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Ms. Elizabeth M. Murphy, Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-0609

Dear Ms. Murphy,

I am Ken Monahan, a resident of New York City. I studied economics and statistics at the University of Chicago and graduated in 1995. I had been working on the floors of the various Chicago derivatives exchanges during summer vacations since my sophomore year of high school and after college I started my career in finance at O'Connor & Associates. I have subsequently worked for NatWest Markets which sold its derivatives trading unit to Deutsche Bank in 1998. I then worked in a variety of trading and management functions for Deutsche Bank in the US and abroad until 2009. I am now largely retired though I do freelance consulting and journalism.

I am writing to comment on the Dodd-Frank Act rule-making process. I will focus on the market structure for the OTC derivative markets, specifically the Credit Default Swap (CDS) markets. These remarks were prepared prior to the publication of the SEC's proposed rule on Registration and Regulation of Security-Based Swap Execution Facilities on February 2, 2011, and therefore do not reflect a review of that rule though some of the elements of this letter will be pertinent to it.

I have some experience which may be helpful to the Commission in its tasks. I worked in the equity derivatives trading group at Deutsche Bank for 11 years. During this time, I traded both listed and OTC derivatives ultimately co-managing the US equity derivatives trading business. I was responsible for the DB task force which assisted the launch of the International Securities Exchange (ISE), the first all electronic options exchange in the US and later the Dubai International Financial Exchange (DIFX), which has since been acquired and is known as NASDAQ Dubai. I was head of exchange strategy and then global head of business development for the exchange facing equities business of Deutsche Bank.

In this capacity, I worked with exchanges and regulators throughout the developed world and in emerging markets, often serving on advisory panels about financial regulation. Through these roles, I have unique experience of the influence of regulation on market structure and the challenges which face new market infrastructure entrants. In the course of my consulting work and due to my professional curiosity, I have researched both the CDS market and the Dodd-Frank Act. Though my experience has been primarily in equity derivatives, I believe it is particularly relevant to the task at hand given the many market structure shifts which have occurred in the equity world. I am in a unique position to bring some of those lessons to bear on the credit world. I would like to thank the Commission for this opportunity to contribute some lessons of my experience in the service of producing an optimal market structure for so critical a financial product.

One of the primary objectives of the Dodd-Frank Act is to move as much OTC derivative trading as possible from the current bi-lateral clearing arrangements to central clearing against a Central Counter-Party (CCP) in order to minimize systemic risk. Recently there have been some concerns about the influence of the CDS dealers over the existing CCPs run by the CME and the ICE Trust. In comment letters, various parties have suggested that rules be made to restrict dealer ownership and control of CCPs or at the least to empower non-dealers on the committees which oversee the risk policies of the CCPs. The end user concerns are valid but some of the counter arguments also have merit. It is a difficult issue; however, I believe it is also peripheral. The current influence of the dealers over the CCPs is the result, not the source, of their power in the broader CDS market. Thus even if the end user community is granted its wish the dealers will retain enough power to challenge the prevalence of central clearing.

In order to make effective rules, the SEC must examine the dealers market power and seek to limit that power or, more effectively, turn that power against itself and to the service of public. In this letter, I will describe the controversy over the governance of CCPs, outline the origins of dealer power, and show that the market power of the dealers is so pervasive that no amount of regulatory favoritism for the end user community can effectively limit that power. Indeed, it may be counterproductive if it drives the dealers together. Instead, the SEC should seek to provoke the dealers to act against each other. In this, the SEC can make use of the example of the launch of the CBOE in 1973 and of some inherent imbalances in the CDS market itself. These two elements should combine to guide the SEC in the rule-making process. The SEC can then write rules which split the dealer alliance and arm the weaker dealers with infrastructural tools with which to attack the dominance of the strong for the ultimate benefit of the markets as a whole.

The CCP Governance Controversy

Let us begin with a subject of current concern: the influence of the dealers over the extant CCPs. There are several ways in which the dealers might abuse their influence on CCPs, and the ICE Trust offers some evidence that this is a real possibility. Firstly the ICE Trust has an extremely high bar for membership in terms of financial position and requires substantial capital commitments to participate as a clearing member. Objectively, these are both higher than they are at comparable CCPs. Second, end users point to the relatively high fees and the low levels of leverage that are available on the ICE Trust relative to the terms which prevail in the bi-lateral market. Third, unlike on a conventional exchange or CCP, there is a lag between when the trade is submitted and when it is accepted for clearing. Thus, as it is at least theoretically possible that a trade might be rejected, it is important to know the identity of the counter-party. As a result, stronger counter-parties retain an advantage which does not exist on CCPs where counter-party anonymity is preserved. The practical market effects of this can be seen in the published volume statistics for the ICE Trust: virtually all the trades which go across the ICE Trust are dealer to dealer. The dealers are going to be taking each others' credit anyway and are immunized against the fees on account of rebate agreements with the ICE Trust. Thus the end users see the ICE Trust as undermining the aims of the Dodd-Frank Act and to preserving the dealers' privileged position. For these reasons, the end user community has reservations about the extant CCPs which have led to their comment letters to the CFTC.

