Risk and Return Trade-Offs in Partnering Strategies between Co-ops and IOFs

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Background

• Flexible LLC corporate model
  – Income tax treatment of LLCs, co-ops
  – Equity allowed from co-ops, others
  – Replacing federated model (92 vs. 58 in 2011)

• Joint ventures in 2011
  – 135 among 70 co-ops (input supply)
  – 104 among 71 co-ops (grain marketing)
  – 83 ventures between co-ops, IOFs
    • Less prevalent than among co-ops only
• Form: equity ventures
  
  – 42% of co-ops participate in 50:50 ventures
  – 32% of co-ops participate in 20:80 ventures
  – 25% of co-ops participate in 35:65 ventures
Research Question

• What should be the strategy for forming a joint venture between a cooperative grain marketer and a non-cooperative grain marketer?
  – Form (equity, contract)
  – Duration (years)
Literature: cooperation alternatives

• What justifies substantial, long term cooperation?
• Harrigan (1988) framework for domestic joint ventures
  – Form (equity, non-equity)
  – Focus (many small agreements; one large)
  – Autonomy of venture
  – Duration
• Resource theory
  – Assets and attributes – what resources exchanged
• Real options theory – timing for extracting value
• **Priority for profit**
  – The value of capital invested and/or personal services rendered by individual partners may vary
    • First share paid to priority partner; rest shared pro rata
    • Mitigate differences in partner payoffs
• Exclusive purchase rights
  – Arm’s length dealings (Harrigan, 2003)
  – Downstream partner has the right to all shipments at its bid price
  – Particularly important in part due to the increasing lack of transparency in prices in spatially separate markets
• Buyout clause
  – A formalized way to liquidate the partnership for some unforeseen reasons
  – Appraisal
  – First right of refusal
  – English auction
Model

- LLC objective:
  - Maximize $\pi_{nt} = B_{it} - T_{ijt}$
    - $\pi_{nt} = \text{profit from shipping in outcome } n \text{ in year } t$
    - $B_{it} = \text{median bid}$
    - $T_{ijt} = \text{transportation cost from origin } i \text{ to market } j \text{ in year } t$
Method

• Simulation – effect of different terms on form, duration (Kenkel, Holcomb and Hill, 2008)
  – Detailed financial model of LLC joint venture
    • Incumbent, co-op elevator
    • Forms JV with IOF to build greenfield elevator
    • Simulate grain flows
  – Key variables are random
    • Output financial margin
    • Output volume
    • Output volume growth rate
• Distribution assumptions: handling margin
  – Corn
  – Soybean
• Total volume
  – Triangular (min, most likely, max)
• Shipment growth rate
  – Uniform (1% to 3% per year)
• Revenue from rail incentive payments (endogenous), HTA payments
• Stochastic simulation
  – @Risk
  – 40,000 iterations (Monte Carlo)
• Model parameters
  – Profit distribution of LLC
    • In proportion to equity share
    • Other cases
  – Profit distribution of partners to owners
    • Tax differential
    • Sensitive to distribution among co-op members too; potential annual changes
    • 2008 national averages used (qualified, cash, unallocated)
• Other parameters
  – Equity share: 50:50 to begin
  – Percent financed: 75%
  – Interest cost: 5% over 10 years
  – Fixed assets: $25.1 M
  – Working capital: $40 M
  – Income tax rate: 34% (flat)
  – Utilities; other taxes
Baseline case

- 50:50 distribution (before tax) of profits at end of year

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<thead>
<tr>
<th></th>
<th>NPV</th>
<th>IRR</th>
<th>Prob NPV &lt; 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative</td>
<td>$8.8M (1.0)</td>
<td>17.1% (1.0)</td>
<td>15.0%</td>
</tr>
<tr>
<td>Investor-owned</td>
<td>$3.8M (2.7)</td>
<td>10.2% (1.4)</td>
<td>25.0%</td>
</tr>
</tbody>
</table>

- Higher returns, lower variability, lower risk of negative returns for co-op
- What are strategic objectives for each?
  - Returns, variability, positive returns
  - Risk preferences for co-op, IOF
Lump Sum Transfer

• A lump sum of $650,000 at end of each year, then 50:50 (after tax) distribution of total net income

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<tr>
<td>Cooperative</td>
<td>$2.6M (5.1)</td>
<td>9.8% (1.8)</td>
<td>54.7%</td>
</tr>
<tr>
<td>Investor-owned</td>
<td>$2.6M (3.9)</td>
<td>8.3% (1.7)</td>
<td>51.8%</td>
</tr>
</tbody>
</table>

