

A forward look at Futures Trading in Livestock

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Two broad conditions underlie the rise of futures. One is the specialization that is part of economic growth, and the other is that forward trading is achieving specialization. What we will have to say about livestock and meat futures should be understood against this background.

With every enlargement of the economy, there invariably are some activities that can be further specialized. It is the familiar notion associated with Adam Smith that specialization depends on the extent of the market. But also, the extent of the market depends on specialization. That is, the accretions to the real product or real income of society (which ultimately define the size of the market) arise from gains from specialization and the gains from trade.

Now, this implies something important about reorganization of production. A continuing problem of business enterprise is to search the market for areas that are large enough to sustain the output of more highly specialized operation. And when the market comes to absorb the output of many such specialized operations, then some enterprising person will take a sub-process and put it into its own specialized operation and, hence, produce more cheaply than others can do for themselves. Thus, the principal attribute of the economic growth process is that it is unsettling.

Whenever it becomes feasible to refine production further, scale economies increase, and opportunities arise to apply technology. Entire industries may be caught up in the need to adjust in what to produce, and what to own.

Arrangements for exchange also become more sophisticated. There is a set of contractual arrangements that together can be regarded as "the financial system". This system enables production to be organized on a more efficient basis, by separating the ownership of capital from its administration in production. There

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is a need to mobilize the saving of many individuals and put them at the disposal of those who want to produce. There is a need to divide enterprise and apportion the responsibility for the parts among people according to individual preferences. There is a need to facilitate the shifting of enterprise plans as conditions change. There is a need to mitigate the large variations of returns so that the firm can plan to modernize and expand. This, in brief, is the general setting into which futures trading fits.

Conceptually, organized futures trading is equivalent to other arrangements that enable capital to be mobilized for efficient production. Futures does this by separating responsibility for owning commodities from their use in production. The owner, in economic terms, is the speculative interest. He may or may not belong to a specialized class; he is anyone (including farmers, processors and college professors) whose net worth is affected directly by what happens to commodity prices. His commitment influences the flow of capital, which flow appears outwardly as an investment by hedgers in inventories, facilities, labor and so on. It is deceptive that no funds flow directly from the commodity owner into the commodity business. The flow of funds, in consequence of the speculative commitment, is indirect and often not traceable under sophisticated financial arrangements.

On the other hand, the hedger's province of enterprise (as a hedger) is to produce services. Such services achieve commodity transfers in place, form, and time. Arbitrages by merchants between foreign and domestic wool markets illustrate geographical aspects; hedge selling of potatoes by growers at planting time in the form of November contracts illustrate form aspects in turning fertilizer, seed, some land, and labor into a potato; and hedge selling of grain by terminal elevators on receipt of grain at harvest time, illustrate time aspects. Futures trading in livestock and meats merely extend these opportunities to market services in form, place or time.

So much by way of orientation. In September of 1959, William Wesson and I gave a paper at a Chicago Board of Trade Seminar. It was a dull period for futures. Price supports, state trading, vertical integration, contract farming, and attitudes reflected in the onion and potato experiences, all seemed to be against it.

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The 1958-59 year was disappointing. The average open contracts for the five major kinds of grain (including soybeans) had declined from the previous year. Some of the younger brokers wondered aloud whether it might not be wise to leave for greener pastures. We were asked to discuss the future of futures trading at a seminar. Our thoughts were put down on paper. We were optimistic — perhaps more so than some people at that time thought valid. We tried to put matters into perspective. Despite the long-run failure of futures trading as a whole to grow over three decades, there was underlying strength in the feed, animal product, and semi-perishable product components. These favorable tendencies were submerged in the overall picture by the adverse effects of cotton and wheat. (And we surmised that the latter had about reached their limits.)

Basic forces were examined. The business of producing feed crops and livestock were being separated and increasingly specialized. Less feeds were fed where grown. More were entering livestock production through purchase and sale. There was an increasing role for futures trading, or for equivalent arrangements, arising from the necessity of putting activities in the grain-feed-livestock sector (and other sectors) on a more efficient basis. Whether futures trading in particular cases would rise or fall alongside other means for organizing economic activity would depend on how the emerging conditions affected each.

Our optimism seven years ago was well-founded. Futures trading has made remarkable strides. The aggregate of futures activity (as measured by open contracts) has by 1962-64 increased about 40 percent over 1956-58 levels, despite the failure of cotton to come back. More important, some of the reasoning still appears to make sense and seems applicable to the problem before us. I want to quote selected passages from the 1959 paper because they set the stage for what we have to examine today.