The issue of whether the ICE Trust capital requirements are justified is an interesting one. Is the ICE Trust overcautious, or are the CME Group, the OCC, and the prime brokers too incautious? At first glance, it would seem that the ICE Trust is quite conservative relative to bilateral or other derivative

CCPs as can be seen in its more stringent requirements for membership. However, what is important to take into consideration is that under the Dodd-Frank Act, the ICE Trust must be able to survive the simultaneous default of its two largest members. Given the fact that its members are the CDS dealers and market share among the dealers is concentrated in the top three firms, this could mean that the ICE Trust is facing concentration risk on a scale which is unprecedented for a CCP and simply impossible for a prime broker to risk manage and therefore to accumulate in the first place. This produces a paradox: the ICE Trust which should be able to offer superior terms on account of its scale, in practice may have such massive concentration risk on account of that scale and the dominance of its top three members that it is not competitive with bilateral clearing where that concentration does not exist. Of course concentration risk of this kind, when it consists of the total risk positions of the largest financial institutions in the world, has another more common name: systemic risk. The lesson here is that as long as the market is dominated by a handful of dealers and those dealers are dominated by a minority who control the majority of flow, even in the presence of a CCP, systemic risk is here to stay.

Unfortunately, in the absence of an official method for comparing the relative reserves of the various CCPs against a statistically uniform set of risks, the degree to which the ICE Trust is over-reserved or other clearing venues are under-reserved is impossible to determine. Further complicating this is the fact that the dealers have a dual interest given the events of 2008. It is important for them to appear conservative, and this very conservatism can then be used to exclude new entrants. At the same time, the end users have a dual interest in aggressive reserve policies not only because they may induce greater competition among the dealers but also because they can have the effect of enhancing returns. While I would encourage the SEC to attempt to develop measures which would compare the relative risk and reserves of the various CCPs – it is possible – I think that these measures will not be available on a time horizon that will be relevant to the rule making process.

Several comment letters have asked the authorities to limit dealer control over CCP policy through rules that grant a strong voice for the non-dealers on the Risk Committees or that restrict dealer ownership of CCPs. The argument is that this will enable the end users to force the CCPs to work for the benefit of all market participants. In response, the dealers are likely to point out that this may create an agency problem. Notwithstanding the end user concerns about the risk committees, the fact remains that the vast majority of the capital deployed on the CCP itself and held in the reserve funds will belong to the dealers. Granting the end users power in excess of their financial commitments enables the end users to effectively vote themselves preferential access to the capital of the dealers. Whether this is a valid concern or not, it may provoke the dealers to limit their exposure to the CCPs or to subdivide them and only extend capital to the subsections wherein they obtain favorable rules. Thus while the initial action of the authorities would be in the service of Dodd-Frank, the likely response it would provoke may produce the opposite of the desired outcome.

This is a central issue: rule-making is a multi-turn game. The SEC will promulgate rules and the market actors will amend their behavior to adjust to them. With regard to the issues of CCP governance it is important to consider how the dealers will seek to use their market power to preserve the profitability of their franchises. In order to fully understand that process, it is important to consider the extent of the market power of the dealers and the sources of that power.

The Extent of Dealer Dominance

The dealers market power is observable in the volume statistics of the DTCC. That power is characterized by the extreme concentration of trades among the dealers and the extreme diffusion of the end users. While there are thousands of end users there are just over a dozen dealers. This means that even the top 100 end users combined have less market impact than the smallest dealer. Thus their power to affect dealer behavior by withholding or redirecting their flow is minimal. This is especially true relative to the influence of the dealers on one another. Among the dealers themselves, the top three account for roughly half of all the traded CDS volume. This remarkable amount of market concentration generally results in pricing discipline in the CDS market with regard to both spread and absolute level among the dealers, at least to the extent to which posted quotes are observable. Effective spreads are virtually impossible to measure given the data currently available but are likely much wider than those posted especially with regard to unwinds of bilateral trades.

The Roots of Dealer Power

While the extent of dealer dominance is readily observable, the roots of that dominance are less so. This is because they are many, deep, and mutually interlocking. Many of these sources of power were designed to assist the development of the market, and the power they confer on the dealers is incidental to their original intention.

