

# Agency Problems in Food Processing Firms and Cooperatives

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## Continuation of Previous Research

- This presentation builds upon existing work reported previously
  - Industry effects are important (NCERA 194 2003)
  - Family firms are similar to co-ops with regard to governance (EURESCO 2004)
  - Performance of family-owned firms is no different than non-family owned firms but better than co-ops (AAEA 2005)

## Motivation

- Food processing firms have a long history of ownership structures that include
  - Family ownership (e.g., Campbell Soup, Cargill, Pilgrim's Pride, Tyson Foods) and
  - Producer ownership through cooperatives (e.g., CHS, Land O' Lakes, Welch Foods).
- Families control companies in much the same way producers control cooperatives
  - Governance of families is much more complex
- Agency problems abound in both organizations.

## Objective

- Identify significant determinants of performance for food processing firms over the 1992 to 2002 time period.
- Variables measuring firm effects such as asset size, governance, income distribution, risk, and solvency; and industry effects are used to explain two measures of performance.
- Governance, income distribution, and industry effect variables are found to be significant determinants of performance.
- The results provide evidence that control by non-independent directors' leads to poor performance due to agency problems.
- The results also provide support for the Sarbanes-Oxley Act of 2002 requiring changes in governance and support for food processing firms that elect to pay cash dividends.

## Agency Problem

- Jensen and Meckling (1976) described the classic principal-agent relationship. The agency problem is one aspect of this relationship. Agency problems arise when
  - the objectives of the principal and agent are different
  - asymmetric information exists which makes it difficult for the principal to monitor the agent's actions.
- Agency theory suggests that when an owner-manager allows outside equity to enter the firm and its governance structure (e.g., ownership and control are separated), the value of the firm will decline (Demsetz 1983, Fama and Jensen 1983).
- Three agency problems in literature
  - Ownership, role of monitoring, income distribution

## Data

- Standard and Poors Compustat Business-Segment Reports for firms in the food processing sector for the period of 1992 to 2003.
- A total of 46 firms were identified including 6 cooperatives, 15 non-family controlled firms, and 25 family-controlled firms.

## Theoretical Model

$$FirmPerformance = f(FIRM, INDUSTRY)$$

Firm Performance is measured as ROE or ROA.

Firm effects are DASSETS (debt-to-assets), ASSETS, FIRM RISK (Std Dev of ROE), INSIDERE (% of equity held by directors), OUTSIDE E (% of equity held by outside investors), INCOMED (whether firm paid a cash dividend or paid cash patronage), UNAFFILIATED (percentage of Independent directors), FAMILY (binary variable), and CO-OP (binary variable)

Industry effect binary variables (SIC2000, . . . , SIC2090).

## Selection Model (looks only at family-owned firms and co-ops)

- Same as previous model except that additional variables are added
  - OUTSIDECEO (is CEO an outsider)
  - FOUNDERCEO (is CEO the original founder)
  - DESCENDANTCEO (is CEO a descendant of the family)
  - YOUNG (company less than 50 years)
  - OLD (older than 50 years)

## Results for First Model

- CO-OP, FIRMRISK, OUTSIDED, and INCOMED were significant variables in explaining ROE and ROA.
- The CO-OP binary variable had a significant negative effect in that if a firm was a cooperative, it led to a decrease in ROE and ROA for this time period. This suggests that cooperatives had lower performance relative to the other firms in the data.
- As the percentage of outside directors increased, it led to a positive effect on ROE and ROA suggesting that the independence of directors led to better decision-making which led to better performance.
- An increase in the variability of ROE led to an increase in ROE and ROA. This suggests that an increase in risk led to an increase in performance.
- A company that paid patronage refunds or cash dividends had a higher ROE or ROA. This suggests that payment of cash dividends led to superior performance.
- Family-controlled firms (FAMILY) had greater ROA than non-family controlled firms.
- Industry effects were significant.

