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HOLBROOK WORKING

FUTURES MARKETS UNDER RENEWED ATTACK*

Futures trading in commodities, which has seemed to many people almost as firmly established as a useful economic institution as is commercial banking, has recently come under fresh attack in the United States, resulting in prohibition by federal law of futures trading in one commodity, onions, and in a currently active effort to similarly eliminate the futures market for potatoes. The chief argument made against the markets in these two commodities is one that applies with almost equal force against any futures market; hence the evident vigor and effectiveness of the new attack on such markets warrants giving it more consideration than would be called for if nothing more were involved than marketing and pricing methods for two crops of relatively minor importance in the United States.

The present paper is primarily an analysis of dominant elements in the new attack, but we may profitably begin with a quick look at the history of opinion regarding futures markets.

EARLY ARGUMENTS OVER FUTURES TRADING

Today it is customary to distinguish sharply between futures trading, on the one hand, and dealings in those other sorts of contracts that, while likewise calling for delivery of a commodity at a future date, are used mainly or wholly for merchandising purposes.[1] And now it is only the specialized futures con-

* Part of the substance of this paper appeared in an article by the same author in *Barron's*, February 4, 1963, pp. 11ff.

[1] The term *futures*, when applied to contracts for delivery of a commodity at a subsequent time, must be recognized as having three significantly different possible meanings, making it necessary in any particular instance to judge from the context which meaning is intended. These are: (1) contracts that almost always eventuate in delivery of the commodity and payment for it between the two initial parties to the contract; (2) contracts commonly made initially between a handler of the commodity and a speculator, the latter usually transferring his obligations under the contract to someone else, but the former usually making delivery (or receiving it) as specified in the original contract; and (3) contracts on which even handlers of the commodity rarely make (or receive) delivery, using the contracts chiefly for hedging rather than for merchandising.

Because distinction between these three meanings of futures turns on the *uses* made of the contracts, it is sometimes difficult, especially in discussions of early "futures trading," to know which meaning applies. All well-developed modern futures trading involves futures of the third type. Definitions of such futures are often given in terms of certain easily observed superficial characteristics, but no such definition known to the writer is universally reliable. Apart from the uses to which they are put, the fundamental characteristics of futures contracts, in the third sense, are that they allow transactions to be executed with exceptional ease and economy, partly owing to a high degree of standardization of the contract terms, and that transactions in them are subject to regulations intended to assure maximum opportunity for open competitive bargaining over the price on each transaction.

tracts that are rarely used for merchandising that are criticized, while the others, distinguished as "forward contracts," "unfilled orders," or the like, are accepted as clearly useful. But at various times in the past, when speculation had developed in ordinary forward merchandising contracts, their use was called "futures trading" (or the equivalent term in the language of the country) (*1*, pp. 32–40; *3*, pp. 146–47, 192–93, 217), and was attacked with the same arguments that have been directed against modern futures markets.

In many lines of trade, and at many times and places in the past, businessmen have found it advantageous to make contracts for delivery of a commodity at a future date. It is recorded, for example, that Dutch whalers in the early 16th century commonly contracted sales of the products of their voyages long in advance (*1*, p. 33). This was presumably done partly to aid in financing the voyages, and partly with a view to getting a higher price than could be expected if the entire product of a voyage had to be sold quickly after arrival in port. Potato growers in Maine are said to have adopted very early the practice of contracting sales at about planting time as a means of financing production (*10*, pp. 3–6). But the forward contracting that has led to organized futures trading appears usually, if not always, to have been initiated primarily by merchants. European futures markets emerged principally or wholly out of the import trade. In the United States, where futures markets were to develop on the largest scale and in greatest number, beginning around the middle of the last century, they arose from forward selling initiated chiefly by dealers in domestic products who did not themselves sell abroad, though a part of the products that they handled was destined to enter foreign trade (*3*, pp. 192–93, 217, 317, 331; *2*, pp. 69–87).

