Retained Ownership In Cattle Cycles

By
John C. McKissick, The University of Georgia
John Ikerd, University of Missouri

The existence of cycles in cattle prices represents perhaps the greatest single risk factor facing cattle producers over time. These cattle price cycles affect all segments of the cattle industry. But the cycles may have different effects on cow-calf operators from effects on stocker or backgrounding operators and still different effects on cattle feeders.

This fact sheet examines the historical relationship between cyclical cow-calf profits and other phases of cattle production. If profits and losses in each phase of production are not significantly related, cow-calf producers may be able to avoid or minimize losses in low price times by shifting into other phases of production or through retained ownership alternatives.

Cyclical Profits in Cow-Calf Operations

Beef cattle cycles are typically described in terms of price or production. However, the cyclical nature of profits is the real key to understanding cattle cycles. Furthermore, it is the profits of cow-calf producers in particular which trigger the expansion and liquidation phases of cattle cycles. The inability of cow-calf operators to foresee the future with certainty coupled with a two to four year time lag between the decision to produce and completion of production causes cyclical prices and profits.

Cow-calf profits are dependent on production

costs as well as cattle prices. It would be impossible to construct a set of cost estimates for a large number of producers over an extended period of time. Every producer's production costs are different and production practices change over time. It is possible to estimate cost for a given hypothetical operation at one point in time and to adjust those costs for changes in input prices over time. The results will not fit any given producer's cost situation but should provide a general indication of profitability.

In order to examine the relationship between cow-calf profitability through historical cattle cycles and retained ownership possibilities, a 100 cow spring calving operation was budgeted at 1995 cost. All costs including the value of labor and land were included in the initial budget. Cost estimates and production assumptions for the hypothetical operation are outlined in Appendix A. The various cost components were adjusted for price changes back to 1949 through the use of appropriate cost price indices in order to derive historical cost estimates.

The net returns shown in Table 1 were calculated by subtracting the yearly simulated cost per hundred pounds of calf sold from the Oklahoma City steer and heifer calf price for 400-500 pound calves during September to November. The primary objective in the simulation was to examine the changes in profitability over time and not to determine the absolute level of profit in any given year.

The cost estimates are certainly not accurate

enough to determine whether prices were $1/cwt above or below break-even for any given year. But the cyclical trends are quite clear. The larger losses of the 50's caused larger cuts in cow numbers. The smaller losses of the 60's merely slowed the growth in beef cows. Five years of profitability followed the two years of leveling of cow numbers in the mid 60's. The four years, 1974-1978, were very unprofitable years. Not only was the price break in 1974 the most severe of the period but production costs increased dramatically during this period as well. As a result of these losses, the reduction in cow numbers was much greater than in the two preceding cycles.

From 1980-86, the simulated cow-calf operation suffered the longest string of unprofitable prices for the time period examined. From 1979 to 1981, prices fell by almost 30% and cost escalated due to very high interest rates. The long string of losses was the likely reason for a delayed buildup in cattle numbers. From 1987 to 1993, a relatively long string of profits occurred. However, as we know all too well now, the buildup in cow numbers which began in 1990 resulted in another 30% drop in prices from '93 to '95 and a return to red ink for the cow herd.

Profits in Stocker Operations

Profits in stocker or backgrounding operations are not necessarily tied to cattle production and price cycles. The value of a stocker calf is derived from the expected value of that calf when it goes in the feedlot anywhere from 4 to 10 months after it is placed on pasture. Overall price levels of stocker calves in the fall, for example, are a reflection of the expectations of feeder cattle prices the following spring and of the value that the stocker operator placed on his pasture, investment, labor, management ability, etc. If prices and cost turned out as expected when stocker calves were purchased, there would be no "pure" profit from stockering.

Of course there are profits and losses in stocker operations. But because stocker decisions are "short run" decisions in comparison to the "longer run" cow-calf decisions, the pattern of profitability over time is different for stocker and cow-calf operations. But the existence of profits or losses are nonetheless "windfall" in nature resulting from the risk of making production decisions based on an unknown future.