## Results for Second Model

- A CEO who was a descendant of the founding-family CEO (DESCENDANTCEO) had a negative impact on performance.
- A company that was 50 years of age or less (YOUNG) had a negative impact on performance.
- The greater the percentage of outside directors (OUTSIDED) relative to total directors led to higher performance.
- Likewise, companies that paid cash dividends had greater performance (INCOMED).
- An increase in the variability of ROE (FIRMRISK) led to a lower ROA
- For ROE, if the CEO was the founder of the company (FOUNDERCEO) or if the percentage of equity held by insiders (INSIDERE) was higher, this led to a lower ROE.
- With regard to ROA, if the number of unaffiliated directors (UNAFFILIATEDD) increased, this led to a greater ROA.
- Industry effects were significant.

## Endogeneity Tests

- Do results hold because the firms were family-owned or co-operatives or is this variable exogenous?
- Results suggests that it is exogenous.

Standard Industrial Classification Code	Controlled			Total
	Non-Family	Family	Cooperative	
2000 Food and Kindred Products	2	1	0	3
2011 Meat Packing Plants	0	3	0	3
2013 Sausages & Other Prepared Meat Products	0	1	0	1
2015 Poultry Slaughtering and Processing	1	4	1	6
2020 Dairy Products	1	0	1	2
2024 Ice Cream & Frozen Desserts	1	0	0	1
2030 Canned, Frozen & Preserved Fruit and Vegetables	1	2	1	4
2033 Canned, Fruits, Vegetables, Preserves, Jams & Jellies	2	1	1	4
2040 Grain Mill Products	1	2	1	4
2050 Bakery Products	2	0	0	2
2052 Cookies & Crackers	0	1	0	1
2060 Sugar & Confectionery Products	0	3	1	4
2070 Fats & Oils	0	1	0	1
2080 Beverages	0	1	0	1
2082 Malt Beverages	0	2	0	2
2086 Bottled & Canned Soft Drinks & Carbonated Waters	2	0	0	2
2090 Miscellaneous Food Preparations & Kindred Products	2	3	0	5
Total	15	25	6	46

Table 2. Definitions, Mean, and Standard Deviation for Variables used in the Models

Variable	Mean	Standard Deviation
ROE, % <sup>a</sup>	17.61	29.64
ROA, % <sup>b</sup>	6.94	6.80
DASSET, % <sup>c</sup>	30.30	18.64
ASSETS, million \$	4,228.70	7,217.54
FAMILY <sup>d</sup>	0.54	0.50
CO-OP <sup>e</sup>	0.13	0.23
YOUNG <sup>f</sup>	0.13	0.34
OLD <sup>g</sup>	0.46	0.50
OUTSIDECEO <sup>h</sup>	0.65	0.48
FOUNDERCEO <sup>i</sup>	0.13	0.34
DESCENDANTCEO <sup>j</sup>	0.22	0.41
INSIDERE, % <sup>k</sup>	31.46	35.84
OUTSIDED, % <sup>l</sup>	67.35	24.54
UNAFFILIATEDD, % <sup>m</sup>	18.59	17.42
FIRM RISK, % <sup>n</sup>	16.36	18.17
INCOMED <sup>o</sup>	0.41	0.49

<sup>a</sup>ROE is earnings before interest and taxes as a percentage of total equity.

<sup>b</sup>ROA is earnings before interest and taxes as a percentage of assets.

<sup>c</sup>DASSETS is long-term debt as a percentage of assets.

<sup>d</sup>FAMILY is a binary variable where 1 is family-controlled and 0 is otherwise.

<sup>e</sup>CO-OP is a binary variable where 1 is a cooperative and 0 is otherwise.

<sup>f</sup>YOUNG is a binary variable where 1 is if the firm is less than 50 years old and 0 is otherwise.

<sup>g</sup>OLD is a binary variable where 1 is if the firm is 50 years or more old and 0 is otherwise.

