
Squeezes, Corpses, and the Anti-Manipulation Provisions of the Commodity Exchange Act

Craig Pirrong

A primary objective of U.S. futures market regulations is to deter market manipulation. As the Commodity Exchange Act of 1936 indicates, these regulations are predicated on a belief that "futures markets are susceptible to manipulation and control" by large traders. The term "manipulation" usually refers to the exercise of monopoly power by large traders in a futures market. In the 1922 case that upheld futures regulation, *Chicago Board of Trade v. Olsen*, the Supreme Court relied extensively upon evidence that a) manipulation was rife in American grain markets, and b) this manipulation interfered with interstate commerce.

Over the past seven decades, Congress and a succession of agencies charged with the regulation of U.S. futures markets have employed a variety of means to prevent manipulation. Under the Commodity Exchange Act (CEA) of

[1936 as amended, manipulation is a felony punishable by large fines and imprisonment. The current regulator of futures markets, the Commodity Futures Trading Commission (CFTC), can impose civil damages upon firms registered with the Commission if they manipulate the market. Moreover, the CFTC limits the size of futures positions that speculators can hold. The Commission can force futures exchanges to alter the terms of their contracts in order to prevent manipulation. All terms of new futures contracts must be approved by the CFTC; in order to receive approval, the listing exchange must show that the contract is not vulnerable to manipulation. The CFTC also has the power to intervene in markets where manipulation is suspected. Under such "emergency" authority, the Commission can impose a price at which all traders must settle, or force traders to liquidate outstanding positions.

There is little doubt that this impressive array of regulatory tools helps to reduce the frequency and severity of what policymakers define as

Craig Pirrong is an assistant professor of business economics and public policy at the University of Michigan School of Business.

"manipulation" in modern futures markets. However, the appropriate question is whether existing regulations are an efficient way of doing so. An analysis of the nature of manipulation, and the costs and benefits of the alternative means of deterring it, strongly suggests that the answer to this question is a resounding "no." In fact, court and regulatory decisions have effectively gutted the most efficient means of deterring manipulation: the imposition of large fines and damages, after the fact, on traders found guilty of manipulation. Instead of such harm-based sanctions, regulators rely upon position limits and emergency actions. Unfortunately, these measures can constrain the ability of futures markets to perform their essential functions of shifting risk from the risk averse to the risk tolerant and price discovery. As a result, the existing regulatory efforts to deter manipulation are excessively costly. The efficiency of futures markets would be improved, and perhaps substantially so, by eliminating position limits and emergency actions and relying upon revitalized, harm-based sanctions to deter market manipulation.

The Economic Function of Futures Markets

As their name suggests, futures exchanges are centralized marketplaces where traders buy and sell commodities for delivery in the future. Thus, for example, in May 1995 an individual or firm can buy or sell 5,000 bushels of soybeans for delivery in Chicago in November 1995 by purchasing a futures contract traded on the Chicago Board of Trade. A seller of a futures contract is called a "short" and the buyer is called a "long." Commodities traded in futures markets include traditional physical commodities, such as corn, gold, cattle, and oil, and financial assets, such as Treasury Bonds and stock indices.

Futures contracts are bought and sold through open and competitive bidding in centralized trading "pits." Customers submit buy and sell orders to brokerage firms for futures contracts. These firms transmit the orders to brokers located in the pit. The brokers call out their desire to buy or sell, and other traders in the pit compete to take the other side of the trade. The broker accepts the best bid or offer made in the pit to fill his order. In addition to trading for customers, some pit participants

trade on their own account.

In order to limit negotiations in the futures pit to price alone, a futures exchange standardizes all other terms of futures contracts. These terms include when and where delivery must occur and the quantity and quality of the commodity to be delivered. For example, a November 1995 soybean futures contract, traded November 1994 on the Chicago Board of Trade, states that shorts, or sellers, must deliver 5,000 bushels of #2 quality soybeans in Chicago in November 1995. Sellers also have the option of delivering in Toledo and in St. Louis at prices that differ by fixed amounts from the Chicago price. Similarly, sellers have the option of delivering higher quality #1 soybeans, and receiving a fixed price premium over the #2 soybeans for doing so. These delivery options are largely intended to deter manipulation.

Contracts need not be closed by delivery. A seller or buyer of a contract can buy or sell a contract prior to the end of the delivery period. Upon his doing so, the clearinghouse of the rele-

In fact, court and regulatory decisions have effectively gutted the most efficient means of deterring manipulation: the imposition of large fines and damages, after the fact, on traders found guilty of manipulation.

vant futures exchange nets the sale and purchase, leaving the trader with no obligation to make or take delivery. In fact, upwards of 95 percent of futures contracts are offset in this fashion. However, no trader can unilaterally escape his contractual obligations. Thus, if a buyer demands delivery and refuses to sell all of his futures contracts, those who have sold futures contracts to him have no choice but to comply, or face severe penalties for default. As the next section shows, if delivery and default are sufficiently costly, this ability to demand delivery may allow a large long trader to manipulate the market.

