DISCUSSION PAPER

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The Brattle Group

Losing Money to Increase Profits:

A Proposed Framework for Defining Market Manipulation

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Contents

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A clearer definition of market manipulation would have significant benefits for market participants and regulatory agencies. We have proposed a definition that would reduce the uncertainty and burden for enforcement agencies and the internal compliance divisions of market participants. Its application would also improve market efficiency and liquidity by providing a framework for evaluating manipulative behavior that is uniform across cases, agencies, and statutes.

Introduction

In comments filed with the Commodity Futures Trading Commission (CFTC) in response to the Notice of Proposed Rulemaking (NOPR) on Market Manipulation, we proposed a practical and intuitive definition of manipulative behavior: intentionally losing money on transactions that set (or make) a price to benefit the value of related positions that tie to (or take) that price. This definition is supported by a straightforward economic model that demonstrates the mechanics of how a market manipulation can be defined, analyzed, and detected or refuted.

We believe that adoption of our proposed definition would provide market participants and regulators an improved standard by which to identify behavior that may violate the CFTC's anti-manipulation rules. Moreover, because the Securities and Exchange Commission (SEC), Federal Trade Commission (FTC), Federal Energy Regulatory Commission (FERC), and CFTC anti-manipulation rules now have similar statutory language, use of this definition could serve to harmonize enforcement actions across agencies. In turn, this would promote certainty with respect to the legitimacy of trading activities and increase the liquidity of the markets over time.

Because our proposed approach recommends the separate quantitative assessments of intent and artificial price, our definition supports legal and economic analyses under the fraud-based anti-manipulation rules, as well as the historical standard of analysis based on demonstration of an "artificial price." Separation of these analyses provides a clearer path to proving or disproving manipulation claims, and isolates the analyses needed to litigate damages in private actions based on the anti-manipulation statutes of the CFTC, SEC, and FTC.[2]

Section 1 DODD-FRANK AND THE CFTC'S ENFORCEMENT AUTHORITY OVER MARKET MANIPULATION

Prior to the passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank)[3] in July 2010, the legal standard for proof of a market manipulation under the Commodity Exchange Act (CEA) required demonstration that the alleged manipulator *intentionally* caused an artificial price in the market. As CFTC Commissioner Bart Chilton pointed out in March 2010, this standard is so nebulous that the CFTC has successfully prosecuted only one case in the past 35 years.[4] Dodd-Frank attempts to resolve this issue by adding "fraud-based" language to the CEA, similar to that used in the anti-manipulation statutes and rules of the SEC, FERC, and FTC.[5]

The fraud-based statute allows the CFTC to prove a manipulation by showing that the accused used a jurisdictional transaction to execute a manipulative scheme with the requisite scienter (intent). It also allows the CFTC to rely upon precedent built by successful anti-manipulation actions brought by the SEC under its fraud-based anti-manipulation rule 10b-5, and, perhaps more importantly, to avoid the need to demonstrate the existence of an artificial price. However, because the new fraud-based language adds to the existing anti-manipulation statute of the CEA, the CFTC can now pursue enforcement actions under two alternative standards of proof: one based on outright or transactional fraud[6] and the other based on the concepts of interference with the legitimate forces of supply and demand, as well as the creation of (or the attempt to create) an artificial price.[7]

Although the addition of the fraud-based standard to the CEA should enable the CFTC to identify manipulation and bring enforcement actions more easily, it is unlikely to provide solace to market participants that seek regulatory certainty as to what behavior (outside of patently fraudulent acts) may be deemed manipulative. In part, this is because the analysis historically used in SEC cases tends to channel behavior into specific categorical types of manipulative transactions (for example, "wash trades," "framing the open," or "marking the close").[8] From a behavioral perspective, the resulting precedent provides unclear guidance as to what other behavior might be considered a market manipulation, possibly complicating compliance efforts. The result may be the unintended but significant chilling of legitimate trading activity given concerns of potential liability under the artificial price standard.

