

*Linkages between
Cooperative Performance
and Board of Director
Characteristics: A
Quantitative Investigation*

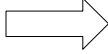
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Outline

- Background
- Literature
- Data & Methodology
- Results & Analysis
- Conclusion

Background

Beginnings

- USDA-RBS funded research on the RGA failure  interviews, survey
- Common theme emerged from interviews with former managers, directors, lay members and survey findings
 - Board and management did not do its job
- Poor governance aided in RGA's closure, might it also affect the performance of other cooperatives?

Selected Quotes

“Most cooperative success and a large portion of their failure can be attributed to the Board's performance or lack there of”

Dunn et al. Ag. Coop's in the 21st Century

“Directors do not direct”

William O. Douglas, former SEC Chair

“Making internal control systems work is the major challenge facing economists and management scholars in the coming decade.”

M.C. Jensen, 1993

Modern Industrial Revolution, Exit, and Failure of Internal Control Systems

Background
Process

- Towards addressing this question...
 - Corporate and co-op governance literature reviewed
 - USDA-RBS survey data obtained
 - UC Davis survey administrated
 - Empirical model developed
 - Quantitative analysis performed

Literature
Board Size and Performance

- Lipton and Lorsch: board size ≤ 10
- Jensen (1993): board size ≤ 8
- Rauterkus : board size < 8
- Lang: smaller boards more efficient
- Gilson: optimal board size can be small (~5+)

Literature

Corporate/Co-op Governance

- Corp boards staffed by officers from other corporations, industry experts, management (Benson and Hargraves)
 - Highly Educated Individuals
- Co-op directors more likely to be experts in ag. production and industry/community leaders (Lang, Staatz, Rhodes, Dunn et al.)
 - Lack high-level financial/managerial expertise
- Governance Problems may be more severe at Co-ops

Literature

Boards & Performance Evaluation

- Lang: Directors lack confidence in evaluating management
- Richards et al.: Confusion over what metric to evaluate managers by
- Coop may provide valuable non-market benefits
- Sexton and Iskow, efficiency measures

Data

Surveys, Surveys, Surveys

- Five Data sets combined
 - USDA-RBS Director Survey
 - USDA-RBS Farm Supply Co-ops Database
 - USDA-RBS Top 100 Co-ops Financial Data
 - UC Davis Survey of Co-op Top Managers
 - Study of Annual Statements and Financial Ratio Benchmarks (SASFRB)

Data

Dependent Variables

- Current Ratio (CA/CL)
- Earnings before Interest and Taxes divided by Interest (EBIT/I)
- Fixed Asset Turnover Ratio (S/FA)
- Total Asset Turnover Ratio (S/TA)
- Inventory Turnover Ratio (INV)
- Asset Turnover Ratio (ART)

Data

Independent Variables

- Differenced Number of Directors (DIF)
- Diff'd Number of Directors Squared (DIFSQR)
- Dummy for outside director (OUT)
- IV for CEO ability (SKILL)
- Perishability Dummy (PER)
- Co-op Type Dummies (FS1, FS2, FS3)
- Co-op Age (AGE)
- Co-op Membership size (MEMBER)

Methodology

General Regression Equation

$$Y_i = \alpha + \beta_1(DIF_i) + \beta_2(DIFSQR_i) + \beta_3(SKILL_i) + \beta_4(PER_i) + \beta_5(MEM_i) + \beta_6(AGE_i) + \beta_7(FS1_i) + \beta_8(FS2_i) + \beta_9(FS3_i) + \varepsilon_i$$