Futures markets serve two crucial functions. First, they facilitate the efficient transfer of risk from the risk averse to the risk tolerant. Firms or individuals that want to "hedge" against the

risk of price movements can essentially lock in a price at which they can buy or sell in the future by trading on the futures market. Individuals or firms that are willing to bear price risk at low cost—usually referred to as speculators—take the other side of hedgers' trades.

The second function of futures markets is to transmit valuable information about supply and demand conditions. Individuals with private information about these fundamentals can buy or sell if this information implies that the futures price is too low or too high. This informed trading forces the futures price towards the correct level. This "price discovery" function is valuable because producers, consumers, and storers of the commodity can use the information embedded in futures prices to make better resource allocation decisions.

What is Manipulation?

≡

Manipulation is routinely condemned because it interferes with the two functions of futures markets just described. In order to understand why, it is first necessary to define just what manipulation means.

This is a more difficult task than one might

The comments of an old-time cotton broker in this regard are quite apt: "The word 'manipulation'...in its use is so broad as to include any operation in the cotton market that does not suit the gentleman who is speaking at the moment."

think, because the term "manipulation" is used very imprecisely and indiscriminately. The comments of an old-time cotton broker in this regard are quite apt: "The word 'manipulation'...in its use is so broad as to include any operation in the cotton market that does not suit the gentleman who is speaking at the moment." This imprecision has bedeviled attempts to regulate futures markets since their birth in the 19th century.

There is one form of activity in futures markets that is almost universally considered manipulative, and which is of considerable prac-

tical importance. This is a "long market power manipulation," commonly called a "corner" or a "squeeze." A long manipulation may occur when:

(1) The cost of bringing an additional unit of the commodity to the delivery market increases as the number of deliveries increases. Put differently, the supply curve in the delivery market slopes up. When transport costs are large and the spatial dispersion of commodity stocks is pronounced, condition 1 is likely to obtain, because it is necessary to bid away the commodity from users in other markets in order to increase supplies in the delivery market; since demand curves in these other markets slope down, it is necessary to pay increasing prices to bid more of the commodity away from them.

(2) A single trader owns enough futures positions and/or enough of the deliverable supply of the commodity so that he can demand that shorts deliver some quantity of the commodity X, where the marginal cost of delivery is increasing at X. This means that a single buyer has such a large position that he can force sellers to go outside the delivery market and thus bid the commodity away from users outside that market in order to satisfy his demand for deliveries. When transport costs are large and the spatial dispersion of commodity stocks is pronounced, the first condition is likely to obtain.

Given these conditions, the large long can stand for an excessive number of deliveries and thereby drive up the cost that shorts must incur to deliver even more of the commodity. Shorts are willing to pay the long a price equal to this inflated marginal cost of delivery in order to settle the positions remaining after delivering the amount demanded by the long. For example, if the cost of acquiring an additional unit of the commodity to deliver equals \$10 per unit, shorts are willing to pay the long \$10 per unit in order to escape their obligation of obtaining these additional supplies. The large long profits when he sells his remaining contracts at this high price. For example, if the competitive price in the market is \$8 per unit, the manipulator can reap a profit of \$2 per unit for each unit he sells at the manipulated price of \$10.

This analysis predicts that this exercise of market power in the delivery period has important effects on prices and commodity flows. A corner or squeeze causes a temporary increase in price at the delivery market both absolutely

and relative to prices at other locations. Excessive stocks of the commodity flow to the delivery point in response to this high price. Moreover, this inflation of stocks causes the price at the delivery point to plunge immediately after the expiration of the squeeze. This is sometimes called the "burying the corpse" effect.

These effects on prices and commodity flows are pronounced, especially in large manipulations. Moreover, the price and quantity patterns caused by a market power manipulation are distinctively different from the effects of supply and demand shocks in a competitive market. Most importantly, the burying the corpse effect is characteristic of manipulation. The documentation of such an effect makes it possible to distinguish manipulations from competitive outcomes.

Critics claim that market power manipulation causes costly distortions in consumption, production, storage, and commodity flows. Moreover, it makes futures prices excessively volatile and reduces the informational content of these prices. This is true for three reasons. First, as just noted, the exercise of market power causes large price changes around contract expiration. These price changes do not reflect changes in underlying supply and demand fundamentals. Second, the mere possibility that traders may exercise market power can cause prices to become more volatile and less informative. Prices in a futures market will increase if traders estimate that the probability of a corner has increased. These probability estimates are necessarily based on imprecise information. Thus, baseless fears of manipulation often arise, causing prices to rise. When these fears prove groundless, prices fall. These fluctuations increase the "noisiness" of futures prices. Third, by distorting relative prices, manipulation and the mere threat of manipulation reduce the value of a futures contract as a hedging instrument for those located away from the delivery point. Given these various effects, a market power manipulation reduces the efficiency of a futures market as a risk transfer and price discovery mechanism.