It is also important to note what I am not saying: I am not saying that the dealers necessarily engage in overtly anti-competitive practices; therefore I will refer to them as an alliance rather than a cartel. I will argue that their power is an emergent property of the nature of the product and the way in which the market infrastructure has developed over the past twenty years. Though I do believe the CDS market structure is in some ways indistinguishable from what would have been produced if there had been overt collusion, I do not believe that it is in fact the result of the formation of a formal cartel or set of explicit agreements. Rather I believe that dealer market power is rooted in the following features of the CDS market:

1. **The nature of the CDS product itself.** The nature of the CDS itself grants massive scale economies to firms with ready access to order-flow. In practice, these are the first movers who pioneered the use of the product. This is because, unlike an option, a CDS cannot be perfectly replicated by trading a hedge portfolio. One can trade other instruments to minimize the risk of a CDS but with nothing like the precision possible with an option or future. There is no Black Scholes equation for CDS which links its price to a dynamically replicable hedge portfolio. This is a key element, because it means that there are only two ways to perfectly hedge a CDS. The first is with an opposite position in the underlying debt securities of the reference credit (and even this is not perfect because it involves an exchange of principal, a more capital intensive undertaking); the second is with another CDS.

The most efficient method for hedging CDS is to trade another CDS against it. This is because CDS spreads can be much narrower than those of the other credit instruments of the reference entity. Remember that bonds are often held to maturity by large institutions so the total notional of any given bond available for trading is relatively small which makes the markets in individual bonds often illiquid. One can see this in the relatively low daily trading figures for

fixed income instruments relative to outstanding notional relative to equities for example. One can think of a CDS as a sort of aggregate bond against which any number of individual bonds can be delivered thereby aggregating the liquidity across all the credit instruments of a reference entity into a single instrument. Indeed this is one of the reasons the product is so successful. The fact that the best hedge to a CDS is another CDS has momentous implications for the structure of the CDS market.

If the best hedge to a CDS is another CDS then those firms with access to a large volume of CDS flow are in a better position to manage the risks they acquire in the conduct of their business. Those firms who are better able to manage their risks are in turn better able to price aggressively and are therefore better able to retain their control of the very order-flow that enabled them to better manage their risk in the first place. Thus the CDS market confers massive scale economies on firms that have access to substantial amounts of order-flow. Additionally, it confers massive disadvantages on firms who find their access to flow constricted. This gives the top dealers a powerful tool with which to discipline both smaller dealers and potential new entrants by starving them of access to liquidity they need to manage their risks. Given the massive concentration among the top dealers they do not even need to collude in order to produce the desired effect. Any dealer who gained 100 end-user clients at the expense of the loss of the flow of another dealer would be much worse off. This may explain the extreme and prolonged concentration of market share in the top three dealers.

2. **Control over key elements of CDS market infrastructure.** Over the past 20 years the dealers have built much of the infrastructure of the CDS market and remain in control of it. The astounding pace of growth in the CDS market over the past 20 years is well known. It is not only a testament to the value of the product itself but also to the organizational and infrastructural genius of the dealer community in coming together to resolve issues which hindered the development of the industry. Though the International Swaps and Derivatives Association (ISDA) contains hundreds of members, the vast majority of them non-dealers, it has provided a forum through which the dealers can coordinate their efforts. Some of these efforts have been decidedly helpful in advancing the industry and specifically central clearing such as the recent introduction of the Standard North American Contract (SNAC) and the big and small bangs. On the other hand ISDA has enabled a group of firms that are otherwise competitors to come together when the industry itself has been threatened.

The dealers also effectively control Markit, a private company that has become a key element in the operation of the CDS markets. Their influence over Markit derives primarily from the fact that if they refused to cooperate and contribute data to Markit the firm would cease to exist but may also extend to direct equity ownership. Markit owns the licenses for the most popular credit indices and therefore also the right to decide who is entitled to list and clear products that use them as reference credits. It also owns MarkitServ, the leading documentation engine for OTC markets; both the dealers and their clients use MarkitServ to document CDS trades and to automatically refer them to the OTC derivatives trade warehouse at the DTCC. Furthermore Markit owns the Reference Entity Database (RED). This database is a key piece of the CDS infrastructure because it enables counter-parties to identify with precision what the reference credit actually is. To be denied access to RED would place substantial costs on any new entrant. Dealer control and influence over ISDA and Markit mean that they have substantial power over both the market infrastructure as well as the very definitions of the products themselves.

3. **Control of infrastructure necessary for access to both bi-lateral and central clearing.** In addition to the shared infrastructure of the CDS markets, most dealers also operate prime brokerage units which perform the clearing and settlement function for markets which clear bi-laterally. This means that the dealers are able to set the clearing fees as well as the margin rates and leverage ratios for clients who enter bi-lateral trades with them and other dealers. This power will survive Dodd-Frank because it will continue to apply to OTC markets for which there is no clearing mandate and also to end user customers who opt out of the clearing requirement as per the Act.

In addition to controlling the conditions under which end users enter bi-lateral trades through their prime brokerage infrastructure most of the dealers also function as Designated Clearing Members on the world's derivatives exchanges. An important business today, the DCM business will gain even more importance post Dodd-Frank, because it means the dealers will also intermediate client relationships with the CCPs which form to handle former OTC markets for which the authorities mandate central clearing. Thus the dealers sit athwart the infrastructure through which end users access both bi-lateral and centrally cleared markets. This gives them the power to alter the relative economics of centralized versus bi-lateral clearing simply by altering the relative fees charged and the leverage available on each. They can use this power to steer clients toward or away from either central or bi-lateral clearing depending on their interests.