Estimated net returns from a hypothetical summer and winter stocker operation are also shown in Table 1. Estimates were based on a procedure similar to that outlined previously for the cow-calf operation. The Oklahoma City feeder steer price for the time and weight of placement was used in calculating each year's cost. The estimated break-even for each system was compared to the appropriate steer price for the weight and time at marketing. The initial cost estimates and production assumptions are given in Appendix A.

The approach to estimating costs through time ignores possible overall changes in productive efficiency. It also ignores the production risks associated with unanticipated levels of production costs. For example, if drought conditions caused stocker gains to drop well below average one particular year, the figures in Table 1 might show a profit whereas stocker operators actually experienced a loss. But the procedure should give reasonably representative profit estimated resulting from market price changes. Simulated results are nonetheless useful in analyzing cattle enterprise profit relationships associated with cattle price cycles.

As can be seen from Table 1, there is a strong tendency for both cow-calf and stocker operations to be affected similarly by the sharp breaks in the market, both up and down. But after these breaks, cow-calf production remains either profitable or unprofitable over an extended period of time depending on the phase of the cycle. Stocker operations seem to show a more or less random pattern of profit and loss between sharp market breaks regardless of whether cow-calf operations are in the profit or loss phase of the cycle.

Profits in Cattle Feeding

Profits in cattle feeding are similar in nature to those in stocker or backgrounding operations. The value of the feeder animal is derived from the expected value of the fed animal resulting from the operation at sometime in the future. The overall price level for feeder cattle at any point in time is a reflection of the expectations of cattle feeders concerning fed cattle prices at the end of the feeding period. The expected slaughter price is adjusted for the expected cost of gain, of which feed cost is a large component, and other costs such as interest on investment, labor, death loss, etc. The feeder also places some minimum return on his management which is used in calculating the maximum amount he will pay for feeder cattle.

At any given point in time, the market would be expected to reflect the full value of feeder cattle in relation to their potential in the feedlot. Overall, cattle feeders would be expecting to earn a competitive management return, but there wouldn't be pure profit

at the expected average cost of gain and future slaughter price. So any profits over and above the return to management would be unexpected or windfall in nature.

Simulated profits from three different cattle feeding enterprises are also shown in Table 1. Two are yearling feeding operations (summer and winter) based on 700 pound purchase weights and 1100+ pound sale weights. The other is a calf feeding enterprise assuming 500 pound calves are placed on feed in the fall and are marketed at 1100 pound steers the following summer. Cost estimates for 1995 are shown in Appendix A.

The cattle feeding enterprises profit patterns are obscured by generally profitable cattle feeding returns generated by the analysis prior to 1970. The early time period profitability is likely due to production levels being held constant at 1995 levels throughout the analysis. Even during the generally profitable cattle feeding time from 1949-72, major "down" years generated losses for one or more of the feeding alternatives. In all but one of the major "up" years, each feeding alternative was positive. After 1972, there seemed little relation among profits on a year to year basis except for the major break years.

Cyclical Profit Relationships

The relationships among profits associated with the various cattle enterprise are made more clear by comparing all the enterprises in Table 1. The major "up" break years (20% or more increase in price) are: 1950, 1957, 1958, 1972, 1978, 1979, and 1987. Note that in all but one of these years, all cattle enterprises showed a profit.

The major "down" break years as defined by a year-to-year decline of 20% in price were 1952, 1953, 1974, and 1995. In these years, the majority of cattle enterprises showed substantial losses with the exception of 1952. There are no obvious profit relationships among the various enterprises other than in major break years.

Management Implications and Retained Ownership

It is apparent that cow-calf operators can reduce their risk of loss during the unprofitable phase of the cycle provided they have the flexibility to shift some or all resources into stocker or cattle feeding operations. Likewise, during the profitable phase of the cycle, there are more consistent profits in cow-calf

operations than in stockers or cattle feeding. However, there would still appear to be a slightly better chance for profits in all phases of cattle production during the rising phase of the price cycle. And there are somewhat greater risks of loss in all phases on a falling or depressed market.

