Feeder Cattle Placement Strategies

Many cattle feeders operate their feedlots on a year round basis and buy feeder cattle and sell fed cattle every month. While this approach diversifies their marketing over time, it ignores market signals. A common strategy for investors in the stock market is dollar cost averaging (DCA). Instead of buying the same number of stocks every month, the investor buys the same dollar amount of stock every month. By default he/she buys more at a lower price and less at a higher price. Could a similar strategy work for cattle feeders and would it improve their return or reduce their risk? The purpose of this study was to determine if there was an advantage or disadvantage in making feeder cattle placement decisions under a DCA method verses placing a constant number of cattle each month.

This study used the Estimated Returns (http://www.econ.iastate.edu/faculty/lawrence/EstRet/Index.html) for finishing yearling steers from the past 10 years, 1995-2004, to determine profitability of feeding cattle under the Dollar Cost Averaging and Constant Size methods. The Estimated Returns were used to determine average values for purchasing and selling prices, feed costs, and profitability.

The assumption was made that yardage would be based off of 100 head pens; cost adjustments were made accordingly for up to 120 head or 20% over capacity. Pens with under 100 head paid yardage for 100 head. The values for veterinarian/medical and trucking costs were based off of Estimated Returns assumed per head values. The feed costs were averages derived from the Estimated Returns and interest was adjusted with the actual during the time period. All values are based per pen and calculations are reported based on date of sale.

The average investment in feeding 100 head cattle during 1995-2004 of $86,857 was derived from using the average feeder steer cost of $607.21, feed cost of $158.84 and miscellaneous expenses (interest, vet/med, and trucking, ect.) of $102.52. These values were added together and then multiplied by 100 since the pens were based on 100 head. The Constant Size method placed 100 head every month and the investment cost varied with prices. The Dollar Cost Averaging strategy invested $86,857 per month and varied the number of cattle placed to hold the investment constant.

Results

The average number of feeder cattle placed under the DCA strategy was 100 head with the minimum 77 head and the maximum 117 head. Figure 1 shows the monthly placement over the 10 year period, 1995-2004.

	Dollar Cost Averaging			**Constant Size**		
	Return per pen	ROI	ROE	Return per pen	ROI	ROE
Average	711	1.4%	6.8%	624	.8%	4.2%
Std. Deviation	7,137	8.4%	49.4%	7,294	8.2%	48.6
Minimum	(12,381)	(14.1%)	(88.9%)	(12,911)	(14%)	(86.1%)
Maximum	24,546	28.4%	188.8%	29,012	29.3%	193.4%
% < 0	43.3%	43.3%	43.3%	45%	45%	45%

The preceding table gives a data summary from the study. All the values are based on a 6 month feeding period and are expressed on a per pen basis selling one pen every month. The assumption was made that $150 per head equity was used by the investor at time of purchase with the remainder provided through a loan when determining Return on Equity (ROE).

ROE = Profit (Loss)/ Total Equity

ROI = Profit (Loss)/ Total Investment

This table shows that there is no statistical difference, if any, between the DCA and Constant Size ROI and ROE. The DCA strategy averaged returns were $86.91 higher than the Constant Size strategy. There was a large difference between the maximum returns for DCA and Constant Size with the returns for Constant Size being $4,466 more than DCA. The frequency of months that profits were negative showed that losses occurred nearly the same number of times for DCA and Constant Size; these losses were more severe under the Constant Size strategy, at $530 greater. This table shows that under the Constant Size strategy, maximum profits were higher while losses were also greater and the average returns were less than those under the DCA strategy. This indicates under good conditions the Constant Size may have some profit benefit.