The first quote is on the kaleidoscopic nature of futures trading activity.¹

“The most easily identifiable influences in the failure of fu-

¹ Futures Trading Seminar — History & Development — Volume I P. 243-244, Mimir Publishers, Inc., Madison, Wisconsin, 1960.

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tures trading as a whole to grow over the past thirty years are in the two export crops — wheat and cotton. The basic factors are the changing market position of the two commodities and, inter-related with this, the support of prices and increased State trading. The composition of commodities in futures trading has shifted over the years. Some that once were very active are now inactive or have disappeared just as trading in pork provisions and butter. Trading in some commodities has been attempted without much success to date, e.g. in canned vegetables, (which was tried in Philadelphia with the four major vegetables), dressed poultry, live hogs, (which is the phenomenon of the old livestock exchange here in '31) frozen eggs, cheese, apples, mill feeds, rice, and others. Trading in some commodities has grown to relative large volumes, as soybeans, soybean oil, and meal, eggs, and potatoes. The shifting composition is by and large a response to a set of forces arising out of the structural organization and the needs of individual commodity sectors.”

We had not dealt with the possibilities of developing futures trading in fed cattle or bellies, but did keep our sights on underlying forces on which such developments would be based.²

“The number of enterprises per farm has declined. The amount of farm inputs that are home produced rather than purchased also has declined. Together, these trends result in greater specialization in agriculture. Some of the more pronounced trends in crop and livestock production can be seen clearly while others, though pervasive, are not as apparent.

In recent years, the latent possibilities for further specialization have seized the imagination of many people. Important experiments in crop and livestock production are underway. These are being watched with great interest. -----

Specialization of production is a physical phenomenon. To obtain lower unit costs through specialization, the scale of physical operations, and therefore, the amount of capital invested in the operation usually must be increased. How does the economic system adjust to one person operating the resources which are provided by others? The answer is through loans, leases, part-

² Ibid pp. 225-26

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nerships, syndicates, corporations, forward trading and so on. Because of business uncertainties the capital is financed both as enterprise investments and as money loans.³

It is unlikely that the corporate organization of farms would provide a solution. By and large, the corporation itself would attract little capital from outsiders other than from relatives and friends who might invest in any case. Be it a corporation, a partnership, or anything else. More likely, the outside capital will be secured by borrowing, leasing, joint account production, and by forward sales of output, irrespective of the legal form of the farm business."⁴

Then we examined contracting as a way of dividing up an enterprise, and thereby mobilizing capital. Now, we are going to get in futures trading. The revolutionary changes in the broiler industry were well underway at that time and this furnished us with a jumping off point.

"Man has invented various ways of dividing up an enterprise investment without dividing up the physical operation itself. Some are equal-share arrangements, like partnerships and corporations, in which all enterprisers are in the same boat. All gain or loss according to the profitability of the entire venture. Others are unequal-share arrangements in which the profits of the separate shares are largely independent of one another. Under "contract farming" and forward trading, an enterprise becomes subdivided into different parts and these parts are separately transferred to different parties according to individual preferences."⁵

The nature of the differences between "contract farming" and forward buying and selling may be readily illustrated. (Now in forward buying and selling, I see this as a generic term, it includes any form of buying and selling, including futures. This is just an institutional development.) If a broiler producer is treated essentially as a laborer working for a fixed fee, with little responsibility or reward for the success of the enterprise, then there is a wide gulf between contract farming and forward selling.

³ Ibid Pp. 227

⁴ Ibid. Pp. 226

⁵ Ibid Pp. 228

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Economically speaking, the farmer might as well be employed as a wage earner in a broiler factory. At the other extreme, if the grower accepts full responsibility for the rate of gain and death loss, then the difference is nominal. The broiler producing enterprise becomes subdivided into two parts just as house-building enterprises may be subdivided into two parts — as between the speculative builder and the contractor. The feed dealer (in this case the speculative interest, including an outside speculator) assumes the responsibility for having so much resources converted into so much meat at a later date. The grower assumes the responsibility for converting these resources. This is exactly the subdivision of the broiler enterprise that might be achieved through forward buying and selling, but the mechanics would differ. For example, the grower could provide all the inputs and at the same time sell his expected output for deferred delivery at a fixed price. Thus, his net return would be determined by his efficiency in turning inputs into outputs. No more capital might be needed under one scheme than under the other, and the scale of operations might be alike.