All phases of production have a good chance for large profits during the sharp upturns of the market. But there would seem to be no way through diversification to avoid the large losses which accompany the sharp downturns in market prices.

Another strategy for dealing with the major break in cattle prices might be to extend the ownership of cattle through the loss years. This strategy is available only for the cow-calf or stocker operator, however.

The potential for avoiding losses by extending ownership on fall calf crops is shown in Table 2. Each calf crop is matched with the calf feeding option and the winter stocker-fall sale of fed cattle option. The profit figures combine the stockering and feeding alternative with the initial cow-calf net return. Notice that it was possible to reduce losses in all but 2 of the 18 cow-calf loss years (1985 and 1994) through at least one phase of retained ownership. However, in only 4 of these years was the initial loss completely overcome by profits. It should also be noted that in the first profitable cow-calf year following the loss years, retained ownership resulted in significant profit improvements.

Summary and Conclusions

Any conclusions drawn from a study of past profit relationships in cattle cycles must be considered with several limitations in mind. History does not necessarily repeat itself and each of the so-called cattle cycles are shaped by unique factors which will alter the profitability of retained ownership strategies. Furthermore, the retained ownership decision is unique to each individual producer's cattle type, financial situation and risk bearing ability. So, general recommendations need to be individualized. Despite these limitations, some general observations seem apparent and may be useful in developing future cattle cycle management strategies.

1. Calf-cow profits tend to be cyclical in nature with consistent year to year profits during the rising phase of the price cycle followed by consistent losses during the cyclical decline in prices.
2. Cattle feeding and stocker operation profits tend to

be consistently positive in the initial rise in prices signaling the cyclical price upturn, and tend to be consistently negative on the initial fall in prices, but tend to be random up and down in between breaks in the markets.

3. Cattle feeding and stocker profits are strongly positively related to cow-calf profits on the sharp market "up" and "down" turns but have only a weak positive relationship to cow-calf profits and among themselves during the gradual up-trend and down-trend years.

4. Retained ownership of calves may reduce the initial losses in cow-calf and stocker operations on market breaks but shows little hope for recovering all of those initial losses.

As a result of the general conclusions, cattle producers might consider the relevance of the following guidelines to their particular operation:

1. Utilize any existing flexibility to shift resources among cow-calf, stocker and feeding operations at various stages of the cycle.

2. Consider creation of a more flexible cattle operation if at all possible to facilitate risk management.

3. Emphasize the cow-calf phase of the business during the profitable years of the "up" phase of the cattle price cycle.

4. Consider retained ownership into stocker and cattle feeding operations which have some chance for profit during almost sure loss years for cow-calf operations.

5. Continue retained ownership strategies until the return of profitability, retaining the first profitable calf crop. Thereafter, return to emphasize the cow-calf operation as almost sure cow-calf profits on the upturn are preferable to the up and down stocker and feeding profits.

6. It should be clear that stocker and feeding profits are most sensitive to the buy-sell price margin. Stockering and feeding can be profitable during high prices as well as low, but much of the risk is price related. For this reason, price risk management strategies for both cattle and feed should be considered. Such strategies may enhance profits during the phases of the cycle where retained ownership has been successful or at least reduce the risk of retaining calf ownership during the time of most financial distress for the calf producer.

7. Manage financial equity and cash flow in anticipation of profits and losses associated with various phases of the cycle.