In its NOPR on the Prohibition of Market Manipulation,[9] the CFTC sought public comments as to how its proposed rules would address cases brought under the new fraud-based standard (17 CFR §180.1) and the original artificial price-based standard (17 CFR §180.2). In addition to characterizing the fraud-based language as a "broad, catch-all provision" covering "intentional or reckless conduct that deceives or defrauds market participants,"[10] the NOPR added the somewhat confusing statement that *attempt* would be recognized under §180.2 as well as §180.1.[11] This raises the question of how the artificial price standard of §180.2 would apply when no artificial price needs to be proven.

Many that submitted comments to the NOPR requested that the CFTC clarify the behavior that constitutes market manipulation under these proposed rules.[12] The call for clarity was expressed by parties otherwise on opposite ends of the spectrum concerning the expansion of CFTC authority. Specifically, parties seeking containment of the CFTC's authority advocated restricting manipulation analyses to instances of behavior that are "extremely reckless" or that involve the specific intent to manipulate.[13] By comparison, those seeking to broaden the CFTC's anti-manipulation authority asked for an expansion of the definition of manipulative behavior under the statutes.[14]

Section 2 COMMENTS TO THE CFTC'S NOPR ON MARKET MANIPULATION

The comments we filed were intended to provide the analytical clarity sought by many NOPR commenters.[15] Therein, we proposed an intuitive definition of market manipulation that is based on an economic framework applicable across cases, statutes, and agencies (given that the SEC, FERC, and FTC also have fraud-based statutes). **By this definition, a market manipulation occurs when a market participant intentionally loses money on anomalous transactions that set prices in order to benefit the value of its related positions that tie to that price.**

The elements of proof associated with this definition are straightforward:

(1) prove the actor lost money on price-making transactions;

(2) prove that this loss was intended to move a price and was not incurred accidentally or for a legitimate business purpose; and

(3) prove that the loss benefitted the value of the actor's price-taking positions that tie to the targeted price.

As discussed further below, this definition is consistent with *both* standards of proof presented in the CFTC NOPR because proof of these three elements satisfies the fraud-based requirements of §180.1 and the requirements of attempted manipulation under §180.2. Proof of an artificial price, and calculation of the difference between the artificial price and the "but for" competitive price, is required only to prove damages (as in the case of private actions to redress harm from the manipulation) and to bolster proof that the behavior in question was intentional.

This definition of manipulation is supported by microeconomic theory, as demonstrated in a paper by Dr. Shaun Ledgerwood that was submitted to the CFTC with our NOPR comments.[16] The paper presents a straightforward framework designed to explain loss-based manipulative behavior as the product of price-making transactions executed purposely to misrepresent the value of the item traded "to benefit" the manipulator's price-taking positions. Because the framework characterizes fraud as the willingness of a trader to set prices such that it intentionally incurs losses in those price-making trades, the proof of manipulative intent is simplified. If the losses incurred on the price-making trades are shown to serve no legitimate business purpose except to enhance the value of other positions held by the trader, a manipulation can be proven by demonstrating a nexus between the losing trades that triggered the manipulation and the price-taking positions that were the manipulation's target.

Nevertheless, difficult questions remain. Current hedging and risk management practices will also complicate the picture. Hedging necessarily involves investments designed to gain precisely when losses would be expected in other positions exposed to a particular risk.[17] Under enterprise-wide portfolio risk management, transactions may be executed not to hedge any specific position, but rather to balance exposure to certain kinds of losses seen in the overall portfolio of holdings. Such transactions might often occur as commodity contracts approach expiration and may even be implemented through computerized trading programs executed without human intervention. Transactions involving losses in specific markets may also be driven by such factors as credit or the desire to prevent further losses. Given the uncertainty in commodity markets, such activities may reflect legitimate business purposes, yet *ex post* analysis could frequently snare them in screens seeking trading patterns consistent with manipulation. Therefore, screens for this behavior must be carefully designed and applied.

As summarized in Figure 1, proof of these elements satisfies the requirements of the fraud-based anti-manipulation statutes of the CFTC, SEC, FTC, and FERC, as well as the new attempt language of §180.2. This is sufficient to support the levying of civil penalties by an enforcement agency, but not to support a showing of damages by (or on behalf of) a private litigant. Proof of damages requires the measurement of the distortive effects of the artificial price, as is required by the original language of §180.2.