4. **The latent power of their control over order-flow in unrelated securities.** The dealers not only overtly control virtually all the volume and most of the infrastructure of the CDS market proper, they also have substantial latent power to deter new entrants to the infrastructure space, specifically existing exchanges. The dealers are among the world's largest financial institutions and they therefore control a massive amount of flow in exchange traded products through their securities trading operations. This flow is of immense value, and denial or diversion of that flow would pose an existential threat to the world's exchanges.

The dealers have demonstrated their willingness to harness their control of order-flow and the falling cost of establishing exchange infrastructure to force concessions from extant exchanges. Consider the case of the LSE-Turquoise competition. Several years ago, the dealers went to the LSE and asked for concessions on exchange fees. The LSE, believing they had an unassailable monopoly, sent them packing. The dealers announced the formation of Turquoise, a new exchange to which they would route their order-flow once completed. The LSE immediately lowered its fees. As Turquoise entered the market, the LSE bought control from the banks and merged it with its own dark pool in order to forestall a new entrant.

Exchanges in the US are similarly vulnerable to retaliation from the dealers in their main line businesses if they attempt to construct market infrastructure that would infringe on dealer dominance. This is visible in the equity markets post Reg NMS and in the equity option markets since multiple listing began in 2000. The banks and others have been able to use their control of order-flow to alter exchange policy or to garner outright payment for that order-flow. It has also been suggested that order flow providers who owned equity in the CBOE directed their flow to that exchange in advance of its IPO in order to enhance its valuation. There is a strong

argument to be made that exchange competition has benefitted the markets generally by promoting new market structures, but the knowledge that exchanges will face a united and aggressive alliance of the CDS dealers who control the flow in their main line business may serve as a strong deterrent and may be working against the markets and authorities in this case.

5. **The ICE Trust itself.** As discussed above the dealers both own and control the ICE Trust. It is widely known that the ICE Trust is the first, and for all practical purposes the only, CDS CCP. It is true that the CME, LIFFE, and EUREX have their own versions but they were created without the backing of the dealers and therefore they have virtually zero volume while the ICE Trust has executed trillions of dollars in cleared notional. Control of the ICE Trust places the dealer alliance in a position to influence the move toward central clearing; importantly, it may also deter new entrants who may believe that the dealer dominance cannot be challenged at a cost or on a time horizon that would provide a meaningful return.

Dealer Advantages are Mutually Reinforcing

The ICE Trust also serves as an example of how the sources of dealer power combine to preserve that power. First, the structure of the ICE Trust enables the dealers to capitalize on their scale economies. The strict membership requirements keep out more lightly capitalized potential new entrants ostensibly to preserve the financial strength of the CCP, though this has the effect of exacerbating the concentration risk issues faced by the ICE Trust. The design of the clearing process to inhibit anonymity is also helpful in this regard. In the event of the default of a reference credit requiring CDS settlement the ICE decomposes all the centrally cleared trades back into bi-lateral trades which may also work to dealer advantage. The creation of the ICE Trust was also greatly assisted by dealer control over other aspects of the clearing infrastructure. ISDA completely rewrote the CDS confirmation language in order to facilitate central clearing. Markit cooperated fully both with regard to connecting its technical infrastructure as well as making the intellectual capital of its indices and Reference Entity Database available to the ICE Trust. In an article in *The New York Times*, it is alleged that this level of cooperation was not forthcoming to the Citadel/CME alliance. The competitive implications of infrastructure ownership have been problematic from the days of railroad rebates to those of net neutrality in our own day. My intention is simply to highlight the fact that they also exist in the CDS market.

Additionally, the only way for an end user to access the ICE Trust is through a Designated Clearing Member. For the time being all of the ICE DCMs are owned by the dealers, and given the fact that the Bank of New York was willing to say publicly to *The New York Times* that it found the terms of joining too onerous, it seems likely to remain that way. Whether by coincidence or design, it remains the case that bi-lateral clearing remains more cost effective and therefore more popular among the end user community. It is also not an accident that the vast majority of CDS central clearing goes over the ICE Trust because the dealers who control the vast majority of the flow are directing their flow to the ICE Trust. Interestingly but also not coincidentally, the only competitor in the US to the ICE Trust dropped its alliance with Citadel, a prominent hedge fund, as well as plans for a trading venue at the same time that the dealers agreed to cooperate with the CME CDS CCP. Naturally, the negotiations between the dealers and the CME are private, but the CME was surely familiar with Turquoise. They could see what it meant for the LSE, and they saw the writing on the wall.

The dealers have used their market power to make the ICE Trust an extremely effective, some might say the only, CCP for clearing the index trades of the dealer community. In as much as the objective of the Dodd-Frank Act is to limit the potential damage to the banking system from another major CDS default one could argue that, by centralizing trillions in notional of inter-dealer trades, the ICE Trust has gone a long way to achieve that. Indeed, this is precisely the impression the dealers wish to convey.