Net Returns per pen of the two methods were consistent with each other over the 10 year period, 1995-2004, shown in Figure 2. Average Monthly Net Returns Per Pen, (Figure 3) shows that feeder cattle sold in the months January-April and September-December have positive net returns with DCA method having a slightly higher net return, while May-August sales had negative net returns under both marketing strategies. Figure 4, Average Annual Net Returns Per Pen, shows slight advantages 5 out of 10 years under the DCA method, all but one of those years had both strategies with positive net returns; 3 out of 10 years showed the Constant Size method to have slightly higher net returns and 2 out of 10 years with equally negative net returns. Investment costs were lower in the earlier years resulting in more cattle fed than average. These were the years that DCA provided higher average returns. In 2003-04, with higher investment but also higher returns, DCA did not perform as well because there were fewer cattle sold per month. The Net Returns from the Dollar Cost Averaging and Constant Size methods are relatively equal, showing that there is not a distinct benefit to either method.

Figure 5, Distribution of Net Returns 1995-2004, shows that net returns per pen fell between -$10,000 and $15,000 approximately 85% of the time. The net return was in the $5,000-$10,000 range, 28% of the time. Net Returns falling between $0-$5,000 and $10,000-$15,000 occurred equally at 18%. The frequency of net returns falling between -$5,000 and -$10,000 was 20%. Only in extreme times, less than -$10,000 and $15,000-$20,000, the Dollar Cost Averaging method occurred more often. Standard deviations were similar with the Dollar Cost Averaging at $7,137 and the Constant Size at $7,294.

The following table shows that over a 120 month period, using net returns from the Dollar Cost Averaging method, how many months there was positive or negative returns, as well as if there were more than 100 or less than 100 cattle placed. The numbers are fairly evenly distributed when 100 or more were placed. However, notice that when the cattle were profitable, the DCA strategy had less than 100 head more often in part reflecting the 2003-2004 period of profitability at higher feeder cattle prices.

Number of Months more than 100 or less than 100 of cattle fed that were positive or negative using Dollar Cost Averaging Method.

	Positive Net Returns	Negative Net Returns
≥100 Placed	27	29
<100 Placed	40	24

Summary

Results show that there is not consistently an advantage or disadvantage to either placement method. When averaging the 1995-2004 period, purchasing 100 each month, there would be 1200 cattle placed per year with a yearly expenditure of approximately $1,043,982. When placing $86,857 worth of cattle each month, there would be 1195 cattle placed in a year with a yearly expenditure of $1,042,284. The average annual net return when purchasing 100 head each month was $7488 compared to $7457 when investing $86,857 each month. When these figures are compared there is no clear advantage to either method, leaving it a matter of personal preference.

A possible shortcoming of this project could be the time period from which the data was derived. Out of the 10 years that were used, only 5 of them were profitable. During 1995-2004 we experienced very high and very low cattle prices. 1995-1997 prices were low with prices hitting record highs in 2003, causing the number of cattle to be segregated into a period of low prices and placing over 100 head and a period of high prices and placing less than 100 head. However, cattle feedlots experienced both profits and loss at high and low cattle price levels.