Figure 1 Summary of the Elements of Proof Required under the Fraud-Based Standard of §180.1 and the Artificial Price Standard of §180.2

Element of Proof:	§180.1 (and Similar)	§180.2 (Attempt)	§180.2 (Original)
Intent (Scienter)	Required (Loss in Trigger)	Required (Loss)	Required (Loss)
Ability (Device/Scheme)	Required (Nexus)	Required (Nexus)	Required (Nexus)
Artificial Price	Not Required (Damages Only)	Not Required	Required
Causation	Not Required (Aids Scienter)	Required (Nexus)	Required (Nexus)

The definition of manipulation and associated economic framework we propose operates on the principle that a manipulator strategically incurs losses to cause a price movement that benefits its broader portfolio. By necessity, this approach excludes manipulations caused by outright fraud (such as false reporting), wherein the manipulator induces others to place the price-making trades (and thus incur the associated losses) that effectuate the manipulation. This does not mean that the framework is not instructive for understanding such manipulations; to the contrary, because the only difference between the cases is who incurs the losses, the framework informs the detection and analysis of market manipulations induced by outright fraud as well. However, the detection of such fraud will typically be assisted *ex post* by the victims that were duped into losing money on the triggering transactions. By comparison, loss-based manipulations can be accomplished in relative stealth because the manipulator bears the triggering losses as part of its overall scheme.

Section 3 EXAMPLES OF LOSS-BASED MARKET MANIPULATION

One colorful example of a loss-based market manipulator is a pool hustler. Hustlers execute their "market manipulation" by losing money up front to bait their marks into playing for a much higher wager in a subsequent game. If the hustler succeeds, the mark accepts the higher wager and is then beaten by a deceptive and superior opponent. This paradigm is duplicated in other types of loss-based market manipulations, where the triggering loss is incurred in a market linked to the targeted gain. Another example of such loss-based manipulation strategies is described in the sidebar "Manipulation of a Condominium Market," wherein a real estate index is targeted to manipulate a condominium market.

Note that by incurring the losses associated with the trigger in advance of executing the targeted benefiting transactions, the manipulator accepts considerable risk. In the pool example, the hustler's mark could leave before the scam is completed, or the mark could itself be a shark seeking to bait the hustler into a high wager game. Similarly, the condominium manipulator (see sidebar) could face an unexpectedly large increase in the liquidity of the index such that the impact of its trigger is muted. Alternatively, scarcity could emerge during its purchasing binge that results in trades at premiums to the index that erode the profitability of its manipulation. However, as our economic framework demonstrates, the manipulator evaluates these risks before investing losses in the trigger, such that the profitability of the overall scheme can be maximized.

Manipulations can also be triggered by losses incurred contemporaneously with or subsequent to gains in the targeted related positions. For example, the price-making transactions of Amaranth Advisors, LLC, which allegedly triggered the manipulation of the NYMEX natural gas futures contract settlement price, simultaneously lost money on a stand-alone basis and increased the value of their short futures, swaps, and options positions.[18] Compare this to a market "corner" and "squeeze", wherein the manipulator makes large price-making purchases to create a shortage on the front end of the manipulation to artificially raise prices. The manipulator then profits by selling at the inflated prices, ultimately causing the market price to fall. The decline in price may fall below the purchase cost of some units the manipulator paid for to initiate the scheme. In such event, the manipulator loses money on whatever units it sells for a loss or has left at the end of the manipulation.

A manipulator may take a sizable risk in setting up its scheme, as evidenced most dramatically by the ultimate demise of Amaranth due to an unfavorable price movement to the detriment of its substantial derivatives positions. However, the economic framework we propose explains all such behavior as the rational act of profit maximization across a portfolio of transactions, with some trades resulting in losses and providing false information as to the value of the item traded to benefit other price-taking positions. This ultimately results in a decrease in market efficiency.

Manipulation of a Condominium Market

Assume two bedroom condominiums are currently selling for around $500,000, as measured by a website index that tracks comparable sales over a rolling 30-day period. There are many units for sale, all about the same and offered at prices around $500,000. If you owned a similar condo and wanted to sell it at a price above market ($700,000, for instance), you would be unlikely to have a successful sale. This is because your ability to raise the price significantly above the competitive price is constrained by the other sellers in the market, a hallmark of effective competition and a check on market power.

