



Cattle feeding strategies and financial risk  
by Terry Michael Billings

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE  
in Applied Economics  
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**Abstract:**

This research compares some basic cattle feeding strategies for Montana feedlots. The objective was to determine if cattle feeders could increase their return on owners equity and reduce risk by using cattle feeding strategies that utilize feeder and fat cattle hedging.

A simulation model was formulated to test both non-hedging and hedging strategies under different financial structures. A simulation program was then used to test these strategies on historical prices from 1966 through 1975.

The simulation results are generally positive. It was concluded that the use of feeder and fat cattle hedges could have increased returns and reduced risk in the Montana cattle feeding industry over the time period under study.

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Signature Terry Michael Billings

Date January 30th 1978

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by

TERRY MICHAEL BILLINGS

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of

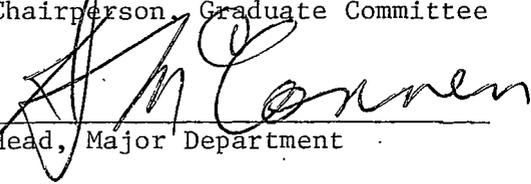
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ABSTRACT

This research compares some basic cattle feeding strategies for Montana feedlots. The objective was to determine if cattle feeders could increase their return on owners equity and reduce risk by using cattle feeding strategies that utilize feeder and fat cattle hedging.

A simulation model was formulated to test both non-hedging and hedging strategies under different financial structures. A simulation program was then used to test these strategies on historical prices from 1966 through 1975.

The simulation results are generally positive. It was concluded that the use of feeder and fat cattle hedges could have increased returns and reduced risk in the Montana cattle feeding industry over the time period under study.

## Chapter 1

### INTRODUCTION

#### Introductory Perspective

Feeder cattle have for some time been one of the most important elements of Montana agriculture. Each year Montana produces large numbers of high quality feeder cattle, most of which are exported to other states for finishing. There are a number of feedlots in the state but the finishing of feeder cattle is not a major segment of the state's agricultural income. There are proponents who argue that Montana has the resources to fatten many of its cattle, thus increasing the state's agricultural revenue. The development of the feeding industry in the state is dependent on many factors, such as the availability of feed grains, forage, management, climate, a market for the finished product and availability of financing. Recent developments such as low grain prices and the advent of boxed beef have made cattle fattening in Montana more feasible. However, perhaps the major problem of the cattle feeding industry which follows no geographical boundaries is price instability.

The cattle feeder is vulnerable to the price levels of feeder cattle, the major feed grains, and fat cattle. These price levels are subject not only to normal market adjustments, but government policy regarding the export of grains, the cattle cycle, and capital

that earns part of its return from sources other than cattle feeding, such as tax savings. The individual cattle feeder can do little about smoothing out the cattle cycle, although he should observe it and plan accordingly. However, there is something he can do about price level fluctuations during a production period. That is contracting.

Cash contracting is the safest and easiest method of assuring the feeder a forward price on inputs. Whenever feeders, grain, and finished cattle contracts are offered at levels that allow the cattle feeder to extract a sufficient return, he has a viable means of reducing or limiting his price level risk in certain market situations. However, cash contracts are not always offered, and when they are offered they seldom are at levels that allow the feeder to extract a sufficient margin. Cash contracts also tend to be rigid, reducing the feedlot operator's marketing flexibility.

An alternative to cash contracting is the use of the futures market to lock in prices for factors of production and finished product. Whether or not futures markets are an effective risk reducing tool is questioned by some feedlot operators and agricultural lenders. Some argue that the basis risk is so large as to significantly reduce the benefits of a hedging program for cattle. Others argue that, as with cash contracting, a profitable hedging opportunity seldom exists in the futures market.

As a result of the increased price instability in the cattle feeding business, feedlot operators are being forced to use more equity to finance their operations. The use of larger amounts of equity in the capital structure of feedlots tends to reduce the financial risk, however it often tends to reduce the return on owner's equity as well. The more conservative the financial structures of feedlots become, as a result of volatile cattle prices, the more difficult it becomes for a substantial feeding industry to develop in Montana. The reason being that fewer individuals will have the equity required to finance a feedlot large enough to capture the benefits from economies of size.