It is important to remember, however, that all of the tools which have put in the service of creating the ICE Trust can also be used to hinder its competitors or the ICE Trust itself, should dealer control be challenged by rule. Thus in the event that rules are written to limit the control of the CCPs by the dealer community, the dealers will simply use their power in the wider market to maintain their dominance. Therefore, while it might be reasonable to try to find some way to protect the interests of the non-dealers through the governance of the CCPs, it is not sufficient to support the aims of the Dodd-Frank Act.

What is to be done?

Despite the fact that the dealer alliance has a great deal of market power, its position is not unassailable. The SEC must simply take that power into consideration when making its rules because it will inform the dealer response to those rules. That power also illustrates that no amount of empowerment by fiat of the end user community will weaken the position of the dealer alliance. Indeed, by explicitly favoring the end users, the authorities drive the dealers together and thereby strengthen the dealer alliance. The optimal course of action is not to defend the end users directly but to defend their interests by provoking defections from and conflict within the dealer alliance. To do this the Commission must make rules that encourage the weaker dealers to grow market share at the expense of the stronger ones in order to preserve their overall profitability.

There is good reason to believe that this is possible. For one thing there is a historical precedent for moving an entire over the counter bi-laterally cleared market onto exchanges backed by a CCP. This involved sweeping changes in the market structure and massive shifts in market power between incumbents and new entrants largely to the benefit of end users. Though one might think of the exchange and CCP businesses as natural monopoly businesses given their high fixed and low marginal costs, there is evidence for effective competition between exchanges in the US and among CCPs overseas. For another, the massive concentration of CDS volume in the top three firms, though the result of the scale economies inherent in the CDS, is nonetheless unstable, particularly in a world in which the margins in the product are under pressure. This instability dovetails nicely with the objectives of the Dodd-Frank Act, because the ideal weapon for the weaker dealers to use against the strong is a combination of Swap Execution Facilities (SEFs) and CCPs. SEFs and CCPS play to the strengths of the weak and undermine the advantages of the strong. For this to work, the Commission must be forward thinking and focus on second and third order effects of the rules it promulgates as part of the Dodd-Frank implementation.

The CBOE Precedent

The most relevant precedent for the current undertaking is the transformation of the US equity options market in 1973. In April of that year the Chicago Board Options Exchange (CBOE) listed options cleared by the Options Clearing Corporation (OCC). Then in the May-June issue of the *Journal of Political Economy* Fischer Black and Myron Scholes published their famous paper on option pricing,

“The Pricing of Options and Corporate Liabilities.” These events combined with geometric increases in computing power are credited with creating the options industry that we know today. People often forget that there was an options market at all prior to 1973. There was such a market and the transformation of that market into the one we know today holds important lessons for the task at hand.

Prior to 1973, the single stock option market was dominated by groups called “Put-Call Brokers” who dealt with their largely retail clients on a bi-lateral basis. This was a pre-Black/Scholes world where perfected hedging was not possible, so the brokers relied on put-call parity or estimation. Thus the best way to hedge their options exposure was with other options. Given an expensive and uncertain hedging strategy, the preponderance of retail clients, and the opacity of a bi-lateral negotiated market, the bid offer spreads on options were extremely wide. While there was some competition between the put-call brokers, it was mostly competition by marketing rather than by price. Given the bi-lateral nature of pricing, it was expensive and time consuming to check multiple brokers so the focus was on relationship management rather than price improvement. In general, the put-call brokerage business was highly profitable, if highly variable. Remember also that at this time not only the put-call brokerages but all other non-bank financial institutions were private partnerships. Given the high variance in option prices, significant risks were being taken by the partners themselves and they each sought to margin their clients very conservatively. While this differs from the behavior of the shareholder owned dealers, with respect to an opaque bi-lateral trading and clearing regime this is an excellent analog to the current state of the CDS market.

The events of 1973 upended this whole structure. The Black-Scholes equation greatly increased the precision and lowered the cost of hedging options, which in turn lowered the spreads necessary to charge the clients in order to make the business profitable. It may have been that the brokers would have competed somewhat more aggressively on price. However, given the opacity of the privately negotiated bi-lateral market, they might have concealed the cost advantages and reaped a windfall. Put-call brokerage might have entered a golden age. This, of course, is not what happened. Instead the market structure revolution of the CBOE/OCC combination obliterated them.

The CBOE was created by the largest futures exchange at the time, the Chicago Board of Trade. The market structure of the futures market was significantly different from that of the stock market. The stock market was dominated by the specialists on the New York Stock Exchange. The specialists were charged with “maintaining a fair and orderly market” and to do so were given privileged access to the order-book. This conferred a significant information advantage on them, and though there were other traders involved, market making was essentially a monopoly of the specialist and was therefore a highly lucrative business. The futures industry by contrast was an “open outcry” system wherein every product listed on the exchange would have a “crowd” of independent local market makers who would compete with each other on price for all the order-flow that came into the pit. Thus in the futures industry, there was a legacy of stronger price competition. That legacy was carried forward by the CBOE.