Whenever forward selling has attracted the interest of speculators, the sellers have found that they could sometimes, or often, obtain higher prices from speculators than from other prospective buyers. And whenever speculative buying on forward contracts becomes prevalent, there is a tendency for the speculators to prefer to deal in a standardized form of contract. Producers and merchants found very early that they could often serve their own purposes best by contracting a sale on the standard terms preferred by speculators, and then later settling that contract by some means equivalent to "buying it back,"[2] and at the same time making a new sale contract (or sale) involving usually delivery of a different quality of the commodity than the minimum allowed under the standard contract, and at a different time and place. Such use of the form of contract preferred by speculators came to be known as *hedging*, which may be defined as the use of a standard form of contract (a "futures" contract) as a temporary substitute for a merchandising contract that is to be made later.[3]

[2] The method of settlement has varied widely during the history of "futures trading." The usual modern practice of exchanges is to treat a single futures transaction as resulting, for practical purposes, in two identical contracts, one between the seller and the exchange clearing house, and the other between the buyer and the clearing house. Anyone who stands in such a contractual relationship to the clearing house may then extinguish it by making an offsetting contract for the same quantity and delivery time, and paying the clearing house, or receiving from it an amount depending on the price difference involved. Buyers and sellers of futures who are not "clearing members" of the exchange deal through individuals or firms who are.

[3] A definition of hedging should avoid any more specific statement of purpose than is given here, because hedging may serve a number of different purposes, varying with circumstances.

Hedging, described above as done by a seller of the commodity because that is its major use, is also done extensively by buyers of some commodities. In certain futures markets the amount of "long" (buyer) hedging contracts in effect occasionally exceeds the amount of "short" hedging contracts in effect ("open"), at the same time.

Attacks on futures trading have probably always involved the charge that the attendant speculation caused excessive and unwarranted price fluctuations. Often the further charge has been made that "short selling" of futures tended to depress prices unreasonably. Nor have such charges been confined to futures markets of the modern type, used by handlers of the commodity chiefly for hedging rather than for merchandising. They appear to have arisen soon after the emergence of any active speculation in "futures," at times when dealers in the commodity who had contracted sales normally expected to make delivery under the contracts.

The widespread growth of futures markets of the modern sort during the latter part of the 19th century aroused particularly severe opposition in Germany and the United States, culminating in the 1890's. Futures trading in grains was prohibited in Germany by a law passed in 1896 (*2,* pp. 225–29), but subsequently repealed.

In the United States, a bill that would have imposed destructive taxation on all existing futures trading in farm products escaped passage by both houses of Congress in 1893 only because final action on it before the 52d Congress expired required a suspension of the rules of the House, and the vote of 172 to 124 in favor of the suspension was less than the two-thirds majority needed. A similar bill considered by the 53d Congress gained passage only in the House (*1,* pp. 219–23).

In the 19th-century debates over futures trading, the charge that speculation caused frequent unwarranted price fluctuations was countered by the argument, supported by many leading economists, that speculation tended to reduce price variation. But the latter argument was inconclusive because it depended on unproved assumptions regarding the nature and quality of the speculation. Eventual effectiveness of the defense of futures trading at that time thus turned on evidence of the usefulness of futures markets otherwise than in price formation; and because commodity dealers then used futures contracts very little as a direct means of transferring ownership of commodities, the defense of futures markets hinged on their usefulness for hedging.

Hedging—that is, the use of futures contracts as a temporary substitute for merchandising contracts to be made later—is done for different reasons in different circumstances, and in any one instance it may be done for a combination of different reasons (*11; 12,* pp. 436–42). Usually, though not always, it involves a reduction in the amount of risk run by the hedger. In the discussions of futures trading during the late 19th century, attention was centered on that one characteristic of hedging in futures, and hedging came to be regarded as done only to avoid or reduce risk. Continued acceptance of that narrow, and sometimes quite false, view of hedging was later to play a key role in the destruction of futures trading in onions, as we shall see presently.