#### Objectives

It is the objective of this study to determine if Montana cattle feeders could increase their return on owners' equity while at the same time reducing their overall risk by adopting a complete hedging policy and increasing their financial leverage as a result of less variance in their earnings. However, in order to accomplish the primary objective of this study, the following sub-objectives must first be attained:

- 1) determination of the basis for feeder cattle and fat cattle in the Billings, Montana area;
- 2) simulation of various hedging and non-hedging strategies over a ten-year period, including a control strategy,

which uses no hedging; and,

- 3) a comparison of the earnings and variation in earnings for a hypothetical feedlot in the Billings, Montana area under the hedging and non-hedging strategies used.

The hedging strategies and methodology used in this study will be discussed at length in Chapter Three. Chapter Two reviews hedging theory and Chapter Four presents the simulation results. Study conclusions are presented in Chapter Five as are suggestions for additional research.

## Chapter 2

### THEORY OF FUTURES MARKETS

It is evident from the research that has been done in the area of futures markets that they evolved out of the industries involved in trading commodities (1,10,16). Merchants involved in the trading of commodities developed futures contracts for agricultural commodities to aid them in their buying and selling. The only other way they could possibly have been started is by people who wanted to create a speculative medium. However, the idea that futures markets grew out of the desire of people to speculate in price movements, has no historical backing.

One of the earliest futures markets was formed in Chicago to facilitate the grain merchandising trade. It is generally conceded, as Irwin pointed out (10), that this market grew out of the use of time contracts. The contracts traded in the early futures markets were viewed as contracts to be delivered upon. When the markets were organized it's doubtful that their founders foresaw the extent of hedging that takes place today (2).

The main functions of the early futures markets were to govern transactions through standardized rules, develop or set standards of grade, quantities to be delivered and rules or terms of delivery. Perhaps one of the most important functions they performed was to

develop a clearing house that guaranteed each contract. Because of the effectiveness of the trading on the exchange, due to stringent rules and regulations, the futures contracts came to be used more and more as a temporary cash contract rather than a contract to be delivered upon. As the futures markets evolved, merchants used them as a temporary contract to set prices in the future for a specified grade and quantity (2). Today only a small number of the contracts traded actually end in delivery.

Hedging became an effective marketing tool for many industry users from the grower to the final processor, but the warehouse merchants who carried large inventories and bore the risk of price changes, came to depend most heavily on hedging. If cash prices were low compared to futures prices, he could procure large inventories. As a result, inventory levels of grains came to depend on the "carrying charge" relationship. In turn, the carrying charge relationship reflected closely the aggregate stocks.

#### The Role of Futures Markets

The predominant role of the futures markets was and is today to facilitate hedging. Therefore, most economic studies done concerning futures focus upon the hedging aspects. Keynes was one of the first economists to point out the tremendous financial burden placed upon those who carry inventories of seasonally produced

commodities (12). The high correlation between stock and open futures contracts was first validated by evidence published by Hoffman (5). Hoffman's evidence of this relationship is recognized as the best evidence that futures markets are hedging markets (10,19,23). If the futures markets were speculative markets only, the number of open contracts should be greatest prior to harvest when uncertainty is the greatest. As further proof that futures markets are hedging markets, Irwin was able to show that the storage of butter and eggs during the summer created the need for inventory hedging in those commodities. As a result, futures trading in butter and eggs arose from the need of warehouse merchants to relieve themselves of the financial burden created by carrying the inventories.

The futures markets ability to guide inventory levels became understood quite well as Working's price of storage theory showed. The cash-futures price differential was an accurate price of storage for inventories of commodities (21,22). In more recent years the forward pricing function of futures came into use more as futures trading began in perishable commodities that could be stored for very short periods of time.

The forward pricing function of futures is less widely understood and a much more recent advent of futures markets. In the past, commodities that could be stored for a somewhat lengthy period, even perishable commodities such as butter and eggs, were the only commodities hedged. The inventories built up after harvest or the period of

production and were then hedged. However, hedging of potatoes began during the growing season with open contracts reaching a peak near harvest time. The number of contracts then decreased during the period of storage. This was a new dimension of the futures markets and not fully explained by then existing economic theory.

Working had recognized trading practices other than conventional hedging of stored inventories before the advent of potato futures. He referred to such practices as operational and anticipatory hedging (20). Moreover, it wasn't until 1956 that the definition of hedging was amended to include anticipatory hedging. This amendment allowed the development of futures trading in such commodities as fresh eggs, live cattle, live hogs, and manufacturers of commodities such as lumber, soybean oil, and plywood. Concerning these new developments, Houthakker said,

"The mainspring of futures trading, according to the view presented here, is the need to finance inventories in the face of fluctuating prices. A prerequisite for sustained trading, therefore, is the existence of considerable inventories." (6)

#### The Theory of Hedging

In reviewing the development of hedging, Gray and Rutledge (2) categorized hedging into four classes. Although they conceded that categorization is difficult, each class does represent a different set of motives from the hedgers points of view.

