into less liquid and less efficient markets, including the forward markets. Such a result would be contrary to the benefits derived from centralized futures markets, and would be costly not only for the companies who currently take advantage of the pooled liquidity in these futures contracts, but also for the American consumer and the economy as a whole.

Example: EFP Market for Refined Petroleum Products

The evolution of the EFP market for a variety of refined petroleum products presents an example of how the marketplace has concentrated liquidity into centralized NYMEX futures contracts from what would otherwise be more fragmented, illiquid, and inefficient futures or forward markets for particularized products. Under the current market structure, entities shipping or receiving these refined products use these NYMEX futures contracts and the related EFP market to efficiently manage their commodity risk arising from those products.

For example, the Colonial Pipeline transports more than 100 million gallons per day of gasoline, diesel fuel, jet fuel and other refined petroleum products from Gulf Coast refineries to points of consumption across the southern and eastern United States. Products shipped on the pipeline are transported in batches, which may be grouped by distillates (e.g., home heating oil, diesel motor fuel, aviation kerosene), by grades of gasoline (e.g., conventional gasoline, reformulated gasoline), as well as by octane (e.g., 87 octane, 93 octane). These batched products are then moved up the pipeline system in cycles. There are 72 five- or six-day cycles for the Colonial Pipeline during the course of a year.

Entities seeking to hedge the commodity risk associated with transporting and delivering to customers along the Colonial Pipeline a particular product with predetermined grade and delivery specifications will utilize one of the 12 monthly heating oil or gasoline futures contracts to hedge their general risk exposure. These futures contracts provide a deep pool of liquidity from which a market participant can efficiently draw to manage that general exposure. Because the delivery grade and timing of delivery for the transported product will differ from the grade and timing specifications of the standardized futures contracts, the shipper will then manage the specific commodity risk of a particular product it is transporting using an EFP transaction.⁵ The price of the EFP transaction will take into consideration any

⁵ An EFP or “Exchange for Physical” transaction involves simultaneous exchanges of positions in both the physical and futures markets. In an EFP transaction, one counterparty will sell the physical commodity while buying the corresponding futures contract, while the other party buys the physical commodity and sells the corresponding futures contract. EFP transactions are priced at the differential between the prices in the physical and futures markets.

grading differences, delivery timing differences and location differences between the physical product to be delivered and the delivery specifications of the futures contract.

In this way the futures contract serves not only as a price benchmark for the larger market, but it also enables the common commodity price risk of a number of specific commodities to be centralized into one or more large pools of liquidity. The concentration of liquidity into these futures contracts through basis differential contracts and the EFP process enables continuous risk management for market participants in a variety of particular commodities over the life of these futures contracts. This result is a traditional function and strength of centralized futures markets. It also is one of the national public interests to be advanced by Commission's regulation.⁶

This market structure has enabled the main energy futures contracts to serve as a large pool of liquidity and enable price discovery even as product specifications may happen to change in light of new regulatory requirements. Thus, for example, as federal and state regulators have modified sulfur content, oxygenate, and renewable fuel requirements for various refined products, the marketplace has accommodated these changes in product requirements through changes in the delivery specifications of the futures contracts and the continued ability to execute effective risk management through EFP transactions.⁷

The natural gas market provides another example of how a single energy futures contract with particular delivery specifications effectively serves as a large, central pool of liquidity for contracts of the same commodity but with different delivery specifications. Unlike the transport of a variety of oil liquids through the Colonial Pipeline, natural gas is fractionated into one fungible commodity before entering the interstate pipeline system. Additionally, a shipper of natural gas is required to have title to the commodity that it is transporting. Therefore, a basis market has evolved to price natural gas at various pools hubs and city gates throughout North America as the gas comes off the interstate pipeline system. The NYMEX Henry Hub natural gas contract, which provides for natural gas to be delivered at a central location in Louisiana, facilitates the pooling of liquidity for the common commodity risk and supports price discovery for the delivery of the same commodity at other delivery points.

The Proposed Rule does not take into account the manner in which the Core Referenced Futures Contracts for energy commodities serve as these central pools of liquidity. As explained in further detail in the following sections, the failure to recognize the particular characteristics of the energy markets and to include many of the well-accepted and prudent risk management practices in today's energy markets within the definition of bona fide hedging today will impair the liquidity and price discovery process in these markets, and, as a result, impair the ability of energy market participants to fully and effectively manage their

⁶ Commodity Exchange Act, §3 (7 U.S.C. 5 (2013)).

⁷ For example, as a result of U.S. Environmental Protection Agency and state mandates for lower sulfur content in distillate fuels and the resulting changes in the physical markets for those fuels, in 2013 the New York Mercantile Exchange ("NYMEX") amended the grade and quality specifications of the Heating Oil futures contract to reflect the Colonial Pipeline's new Fungible Grade 62 for Ultra-Low-Sulfur Diesel (ULSD).

risks. Accordingly, the definition of bona fide hedging in the Proposed Rule should be modified to reflect the current structure of and risk management practices within the energy markets.

B. Bona fide hedges for energy commodities should be permitted in the spot month.

The Proposed Rule's treatment of bona fide hedging during the last five days of the spot month reflects the continued over-reliance on characteristics of the agricultural commodity futures markets. Indeed, in the proposal the Commission itself recognized that the proposed rules do not sufficiently take into account differences between the agricultural and energy markets. For example, the Commission stated that it is "considering relaxing the five-day rule to permit a person to hold a position in a physical-delivery commodity derivative contract, other than in an agricultural commodity, through the close of the spot month that does not exceed in quantity the reasonably anticipated unsold forward production that would be available for delivery under the terms of a physical-delivery commodity derivative contract."⁸ The Commission should relax the five-day rule's application to energy commodities not only with respect to reasonably anticipated unsold forward production, but more broadly as well.

In the Proposed Rule, the Commission noted that the current definition of bona fide hedging is a legacy of a rulemaking that the Commission conducted in 1977:

In 1977, the Commission proposed a revised definition of bona fide hedging that largely forms the basis of the current definition of bona fide hedging. The 1977 proposed definition set forth: (i) a general definition of bona fide hedging positions under economically appropriate circumstances and subject to other conditions (noted below); (ii) an enumerated list of specific positions that conform to the general definition; and (iii) a procedure to consider non-enumerated cases. The 1977 proposal, as adopted, established the concept of portfolio hedging and recognized cross-commodity hedges and hedges of anticipated production or unfilled anticipated requirements, provided such hedges were not recognized in the five last days of trading in any particular futures contract (the "five-day rule" in current § 1.3(z)(2)).⁹

In carrying forward the five-day rule and generally applying it in a similar manner to all of the commodity markets, the Proposed Rule fails to recognize the particular characteristics of the energy markets that require market participants to use hedging strategies and techniques that differ from those used in the agricultural markets. Unlike the futures contracts for agricultural and metals commodities, which trade up to and through the delivery month, the majority of energy futures contracts trade up to but not through the delivery month. As a result, price convergence typically occurs later in the process for energy commodities

⁸ The Commission also stated it is considering "permitting the exchange listing the physical-delivery commodity derivative contract to administer exemptions to the five-day rule upon application to such exchange specifying the unsold forward production that could be moved into delivery position." Proposed Rule, at 75714.

⁹ Proposed Rule, at 75703 (footnotes omitted).

than for agricultural or metal commodities, and there is a corresponding need to maintain a hedge further into the spot month.

With respect to contracts that trade up to and through the delivery month, price convergence between the cash market for the underlying commodity and the futures market for that commodity should take place after first notice day. Futures contracts that are traded up to and through the delivery month are predicated on a contract design in which delivery calls for title transfer at set delivery points through a notice or warrant system overseen by the clearing house. A notice or warrant will be stopped or issued based on pre-determined delivery locations set forth in the contract. These delivery points can be stockyards, warehouses, or depositories. If convergence has not taken place after first notice day, market participants have the ability to continue to trade after first notice day until last noticed, in which case the futures contract and the cash market are both trading at prompt and there should be price convergence between cash and futures. Indeed, for agricultural commodities this delivery process has generally worked to achieve convergence between the futures and cash prices prior to the termination of trading of the futures contract.

If the Commission continues the long-standing application of the five-day rule to agricultural contracts, which trade up to and through the delivery month, it should not apply the five-day rule to energy contracts, which trade up to but not through the delivery month. With respect to such energy contracts, there is no similar notice process to force convergence prior to contract termination.

Due to the logistical considerations involved in making and taking delivery of energy products, this delivery process could not be effectively used for physically delivered energy futures contracts. In order to accommodate the different logistics for making and taking delivery of energy products under energy futures contracts, such as the requirement to schedule in advance the delivery of the commodity ratably through a pipeline over a specified period of time, trading in the NYMEX physically delivered futures contracts is permitted up to but not through the delivery month. This allows market participants choosing to make or take delivery against the NYMEX futures contract sufficient time to schedule appropriate transportation of the underlying commodity.

In the case of the NYMEX West Texas Intermediate (“WTI”) crude oil futures contract and the Henry Hub natural gas futures contracts, where the price of the futures contract is based on the price of the underlying energy commodity delivered at a central hub, market participants making or taking delivery can schedule transport for ratable delivery to or from the hub over the course of the contract month. The NYMEX heating oil futures contract and the gasoline futures contracts call for delivery at points that are closer to the ultimate point of consumption for those commodities. These contracts call for delivery during specific delivery timeframes, which coincide with the pipeline cycles and barge deliveries.

The current NYMEX WTI, Ultra-low-sulfur diesel (“ULSD”) and Reformulated Regular Gasoline Blendstock (“RBOB”) contract terms each permit an EFP-only session that takes place on the day after the last day of trading in the spot month contract, whereas the Henry hub natural gas contract has its EFP-only session immediately following settlement on

the last day of trading. These EFP sessions are used with respect to products that are of the same grade as the underlying futures contract but delivered in different locations, and also with respect to products that are a different grade from the product underlying the futures contract that may be delivered either at the same or a different location. In order to participate in these EFP markets, market participants need to carry their futures positions through the spot month.

In the Proposed Rule the Commission recounted the original rationale for the five-day rule:

With respect to the five-day rule in current § 1.3(z)(2) for anticipatory hedges of unfilled anticipated requirements, [in the 1977 rulemaking] the Commission observed that historically there was a low utilization of this provision in terms of actual positions acquired in the futures market. For cross commodity and short anticipatory hedge positions, the Commission did “not believe that persons who do not possess or do not have a commercial need for the commodity for future delivery will normally wish to participate in the delivery process.”¹⁰

While this observation still may hold true for agricultural contracts which trade through the delivery month, we believe this is not the case for energy contracts for which trading occurs up to but not through the delivery month, as evidenced by the EFP-only sessions throughout the energy complex.¹¹ For example, as described above, companies shipping or receiving refined products transported through the Colonial Pipeline use the highly liquid futures market for gasoline and heating oil and the associated EFP process to manage the commodity price risks associated with delivery of particular grades of refined products at particular locations other than the delivery point of the futures contract. Companies using these futures contracts and the associated EFP markets have a well-defined commercial need to maintain a hedge through the spot month.

The imposition of the proposed speculative limits in the spot month and the application of the five-day rule to trading energy commodities into the spot month would force companies that otherwise are at or near the limits to either remove the hedge of their physical commodity or use less effective instruments to hedge their price risks in the spot month and into the EFP session. Companies instead may choose to use the next contract

¹⁰ Proposed Rule, at 75704 (citation omitted).

¹¹ The Commission states it “has reviewed its historical policy position regarding the five-day rule for speculative positions in the spot month in light of position information, including positions in physical-delivery energy futures contracts.” Proposed Rule, 78 Fed. Reg. at 75711. The Commission states its review “showed that, historically, there have been relatively few positions held in excess (and those few not greatly in excess) of the spot month limits.” The Commission stated that as a result of this review it “generally is not inclined to change its long-held policy views regarding physical-delivery futures contracts at this time.” *Id.*, at 75711-12. However, by not providing any information regarding the data or position information used to conduct this review or upon which the Commission’s conclusions are based, or the methodology used to analyze that data or position information, the Commission has failed to provide a meaningful opportunity to comment upon the information relied upon by the Commission used to support its determination not to relax the five-day rule for physically-settled energy futures contracts.

month¹² to hedge the risk, or instead use a forward contract. Each of these alternatives would reduce liquidity in the most relevant futures contract, impair price discovery, and increase costs to commercial energy firms.

For the above reasons, Morgan Stanley believes that the five-day rule is not appropriate for physically-settled energy contracts for which trading takes place up to but not through the delivery month.¹³ For these contracts we believe that bona fide hedging be permitted up to and through the end of the EFP-only session so that market participants can realize the benefit of price convergence on their hedges.

C. Cross-commodity bona fide hedges for energy commodities should be permitted in the spot month.

The Proposed Rule would carry over the application of the five-day rule currently in §1.3(z)(2)(iv) with respect to cross-commodity hedges. As the FIA noted in its comment letter, the Commission's application of the five-day rule to cross-commodity hedges will require market participants to either increase their speculative positions as they enter the spot month in order to maintain the effectiveness of the cross-commodity hedge, which may not be permissible for a particular trader in light of its overall positions and the spot month limits on speculative positions, to leave the cash position unhedged, thereby increasing the commodity risk exposure, or to adopt a less effective hedge, such as by using either a different contract month or a forward contract. Additionally, the use of forward contracts as a substitute hedging vehicle would increase the credit risk to both parties to the hedging transaction, decrease overall liquidity in the futures markets, and increase overall systemic risks through the substitution of uncleared bilateral forward transactions for cleared futures contracts.¹⁴

The Proposed Rule's application of the five-day rule to cross-commodity hedges in the energy markets will increase risks and costs to market participants. Morgan Stanley respectfully

¹² Moreover, the next contract month may not be available as a bona fide hedge, because, as explained below, the Commission has proposed to make the correlation determination dependent on a rebuttable presumption of a quantitative factor that is based on spot prices.

¹³ The Commission states that the retention of the five-day rule "would serve to prevent excessive speculation as a physical-delivery contract nears expiration, thereby deterring or preventing types of market manipulations such as squeezes and corners and protecting the price discovery function of the market. The restriction of the five-day rule does not appear to deprive the market of sufficient liquidity for bona fide hedgers." Proposed Rule, at 75710, n. 306. As explained above, Proposed Rule would indeed result in reduced liquidity for bona fide hedgers to the extent the positions cannot be held through the spot month. Further, the Commission has sufficient other authority, such as its anti-manipulation authorities and its disruptive trading practices authority to deter, prevent, and punish manipulation or other disruptive trading during the spot month.

¹⁴ In the 2011 final rule imposing position limits on futures and swaps, which was subsequently vacated by the United States District Court for the District of Columbia, the Commission recognized that application of the five-day rule to cross-commodity hedges could increase risks and costs to market participants. In that rulemaking the Commission stated that "the restriction on holding cross-commodity hedges in the last five days of trading may increase tracking risk if the trader were forced out of the Referenced Contract into a lesser correlated contract or into a deferred contract month that was less correlated with the relevant cash market risk than the spot month." Position Limits for Futures and Swaps, Final rule and interim final rule, 76 Fed. Reg. 71626, 71649 (November 18, 2011), *vacated by International Swaps and Derivatives Association v. CFTC*, 887 F. Supp. 2d 259 (D.D.C. 2012).

requests the Commission to modify the five-day rule with respect to energy commodities to permit persons to maintain a cross-commodity bona fide hedge through the spot month in circumstances where the EFP process is used to liquidate the futures contracts that are used to hedge the physical positions subsequently exchanged for those futures contracts during the EFP process.

D. The Commission should recognize DCM determinations and provide greater flexibility in determination of deliverable supply.

Morgan Stanley supports the alternative estimates of deliverable supply that the CME Group has submitted to the Commission. More generally, Morgan Stanley believes the Commission should continue to rely on DCM estimates of deliverable supply, as DCMs have traditionally performed this function well and have the best available data.

Additionally, the Commission should permit a DCM, when estimating deliverable supply, to consider within the deliverable supply all commodities whose delivery may result in the liquidation of futures contracts. Thus, for example, the Commission should permit to be considered within the estimates of deliverable supply those commodities that may be delivered into an EFP session immediately following the last trading session of a futures contract, which delivery will result in the liquidation of a futures contract. The fact that these additional supplies are deliverable in normal cash market channels supports including them within deliverable supply. The cash market, through the EFP process, has recognized that such commodities can be delivered subject to appropriate price adjustments. Commodities delivered at either a premium or a discount have long been able to be included within the delivery specifications of a futures contract.¹⁵

E. The proposed quantitative correlation factor for cross-commodity hedges should not be adopted.

The Proposed Rule would permit a cross-commodity hedge to qualify as a bona fide hedge provided that: “(i) The fluctuations in value of the position in the commodity derivative contract (or the commodity underlying the commodity derivative contract) are substantially related to the fluctuations in value of the actual or anticipated cash position or pass through-swap (the ‘substantially related’ test);” and (ii) the application of the five-day rule to positions in any physically-delivered commodity derivative contract.¹⁶ In its guidance on the meaning of the substantially related test, the Commission has proposed both a qualitative and a quantitative factor. For the qualitative factor, the Proposed Rule indicates that “the target commodity should have a reasonable commercial relationship to the commodity underlying the commodity derivative contract.”¹⁷ Under the quantitative factor, if the specific quantitative test set forth in the Proposed Rule for cross-commodity hedging positions is not met, then the Commission will presume that the positions are not bona fide hedging positions.

¹⁵ See Appendix C to Part 38, (a)(2)(A) “Quality Standards.”

¹⁶ Proposed Rule, §150.1.

¹⁷ *Id.*, at 75716.

1. The Commission should rely on a facts-and-circumstances test and not adopt a quantitative factor in determining whether a cross-commodity hedge is a bona fide hedge.

As explained in more detail below, Morgan Stanley believes that the specific quantitative factor that has been proposed is seriously flawed. More fundamentally, however, the use of a single bright-line test to determine whether a particular position constitutes a hedge is contrary to the approach that the Commission generally takes to make such determinations. Generally, the Commission has used a “facts-and-circumstances” test to determine whether a particular position can be considered to be a hedging position.

For example, in determining whether a position is being used to hedge or mitigate commercial risk for purposes of the end-user exception, the Commission declined to adopt a standard that would have required each risk in the swap to be “congruent with” a corresponding commercial risk being hedged. Rather, the Commission stated “the facts and circumstances will determine whether the swap is economically appropriate to hedge or mitigate commercial risks. While the Commission acknowledges that this standard leaves room for judgment in its application, the Commission believes this flexible approach is needed given the wide variety of swaps, potential electing counterparties, and hedging strategies to which the rule applies.”¹⁸

Morgan Stanley urges the Commission to again adopt a facts-and-circumstances approach. There is no evidence this approach has failed to work in other circumstances. Under such a qualitative approach, the use of commonly accepted statistical analyses could provide one of the considerations, but would not necessarily be the sole factor, in determining whether a cross-commodity hedge constituted a bona fide hedge.

2. If the Commission determines to include a quantitative factor, then it should modify the proposed quantitative factor.

In the Proposed Rule the Commission describes the proposed quantitative factor:

The Commission will presume an appropriate quantitative relationship exists when the correlation (R), between first differences or returns in daily spot price series for the target commodity and the price series for the commodity underlying the derivative contract (or the price series for the derivative contract used to offset risk), is at least 0.80 for a time period of at least 36 months.¹⁹

The proposed quantitative factor, however, presents a number of issues that undermine its reliability and usefulness.

¹⁸ End-User Exception to the Clearing Requirement for Swaps; Final Rule, 77 Fed. Reg. 42560, 42572 (July 19, 2012). For examples of other rulemakings in which the Commission has declined to adopt a specific quantitative test as a bright line to determine whether a position was in fact a risk-mitigating hedging activity, see the FIA Letter, page 23.

¹⁹ Proposed Rule, at 75717.

(i) Because spot price processes do not follow a random walk, calculating correlations based upon first differences in spot prices can lead to inappropriate results.

A correlation based upon first differences embeds within it the assumption that the underlying price process is a random walk. However, academic research into commodity spot prices supports the proposition that commodity spot price processes are not a random walk but rather mean reverting.²⁰ This notion is intuitively appealing from an economic perspective. If prices are low then demand can be expected to increase as consumers substitute into the commodity or otherwise increase consumption and supply can be expected to decrease as producers cut back on production. Either demand increases or supply decreases should result in increased prices. The opposite actions will take place if prices get too high, leading ultimately to lower spot prices. This rational market response by producers and consumers helps explain the mean reversion observable in many commodity spot price series. Accordingly, calculating correlations while ignoring mean reversion leads to biased correlations (usually understated).

