Hedging and Value Added Marketing

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https://nufoundation.org/fund/01150800/
(i.e. “Livestock Marketing”)
A Greater Need to Manage Risk
How Unusual/Rare was 2019?

CME Feeder Futures Prices from 1990 to 2019

\[ P(\text{Price October} - \text{Price March}) \]
- 60% of the time price is higher in March
- Largest price difference (-$31 in 2016, +62 in 2014)
- 2019 was -$11

\[ P(\text{Price August} - \text{Price March}) \]
- 66% of the time price is higher in March
- Largest price difference (-$20 in 2019, +37 in 2014)
Not if something will happen but the probability it will happen

Know the “risks” you face with each potential decision

Risk tolerance for movements in:
- Absolute price
  “How likely am I do sell calves if I saw price drop by 25%?”
- Volatility
  “How likely am I do sell calves if the market was up 25% today and down 25% tomorrow?”

What risks am I willing to tolerate/accept?
Differentiate the “When” from the “What”

**What triggers to pull**
- Marketing Mechanisms
  - Video/forward contract, cash/sale barn, futures/options, LRP
- Diversification
  - Background, precondition, retain ownership in feedlot

**When to pull the trigger**
- Need to Know
  - Cost of production
  - Breakevens
  - Price and volatility expectations
  - Production risk
What Triggers do Nebraska Cow-Calf Producers Pull to Manage Risk?

2016 Cow-Calf Survey (Kalkowski et al. 2019)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Diversification</th>
<th>Price Protection</th>
<th>Diversification + Price Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversification</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Pricing Tools</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Percent of Responses (%)</td>
<td>57.78</td>
<td>19.97</td>
<td>16.80</td>
<td>5.45</td>
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</table>
Evaluating a Situation: A Decision and a Trigger
When to pull the trigger?

Cash = Basis + Futures

Cannot manage risk in all three
When to pull the trigger?

Cash = Basis + Futures

Cannot manage risk in all three
Situation

• Jan 6, 2019

• Ogallala, NE

• Deciding whether to retain or sell cattle

• Indifferent about choice --> want to max profit

• First, evaluate market (i.e. when), second protect (i.e. what)
When: Value of Gain Analysis

Wintering Situation
Ogallala, NE 1/6/2020 situation:

- Buy/retain 650 lb. steer on 01/06/2019
- Sell 800 lb. steer on 05/20/2020 ($149.93)
  - 150 lbs., 134 days, 1.12 ADG

VOG ~ $159.29/cwt
  Good? Depends on COG & “attitude towards risk”

Assuming VOG > COG, assess decision using different Feeder Cattle Risk Management Strategies
Winter cattle to sell in Spring 2020?

Cow-calf output price hedging considerations

Case of 60 hd. @ 800 lbs.

- Compare the alternatives:
  A) 60 hd. on LRP, B) 1 FC Futures Contract (+/- 63 hd. per contract), C) 1 FC Options, D) Cash

Cash = Basis + Futures

  Cannot manage risk in all three -> futures & options trade price risk for basis risk

-MAY FC: $149.93 & Exp. Basis: $8.45 (Exp. Cash = $158.37)
-LRP Coverage Price: $154.02 & Premium: $7.82
-MAY Put Option @ $152.00: $6.15 premium
What strategy accrues most profits?

Price expectations

- Blue = Cash
- Yellow = Hedge
- Red =

![Diagram showing comparison of alternative selling strategies. The x-axis represents the ending futures price in dollars per cwt, and the y-axis represents the comparison of strategies. The lines show different strategies with Blue representing Cash, Yellow representing Hedge, and Red representing another strategy. The graph indicates how each strategy performs at different price expectations.]
What strategy accrues most profits?

<table>
<thead>
<tr>
<th>Futures</th>
<th>Est. Basis</th>
<th>Cash</th>
<th>Hedge</th>
<th>Put</th>
<th>Hedge &amp; Call</th>
<th>Put &amp; Call</th>
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<tr>
<td>129.93</td>
<td>7.94</td>
<td>137.87</td>
<td>158.53</td>
<td>137.68</td>
<td>137.37</td>
<td>158.17</td>
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<td>134.93</td>
<td>8.06</td>
<td>142.99</td>
<td>158.44</td>
<td>142.80</td>
<td>142.49</td>
<td>158.08</td>
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<td>139.93</td>
<td>8.19</td>
<td>146.12</td>
<td>158.36</td>
<td>147.93</td>
<td>147.62</td>
<td>158.01</td>
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<td>144.93</td>
<td>8.31</td>
<td>153.24</td>
<td>158.28</td>
<td>153.05</td>
<td>152.74</td>
<td>157.92</td>
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<td>149.93</td>
<td>8.44</td>
<td>158.37</td>
<td>158.20</td>
<td>158.18</td>
<td>157.87</td>
<td>157.84</td>
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<td>154.93</td>
<td>8.56</td>
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<td>159.93</td>
<td>8.68</td>
<td>168.61</td>
<td>158.02</td>
<td>168.42</td>
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<td>157.66</td>
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<td>164.93</td>
<td>8.81</td>
<td>173.74</td>
<td>157.94</td>
<td>173.55</td>
<td>173.24</td>
<td>157.58</td>
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<td>169.93</td>
<td>8.93</td>
<td>178.86</td>
<td>157.85</td>
<td>178.67</td>
<td>178.36</td>
<td>157.50</td>
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</table>
Value Added Marketing
Decision Tree for Calf