<sup>h</sup>OUTSIDECEO is a binary variable where 1 is if CEO is hired outside the family and 0 is otherwise.

<sup>i</sup>FOUNDERCEO is a binary variable where 1 is if CEO is the original founder and 0 is otherwise.

<sup>j</sup>DESCENDANTCEO is a binary variable where 1 is if CEO is a descendant of the original founder and 0 otherwise.

<sup>k</sup>INSIDERE is the equity held by inside directors as a percentage of total equity.

<sup>l</sup>OUTSIDED is the number of directors outside the company as a percentage of total directors.

<sup>m</sup>UNAFFILIATEDD is the number of unaffiliated directors with more than 5 percent ownership as a percentage of total directors.

<sup>n</sup>FIRM RISK is a five year moving average of the standard deviation of ROE.

<sup>o</sup>INCOMED is a binary variable where 1 is if the firm paid a cash dividend or cash patronage refund and 0 is otherwise.

Table 4. Parameter Estimates, Standard Errors, and Regression Statistics for Estimation of Full Data in Model 1

Variable	ROE	ROA
Intercept	-24.914 (8.804)	-2.835 (1.908)
ASSETS	0.0009 (0.001)	0.0008 (0.001) <sup>+</sup>
FAMILY	-1.203 (4.454)	2.734 (0.966) <sup>+</sup>
CO-OP	-32.596 (12.209) <sup>+</sup>	-8.749 (2.647) <sup>+</sup>
INSIDERE	7.845 (9.538)	0.717 (2.068)
OUTSIDED	21.625 (9.815) <sup>+</sup>	5.571 (2.128) <sup>+</sup>
UNAFFILIATEDD	6.990 (13.101)	2.059 (2.841)
FIRM RISK	0.930 (0.088)*	0.045 (0.019) <sup>+</sup>
INCOMED	11.847 (4.567)*	3.611 (0.991) <sup>+</sup>
SIC2000	14.706 (7.663) <sup>+</sup>	1.188 (1.661)
SIC2011	12.721 (5.769) <sup>+</sup>	0.812 (1.251)
SIC2013	6.569 (8.199)	2.831 (1.778)
SIC2020	14.735 (6.437) <sup>+</sup>	4.487 (1.400) <sup>+</sup>
SIC2024	-17.631 (8.755) <sup>+</sup>	-1.554 (1.889)
SIC2030	14.439 (4.996) <sup>+</sup>	3.469 (1.084) <sup>+</sup>
SIC2033	5.407 (5.018)	0.514 (1.089)
SIC2040	12.436 (5.672) <sup>+</sup>	2.232 (1.229) <sup>+</sup>
SIC2050	10.444 (7.099)	2.889 (1.539) <sup>+</sup>
SIC2052	13.200 (8.911)	4.157 (1.932) <sup>+</sup>
SIC2060	25.538 (6.212) <sup>+</sup>	10.281 (1.347) <sup>+</sup>
SIC2070	8.089 (9.676)	-2.922 (2.098)
SIC2080	11.776 (9.829)	4.848 (2.131) <sup>+</sup>
SIC2082	6.146 (6.821)	-3.047 (1.478) <sup>+</sup>
SIC2086	-52.356 (7.671) <sup>+</sup>	-2.912 (1.664) <sup>+</sup>
SIC2090	10.743 (5.376) <sup>+</sup>	3.984 (1.166) <sup>+</sup>
R Square	0.294	0.369
RMSE	25.459	5.521

<sup>+</sup>denotes significance at the 0.10 level.