Table 1: Regression Results						
	Dependent Cooperative Performance Measure					
<i>Independent Variables</i>	Current Ratio ^Δ	EBIT/ Interest ^Δ	Fixed Asset Turnover ^Δ	Total Asset Turnover	Inventory Turnover	Accounts Receivable ^Δ
<i>DIF</i>	-.043832 (-1.29)	.0982218 (0.16)	.0244661 (1.06)	.062427 (2.24)**	.111419 (1.33)	.096816 (1.39)
<i>DIFSQR</i>	.002503 (0.56)	.057493 (0.75)	.003986 (1.50)	.00098 (0.24)	.002135 (0.17)	-.016821 (-2.30)**
<i>SKILL</i>	-.003981 (0.33)	.193220 (1.78)*	-.002082 (-0.24)	-.00667 (-0.71)	-.04684 (1.66)*	.024418 (0.75)
<i>PER</i>	-.087333 (-0.32)	-8.47338 (-1.31)	-.402020 (-2.10)**	-.436488 (-1.18)	-.577413 (-0.52)	-1.8017 (-2.10)**
<i>MEMBER</i>	.000025 (1.06)	-.000082 (-0.19)	-.000019 (-1.17)	.000000 (-0.34)	-.000020 (-0.32)	-.000034 (-0.63)

Table 1: Regression Results, Continued						
	Dependent Cooperative Performance Variable					
<i>Independent Variables</i>	Current Ratio ^Δ	EBIT/ Interest ^Δ	Fixed Asset Turnover ^Δ	Total Asset Turnover	Inventory Turnover	Accounts Receivable ^Δ
<i>AGE</i>	-.000888 (-0.54)	.001262 (0.04)	.001107 (0.63)	-.001264 (-.60)	.002912 (0.46)	-.012430 (-1.72)*
<i>FS1</i>	-.062093 (-0.43)	.434299 (0.12)	.581278 (2.62)**	.275575 (1.49)	.233489 (0.42)	1.1658 (1.53)
<i>FS2</i>	-.218446 (-1.66)*	-3.61177 (-1.21)	.231159 (2.95)**	.197916 (1.29)	.867307 (1.87)*	.091244 (0.23)
<i>FS3</i>	-.256585 (-1.78)*	-1.79047 (-0.55)	.515802 (3.65)**	.295086 (1.98)**	.781447 (1.74.)*	-.347944 (-0.91)
<i>CONST</i>	1.04668 (2.94)**	-1.48239 (-0.23)	.547740 (2.08)**	.948278 (3.22)**	2.069037 (2.33)**	1.851602 (1.68)*
<i>R²</i>	.2427	.0870	0.5160	.3665	.2466	.3488
<i>Breuch-Pagan P-value</i>	0.00	0.0020	0.0490	0.8425	0.8374	0.2609
T-stats in parentheses: *10% significance level, **5% significance level						
ΔRegressions run with White-adjusted standard errors to obtain robust coefficient estimates						

Results & Analysis

Governance Variables

- DIF and DIFSQR are jointly significant in S/FA, S/TA, and ART regressions
- S/FA and S/TA convex relationship found
- ART concave relationship found
 - Negative marginal returns only after board size has reached 11
- Growth in board size is associated with decreased fixed and total assets and increased accounts receivable
- Contradictory results imply that board size, at best, only weakly influences some measures of co-op performance

Results & Analysis

Other Explanatory Variables

- AGE variable negative and significant in ART regression
 - Older co-ops and membership size, trust
- AGE not significant in asset-related ratios
 - Upgrading?
- PER dummy negative and significant in S/FA and ART regressions
 - Efficiency measures, reflective of profit margins, link to lower profits

Results & Analysis

Other Explanatory Variables, 2

- Co-op type variables: FS1, FS2, FS3 significant in 4 regressions
- Implies that the proportion of farm supply to marketing sales does influence certain measures of financial performance

Conclusions

- Study aimed to investigate how board size contributes to firm performance
- Explanatory power of the econometric results is fairly low
 - Small sample size
 - Weak top manager proxy
- Director size appears to have a net ambiguous effect on firm financial health
- If managers wish to improve performance: governance reform likely shouldn't be top concern
- Recommend that a more wide-reaching study be done

Questions