Other speculative activities sometimes called manipulative are far more ephemeral than corners, and are of dubious practical relevance. For example, farm interests and farm state legislators frequently assert that large short sales of futures contracts by speculators are manipula-

tive, and cause prices to fall below their "true" value.

Such "bear raids" are profitable for the raiders only under very restrictive conditions. In order to realize a profit, it is necessary to sell high and buy low, that is, the short seller must eventually buy back his positions at a price which is lower than the price at which he initially sold. Since the number of contracts sold is equal to the number of contracts subsequently bought, this can happen if, and only if, the futures price responds asymmetrically to the speculator's purchases and sales. That is, the price decline caused by the speculator's sales must exceed the price rise caused by his subsequent purchases.

There is no credible evidence that such an

Congress simply proscribed "manipulation" and passed the buck to exchanges by requiring them to prevent what Congress could not define—or face the closure of their markets.

asymmetry exists or has existed in futures markets. Moreover, it is even difficult to construct a theoretical model that exhibits this property. As a result, it is highly unlikely that short manipulations of the type that is criticized so vigorously by the opponents of futures markets are a practical concern. Indeed, futures industry experts have been nonplused by the allegations of widespread "downward" manipulation as far back as 1921 when there was no regulation; most recognized the real danger of squeezes and corners, but were deeply skeptical of the possibility of short manipulations.

Nonetheless, the primary impetus behind the regulation of futures markets in the early twenties was the collapse in agricultural prices after the end of World War I. Despite the skepticism of the industry witnesses, the promoters of the legislation regulating futures markets, such as Senator Capper and Representative Tincher, both of Kansas, were convinced that short-selling speculators were largely responsible for this collapse. As a result, Congress was intent upon preventing manipulative short selling. However, since it could not distinguish legitimate short selling for hedging purposes,

for instance, from illegitimate short selling, Congress simply proscribed "manipulation" and passed the buck to exchanges by requiring them to prevent what Congress could not define—or face the closure of their markets.

Anti-Manipulation Regulation

U.S. commodity law currently prescribes a variety of methods to deter and prevent manipulation. Manipulation is currently a felony punishable by a \$100,000 fine and imprisonment for individuals and a \$500,000 fine for firms. Moreover, the CFTC can impose penalties upon a firm or individual registered with the agency, as most firms that participate extensively in the market are, if that firm or

Current law and regulation relies too little on the most efficient means available to deter manipulation, and far too much on excessively costly preventive measures.

individual manipulates the market. Fines, damages, and imprisonment are levied only after an alleged manipulation. Therefore, these measures are harm-based deterrents inasmuch as they are employed only in the event that a harm—a manipulation—is detected.

Although the CEA does not limit the imposition of these penalties to market power manipulation cases, in practice this is the case. Over 85 percent of all the manipulation cases brought under the CEA involve market power manipulations.

The other means of deterring manipulation available to regulators are preventative, rather than harm-based. These methods include position limits, entry requirements on new futures contracts, expanding the delivery options available to shorts, and emergency intervention into markets where manipulation is suspected.

As their name suggests, position limits constrain the number of futures contracts an individual trader or group of traders can buy or sell. Only speculators are subject to these limits. Traders can obtain exemptions from the limits if they demonstrate that larger positions are necessary to implement a bona fide hedge. The CFTC and the exchanges can deny or revoke such an exemption, however, if there is

evidence that the position is speculative, rather than a hedge, as claimed.

Position limits can prevent many market power manipulations because a trader's market power increases with the size of his long futures position; preventing traders from amassing positions that are very large constrains their ability to exercise market power.

The CFTC and exchanges also impose position limits on short traders. A position limit intended solely to prevent market power manipulation would only be imposed during the delivery month. Existing limits hold before the delivery month as well, however. Thus, position limits are not merely weapons against market power manipulations; they also reflect the view that any large speculative futures position, long or short, held during the delivery month or well before it, can be manipulative.

The CFTC also tries to prevent manipulation by requiring an exchange that wants to introduce a new contract to demonstrate that the contract's terms and conditions reduce the likelihood of manipulation. In order to receive a designation to trade a new contract, an exchange must submit a formal proposal to the CFTC. The CFTC then examines the delivery terms of the contract and the market for the underlying commodity to determine whether deliverable supplies are adequate to prevent manipulation.

The CFTC can also force exchanges to change the terms and conditions of contracts which it deems overly susceptible to manipulation. Specifically, the CFTC can force an exchange to allow delivery at additional geographic locations in order to expand deliverable supplies and thereby make it more difficult to manipulate the market.

Finally, the CFTC or an exchange can intervene into a market when manipulation is suspected. For example, the regulator can order trading for liquidation only in order to prevent traders from accumulating larger positions, force a trader to liquidate a certain number of contracts in order to reduce his market power, or impose a price at which all traders must settle their outstanding contracts.