RECENT ATTACKS ON FUTURES MARKETS

Futures trading in onions and potatoes reached substantial volume only after World War II. In 1955, bills were introduced in the United States Congress that would have abolished futures markets in both commodities. Committee hearings were held on the proposed legislation, but the 84th Congress adjourned without taking action on it. New bills introduced in the next Congress sought abolition only of futures trading in onions. After fairly extended hearings by committees of both the House and the Senate (*5; 7; 8*), the Congress, in 1958, enacted Public Law 85-839, prohibiting futures trading in onions. In the following year an attempt by the Chicago Mercantile Exchange to get that law declared unconstitutional failed in a U.S. District Court, and was dropped without appeal to the Supreme Court. Early in 1963 a bill to prohibit futures trading in potatoes was introduced in the 88th Congress, and committee hearings on it were scheduled promptly.

The onion and potato markets are very similar in their organization and economic characteristics, and the futures exchanges for the two commodities operated similarly, though the futures business in onions concentrated almost wholly in Chicago and that in potatoes in New York.

The basic reasons for success of the attack on onion futures trading were somewhat obscured in trade circles by emphasis on two suggested reasons that had, at most, only minor influence. Some people attributed the prohibition to defects in the onion contract and to abuses that had been permitted by the exchange. Actually, such considerations received little attention in the congressional hearings, and none at all in the committee reports based on those hearings (*6; 9*). "Political pressure" was even more widely credited with having accomplished destruction of the onion futures market. Yet that view does not bear analysis either. Onions are a minor crop, growing best on muck soil. The spotty distribution of good onion land across the country, and concentration of the major part of the production in northern states, where cold winters allow effective storage without artificial refrigeration, has left most congressmen with few if any commercial onion growers in their districts. Even if all such growers had been opposed to futures trading, which was by no means the case, they could have swayed few votes in Congress. It seems clear that futures trading in onions was prohibited simply because too few members of Congress believed that the onion futures market was, on balance, economically useful.

ADVANTAGES OF HEDGING

The main argument presented on behalf of the onion futures market in the Congressional hearings was unconvincing because it relied on the traditional, oversimplified explanation of hedging. According to that explanation, hedging is done merely to avoid risk, and on that supposition it appears logical to suppose that dealers who found hedging useful would hedge regularly. But the Administrator of the Commodity Exchange Authority testified that onion dealers tended to hedge "only partially and to place and remove their hedges sporadically, with changing appraisals of current market conditions" (*5*, p. 6). In con-

sequence, the House Committee on Agriculture, in its report recommending the proposed legislation, stated that "there is relatively little buyer hedging in onion futures" (*6*).

Yet statistics of the Commodity Exchange Authority showed that, contrary to the inference drawn by the House committee, there had in fact been a large amount of buyer hedging in onion futures (*4*). Since hedging involves appreciable costs, the numerous onion dealers who hedged year after year, even though not at all times, seem to have found hedging useful. This factual evidence failed to carry weight with the committees, because no one explained why hedging in onions may be most useful to a dealer if done "sporadically."

The real reasons for hedging, in any line of business, can be understood well only in relation to the associated business operation. Businessmen in general are concerned with making profits, not primarily with avoiding risks. Making profits involves taking risks, but there is a limit to the total amount of risk that any businessman can take prudently; consequently, good business management requires avoiding risks that show little opportunity for profit, in order to take other risks that offer a better chance. In the onion trade, dealers often, with good reason, thought it advantageous to take the risk involved in carrying onion stocks unhedged, or only partially hedged. Such a dealer however, would hedge when merchandising reasons led him to hold a supply of onion through a period in which he expected a price decline. When he hedged, it would be to avoid loss from such an expected drop in prices. That is why onion dealers appeared "to place and remove their hedges sporadically, with changing appraisals of current market conditions." In fact, the hedging was not sporadic, but carefully *selective* in its timing.

Such selective hedging is common also among potato dealers. Its usefulness in the general economy can be greater than that of hedging that merely transfers risks from dealers to speculators, for it allows well-informed dealers to give effect to definite price opinions in determining the market price. Dealers who think the current price too high, and who therefore hedge the stocks they must carry for merchandising reasons, avoid supporting it. Many dealers who hedge in such circumstances will also buy futures when they think the market price too low, but for merchandising reasons cannot carry as large physical stocks as they would like to hold in line with their expectations. They thereby lend more support to the price than they could in the absence of a futures market.