- **Fall Weaned 550# Calf**
  - **Dry Lot Winter**
    - (Oct-Apr, 175 days)
    - 725 lbs
    - **Summer Grass**
      - (Apr-Sep, 160 days)
      - 1,000 lbs
      - **Feedlot**
        - (Oct-Dec, 100 days)
        - 1,300 lbs
  - **Precondition**
    - (Oct-Nov, 35 days)
    - 600 lbs
    - **Feedlot**
      - (Nov-Jun, 230 days)
      - 1,290 lbs
      - **Winter Grazing**
        - (Nov-Apr, 130 days)
        - 850 lbs
        - **Feedlot**
          - (Apr-Aug, 150 days)
          - 1,300 lbs
  - **Background**
    - (Oct-Jan, 100 days)
    - 800 lbs
    - **Feedlot**
      - (Jan-Jun, 160 days)
      - 1,300 lbs
## Sale Barn Characteristics

**Factors effecting feeder cattle premiums and discounts**

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>% Lots</th>
<th>$/cwt</th>
<th>Health</th>
<th>% Lots</th>
<th>$/cwt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>0.04</td>
<td>-5.98*</td>
<td>Healthy lot</td>
<td>99.7</td>
<td>Base</td>
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<tr>
<td>Medium</td>
<td>41.1</td>
<td>Base</td>
<td>Non Healthy lot</td>
<td>0.3</td>
<td>-6.31*</td>
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<tr>
<td>Large</td>
<td>58.9</td>
<td>0.75*</td>
<td></td>
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</table>

**Weight Uniformity**

<table>
<thead>
<tr>
<th>Fill</th>
<th>% Lots</th>
<th>$/cwt</th>
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<tbody>
<tr>
<td>Gant</td>
<td>5.8</td>
<td>-0.99*</td>
</tr>
<tr>
<td>Average fill</td>
<td>63.6</td>
<td>Base</td>
</tr>
<tr>
<td>Full</td>
<td>30.3</td>
<td>-0.72*</td>
</tr>
<tr>
<td>Very full</td>
<td>0.2</td>
<td>-4.02*</td>
</tr>
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</table>

Source: Schultz et al. (2010)
**Video Auction**

**Value added programs**

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</thead>
<tbody>
<tr>
<td>Preconditioned</td>
<td>0.72%</td>
<td>0.37%</td>
<td>1.02%</td>
<td>0.13%</td>
<td>0.96%</td>
<td>2.45%</td>
</tr>
<tr>
<td>Age-Source Verified</td>
<td>1.24%</td>
<td>-</td>
<td>2.16%</td>
<td>1.51%</td>
<td>1.64%</td>
<td>1.11%</td>
</tr>
<tr>
<td>Certified Angus Beef</td>
<td>1.11%</td>
<td>0.99%</td>
<td>1.20%</td>
<td>0.83%</td>
<td>0.81%</td>
<td>1.39%</td>
</tr>
<tr>
<td>Natural</td>
<td>1.09%</td>
<td>0.93%</td>
<td>0.62%</td>
<td>1.11%</td>
<td>0.87%</td>
<td>0.79%</td>
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<tr>
<td>Avg. Price (per cwt)</td>
<td>130.90</td>
<td>124.87</td>
<td>122.47</td>
<td>111.43</td>
<td>138.41</td>
<td>169.16</td>
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</table>

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Age-Source Verified</td>
<td>0.73%</td>
<td>-</td>
<td>0.01%</td>
<td>1.01%</td>
<td>0.81%</td>
<td>0.49%</td>
</tr>
<tr>
<td>Certified Angus Beef</td>
<td>1.33%</td>
<td>1.60%</td>
<td>2.22%</td>
<td>1.44%</td>
<td>0.51%</td>
<td>0.17%</td>
</tr>
<tr>
<td>Natural</td>
<td>2.72%</td>
<td>4.33%</td>
<td>2.72%</td>
<td>1.55%</td>
<td>2.64%</td>
<td>2.94%</td>
</tr>
<tr>
<td>Avg. Price (per cwt)</td>
<td>109.48</td>
<td>105.23</td>
<td>103.80</td>
<td>97.01</td>
<td>114.33</td>
<td>136.36</td>
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</table>

Source: Blank, Sexton, and Saitone (2016)
Perspectives on Risk Management
Perspective on Risk Management

• Fundamentally, risk management is about *paying someone* else (i.e. premiums) to manage that risk for us

• Any “risk management” technique will *good/bad years*

• Think of risk management like a breeding decision
  • *(i.e. not every cow gets bred back -> does not imply retention was bad decision)*
  • *Immediacy of information tempts us to look back and say “what if”*
Broad Risk Points

Risk is two-sided

• Price Risk:
  • Hedge this risk out

• Health Risk:
  • Low-, high health risk cattle
  • Disease (metaphylaxis)

• Generally, absorbing some risk is “necessary”
Opportunity or Threat? “Same risks” are often viewed differently across people

Some risks are quantifiable, many are not

Everyone must appreciate:
  • Risks are two-sided
  • Mitigating risk is not free...

Your comparative advantage in selecting risks to accept
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