An Economic Analysis of Manipulation Deterrence and Prevention

The fact that market power manipulation can

impose substantial deadweight costs on futures markets and their users means that regulation that reduces the frequency of corners and squeezes may well improve the efficiency of these markets. Moreover, as demonstrated above, the CFTC and exchanges have many weapons at their disposal to fight manipulation. However, an analysis based on the economic theory of optimal law enforcement implies that current law and regulation relies too little on the most efficient means available to deter manipulation, and far too much on excessively costly preventative measures.

The law and economics literature on optimal law enforcement states that the relative efficiency of harm-based and preventative methods of law enforcement depend upon four factors. Specifically, harm-based measures are desirable:

- (1) If an offense is easily detected after it is committed.
- (2) If the perpetrator is wealthy and therefore able to pay monetary fines and/or damages.
- (3) If the perpetrator is aware that he is committing an offense.
- (4) If the administrative costs of trying suspected offenders are low.

In contrast, preventative measures are preferred when these conditions do not hold.

The determinate of the relative advantages of harm-based versus preventative-based measures is straightforward. Conditions 1 and 2 imply that it is possible to levy sanctions with an expected value approximately equal to the cost of the harm. Condition 3 means that an individual contemplating an offense is aware that he faces punishment if he carries it out. Together, these three conditions imply that a would-be perpetrator will internalize the costs of his actions, and therefore refrain from committing the offense.

These conditions do not hold in all instances. For example, the wealth of some individuals is so small that the threat of monetary loss is insufficient to deter them from bad acts. Other individuals may not know that their acts are harmful. The owner of a junkyard, for instance, may not be aware that seepage of contaminants from the yard are poisoning an underground aquifer. Also, some offenses are very hard to detect. For example, burglars or embezzlers can take actions to conceal their activities and thereby be reasonably certain of escaping detection. In each of these cases, it may be necessary to

employ preventative measures because harm-based sanctions do not have enough bite.

An examination of the nature of market power manipulation reveals that conditions 1 to 4 hold. A corner or squeeze has a marked effect on prices and commodity flows. Prices in the delivery market first rise precipitously relative to prices in other markets and deferred futures prices, then collapse as the corner ends at the end of the delivery period—the burying the corpse effect. The artificially high prices that prevail during a manipulation attract exceptionally large shipments of the cornered commodity to the delivery market. After the corner ends, shipments from the delivery market are abnormally large as the excess supplies attracted to that market are shipped to more economical locations. These telltale signs of a manipulation mean that a corner or squeeze is readily detected after the fact. Moreover, only traders with substantial wealth can undertake a corner. Furthermore, corners do not occur by accident; they require a

Regardless of whether a contract is susceptible to manipulation or not, if it is traded, the benefits it generates must exceed its costs. Delaying or preventing the introduction of a contract denies market participants this net benefit.

trader to undertake conscious acts calculated to distort prices. Together, these facts imply that a) it is possible to impose harm-based sanctions that are approximately equal to the damage resulting from the exercise of market power during the delivery period, and b) the threat of such penalties will induce traders to avoid cornering the market. Thus, it is possible to reduce sharply the frequency of market power manipulations through the imposition of penalties after the fact. Since the frequency of such manipulations is small in this case, administrative costs should be small as well, because it is seldom necessary to incur the costs of investigation and trial. Therefore, the nature of corners implies that they are perfectly suited to deterrence through harm-based sanctions.

A comparison of the costs and benefits of harm-based sanctions with the costs and benefits of the various preventative methods strongly suggests that the former are a far more efficient

way of deterring manipulation. Consider the case of position limits. It is clear that the existing limits are far broader than necessary to prevent market power manipulation, because they apply to short positions and positions held before the delivery month. These broad limits interfere with the two main functions of futures markets: risk transfer and price discovery.

Large speculators are frequently the most efficient bearers of risk. In the old days, large individual traders played the role of risk bearers. Today, futures funds and hedge funds that allow investors to diversify can perform this function. Unfortunately, position limits prevent these traders from bearing as much risk as they would like. Due to these limits, less risk-tolerant traders must absorb additional risk. This leads to an incomplete transfer of risk. This is costly.

Moreover, speculators are frequently well informed about supply and demand fundamentals. Their trading forces prices towards the level implied by this information. Since producers,

Given the regulator's limited knowledge, position limits will often be far stricter than is necessary to prevent manipulation, and sometimes will be too lax to do so.

consumers, processors, and storers of commodities rely upon futures prices to guide their decisions, the more information there is embedded in these prices, the better their decisions will be. By limiting the ability of informed individuals to trade, however, position limits reduce the flow of information to the futures market. This reduces the efficiency of resource allocation.

Thus, the existing position limits undermine the ability of futures markets to perform their essential functions. Although less disruptive than existing limits, even narrower position limits that apply only to long positions during the delivery month are unlikely to be an efficient deterrent of market power manipulation. Most importantly, a contract's susceptibility to manipulation varies over time. Myriad individuals and firms possess the information necessary to determine this susceptibility, which prevents the regulator from using this information. Given the

regulator's limited knowledge, position limits will often be far stricter than is necessary to prevent manipulation, and sometimes will be too lax to do so.