At times nearly one-half of the "speculative" long contracts in onions were held by dealers and others who, when they had contrary price expectations, would hedge.[4] Such selective hedging, and the accompanying "speculative" use of the futures market by hedgers, relieves dealers of pressure to modify their holdings of physical stocks. It also lets them conduct their merchandising business strictly in accordance with merchandising considerations, and thereby improves their efficiency and economy in marketing.

[4] Documentary evidence on this point comes from tabulations of contract holdings by occupational groups in (*4*). On December 31, 1956, for example, the three occupational groups that always accounted for most of the reported hedging in onion futures, are shown as having held long speculative positions accounting for 49.9 per cent of the total reported speculative holdings.

EFFECTS OF PUBLIC COMPETITIVE BARGAINING

The Congressional opinion that onion futures had proved of little value for hedging arose in part also from misunderstanding of the reason for an obvious willingness of many onion dealers to accept readily prohibition of futures trading. In the onion futures market, as in all others, trading was conducted under rules designed to give maximum assurance that the price on every transaction would be arrived at publicly in open competitive bidding. By requiring such publicity of transactions in futures, the exchanges give every buyer and seller assurance that he will not be seriously victimized in case the other party to the transaction has a great bargaining advantage. In private dealings, with only the two parties to the transaction present, a difference in bargaining advantage, owing to difference in financial position, market knowledge, or other circumstances, can be very costly to the weaker bargainer, and correspondingly profitable to the stronger one. Transactions in "cash" onions and potatoes are almost invariably made in private, giving opportunity for the stronger bargainer to profit from his advantage; but if a futures market is operating alongside the cash market, the prices quoted in the openly competitive futures market supply the weak bargainer in cash transactions with information by which he can avoid being seriously victimized. Obviously any large dealer who wished to profit from his superior bargaining advantage, in either his buying or his selling operations, found existence of the futures market a considerable handicap from that standpoint. That was the reason why some dealers in onions actively sought abolition of the futures market, and why some potato dealers now seek to destroy futures trading in potatoes.

PRICE EFFECTS

Besides failing to convince Congress of the usefulness of hedging onions, the argument presented before the committees failed also to meet successfully the principal argument made against the futures market. In consequence, the Senate Committee on Agriculture and Forestry, in its report on the proposed legislation, concluded that "speculative activity in the futures markets causes such severe and unwarranted fluctuations in the price of cash onions as to require complete prohibition of onion futures trading in order to assure the orderly flow of onions in interstate commerce" (*9*). The report of the House committee reflected a like opinion.

The crucial feature of this assertion is its implication that such "severe fluctuations" would not have occurred in the absence of a futures market. A study prepared in the U.S. Department of Agriculture at the request of the House committee showed that fluctuations in cash prices of onions had tended to be slightly, but significantly, smaller in the years with futures trading than previously (*7*, pp. 50–56). On the basis of that and other information, the Secretary of Agriculture wrote the House committee that "the prohibition of futures trading in onions could not be expected to eliminate erratic price movements traditional in the marketing of the commodity" (*6*).

The committee reached its conclusions regarding price fluctuations, therefore, by accepting a line of argument directly contradicted by evidence and official opinion. A similar conflict of argument and evidence will have to be resolved

when the Congress considers futures trading in potatoes. It will be claimed that the futures trading has led to severe fluctuations in cash prices, such as would not have occurred without futures trading, despite contrary evidence from valid comparisons of the price record, and the Congress will be forced again to choose between argument and evidence.

A study by the present writer has confirmed the conclusions of economists in the Department of Agriculture regarding the price record for onions, and added some further information. By investigating price variation within individual months, I found that the reduction in price variation apparently attributable to futures trading occurred chiefly in the final two months of the storage season, when the recurring large price changes usually represent adjustments made necessary because previously the price has been either too high or, usually, too low (*14*, pp. 21–22).