Compare this to a scenario where you offered your condo for a price *significantly below* market ($100,000, for example). Such an offer would be immediately snapped up, the buyer walking away with a windfall while you incur a loss (relative to your opportunity cost) of around $400,000. This demonstrates a point essential to understanding a loss-based manipulation: the further you are willing to drop your offer below the competitive market price, the greater the likelihood that you will effectively face no competition from other sellers. The same principle will hold for buyers that bid at prices above the competitive equilibrium, underscoring the point that market participants do not need market power to successfully execute trades (and therefore post prices) in a manner that injures their stand-alone self-interest.

These uneconomic trades can enable the execution of a manipulation. Assume the $100,000 sale of your condo lowers the average (index) value of condos sold to $480,000. If other sellers rely upon the index price for evaluating the market value of their condos, they will lower their prices in response. You then buy 25 condos for $480,000 each, with each purchase made at the index price (i.e., as a price taker). By willingly taking a loss of $400,000 on your initial sale, which in turn tanked the index, you saved $500,000 across the 25 condos ($20,000 each) that you ultimately purchased, netting yourself a $100,000 gain. By our proposed definition, this is a market manipulation because a price-setting transaction was intentionally used for the sole purpose of benefiting a price-taking position.

Section 4 INEFFICIENCIES CREATED BY MARKET MANIPULATIONS

Some may argue that there is nothing wrong with the behavior that we have identified herein as manipulative. They contend that such behavior is consistent with the functioning of a competitive marketplace, that other market participants are free to replicate or reverse such outcomes in the presence of sufficient liquidity, and that the net societal effect of all associated transactions is consistent with a zero sum game. However, the market prices determined and relied upon after a manipulation result not from a competitive exchange reflecting supply and demand, but rather from the willingness of a party to execute an artifice to its own advantage. The resulting transfer of wealth to a manipulator occurs not due to superior business acumen, but due to the purposeful misrepresentation of the value of the asset traded. Further, to allow a manipulator to profit from purposeful loss-based behavior would reward the creation and exploitation of moral hazard, akin to condoning arson by an over-insured homeowner.

As the example of a pool hustler suggests, a market that allows hustlers to operate unchecked will ultimately drive most legitimate players from the market, leaving nothing but hustlers to attempt their "market manipulations" against each other. A parallel outcome may result in "exempt commercial markets," wherein large, sophisticated market participants operate without many of the regulatory supervisions that are standard in other commodities markets under the assumption that fierce competition will negate manipulation concerns.[19] Unfortunately, lack of oversight and imperfect competitive environments make it possible that these participants can intentionally move the prices of underlying assets to benefit the values of their derivatives portfolios. This creates uncertainty in the value of the physical commodities, ultimately resulting in lost market liquidity, higher hedging costs due to greater price uncertainty, an increase in search costs for price validation, and an increase in bid-ask spreads within and across markets.[20]

The skew in asset values that result from a manipulation can linger well beyond the time frame of its execution. For example, consider the aftermath of the condominium example. After the manipulator is finished, a total of 45 transactions will have posted to the index to reinforce the market price $20,000 below the price *ex ante* the manipulation. While these transactions will ultimately fall off the index, the sales that replace them will face the implied presumption that the established average price is a factual representation of fair value, causing the wealth transfer to continue to pass from sellers to buyers as long as the effect persists. This is also true across discrete clearing periods, such as during settlements arising from one hour to the next or across bidweeks. If the misinformation carries from one settlement period to the next, the fraud may continue to distort valuations and lead to protracted market inefficiencies.