Entry requirements are also an excessively costly way to deter manipulation. Again, regulators possess too little information to make accurate judgments about the susceptibility of a market to manipulation in coming years. The factors that determine this susceptibility can change dramatically over time. A contract that is relatively immune to corners at its introduction may become more susceptible to manipulation as time passes. Also, measures imposed to reduce the probability of manipulation today may become unnecessarily restrictive in the future. Thus, these entry barriers are likely to be a costly and unreliable means of prevention. Regardless of whether a contract is susceptible to manipulation or not, if it is traded, the benefits it generates must exceed its costs. Delaying or preventing the introduction of a contract denies market participants this net benefit.

In addition, since it is costly to obtain a designation, entry requirements make it more expensive for exchanges to introduce new contracts. Exchange sources estimate that the direct costs of obtaining designation for a new contract range from \$20,000 to \$30,000 for a product closely related to an existing contract, e.g., an option on an existing future, to several million dollars for an innovative product. Moreover, the regulatory time delay can be significant, running from three to six months for a product closely related to an existing one, and as long as three to four years for an innovative contract. These direct costs and opportunity costs necessarily slow the pace of contract development, which, again, means that market participants will be unable to exploit some mutually beneficial trading opportunities. In sum, entry restrictions offer almost no benefits but impose substantial costs.

It is also highly unlikely that emergency intervention is a more efficient means of combating manipulation than the use of harm-based sanctions. This is true for several reasons.

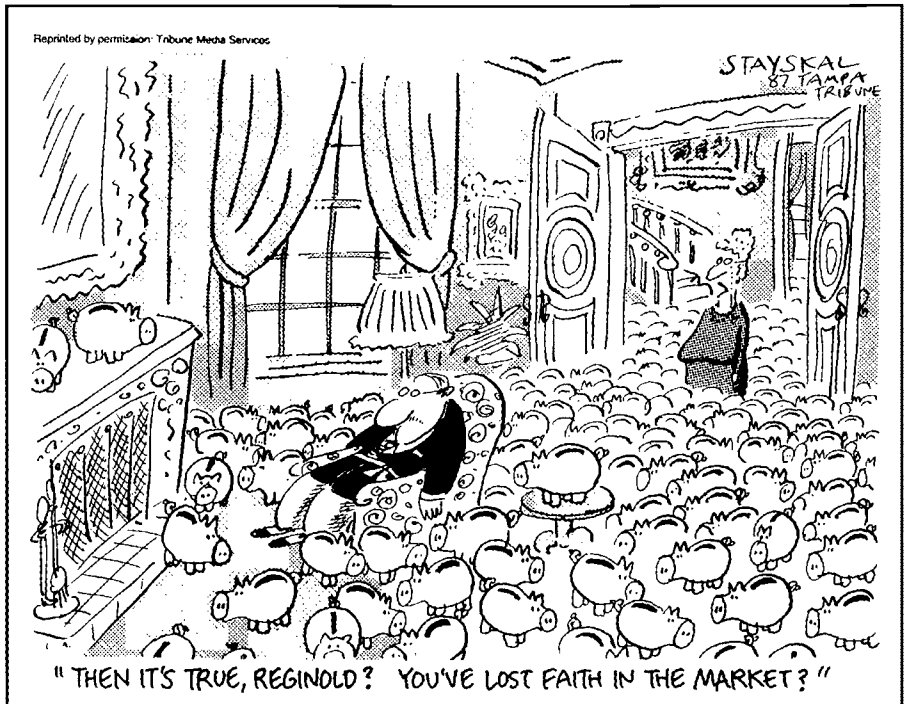
First, it is necessarily true that better information is available after the completion of a manipulation than when a manipulation is in progress. A regulator cannot observe the burying the corpse effect in prices before the end of the delivery period. He cannot witness what

happens to commodity flows after the corner. Moreover, he cannot observe an alleged manipulator's behavior after the manipulation; this behavior communicates valuable information concerning the suspect's intent.

As a result of this lack of information, a regulator who intervenes before the completion of a manipulation is likely to make more mistakes than an adjudicator acting after the end of a corner. These errors are of two types. First, the regulator may intervene into the market when no corner is underway. Second, the regulator may fail to intervene when a corner is in fact in progress. Analogous errors can take place in a harm-based system; a court may find an innocent party guilty of manipulation, or instead may find a guilty party innocent. However, the important point is that the regulator who attempts to intervene before the completion of a corner is likely to make more errors than a fact-finder who can rely upon information concerning the behavior of prices and quantities that is available only after the completion of a manipulation.