Not only are most spot series of commodity prices mean reverting, but many commodities exhibit seasonal price patterns (e.g., corn, soybeans, heating oil, and natural gas), reflecting the underlying seasonal supply and demand patterns of the spot markets for those commodities. This seasonal component creates a deterministic component of price changes that if ignored can bias correlation calculations. For example, if two assets show a similar seasonal price trend, such as high prices in the winter and low prices in the summer, then the correlation calculation using spot prices will reflect this deterministic movement and also lead to biased correlations (usually overstated).

Although it may be possible to address these issues through the use of more sophisticated models of price behavior in the spot markets, a more straightforward solution, which would be more feasible for market participants to implement themselves, would be to calculate correlations from changes in futures and forward prices. Whereas the spot price may be mean reverting, economic theory supports the belief that the prices of forward and futures contracts on these commodities follow a random walk process.²¹

(ii) Spot series are less reliable than forward prices in evaluating correlations.

Generally, prices in the spot market are more volatile than prices in the forward market. Hence, correlations based upon a daily spot price series may be meaningfully lower than those observed with respect to price series in the forward markets. This can be seen in Table 5 in the Proposed Rule, which presents the Commission's calculation of correlation between natural gas and electricity prices.²² The highest observed correlation in returns,

²⁰ Bessembinder, H., Coughenour, J., Seguin, P., Smoller, M., Mean Reversion in Equilibrium Asset Prices: Evidence from the Futures Term Structure, *Journal of Finance*, 50, 361-375 (1995).

²¹ Samuelson, P.A. "Proof That Properly Anticipated Prices Fluctuate Randomly." *Industrial Management Review*, 6: 41-49 (Spring 1965).

²² Proposed Rule, Table 5, 78 Fed. Reg. at 75718.

which is between New England Electricity and Henry Hub spot returns, is only 18%. If the data presented in Table 5 accurately reflected the strength of the correlation between the electricity and natural gas markets, then no rational market participant would ever hedge electricity with natural gas. However, participants in the market routinely use such hedges. For example, it is common in the ERCOT markets for forward electricity to be quoted and traded as a heat rate (the ratio of power price to natural gas price). This method of pricing implies a fundamental relationship and strong correlation between natural gas and power prices.

By focusing on the spot price returns, using the quantitative factor in the Proposed Rule would present a fundamentally flawed measure of the true relationship between the cash market position and the derivative market position. The spot prices of power and natural gas are perhaps the most volatile commodities observed in the commodity markets (they also tend to exhibit the highest level of mean reversion). In addition, power rarely trades as a price for a given day but instead in the forward market represents an average price over the traded period. This dramatically reduces price volatility and increases the correlation with the derivative position.

Figure 1 displays the correlation using daily price changes over the last three years for PJM West Peak electricity and NYMEX Henry Hub futures contracts for different forward time horizons. Figure 1 shows that forward natural gas prices exhibit a relatively high correlation to forward power prices, which explains why market participants will use natural gas futures contracts to hedge power price exposure.

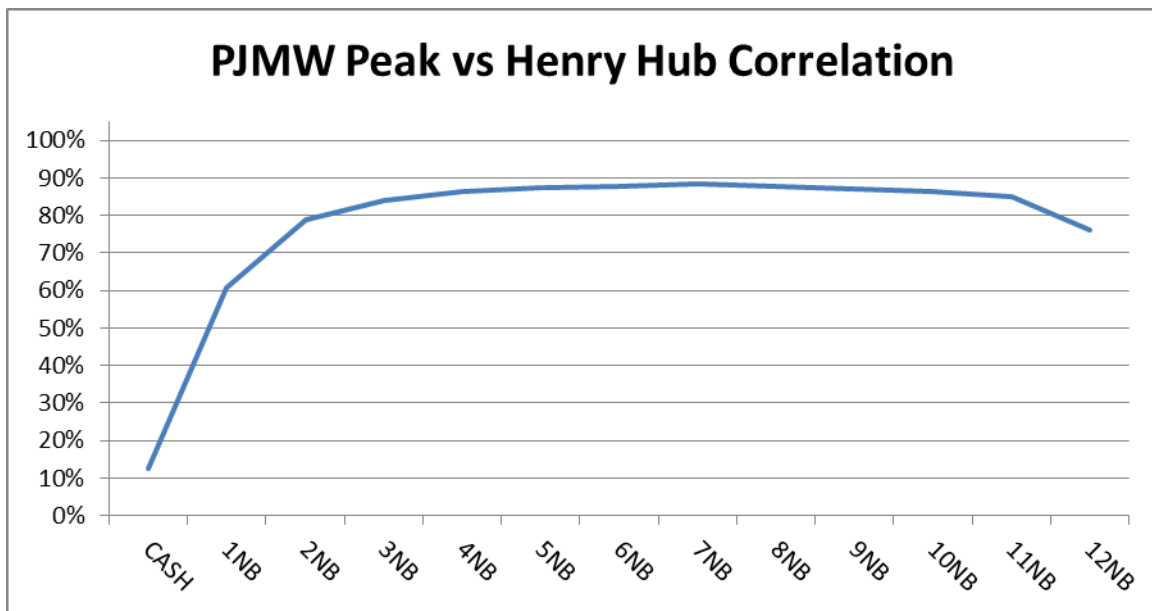


Figure 1. Correlation between PJM West Peak Electricity and NYMEX Henry Hub for different forward time horizons. *x-axis* values represent the nearby month (i.e. forward time

horizon) for which the correlation is calculated. *y-axis* values represent the Pearson correlation.²³

Although the issues associated with using the spot series to measure correlations are perhaps most pronounced with respect to power and natural gas, the same issues are presented by using spot series to measure correlations for other commodities as well. Figure 2 shows cross commodity correlations for spot prices and the first twelve nearby contracts (e.g. spot vs. spot correlations, first nearby vs. first nearby correlations, etc...). As the figure shows, none of the pairs clear the 80% correlation threshold using spot price returns. However, when we look at returns for futures contracts (i.e., second nearby month and beyond), all of the correlations exceed the 80% threshold.

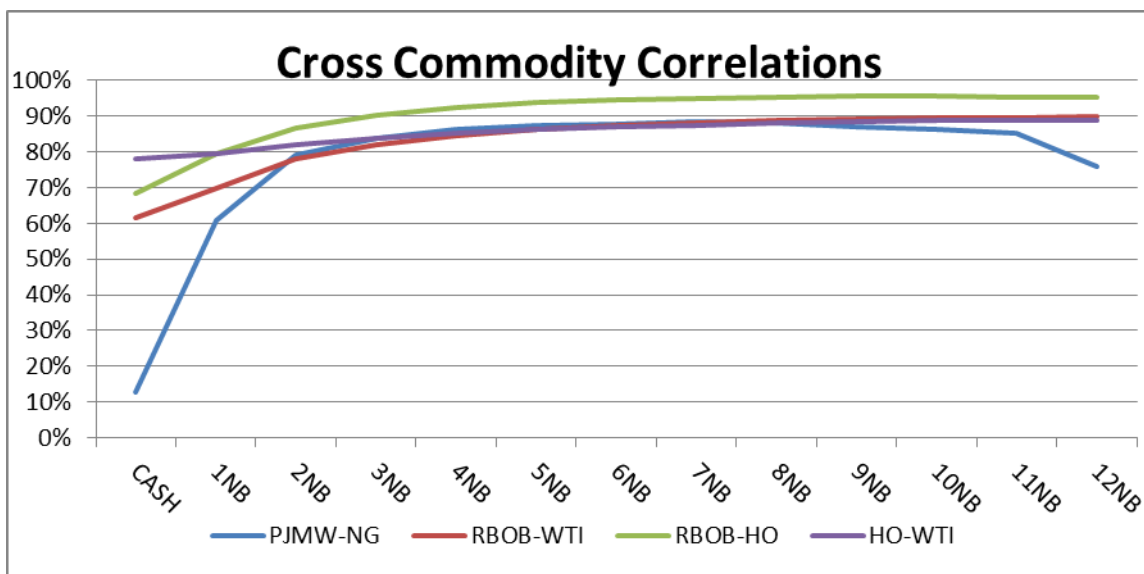


Figure 2. Cross-commodity correlations for spot and forward prices for selected pairs of energy commodities. *x-axis* values represent the nearby month for which the correlation is calculated. *y-axis* values represent the Pearson correlation.²⁴

²³ NYMEX Henry Hub future prices are obtained from Bloomberg. Henry Hub cash price is the “Louisiana-Onshore South Henry Hub Common Platts Mid (Flow) As Quoted(US\$:F/MMBTU)” obtained from obtained from PLATTS via Energyscope, a market data aggregator. PJMW Peak cash price is the “WESTERN HUB \$/MWh” quote obtained from PJM Interconnection via Ventyx Velocity Suite, a market data aggregator.. The PJMW forward curve prices are Morgan Stanley’s own curve marks which are provided as an appendix to this document.

²⁴ RBOB, WTI, and Heating Oil future price series are NYMEX closing prices obtained from Bloomberg. Cash prices are the following series also obtained from Bloomberg “Unleaded RBOB NYH Barges Platts Mid As Quoted(US\$:F/GAL)”; “WTI Cushing Platts 1st Month Mid (US\$:F/BBL)”; and “ULSD NYH Barges Platts Mid As Quoted(US\$:F/GAL)” NYMEX Henry Hub future prices are obtained from Bloomberg. Henry Hub cash price is the “Louisiana-Onshore South Henry Hub Common Platts Mid (Flow) As Quoted(US\$:F/MMBTU)” obtained from PLATTS via Energyscope, a market data aggregator. PJMW Peak cash price is the “WESTERN HUB \$/MWh” quote obtained from the PJM Interconnection via Ventyx Velocity Suite, a market data aggregator. The PJMW forward curve prices are Morgan Stanley’s own curve marks which are provided as an appendix to this document.

Figure 3 illustrates how determining the effectiveness of a hedge based upon a correlation with a series of spot prices can produce a fundamentally flawed result. In Figure 3, correlations for identical assets are calculated across various time horizons, effectively comparing returns of the spot prices to the return of “the price series for the derivative contract used to offset risk.” While heating oil and WTI exceed the 80% threshold, natural gas and unleaded gasoline do not. At the very least, any quantitative test to determine the validity of a cross-commodity hedge should be able to validate a hedge as bona fide if the same commodity that is being hedged is used to establish the hedging position. The Commission’s proposed test, however, would not quantitatively validate even the use of a natural gas futures contract to hedge the price risk of a cash natural gas position. This result clearly demonstrates the flaws inherent in the proposed test.

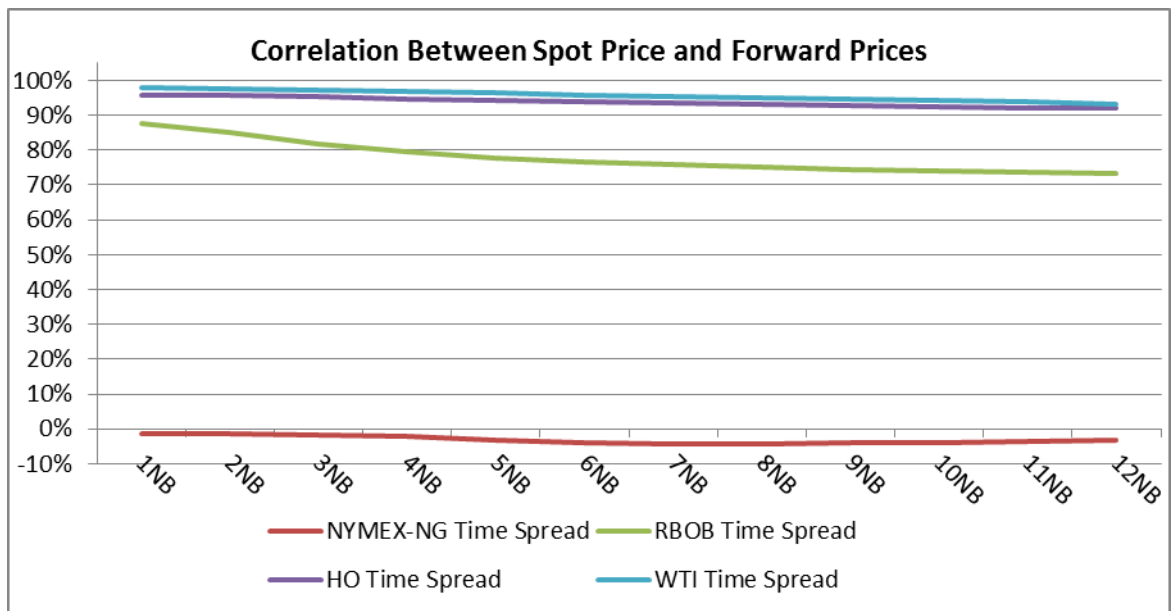


Figure 3. Correlations between spot and forward prices for energy commodities. *x-axis* values represent the forward time horizon (nearby months) for the NYMEX futures contracts in the identified commodities. *y-axis* values represent the Pearson correlation.²⁵

(iii) Pairwise relationships are not always capable of capturing the true complexities of modern commodity markets.

The quantitative factor proposed by the Commission for the substantially related test is based solely upon the relationship between two assets. However, modern commodity markets are more complex than this simple model and a proper hedge may require the use of multiple

²⁵ NYMEX NG, RBOB, WTI, and Heating Oil future price series are NYMEX closing prices obtained from Bloomberg.

assets. For example, if the United States were to develop an active carbon emissions market it is reasonable to expect that power positions would be hedged with natural gas and emission contracts. This is similar to current practices in the power markets in Europe.

The agricultural markets provide another example where several assets are needed to provide an effective hedge. There is a strong fundamental relationship between soybeans, soybean meal, and soybean oil. Table 1 presents the results of three regressions: a regression of changes in prices of soybeans on changes in prices of soybean meal; a regression of changes in prices of soybeans on changes in prices of soybean oil; and a regression of changes in prices of soybeans on changes in both meal and oil.

	R²	Implied Correlation²⁶
Meal	0.799	89.4%
Oil	0.525	72.4%
Meal & Oil	0.899	94.8%

Table 1. Regressions on the changes in the prices of soybeans on changes in the prices of soybean products (using three years of price history and the first nearby contract as a proxy for spot prices).²⁷

As this commodity set demonstrates, a combination of soybean meal and soybean oil would best replicate the returns observed in soybeans and therefore would be the best hedge.

(iv) Correlations may exhibit seasonal patterns.

A calculation of correlation within a specified timeframe represents the average correlation for the data set within that timeframe. This is appropriate if there are no structural differences within the sample time periods. In commodity markets, however, it is not uncommon to observe seasonal correlations. Use of the three-year methodology under the Proposed Rule would average together periods of low correlation and periods of high correlation. This could result in a highly inaccurate quantitative measure of the effectiveness of a cross-commodity hedge that is employed during a particular season or time of year.

Table 2 shows an example of this for the first nearby correlation between Transco Zone 6 (a natural gas pricing point located near New York City) and the NYMEX Henry Hub contract. Over the last three years the average correlation between these two regions from April through September has been 96%, and most risk managers would consider Henry Hub a reasonable hedge of Transco Zone 6 during the summer. However the winter months present a very different situation. The average correlation during the months of October through

²⁶ Implied correlation is the square root of the regression R².

²⁷ Analysis is based upon CBOT nearby future contract settlement prices obtained from Bloomberg.

March is only 57% and few would use Henry Hub to hedge a winter Transco Zone 6 exposure.

Observation Month	HH- TZ6 Correlation
Jan	61.35%
Feb	61.38%
Mar	96.13%
Apr	97.44%
May	96.39%
Jun	96.85%
Jul	96.30%
Aug	96.00%
Sep	96.00%
Oct	21.65%
Nov	54.38%
Dec	47.38%

Table 2. Monthly Pearson correlations for first month nearby contracts for natural gas at Transco Zone 6 and at NYMEX Henry Hub.²⁸

F. Anticipatory merchandising hedges in energy contracts should be permitted to qualify as bona fide hedging.

Morgan Stanley supports the comments of the FIA that the Commission recognize as an enumerated hedging transaction the use of Referenced Contracts to lock in a price differential where one leg of the underlying transaction is an un-priced commitment to buy or sell the commodity and the offsetting sale or purchase is anticipated but not yet completed. If the anticipatory merchandising hedge is not recognized as a bona fide hedge, companies may choose to enter into fewer un-priced commitments such as forward contracts priced based on an index or a differential to a futures contract and instead enter into more fixed-price forward contracts, so that the resulting hedges would clearly qualify as bona fide hedging positions. A shift to long-term firm fixed forward contracts may increase credit risk and transaction costs for both parties to the transaction. The increased transaction costs will ultimately be passed on to the consumer in the form of higher commodity prices. Furthermore, the increase in credit risk may increase overall systemic risk in the market.

In general, price differential trades have significantly lower market risk than outright trades. As an exposure is hedged, market risk can become credit risk if the counterparty fails to perform on the hedge. Reducing credit risk through collateral agreements may ultimately lead to funding risk as firms are required to post collateral to cover mark to market losses. In

²⁸ NYMEX Henry Hub future prices are obtained from Bloomberg. First Nearby Transco Zone 6 price data is based upon Bloomberg Commodity Fair Value (CFVL)..

general, the greater the market risk, the greater the credit risk if the exposure is hedged, and the greater the funding risk if collateral is required.

Price differentials are frequently driven by a relatively small number of factors such as transportation costs or regional supply disruptions, while underlying prices are effected by a range of macroeconomic issues. As an example, Table 3 presents the standard deviation of price changes in outright NYMEX Henry Hub natural gas and the standard deviation of price changes in common natural gas price differentials for the first nearby contract. In all cases the standard deviation of the price differential is significantly less than the standard deviation of the outright position. The table also allows us to see that fundamentally the value of the spread is smaller than the value of the gas at Henry Hub.

	First Nearby Value 12/10/13	First Nearby St. Dev.
Outright NYMEX	\$4.237	\$0.081
Outright Socal	\$4.385	\$0.083
Price Differential to NYMEX		
AECO	-\$0.577	\$0.044
M3	\$0.695	\$0.041
Chicago	\$0.180	\$0.023
Socal	\$0.148	\$0.020
Permian	-\$0.088	\$0.017
Panhandle	-\$0.228	\$0.016
HSC	-\$0.082	\$0.006

Table 3. Standard deviation calculation of dollar differences based upon NYMEX Henry Hub future prices obtained from Bloomberg. The regional spreads are Bloomberg assessments.²⁹

²⁹ The specific codes are:

- FBAEM: Bloomberg Fair Value/AECO Inside FERC Basis Month Virtual
- FBTMM: Bloomberg Fair Value/Tetco M3 Inside FERC Basis Monthly Virtual
- FBCHM: Bloomberg Fair Value/Chicago City Gate NGI Basis Month 1
- FBSEM: Bloomberg Fair Value/SoCal NGI Basis Month 1
- FBPEM: Bloomberg Fair Value/El Paso Permian Inside FERC Basis Monthly Root
- FBPEM: Bloomberg Fair Value/Panhandle Eastern Inside FERC Basis Monthly Virtual
- FBHSM: Bloomberg Fair Value/Houston Ship Channel Inside FERC Basis Monthly

Due to the smaller standard deviation (which is broadly equivalent to the risk associated with the transaction), hedging with OTC price differential contracts will expose the counterparty to less potential credit risk and funding risk than a fixed price transaction.

For example, a producer selling into the SoCal region might choose to sell a Social price differential contract to protect itself from idiosyncratic regional price risk. If this transaction was OTC they could be exposed to roughly \$0.52/MMBTU of credit risk over a one year period on a product worth \$0.14/MMBTU.³⁰ Alternatively, if the entity has credit terms requiring the posting of collateral to protect from credit risk, they could need to fund \$0.52/MMBTU of mark to market losses³¹. If alternatively, the producer sells fixed price SoCal gas, a product worth \$4.385/MMBTU, the credit risk and funding risk will be four times as large³².

The solvency of many commodity firms has been threatened due to credit risk losses or poorly structured hedge programs which required more funding than the entity could provide; Ashanti Goldfields Corporation and Metallgesellschaft AG are two such examples. Any structure that forces entities to increase the credit risk and liquidity risk that are taking must be carefully evaluated.

G. The Commission should modify the Proposed Rule to ensure that firms remain able to mitigate the risks arising from Credit Valuation Adjustments.

The Proposed Rule does not address the management of risk exposures that arise through the Credit Valuation Adjustment (CVA) process. In a bilateral transaction, each counterparty is exposed to the risk that the other counterparty may default on its obligations. Accounting standards require that an entity take into consideration the potential losses resulting from a counterparty default when determining the fair (i.e. mark-to-market) value of a bilateral transaction.³³ This valuation adjustment is commonly referred to as the Credit Valuation Adjustment, or CVA.³⁴

Mathematically, the CVA value equals the credit exposure (CE) that would arise in the event the counterparty defaults multiplied by the probability of that credit exposure arising (CEP) multiplied by the probability of the counterparty default (CDP):

$$CVA = CE * CEP * CDP$$

³⁰ Assuming normal distribution of returns, the one year risk is approximately equal to the observed standard deviation (\$0.020) multiplied by square root of the duration ($\sqrt{252}$) multiplied by a 95% confidence interval from a normal distribution (1.645)

³¹ See previous footnote. The same calculation applies here as well.