TABLE 1.—COMPARISON OF VARIATIONS IN CASH ONION PRICES, REFLECTING INFLUENCE OF FUTURES TRADING, 1949/50 TO 1957/58*

Price variation	9 years, 1949/50–1957/58	14 earlier years	4 later years
Price increase, Oct. ave. to March ave.			
Smallest (largest decrease)	−$1.78	−$0.44	−$0.18
Largest	2.38	5.30	2.29
Average, all yrs. in group	0.20	1.19	0.90
February–March price range			
Smallest	0.36	0.50	0.54
Largest	2.32	4.68	2.46
Average, all yrs. in group	1.10	1.64	1.42
Proportion of ranges $1.50 or greater	22%	54%	50%

* Prices per 50-pound sack, yellow globe onions f.o.b. Western Michigan shipping points as reported by Market News Service, U.S. Dept. of Agr. and Michigan Dept. of Agr., cooperating, in 1947/49 dollars.

The foregoing table sumarizes, in its first two columns, the main results of comparing variations in cash onion prices in years when the futures market was operating effectively, with price variations in earlier years. The third column supplies corresponding figures for the four years since futures trading was prohibited. The prices used are peculiarly representative of prices to producers nationally because of the central position of Western Michigan in the belt of late-crop onion production. When data for the first two columns were compiled initially, the plan was to compare price variations in all postwar years during which futures trading had existed, with price variations in an approximately equal number of prior years without futures trading; but study of the price record soon showed, as might have been anticipated, that a futures market with very little hedging and correspondingly little total business, as was the case with onions until 1949/50, had no perceptible influence on the cash market. Only during the nine years between the summers of 1949 and 1958 was business in onion futures great enough to substantially influence the cash price; hence the years covered by the tabulation were grouped as shown. The primary fact revealed by the

tabulation is that extreme price fluctuations, leading to a price range of $1.50 or more during February–March, occurred only about half as frequently when there was an effective futures market as in other years. And along with this reduction in frequency of large February–March price changes, the futures market brought also a reduction in the average amount of price increase from October to March.

The sharp changes in onion prices observed so frequently in February–March occur then because abundant supplies of new-crop onions first reach the market about the end of March. Old-crop supplies must be made to last until new-crop onion begin to arrive in volume, but after that they are in little demand. If onion supplies from the previous summer's crop have been used too rapidly, owing to prices having been unduly low in relation to the size of the crop, supplies remaining for use in the final weeks of the storage season are discovered to be scarce, and the price rises accordingly. If supplies have been used too sparingly earlier in the season, owing to the price having been unduly high, it becomes evident that a surplus remains, and the price drops accordingly near the end of the storage season. Not only were large price readjustments near the end of the storage season more frequent in other years than in those when an effective futures market was operating, but in the years without an effective futures market there was a general tendency for the price to be unduly low early in the season, when growers sell most or all of their crop, whereas in the years with an effective futures market prices averaged only 20 cents lower in October than in the subsequent March.

It may be arguable that other factors besides futures trading contributed to causing price variations to be smaller during the years when there was an effective futures market than in either earlier or later years, but the evidence in the accompanying table makes it clear at least that futures trading in onions caused no increase in size or frequency of cash price fluctuations.

A FALLACIOUS ARGUMENT

The argument the committees found more persuasive than evidence from the price record proves, on close examination, to be incomplete and misleading. It rested primarily on evidence that in the presence of a futures market, large price changes had been accompanied by unusually rapid transfer of futures contracts from one holder to another. But no valid evidence was given to show that rapid transfer of futures contracts necessarily involved any influence that would cause larger or more frequent large price changes than would have occurred in the absence of the futures market.

The reasoning behind the committee conclusion therefore failed to connect the evidence with the conclusion that it was supposed to establish. Moreover, no sound reasoning that could bridge that gap has ever been provided. A line of argument that is commonly accepted is false because it involves supposing that in the absence of a futures market the price is "determined by supply and demand" in some automatic way, independently of human judgments, and that speculation in a futures market interferes with that "invisible hand."