This higher error rate imposes additional costs on market participants. If a manipulation is completed, market participants must bear the associated deadweight costs. If the regulator intervenes inappropriately, he may distort prices and undermine investor confidence in the market. By intervening to prevent manipulative price distortions and investor demoralization, an overzealous regulator can produce the very effects he sought to avert. Indeed, the consequences of a mistaken intervention are potentially grave. The extreme reluctance of exchanges to employ emergency measures, and the ferocity with which exchanges have resisted CFTC efforts to intervene in some cases, both provide some indication of the costs of interfering with the operation of the market.

A second reason why emergency interventions are not a good means of enforcement is that it is possible to levy more powerful sanctions after the



fact than through emergency action. In a harm-based deterrence regime, it is theoretically possible to levy fines that make manipulation unprofitable. This is not the case with emergency intervention. Roughly speaking, emergency action forces a competitive outcome during the delivery period. Thus, would-be manipulators expect to earn at least a competitive profit in an emergency intervention regime. In fact, they may expect to earn a supercompetitive profit because sometimes the regulator may fail to intervene, thus allowing them to complete their corners.

Third, an effective emergency intervention policy requires the regulator to monitor markets continuously. Thus, the regulator must devote resources to policing the markets even when no manipulation occurs. For FY1994, the CFTC budget allocated \$5.2 million for market surveillance.

The various exchanges also incur surveillance costs. As private institutions, the exchanges decline to make these expenditures public, but they are probably larger in aggregate than CFTC surveillance costs. These continuous expenditures of substantial sums are likely to force administrative costs to exceed those incurred in the harm-based regime, because in the latter regime it is necessary to incur administrative costs only if a manipulation actually occurs. If sanctions are chosen correctly, manipulation

will be a rare event indeed, and the administrative costs will be small. Furthermore, emergency intervention may not economize substantially on court costs. Past uses of emergency authority have resulted in court challenges to the actions taken by the CFTC and the exchanges.

The sole advantage of emergency intervention is that a successful intervention may mitigate the costs attributable to manipulation. In a harm-based regime, the social costs of manipulation are incurred even if a manipulator is punished, because this punishment takes place after the end of the corner. In contrast, an emergency intervention can reduce the severity of price and quantity distortions.

However, it is unlikely that this advantage overcomes the disadvantages inherent in emergency intervention. The ability to reduce dramatically the probability of manipulation through the use of sufficiently punitive sanctions sharply reduces the benefits of mitigation. Moreover, it is uncertain how effectively a regulator can mitigate. As noted earlier, mistaken interventions into the market are very costly. Therefore, in order to avoid such a mistake, the regulator must wait until the evidence of distor-

By intervening to prevent manipulative price distortions and investor demoralization, an overzealous regulator can produce the very effects he sought to avert.

tions contained in price and commodity flow data is pronounced. However, waiting for such clear evidence sharply limits the scope of mitigation.

The Inefficiency of Existing Anti-Manipulation Regulation

The preceding analysis implies that harm-based sanctions are the most effective and efficient way to reduce the frequency and severity of corners in futures markets. Most importantly, superior information and more powerful and flexible sanctions are available after the completion of a corner rather than before. These advantages should make *ex post facto* deterrence more

effective and economical than the various preventative measures currently employed.

Unfortunately, courts and regulators in the U.S. have failed to exploit the potential advantages of harm-based penalties for manipulation. In fact, a series of court and CFTC decisions have completely undermined the felony and civil damage provisions of the CEA. As a result of these decisions, it is almost impossible to find a genuine manipulator guilty.

Several features of these decisions are responsible for this state of affairs. In order to prove manipulation under current law, it is necessary to show that:

- (1) Market prices were artificial during the alleged manipulation, and
- (2) The accused had the power to cause this price artificiality, and
- (3) The accused intended to cause the price artificiality.

These are referred to as the "artificial price," "causation," and "intent" tests.

The reasoning in several cases makes it virtually impossible to meet any of these three standards, let alone all three simultaneously. The CFTC decisions in the *In re Indiana Farm Bureau* (1982) and *In re Cox* (1983) cases make it difficult, if not impossible, to show that any price is artificial even if there is pronounced evidence of manipulative distortions. In each case, price relations differed dramatically from past experience. Moreover, price patterns were clearly symptomatic of a market power manipulation. The evidence in *Indiana Farm Bureau* is particularly striking. The price of corn rose 30 percent on the last day of trading of the July 1973 corn futures contract; immediately after the end of trading, corn cash prices were 30 percent lower than the closing futures price. Nonetheless, the commissioners considered this evidence unpersuasive. In *Indiana Farm Bureau*, the majority decision stated that, instead of focusing on prices alone, "One must look at aggregate forces of demand and supply and search for those factors that are extraneous to the pricing system." In *Cox*, the majority asserted that the "prospective behavior of a 'normal' market is not bounded by the market's historical experiences." In dissent, Commissioner Fowler West argued that this interpretation severely compromises the ability of adjudicators to rely upon any data in manipulation cases. These precedents make it nearly impossible to prove

price artificiality.