Table 5. Parameter Estimates, Standard Errors, and Regression Statistics for Estimation of Family-Controlled and Cooperative Data in Model 2

Variable	ROE	ROA
Intercept	-16.613 (10.102)	-11.625 (4.077)
ASSETS	0.0011 (0.0011)	0.0009 (0.001)
FOUNDERCEO	-6.989 (3.969) <sup>*</sup>	1.845 (1.602)
DESCENDANTCEO	-14.322 (4.666) <sup>*</sup>	-4.145 (1.883) <sup>*</sup>
YOUNG	-10.899 (4.222) <sup>*</sup>	-4.986 (1.704) <sup>*</sup>
INSIDERE	29.274 (9.814) <sup>*</sup>	-6.066 (3.960)
OUTSIDED	23.701 (13.266) <sup>*</sup>	26.600 (5.354) <sup>*</sup>
UNAFFILIATEDD	13.576 (13.871)	18.970 (5.598) <sup>*</sup>
FIRMRISK	0.447 (0.249) <sup>*</sup>	0.224 (0.100) <sup>*</sup>
INCOMED	9.312 (3.244) <sup>*</sup>	6.330 (1.309) <sup>*</sup>
SIC2000	38.379 (12.350) <sup>*</sup>	23.914 (4.984) <sup>*</sup>
SIC2011	3.799 (5.001)	-4.150 (2.018) <sup>*</sup>
SIC2013	18.459 (6.283) <sup>*</sup>	8.874 (2.536) <sup>*</sup>
SIC2030	6.323 (6.098)	-3.631 (2.461)
SIC2033	9.744 (5.823) <sup>*</sup>	1.989 (2.350)
SIC2040	14.373 (6.171) <sup>*</sup>	2.439 (2.491)
SIC2052	0.131 (7.040)	-1.529 (2.841)
SIC2060	12.132 (6.884) <sup>*</sup>	22.363 (2.778) <sup>*</sup>
SIC2070	13.861 (8.287) <sup>*</sup>	1.861 (3.344)
SIC2080	11.236 (9.803)	-4.837 (3.956)
SIC2082	11.739 (6.574) <sup>*</sup>	-5.165 (2.653)
SIC2090	8.450 (5.853)	8.447 (2.362) <sup>*</sup>
R Square	0.344	0.528
RMSE	13.264	4.981

<sup>\*</sup>denotes significance at the 0.10 level.

## Summary

- Greater performance is linked with greater number of independent directors and firms that pay cash dividends or cash patronage. This result finds support for the Sarbanes-Oxley Act of 2002 requiring independent directors on the board.
  - Directors that are not under the control of insiders such as management or family members lead to decision-making that is best for the firm's performance and avoid agency problems.
- Family-controlled firms have lower performance than non-family owned firms. This result suggests that agency problems lead to inferior performance in food processing firms during the time period studied.
- Cooperatives had inferior performance relative to other food processing firms during this time period.
  - Directors who are producers are considered independent. However, they are relatively homogenous. Increasingly, some cooperatives are considering whether to have outside directors on the board. This research would suggest that this may be a good idea to consider.

## Summary

- Income distribution was found to be a significant variable in explaining better performance. That is, cash dividends were found to help explain better performance.
  - The U.S. Congress passed a law that reduced the tax on corporate dividends to the same rate as capital gains (i.e., 15 percent) in 2003. A survey of 384 Chief Financial Officers found that an increase in earnings and better corporate governance demanded by institutional investors were cited as reasons for this increase. Future research could analyze the impact of income distribution after implementation of the Sarbanes-Oxley Act.
- Agency theory is commonly used to explain the relationship between principals and their agents.
  - The Sarbanes-Oxley Act of 2002 was enacted into law because of the corporate scandals involving Enron, Worldcom and other businesses.
  - Family members or producers who have different goals can result in a family-controlled firm performing less efficiently than firms where agency problems are not prevalent.
- This study suggests that agency problems existed among these family-controlled food processing firms during this time period.

## What's next?

- Diversification
  - Single segment firms and co-ops perform better than multiple-segment firms and co-ops
  - Multiple segment firms that pursue vertical integration or horizontal integration do better than firms with unrelated diversification
    - Transactions costs matter
- Family-owned firms and co-ops have lower leverage than non-family owned firms.