Figure 1

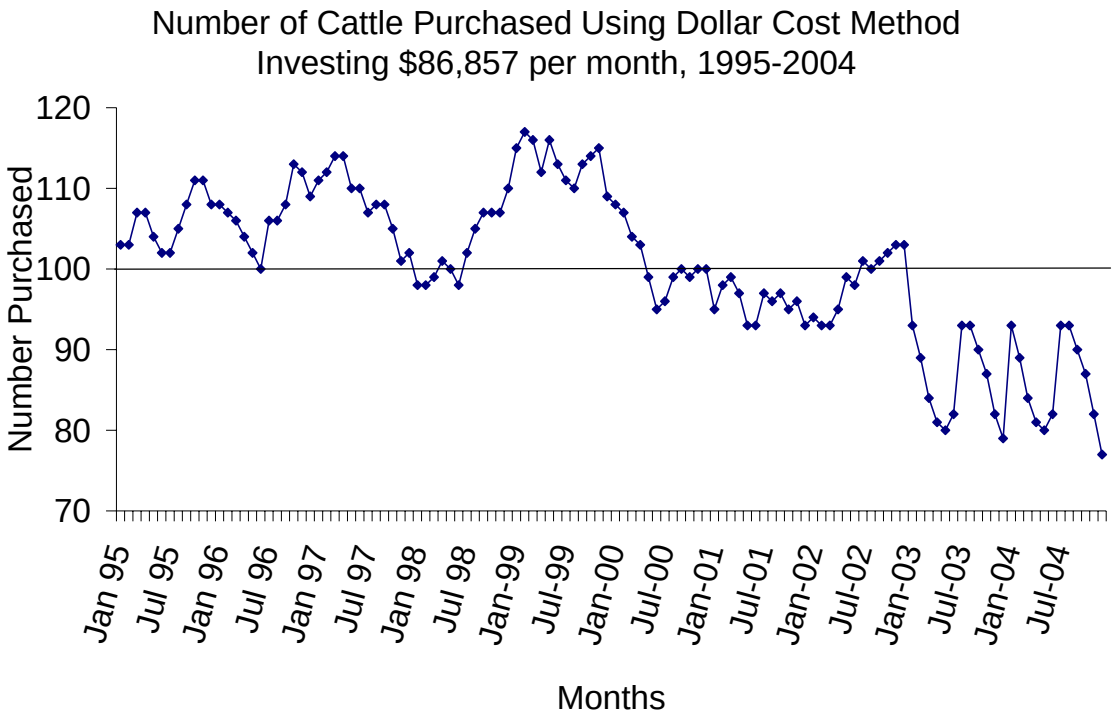

Figure 2

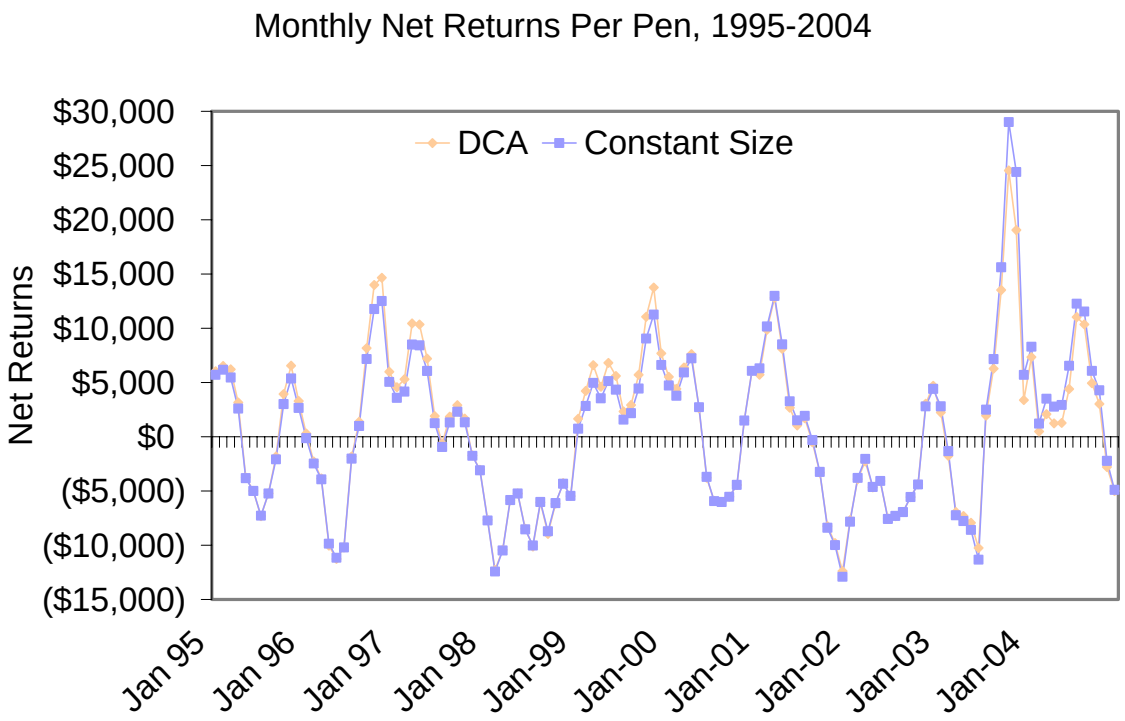