In fact, the price of any storable commodity in a free and competitive market is determined only indirectly by physical supply and by demand for final use. Its direct determinants at any given time are human judgments, influenced by

more or less accurate knowledge of supply and demand conditions. If prices formed initially on such judgments are wrong, the basic facts of supply and demand will presently change those judgments, but the new price that results still will be determined directly by human judgments, based on currently available information. Hence the price is subject to essentially the same influences whether a futures market exists or not. Whether existence of a futures market tends to make prices fluctuate more or less than they would otherwise can be determined conclusively only by comparative studies of price fluctuations under the two conditions.

If the futures market in onions had in fact resulted in much larger changes in the cash price than occurred in the absence of the futures market, or had resulted in large price changes occurring much more often than without the futures market, it would be relatively easy to demonstrate that fact by comparison of the price fluctuations that occurred under the two conditions. If the futures market had been responsible for "severe and unwarranted fluctuations," the price record would have shown conspicious evidence of such ill effects. There is no such evidence. It failed to show in comparisons made with price changes in years prior to establishment of the futures market in onions; and, as the foregoing tabulation reveals, it fails now to show in price changes during the four years since futures trading in onions was prohibited. Members of the Congress who voted for the prohibition of futures trading must be credited with an honest belief, but their belief rested on mistaken reasoning from the facts that they thought supported it.

PROSPECTS FOR FUTURES MARKETS

The attacks on futures markets in onions and potatoes have some resemblance to the first flights of wild geese heading south in the autumn, for they stemmed from a pervasive influence, namely a tendency toward concentration of the bulk of merchandising and processing of any commodity into the hands of a comparatively small number of firms. Such concentration gives the large firm opportunities to profit by exercising its power to control, within certain limits, the prices at which it buys and sells in any market where it has gained a position of dominance. But a futures market, wide open to competitive buying and selling, defies domination by any one firm or group, except occasionally, for brief intervals, when an expiring future may sometimes be "squeezed"; and with an open and highly competitive futures market in existence, opportunities for a dominant firm to control prices in more or less isolated cash markets are considerably restricted. Thus a large firm with a disposition to exploit opportunities to influence buying or selling prices in its favor must view a futures market as an obstacle to gaining profits by one route, though an aid in other respects; and as leading firms absorb increasing proportions of the merchandising or processing of any commodity, they tend presently to reach the point where a futures market hampers their profit-seeking efforts more than it aids them.

When large merchandising or processing firms set out to free themselves from the need that a futures market imposes on them to compete with others on approximately equal terms in their buying or selling, they seek first to persuade smaller merchandising and processing firms, and producers, that they also

are being harmed by the futures market. In this effort they are aided, on the one hand, by the fact that most futures markets are open to some valid criticism, and on the other, by the widespread tendency of most people to believe that speculation on futures markets does tend to generate unwarranted price fluctuations, such as would not occur otherwise.

Defects in the operation of futures markets tend to arise and be perpetuated primarily by the fact that exchange practices that restrict the usefulness of the market for hedging can be a source of profit to certain members of the exchange. In consequence, any futures exchange tends to have some members who try vigorously to establish or maintain practices that restrict the usefulness of the market to hedgers, and to the public generally.[5] Resistance to such efforts by other members of the exchange, unless the practices are recognized as damaging to the exchange as a whole, tends to depend on concern for the public welfare, which is rarely as strong a motivating force as desire for personal profits. The chief defect that was thus perpetuated in the onion futures market, and in the potato market until early in 1963, was the use of a contract providing for delivery at a point that was not central to the price structure for the commodity. Consequently, the futures prices were not closely tied to the general structure of cash prices, and neither futures market was as reliable for hedging as it might have been. If exchange members generally were aware that the total amount of futures business done depends primarily on the amount of hedging that the market receives, their first concern would be to serve hedgers as best they could. But it is obvious to any informed observer that speculators account for a much larger proportion of the transactions on any exchange than do hedgers, and comparatively few exchange members seem yet to realize that the amount of speculation in any futures market is itself closely dependent (except over short intervals) on the amount of hedging that comes to the market. As recognition spreads that speculation comes to a futures market only in fairly close proportion to the amount of hedging—that hedging provides the true basic as well as the chief economic justification for speculation on a futures market—it will become easier for the governing bodies of exchanges to resist efforts of special interests to establish or maintain practices that detract from the economic usefulness of the exchange.[6]