Table 1. Net Returns Summary for Cattle Production Alternatives by Year Marketed

	Cow-Calf Net Returns	Winter Stockering Net Returns	Summer Stockering Net Returns	Summer Yearling Feeding Net Returns	Winter Yearling Feeding Net Returns	Calf Feeding
Year	$/cwt	$/cwt	$/cwt	$/cwt	$/cwt	$/cwt
1949	2.35		-1.65	6.04		
1950	11.71	4.66	4.11	7.38	7.17	9.57
1951	15.44	8.50	.05	5.95	11.15	10.68
1952	2.66	1.59	-6.29	3.92	5.23	4.42
1953	-6.86	-3.87	-4.04	4.26	-1.30	-.06
1954	-4.48	2.13	.21	4.42	5.41	4.95
1955	-3.75	1.02	-1.85	1.51	3.94	2.54
1956	-3.97	-1.16	.35	6.50	1.19	3.89
1957	2.26	1.89	8.26	4.53	3.64	6.10
1958	11.53	5.34	1.99	2.15	3.71	5.61
1959	7.86	2.92	-1.36	.82	4.06	3.17
1960	3.61	1.12	-1.92	1.52	2.99	1.99
1961	4.66	2.16	.54	1.98	2.75	1.81
1962	6.22	1.77	1.56	6.07	3.73	4.49
1963	2.91	.07	-.70	.82	-.78	1.00
1964	-2.12	-2.50	-.57	4.15	-1.45	1.31
1965	1.23	1.67	3.27	4.69	4.46	6.99
1966	3.30	2.00	-.01	1.73	4.55	3.86
1967	3.05	.63	.93	3.10	.44	3.39
1968	4.98	2.42	.84	3.58	2.78	4.54
1969	9.14	6.04	1.57	1.57	7.12	9.28
1970	10.85	5.76	.56	.09	3.94	5.58
1971	13.82	3.82	4.40	4.38	4.83	6.16
1972	21.01	1.44	8.07	5.27	4.58	8.11
1973	24.43	13.64	4.23	-1.46	10.37	16.36
1974	-20.85	-7.72	-12.20	.36	-3.59	-1.42
1975	-24.52	-1.63	5.73	14.75	10.79	17.42
1976	-19.72	5.22	-5.75	-2.59	3.27	3.82
1977	-16.68	1.68	-.13	1.91	2.96	3.41
1978	8.43	13.08	9.92	4.92	12.68	14.50
1979	18.97	27.89	-7.15	-5.87	17.73	12.57
1980	-13.46	-6.59	-.06	3.88	-3.95	2.40
1981	-35.56	-3.98	-4.35	-.17	-2.47	5.18
1982	-41.82	-.97	-1.74	-1.14	6.95	7.37
1983	-43.35	3.65	-10.22	-4.72	5.73	6.33
1984	-44.53	-1.19	-1.14	.08	8.08	4.71
1985	-30.17	.87	-7.75	-3.48	-4.56	-5.90
1986	-20.03	-7.32	1.57	5.84	-3.17	-.85
1987	7.43	6.55	9.88	2.29	6.70	9.22
1988	3.89	6.65	-1.11	-4.98	4.34	.86
1989	1.00	-.36	.24	-3.42	.38	-2.09
1990	9.85	5.01	2.49	.32	1.79	.33
1991	8.93	8.53	-9.31	-12.24	-.47	-5.33
1992	4.02	-2.34	.15	1.35	.27	-1.13
1993	5.73	8.75	-2.96	-7.62	6.62	2.24
1994	-13.67	.12	-13.42	-10.01	-5.23	-10.50
1995	-38.06	-6.28	-12.80	-2.80	-3.42	-6.71
1996		-9.28			-1.02	

Table 2. Accumulated Profits or Losses From Retained Ownership of Yearly Calf Crops