³² See note 31. In this case the standard deviation is \$0.083.

³³ See FASB Statement No. 157, Fair Value Measurements (FAS 157).

³⁴ In a bilateral transaction between two counterparties, A and B, counterparty A is exposed to the credit risk that counterparty B will fail to perform, and also presents a risk of non-performance to counterparty B. Counterparty credit risk will typically decrease the value of an entity's derivative position, whereas the risk that the entity itself will not perform will typically increase the value of a derivative position.

Adjusting the mark-to-market value of a position to reflect the credit risk of the counterparty exposes an entity to additional market risks.

By way of illustration, assume that a bank has sold forward jet fuel to an airline at the market price prevailing at the time of sale. Assuming no day-one profit, at the time of sale the bank will have no counterparty credit exposure. If prices subsequently fall, then the bank will recognize a mark-to-market gain, since the bank would obtain a higher price for the jet fuel from the airline than it would receive if it were to sell the jet fuel in the market. However, the bank also now has a credit risk that the counterparty may default, and thereby fail to pay the bank the agreed-upon price for the jet fuel. The bank is required to reduce the mark-to-market value of the transaction in consideration of this credit risk. Therefore, in this scenario, as the price of the commodity decreases, the CVA charge increases.

Rather than passively absorb the gains and losses resulting from the CVA process, an entity may hedge these exposures in order to maintain a particular overall risk profile. In the jet fuel example, the bank could sell additional jet fuel elsewhere in the market. The mark-to-market loss resulting from an increase in the CVA would be offset by the gain from the increase in the value of the jet fuel and other short positions taken to hedge the credit risks.³⁵

Under the CVA process, as the counterparty credit deteriorates the number of commodity contracts required to hedge CVA increases. This can be clearly seen in the case of a counterparty that is almost guaranteed to default over the life of a swap. In such a scenario any gain in the underlying position will be largely negated by a significant CVA charge. Accordingly, the offsetting hedge would be another position equal to the original position.

The failure to accommodate CVA and positions taken to hedge risks resulting from the application of CVA to commodity positions within the position limits regime could increase market volatility and systemic risks. If the commodity exposures that arise from CVA are not considered when calculating net positions under a regime of fixed position limits, then as a firm's positions approach those fixed limits it may not be able to establish appropriate hedges as a counterparty's credit deteriorates. In such a situation the firm would be able to re-establish its original position only after the counterparty defaulted and the associated positions terminated. Rather than gradually accumulate positions needed to maintain the original position as counterparty credit deteriorates, a firm could only replace the entire position all at once following the default of the counterparty. If the defaulting entity has numerous counterparties, a sudden increase in similar transactions from all firms similarly affected by the default could increase market volatility. To the extent that such firms are unable to hedge the risks that result from an increase in the credit risk from a single counterparty, that credit risk will be propagated to those other firms, thereby increasing systemic risk. An example of this can be seen in the energy markets after Enron's collapse. The credit loss due to the Enron default propagated through the system potentially threatening other energy traders. Active use of CVA hedging helps protect entities from a such a loss.

³⁵ The example provided is dramatically simplified in order to illustrate the basic concepts. The correct CVA calculation will take into account counterparty collateral terms, potential credit exposure, credit default swaps and potential correlation between commodity prices and counterparty default probability.

There are several possible ways in which the Proposed Rule could be modified to ensure that firms remain able to mitigate the risks arising from CVA. First, the Commission could adopt a position accountability regime in the non-spot month for energy commodities rather than fixed numerical limits (as we recommend in section III.H, below). Firms with positions in futures and swaps that, prior to any credit adjustments, in the aggregate were at or exceeded the accountability levels, would then be permitted to demonstrate to the Commission or the exchanges (whichever entity was administering the accountability levels) that on a credit-adjusted basis the firm's positions did not in fact exceed the accountability levels.

Alternatively, if the Commission adopts inflexible, fixed-limits for the non-spot months in energy commodities, the Commission should clarify positions taken in accordance with sound commercial practices to hedge the changes in risks resulting from CVA qualify as bona fide hedges. Clearly, if the underlying position itself qualifies as a bona fide hedge, or is a pass-through swap, then a subsequent position that is taken to hedge that same commodity risk exposure following the application of a CVA to the underlying position should qualify as a bona fide hedge. If the underlying position does not qualify as a bona fide hedge or is not a pass-through swap, the Commission should nonetheless count only the amount of credit-risk adjusted underlying positions against the speculative limits. Thus, in the situation in which the mark-to-market value of a position is reduced as a result of CVA and a subsequent position is established to hedge that resulting exposure, such that the total risk exposure remained equivalent to the exposure when the position was first established, the total position of the entity for purposes of position limits would also remain equal to the original positional exposure.

H. The Commission should adopt accountability levels for the non-spot months.

Morgan Stanley supports the FIA comment that the Commission should adopt position accountability rather than fixed limits in the non-spot months. The accountability levels currently in place have served to maintain orderly trading on the exchanges in the non-spot months, while preserving market liquidity and the price discovery function of these markets for forward prices. Additionally, accountability levels would provide the flexibility and opportunity to develop new risk management techniques and processes, such as CVA. A system of hard, fixed limits, based upon a rigid formula that was developed decades ago for far different and simpler markets, may unduly constrain growth and innovation in these markets.

The Commission has cited only one instance of allegedly excessive speculation in the energy markets—the case of Amaranth—to justify abandoning the current system in place. This unique case, however, did not demonstrate that accountability levels are inadequate. First, at the time of Amaranth non-spot month accountability levels were in place on only one of the platforms on which Amaranth built its large positions, namely NYMEX. Second, at the time of Amaranth, its positions in the uncleared OTC swaps market were not subject to a reporting regime such as exists now under Parts 20, 43 and 45. Third, the Amaranth case occurred nearly eight years ago; the Commission has not identified any instance of allegedly excessive speculation in the energy markets either before or since that time.

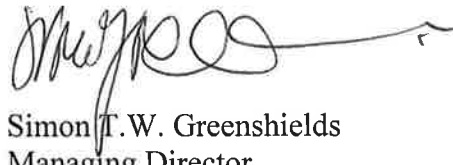
IV. Conclusion

Morgan Stanley commends the Commission on its initiatives to review developments in the energy and other commodity markets and to seek public comment regarding the issues discussed in the Proposed Rule. However, for the reasons explained herein, Morgan Stanley respectfully urges that the Commission not adopt the Proposed Rule or, in the alternative, that the Commission adopt both FIA's and Morgan Stanley's recommended revisions to the Proposed Rule before issuing final position limit regulations. We welcome the opportunity to discuss these issues further with the Commission and its Staff.

Respectfully submitted,



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Simon T.W. Greenshields
Managing Director
Global Co-Head of Commodities

cc: Honorable Mark P. Wetjen, Acting Chairman
Honorable Bart Chilton, Commissioner
Honorable Scott D. O'Malia, Commissioner
Mark Fajfar, Assistant General Counsel
Stephen Sherrod, Senior Economist
Riva Spear Adriance, Senior Special Counsel

APPENDIX A: PJM West Peak Forward Curve Price History \$/MWH

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
1/24/2011	FEB	1/31/2011	60.65	49.55	47.80	47.65	51.60	61.60	61.60	49.45	45.90	46.50	51.50	55.95
1/25/2011	FEB	1/31/2011	58.65	48.95	47.25	47.05	51.20	61.35	61.35	49.20	45.70	46.20	51.25	55.75
1/26/2011	FEB	1/31/2011	58.25	49.05	47.20	47.00	51.30	61.40	61.40	49.10	45.50	46.00	51.25	55.70
1/27/2011	FEB	1/31/2011	57.50	47.95	46.25	46.15	50.35	60.50	60.50	48.20	44.70	45.20	50.50	55.00
1/28/2011	FEB	1/31/2011	57.10	47.90	46.15	46.10	50.50	60.35	60.35	48.30	44.85	45.35	50.55	55.15
1/31/2011	FEB	1/31/2011	54.00	48.00	46.55	46.45	50.90	61.00	61.00	48.70	45.00	45.50	50.70	55.20
2/1/2011	MAR	2/28/2011	47.15	46.00	46.00	50.40	60.40	60.40	48.30	44.65	45.15	50.25	54.70	54.70
2/2/2011	MAR	2/28/2011	47.40	46.50	46.40	50.75	60.80	60.80	48.70	45.00	45.35	50.50	54.95	54.95
2/3/2011	MAR	2/28/2011	46.80	46.00	46.00	50.50	60.50	60.50	48.50	44.85	45.15	50.25	54.85	54.85
2/4/2011	MAR	2/28/2011	46.70	46.00	46.00	50.55	60.50	60.50	48.50	45.00	45.35	50.35	55.10	55.10
2/7/2011	MAR	2/28/2011	45.85	45.35	45.25	49.80	59.70	59.70	48.00	44.50	44.70	49.75	54.45	54.45
2/8/2011	MAR	2/28/2011	45.65	44.90	44.75	49.45	59.30	59.30	47.75	44.25	44.35	49.25	53.90	53.90
2/9/2011	MAR	2/28/2011	45.85	45.00	44.95	49.60	59.45	59.45	47.95	44.55	44.55	49.50	53.90	53.90
2/10/2011	MAR	2/28/2011	45.15	44.50	44.50	49.15	58.90	58.90	47.60	44.15	44.25	48.90	53.25	53.25
2/11/2011	MAR	2/28/2011	44.50	44.30	44.30	48.75	58.45	58.45	47.25	43.85	44.10	48.70	52.65	52.65
2/14/2011	MAR	2/28/2011	44.40	44.45	44.40	48.70	58.35	58.35	47.20	43.80	44.10	48.50	52.35	52.35
2/15/2011	MAR	2/28/2011	44.60	44.55	44.50	48.85	58.50	58.50	47.35	43.90	44.20	48.40	51.90	51.90
2/16/2011	MAR	2/28/2011	43.85	44.00	43.95	48.40	58.00	58.00	46.80	43.50	43.80	47.90	51.35	51.35
2/17/2011	MAR	2/28/2011	43.45	43.50	43.60	47.80	57.30	57.30	46.40	43.10	43.50	47.45	50.95	50.95
2/18/2011	MAR	2/28/2011	43.70	43.70	43.65	47.75	57.25	57.25	46.50	43.10	43.50	47.50	51.00	51.00
2/22/2011	MAR	2/28/2011	44.25	44.20	43.95	48.00	57.30	57.30	46.65	43.40	43.75	47.75	51.10	51.10
2/23/2011	MAR	2/28/2011	44.40	44.30	44.10	48.15	57.45	57.45	46.90	43.65	43.95	47.95	51.15	51.15
2/24/2011	MAR	2/28/2011	43.90	43.85	43.85	47.90	57.05	57.05	46.65	43.60	43.80	47.75	50.95	50.95
2/25/2011	MAR	2/28/2011	44.90	44.85	44.75	48.75	58.05	58.05	47.50	44.25	44.45	48.50	51.75	51.75
2/28/2011	MAR	2/28/2011	45.20	45.15	45.15	49.20	58.65	58.65	48.00	44.65	44.90	48.90	52.45	52.45
3/1/2011	APR	3/31/2011	44.60	44.35	48.65	57.60	57.60	47.30	44.10	44.35	48.30	51.70	51.70	47.15
3/2/2011	APR	3/31/2011	44.15	43.90	48.15	57.05	57.05	46.70	43.55	43.80	48.00	51.35	51.35	46.90
3/3/2011	APR	3/31/2011	43.90	43.70	47.90	56.80	56.80	46.65	43.50	43.90	48.00	51.35	51.35	47.00
3/4/2011	APR	3/31/2011	44.15	43.95	48.20	57.20	57.20	47.00	43.75	44.15	48.25	51.60	51.60	47.15
3/7/2011	APR	3/31/2011	45.05	44.85	49.00	58.00	58.00	47.80	44.35	44.65	48.85	52.45	52.45	47.90
3/8/2011	APR	3/31/2011	44.75	44.50	48.70	57.70	57.70	47.50	44.35	44.65	48.90	52.30	52.30	47.95
3/9/2011	APR	3/31/2011	44.85	44.85	49.20	58.40	58.00	48.15	44.65	45.00	49.35	53.25	52.75	48.10
3/10/2011	APR	3/31/2011	44.75	44.65	48.85	58.00	57.75	47.85	44.45	44.75	49.05	52.95	52.75	48.05
3/11/2011	APR	3/31/2011	45.30	45.20	49.60	58.55	58.35	48.45	45.00	45.25	49.75	53.70	53.15	48.40
3/14/2011	APR	3/31/2011	45.50	45.50	50.05	58.85	58.85	48.75	45.40	45.65	50.30	54.25	53.75	48.95
3/15/2011	APR	3/31/2011	45.65	45.60	50.25	59.25	59.25	49.15	45.85	46.20	50.85	55.15	55.15	49.50
3/16/2011	APR	3/31/2011	45.35	45.45	50.50	59.50	59.50	49.25	46.00	46.35	51.15	55.95	55.95	49.65
3/17/2011	APR	3/31/2011	46.10	46.60	51.60	61.00	61.00	50.35	46.80	47.30	52.20	57.00	57.00	50.60
3/18/2011	APR	3/31/2011	45.75	46.40	51.70	61.00	61.00	50.35	46.80	47.30	52.20	57.00	57.00	50.55
3/21/2011	APR	3/31/2011	46.20	46.40	51.60	61.00	61.00	50.00	46.75	47.20	52.00	56.90	56.90	50.50
3/22/2011	APR	3/31/2011	46.55	46.65	51.75	61.35	61.35	50.35	47.00	47.50	52.05	57.00	57.00	50.40
3/23/2011	APR	3/31/2011	46.80	47.00	52.00	61.55	61.55	50.70	47.15	47.60	52.25	57.00	57.00	50.45
3/24/2011	APR	3/31/2011	46.25	46.35	51.50	60.85	60.85	50.10	46.65	47.20	51.65	56.50	56.50	49.95
3/25/2011	APR	3/31/2011	47.10	47.25	52.65	62.00	62.00	51.25	47.80	48.00	52.65	57.15	57.15	50.50
3/28/2011	APR	3/31/2011	46.70	47.00	52.35	61.75	61.75	51.15	47.60	47.90	52.25	57.75	55.85	50.35
3/29/2011	APR	3/31/2011	45.85	46.00	51.30	60.50	60.50	50.10	46.60	47.05	51.30	56.90	54.90	49.55
3/30/2011	APR	3/31/2011	46.10	46.40	51.65	61.00	61.00	50.50	46.85	47.30	51.70	57.30	55.30	50.00
3/31/2011	APR	3/31/2011	46.25	46.85	51.90	61.30	61.30	51.10	47.35	47.70	52.00	57.60	55.60	50.25
4/1/2011	MAY	4/30/2011	46.40	51.60	61.10	61.10	50.60	47.25	47.45	51.85	57.65	55.40	50.10	48.55
4/4/2011	MAY	4/30/2011	46.15	51.15	60.50	60.50	50.10	46.65	47.05	51.60	57.50	55.15	50.00	48.50
4/5/2011	MAY	4/30/2011	46.35	51.20	60.50	60.50	49.90	46.50	47.00	51.50	57.55	55.15	49.90	48.40
4/6/2011	MAY	4/30/2011	45.85	50.75	59.80	59.80	49.45	46.15	46.40	51.00	56.90	54.65	49.35	48.00
4/7/2011	MAY	4/30/2011	46.00	50.65	59.60	59.60	49.35	45.85	46.15	50.75	56.50	54.50	49.25	48.00
4/8/2011	MAY	4/30/2011	46.25	50.80	59.75	59.75	49.35	46.00	46.00	50.60	56.35	54.35	48.85	48.00
4/11/2011	MAY	4/30/2011	46.15	50.90	59.90	59.90	49.60	46.00	46.15	50.90	56.70	54.60	49.05	48.20
4/12/2011	MAY	4/30/2011	46.20	50.95	59.70	59.70	49.60	45.95	46.15	50.85	56.55	54.45	49.00	48.10
4/13/2011	MAY	4/30/2011	46.50	51.15	59.85	59.85	49.75	46.00	46.50	51.10	56.65	54.55	49.10	48.15
4/14/2011	MAY	4/30/2011	46.60	51.50	60.10	60.10	49.80	46.25	46.65	51.15	56.70	54.60	49.15	48.10
4/15/2011	MAY	4/30/2011	46.60	51.60	60.25	60.25	49.95	46.20	46.75	51.30	56.70	54.70	49.35	48.30
4/18/2011	MAY	4/30/2011	47.00	51.50	60.00	60.00	49.85	46.00	46.50	51.05	56.50	54.50	49.30	48.25
4/19/2011	MAY	4/30/2011	48.00	52.45	61.00	61.00	50.60	46.75	47.00	51.50	57.25	55.25	49.80	48.75