The competitive quoting market structure of the CBOT was enhanced, indeed enabled, by the centralized clearing infrastructure of the futures industry. Unlike the securities industry, which used bilateral settlement and a physical exchange of checks for securities until the creation of the forerunners of the DTCC in 1973, the futures industry had been using “Ring Clearing” (a form of multiple counter-party netting) since 1883 and had graduated to the independent Clearing Corporation in 1925. (Interestingly, the CBOT Clearing Corp survives and is now the infrastructural backbone of

the ICE Trust). The CBOT foray into options via the CBOE brought this combination of competitive quoting and the central clearing to the securities industry for the first time. Its effect was revolutionary.

The market structure which developed on the CBOE was heavily influenced by that of its parent the CBOT. Each option class had multiple market makers who competed for institutional flow on price in an open outcry format, and who took turns executing against retail orders that came over the wire. There was an analog to the New York specialist system in the form of the “Designated Primary Market Maker” or DPM who was charged with maintenance of an orderly market. Unlike the general market maker population who could roam the floor to find the best action, the DPM had to make continuous two sided prices in his list of stocks day in and day out. The primary advantage was a preferential share of the flow in return for being the market maker of last resort. DPMs also had access to the order book but in options which have dozens of strikes, this was of less value than in the stock market. The DPMs were “first among equals,” but unlike the NYSE specialist, they did not wield dominant power.

Supporting open outcry trading was a futures-style clearing system without which the achievement of the CBOE would not have been possible. Exchanges are by their nature high fixed cost, low marginal cost businesses, and thus to survive they must garner enough market confidence and acceptance in order to draw enough volume to support those fixed costs. A key element in gaining that market acceptance, especially in products with significant implicit leverage, is the security of the clearing system. The OCC established uniform contract specifications, wrote rules for standard adjustments for corporate actions and dividends, established uniform margining rules and became the counter party to every contract traded. Great care was taken to instill market confidence in the OCC. For example, US listed options are American style. This is an operationally onerous and economically dubious feature put in place by the OCC to give comfort to potential users. If end user clients lost confidence in the OCC as a counter-party they could simply exercise their options and eliminate their exposure to the OCC altogether. Naturally, the scale economies inherent in central clearing were such that as other options exchanges were formed, they all joined the OCC rather than each becoming a vertically integrated exchange-clearinghouse.

The CBOE, vertically integrated with the OCC, gave rise to a collection of specialized option market making firms. Since the OCC effectively aggregated the balance sheets of all the members and guaranteed all their trades, the market makers were able to conduct business on a much larger scale than the legacy put-call brokers. Additionally, by creating a central pricing venue the CBOE enabled the segregation of the trading and marketing function. The specialized market makers focused on enhancing their internal risk management and pricing tools, and they competed with one another on price in the open outcry market structure. The quotes the market makers published allowed them to advertise their desire to trade to all market participants simultaneously rather than individually to each potential counter-party. In parallel, the retail and institutional brokerages took on the role of engaging individual end user clients. This was cost effective because they simply added options as an additional product along with their core stock and bond businesses. They focused on facing off against the clients and brought flow to the exchange where they auctioned it off among the market makers.

This was in stark contrast to, and ultimately fatal for, the bi-lateral put-call broker model. They had been vertically integrated, performing both the marketing and the trading functions, and each had only its own balance sheet on which to rely. These vertically integrated firms could not compete with the scale trading acumen of the market makers or the marketing scale of the traditional full service brokers. Additionally, since all the put-call brokers were privately held, and relied on the New York securities

style bi-lateral clearing arrangements, they had to very conservatively margin their clients which limited the amount of leverage they could extend to their clients. The OCC in contrast operated on a massive scale and aggregated up the balance sheets of all the market makers. As a result, the OCC was in a better position to extend leverage and drew flow away from the put call brokers. This combination of balance sheet aggregation by the CCP and of specialization of trading and sales through the use of the CBOE as a central pricing venue had the effect of transferring the operational efficiencies enabled by Black-Scholes to the end user clients.

The implications for Dodd-Frank

I believe the CBOE analogy can be very helpful in informing the current rule making process. The world of the pre-1973 put call brokers is very similar to the current state of the CDS market. The product itself is well defined but not standardized enough to be fungible. All the pricing and virtually all the clearing is bi-lateral between the dealers and the end users. As a result, the pricing for CDS is relatively opaque and that opacity serves the dealer interest in maintaining margins. The dealers compete with each other but on the basis of marketing and relationships rather than on price. Additionally, the CDS market is similar to the pre-Black-Scholes options world in that, while there was not a perfect pricing formula for the instrument, nonetheless it was ripe for market structure change. When considering the CDS markets of today, the option markets of yesterday are very helpful.