Most “contract farming” agreements fall between the extremes just described. They are flexible arrangements for dividing up an enterprise and, therefore, are readily adaptable to a wide range of economic conditions. At the same time, there has been an extension of forward buying and selling under fixed terms in both crop and livestock enterprises, as in growing cotton and feeder cattle. (These were days when the cattle were sold at a dance of the fall round-up, or sometimes by the calf driver.) This suggests a wide applicability of such enterprise sharing arrangements. The extension of either or both methods tends to be stimulated by the increased use of operating capital in modern commercial farming.”⁶

These reflections seven years ago fairly well describe the situation in cattle feeding today.

The term “contract farming” should be replaced with the term “custom feeding”. Specialization in production of fed cattle has required the development of new ownership, enterprise,

⁶ Ibid pp. 228-29.

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and exchange arrangements. Both customer feeding and futures trading serve these purposes. They are different types of responses to the same underlying need.

Custom feeding has grown rapidly. It now accounts for over one-third of the cattle marketed from commercial feed lots having 1,000 or more head capacity. Because such feed lots accounted for 40 percent of the fed cattle in the year 1964, about two and one-half million head were involved in custom feeding.⁷ But along-side, active trading in fed cattle futures has developed in just two years, exactly two years. While no data is available on

Chart I
*TRANSACTIONS ENTERED ON DECEMBER 1 FOR
DELIVERY ON THE DATE SHOWN IN
THE SUBSCRIPT*

NATURE OF ENTERPRISE	EQUIVALENT TRANSACTIONS	
	"FUTURES"	"CUSTOM"
Ownership of fed cattle June	Buy fed cattle June	Buy feeders Dec Buy feed Dec Buy feed lot services Dec - June
Production of feed lot services Dec - June	Buy feeders Dec Buy feed Dec Buy Labor, etc. Dec - June Sell fed cattle June	Buy feeders Dec Buy feed Dec Buy labor, etc. Dec - June Sell feeders Dec Sell feed Dec Sell feed lot services Dec - June

⁷Based on data shown in *Organization and Competition in the Livestock and Meat Industry*, Technical Study No. 1 National Commission on Food Marketing, June, 1966.

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the cattle represented thereby, a few rough figures show its probable magnitude. About 14,000 futures contracts are now on the boards, that includes some from other exchanges, representing about 300,000 head at 1150 pound average weight. If one-half the short-interest represented feed lot hedging (the other half, spreading and speculation), and if the feed lot turn-over averaged five months, then one-third of a million cattle per year would be involved. This is a substantial quantity, although distinctly smaller than the quantity produced under custom feeding.

While in practice, some custom-feeders provide the feed and feeder animals to customers, rather than their customers going out and buying them. These items would be billed at cost or the feeding charges would be adjusted accordingly.

The economic equivalence between hedging in cattle futures and custom feeding is shown in chart I p. 101.

Soybean crushing services are marketed in the same way. Processors buy soybeans and hedge these in oil and meal futures or in forward sales. The market established an implicit price for the relevant service. This is a genuine competitive price that appears in the form of a margin between two commodity prices. In the case of soybeans, the value of a bushel of beans is subtracted from the value of the oil and meal derived therefrom, and deliverable at the end of the crushing period.⁸ In the case of cattle, the value of the feeder animal plus the value of feed are subtracted from the value of the fed animal derivable therefrom and deliverable at the end of the feeding period.

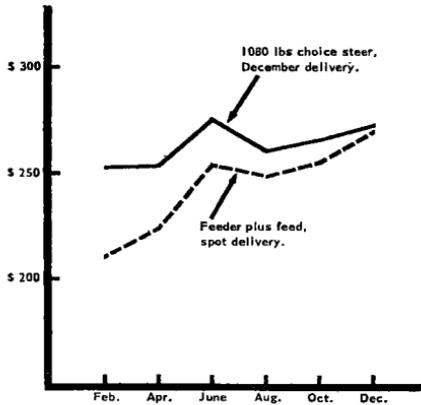
The unique thing about animal feeding is that one can enter at various points in the production sequence. One could provide as much or as little feed lot services as he chose. To show this, we focus on feeding to a choice grade for December delivery. One can feed a calf for ten months beginning in February; a heavier animal for eight months beginning April; a still heavier animal for six months beginning June; and so on. With December fed cattle futures traded through 1965, one can derive the implicit market price for feed lot services undertaken for different duration, as these appeared during 1965. (Figure I)

⁸ Allen B. Paul and William T. Wesson, "Short-Run Supply of Services — The Case of Soybean Processing," *Journal of Farm Economics*. Nov., 1966.