One may argue that statistical and econometric tests for market power based on historical data are fallible. This is true, but irrelevant. All judicial methods—even capital trials—are subject to error. The relevant question is, which method of testing for manipulation is more fallible: widely used and understood econometric tests of precisely framed hypotheses, or an examination of vaguely defined “aggregate forces of demand and supply.” Indeed, it is inconceivable that any supply and demand analysis could proceed without relying very heavily on price data. The main virtue of prices is that they summarize vast amounts of information about supply and demand conditions, information that is dispersed among millions of individuals and would be impossible to collect, organize, and articulate coherently. Moreover, it is self-evident that any examination of “aggregate” fundamentals must rely upon some basic theory calibrated to some historical data. The distrust of such analysis expressed in *Indiana Farm Bureau* and *Cox*, however, makes it nearly impossible to perform this analysis properly.

Causation presents still other problems. First, *Indiana Farm Bureau* and *Cox* rely on reasoning employed in an earlier manipulation case decided on the Fifth Circuit, the *Volkart Bros., Inc. v. Freeman* case of 1962, to argue that shorts cause corners. These decisions suggest that the unwillingness of shorts to make delivery indicates their failure to take adequate precautions against a corner. As noted earlier, however, in any successful manipulation, the long raises prices only to a point where some shorts find it economical to buy back their futures positions rather than to close them through delivery. That is, it is rational for some shorts to liquidate, rather than deliver, during a manipulation. If the failure of some shorts to make delivery exculpates a long from a manipulation charge, it becomes impossible to convict a trader for carrying out a corner; a fair reading of *Indiana Farm Bureau* and *Cox* clearly admits this possibility. It is by no means clear that giving shorts an incentive to take actions to reduce the profitability of manipulation is more efficient than punishing cornerers regardless of the precautions shorts take. Precautionary actions by shorts include early termination of futures positions and holding excessive stocks in the delivery market. These actions impose deadweight costs. Moreover, it would never be rational for shorts to take precautions that are so complete

as to eliminate any possibility of corners. Given the costs of relying on short precautions to deter manipulation, it is preferable to rely upon the imposition of sanctions upon manipulators to reduce the frequency and severity of corners.

Indiana Farm Bureau and *Cox* also use extremely liberal definitions of deliverable supplies. In *Cox*, for example, the majority of the Commission argued that almost all wheat in the United States was deliverable, even though shipping wheat from distant locations to Chicago was an extremely uneconomic transaction because this required the diversion of wheat from high value uses to a low value use; the willingness of shorts to close their positions at a high price rather than acquire these distant supplies illustrates that such a diversion was uneconomic. However, the majority decided that deliverable supplies were so large that it was impossible for the accused to manipulate the market. This reasoning is completely untenable. A market power manipulation can succeed pre-

One may argue that statistical and econometric tests for market power based on historical data are fallible. This is true, but irrelevant. All judicial methods—even capital trials—are subject to error.

cisely because shorts find it uneconomical to acquire some supplies that could be shipped to the delivery point; rather than pay the price of acquiring wheat, for instance, in a high value location and shipping it to a low value location, they willingly liquidate their futures contracts at a price favorable to the long. Thus, the Commission’s disregard for the costs of distorting commodity flows and consumption patterns in order to increase deliverable supplies makes it very difficult to prove causation. Moreover, in both *Indiana Farm Bureau* and *Cox*, the assertions that the accused traders could not have caused the observed price increases because of the purported availability of adequate deliverable supplies are inconsistent with the facts of the case. If no one had the power to cause the large price increases, how did such price increases occur?

This second difficulty with the causation doctrine resembles the vacuous disputes over market definition that bedevil antitrust litigation. Like a definition of a "market" in an antitrust case, any definition of deliverable stock is inherently arbitrary because it attempts to draw a boundary along a continuum where none naturally exists. Price data are the best measure of the costs of delivery; arbitrary definitions of deliverable stock provide little, if any, information about delivery costs not contained in prices.

Intent is also extremely difficult to prove under existing precedents. In *Indiana Farm Bureau*, the majority argued that the accused purchased its large futures position for a legitimate hedging purpose. Subsequent developments in the market, however, made it profitable for the Farm Bureau to exercise market power. Since the Bureau did not acquire its position with the intent of exercising such power, the Commission claimed that the Bureau was blameless in "seeking the best price from the existing situation." That is, the decision

Current anti-manipulation policy has eviscerated the most efficient method of deterring corners and squeezes and relies instead upon more costly alternatives.

implies that the accused's intent at the time of initiating the position is relevant, and his intent when closing the position during the delivery period is irrelevant. Since the exercise of market power occurs during the delivery period, this gets things exactly backwards. *Indiana Farm Bureau* gives traders a "manipulation option": as long as they acquire a position for a legitimate speculative or hedging motive, they have the option to exercise market power during the delivery period without fear of sanction. This completely undercuts the anti-manipulation objectives of the CEA.