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
4/20/2011	MAY	4/30/2011	48.25	52.65	61.30	61.30	50.75	47.00	47.25	52.00	57.50	55.50	50.00	49.00
4/21/2011	MAY	4/30/2011	48.15	53.00	61.85	61.85	51.20	47.50	47.50	52.35	58.10	56.10	50.60	49.60
4/25/2011	MAY	4/30/2011	47.90	53.15	62.00	62.00	51.20	47.35	47.65	52.25	57.95	55.95	50.45	49.50
4/26/2011	MAY	4/30/2011	47.40	53.00	61.00	62.25	51.15	47.30	47.60	52.35	58.00	55.55	50.50	49.35
4/27/2011	MAY	4/30/2011	47.55	52.80	60.75	62.00	51.00	47.15	47.50	52.15	57.70	55.45	50.35	49.25
4/28/2011	MAY	4/30/2011	48.00	53.75	61.75	62.75	52.05	48.15	48.25	52.95	58.50	56.00	51.00	49.65
4/29/2011	MAY	4/30/2011	48.55	54.45	62.50	63.75	52.75	48.75	49.00	53.50	58.95	56.45	51.45	50.45
5/2/2011	JUN	5/31/2011	54.50	62.75	63.75	52.65	48.70	48.85	53.35	59.15	56.65	51.55	50.50	50.05
5/3/2011	JUN	5/31/2011	54.60	62.70	63.95	52.80	48.70	48.90	53.35	59.20	56.70	51.55	50.50	50.05
5/4/2011	JUN	5/31/2011	53.40	61.45	62.85	51.80	48.15	48.35	52.80	58.45	56.15	51.20	49.95	49.55
5/5/2011	JUN	5/31/2011	51.55	59.50	61.00	50.25	46.75	46.80	51.35	56.80	54.50	49.75	48.85	48.45
5/6/2011	JUN	5/31/2011	51.50	59.45	60.95	50.20	46.70	46.85	51.30	56.50	54.40	49.65	48.65	48.40
5/9/2011	JUN	5/31/2011	51.10	58.75	60.45	49.75	46.30	46.50	51.00	56.20	53.95	49.20	48.20	47.95
5/10/2011	JUN	5/31/2011	52.40	60.00	61.25	50.55	46.85	47.00	51.80	57.00	54.50	49.75	48.85	48.40
5/11/2011	JUN	5/31/2011	52.25	60.00	60.75	50.45	46.55	46.70	51.55	56.70	54.20	49.35	48.25	48.15
5/12/2011	JUN	5/31/2011	52.95	60.35	61.25	50.55	46.70	46.85	51.65	56.80	54.35	49.45	48.50	48.30
5/13/2011	JUN	5/31/2011	52.85	60.50	61.50	50.65	46.80	47.00	51.65	56.80	54.50	49.50	48.60	48.50
5/16/2011	JUN	5/31/2011	54.85	61.90	62.60	51.75	47.75	48.00	52.65	57.60	55.20	50.30	49.30	49.10
5/17/2011	JUN	5/31/2011	54.30	61.00	61.80	51.15	47.10	47.30	52.05	57.10	54.80	49.95	48.85	48.65
5/18/2011	JUN	5/31/2011	55.35	61.75	62.15	51.40	47.30	47.50	52.25	57.50	55.15	50.15	49.05	48.95
5/19/2011	JUN	5/31/2011	55.25	61.10	61.60	50.90	46.75	47.00	51.75	57.00	54.50	49.65	48.80	48.90
5/20/2011	JUN	5/31/2011	56.15	61.65	62.25	51.60	47.35	47.55	52.25	57.50	55.00	50.15	49.25	49.25
5/23/2011	JUN	5/31/2011	55.80	61.25	62.50	51.80	47.65	47.85	52.50	58.00	55.50	50.65	49.70	49.70
5/24/2011	JUN	5/31/2011	57.15	61.25	62.00	51.60	47.50	47.60	52.40	57.85	55.35	50.50	49.60	49.60
5/25/2011	JUN	5/31/2011	58.05	61.50	62.25	51.75	47.55	47.80	52.55	57.95	55.45	50.65	49.75	49.75
5/26/2011	JUN	5/31/2011	58.25	61.15	62.10	51.70	47.35	47.50	52.10	57.55	55.30	50.55	49.55	49.80
5/27/2011	JUN	5/31/2011	56.50	61.25	62.50	52.10	47.90	48.15	52.75	58.30	55.95	51.10	50.10	50.35
5/31/2011	JUN	5/31/2011	61.00	62.75	64.00	53.00	48.75	49.00	53.25	58.75	56.50	51.60	50.60	51.15
6/1/2011	JUL	6/30/2011	62.25	63.75	52.75	48.40	48.70	53.25	58.25	56.25	51.30	50.25	51.00	57.00
6/2/2011	JUL	6/30/2011	63.10	64.50	53.55	49.10	49.25	53.85	58.75	56.75	51.70	50.55	51.80	57.45
6/3/2011	JUL	6/30/2011	62.30	63.90	52.95	48.50	48.75	53.45	57.95	56.20	51.20	50.20	51.30	56.95
6/6/2011	JUL	6/30/2011	65.05	66.05	54.45	49.65	49.80	54.55	58.60	56.85	51.85	50.85	52.10	58.15
6/7/2011	JUL	6/30/2011	66.35	67.00	54.75	49.90	50.00	54.60	58.45	56.95	51.70	50.70	52.05	58.50
6/8/2011	JUL	6/30/2011	69.25	69.25	55.60	50.15	50.25	55.00	58.75	57.20	51.95	50.95	52.50	59.80
6/9/2011	JUL	6/30/2011	69.50	69.15	55.00	49.50	49.50	54.50	57.95	56.45	51.45	50.45	51.95	59.25
6/10/2011	JUL	6/30/2011	72.00	70.00	55.60	49.80	49.85	54.65	58.20	56.95	51.85	50.70	52.35	59.65
6/13/2011	JUL	6/30/2011	71.35	69.00	54.90	49.25	49.35	54.25	57.50	56.25	51.25	50.35	51.75	59.05
6/14/2011	JUL	6/30/2011	68.80	67.00	53.75	48.50	48.50	53.60	56.75	55.75	50.95	50.00	51.25	58.50
6/15/2011	JUL	6/30/2011	68.30	67.10	53.85	48.45	48.45	53.45	56.35	55.50	50.60	49.70	51.20	58.40
6/16/2011	JUL	6/30/2011	66.80	65.80	53.05	47.55	47.55	52.55	55.20	54.45	49.65	49.10	50.35	57.40
6/17/2011	JUL	6/30/2011	65.50	65.00	52.20	47.00	47.00	52.10	54.45	53.95	48.95	48.65	49.95	56.95
6/20/2011	JUL	6/30/2011	64.00	64.00	52.00	46.50	46.50	52.20	54.65	54.00	48.85	48.65	49.95	56.50
6/21/2011	JUL	6/30/2011	66.80	65.30	52.70	46.85	46.80	52.40	55.25	54.75	49.50	49.30	50.15	57.05
6/22/2011	JUL	6/30/2011	66.00	64.75	52.35	46.55	46.45	51.85	55.00	54.25	49.15	48.65	49.80	56.80
6/23/2011	JUL	6/30/2011	64.75	63.50	51.65	46.00	46.00	51.25	54.00	53.65	48.60	48.10	49.25	56.00
6/24/2011	JUL	6/30/2011	64.75	63.60	52.00	46.15	46.15	51.50	54.15	53.80	48.75	48.25	49.40	56.15
6/27/2011	JUL	6/30/2011	61.05	61.95	51.50	45.85	45.80	51.20	54.05	53.65	48.65	48.05	49.20	55.95
6/28/2011	JUL	6/30/2011	62.70	62.75	52.10	46.35	46.20	51.80	54.60	54.35	49.30	48.60	49.80	56.20
6/29/2011	JUL	6/30/2011	64.75	63.35	52.25	46.25	46.25	51.75	54.55	54.30	49.25	48.55	49.75	56.15
6/30/2011	JUL	6/30/2011	64.25	63.35	52.40	46.50	46.50	52.10	55.00	54.75	49.70	49.00	50.30	56.65
7/1/2011	AUG	7/31/2011	63.25	52.15	46.35	46.45	52.10	55.05	54.80	49.75	49.05	50.35	56.70	64.50
7/5/2011	AUG	7/31/2011	63.10	52.50	46.50	46.50	52.20	55.25	55.00	50.00	49.30	50.60	56.95	64.50
7/6/2011	AUG	7/31/2011	62.35	51.70	46.00	46.10	51.40	54.25	54.40	49.40	48.90	50.00	56.30	63.90
7/7/2011	AUG	7/31/2011	62.35	51.25	45.30	45.45	51.00	54.30	54.30	49.25	48.75	49.95	56.05	63.85
7/8/2011	AUG	7/31/2011	63.10	51.80	45.75	45.90	51.35	55.15	55.15	50.00	49.35	50.70	56.55	64.50
7/11/2011	AUG	7/31/2011	64.20	52.45	46.30	46.30	51.80	55.60	55.60	50.45	49.85	51.10	57.25	65.30
7/12/2011	AUG	7/31/2011	64.25	52.60	46.35	46.35	51.85	55.75	55.75	50.55	50.00	51.15	57.25	65.35
7/13/2011	AUG	7/31/2011	65.60	53.35	46.75	46.60	52.20	56.10	56.10	50.75	50.15	51.20	57.40	65.80
7/14/2011	AUG	7/31/2011	65.25	53.15	46.60	46.50	51.90	55.90	55.90	50.75	50.10	51.15	57.30	65.50
7/15/2011	AUG	7/31/2011	68.25	54.70	47.70	47.45	52.70	57.10	57.10	51.50	50.50	51.80	58.00	66.60
7/18/2011	AUG	7/31/2011	68.00	54.50	47.50	47.40	52.80	57.30	57.30	51.80	50.80	51.80	58.40	66.90
7/19/2011	AUG	7/31/2011	66.55	53.90	47.25	47.20	52.50	57.05	57.05	51.70	50.70	51.55	57.90	66.40
7/20/2011	AUG	7/31/2011	66.75	53.90	47.40	47.10	52.40	56.85	56.85	51.50	50.50	51.15	57.70	66.15

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
7/21/2011	AUG	7/31/2011	66.25	53.10	46.80	46.60	51.85	56.10	56.10	50.80	49.90	50.90	57.30	65.70
7/22/2011	AUG	7/31/2011	68.20	53.55	46.95	46.65	51.90	56.05	56.05	50.80	49.90	51.05	57.55	66.05
7/25/2011	AUG	7/31/2011	67.25	53.25	46.80	46.45	51.60	55.50	55.50	50.45	49.65	50.85	57.05	65.70
7/26/2011	AUG	7/31/2011	67.50	53.10	46.85	46.50	51.60	55.30	55.30	50.15	49.55	50.65	56.85	65.60
7/27/2011	AUG	7/31/2011	66.60	52.80	46.80	46.50	51.55	55.20	55.20	49.80	49.20	50.50	56.75	65.25
7/28/2011	AUG	7/31/2011	65.75	52.00	46.40	46.30	51.15	54.35	54.35	49.60	48.60	49.85	56.10	64.65
7/29/2011	AUG	7/31/2011	63.00	51.15	45.85	45.80	50.65	53.75	53.75	48.85	48.00	49.50	55.70	64.20
8/1/2011	SEP	8/31/2011	51.55	46.00	45.90	50.90	54.20	54.20	49.20	48.30	49.65	55.75	64.25	64.25
8/2/2011	SEP	8/31/2011	51.40	45.75	45.70	50.75	54.00	54.00	49.00	48.00	49.45	55.40	63.75	63.75
8/3/2011	SEP	8/31/2011	50.80	45.35	45.40	50.35	53.65	53.65	48.55	47.80	49.25	55.15	63.05	63.05
8/4/2011	SEP	8/31/2011	50.40	44.80	44.80	49.50	52.80	52.80	47.85	47.10	48.60	54.35	62.05	62.05
8/5/2011	SEP	8/31/2011	50.55	45.10	45.05	49.80	53.00	53.00	48.10	47.35	48.75	54.45	62.15	62.15
8/9/2011	SEP	8/31/2011	50.80	45.35	45.35	49.95	53.55	53.55	48.65	47.70	49.00	54.60	62.45	62.45
8/10/2011	SEP	8/31/2011	51.05	45.45	45.40	50.00	53.60	53.60	48.70	47.80	49.05	54.60	62.30	62.30
8/11/2011	SEP	8/31/2011	50.95	45.85	46.00	50.60	54.25	54.25	49.20	48.30	49.50	55.10	62.65	62.65
8/12/2011	SEP	8/31/2011	49.85	45.35	45.45	50.00	53.75	53.75	48.70	47.85	49.05	54.45	62.10	62.10
8/15/2011	SEP	8/31/2011	49.45	45.05	45.15	49.80	53.75	53.75	48.60	47.75	49.00	54.25	61.75	61.75
8/16/2011	SEP	8/31/2011	48.45	44.65	44.65	49.50	53.30	53.30	48.30	47.45	48.60	54.25	61.50	61.50
8/17/2011	SEP	8/31/2011	48.85	44.80	44.95	49.85	53.50	53.50	48.50	47.65	48.70	54.35	61.60	61.60
8/18/2011	SEP	8/31/2011	49.05	44.90	45.05	50.00	53.55	53.55	48.50	47.65	48.85	54.30	61.55	61.55
8/19/2011	SEP	8/31/2011	49.30	45.25	45.20	50.40	53.80	53.80	48.75	48.00	49.15	54.60	61.75	61.75
8/22/2011	SEP	8/31/2011	48.85	45.00	45.10	50.10	53.65	53.65	48.60	47.85	48.75	54.45	61.50	61.50
8/23/2011	SEP	8/31/2011	49.70	45.35	45.50	50.50	54.25	54.25	48.90	48.15	49.00	54.60	61.75	61.75
8/24/2011	SEP	8/31/2011	48.80	45.00	45.00	50.35	53.90	53.90	48.60	47.85	48.55	54.15	61.50	61.50
8/25/2011	SEP	8/31/2011	48.45	44.85	45.00	50.25	54.00	54.00	48.75	48.00	48.65	54.00	61.75	61.75
8/26/2011	SEP	8/31/2011	48.35	45.15	45.35	50.68	54.35	54.35	49.10	48.35	49.15	54.65	62.25	62.25
8/29/2011	SEP	8/31/2011	46.60	44.80	44.90	50.25	54.05	54.05	48.75	48.00	48.90	54.30	61.70	61.70
8/30/2011	SEP	8/31/2011	45.90	45.10	45.15	50.55	54.55	54.55	49.20	48.45	49.10	54.55	62.05	62.05
8/31/2011	SEP	8/31/2011	46.65	45.65	45.90	51.40	55.65	55.65	50.35	49.60	50.20	55.80	63.25	63.25
9/1/2011	OCT	9/30/2011	45.20	45.55	51.25	55.55	55.55	50.30	49.55	50.25	55.85	63.20	63.20	52.45
9/2/2011	OCT	9/30/2011	44.40	44.75	50.35	54.60	54.60	49.65	48.80	49.55	55.05	62.35	62.35	51.45
9/6/2011	OCT	9/30/2011	44.85	45.10	50.75	54.75	54.75	50.05	49.50	49.85	55.30	62.65	62.65	51.60
9/7/2011	OCT	9/30/2011	44.85	45.00	50.85	54.75	54.75	50.05	49.65	49.85	55.35	62.65	62.65	51.55
9/8/2011	OCT	9/30/2011	45.05	45.10	51.10	55.00	55.00	50.30	49.90	50.10	55.55	62.75	62.75	51.70
9/9/2011	OCT	9/30/2011	44.90	44.90	50.75	54.50	54.50	49.65	49.30	49.60	55.00	62.25	62.25	51.10
9/12/2011	OCT	9/30/2011	45.00	45.00	50.75	54.45	54.45	49.55	49.20	49.45	54.80	62.05	62.05	50.95
9/13/2011	OCT	9/30/2011	45.30	45.40	51.30	55.10	55.10	50.00	49.65	49.75	55.10	62.65	62.65	51.30
9/14/2011	OCT	9/30/2011	45.75	45.75	51.75	55.55	55.55	50.40	50.10	50.20	55.60	63.00	63.00	51.65
9/15/2011	OCT	9/30/2011	44.90	45.00	51.10	54.95	54.95	49.95	49.70	49.70	55.05	62.40	62.40	51.15
9/16/2011	OCT	9/30/2011	44.30	44.75	50.80	54.85	54.85	49.85	49.60	49.50	54.75	62.15	62.15	51.00
9/19/2011	OCT	9/30/2011	44.15	44.50	50.75	54.90	54.90	49.80	49.55	49.50	54.75	62.15	62.15	50.85
9/20/2011	OCT	9/30/2011	44.10	44.50	50.70	54.75	54.75	49.75	49.50	49.40	54.65	62.00	62.00	50.85
9/21/2011	OCT	9/30/2011	43.75	44.15	50.70	54.70	54.70	49.75	49.25	49.25	54.50	61.90	61.90	50.60
9/22/2011	OCT	9/30/2011	43.85	44.00	50.55	54.30	54.30	49.35	48.85	48.95	54.20	61.45	61.45	50.25
9/23/2011	OCT	9/30/2011	44.00	44.25	50.65	54.35	54.35	49.15	48.65	48.90	54.10	61.30	61.30	50.15
9/26/2011	OCT	9/30/2011	44.55	44.70	51.15	55.05	55.05	49.85	49.25	49.35	54.55	61.85	61.85	50.80
9/27/2011	OCT	9/30/2011	44.60	44.65	52.00	55.55	55.55	50.10	49.35	49.45	54.70	62.15	62.15	50.90
9/28/2011	OCT	9/30/2011	44.30	44.35	51.70	55.25	55.25	49.70	49.00	49.20	54.35	61.75	61.75	50.50
9/29/2011	OCT	9/30/2011	44.50	44.40	51.70	55.70	54.70	49.70	48.95	49.20	54.30	61.70	61.70	50.50
9/30/2011	OCT	9/30/2011	43.75	44.00	51.45	55.50	54.25	49.50	48.65	49.00	54.05	61.35	61.35	50.20
10/3/2011	NOV	10/31/2011	43.60	51.10	55.15	53.90	49.00	48.40	48.50	53.75	60.85	60.85	49.75	46.75
10/4/2011	NOV	10/31/2011	43.80	51.05	55.10	53.85	48.90	48.25	48.55	53.70	60.60	60.60	49.75	46.65
10/5/2011	NOV	10/31/2011	43.45	50.80	54.80	53.30	48.55	47.80	48.05	53.05	60.25	60.25	49.40	46.25
10/6/2011	NOV	10/31/2011	43.65	51.00	54.75	53.10	48.10	47.60	48.10	53.10	60.65	59.65	49.10	46.05
10/7/2011	NOV	10/31/2011	43.30	50.60	54.05	52.55	47.55	47.05	47.45	52.55	60.05	58.80	48.35	45.35
10/10/2011	NOV	10/31/2011	43.60	50.75	54.25	52.75	47.75	47.25	47.45	52.70	60.10	58.85	48.60	45.40
10/11/2011	NOV	10/31/2011	43.65	51.00	54.10	52.80	47.65	47.15	47.35	52.60	60.00	58.75	48.50	45.30
10/12/2011	NOV	10/31/2011	43.30	50.85	54.15	52.65	47.50	47.00	47.00	52.40	59.85	58.60	48.35	45.00
10/13/2011	NOV	10/31/2011	43.45	51.00	54.60	53.10	47.65	47.15	47.15	52.55	60.10	59.10	48.50	45.15
10/14/2011	NOV	10/31/2011	44.40	52.30	55.50	54.00	48.50	48.00	48.00	53.40	60.95	59.95	49.35	46.00
10/17/2011	NOV	10/31/2011	44.00	52.25	55.50	54.00	48.25	47.75	48.00	53.00	60.75	59.75	49.25	45.75
10/18/2011	NOV	10/31/2011	43.40	51.15	54.40	53.35	47.65	46.85	47.35	52.40	60.10	58.85	48.65	44.50
10/19/2011	NOV	10/31/2011	43.50	51.35	54.60	53.60	47.85	47.10	47.60	52.75	60.45	59.20	49.00	44.85