Section 5 PROPOSED DEFINITION AND FRAMEWORK: IMPLICATIONS FOR LEGAL PRACTITIONERS

Post Dodd-Frank Transactions Under the Jurisdiction of the CFTC

As demonstrated in Figure 1, the legal burden of proof under the traditional CEA artificial price standard requires that the CFTC satisfy a four-pronged test:

(1) that the accused had the ability to influence market prices,

(2) that they specifically intended to do so,

(3) that artificial prices existed, and

(4) that the accused caused the artificial prices.[21]

However, proof of an artificial price is often a complex effort requiring expert testimony to determine a "but for" competitive price against which the "artificial" price is measured. Because tailored econometric analyses are often required for this task, the results produced are unique to each case. Worse yet, the results could be perceived as a "black-box" outcome in a battle of the experts, and therefore of limited value in setting precedent. This process provides a legal practitioner with little advance guidance on advising a client as to the types of behavior that could draw scrutiny by the CFTC or empower a private litigant suing for damages under CEA §25.

By comparison, the CFTC's burden of proof under the new fraud-based statute is simpler. The Commission must prove that:

(1) a manipulative or deceptive device or contrivance was used,

(2) with the requisite scienter, and

(3) in connection with transactions jurisdictional to the CFTC.[22]

In the economic framework we propose, proof of scienter is derived from the actor's willingness to incur losses in price-making transactions to manipulate a price that benefits its related price-taking positions. Likewise, proof of the nexus between the triggering trades and targeted positions confirms the manipulative device used to execute the manipulation. This is consistent with our proposed definition of loss-based manipulative behavior, as the legal burden of proof matches the elements of our definition. Note that parties accused of manipulative behavior will retain the affirmative defense that the triggering transactions served a legitimate business purpose outside of the alleged manipulation. The practitioner and its clients will benefit from this simplified approach, as the focus of compliance will emphasize the avoidance of trades that serve no purpose but to move prices for the exclusive benefit of related price-taking positions.

If the NOPR language holds, meeting the burden of proof under §180.1 should also be sufficient to meet the burden of proof associated with an attempted manipulation under §180.2 because the proof of a successful price movement (i.e., artificial price) is unnecessary. This is not meant to imply that proof of artificial price is irrelevant to cases brought under the fraud-based §180.1. To the contrary, proof of an artificial price bolsters evidence of scienter and is a requirement for the measurement of damages in cases brought by the CFTC or private plaintiffs under §25 of the CEA. In enforcement actions, where the goal is less to compensate plaintiffs than to motivate compliance by levying civil penalties, it may be desirable for the Commission to separate proof of the manipulation's existence from its effect, much like the liability and damages phases of a civil action or criminal cases wherein the culpability and penalty phases are bifurcated. Similarly, the practitioner may find value in the option to selectively bifurcate analyses of artificial price and culpability if such evidence advantages their client.

Transactions Under the Jurisdictions of the FERC, SEC, and FTC

In addition to providing greater certainty across cases tried by the CFTC, the adoption of our proposed definition would systematize the analysis of manipulative behavior across the four enforcement agencies with anti-manipulation authority. The economic framework we offer meets the burden of proof under any 10b-5 equivalent rule and is therefore equally applicable to any action brought under the fraud-based rules of the SEC, FTC, FERC, and CFTC. Market participants will benefit from the resulting certainty and consistency, as will the practitioners who can unify their practice areas to support a common framework for compliance. However, litigation concerning issues of fact will continue given this framework, as proof of intent will remain a contentious subject.[23]

Conclusion

Toward a More Definitive Process for Evaluating Market Manipulation Cases

At present, market manipulation remains a poorly-defined and misunderstood phenomenon. The confusion is worsened by erroneous perceptions that the analysis of manipulative behavior is a binary exercise requiring either the identification of an overt misrepresentation, scam, or lie that is fraud; or a quest to find an artificial price resulting from an exercise of market power.[24] Certainly, an exercise of market power can assist a manipulation, such as might occur in cases of predatory pricing. However, the main precursor for the ability to successfully manipulate markets does not necessarily rely on the control of a large market share, but rather in the ability to capitalize on loss-based movements in prices affecting linked asset values. The manipulator's willingness to incur losses is the reason why such behavior is appropriately actionable under a fraud statute. The manipulator imposes losses on traders in the price-making market (through the introduction of an uneconomic price), and on the counterparties of the price-taking instruments (assuming their positions were taken without knowledge of the manipulation to come).