The widespread belief that speculation tends to generate unwarranted price fluctuations, which has so readily won support for any attack on a futures market and was a prime influence behind the legislative prohibition of futures trading in onions, is a belief that can be proved true or false only by empirical evidence on price behavior. To oppose it with the traditional economic argument supporting the contrary belief tends to be futile, because sound logical reasoning can lead to either the one conclusion or the other, depending on what assumptions are

[5] Possibly some exchanges should be excepted from this generalization. A study of inter-option price spreads, in which the practiced eye can reliably detect evidence of any significant "squeeze," revealed no indication of the occurrence of any squeeze in Liverpool wheat futures during the 48 years covered by the study (*11*, pp. 137–38). On inquiry concerning the reason for their absence, the secretary of the exchange responded with a statement of the means by which they were prevented; but the means employed (for legal reasons, not usable by American exchanges) could not have been so effective as it evidently was without general acceptance by the exchange membership of a standard of business ethics that would have tended to prevent the emergence of unjustifiable exchange practices.

[6] For evidence of the dependence of speculation on hedging, see *15*.

made regarding the behavior of speculators; and speculative behavior is too diverse, and too difficult to appraise directly, to allow proof that its price effects are necessarily of the one sort, or of the other.

One line of evidence that is being developed on the price effects of futures trading is too complicated to be readily discussed here.[7] A simpler sort of evidence, through direct comparison of price variations in a given market before the introduction of futures trading and price variations after futures trading had become well established, was tried early in the history of futures markets. The results were promptly recognized as inconclusive owing to the presence of great changes in other market conditions between the periods compared, rendering it impossible to judge confidently whether any observed change in price variability should be attributed to the introduction of futures trading, or to the other changes in market conditions (*1*, pp. 122–23). These early efforts to test the price effects of futures markets were handicapped also by shortcomings in understanding of how the statistical comparisons might best be made. Yet even with the knowledge now available, no comparison of price variations before and after the establishment, in 1936, of futures trading in soybeans could throw significant light on the price effects of that futures market; other market conditions changed too greatly between the periods to be compared to allow judging whether any change in price variability that may have occurred arose from the introduction of futures trading or from other changes that accompanied a great increase in production and utilization of the commodity.

In the case of onions, the establishment of a futures market appears to have been accompanied by no other important change in market conditions that would have significantly affected price variability (apart from the general change in price level, for which adequate adjustment can be made statistically); hence the changes that occurred in onion price variability seem rather clearly attributable to establishment of the futures market. Moreover, the particular combination of change and lack of change in different sorts of price variability that occurred in the onion market is one that is readily explainable as a consequence of futures trading, and appears not explainable on any other grounds.

History may afford no other price record from which one can judge the price effects of establishment of a futures market so simply and reliably as from the record of price variations in the onion market. There is certainly no other comparably good record from which one can check the apparent effects of establishment of a futures market by observing also what happened after its abolition, as one may from the data in Table 1 on p. 19.

Evidence of beneficial price effects of futures trading in one commodity does not prove that equally beneficial effects occur for all commodities. Possibly the speculation that entered the onion futures market was of a particularly beneficial sort, though the contrary was alleged in the Congressional hearings; or possibly the onion market is one that was especially open to improvement of its price behavior, by means of futures trading. But for the purpose of passing judgment on the usefulness of futures markets, it is not necessary to have evidence that such markets tend generally to improve price behavior, but only that they

[7] Summaries of the evidence are given in *13* and *16*, pp. 445–49.

tend to produce no serious adverse price effects. Their great and clear merits for hedging, and as an impediment to such exploitation as tends to accompany imperfect competition, can then be sufficient reason for encouraging the maintenance of futures markets. The chief general significance of the evidence on price effects of the futures market in onions is that, by proving the falsity of the charge that futures trading in onions had peculiarly bad price effects, it shows the charge to have been based on false reasoning; it shows that the occurrence of rapid transfer of contract ownership between speculators during periods of rapid price change, observable on all futures markets, is not a valid basis for concluding that speculation causes more price variation than would otherwise occur.

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