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
10/20/2011	NOV	10/31/2011	43.40	51.40	54.65	53.65	47.75	47.00	47.50	52.65	60.55	59.30	48.90	44.75
10/21/2011	NOV	10/31/2011	43.15	51.25	55.15	53.15	47.75	47.00	47.50	52.65	60.50	59.40	48.90	44.80
10/24/2011	NOV	10/31/2011	43.25	51.75	55.20	53.20	47.70	47.00	47.50	52.65	60.50	59.35	48.85	44.85
10/25/2011	NOV	10/31/2011	43.75	52.40	55.50	53.75	48.00	47.30	47.80	53.00	61.00	59.75	49.15	45.10
10/26/2011	NOV	10/31/2011	43.50	52.05	55.00	53.50	48.00	47.10	47.50	52.80	60.65	59.65	49.00	45.00
10/27/2011	NOV	10/31/2011	43.05	51.85	55.00	53.50	47.90	47.00	47.50	52.80	60.75	59.75	49.00	44.85
10/28/2011	NOV	10/31/2011	43.20	52.40	56.05	54.05	48.70	47.80	48.30	53.60	61.55	60.55	49.80	45.65
10/31/2011	NOV	10/31/2011	42.90	52.50	56.70	53.70	48.85	47.95	48.35	53.85	61.75	60.50	49.95	45.75
11/1/2011	DEC	11/30/2011	51.55	55.50	52.90	48.20	47.30	47.65	53.05	61.15	59.90	49.40	45.05	45.30
11/2/2011	DEC	11/30/2011	51.40	55.30	52.50	47.80	46.90	47.40	52.75	60.90	59.65	49.15	44.75	45.05
11/3/2011	DEC	11/30/2011	52.00	55.65	52.70	47.90	47.00	47.40	52.90	61.25	59.50	49.20	45.00	45.00
11/4/2011	DEC	11/30/2011	52.20	55.60	52.65	47.85	46.95	47.35	52.85	61.20	59.45	49.15	44.80	44.80
11/7/2011	DEC	11/30/2011	51.65	55.00	52.00	47.35	46.60	46.85	52.25	60.60	59.10	48.60	44.40	44.75
11/8/2011	DEC	11/30/2011	51.94	55.24	52.09	47.19	46.49	46.94	52.44	60.59	59.09	48.74	44.49	44.84
11/9/2011	DEC	11/30/2011	51.55	54.80	51.65	46.65	45.95	46.45	52.00	60.20	58.70	48.35	44.05	44.40
11/10/2011	DEC	11/30/2011	51.70	54.85	51.70	46.45	45.75	46.50	51.85	59.90	58.40	48.35	44.05	44.40
11/11/2011	DEC	11/30/2011	50.60	54.00	51.00	46.15	45.65	46.05	51.75	59.80	58.05	47.90	43.90	44.15
11/14/2011	DEC	11/30/2011	47.90	52.30	49.55	45.35	45.15	45.45	51.20	59.20	57.20	47.35	43.45	43.70
11/15/2011	DEC	11/30/2011	46.70	51.25	48.60	44.75	44.40	45.00	50.60	58.25	56.25	46.75	43.00	43.00
11/16/2011	DEC	11/30/2011	45.85	50.65	47.80	44.10	43.70	44.55	50.20	57.85	56.05	46.45	42.40	42.60
11/17/2011	DEC	11/30/2011	46.75	51.30	48.30	44.55	44.05	44.75	50.45	58.05	56.25	46.65	42.60	42.80
11/18/2011	DEC	11/30/2011	45.60	50.90	47.85	44.20	43.90	44.45	50.10	57.85	56.10	46.20	42.40	42.60
11/21/2011	DEC	11/30/2011	45.80	51.35	48.20	44.60	44.35	44.80	50.45	58.15	56.60	46.55	42.80	43.05
11/22/2011	DEC	11/30/2011	46.50	51.75	48.45	44.75	44.50	45.00	50.55	58.35	56.85	46.65	42.80	42.80
11/23/2011	DEC	11/30/2011	46.70	52.10	48.85	45.15	44.90	45.45	50.90	58.70	57.20	47.00	43.15	43.10
11/25/2011	DEC	11/30/2011	47.65	52.60	49.35	45.60	45.35	45.90	51.35	58.95	57.45	47.35	43.50	43.45
11/28/2011	DEC	11/30/2011	45.75	51.40	48.35	45.10	44.75	45.40	50.75	58.60	57.10	46.80	42.75	43.00
11/29/2011	DEC	11/30/2011	46.85	52.50	49.25	45.75	45.50	45.80	51.35	59.25	57.75	47.40	43.25	43.50
11/30/2011	DEC	11/30/2011	45.60	52.00	48.75	45.25	45.00	45.50	51.15	59.10	57.60	47.20	43.00	43.50
12/1/2011	JAN	12/31/2011	52.00	49.00	45.60	45.35	46.10	51.65	59.75	58.25	47.85	43.50	44.00	50.00
12/2/2011	JAN	12/31/2011	50.75	48.25	45.25	45.00	45.70	51.40	59.30	58.05	47.65	43.25	43.20	49.20
12/5/2011	JAN	12/31/2011	49.05	47.20	44.50	44.35	45.00	50.70	58.75	57.50	46.85	42.60	42.60	48.50
12/6/2011	JAN	12/31/2011	49.00	47.00	44.40	44.40	45.00	50.80	58.75	57.50	46.95	42.60	42.60	48.50
12/7/2011	JAN	12/31/2011	48.40	46.50	43.90	43.90	44.50	50.25	58.25	57.00	46.50	42.25	42.35	47.85
12/8/2011	JAN	12/31/2011	47.70	46.05	43.40	43.55	44.05	49.80	57.80	56.80	46.15	41.95	42.05	47.50
12/9/2011	JAN	12/31/2011	46.15	45.15	42.20	42.30	42.55	48.20	55.80	55.05	44.90	41.05	41.05	46.15
12/12/2011	JAN	12/31/2011	45.25	44.50	41.25	41.65	42.00	47.35	55.00	54.75	44.25	40.35	40.40	45.50
12/13/2011	JAN	12/31/2011	45.90	44.85	41.55	41.90	42.00	47.40	54.90	54.90	44.30	40.30	40.30	45.20
12/14/2011	JAN	12/31/2011	43.85	43.10	40.40	40.85	41.00	46.15	53.85	53.85	43.30	39.50	39.50	44.00
12/15/2011	JAN	12/31/2011	42.90	43.00	40.10	40.30	40.70	45.85	53.40	53.40	43.10	39.30	39.50	44.00
12/16/2011	JAN	12/31/2011	43.40	43.60	40.45	40.80	41.10	46.30	53.80	53.80	43.40	39.40	39.70	44.45
12/19/2011	JAN	12/31/2011	43.00	43.45	40.35	40.70	40.85	45.90	53.40	53.40	43.15	39.50	39.85	44.00
12/20/2011	JAN	12/31/2011	42.10	43.50	40.70	41.00	41.25	46.20	53.80	53.80	43.50	39.70	40.05	44.60
12/21/2011	JAN	12/31/2011	41.70	43.15	41.00	41.50	41.80	46.60	54.10	54.10	44.05	40.15	40.50	44.90
12/22/2011	JAN	12/31/2011	42.00	43.70	41.50	41.85	42.10	46.90	54.65	54.65	44.30	40.30	40.65	45.25
12/23/2011	JAN	12/31/2011	41.60	43.30	41.25	41.60	41.95	46.70	54.35	54.35	44.15	40.15	40.45	45.20
12/27/2011	JAN	12/31/2011	44.55	44.55	42.00	42.00	42.25	47.10	54.50	54.50	44.35	40.25	40.55	45.30
12/28/2011	JAN	12/31/2011	46.75	45.20	42.05	42.15	42.35	47.20	54.40	54.40	44.50	40.50	40.75	45.25
12/29/2011	JAN	12/31/2011	46.60	44.75	41.50	41.35	41.65	46.65	53.75	53.75	44.25	40.25	40.40	44.60
12/30/2011	JAN	12/31/2011	47.05	45.10	41.35	41.30	41.50	46.35	53.60	53.60	44.25	39.90	40.25	44.60
1/3/2012	FEB	1/31/2012	43.35	40.25	40.00	40.25	45.25	52.60	52.60	43.00	39.00	39.35	43.75	48.15
1/4/2012	FEB	1/31/2012	42.50	39.75	39.75	39.85	44.75	52.00	52.00	42.40	38.75	39.00	43.25	47.50
1/5/2012	FEB	1/31/2012	41.00	38.65	38.65	38.90	43.70	50.35	50.35	41.35	38.30	38.55	42.25	46.25
1/6/2012	FEB	1/31/2012	42.50	39.30	39.20	39.30	44.10	51.00	51.00	41.65	38.55	38.75	42.40	46.10
1/9/2012	FEB	1/31/2012	41.65	38.75	38.65	38.80	43.50	50.40	50.40	41.10	38.05	38.45	41.85	45.30
1/10/2012	FEB	1/31/2012	40.75	38.25	38.20	38.35	42.65	49.60	49.60	40.40	37.70	38.25	41.30	44.95
1/11/2012	FEB	1/31/2012	38.85	37.30	37.35	37.50	41.50	48.50	47.75	39.50	37.05	37.50	40.25	44.25
1/12/2012	FEB	1/31/2012	38.35	37.00	37.05	37.30	41.35	48.50	47.75	39.40	36.80	37.35	40.10	43.90
1/13/2012	FEB	1/31/2012	38.80	37.30	37.30	37.35	41.25	48.25	47.75	39.35	36.70	37.40	40.20	43.95
1/17/2012	FEB	1/31/2012	37.80	36.25	36.20	36.25	40.30	46.50	46.50	38.30	36.00	36.50	39.50	42.80
1/18/2012	FEB	1/31/2012	38.50	36.70	36.50	36.45	40.50	46.65	46.65	38.25	36.10	36.50	39.50	43.00
1/19/2012	FEB	1/31/2012	38.15	36.15	36.05	36.00	39.85	45.90	45.90	37.60	35.15	35.90	39.00	42.40
1/20/2012	FEB	1/31/2012	38.50	36.15	36.05	36.30	40.30	46.30	46.30	37.75	35.75	35.95	39.15	42.65

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
1/23/2012	FEB	1/31/2012	39.35	37.65	37.50	37.75	42.00	48.00	48.00	39.35	37.00	37.25	41.00	44.50
1/24/2012	FEB	1/31/2012	38.25	36.85	37.20	37.50	41.75	48.10	48.50	39.50	36.90	37.40	41.05	44.75
1/25/2012	FEB	1/31/2012	39.25	38.15	38.40	38.70	42.60	49.20	49.20	40.30	37.55	38.15	41.75	45.50
1/26/2012	FEB	1/31/2012	37.85	36.90	37.25	37.60	41.75	48.15	48.15	39.60	36.90	37.50	41.00	44.65
1/27/2012	FEB	1/31/2012	39.00	37.65	37.85	38.15	42.50	48.75	48.75	40.15	37.25	37.90	41.50	45.30
1/30/2012	FEB	1/31/2012	38.10	36.75	37.00	37.65	42.10	48.25	48.50	39.75	37.25	37.75	41.25	45.25
1/31/2012	FEB	1/31/2012	35.55	35.30	35.75	36.75	40.85	46.90	46.90	39.05	36.75	36.75	40.25	44.45
2/1/2012	MAR	2/29/2012	33.85	34.50	35.45	39.75	45.70	45.70	37.75	35.35	35.70	39.30	43.35	42.85
2/2/2012	MAR	2/29/2012	35.00	36.00	36.50	40.75	46.75	46.75	38.75	36.00	36.25	40.00	43.95	43.45
2/3/2012	MAR	2/29/2012	34.40	35.50	36.40	40.00	46.35	46.35	38.60	36.00	36.25	39.75	44.50	44.50
2/6/2012	MAR	2/29/2012	34.75	35.80	36.95	41.60	47.25	47.25	39.10	37.00	37.25	40.75	45.10	45.10
2/7/2012	MAR	2/29/2012	34.90	35.70	36.75	41.00	47.00	47.00	38.75	36.60	36.85	40.35	44.50	44.50
2/8/2012	MAR	2/29/2012	34.40	35.35	36.45	40.75	46.75	46.75	38.60	36.25	36.50	40.00	44.35	44.35
2/9/2012	MAR	2/29/2012	34.20	35.50	36.50	40.75	47.00	47.00	38.65	36.25	36.40	40.65	44.65	44.65
2/10/2012	MAR	2/29/2012	34.00	35.10	36.40	40.75	47.00	47.00	38.70	36.50	36.75	40.75	45.00	45.00
2/13/2012	MAR	2/29/2012	33.50	34.30	35.65	40.35	46.60	46.60	38.15	36.00	36.25	40.25	44.85	44.85
2/14/2012	MAR	2/29/2012	33.50	34.45	35.95	40.75	47.15	47.15	38.65	36.60	36.85	40.85	45.50	45.50
2/15/2012	MAR	2/29/2012	32.95	33.95	35.15	40.25	46.50	46.50	38.00	36.00	36.25	40.25	45.00	45.00
2/16/2012	MAR	2/29/2012	33.55	34.55	35.75	40.80	47.00	47.00	38.50	36.40	36.65	40.65	45.40	45.40
2/17/2012	MAR	2/29/2012	34.20	35.25	36.40	41.65	47.85	47.85	39.25	37.00	37.55	41.70	45.55	45.55
2/21/2012	MAR	2/29/2012	34.10	35.15	36.35	41.55	47.70	47.70	39.25	36.75	37.25	41.50	45.50	45.50
2/22/2012	MAR	2/29/2012	34.15	35.25	36.55	41.60	47.70	47.70	39.35	37.00	37.50	41.75	45.75	45.75
2/23/2012	MAR	2/29/2012	34.00	35.15	36.40	41.60	47.90	47.90	39.50	36.90	37.40	41.65	46.25	46.25
2/24/2012	MAR	2/29/2012	34.05	35.30	36.30	41.40	47.65	47.65	39.25	36.55	37.05	41.30	45.85	45.85
2/27/2012	MAR	2/29/2012	33.90	34.95	35.90	41.00	47.25	47.25	38.80	36.20	36.70	40.95	45.25	45.25
2/28/2012	MAR	2/29/2012	33.20	34.25	35.20	40.25	46.40	46.40	38.00	35.60	36.10	40.35	44.30	44.30
2/29/2012	MAR	2/29/2012	33.25	34.50	35.45	40.55	46.60	46.60	38.40	35.70	36.20	40.45	44.50	44.50
3/1/2012	APR	3/31/2012	33.85	34.85	39.90	45.75	45.75	37.70	35.25	35.75	40.00	44.05	44.05	40.50
3/2/2012	APR	3/31/2012	34.30	35.35	40.30	46.10	46.10	37.95	35.60	36.10	40.35	44.15	44.15	40.60
3/5/2012	APR	3/31/2012	34.05	35.05	39.90	45.75	45.75	37.65	35.25	35.75	40.00	43.80	43.80	40.35
3/6/2012	APR	3/31/2012	33.80	34.85	39.65	45.65	45.65	37.50	35.00	35.50	39.25	43.00	43.00	40.00
3/7/2012	APR	3/31/2012	33.25	34.25	39.15	45.35	45.35	37.10	34.75	35.25	39.00	43.25	43.25	39.55
3/8/2012	APR	3/31/2012	32.80	33.90	39.00	45.30	45.30	36.75	34.50	35.00	38.75	43.00	43.00	39.20
3/9/2012	APR	3/31/2012	33.25	34.45	39.60	45.85	45.85	37.10	35.00	35.50	39.25	43.65	43.65	39.55
3/12/2012	APR	3/31/2012	33.25	34.35	39.35	45.60	45.60	37.00	34.90	35.40	39.15	43.45	43.45	39.50
3/13/2012	APR	3/31/2012	33.60	34.70	39.60	46.10	46.10	37.40	35.60	36.10	39.85	43.85	43.85	39.75
3/14/2012	APR	3/31/2012	34.75	35.75	40.75	46.75	46.75	38.00	36.00	36.50	40.00	44.50	44.50	40.50
3/15/2012	APR	3/31/2012	34.25	35.60	40.60	46.75	46.75	38.00	36.00	36.50	40.00	44.35	44.35	40.50
3/16/2012	APR	3/31/2012	34.15	35.75	40.70	46.75	46.75	38.00	36.25	36.75	40.25	44.50	44.50	40.50
3/19/2012	APR	3/31/2012	34.65	36.45	41.45	47.60	47.60	38.50	36.60	37.10	40.60	45.00	45.00	41.05
3/20/2012	APR	3/31/2012	34.75	36.65	41.45	47.50	47.50	38.35	36.65	37.15	40.65	45.15	45.15	41.15
3/21/2012	APR	3/31/2012	34.85	36.80	41.60	47.50	47.50	38.35	36.65	37.15	40.65	45.05	45.05	41.05
3/22/2012	APR	3/31/2012	34.40	36.50	41.40	47.40	47.40	38.25	36.50	37.00	40.50	45.05	45.05	41.05
3/23/2012	APR	3/31/2012	34.40	36.40	41.25	47.35	47.35	38.15	36.40	36.90	40.40	45.15	45.15	41.10
3/26/2012	APR	3/31/2012	33.90	35.75	40.50	46.90	46.90	37.80	36.15	36.65	40.15	44.90	44.90	40.90
3/27/2012	APR	3/31/2012	33.60	35.30	40.25	46.75	46.75	37.50	36.15	36.65	40.15	44.70	44.70	40.70
3/28/2012	APR	3/31/2012	33.65	35.15	40.15	46.50	46.50	37.45	35.25	36.60	40.70	44.55	44.55	40.65
3/29/2012	APR	3/31/2012	34.00	35.00	39.65	45.90	45.90	36.75	34.50	36.00	40.00	43.95	43.95	40.25
3/30/2012	APR	3/31/2012	33.85	34.85	39.50	45.90	45.90	36.75	34.65	36.15	40.40	44.25	44.25	40.50
4/2/2012	MAY	4/30/2012	34.65	39.45	45.75	45.75	37.00	35.00	36.50	40.50	44.50	44.50	40.65	40.65
4/3/2012	MAY	4/30/2012	35.00	39.60	46.00	46.00	37.40	35.25	36.75	40.75	44.60	44.60	40.75	40.75
4/4/2012	MAY	4/30/2012	34.50	39.30	45.75	45.75	37.30	35.25	36.60	41.15	44.40	44.40	40.50	40.50
4/5/2012	MAY	4/30/2012	33.90	38.50	45.55	44.80	36.60	34.75	35.95	40.55	44.25	44.25	40.25	40.25
4/9/2012	MAY	4/30/2012	34.60	39.05	45.95	45.30	36.95	34.90	36.00	40.70	44.60	44.60	40.45	40.45
4/10/2012	MAY	4/30/2012	34.80	38.90	45.65	45.25	36.70	34.65	35.65	40.40	44.25	44.25	40.30	40.30
4/11/2012	MAY	4/30/2012	35.25	38.85	45.35	45.05	36.70	34.65	35.65	40.40	44.10	44.10	40.30	40.30
4/12/2012	MAY	4/30/2012	36.30	39.55	46.00	45.50	37.00	35.00	36.00	40.75	44.10	44.10	40.30	40.30
4/13/2012	MAY	4/30/2012	36.45	39.65	46.05	45.55	36.95	34.75	35.75	40.50	43.90	43.90	40.25	40.25
4/16/2012	MAY	4/30/2012	36.25	39.35	45.90	45.40	36.90	34.75	35.75	40.50	43.95	43.95	40.20	40.20
4/17/2012	MAY	4/30/2012	35.15	38.60	45.50	45.00	36.50	34.25	35.25	40.00	43.60	43.60	39.95	39.95
4/18/2012	MAY	4/30/2012	35.20	38.50	45.65	45.15	36.40	34.15	35.15	39.90	43.40	43.40	39.85	39.85
4/19/2012	MAY	4/30/2012	35.10	38.20	45.55	45.05	36.25	34.00	35.00	39.75	43.30	43.30	39.60	39.60
4/20/2012	MAY	4/30/2012	35.05	38.15	45.60	45.10	36.25	33.85	34.85	39.60	43.20	43.20	39.50	39.50