The first type of hedging is that done to eliminate risks connected with price fluctuations. Lyon and Hardy (4) early in the century spoke of risk elimination. However, since cash and futures prices do not move parallel, the risk of price changes cannot be eliminated. At best, the risk of price fluctuations can be reduced if basis variability is less than price variability. Therefore, this view of hedging is rather shallow at best.

The second class of hedging under Gray's and Rutledge's classification is the reduction of risk connected with price fluctuation. Gruen pointed out that the effective usefulness of a futures market is dependent on the relationship between the futures and cash price (3). Therefore, in order to determine the usefulness of a hedge, one must first measure the degree of basis change compared to the degree of price change. The method in which this is usually done is outlined as follows:

- 1) measure the change in price of the cash commodity over a period of time;
- 2) measure the change in basis over the same period of time; and
- 3) the smaller the ratio of basis change to price change, the more effective is hedging in that commodity.

In practically all cases where the above procedure was followed, basis change was less than the change in the price (7,8,9,14,24). The above method of determining the effectiveness of a futures market

for hedging implies that the closer cash and futures prices parallel each other, the more effective the hedge. However, if the basis movement is predictable, then parallel movement of the two prices isn't necessary (2).

### Motives for Hedging

Working pointed out in his research that if hedgers were to use basis stability to measure returns, they often have losses after costs of insurance, storage and interest. He therefore concluded, that conventional basis stability measurements were not completely capable of determining the effectiveness of a market as a hedging medium. Working then demonstrated using wheat price data, that basis fluctuations are predictable. As a result of his studies in this area, Working outlined four motives for hedging. This brings us to the third type of hedging which is hedging that is done to profit from basis movements. Working's four reasons for hedging are as follows:

- 1) Hedging aids buying and selling decisions since one can consider prices relative to other factors of production rather than the price level.
- 2) Hedging allows more freedom in making general business decisions. For example, it allows farmers to take advantage of a favorable price in the futures while his growing season is still in progress.

- 3) It allows people in the warehouse business to determine whether or not it will pay for them to store commodities traded on the exchange. This is done by comparing cash prices to futures prices.
- 4) Hedging aids in the overall reduction of business risks. Working states that there is a reduction of business risk when hedging is done for any of the above three reasons, even if it is a by-product of the original decision to hedge.

Working's statements as to why hedging is popular with lenders diverged sharply with the risk motive for hedging. He was in effect saying that hedging is undertaken and inspired by the profit motive rather than solely as a means of reducing risk. Risk reduction gained through hedging is an advantage, but usually not the factor that instigates the hedge. Working defined this type of hedging as arbitrage hedging. Merchants would spread between the cash and future, often called basis trading in the grain trade. By being able to predict basis movements, they hoped to profit from changes in the basis (20).

Working placed other types of hedging into two categories, selective hedging and anticipatory hedging. These types of hedging are done in response to expected prices. An example of anticipatory hedging would be a cattle feeder who long hedges grains for cattle he has yet to put in the feedlot. Selective hedging is the placement of a hedge when the processor, merchant or whoever, expects prices to

move against him (2).

Arbitrage hedging, or complete hedging as it's sometimes called, becomes a part of business management. The opportunity to profitably put on a complete hedge may be the reason for acquiring inventory stocks. When hedging in this manner, however, the question arises as to whether risk reduction or the profit incentive motivated the hedge. The insurance view of hedging, which is risk reduction, would have to be rejected and the expected gain motive accepted (2).

Gray and Rutledge's fourth classification of hedging is hedging that is done to maximize expected returns for a given risk (variability of return) or minimize risk for a given expected return. From this viewpoint it is recognized that the hedger can hold any combination of three assets. The assets are unhedged stocks, hedged stocks, or stocks hedged by a forward cash sale. This view of hedging has been studied from the viewpoint of portfolio theory by Stein, Johnson, and Telser (11,15,17).