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Figure I

Margin between value of choice steer, December delivery and value of feeder plus feed, 1965. (Omaha — Kansas City bases)



The margin narrowed as the year progressed, reflecting the fact that less services were required to bring the animal up to weight; but, the margin on any day would also have been influenced by competitive forces — the demand for feedlot services and the amount of unused feed lot capacity. In any case, the price of feeding is independent of the level of cattle prices.

The particular margins shown in Figure (1) were based on Kansas City, Omaha prices, and on fairly standard ration and weight gain assumptions. They fall in the range of 10 to 18 cents per head per day and average about 13½ cents, which is in the range of what some of these cost studies show for various size feedings — a little bit better than some of them show.

So much for the equivalence between futures trading and custom feeding. What are the relative merits?

While pricing of services is established rather directly through custom feeding, such prices are not readily known because they are arrived at through private negotiations and may involve many considerations of value. On the other hand, while pricing of feed lot services is done indirectly through hedging, the cattle and feed prices are well known and margin computations can be standardized.

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For the outside speculative interest, access to custom feeding services may be somewhat difficult. Futures trading opens the gates. The hall-mark of futures is its machinery for safeguarding credit. It makes it possible to lend more against given collateral, or lend the same amount with more safety. The stranger can be fit into the scheme with relative ease.

Futures gives the feed lot operator extreme flexibility in changing his enterprise combinations. He can assume any degree of speculative position overnight. Commodity markets that are sophisticated show this behavior. In this respect, custom feeding is awkward.

Finally, futures trading fits the small man as well as the large one. Custom feeding, Willard Williams tells us, is associated mainly (and he's the one who made the study for the National Food Committee down in Texas) with feed lots having over 5,000 head capacity.⁹ A limitation on use of futures by small feeders is their unfamiliarity with it. Intermediaries might arise to fill this gap. In the potato market, the fertilizer or machinery dealer does this; in the cattle market, the livestock dealer or packer might do this. At least one packer seems to think that there is business here worth going after. If you just look at it, it is not always the small farmer that would be the most likely to benefit from hedging, and futures to be a business worth going at — or he may not. It's the kind of farmer who needs capital. He may be one with a 100 head or 200, or 500 head, which is certainly not large in a general operation, and if you have, say, a \$30.00 market rate of return for feed lot services above feeding cost for (X) period of time, multiply that by 200 head, you get \$6,000.00 known return for 200 head feeding. If you go up to 500, you get \$15,000.00, if this farmer or feeder can know he has in his return calculus for his labor, shed, machinery, gasoline; and to a fellow who is short of capital and has his eye on a piece of land somewhere, neighbor's land, wants to modernize his equipment, this may be a critical five or ten thousand dollar price of investment that he would like to lock in. He's a growing fellow, he's

⁹ *Structure and Conduct of the Commercial Cattle Feeding Industry, Supplement No. 1 to Technical Study No. 1, National Commission on Food Marketing, June, 1966.*

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a fellow who is going to be larger, so, I think, this idea of a small farmer vs. a large farmer is really not the exact way to put this matter, although there is some truth in it.

By "small", I mean the farmer who feeds 200 to 500 head annually and has profitable alternatives for capital. If hedging were to guarantee him a margin of \$30.00 per head above feed and feeder cost, this would be 6,000 to 15,000 dollars. It might be the kind of income guarantee he needs from year to year to expand his overall farming operation, by adding some land, building, or major equipment.

In sum, organized futures trading appears to have inherent advantage over custom operations. But it is new and has been developing its own terrain. The Chicago-Omaha contract seems to be mostly a mid-continent contract (for hedging purposes). (Now, this does not mean that I know people out here use it just for midcontinent contracts, what I am saying is, judging from the logic of where the supply terrain is and how the prices behave on the Southwest Coast and so on, that it is largely a mid-continent contract, which is a rather large territory — all the way to the Rockies.) Custom feeding seems to be mostly a development of the Southwest, that is, the people of Omaha, Texas, and southern California. Yet, the two overlap in the Cornbelt, and they overlap to a lesser extent in the West Coast. The problem of extending the usefulness of futures over a wider area is, in a large part, the problem of finding suitable delivery terms for a market that is so diversified.

I must apologize for not examining other livestock and meat futures, but perhaps the method of thinking shown here will suggest how to approach these topics. One would search the underlying economic rationing in terms of the gains from further specializing some part of the commodity process — whether it be growing, processing, warehousing, or distribution. Then he would examine the potential contribution of futures trading toward this end, including alternative arrangements to accomplish the same thing. I would have liked to examine other futures, but this was not possible.

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Communications — The nerve center of a market