Through the statutory provisions of Dodd-Frank and the establishment of Rule §180.1, the CFTC joins the SEC, FERC, and FTC in sharing a common statutory requirement concerning the proof of manipulative behavior. The uniformity of the agencies' push to adopt such legislation denotes a clear desire to simplify the enforcement process required to evaluate such behavior. It also presents a substantial opportunity to create a uniform, multi-agency enforcement framework that minimizes regulatory arbitrage and provides certainty to market participants concerning the behavior that is prohibited under the statutes. However, the lack of a viable definition of manipulative behavior will frustrate such potential efficiencies. This will continue the need for tailored analyses that contribute little to developing useful precedent and perpetuate the "I know it when I see it" approach to manipulation analysis.[25]

The definition of market manipulation and associated economic framework we have proposed will help clarify the analysis of market manipulation. If adopted by the CFTC and other agencies, it would provide market participants with greater certainty concerning behavior considered legitimate under the statutes, and would likewise provide the agencies with a clearer mandate as to the types of behavior that merit intervention. Reduced uncertainty should improve compliance, maximize the impact of the Commissions' limited enforcement resources, and increase market participation and liquidity.

Endnotes

[1] The authors wish to express their gratitude to those who assisted with this paper: Dr. Paul Carpenter, Dr. Jim Reitzes, Dr. Peter Fox-Penner, and Mr. Hannes Pfeifenberger of *The Brattle Group*; Dr. Donald Murry of C.H. Guernsey and Company; and Mr. Matthew Hunter of the Federal Energy Regulatory Commission.

[2] Note that a private cause of action is not available under the FERC's market manipulation rule.

[3] P.L. No: 111-203 [July 21, 2010].

[4] Commissioner Chilton's remarks were made on March 23, 2010 to the Metals Market Investors group in Washington, DC. The "one successful prosecution" referred to is *DiPlacido v. CFTC* (2009 U.S. App. LEXIS 22692 [2d Cir. Oct. 16, 2009]).

[5] See 7 U.S.C. §6(c)(1) [2010]. The SEC's anti-manipulation rule is codified in 17 C.F.R. § 240.10b-5, arising under the authority granted in 15 U.S.C. § 78j(b) (2010). The FTC's rule is clarified in *Prohibitions on Market Manipulation, Final Rule* (16 C.F.R. Part 317 [2009]). The FERC's rule is at 18 C.F.R. § 1c.1(b) and § 1c.2(b).

[6] For discussion of the concept that transactional fraud falls within the definition of 10b-5 related statutes, see *SEC v. Masri*, 523 F.Supp.2d 361, 366 *et seq.* (SDNY 2007).

[7] The CFTC Notice of Proposed Rulemaking on the Prohibition of Market Manipulation specifies that the existing CEA standard based on the analysis of "artificial price" will be expanded to consider the attempt to create an artificial price. See 75 FR 67657, at 67661 (November 3, 2010).

[8] See *SEC v. Masri*, at 366 *et seq.*

[9] *Id.*

[10] *Id.*, at 67658.

[11] *Id.*, at 67660 (§180.1) and 67661 (§180.2).

[12] 46 sets of comments were filed. Available at: http://comments.cftc.gov/PublicComments/CommentList.aspx?id=895.

[13] For instance, see comments of Managed Funds Association filed 12/28/2010 ("the Commission should adopt a specific intent level of scienter necessary to violate its proposed Section 180.1, or the Commission should at a minimum impose an 'extreme recklessness' level of scienter"); Futures Industry Association et al., filed 12/28/2010 ("Extreme recklessness, not recklessness alone, should be the scienter standard under the Commission's proposed rule under Section 6(c)(1)"); Commodity Market Council filed 1/3/2011 ("The language of Section 753 is extremely broad … The 'I know it when I see it' approach is both constitutionally suspect under the due process clause and fails as a regulatory guidepost."); American Petroleum Institute and National Petrochemical and Refiners Association filed 1/3/2011 ("The proposed rule should require a showing of specific intent to deceive or defraud in order to manipulate a covered market"); Edison Electric Institute filed 1/3/2011 ("Proposed Section 180.1 Should Incorporate a Clearer Intent Standard"); CME Group filed 1/3/2011 ("The Commission Should Adopt a Scienter Standard that Requires, at Minimum, a Showing of 'Extreme Recklessness'"); and Hunton & Williams, LLP for the Working Group of Commercial Energy Firms filed 1/3/2011 ("Accordingly, the Working Group supports the Commission's adoption of a specific-intent scienter standard, but the Working Group respectfully recommends that the Commission refrain from applying a lesser scienter requirement, which embraces recklessness, to an offense that by definition requires specific intent.").