The portfolio theory of hedging provides an interesting analysis of risk management, however as has been pointed out, risk reduction is not paramount, but often a by-product of the profit motive when using the futures markets. Obviously the portfolio approach to hedging is applicable for many hedgers including some who hedge cattle. However, the primary thrust of this study is to determine if the complete hedge is an effective tool for stabilizing or increasing

earnings with risk reduction as a secondary motive.

## Chapter 3

### HEDGING STRATEGIES

#### Risk Reduction and The Basis

A simple textbook example of hedging has the holder of a cash commodity, such as wheat at \$2.50 per bushel, selling a futures contract at whatever price offered in the month the owner of the wheat plans to sell it. If the owner decided to sell in December and the December futures is trading at \$3.00, he sells a number of futures contracts equivalent to the amount of cash wheat he is holding. Now if in December the price of wheat is \$2.75, the owner of the wheat sells his cash wheat for \$2.75 and buys back his futures contract for \$2.75. He has received \$2.75 for his wheat in the cash market and made \$.25 per bushel in the futures market, giving him a total of \$3.00 a bushel for his wheat, exactly what the December futures price of wheat was when he decided to hedge.

At first glance it would appear the hedger has eliminated the risk of a price level change. However, for the price level risk to be eliminated, the price of the futures contract must move parallel with the cash price. Empirical evidence reveals that the futures and cash prices seldom, if ever, move exactly parallel, although there is a strong positive correlation between the two.

The best that can be hoped for is to reduce the risk associated

with price fluctuations. For a hedge to eliminate price risk, the futures price must move parallel with the cash price which it doesn't do. The closer the relationship between futures and cash prices, the less risk. The effectiveness of a hedge as a management tool depends a great deal on the relationship of futures to cash prices. This relationship, called the basis, must at least be somewhat predictable, if not highly correlated, for the hedge to be effective.

In seasonally produced storable commodities such as feed grains, the storage costs are reflected in the basis. Therefore when the basis narrows on a long hedge, the amount paid by the long hedger as a result of this change is theoretically the cost of storage. A cattle feeder can place a long hedge to cover his grain needs and lock in a price, but he often still pays for storage, just as if he had bought the actual corn and stored it in his facilities. The advantages of hedging in this case are that he can purchase the futures even if the cash commodity isn't offered at that price locally and he doesn't need to tie up large amounts of capital in storage facilities.

In non-storable commodities such as beef, there are no storage costs to be reflected in the basis. Transportation charges from the production area to a par delivery point for a futures contract delivery should be reflected in the basis. Any alterations in the basis would indicate a change in supply or demand of cattle in that marketing area. Basis movements would therefore tend to follow

supply and demand changes within the marketing area. Changes in supply could be brought about by existing price relationships of feed grains and feeders to fat cattle in producers expectations. For example, if these price relationships were such that a satisfactory return could not be extracted through feeding, cattle feeders would not likely feed as many cattle or keep the lots as full as they would if the price relationships were more favorable. Therefore, if demand remained unchanged, a cattle feeder could predict whether the basis would be narrowing or widening during his production period by watching such factors as cattle placements and profitability ratios.

The following example shows why an unexpected adverse basis movement can be harmful. Suppose a cattle feeder wants to place some yearling steers in his lot October first to be ready for slaughter in February. He calculates his breakeven cost to be \$40 per cwt. The February live cattle contract is selling at \$43.00. Using historical price data, he determines that the average February basis for his area is \$2.00 below the futures. He could sell February contracts for \$43.00 which should insure him \$41.00 after he subtracts his \$2.00 basis. This would give him a one dollar per cwt. profit. However, he ignores the factors that affect basis movements and in February the basis is \$4.00 under Chicago; he will receive two dollars less than he expected, due to the basis change. He had a one dollar margin to begin with, so instead of having a dollar margin locked in

as he thought, he lost one dollar per cwt.

In the example above the feeder does have the option of delivering on the futures contract. If the basis that usually exists, \$2.00 under Chicago, is a true reflection of transportation costs, he will still come up with \$41.00 if his cattle meet contract specifications.

In order to meet contract specifications, the steers must yield grade 1, 2, 3, or 4 choice quality, averaging between 1050 and 1200 pounds with no individual steer weighing more than 100 pounds above or below the average weight for the unit. A unit is 40,000 pounds of live beef meeting the above specifications. Since many feeders feed heifers, dairy crosses and other types of cattle that won't always meet contract specifications, they are docked if they actually make delivery. Therefore, unless the feeder has choice, uniform weight steers to deliver, he may not be able to deliver his own cattle against a futures contract and still receive his expected price when the basis is out of line. However, he may have the option of selling his cattle at a local market, purchasing deliverable cattle near a par delivery point and delivering on the contract.