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
4/23/2012	MAY	4/30/2012	35.25	38.50	46.00	45.50	36.50	34.00	35.00	39.75	43.25	43.25	39.60	39.60
4/24/2012	MAY	4/30/2012	35.00	38.50	46.00	45.50	36.50	34.40	35.40	40.15	43.40	43.40	39.60	39.60
4/25/2012	MAY	4/30/2012	35.80	39.55	46.75	46.25	37.10	34.65	35.64	40.40	43.75	43.75	39.85	39.85
4/26/2012	MAY	4/30/2012	36.35	40.00	47.10	46.60	37.35	34.85	35.85	40.50	43.85	43.85	39.85	39.85
4/27/2012	MAY	4/30/2012	35.95	39.90	47.25	46.75	37.40	35.00	36.00	40.75	44.20	44.20	40.20	40.20
4/30/2012	MAY	4/30/2012	36.65	40.75	48.30	47.35	38.00	35.85	36.70	41.10	44.75	44.75	40.80	40.80
5/1/2012	JUN	5/31/2012	41.35	48.95	47.35	38.20	35.95	36.95	41.40	46.15	44.30	41.15	41.15	41.20
5/2/2012	JUN	5/31/2012	40.20	47.90	46.65	37.40	35.65	36.50	40.75	45.70	43.85	40.85	40.85	40.85
5/3/2012	JUN	5/31/2012	40.35	48.15	46.90	37.65	35.95	36.90	41.00	46.00	44.15	41.15	41.15	41.10
5/4/2012	JUN	5/31/2012	39.50	47.50	46.25	37.25	35.55	36.55	40.75	45.75	43.90	40.95	40.95	40.90
5/7/2012	JUN	5/31/2012	40.10	47.70	46.40	37.60	36.00	37.00	41.10	46.00	44.00	41.10	41.10	41.10
5/8/2012	JUN	5/31/2012	40.25	47.75	46.50	37.90	36.25	37.15	41.15	46.35	44.35	41.25	41.25	41.40
5/9/2012	JUN	5/31/2012	40.40	48.25	47.00	38.25	36.50	37.50	41.60	45.90	45.90	41.80	41.80	41.75
5/10/2012	JUN	5/31/2012	39.60	47.65	46.15	37.95	36.25	37.25	41.25	45.80	45.80	41.80	41.80	41.80
5/11/2012	JUN	5/31/2012	39.45	47.55	46.05	37.90	36.25	37.25	41.50	45.90	45.90	41.80	41.80	41.75
5/14/2012	JUN	5/31/2012	39.70	47.50	45.75	37.75	36.00	37.00	41.25	45.55	45.55	41.50	41.50	41.25
5/15/2012	JUN	5/31/2012	41.10	48.65	46.35	38.45	36.40	37.40	42.00	46.00	46.00	42.00	42.00	41.85
5/16/2012	JUN	5/31/2012	41.80	49.15	47.25	39.20	36.90	37.90	42.35	46.50	46.50	42.55	42.55	42.30
5/17/2012	JUN	5/31/2012	42.60	49.35	47.35	39.35	36.95	37.85	42.30	46.50	46.50	42.50	42.50	42.20
5/18/2012	JUN	5/31/2012	46.60	52.00	49.75	41.00	38.00	38.50	43.00	47.10	47.10	43.10	43.10	43.00
5/21/2012	JUN	5/31/2012	45.25	51.00	48.75	40.15	37.50	37.85	42.40	46.40	46.40	42.40	42.40	42.30
5/22/2012	JUN	5/31/2012	44.75	51.10	48.75	40.45	37.60	38.05	42.50	46.75	46.75	42.50	42.50	42.40
5/23/2012	JUN	5/31/2012	45.10	51.30	48.80	40.45	37.55	37.75	42.40	46.40	46.40	42.30	42.30	42.30
5/24/2012	JUN	5/31/2012	44.50	51.05	48.55	40.10	37.15	37.50	41.75	45.80	45.80	41.75	41.75	41.95
5/25/2012	JUN	5/31/2012	46.10	51.85	48.70	40.15	37.00	37.35	41.65	45.50	45.50	41.45	41.45	42.10
5/29/2012	JUN	5/31/2012	44.00	50.25	47.25	39.30	36.50	36.75	40.95	44.85	44.85	40.85	40.85	41.60
5/30/2012	JUN	5/31/2012	41.90	49.50	46.50	38.50	36.00	36.50	40.50	44.30	44.30	40.40	40.40	41.40
5/31/2012	JUN	5/31/2012	43.25	50.25	47.15	38.90	36.25	36.65	40.90	44.60	44.60	40.65	40.65	41.95
6/1/2012	JUL	6/30/2012	50.10	46.50	38.50	35.75	36.25	40.30	44.25	44.25	40.40	40.40	41.55	46.25
6/4/2012	JUL	6/30/2012	52.25	48.50	39.30	36.30	36.75	40.80	44.50	44.50	40.75	40.75	41.95	46.85
6/5/2012	JUL	6/30/2012	51.90	48.30	39.40	36.30	36.75	41.00	44.65	44.65	40.65	40.65	41.95	46.85
6/6/2012	JUL	6/30/2012	51.90	48.15	39.25	36.25	36.60	40.85	44.60	44.60	40.60	40.60	41.90	46.85
6/7/2012	JUL	6/30/2012	49.90	46.50	38.15	35.30	35.85	40.20	43.90	43.90	39.95	39.95	41.15	46.10
6/8/2012	JUL	6/30/2012	49.10	46.10	38.10	35.20	35.85	40.20	43.85	43.85	40.05	40.05	41.25	45.95
6/11/2012	JUL	6/30/2012	46.60	44.70	37.25	34.75	35.50	39.75	43.35	43.35	39.45	39.45	40.75	45.20
6/12/2012	JUL	6/30/2012	45.65	44.25	37.10	34.65	35.25	39.70	43.45	43.45	39.55	39.55	40.60	44.85
6/13/2012	JUL	6/30/2012	45.65	43.95	36.65	34.15	35.00	39.45	43.10	43.10	39.15	39.15	40.25	44.30
6/14/2012	JUL	6/30/2012	48.25	45.75	37.75	35.50	36.10	40.50	44.35	44.35	40.35	40.35	41.50	45.35
6/15/2012	JUL	6/30/2012	49.40	46.40	38.00	35.50	36.25	40.50	44.10	44.10	40.15	40.15	41.40	45.50
6/18/2012	JUL	6/30/2012	51.40	47.75	39.00	36.40	36.85	41.25	44.75	44.75	40.75	40.75	42.15	46.20
6/19/2012	JUL	6/30/2012	48.50	45.65	37.90	35.65	36.10	40.60	44.15	44.15	40.15	40.15	41.50	45.65
6/20/2012	JUL	6/30/2012	48.25	45.65	37.90	35.55	36.25	40.60	44.10	44.10	40.10	40.10	41.50	45.65
6/21/2012	JUL	6/30/2012	47.10	44.60	37.40	35.55	36.15	40.50	44.10	44.10	40.10	40.10	41.20	45.30
6/22/2012	JUL	6/30/2012	47.70	44.95	37.65	35.75	36.20	40.75	44.35	44.35	40.35	40.35	41.25	45.15
6/25/2012	JUL	6/30/2012	51.75	47.25	38.60	36.10	36.60	41.15	44.25	44.25	40.25	40.25	41.35	45.60
6/26/2012	JUL	6/30/2012	53.60	48.70	39.15	36.65	36.75	41.40	44.40	44.40	40.25	40.25	41.35	45.40
6/27/2012	JUL	6/30/2012	56.00	48.40	39.00	36.50	36.80	41.50	44.15	44.15	39.75	39.75	41.25	45.50
6/28/2012	JUL	6/30/2012	53.75	48.60	38.65	36.25	36.75	41.25	44.05	44.05	39.60	39.60	41.10	44.90
6/29/2012	JUL	6/30/2012	51.31	47.10	38.50	36.35	36.65	41.35	44.30	44.30	40.00	40.00	41.15	45.00
7/2/2012	AUG	7/31/2012	46.35	38.15	36.25	36.65	41.15	44.10	44.10	39.85	39.85	40.85	44.90	52.00
7/3/2012	AUG	7/31/2012	47.25	38.60	36.60	36.90	41.65	44.45	44.45	40.10	40.10	41.15	45.10	52.35
7/5/2012	AUG	7/31/2012	48.50	39.40	37.25	37.50	42.15	44.60	44.60	40.40	40.40	41.25	45.50	52.90
7/6/2012	AUG	7/31/2012	47.65	38.75	36.90	36.90	41.25	44.00	44.00	39.75	39.75	40.75	44.50	52.25
7/9/2012	AUG	7/31/2012	49.10	39.20	37.05	37.25	41.60	44.45	44.45	40.25	40.25	41.25	45.10	52.55
7/10/2012	AUG	7/31/2012	49.40	39.15	36.75	36.85	41.40	44.05	44.05	39.85	39.85	41.00	44.60	52.65
7/11/2012	AUG	7/31/2012	51.95	39.75	37.35	37.50	41.75	44.65	44.65	40.25	40.25	41.30	45.00	53.00
7/12/2012	AUG	7/31/2012	52.15	39.90	37.40	37.40	41.85	44.90	44.90	40.40	40.40	41.55	44.90	53.60
7/13/2012	AUG	7/31/2012	52.80	40.35	37.65	37.60	42.00	45.00	45.00	40.65	40.65	41.75	45.40	54.00
7/16/2012	AUG	7/31/2012	52.75	40.00	37.35	37.35	41.60	44.60	44.60	40.15	40.15	41.50	45.15	53.75
7/17/2012	AUG	7/31/2012	52.50	39.75	37.25	37.15	41.50	44.60	44.60	40.40	40.40	41.40	45.30	53.65
7/18/2012	AUG	7/31/2012	54.60	40.90	37.90	37.80	42.20	45.15	45.15	40.85	40.85	41.75	45.75	54.50
7/19/2012	AUG	7/31/2012	53.85	40.75	37.65	37.65	41.90	44.75	44.75	40.50	40.50	41.45	45.25	54.15
7/20/2012	AUG	7/31/2012	53.75	41.25	37.95	37.85	42.20	45.35	45.35	40.90	40.90	41.90	45.60	54.65

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
7/23/2012	AUG	7/31/2012	53.40	41.25	38.15	38.00	42.25	45.35	45.35	41.00	41.00	41.75	45.65	54.65
7/24/2012	AUG	7/31/2012	53.37	41.45	38.40	38.35	42.40	45.60	45.60	41.00	41.00	41.85	45.75	55.10
7/25/2012	AUG	7/31/2012	51.41	40.65	37.85	37.80	42.15	45.20	45.20	40.75	40.75	41.75	45.75	54.65
7/26/2012	AUG	7/31/2012	50.78	40.50	37.75	37.85	42.15	45.50	45.50	40.80	40.80	42.00	45.65	54.75
7/27/2012	AUG	7/31/2012	49.73	40.50	37.50	37.55	41.90	44.95	44.95	40.55	40.55	41.75	45.35	54.45
7/30/2012	AUG	7/31/2012	53.09	41.65	38.60	38.60	42.80	46.00	46.00	41.35	41.35	42.35	46.00	55.25
7/31/2012	AUG	7/31/2012	51.72	41.40	38.40	38.60	42.60	45.70	45.70	41.30	41.30	42.25	45.70	55.00
8/1/2012	SEP	8/31/2012	41.15	38.15	38.25	42.25	45.50	45.50	40.90	40.90	42.00	45.40	54.65	54.65
8/2/2012	SEP	8/31/2012	40.20	37.25	37.40	41.40	44.65	44.65	40.25	40.25	41.50	44.70	53.70	53.70
8/3/2012	SEP	8/31/2012	40.15	37.10	37.25	41.40	44.50	44.50	40.00	40.00	41.40	44.85	53.50	53.50
8/6/2012	SEP	8/31/2012	40.70	37.45	37.50	41.60	44.75	44.75	40.40	40.40	41.50	44.90	53.75	53.75
8/7/2012	SEP	8/31/2012	41.35	37.95	38.00	42.00	45.30	45.30	40.90	40.90	41.85	45.15	54.25	54.25
8/8/2012	SEP	8/31/2012	41.25	37.95	38.15	42.15	45.35	45.35	41.25	41.25	42.00	45.45	54.40	54.40
8/9/2012	SEP	8/31/2012	40.65	37.75	37.65	41.90	45.25	45.25	41.00	41.00	41.75	45.40	54.50	54.50
8/10/2012	SEP	8/31/2012	38.70	36.70	36.90	41.30	44.40	44.40	40.35	40.35	41.25	44.40	53.45	53.45
8/13/2012	SEP	8/31/2012	38.65	36.70	36.90	41.10	44.35	44.35	40.15	40.15	41.15	44.25	53.45	53.45
8/14/2012	SEP	8/31/2012	39.25	37.30	37.45	41.60	44.60	44.60	40.50	40.50	41.35	44.65	53.65	53.65
8/15/2012	SEP	8/31/2012	39.10	36.90	37.20	41.25	44.35	44.35	40.25	40.25	41.00	44.35	53.35	53.35
8/16/2012	SEP	8/31/2012	38.65	36.65	36.90	41.00	44.05	44.05	39.90	39.90	40.85	43.90	53.10	53.10
8/17/2012	SEP	8/31/2012	38.50	36.80	37.10	41.00	44.05	44.05	39.95	39.95	40.80	43.95	52.95	52.95
8/20/2012	SEP	8/31/2012	38.65	36.65	36.85	40.90	45.55	42.95	40.35	39.85	40.85	44.10	54.95	50.70
8/21/2012	SEP	8/31/2012	38.65	36.90	37.20	41.20	45.30	42.55	40.00	39.50	40.50	43.55	54.40	50.30
8/22/2012	SEP	8/31/2012	38.90	37.15	37.30	41.25	45.40	42.65	40.20	39.60	40.45	43.50	54.35	50.25
8/23/2012	SEP	8/31/2012	39.25	37.40	37.60	41.70	45.40	42.65	40.10	39.50	40.40	43.45	54.00	49.90
8/24/2012	SEP	8/31/2012	39.10	37.00	37.20	41.40	44.95	42.20	39.70	39.10	40.15	43.10	53.55	49.45
8/27/2012	SEP	8/31/2012	38.85	36.80	37.00	41.05	44.60	41.85	39.50	38.90	39.90	42.90	53.10	49.00
8/28/2012	SEP	8/31/2012	38.60	36.65	36.75	40.90	44.35	41.60	39.10	38.50	39.50	42.50	52.70	48.60
8/29/2012	SEP	8/31/2012	38.75	37.00	37.10	41.25	44.65	41.90	39.40	38.80	39.65	42.65	52.65	48.55
8/30/2012	SEP	8/31/2012	39.00	37.20	37.30	41.60	45.05	42.30	39.75	39.15	40.00	42.95	53.15	48.65
8/31/2012	SEP	8/31/2012	39.75	37.35	37.45	41.85	45.50	42.75	40.10	39.50	40.40	43.40	53.65	48.90
9/4/2012	OCT	9/30/2012	37.95	38.00	42.35	46.00	43.25	40.60	40.00	40.95	43.90	54.15	49.65	42.00
9/5/2012	OCT	9/30/2012	37.60	37.70	42.00	45.85	43.00	40.30	39.90	40.70	43.75	54.00	49.75	42.00
9/6/2012	OCT	9/30/2012	37.55	37.50	41.85	45.50	42.75	40.10	39.70	40.75	43.75	54.00	49.25	41.90
9/7/2012	OCT	9/30/2012	37.35	37.35	41.50	45.25	42.50	40.00	39.60	40.50	43.30	53.80	49.05	41.75
9/10/2012	OCT	9/30/2012	37.65	37.95	42.10	45.75	43.00	40.50	40.00	41.00	44.10	54.65	49.85	42.50
9/11/2012	OCT	9/30/2012	38.10	38.45	42.80	46.50	43.75	41.25	40.65	41.75	44.75	55.75	50.25	42.90
9/12/2012	OCT	9/30/2012	38.45	38.70	43.20	47.00	44.25	41.75	41.25	42.25	45.35	56.25	51.00	43.40
9/13/2012	OCT	9/30/2012	38.30	38.50	42.90	46.75	44.00	41.50	41.00	42.00	45.25	56.00	50.75	43.25
9/14/2012	OCT	9/30/2012	37.90	38.20	42.60	46.50	43.75	41.25	40.75	41.75	44.95	56.00	50.75	42.75
9/17/2012	OCT	9/30/2012	37.35	37.75	42.25	46.00	43.25	40.85	40.35	41.40	44.80	55.50	50.25	42.60
9/18/2012	OCT	9/30/2012	37.20	37.60	42.20	46.25	43.25	41.00	40.25	41.40	44.45	55.25	50.50	42.50
9/19/2012	OCT	9/30/2012	36.95	37.55	42.30	46.25	43.25	41.00	40.25	41.40	44.50	55.35	50.60	42.65
9/20/2012	OCT	9/30/2012	37.20	37.65	42.50	46.50	43.50	41.00	40.50	41.60	44.75	55.50	50.75	42.50
9/21/2012	OCT	9/30/2012	37.35	38.00	42.90	47.10	44.10	41.60	41.10	42.10	45.15	56.00	51.25	43.10
9/24/2012	OCT	9/30/2012	37.06	37.80	42.85	47.00	44.00	41.50	41.00	42.00	45.15	56.00	51.25	43.00
9/25/2012	OCT	9/30/2012	37.37	38.20	43.40	47.40	44.40	41.80	41.30	42.35	45.50	56.25	51.50	43.45
9/26/2012	OCT	9/30/2012	38.24	38.85	43.85	47.85	44.85	42.35	41.85	42.75	45.75	56.70	51.95	43.70
9/27/2012	OCT	9/30/2012	39.27	39.50	44.40	49.25	45.25	42.70	42.20	42.95	46.10	57.20	52.20	43.95
9/28/2012	OCT	9/30/2012	39.41	39.50	44.40	48.50	45.50	42.85	42.35	43.25	46.30	57.40	52.40	44.10
10/1/2012	NOV	10/31/2012	40.40	45.40	49.40	46.40	43.65	43.15	44.10	47.00	58.15	53.15	44.75	41.25
10/2/2012	NOV	10/31/2012	40.41	45.40	49.40	46.40	43.90	43.40	44.15	47.15	58.15	53.15	44.75	41.25
10/3/2012	NOV	10/31/2012	39.65	44.40	48.40	45.40	43.00	42.50	43.40	46.40	57.50	52.50	44.20	40.65
10/4/2012	NOV	10/31/2012	39.89	44.65	48.75	45.75	43.25	42.75	43.60	46.60	57.85	52.85	44.60	41.10
10/5/2012	NOV	10/31/2012	39.61	44.05	48.40	45.40	43.15	42.65	43.50	46.60	57.75	52.75	44.60	41.00
10/8/2012	NOV	10/31/2012	39.75	44.05	48.60	45.60	43.40	42.90	43.50	46.75	57.75	52.75	44.70	41.25
10/9/2012	NOV	10/31/2012	40.40	44.70	49.20	46.20	43.95	43.45	44.20	47.20	58.30	53.30	45.05	41.35
10/10/2012	NOV	10/31/2012	40.21	44.60	49.00	46.00	43.85	43.35	44.35	47.25	58.50	53.50	45.00	41.50
10/11/2012	NOV	10/31/2012	40.92	45.25	49.55	46.55	44.40	43.90	44.75	47.70	58.70	53.70	45.50	41.95
10/12/2012	NOV	10/31/2012	40.90	45.00	49.20	46.35	44.00	43.50	44.50	47.35	58.30	53.35	45.25	41.60
10/15/2012	NOV	10/31/2012	40.60	44.65	48.65	45.85	43.40	42.90	43.90	46.75	57.75	52.75	44.65	41.30
10/16/2012	NOV	10/31/2012	40.40	44.45	48.75	45.90	43.50	43.00	43.90	46.85	57.75	52.75	44.75	41.25
10/17/2012	NOV	10/31/2012	40.97	44.90	49.25	46.25	44.00	43.50	44.40	47.40	58.10	53.10	45.25	41.75
10/18/2012	NOV	10/31/2012	41.53	45.25	49.85	46.85	44.50	44.00	44.80	47.70	58.85	53.85	45.65	42.20