Figure 3

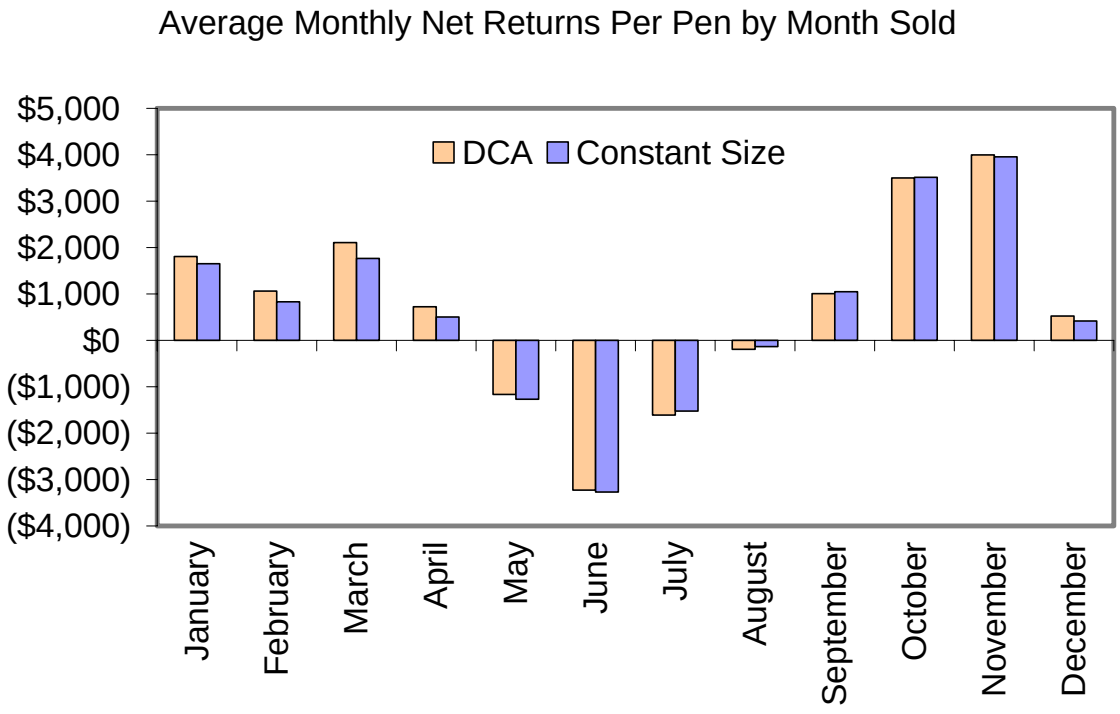

Figure 4