It becomes apparent that if a cattle feeder is going to effectively reduce his risk due to price level changes, or if he is going to hedge to insure a profit and reduce overall business risk as a by-product, he must make a concentrated effort to predict basis movements that could affect his decision, and be aware of the delivery

option. Ignoring these important elements when developing a hedging strategy for a business would be comparable to buying a product without knowing its price.

As most cattle feeders realize, there are seldom opportunities in the market to sell fat cattle futures, buy feeders, and buy grain futures at a price that allows them to put on a profitable hedge at the time they are ready to place feeders in the lot. Therefore, if they were to be completely hedged, which would mean having a position in the futures opposite their cash position at all times, they would frequently be locking in a loss. As a result, many cattle feeders feel they are better off not hedging in this orthodox manner and taking the chance that the price relationships will be so positioned at the end of the feeding period as to allow them a satisfactory return.

Obviously, if a cattle feeder is able to put on a complete hedge he would reduce his overall business risk. This is commonly done by soybean processors when they see a profitable relationship existing between soybeans, oil, and soybean meal. They long hedge soybeans and short hedge the oil and meal, locking in their processing margin. In the soybean industry, this maneuver is called putting on the "crush". Processors can put on the "crush" several months in advance of the actual processing period, the only requirement being that a profitable price relationship exists in the futures market

between the soybeans, oil, and meal.

Theoretically cattle feeders have the opportunity to put on a complete hedge in the futures market since there exists futures contracts for feeder cattle, major feed grains, and fat cattle. However, the feeder cattle contract has been so inactively traded in the past that many consider it an ineffective hedging medium. Therefore, if it is true that the feeder contract is ineffective, it becomes necessary for the cattle feeder to be able to buy or cash contract feeder steers, go long the necessary grains in the futures market, and go short the fat cattle in order to place a complete hedge.

If a feeder is able to put on a complete hedge, locking in a positive return sometime prior to the start of the production period, his overall vulnerability to price fluctuations will be reduced. How much it is reduced will depend on the amount of basis risk involved with the relevant futures contracts. However, the basis movements of the major commodities are more predictable than price levels (14,24).

Predicting basis movements becomes the hedger's primary concern after he decides he's going to hedge. For a short hedger the general rule is that if the basis narrows between the time of the hedge placement and the lifting of it, the hedger gains. For a long hedger, it's just the opposite, if the basis widens from the time of placement until he lifts it, he gains from the basis change.

Assuming basis movements can be determined or a workable delivery option is present, the cattle feeder who chooses to hedge has a management tool to reduce overall business risk, even if the risk reduction is a by-product of the profit incentive. Since agricultural lenders look at the overall earnings record and management ability of a feedlot when determining the amount of risk involved, it is not important to the cattle feeder whether risk reduction comes about as a direct result of his hedging activities or as a by product of stabilized earnings. The end result is the same, decreased business risk results in the ability to carry more debt with the available equity.

Since the most recent period of price volatility in the cattle market began, beginning in the early seventies, there has been a general move by agricultural lenders financing feeding operations to decrease the amount of debt used by feeders. Lenders have been pushing to decrease the amount of debt used by most feeders, whether they use hedging or not. However, it was learned that the amount of debt will generally be reduced less in feedlots that employ effective hedging.

#### Financial Risk and Leverage

Although most business people are familiar with financial leverage and its effect on business earnings, a summary follows.

Suppose there are three firms with different financial structures. Firm I with no debt, Firm II, financed half with equity and half with

debt, and Firm III financed with three-fourths debt and one-fourth equity. Firm I would have no leverage, Firm II would have 50 percent, and Firm III would have 75 percent leverage. A summary of the firms' financial structures follows:

Firm I:		
Total Assets	200	
		Total Debt 0
		Net Worth <u>200</u>
		Total Claims 200
Firm II:		
Total Assets	200	
		Total Debt @ 6% 100
		Net Worth <u>100</u>
		Total Claims 200
Firm III:		
Total Assets	200	
		Total Debt @ 6% 150
		Net Worth <u>50</u>
		Total Claims 200

A comparison of all three firms earning the same return on assets will be made first. The percent of return on assets multiplied times total assets give the earnings for the firm. Calculated at 12 percent, all three firms would earn \$24 before interest or taxes. The assumption is made that during very good economic conditions the companies have a 14 percent return on investment. Under good conditions, 11 percent; during normal conditions, 8 percent; at point of indifference, 6 percent; under poor conditions, 5 percent; and under very poor conditions, 2 percent (see Table 3.1).