[14] For instance, see comments of Senator Carl Levin filed 1/3/2011 ("Traders suspected of placing manipulative or disruptive orders could also be required to demonstrate that their order activities (including excessive cancellations, if applicable) were not motivated by an intentional or reckless disregard for the orderly execution of transactions."); Coalition of Physical Energy Companies filed 1/3/2011 ("The Commission should make clear that the recklessness contemplated is not recklessness in a tort sense, but rather a business activity so divergent from rational market behavior as to indicate a fraudulent intent."); Air Transport Association of America filed 1/3/2011 ("The Commission should explicitly make clear that proposed Rule 180.2 is broader than the prior precedent and applies to conduct that indirectly results in a price that does not reflect the bona fide forces of supply and demand."); and Petroleum Marketers Association of America filed 1/3/2011 ("PMAA strongly supports the Commission's exercise of broad regulatory authority and believes that the CFTC, in relying on SEC Rule 10b-5, is cognizant of and more than capable of advancing its distinct regulatory responsibilities in insuring a transparent marketplace free from manipulation.").

[15] *Comments of Dr. Daniel Arthur, Dr. Romkaew Broehm, and Mr. Gary Taylor to the Commodity Futures Trading Commission Notice of Proposed Rulemaking Prohibition of Market Manipulation*, 17 CFR Part 180, Rin Number 3038-AD27, January 3, 2011. Available at: http://comments.cftc.gov/PublicComments/ViewComment.aspx?id=26909&SearchText=.

[16] Ledgerwood, Shaun D., *Screens for the Detection of Manipulative Intent*, December 19, 2010. Available at SSRN: http://ssrn.com/abstract=1728473. Note that this paper includes several possible screens that might be used to further advance the detection of manipulative intent.

[17] In the perfectly implemented hedge, gains and losses match exactly. In the real world, however, hedges may over or undershoot, resulting in gains or losses.

[18] Amaranth Advisors, LLC was a hedge fund management company alleged to have sold large volumes of natural gas futures contracts during the settlement periods of the March, April, and May 2006 NYMEX natural gas futures contracts. The trades were claimed to set the price of natural gas for the three contract months and were shown to have lost money on a stand-alone basis due to their sales in large volumes within short spans of time. Upon subsequent investigation by the FERC and CFTC, they concluded that the downward price movements caused by this behavior served to benefit Amaranth's large short financial positions that were price-taking to the affected NYMEX prices. The resulting manipulation thus allegedly created a contemporaneous loss and benefit for Amaranth, as the losing price-making transactions simultaneously enhanced the value of Amaranth's related price-taking positions. See *Order to Show Cause and Notice of Proposed Penalties, Amaranth Advisors, LLC et al.*, Docket No. IN07-26-000 (July 26, 2007), and *Initial Decision, Brian Hunter*, Docket No. IN07-26-004, (January 22, 2010).

[19] Formerly codified as CEA Section 2(h)(3)-(7).

[20] Note that § 723(a)(1)(A) of the Dodd-Frank Act eliminated exempt commercial markets. However, the CFTC has issued a NOPR grandfathering their continued operation until July 15, 2012. See "Orders on the Treatment of Petitions Seeking Grandfather Relief for Exempt Commercial Markets and Exempt Boards of Trade," 75 FR 56513, September 16, 2010.

[21] NOPR, at 67660.

[22] *Id.*, at 67659.

[23] For examples of screens that could potentially be used for this purpose, see Ledgerwood, *Screens for the Detection of Manipulative Intent*, pages 41-53.

[24] *Id.*, at pages 1-4.

[25] Justice Potter Stephens, *Jacobellis v. Ohio*, 378 U.S. 184 (1964).

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