An administrative law judge's decision in the *In re Abrams* (1986) case compounds the difficulties of proving intent. The judge argued that the accused, Mr. Abrams, bought orange juice futures contracts because he believed that orange juice was undervalued. According to the

judge, the subsequent rise in the price of orange juice validated Abrams' judgment and proved that he was merely a legitimate speculator who accumulated a long position "after correctly divining the market's future direction." Note, however, that a corner causes prices to rise. If a price rise is considered evidence of legitimate speculative intent even if that price rise is plausibly caused by the exercise of market power, it is nearly impossible to prove manipulative intent.

Taken together, these recent decisions have made manipulation an "unprosecutable crime," as Jerry Markham noted in a 1992 article in the *Yale Journal on Regulation*. Sadly, this is true under the existing precedents. It is essential to emphasize, however, that the characteristics of manipulation make it well suited to deterrence through the imposition of harm-based sanctions if adjudicators rely upon a clear understanding of the nature of manipulation, and the econometric and statistical tools that can be used to detect it. The CFTC and the courts have too often lacked this understanding. As a result, the soundest bulwark against manipulation has been breached.

Because of the preventative measures still in place, there has been no "manipulation explosion," despite these flawed decisions. This is cold comfort, however, because these preventative measures are costlier ways to eliminate manipulation than appropriately-enforced harm-based sanctions. Thus, current anti-manipulation policy has eviscerated the most efficient method of deterring corners and squeezes and relies instead upon more costly alternatives. In sum, manipulation deterrence has been turned upside down. Turning regulation aright would therefore improve the efficiency of U.S. futures markets, perhaps substantially so.

Improving the Efficiency of U.S. Futures Market Anti-Manipulation Regulation

Given the current confused state of manipulation case law, and the inability of courts or the CFTC to make credible commitments to rule rationally in future cases, reform of the penalties for market power manipulation require amendment of the CEA. Several changes would be desirable. First, rather than referring to the

vague concept of manipulation, the law should explicitly proscribe the exercise of market power during the delivery period. This would be analogous to the ban on the exercise of monopoly power contained in Section 1 of the Sherman Antitrust Act. This definition is far more specific than the current ban on undefined "manipulation" and "corners." This specificity reduces the potential for confusion that is clearly present under current law.

Second, the amended law should explicitly prescribe, endorse, or recommend the use of statistical and econometric methods to establish the existence of specific anomalous price and quantity relations. Anomalous relations should include: large absolute declines in cash market prices and large price declines relative to deferred futures prices and relative to prices at other locations when a futures contract is liquidated; large spreads between the prices of expiring and deferred futures contracts, especially if there are large stocks in the delivery market; large spreads between the expiring futures price and the prices of the same commodity at other locations; uneconomic flows of the commodity to the delivery market prior to contract expiration; abnormally large shipments of the commodity from the delivery market after contract expiration; and abnormally small shipments from the delivery market before contract expiration.

Third, any other activities considered "manipulative" should be spelled out in detail rather than left to the imaginations of interested parties and adjudicators. For example, the spreading of false rumors in order to influence price should be proscribed.

Fourth, the list of these other activities should be short. Other than market power manipulation and the spreading of false rumors, most of the actions sometimes described as manipulative are of minor practical importance, impose little or no harm on market users, and are very costly to deter or prevent because they are very difficult to detect.

These steps would permit the effective deterrence of market power manipulation at a relatively low cost. Thus, they would ease the regulatory burden on exchanges and their customers while protecting market users against the dead-weight costs of manipulation.

Although this discussion has focused exclu-

sively on commodity markets, market power manipulation is also a concern in securities markets. Most importantly, the actions of Salomon Brothers in the market for two-year Treasury notes in 1991 have focused attention upon the vulnerability of government security markets to manipulation. Some congressmen, notably Representative Edward J. Markey (D-Mass.), have argued that it is necessary for the Federal Reserve and the Treasury to implement procedures to prevent the repeat of this sorry episode. Indeed, some preventative measures, notably the limit on the fraction of an issue a dealer can acquire at auction, are already in place. The analysis in this article strongly suggests that such preventative measures are a far less efficient way to eliminate manipulation in Treasury markets than the imposition of substantial penalties on those found guilty of manipulation. In both commodity and security markets, therefore, market power manipulation is most efficiently deterred through the proper application of harm-based sanctions rather than through the imposition of preventative measures that suppress legitimate activities as an unfortunate side effect.

Selected Readings

- Markham, J. "Manipulation: The Unprosecutable Crime." *Yale Journal on Regulation*, vol. 8 (1992).
- Pirrong, S. C. "Commodity Market Manipulation Law: A (Very) Critical Analysis and a Proposed Alternative." Forthcoming, *Washington and Lee Annual Review of Securities and Commodities Law*.
- Pirrong, S. C. *Corners and Squeezes: The Economics, Law, and Public Policy of Market Power Manipulation*. Forthcoming, Kluwer Academic Publishers.