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
10/19/2012	NOV	10/31/2012	42.36	45.90	50.35	47.35	44.95	44.45	45.25	48.25	59.35	54.35	45.95	42.50
10/22/2012	NOV	10/31/2012	41.85	45.40	49.75	46.75	44.25	43.75	44.25	47.35	58.60	53.60	45.40	41.90
10/23/2012	NOV	10/31/2012	42.30	45.90	50.30	47.30	44.75	44.25	45.00	48.00	59.15	54.15	45.75	42.35
10/24/2012	NOV	10/31/2012	41.97	45.50	50.00	47.00	44.40	43.90	44.60	47.50	58.75	53.75	45.50	42.15
10/25/2012	NOV	10/31/2012	41.84	45.30	50.00	47.00	44.40	43.90	44.70	47.70	58.90	53.90	45.65	42.40
10/26/2012	NOV	10/31/2012	40.90	44.70	49.50	46.50	44.10	43.60	44.35	47.30	58.60	53.60	45.35	42.25
10/29/2012	NOV	10/31/2012	40.90	44.70	49.50	46.50	44.10	43.60	44.35	47.30	58.60	53.60	45.35	42.25
10/30/2012	NOV	10/31/2012	41.62	45.25	49.60	46.60	44.25	43.75	44.35	47.35	58.60	53.60	45.35	42.35
10/31/2012	NOV	10/31/2012	41.97	45.25	49.70	46.70	44.15	43.65	44.50	47.35	58.60	53.60	45.35	42.35
11/1/2012	DEC	11/30/2012	45.25	49.40	46.40	43.85	43.35	44.35	47.20	58.40	53.40	45.20	42.25	42.00
11/2/2012	DEC	11/30/2012	44.40	48.75	45.75	43.00	42.50	43.75	46.60	57.25	52.25	44.75	41.50	41.50
11/5/2012	DEC	11/30/2012	44.50	48.75	45.75	43.00	42.50	43.55	46.35	57.25	52.25	44.65	41.50	41.50
11/6/2012	DEC	11/30/2012	45.15	49.25	46.25	43.50	43.00	43.85	46.85	58.20	52.70	45.00	41.75	41.75
11/7/2012	DEC	11/30/2012	44.95	49.10	46.10	43.20	42.70	43.60	46.55	57.70	52.20	44.80	41.95	41.70
11/8/2012	DEC	11/30/2012	45.45	49.30	46.30	43.40	42.90	43.80	46.75	57.75	52.25	45.15	42.40	42.15
11/9/2012	DEC	11/30/2012	44.95	48.75	45.75	42.90	42.40	43.35	46.35	57.15	51.65	44.70	41.90	41.90
11/12/2012	DEC	11/30/2012	46.25	49.55	46.55	43.45	42.95	43.90	46.85	57.95	52.20	45.10	42.45	42.45
11/13/2012	DEC	11/30/2012	48.10	51.25	47.75	44.75	44.25	44.85	47.75	59.00	53.25	46.00	43.40	43.50
11/14/2012	DEC	11/30/2012	48.50	51.25	47.75	44.45	43.95	44.75	47.65	58.95	53.20	46.05	43.30	43.40
11/15/2012	DEC	11/30/2012	47.95	51.15	47.65	44.25	43.75	44.55	47.35	58.75	53.00	45.75	43.20	43.25
11/16/2012	DEC	11/30/2012	50.45	52.85	48.10	45.00	44.00	44.75	47.50	59.25	53.50	46.15	43.60	43.60
11/19/2012	DEC	11/30/2012	49.50	52.60	47.80	44.85	44.05	44.55	47.40	59.00	53.25	46.00	43.40	43.60
11/20/2012	DEC	11/30/2012	51.10	53.65	48.90	45.60	44.70	45.00	48.00	59.00	54.50	46.40	43.60	43.75
11/21/2012	DEC	11/30/2012	51.35	54.60	49.60	46.00	45.50	45.60	48.50	59.00	54.50	46.60	44.00	44.00
11/23/2012	DEC	11/30/2012	51.32	54.15	49.15	46.00	45.50	45.60	48.40	59.25	54.75	46.75	44.35	44.35
11/26/2012	DEC	11/30/2012	45.70	51.25	47.25	44.75	44.25	44.75	47.40	58.00	53.50	45.85	43.65	43.50
11/27/2012	DEC	11/30/2012	46.26	51.15	47.15	44.55	44.05	44.75	47.35	58.05	53.55	45.90	43.35	43.35
11/28/2012	DEC	11/30/2012	45.25	50.40	45.90	43.80	43.45	44.05	46.70	57.45	52.70	45.45	42.80	42.80
11/29/2012	DEC	11/30/2012	44.49	49.15	45.00	43.05	42.90	43.50	46.25	56.00	52.25	44.75	42.10	41.25
11/30/2012	DEC	11/30/2012	43.95	48.75	44.75	42.25	42.25	42.75	45.75	55.50	52.00	44.35	41.75	41.75
12/3/2012	JAN	12/31/2012	48.85	44.75	42.75	42.50	43.25	46.00	55.85	52.35	44.75	42.10	42.00	45.00
12/4/2012	JAN	12/31/2012	48.60	44.60	42.50	42.25	42.85	45.80	55.60	52.10	44.50	41.80	41.85	44.60
12/5/2012	JAN	12/31/2012	50.40	46.00	43.65	43.35	43.85	46.65	56.65	53.00	45.40	42.50	42.65	45.70
12/6/2012	JAN	12/31/2012	49.70	45.50	43.50	43.25	43.80	46.60	56.50	53.00	45.35	42.60	42.75	45.50
12/7/2012	JAN	12/31/2012	48.85	44.80	42.90	42.75	43.30	46.00	56.25	52.75	44.70	42.10	42.25	45.00
12/10/2012	JAN	12/31/2012	47.60	44.00	42.25	42.00	42.70	45.50	55.50	52.00	44.15	41.70	41.80	44.25
12/11/2012	JAN	12/31/2012	47.25	43.50	41.75	41.75	42.50	45.20	55.00	51.50	43.90	41.40	41.50	44.00
12/12/2012	JAN	12/31/2012	46.90	43.30	41.60	41.60	42.25	45.00	54.85	51.35	43.75	41.25	41.35	43.85
12/13/2012	JAN	12/31/2012	46.00	43.15	41.25	41.25	42.10	44.60	54.55	51.05	43.60	41.10	41.20	43.65
12/14/2012	JAN	12/31/2012	44.75	42.75	41.05	40.95	41.90	44.40	54.40	50.90	43.45	40.95	41.05	43.40
12/17/2012	JAN	12/31/2012	45.05	42.90	41.15	40.95	42.00	44.50	54.75	51.25	43.50	40.95	41.05	43.40
12/18/2012	JAN	12/31/2012	45.10	43.20	41.65	41.50	42.40	44.90	55.10	51.60	43.90	41.25	41.35	43.65
12/19/2012	JAN	12/31/2012	43.60	42.25	40.75	40.60	41.85	44.55	54.60	51.10	43.40	40.90	40.90	43.00
12/20/2012	JAN	12/31/2012	45.60	43.60	42.00	41.75	42.85	45.40	55.70	52.20	44.25	41.50	41.70	43.60
12/21/2012	JAN	12/31/2012	46.30	44.10	41.90	41.65	42.65	45.25	55.50	52.00	44.15	41.50	41.60	43.60
12/24/2012	JAN	12/31/2012	45.00	43.40	41.35	41.10	42.10	44.75	55.00	51.50	43.65	41.05	41.15	43.15
12/26/2012	JAN	12/31/2012	45.30	43.50	41.50	41.25	42.40	45.00	55.25	51.75	44.00	41.30	41.40	43.30
12/27/2012	JAN	12/31/2012	45.10	43.45	41.25	41.00	42.25	44.85	55.05	51.55	43.55	41.10	41.15	43.00
12/28/2012	JAN	12/31/2012	45.22	43.80	41.55	41.30	42.50	45.15	55.35	51.85	43.70	41.30	41.35	43.15
12/31/2012	JAN	12/31/2012	42.22	42.30	41.00	40.75	41.75	44.60	54.75	51.25	43.15	40.65	40.75	42.60
1/2/2013	FEB	1/31/2013	40.20	39.60	39.60	40.75	43.55	53.90	50.40	42.20	39.75	39.85	41.65	44.50
1/3/2013	FEB	1/31/2013	40.00	39.35	39.40	40.50	43.35	53.50	50.25	42.15	39.70	39.70	41.20	44.20
1/4/2013	FEB	1/31/2013	40.60	40.00	39.90	41.00	43.80	54.25	50.75	42.60	40.10	40.10	41.60	44.60
1/7/2013	FEB	1/31/2013	40.35	40.05	40.05	41.00	43.90	54.35	50.85	42.75	40.00	40.00	41.50	44.70
1/8/2013	FEB	1/31/2013	39.70	39.50	39.60	40.70	43.75	54.25	50.75	42.50	39.80	39.85	41.35	44.50
1/9/2013	FEB	1/31/2013	38.05	38.45	38.75	39.90	42.80	53.50	50.00	41.85	39.10	39.10	40.60	43.90
1/10/2013	FEB	1/31/2013	38.35	39.00	39.20	40.25	43.35	54.10	50.60	42.35	39.40	39.50	40.80	44.15
1/11/2013	FEB	1/31/2013	39.50	40.00	40.05	41.15	44.10	55.00	51.25	43.00	40.15	40.15	41.50	44.75
1/14/2013	FEB	1/31/2013	41.50	40.85	40.75	41.60	44.65	55.50	52.00	43.50	40.40	40.40	41.90	45.15
1/15/2013	FEB	1/31/2013	42.10	41.00	40.95	41.95	44.90	56.25	51.75	43.50	40.75	40.75	41.80	45.35
1/16/2013	FEB	1/31/2013	41.10	40.40	40.70	41.75	44.80	56.00	51.50	43.60	40.70	40.70	41.85	45.00
1/17/2013	FEB	1/31/2013	40.70	40.50	40.85	41.80	45.05	56.50	52.00	43.70	40.70	40.85	41.90	45.05
1/18/2013	FEB	1/31/2013	42.40	41.30	41.55	42.45	45.60	56.85	52.35	44.25	41.15	41.25	42.30	45.35

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
1/22/2013	FEB	1/31/2013	43.95	41.30	41.55	42.55	45.65	57.00	52.50	44.25	41.15	41.30	42.30	45.75
1/23/2013	FEB	1/31/2013	44.35	41.20	41.50	42.60	45.65	57.00	52.50	44.25	41.15	41.30	42.30	46.00
1/24/2013	FEB	1/31/2013	43.15	40.55	40.85	41.95	45.10	56.65	52.15	43.75	40.80	40.85	42.15	45.45
1/25/2013	FEB	1/31/2013	42.45	40.45	40.90	42.25	45.35	56.75	52.25	43.85	40.65	40.65	42.05	45.70
1/28/2013	FEB	1/31/2013	39.30	38.95	39.70	41.10	44.10	55.75	51.25	42.90	39.95	40.10	41.50	44.90
1/29/2013	FEB	1/31/2013	37.65	38.45	39.25	40.70	43.85	55.50	51.00	42.50	39.50	39.65	40.95	44.50
1/30/2013	FEB	1/31/2013	38.50	39.30	40.00	41.10	44.60	56.00	51.50	43.30	40.10	40.05	41.25	44.85
1/31/2013	FEB	1/31/2013	39.00	39.50	40.20	41.40	44.65	56.10	51.60	43.20	40.10	39.75	41.35	44.75
2/1/2013	MAR	2/28/2013	39.35	40.10	41.30	44.65	56.10	51.60	43.20	40.10	39.75	41.35	44.80	44.80
2/4/2013	MAR	2/28/2013	39.45	40.20	41.50	44.75	56.40	51.90	43.40	40.35	40.00	41.60	45.05	45.05
2/5/2013	MAR	2/28/2013	39.85	40.75	41.80	45.40	57.00	52.50	43.90	40.60	40.60	42.05	45.50	45.50
2/6/2013	MAR	2/28/2013	40.30	41.20	42.05	45.45	57.00	52.50	44.00	40.75	40.75	42.25	45.60	45.60
2/7/2013	MAR	2/28/2013	39.75	40.60	41.75	45.20	56.50	52.00	43.60	40.30	40.30	41.85	45.25	45.25
2/8/2013	MAR	2/28/2013	39.60	40.60	41.50	45.20	56.50	52.00	43.50	40.30	40.20	41.85	45.25	45.25
2/11/2013	MAR	2/28/2013	39.90	40.75	41.85	45.45	56.75	52.25	43.80	40.70	40.70	42.20	45.50	45.50
2/12/2013	MAR	2/28/2013	39.15	40.40	41.50	45.25	56.40	51.90	43.50	40.45	40.50	42.10	45.15	45.15
2/13/2013	MAR	2/28/2013	39.85	40.95	42.05	45.75	57.00	52.50	43.85	40.85	40.95	42.45	45.70	45.70
2/14/2013	MAR	2/28/2013	39.00	40.30	41.40	45.15	56.25	51.75	43.20	40.25	40.25	42.00	45.00	45.00
2/15/2013	MAR	2/28/2013	38.85	40.10	41.35	44.95	56.15	51.65	43.00	40.10	40.15	41.85	44.75	44.75
2/19/2013	MAR	2/28/2013	40.15	41.10	42.05	45.75	57.15	52.40	43.65	40.65	40.75	42.25	45.25	45.25
2/20/2013	MAR	2/28/2013	40.90	41.35	42.30	45.75	57.15	52.40	43.75	40.85	41.00	42.35	45.40	45.40
2/21/2013	MAR	2/28/2013	40.25	41.00	42.00	45.70	57.00	52.25	43.60	40.65	40.80	42.15	45.20	45.20
2/22/2013	MAR	2/28/2013	40.95	41.65	42.60	46.15	57.45	52.70	44.00	41.05	41.20	42.55	45.60	45.60
2/25/2013	MAR	2/28/2013	42.15	42.50	43.50	47.10	58.25	53.75	44.75	41.85	41.95	43.40	46.35	46.35
2/26/2013	MAR	2/28/2013	41.90	42.20	43.30	46.90	58.10	53.60	44.50	41.65	41.75	43.15	46.15	46.15
2/27/2013	MAR	2/28/2013	41.65	42.00	43.10	46.90	58.00	53.50	44.40	41.50	41.60	43.00	46.05	46.05
2/28/2013	MAR	2/28/2013	41.08	42.25	43.30	47.00	58.25	53.75	44.70	41.75	41.85	43.35	46.25	46.25
3/1/2013	APR	3/31/2013	41.90	43.10	46.75	57.90	53.40	44.60	41.75	41.85	43.35	46.15	46.15	43.00
3/4/2013	APR	3/31/2013	42.25	43.55	47.10	58.25	53.75	44.80	42.00	42.10	43.50	46.35	46.35	43.50
3/5/2013	APR	3/31/2013	42.50	43.75	47.30	58.25	53.75	44.90	42.00	42.10	43.55	46.35	46.35	43.50
3/6/2013	APR	3/31/2013	42.45	43.50	47.00	57.80	53.30	44.65	41.75	41.85	43.25	46.10	46.10	43.35
3/7/2013	APR	3/31/2013	42.85	44.00	47.55	58.50	54.00	45.30	42.40	42.55	43.85	46.50	46.50	43.75
3/8/2013	APR	3/31/2013	43.50	44.50	48.00	59.00	54.50	45.60	42.75	42.80	44.25	46.85	46.85	44.15
3/11/2013	APR	3/31/2013	43.75	44.75	48.30	59.25	54.75	45.80	42.85	42.95	44.25	47.05	47.05	44.15
3/12/2013	APR	3/31/2013	43.75	44.75	48.15	59.10	54.60	45.80	42.85	42.95	44.25	46.90	46.90	44.10
3/13/2013	APR	3/31/2013	43.85	44.75	48.40	59.25	54.75	45.90	42.65	42.75	44.15	47.00	47.00	44.15
3/14/2013	APR	3/31/2013	44.45	45.45	48.95	59.90	55.40	46.40	43.30	43.45	44.55	47.20	47.20	44.20
3/15/2013	APR	3/31/2013	44.65	45.60	49.20	59.75	55.25	46.45	43.45	43.55	44.70	47.25	47.25	44.25
3/18/2013	APR	3/31/2013	44.90	45.85	49.40	60.25	55.75	46.65	43.50	43.65	44.65	47.35	47.35	44.50
3/19/2013	APR	3/31/2013	46.10	46.60	49.90	60.75	56.25	47.50	44.25	44.40	45.40	47.90	47.90	44.95
3/20/2013	APR	3/31/2013	45.60	46.40	49.70	60.55	56.05	47.40	44.05	44.20	45.30	47.85	47.85	44.85
3/21/2013	APR	3/31/2013	45.50	46.35	49.65	60.40	55.90	47.25	44.05	44.20	45.30	47.75	47.75	44.70
3/22/2013	APR	3/31/2013	45.75	46.35	49.75	60.60	56.15	47.35	44.10	44.25	45.35	47.85	47.85	44.70
3/25/2013	APR	3/31/2013	45.05	45.80	49.35	60.25	55.75	47.00	43.80	43.85	44.90	47.65	47.65	44.50
3/26/2013	APR	3/31/2013	45.20	46.10	49.75	60.85	56.35	47.50	44.35	44.45	45.35	48.00	48.00	45.00
3/27/2013	APR	3/31/2013	45.50	46.70	50.25	61.50	57.00	48.00	44.85	44.90	45.90	48.05	48.05	44.90
3/28/2013	APR	3/31/2013	44.75	46.15	49.95	61.25	56.75	47.75	44.25	44.50	45.50	47.75	47.75	44.75
4/1/2013	MAY	4/30/2013	46.00	49.75	61.00	56.50	47.65	44.25	44.50	45.50	48.00	48.00	44.75	44.75
4/2/2013	MAY	4/30/2013	45.55	49.55	61.10	56.60	47.50	44.25	44.30	45.35	47.75	47.75	44.50	44.50
4/3/2013	MAY	4/30/2013	45.30	49.35	60.75	56.25	47.25	44.00	44.05	45.00	47.55	47.55	44.45	44.45
4/4/2013	MAY	4/30/2013	45.70	49.55	60.85	56.35	47.40	44.10	44.15	45.10	47.60	47.60	44.55	44.55
4/5/2013	MAY	4/30/2013	46.50	50.80	62.15	57.65	48.60	44.90	44.95	45.90	48.20	48.20	44.85	44.85
4/8/2013	MAY	4/30/2013	46.80	51.15	62.25	57.75	48.60	44.55	44.60	45.75	47.95	47.95	44.75	44.75
4/9/2013	MAY	4/30/2013	46.20	50.50	61.90	57.40	48.15	44.25	44.25	45.25	47.50	47.50	44.25	44.25
4/10/2013	MAY	4/30/2013	47.10	51.70	62.50	59.00	49.05	44.50	44.60	45.90	47.80	47.80	44.60	44.60
4/11/2013	MAY	4/30/2013	47.45	52.15	63.45	59.20	49.50	45.10	45.25	46.30	48.20	48.20	45.45	44.10
4/12/2013	MAY	4/30/2013	48.25	53.10	64.60	60.35	50.50	45.75	46.00	47.00	49.15	49.15	46.60	44.10
4/15/2013	MAY	4/30/2013	47.60	52.75	64.00	60.00	49.90	45.25	45.50	46.50	48.75	48.75	46.15	43.65
4/16/2013	MAY	4/30/2013	47.40	52.50	64.00	60.00	49.80	45.25	45.50	46.50	48.80	48.80	46.20	43.70
4/17/2013	MAY	4/30/2013	48.35	53.55	65.00	61.00	50.65	45.95	46.10	47.10	49.15	49.15	46.85	44.35
4/18/2013	MAY	4/30/2013	49.40	54.85	66.50	61.50	51.75	46.80	46.90	47.75	49.90	49.90	47.25	44.75
4/19/2013	MAY	4/30/2013	48.75	54.50	66.60	61.60	51.60	46.70	46.75	47.75	49.95	49.95	47.35	44.85
4/22/2013	MAY	4/30/2013	47.60	53.50	65.25	60.25	50.50	45.75	45.75	46.75	49.40	49.40	46.80	44.30

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
4/23/2013	MAY	4/30/2013	47.15	53.20	65.15	60.15	50.70	45.75	45.75	46.75	48.90	48.90	46.90	44.40
4/24/2013	MAY	4/30/2013	46.50	52.20	64.20	59.20	49.85	45.25	45.25	46.15	49.10	48.10	46.75	44.25
4/25/2013	MAY	4/30/2013	45.55	51.80	63.85	58.85	49.50	44.85	45.05	46.15	49.10	48.10	46.75	44.25
4/26/2013	MAY	4/30/2013	45.35	51.75	63.60	58.60	49.50	45.00	45.00	46.00	49.10	48.10	46.60	44.10
4/29/2013	MAY	4/30/2013	47.15	53.00	64.90	59.90	50.40	46.10	46.25	47.25	50.25	49.25	47.50	45.00
4/30/2013	MAY	4/30/2013	46.00	52.35	64.50	59.50	50.10	45.60	45.65	46.90	50.20	49.20	47.60	45.10
5/1/2013	JUN	5/31/2013	52.50	64.50	59.50	50.35	45.65	45.80	46.95	50.25	49.25	47.45	44.95	46.00
5/2/2013	JUN	5/31/2013	51.15	63.00	58.00	48.85	44.35	44.40	45.45	48.75	47.75	46.25	43.75	45.25
5/3/2013	JUN	5/31/2013	51.25	63.15	58.15	49.00	44.50	44.50	45.70	48.75	47.75	46.25	43.75	45.15
5/6/2013	JUN	5/31/2013	51.10	62.80	57.80	48.75	44.40	44.40	45.60	48.65	47.65	46.35	43.85	45.15
5/7/2013	JUN	5/31/2013	50.50	62.50	57.50	48.05	43.75	43.80	45.00	48.25	47.25	46.00	43.50	45.00
5/8/2013	JUN	5/31/2013	51.35	63.00	58.00	48.50	44.00	44.00	45.25	48.50	47.50	46.25	43.75	45.15
5/9/2013	JUN	5/31/2013	51.35	63.10	58.10	48.65	44.20	44.20	45.45	48.75	47.75	46.35	43.85	45.30
5/10/2013	JUN	5/31/2013	51.10	62.85	57.85	48.30	43.75	43.75	45.20	48.35	47.35	46.10	43.60	45.15
5/13/2013	JUN	5/31/2013	50.60	62.65	57.65	48.05	43.75	43.75	45.20	48.35	47.35	46.00	43.50	44.90
5/14/2013	JUN	5/31/2013	50.90	63.00	58.00	48.35	44.00	44.00	45.50	48.65	47.65	46.25	43.75	45.15
5/15/2013	JUN	5/31/2013	50.95	63.50	58.50	48.60	44.40	44.40	45.90	49.25	48.25	46.50	44.00	45.40
5/16/2013	JUN	5/31/2013	50.80	63.10	58.10	48.10	43.75	43.75	45.25	48.95	47.95	46.15	43.65	45.15
5/17/2013	JUN	5/31/2013	53.25	64.75	59.75	49.15	44.75	44.90	46.15	49.80	48.80	46.65	44.15	45.50
5/20/2013	JUN	5/31/2013	55.40	66.40	61.40	49.75	45.25	45.25	46.50	50.45	49.45	47.20	44.70	46.30
5/21/2013	JUN	5/31/2013	56.90	67.10	62.10	50.35	45.75	45.85	47.30	50.85	49.85	47.50	45.00	46.65
5/22/2013	JUN	5/31/2013	56.25	66.60	61.60	50.25	45.50	45.50	47.00	50.65	49.65	47.40	44.90	46.50
5/23/2013	JUN	5/31/2013	56.25	66.75	61.75	50.40	46.00	46.00	47.50	50.75	49.75	47.40	44.90	46.75
5/24/2013	JUN	5/31/2013	56.25	66.50	61.50	50.25	45.75	45.75	47.50	50.75	49.75	47.40	44.90	46.75
5/28/2013	JUN	5/31/2013	54.40	65.00	60.75	49.30	45.00	45.05	46.75	50.40	49.40	47.10	44.60	46.50
5/29/2013	JUN	5/31/2013	52.95	64.00	60.00	48.75	44.75	44.85	46.40	50.10	49.10	46.80	44.30	46.15
5/30/2013	JUN	5/31/2013	51.65	62.75	58.75	47.30	43.85	43.85	45.35	49.00	48.00	46.00	43.50	45.75
5/31/2013	JUN	5/31/2013	51.75	62.15	58.15	47.00	43.50	43.50	45.00	48.75	47.75	45.85	43.35	45.30
6/3/2013	JUL	6/30/2013	62.15	57.90	46.80	43.30	43.30	44.90	48.40	47.40	45.50	43.00	45.20	50.00
6/4/2013	JUL	6/30/2013	61.80	57.90	46.90	43.40	43.45	45.25	48.40	47.40	45.50	43.00	45.10	49.65
6/5/2013	JUL	6/30/2013	61.75	57.85	46.90	43.25	43.30	45.10	48.35	47.35	45.25	42.75	45.00	49.60
6/6/2013	JUL	6/30/2013	60.25	56.50	45.80	42.20	42.35	44.25	47.25	46.25	45.00	42.50	44.50	48.90
6/7/2013	JUL	6/30/2013	60.90	56.90	46.10	42.30	42.40	44.35	47.40	46.45	45.00	42.50	44.50	48.90
6/10/2013	JUL	6/30/2013	60.00	56.50	45.95	42.20	43.30	44.35	47.25	46.25	44.75	42.25	44.50	48.75
6/11/2013	JUL	6/30/2013	58.25	55.25	45.25	41.65	42.00	44.00	46.50	45.50	44.50	42.00	44.25	48.25
6/12/2013	JUL	6/30/2013	59.00	55.65	45.75	41.90	42.25	44.10	46.75	45.75	44.50	42.00	44.35	48.50
6/13/2013	JUL	6/30/2013	58.10	55.40	45.90	42.00	42.25	44.25	47.00	46.00	44.60	42.10	44.50	48.50
6/14/2013	JUL	6/30/2013	56.55	54.35	45.55	41.80	42.05	44.05	46.40	45.40	44.15	41.65	44.15	48.10
6/17/2013	JUL	6/30/2013	59.25	56.25	46.60	42.50	42.85	44.60	47.15	46.15	44.65	42.15	44.50	48.20
6/18/2013	JUL	6/30/2013	59.25	56.25	46.90	42.50	42.85	44.60	47.40	46.40	44.75	42.25	44.75	48.30
6/19/2013	JUL	6/30/2013	60.10	56.80	47.15	42.85	43.05	44.85	47.60	46.60	45.00	42.50	45.00	48.50
6/20/2013	JUL	6/30/2013	58.65	55.80	46.50	42.10	42.25	44.35	47.00	46.00	45.00	42.25	44.65	48.15
6/21/2013	JUL	6/30/2013	57.35	54.75	45.75	41.75	41.95	43.80	46.50	45.50	44.00	42.00	44.30	47.60
6/24/2013	JUL	6/30/2013	56.55	54.55	45.55	41.55	41.75	43.60	46.25	45.25	43.85	41.85	44.30	47.60
6/25/2013	JUL	6/30/2013	55.25	54.00	44.90	40.90	41.25	43.15	45.75	44.75	43.50	41.50	43.95	47.05
6/26/2013	JUL	6/30/2013	56.75	54.90	45.05	41.10	41.45	43.15	45.75	44.75	43.50	41.50	43.85	46.90
6/27/2013	JUL	6/30/2013	55.25	54.00	44.00	40.50	40.65	42.50	44.85	43.85	42.70	40.70	43.05	45.75
6/28/2013	JUL	6/30/2013	55.85	54.00	43.25	39.80	40.30	42.30	44.90	43.90	42.40	40.40	42.60	45.40
7/1/2013	AUG	7/31/2013	53.75	43.25	39.90	40.10	42.25	44.75	43.75	42.25	40.25	42.50	45.10	56.10
7/2/2013	AUG	7/31/2013	54.10	43.60	40.20	40.65	42.70	45.35	44.35	42.65	40.65	42.55	45.30	56.50
7/3/2013	AUG	7/31/2013	53.85	44.00	40.55	40.80	43.00	45.45	44.45	42.65	40.65	42.65	45.55	56.55
7/5/2013	AUG	7/31/2013	53.10	43.15	39.85	40.15	42.50	45.20	44.20	42.50	40.50	42.50	45.50	56.00
7/8/2013	AUG	7/31/2013	54.00	44.00	40.60	41.15	43.15	46.10	45.10	43.20	41.20	42.95	46.10	56.60
7/9/2013	AUG	7/31/2013	53.40	43.75	40.40	40.90	43.10	45.75	44.75	43.00	41.00	43.00	45.85	56.30
7/10/2013	AUG	7/31/2013	53.40	44.00	40.65	41.00	43.20	46.40	45.40	43.15	41.15	43.15	46.00	56.45
7/11/2013	AUG	7/31/2013	52.90	43.75	40.65	41.00	43.00	45.90	44.90	42.85	40.85	43.00	45.85	56.25
7/12/2013	AUG	7/31/2013	53.50	44.00	40.85	41.25	43.20	46.00	45.00	43.25	41.25	43.25	46.00	56.65
7/15/2013	AUG	7/31/2013	54.35	44.15	40.90	41.35	43.10	45.90	44.90	43.10	41.10	43.25	46.15	56.90
7/16/2013	AUG	7/31/2013	53.60	43.90	40.60	41.00	43.00	45.80	44.80	43.05	41.05	42.95	46.15	56.95
7/17/2013	AUG	7/31/2013	54.20	43.85	40.50	40.75	42.75	45.60	44.60	43.05	41.05	42.75	45.90	56.95
7/18/2013	AUG	7/31/2013	54.75	44.50	41.15	41.45	43.50	46.25	45.25	43.25	41.25	43.35	46.25	57.50
7/19/2013	AUG	7/31/2013	54.00	44.10	40.75	41.10	43.10	45.75	44.75	43.00	41.00	43.00	46.00	57.25
7/22/2013	AUG	7/31/2013	52.75	43.50	40.20	40.65	42.50	45.20	44.25	42.35	40.35	42.40	45.35	56.50