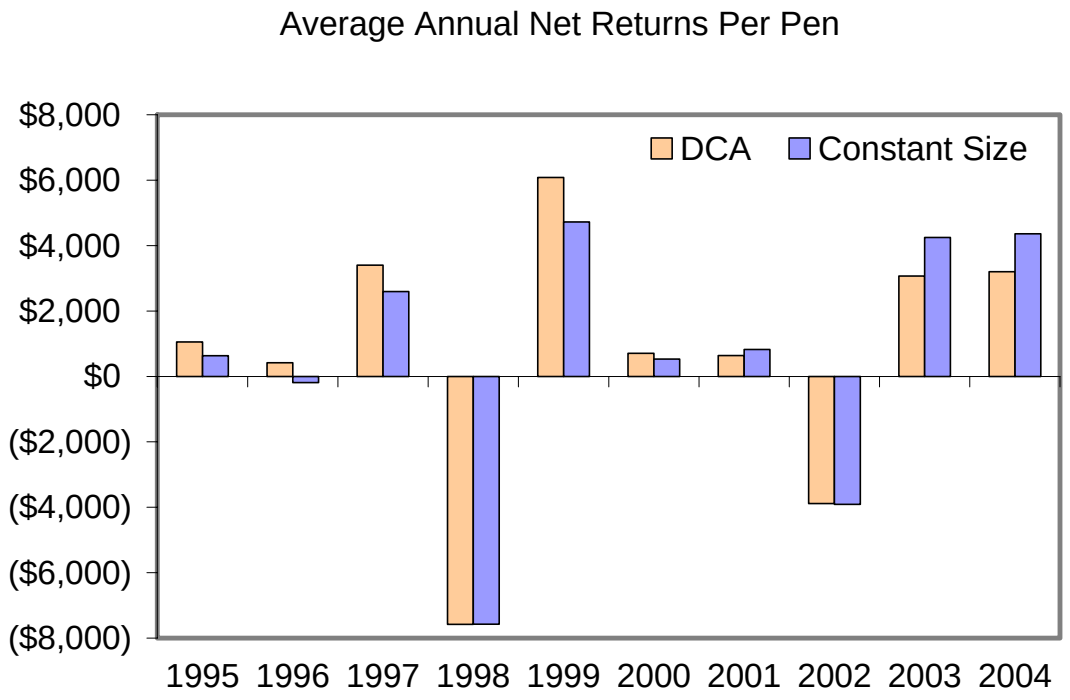
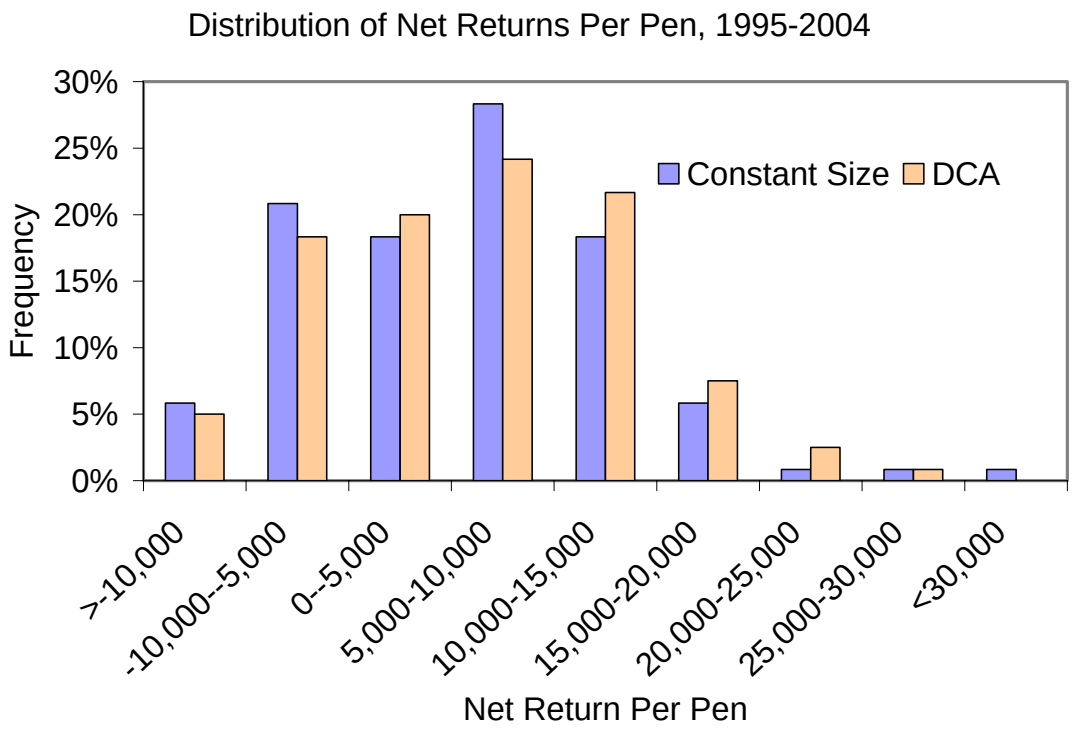
Figure 5