The pre-CBOE world is not only interesting for its similarities with the CDS world of today but also for its differences. Importantly, the options market never created the level of systemic risk that the CDS market has. The CDS has become an essential risk management tool in the banking system and thus has drawn far more regulatory attention. Also, the CBOE/OCC was a private sector initiative that did not require government intervention to initiate. It is a reasonable question to ask why such a private sector initiative has not already come to pass. This is a complicated question but it comes with a relatively straightforward answer. As I have illustrated, the market power of the dealers is great and pervasive. There is quite simply no potential entrant or collection of entrants who could challenge their hold over the market. If a CBOE-style market structure revolution is to occur, the regulators must first lay the groundwork.

The CBOE analogy also illuminates the dealer strategy for maintaining their market preponderance into a post Dodd-Frank world. The Dodd-Frank Act is very explicit in its desire to establish SEFs and CCPs for OTC derivatives. Just as the many of the advantages of the CBOE derived from the existence of the OCC, so too will it be impossible to establish a successful SEF without a CCP. Therefore the dealers have set out, successfully, to capture the CDS CCPs. In this way they can exert substantial influence over the SEFs. Indeed, given the language of the Dodd-Frank Act, whether a product is eligible for mandatory execution is dependent on whether a CCP has agreed to clear it. Furthermore, the Act does not allow anyone but the CCP to decide what it will clear even if the product is mandated for clearing. The Dodd-Frank Act does mandate open access to the CCPs but as the ICE Trust has shown, this “open access” can be very much in the eyes of the beholder. It is not difficult to erect membership requirements that are superficially reasonable but are, in effect, preemptively anti-competitive. Perhaps it is a coincidence that the only firms both in possession of \$4 billion in tangible common equity and willing to make a substantial contribution to the reserve fund are the dealers themselves; perhaps not.

Finally the CBOE analogy illustrates what it takes for an SEF/CCP infrastructure combination to have a decisive impact on the incumbent market structure. The mere existence of a CCP that clears CDS is not enough. The CDS CCP market as it stands is not enough. The ICE Trust is dominant and all CCPs have been captured or co-opted by the dealer alliance. A decisive CCP must be configured in such a way that a group of market participants can use it to their advantage at the expense of the incumbents. In the case of the CBOE, that group was the newly formed option market makers, and the market structure outcome effectively transferred the benefits of Black-Scholes to the end-users. In the post Dodd-Frank world, a decisive CCP would empower the smaller dealers and perhaps ultimately new entrants to take on the market dominance of the top few dealers. This, and only this, would have the effect of reducing systemic risk. This leads to three questions: 1.) What are the competitive pressures within the dealer community which can be used to turn the dealer alliance against itself? 2.) What configuration would a SEF/CCP require in order to optimally exploit those pressures? and 3.) What can the SEC do in the rule-making process to facilitate this?

The dealer alliance has historically been very robust. The root of this is the incentive structure in which the managements of the CDS trading units operate. They are charged with increasing trading revenue and minimizing the variance of that revenue. Since its inception nearly twenty years ago, the CDS market has experienced remarkable growth every year. This has meant that the dealers have had only to preserve their margins and their market shares in order to achieve the objectives their managements have set. Additionally, given the market power conferred on the top dealers by the nature of the product itself, there has been little incentive attempt to grow share by aggressive pricing. For one thing, this would have the effect of compressing margins, and in the event that the large dealers retaliated by limiting access to their flow, could produce substantial revenue variance. This has had an interesting effect. The larger dealers with access to greater amounts of end-user flow have charged the end-users retail spreads and then sourced the risk wholesale from the other dealers. This is why the dealer alliance has been stable historically. Today, however, both the macro and the micro sources of this stability are under threat.

From a macro-perspective, the pace of CDS market growth has slowed substantially. It may well pick up again as the effects of the crisis subside, but the days when the dealers could simply rely on a rising tide to carry all boats may be gone for good. In addition, the margins in the fixed income business generally have been slipping. This effect has been somewhat masked by the rebound in asset prices since the 2009 market lows, but it may also be a persistent feature of the fixed income markets going forward. You can see some evidence of this in the recent earnings reports and in the increased focus on equities and investment banking at many of the dealers.

On a micro level, the concentration of half the volume in the top dealers has always been unstable, but this and the combination of the Dodd-Frank Act and the associated rule-making have the potential to turn that instability into real change. The Lincoln Amendment should have the effect of evening out the playing field by removing bank capital from CDS trading units and putting the dealers on a more level playing field. Additionally, the smaller dealers, on account of their reduced access to end users and their reliance on the top dealers for risk limiting flow, have already been competing on price to a greater extent than the larger dealers. As a result, they have more to gain and less to lose in a market structure change which would shift the field of dealer competition from relationships to price. As long as they believe that if they stick together they can preserve margins, the dealer alliance should hold. If they believe that the margins will inevitably decrease, the smaller dealers may find the incentives to defect from the dealer alliance irresistible. The SEC should try to make the creation of infrastructure

which would empower them at the expense of the larger dealers appear inevitable. This should alter their strategic calculus and encourage them to defect from the alliance.