• Co-op NPV decreased, variability increased; IRR decreased, variability increased; larger chance of negative returns
• IOF NPV decreased, variability increased; IRR decreased, variability decreased; larger chance of negative returns
- Lump sum transfer of $1.04M, cooperative receives 60% of total net income

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<tr>
<td>Cooperative</td>
<td>$3.1M (5.1)</td>
<td>12.6% (1.6)</td>
<td>54.8%</td>
</tr>
<tr>
<td>Investor-owned</td>
<td>$3.1M (2.6)</td>
<td>9.8% (1.2)</td>
<td>45.0%</td>
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- Lump sum transfer of $1.55M, cooperative receives 70% of total net income

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<tr>
<td>Cooperative</td>
<td>$1.7M (11.6)</td>
<td>15.2% (1.5)</td>
<td>59.6%</td>
</tr>
<tr>
<td>Investor-owned</td>
<td>$1.7M (3.6)</td>
<td>7.9% (1.1)</td>
<td>50.7%</td>
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Purchase Guarantee

- 50:50 distribution (after tax), plus a price reduction at time of sale ($0.02)
  - Soybeans and wheat

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<tr>
<td>Cooperative</td>
<td>$7.1M</td>
<td>14.5% (1.2)</td>
<td>35.7%</td>
</tr>
<tr>
<td>Investor-owned</td>
<td>$5.2M</td>
<td>12.3% (1.0)</td>
<td>37.8%</td>
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</tbody>
</table>

- Co-op NPV decreased, variability increased; IRR decreased, variability increased; larger chance of negative returns
- IOF NPV increased, variability decreased; IRR decreased, variability decreased; smaller chance of negative returns
• 53 (corp): 47 (co-op) distribution (pre-tax), $0.02 price reduction at time of sale
  – Soybeans and wheat

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<tr>
<td>Cooperative</td>
<td>$6.0M</td>
<td>13.0%</td>
<td>39.6%</td>
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<tr>
<td>Investor-owned</td>
<td>$6.0M</td>
<td>13.5%</td>
<td>34.1%</td>
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</table>

• Co-op NPV decreased, variability increased; IRR decreased, variability increased; larger chance of negative returns
• IOF NPV increased, variability decreased; IRR increased, variability decreased; smaller chance of negative returns
• 49 (corp): 51 (co-op) distribution (pre-tax), $0.04 price reduction at time of sale
  – Soybeans and wheat

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<td>12.9%</td>
<td>41.9%</td>
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<td>Investor-owned</td>
<td>$6.0M</td>
<td>13.7%</td>
<td>31.0%</td>
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• Co-op NPV decreased, variability increased; IRR decreased, variability increased; larger chance of negative returns
• IOF NPV increased, variability decreased; IRR increased, variability decreased; smaller chance of negative returns
### Significant terms

- Length of venture
- Horizon problem
- Cash vs. profit allocation

### Buyout

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<th>Investor-owned firm</th>
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<tbody>
<tr>
<td>Baseline</td>
<td>$8.8</td>
<td>$3.6</td>
</tr>
<tr>
<td>Lump sum transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$650,000</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>$1.04</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>$1.55</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Purchase Guarantee (IOF:Co-op)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0.02; 50:50</td>
<td>7.1</td>
<td>5.2</td>
</tr>
<tr>
<td>$0.02; 53:47</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>$0.04; 49:51</td>
<td>6.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>
Conclusions

• Tax treatment of IOFs and Co-ops differ, generating different results between partners than would otherwise occur.

• Many terms affect the value of the partnership for each participant:
  – May explain why most ventures are between co-ops.
  – Smart negotiations could increase IOF partners.
• At baseline: asymmetric distribution of benefits
  – Greater returns and lower risk for the cooperative than for the IOF
  – Asymmetry can be relieved by creating a variety of clauses
    • Priority for profits
    • Exclusive purchase
    • Buy out
• **Strategic implications**
  
  – Partnerships terms must be carefully considered
  
  – Form is less likely to be centered around equity; contract terms
  
  – Duration of marketing venture is likely to be short; buyout of co-op portion by IOF
    
    • Tax treatment of co-op income
    
    • Implications for market access; competitive yardstick function of co-ops
– Price bargaining stochastically dominates for the IOF, relative to baseline (2\textsuperscript{nd} order); no terms dominate for the co-op
  • Negate C-V exemption for marketing co-ops?
– Length of term likely to be “short” – less than 10 years – approaching the baseline case
– Cash management at LLC