Table 3.1

An Example of the Variation in Return on Owners' Equity Under Various Degrees of Financial Leverage and Rates of Return on Assets

	Very Poor	Poor	Indifference Level	Normal	Good	Very Good
Rate of return on total assets before interest	2%	5%	6%	8%	11%	12%
Earnings before interest and Taxes	\$4	\$10	\$12	\$16	\$22	\$28
FIRM I: 0% Leverage Factor						
Earnings Before Interest and Taxes	\$4	\$10	\$12	\$16	\$22	\$28
Less interest	0	0	0	0	0	0
Taxable income	4	10	12	16	22	28
Taxes (50%) <sup>1</sup>	2	5	6	8	11	14
Available to owners	<u>2</u>	<u>5</u>	<u>6</u>	<u>8</u>	<u>11</u>	<u>14</u>
Percent return on owners equity	1%	2.5%	3%	4%	5.5%	7%
FIRM II: 50% Leverage Factor						
Earnings Before Interest and Taxes	\$4	\$10	\$12	\$16	\$22	\$28
Less interest expense	6	6	6	6	6	6
Gross income	(2)	4	6	10	16	22
Taxes (50%)	(1)	2	3	5	8	11
Available to owners	<u>(1)</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>8</u>	<u>11</u>
Percent return on owners equity	1%	2%	3%	5%	8%	11%
FIRM III: 75% Leverage Factor						
Earnings Before Interest and Taxes	\$4	\$10	\$12	\$16	\$22	\$28
Less interest @ 6%	9	9	9	9	9	9
Gross income	(5)	1	3	7	13	19
Taxes (50%)	(2.5)	.5	1.5	3.5	6.5	9.5
Available to owners	<u>(2.5)</u>	<u>.5</u>	<u>1.5</u>	<u>3.5</u>	<u>6.5</u>	<u>9.5</u>
Percent return on owners equity	-5%	1%	3%	7%	13%	19%

<sup>1</sup>Tax calculations assume that losses are carried back and result in tax credits.

As the table indicates, the leverage is favorable whenever return on assets is 6 percent or above. Actually, 6 percent is the indifference point, where return on assets equals the interest rate and the return on owners equity is the same regardless of the degree of leverage. At any rate of return on assets greater than 6 percent, the greater the degree of leverage, the greater the return on owners equity. As a general rule, whenever the return on assets exceeds the cost of debt, leverage is favorable, and the higher the leverage factor, the higher the rate of return on owners' equity.

Assuming that a cattle feeder can earn a rate of return on assets greater than his cost of debt, it will be to his advantage to use a greater degree of leverage. However, as one can read from the table, should the feeder's rate of return on assets fall below his cost of debt, leverage works in reverse. At any time returns on assets fall below the cost of debt, the more leverage used the less the return on owner's equity.

Considering the large variance of profits earned by cattle feeders over the last few years, it is clear from the lenders' point of view why they want cattle feeders to use less leverage. For example, consider a feeder who is 75 percent leveraged. One year he may have earned an 11 percent return on assets which resulted in a 13 percent return on owners' equity. The next year he may have earned only a 2 percent return on assets which would have resulted in a

negative 5 percent return on owners equity. However, if the cattle feeder would have been leveraged only 50 percent, his return on owners equity would have been 8 percent and negative 1 percent, respectively. The firm with the lower degree of leverage would, from the lenders' point of view, offer less chance of defaulting on its loans.

It becomes apparent from this discussion that if the cattle feeder could stabilize his earnings at some rate greater than his cost of debt, he could use more leverage than might otherwise be possible. He could, therefore, increase his return on equity over and above what it would otherwise be if he could stabilize his return on assets at a rate above his cost of debt.

This is where hedging as a management tool becomes important. If the cattle feeder could at some time prior to the beginning of his feeding period, cash contract or hedge his feeder cattle needs, cash contract or long hedge his grain needs, and short hedge the fat cattle at a price that would permit him to extract an acceptable return, he would be reducing his business risk and stabilizing his earnings. This would allow the use of increased financial leverage which produces a greater return on owners equity when return on assets is greater than the cost of debt.





























































































