Such an infrastructure would have similar features to that of the 1973 CBOE/OCC combination. It would involve a CCP which had straight through processing (STP) and contracts standardized to the point of true fungibility. It would have risk and margin requirements that were competitive with those of bi-lateral clearing, and it would have a default cascade that was clear and would have the effect of aggregating the balance sheets of the smaller dealers. STP and fungibility would facilitate anonymous trading which would encourage defections among the dealer alliance. Competitive margin and effective balance sheet aggregation would level the playing field between the bi-lateral market dominated by the dealers and CCP clearing where best price is the primary determinant of who wins the trade. Such a CCP would confer substantial advantages on SEFs and, through them, on the weaker dealers.

The opacity and high search costs have historically worked against the end-users and in favor of the dealers. For the weaker dealers, however, they are a double edged sword because they have the effect of increasing their reliance on the stronger dealers for flow to hedge their CDS books. Pre-trade price transparency on a SEF would help the weaker dealers by providing them a central marketplace on which to garner CDS flow to help them mitigate the risks of their outstanding CDS positions. They could do this simply by posting aggressive prices on the SEF which would serve as an advertisement to everyone with access to the market data of that SEF. In an anonymous trading environment, such a dealer is not at risk of disclosing his position or his identity, either of which could be used against him by an aggressive competitor seeking to maintain the discipline of the alliance. This would also have the result of passing some of the scale economies of the CCP on to the end-user community. Given the recent changes in the macro and micro economic environment, quite apart from the regulatory changes, there is a real opportunity for the SEC to use the objectives of the Dodd-Frank Act to drive a wedge between the weaker and stronger dealers to the benefit of the market as a whole.

Given its mandate, the SEC may seek to empower the end-users at the expense of the dealers but such an effort is doomed to fail. The market power of the dealers, if united against the end users, is so pervasive and so deeply rooted that it cannot be effectively legislated against without doing real damage to the market itself. To do so would require that the SEC extend its mandate under the Dodd-Frank Act to include making explicit rules for ISDA, prime brokers, DCMs, Markit, and other third party infrastructure vendors. This would be a geometrically more complex task than the already complex task before it. Instead, the SEC should seek to turn the market share imbalance inside the dealer community against the dealer alliance as I have outlined. This may require some counter-intuitive thinking. For example, it may be tempting to limit the ownership of SEFs or CCPs by dealers as a way to insure their independence. This would complicate efforts by dealers to defect from the dealer alliance by joining or setting up independent CCPs, and it would cement the misalignment of interests between the dealers and the end users. Similarly, efforts to promote transparency through the reduction of trading anonymity would have the effect of unmasking potential defectors from the dealer alliance with results that would be counter-productive to the objectives of the Dodd-Frank Act.

The position of the SEC is complicated by the fact that its deliberations are not taking place in a vacuum. The dealer capture of the CDS CCPs is an accomplished fact and is not easily reversible. Thus the SEC should focus on lowering the barriers to entry for other CCPs and liquidity providers. It should not consider the current CDS CCPs a competitive space, the ICE Trust is completely dominant. This need not be a permanent state of affairs. If the dealers can be convinced that their control of the

CDS CCPs will be constantly challenged by new CCP entrants, then the weaker dealers are more likely to defect. Given the experience of the US, where we have the CME Clearing Corp, the DTCC and the OCC, all as virtual monopolies, it might seem that the CCP business is a natural monopoly business. This is not necessarily the case, as can be seen in Europe. In 2007 Fortis Bank started The European Multilateral Clearing Facility(EMCF) as the CCP for Chi-X. Today EMCF serves seven multilateral trading facilities with access to 19 European markets and is among the largest CCPs in Europe, this from a standing start four years ago. The technical barriers to entry for starting a new CCP have fallen substantially, the SEC should ensure that the legal and regulatory barriers are as low as possible in order to encourage more to form.

It is my view that the debates over the governance of the extant CCPs address a symptom, not a cause, of the preponderance of the dealer alliance. The deeply rooted market power of the dealers presents a powerful challenge to the Dodd-Frank Act. Given the concentration of power in the hands of the dealers, efforts to empower the end users by fiat will fail. Therefore the SEC needs to turn the dealers against one another. The Dodd-Frank Act enables the SEC to help the weaker dealers build tools with which to attack the strong. The best historical example of this is the launch of the CBOE and the resultant changes to the options market structure in the US. The SEC should write rules that encourage the formation of so many entrants into the CCP space that the dealers cannot capture them all and they have no choice but to fight each other for market share by using that very infrastructure which favors the weak against the strong.

Thank you for your time and consideration and for the opportunity to comment on the important task before the SEC.

Very truly yours,

Kenneth A. Monahan