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
7/23/2013	AUG	7/31/2013	52.30	43.50	40.35	40.75	42.75	45.45	44.45	42.70	40.70	42.70	45.70	56.70
7/24/2013	AUG	7/31/2013	52.30	43.40	40.35	40.70	42.70	45.25	44.30	42.50	40.50	42.70	45.60	56.70
7/25/2013	AUG	7/31/2013	51.40	43.20	40.10	40.60	42.45	45.00	44.05	42.30	40.30	42.50	45.40	56.45
7/26/2013	AUG	7/31/2013	50.65	42.40	39.40	39.90	41.65	44.65	43.15	41.75	39.75	41.85	44.75	55.75
7/29/2013	AUG	7/31/2013	47.00	41.20	38.55	39.25	41.00	44.00	42.50	41.00	39.00	41.10	44.40	54.50
7/30/2013	AUG	7/31/2013	45.05	41.00	38.35	39.40	41.00	43.75	42.25	40.85	38.85	40.85	43.75	54.35
7/31/2013	AUG	7/31/2013	44.75	41.20	38.60	39.40	41.20	44.05	42.55	41.10	39.10	41.10	43.95	54.45
8/1/2013	SEP	8/31/2013	41.00	38.45	39.20	41.20	43.85	42.35	40.80	38.80	41.05	43.80	54.40	50.90
8/2/2013	SEP	8/31/2013	40.75	38.05	39.00	40.80	43.75	42.25	40.75	38.75	40.75	43.50	54.25	50.75
8/5/2013	SEP	8/31/2013	40.30	38.00	38.80	40.75	43.75	42.25	40.75	38.75	40.75	43.40	54.00	50.40
8/6/2013	SEP	8/31/2013	40.50	38.00	38.80	40.75	43.90	42.40	40.60	38.60	40.60	43.50	54.20	50.60
8/7/2013	SEP	8/31/2013	40.15	37.50	38.50	40.45	43.75	42.25	40.25	38.25	40.15	43.00	53.80	50.25
8/8/2013	SEP	8/31/2013	40.15	37.60	38.30	40.55	44.20	42.70	40.55	38.55	40.45	43.55	54.20	50.45
8/9/2013	SEP	8/31/2013	40.40	37.70	38.50	40.60	43.85	42.35	40.35	38.35	40.10	43.15	53.95	49.95
8/12/2013	SEP	8/31/2013	41.80	38.40	39.20	41.40	44.40	42.90	40.65	38.65	40.65	43.65	54.50	50.50
8/13/2013	SEP	8/31/2013	42.10	38.80	39.60	41.55	44.40	42.90	40.65	38.65	40.60	43.65	54.50	50.50
8/14/2013	SEP	8/31/2013	43.20	39.55	40.15	42.15	45.00	43.50	41.20	39.20	41.00	44.00	54.75	50.75
8/15/2013	SEP	8/31/2013	43.00	39.55	40.10	42.00	45.00	43.50	41.20	39.20	41.00	43.95	55.20	51.20
8/16/2013	SEP	8/31/2013	42.35	39.40	40.00	42.00	44.95	43.45	41.30	39.30	41.00	43.90	55.00	51.00
8/19/2013	SEP	8/31/2013	42.70	40.05	40.65	42.50	45.55	44.00	41.80	40.00	41.30	44.30	55.55	51.55
8/20/2013	SEP	8/31/2013	42.60	39.95	40.50	42.30	45.25	43.70	41.50	39.70	41.15	44.15	55.20	51.20
8/21/2013	SEP	8/31/2013	42.70	40.15	40.60	42.45	45.40	43.85	41.70	39.90	41.35	44.30	55.40	51.40
8/22/2013	SEP	8/31/2013	43.20	40.50	41.10	42.85	45.65	44.10	41.90	40.20	41.35	44.45	55.75	51.75
8/23/2013	SEP	8/31/2013	42.85	40.15	40.60	42.40	45.20	43.70	41.45	39.95	41.10	44.20	55.35	51.35
8/26/2013	SEP	8/31/2013	42.30	40.05	40.55	42.30	45.20	43.70	41.50	40.00	41.30	44.20	55.25	51.25
8/27/2013	SEP	8/31/2013	41.00	39.70	40.10	42.00	45.00	43.50	41.50	40.00	41.25	44.25	55.40	51.40
8/28/2013	SEP	8/31/2013	41.35	40.10	40.65	42.20	45.20	43.70	41.60	40.10	41.15	44.15	55.45	51.45
8/29/2013	SEP	8/31/2013	41.95	40.20	40.85	42.25	45.45	43.95	41.95	40.45	41.25	44.20	55.70	51.70
8/30/2013	SEP	8/31/2013	41.90	40.25	40.85	42.10	45.45	43.95	41.95	40.45	41.45	44.45	55.85	51.85
9/3/2013	OCT	9/30/2013	41.10	41.45	42.60	45.75	44.25	42.40	40.90	41.75	44.85	56.00	52.00	41.85
9/4/2013	OCT	9/30/2013	41.00	41.40	42.50	45.75	44.25	42.40	40.90	41.75	44.85	56.00	52.00	41.85
9/5/2013	OCT	9/30/2013	40.85	41.00	42.20	45.50	44.00	42.05	40.55	41.60	44.60	55.60	51.60	41.65
9/6/2013	OCT	9/30/2013	40.70	40.85	42.15	45.25	43.40	41.85	40.35	41.40	44.30	55.30	51.30	41.45
9/9/2013	OCT	9/30/2013	41.25	41.20	42.65	45.85	43.85	42.00	40.50	41.75	44.75	55.75	51.75	41.90
9/10/2013	OCT	9/30/2013	41.15	41.10	42.40	45.70	43.70	41.85	40.35	41.60	44.60	55.60	51.60	41.75
9/11/2013	OCT	9/30/2013	41.30	41.25	42.40	45.70	43.70	42.00	40.50	41.75	44.65	55.70	51.70	42.00
9/12/2013	OCT	9/30/2013	41.40	41.45	42.75	45.90	43.90	42.30	40.80	42.15	45.00	56.00	52.00	42.10
9/13/2013	OCT	9/30/2013	41.40	41.50	42.80	46.15	44.15	42.70	41.20	42.25	45.25	56.45	52.45	42.30
9/16/2013	OCT	9/30/2013	41.35	41.65	42.75	46.15	44.15	42.65	41.15	42.35	45.40	56.65	52.65	42.35
9/17/2013	OCT	9/30/2013	41.10	41.50	42.75	46.35	44.35	42.75	41.25	42.35	45.35	56.60	52.60	42.30
9/18/2013	OCT	9/30/2013	40.80	41.30	42.55	46.30	44.30	42.75	41.25	42.35	45.35	56.50	52.50	42.25
9/19/2013	OCT	9/30/2013	40.70	41.20	42.60	46.30	44.30	42.85	41.35	42.50	45.50	56.60	52.60	42.25
9/20/2013	OCT	9/30/2013	40.80	41.25	42.70	46.40	43.85	42.55	41.50	42.30	45.30	56.40	52.40	42.25
9/23/2013	OCT	9/30/2013	40.00	40.75	42.25	45.90	43.40	42.15	41.15	41.90	44.90	56.05	52.05	41.90
9/24/2013	OCT	9/30/2013	40.00	40.60	41.80	45.70	43.20	41.70	40.70	41.50	44.50	55.70	51.70	41.60
9/25/2013	OCT	9/30/2013	40.25	40.60	41.95	45.75	43.25	41.75	40.75	41.60	44.55	55.75	51.75	41.50
9/26/2013	OCT	9/30/2013	41.10	40.80	42.15	45.85	43.35	41.85	40.85	41.65	44.50	56.45	51.45	41.45
9/27/2013	OCT	9/30/2013	42.00	41.00	42.25	46.00	43.50	42.00	41.00	41.85	44.75	56.55	51.55	41.65
9/30/2013	OCT	9/30/2013	42.50	40.70	41.95	45.85	43.35	41.90	40.90	41.65	44.55	56.25	51.25	41.50
10/1/2013	NOV	10/31/2013	41.20	42.30	46.25	43.75	42.10	41.10	41.95	44.80	56.50	51.50	41.85	39.15
10/2/2013	NOV	10/31/2013	40.75	41.90	45.85	43.15	41.80	40.75	41.65	44.55	56.40	51.40	41.55	39.05
10/3/2013	NOV	10/31/2013	40.65	41.75	45.75	43.10	41.80	40.75	41.55	44.40	56.25	51.25	41.50	39.00
10/4/2013	NOV	10/31/2013	40.65	41.90	45.75	43.10	41.80	40.75	41.55	44.40	56.25	51.25	41.50	39.00
10/7/2013	NOV	10/31/2013	41.25	42.50	46.40	43.90	42.15	41.15	41.85	44.65	56.90	51.90	41.70	39.25
10/8/2013	NOV	10/31/2013	41.75	43.00	46.75	44.25	42.55	41.55	42.35	45.20	57.30	52.30	42.05	39.55
10/9/2013	NOV	10/31/2013	41.10	42.65	46.35	43.85	42.20	41.20	41.95	44.85	57.10	52.10	41.75	39.15
10/10/2013	NOV	10/31/2013	41.55	42.85	46.65	44.15	42.40	41.40	42.10	45.10	57.40	52.40	41.95	39.20
10/11/2013	NOV	10/31/2013	41.75	43.05	46.75	44.25	42.65	41.65	42.30	45.30	57.70	52.70	42.10	39.40
10/14/2013	NOV	10/31/2013	41.75	42.95	46.75	44.25	42.65	41.65	42.30	45.30	57.70	52.70	42.10	39.40
10/15/2013	NOV	10/31/2013	41.75	42.95	46.65	44.15	42.55	41.55	42.20	45.20	57.60	52.60	42.00	39.30
10/16/2013	NOV	10/31/2013	42.00	42.80	46.50	44.00	42.50	41.50	41.95	45.00	57.50	52.50	41.95	39.30
10/17/2013	NOV	10/31/2013	42.00	42.65	46.15	43.65	42.10	41.10	41.80	44.70	57.30	52.30	41.80	39.25
10/18/2013	NOV	10/31/2013	41.75	42.65	46.00	43.50	42.10	41.10	42.05	44.90	57.30	52.30	42.00	39.30

Observation Date	1NB Contract	1NB Expiry	1NB	2NB	3NB	4NB	5NB	6NB	7NB	8NB	9NB	10NB	11NB	12NB
10/21/2013	NOV	10/31/2013	41.20	42.10	45.50	43.00	41.80	40.70	41.60	44.45	56.95	51.95	41.60	39.05
10/22/2013	NOV	10/31/2013	40.40	41.35	44.95	42.45	41.20	40.20	41.10	43.85	56.55	51.55	41.05	38.45
10/23/2013	NOV	10/31/2013	40.40	41.25	45.00	42.50	41.25	40.25	41.15	44.00	56.65	51.65	41.05	38.55
10/24/2013	NOV	10/31/2013	40.25	41.25	45.00	42.50	41.35	40.35	41.15	44.10	56.75	51.75	41.05	38.50
10/25/2013	NOV	10/31/2013	40.30	41.50	45.25	42.75	41.50	40.50	41.25	44.35	56.90	51.90	41.20	38.70
10/28/2013	NOV	10/31/2013	39.40	40.80	44.75	42.25	41.00	40.00	41.00	43.85	56.40	51.40	40.70	38.20
10/29/2013	NOV	10/31/2013	39.30	40.70	44.55	42.20	40.95	39.95	40.80	43.70	56.30	51.30	40.65	38.05
10/30/2013	NOV	10/31/2013	39.75	40.95	44.60	42.35	40.90	39.90	40.80	43.70	56.25	51.25	40.60	38.00
10/31/2013	NOV	10/31/2013	39.55	40.35	43.75	41.50	40.40	39.40	40.55	43.40	55.75	50.75	40.50	37.75
11/1/2013	DEC	11/30/2013	40.05	43.40	41.15	40.00	39.00	40.25	43.05	55.40	50.40	39.95	37.40	38.85
11/4/2013	DEC	11/30/2013	39.85	43.20	40.95	39.70	38.70	39.95	42.70	55.20	50.20	39.60	37.05	38.50
11/5/2013	DEC	11/30/2013	40.50	43.35	41.10	39.95	39.10	40.00	42.85	55.60	50.60	39.75	37.10	38.70
11/6/2013	DEC	11/30/2013	40.75	43.60	41.35	40.10	39.10	40.35	43.20	55.85	50.85	39.95	37.15	38.85
11/7/2013	DEC	11/30/2013	41.25	44.20	41.70	40.30	39.30	40.45	43.55	56.20	51.20	40.10	37.20	38.85
11/8/2013	DEC	11/30/2013	41.55	44.35	41.95	40.45	39.45	40.70	43.55	56.70	51.70	40.05	37.30	38.95
11/11/2013	DEC	11/30/2013	41.45	44.15	41.50	40.40	39.40	40.65	43.40	56.65	51.65	40.20	37.30	39.05
11/12/2013	DEC	11/30/2013	41.85	44.20	41.60	40.55	39.55	40.70	43.75	56.80	51.80	40.25	37.30	39.05
11/13/2013	DEC	11/30/2013	41.30	43.85	41.35	40.10	39.10	40.15	43.30	56.25	51.25	39.70	36.70	38.60
11/14/2013	DEC	11/30/2013	41.20	43.75	41.25	40.25	39.25	40.25	43.50	56.40	51.40	39.50	36.75	38.80
11/15/2013	DEC	11/30/2013	41.70	44.25	41.75	40.50	39.50	40.70	43.80	57.00	52.00	39.75	36.75	38.80
11/18/2013	DEC	11/30/2013	41.60	43.95	41.45	40.35	39.35	40.50	43.55	56.85	51.85	39.70	36.75	38.75
11/19/2013	DEC	11/30/2013	41.20	43.75	41.25	40.15	39.15	40.30	43.35	56.65	51.65	39.50	36.55	38.55
11/20/2013	DEC	11/30/2013	42.20	44.20	41.70	40.75	39.75	40.95	43.90	57.35	52.35	40.15	37.15	39.00
11/21/2013	DEC	11/30/2013	42.05	44.25	41.75	40.40	39.40	40.85	43.90	57.25	52.25	40.10	37.15	38.95
11/22/2013	DEC	11/30/2013	42.90	44.95	42.45	41.05	40.05	41.10	44.20	57.70	52.70	40.50	37.35	39.35
11/25/2013	DEC	11/30/2013	42.35	45.10	42.10	41.15	40.15	41.20	44.30	57.90	52.90	40.60	37.40	39.40
11/26/2013	DEC	11/30/2013	41.45	45.10	42.10	41.15	40.15	41.20	44.30	57.80	52.80	40.60	37.40	39.45
11/27/2013	DEC	11/30/2013	41.55	45.25	42.25	41.25	40.25	41.20	44.30	57.85	52.85	40.75	37.40	39.55
11/29/2013	DEC	11/30/2013	41.90	45.25	42.25	41.25	40.25	41.20	44.30	57.85	52.85	40.75	37.40	39.55
12/2/2013	JAN	12/31/2013	45.20	42.20	41.30	40.30	41.30	44.45	58.00	53.00	40.90	37.80	39.50	40.80
12/3/2013	JAN	12/31/2013	45.15	42.15	41.20	40.20	41.30	44.35	57.85	52.85	40.75	37.60	39.30	40.60
12/4/2013	JAN	12/31/2013	44.90	42.15	41.20	40.20	41.30	44.35	57.85	52.85	40.75	37.60	39.30	40.60
12/5/2013	JAN	12/31/2013	45.70	42.80	41.70	40.70	41.90	44.90	58.40	53.40	41.10	37.85	39.55	40.85
12/6/2013	JAN	12/31/2013	45.60	42.60	41.80	41.00	41.90	44.85	58.20	53.20	41.10	37.95	39.65	40.95
12/9/2013	JAN	12/31/2013	46.35	43.20	42.10	41.30	42.00	45.00	58.35	53.35	41.30	38.10	39.80	41.10
12/10/2013	JAN	12/31/2013	47.50	44.10	42.30	41.10	41.90	45.00	58.30	53.30	41.30	38.15	39.85	41.15