Year	Cow-Calf Net Returns $/Cwt.	Cow-Calf +Winter Stockering +Yearling Feeding $/Cwt	Cow-Calf +Winter Calf Feeding $/Cwt.	Cow-Calf +Winter Stockering $/Cwt.
1949	2.35	14.39	11.92	7.01
1950	11.71	26.17	22.39	20.21
1951	15.44	20.95	19.86	17.03
1952	2.66	3.05	2.59	-1.21
1953	-6.86	-.31	-1.91	-4.73
1954	-4.48	-1.96	-1.94	-3.46
1955	-3.75	1.59	.14	-4.91
1956	-3.97	2.45	2.13	-2.08
1957	2.26	9.76	7.88	7.61
1958	11.53	15.27	14.70	14.45
1959	7.86	10.50	9.85	8.98
1960	3.61	7.74	5.42	5.77
1961	4.66	12.50	9.16	6.43
1962	6.22	7.11	7.22	6.29
1963	2.91	4.56	4.22	.41
1964	-2.12	4.24	4.87	-.45
1965	1.23	4.96	5.09	3.23
1966	3.30	7.04	6.69	3.93
1967	3.05	9.05	7.59	5.47
1968	4.98	12.59	14.25	11.01
1969	9.14	14.99	14.72	14.90
1970	10.85	19.04	17.01	14.66
1971	13.82	20.53	21.94	15.26
1972	21.01	33.19	37.37	34.65
1973	24.43	17.07	23.01	16.71
1974	-20.85	-7.73	-3.42	-22.48
1975	-24.52	-21.89	-20.70	-19.30
1976	-19.72	-16.12	-16.31	-18.03
1977	-16.68	1.32	-2.18	-3.60
1978	8.43	30.45	21.00	36.33
1979	18.97	16.27	21.38	12.39
1980	-13.46	-17.61	-8.28	-17.44
1981	-35.56	-37.67	-28.18	-36.53
1982	-41.82	-42.89	-35.49	-38.17
1983	-43.35	-44.46	-38.64	-44.54
1984	-44.53	-47.15	-50.43	-43.67
1985	-30.17	-31.66	-31.02	-37.49
1986	-20.03	-11.18	-10.81	-13.48
1987	7.43	9.10	8.28	14.08
1988	3.89	.11	1.80	3.53
1989	1.00	6.33	1.34	6.01
1990	9.85	6.14	4.52	18.38
1991	8.93	7.94	7.80	6.59
1992	4.02	5.14	6.26	12.76
1993	5.73	-4.16	-4.77	5.85
1994	-13.67	-22.75	-20.38	-19.95
1995	-38.06			-47.34

Appendix A
Cattle Enterprise Production and Cost Assumptions for 1995

	Feed/Hay	Pasture	Other	Labor	Direct Ownership Cost	Breeding Stock or Calf Interest	Other Interest	Land	Death Loss	Total	Cull Cow Credit or Calf Cost	Net Cost
						($/Cow or Hd.)						
Cow-Calf: 85% calf crop. 1.75 acres per cow, 10% yearly replacement rate, 2% breeding stock death loss, 490 lb. steer weaning weights, 440 lb. heifer weaning weights, 342 lbs. calf weight sold per cow per year.	96.25	100.22	16.14	42.00	9.87	38.82	15.31	66.00		384.61	-35.58	349.03
Winter Stocking: 400 lbs. purchase and 690 lb. sale weight, 1.61 lb. gain/day over 180 days, Sept-Nov. purchase, March-May sale, 2% death loss, 2 head per acre stockering rate.	52.06	41.41	21.95	18.00	19.96	14.80	4.20	11.00	5.48	190.85	274.07	464.92
Summer Stockering: 450 lb. purchase and 667 lb. sale weight, 1.45 lb. gain/day over 150 days, March-May purchase, sales Sept.-Nov., 2% death loss, 3 head per acre stcokering rate.	20.00	38.00	17.00	6.00	4.00	17.85	1.91	7.26	7.92	119.43	396.21	516.14
Custom Feeding Summer Yearlings Steers: 700 lb. purchase and 1136 lb. sale weight, 2.42 lbs/day over 180 day feeding period, March-May purchase and Sept.-Nov. sale, 1% death loss.	166.81		35.00			27.61	5.45		5.11	239.98	511.28	751.26
Custom Feeding Winter Yearling Steers: 700 lb. purchase and 1117 sale weight, 2.31 lbs/day over 180 day feeding period, purchase Sept-Nov and March-May sale, 1% death loss.	166.81		35.00			24.41	5.45		4.52	236.19	452.06	688.06
Custom Feeding Steer Calves: 500 lb. purchase and 1100 lb. sale weight, 2.20 lbs/day over 272 day feeding period, Sept.-Nov. purchase and June-August sale, 2% death loss.	219.44		45.00			28.03	10.82		6.85	310.14	342.58	652.72