Incentive Incompatibility in Co-operative Agribusiness Firms in Canada: Does Supply Management Matter?

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An incentive incompatibility exists when the maximization objectives of the parties to a co-operative diverge, and suboptimal allocation of resources within an organization may result. This is consistent with the prediction that agency costs of debt may cause a potential deterioration in cost efficiency (Barnea, Haugen, and Senbet 1985; Jensen and Meckling 1976). An extensive literature has investigated the benefits and costs of the use of debt financing, both theoretically (e.g., Jensen and Meckling 1976) and empirically (e.g., Kim and Maksimovic 1990). However, the issue of how Canadian supply-management policy impacts the agency costs of debt resulting from incentive incompatibility has received little attention. The objective of this study is to investigate the impact of supply-management policy on the agency costs of debt for selected cases of Canadian co-operative agribusiness firms.

Literature Review

Agency problems arise if the owner of the firm delegates a task to a manager who has an *incentive-incompatibility* constraint and the information about the manager is imperfect. Agency problems may even be more pronounced in the case of a co-operative firm where managers of the firm may not have share-ownership rights. Unless the agency problems are resolved they lead to suboptimal allocation of resources within the organization, resulting in increased costs of production (Barnea, Haugen, and Senbet 1985). Agency problems related to debt arise from asymmetric information, risk incentive, investment incentive, and bankruptcy problems (Barnea, Haugen, and Senbet 1985; Jensen and Meckling 1976).

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Relatively few studies have estimated and tested the impact of agency costs of debt on costs of production or productivity of firms (e.g., Kim and Maksimovic 1990; Featherstone and Al-Kheraiji 1995; Bernstein and Nadiri 1993; Hossain and Jain 2001). The empirical evidence from these studies indicates that the estimated magnitude of agency costs would undoubtedly influence the firm's capital-structure decision. All of these studies have been conducted for firms in the U.S.; agency costs of debt have not yet been addressed in the context of Canadian co-operative agribusiness firms, specifically in supply-managed industries.

Does Supply Management Matter?

Supply management is a long-standing policy in some sectors of Canadian agriculture—dairy products, chicken, turkey, and eggs. It may be argued that supply-management policy may partially mitigate agency costs of debt for co-operative processors facing regulated raw-material supply, such as firms purchasing farm commodities in supply-managed sectors.

Given production control, and invoking the Le Chatelier-Samuelson principle, more restrictions make choice variables less responsive to changes in exogenous variables (Chambers 1988). This suggests that the degree of economic importance of agency costs may be different for firms operating in regulated versus unregulated industries. Thus the agency costs of debt may be less pronounced under supply management. Whether supply management could circumvent the agency problem merits serious consideration.

Data

Based on the objectives of the study, two case co-operative firms are selected: *Lilydale Poultry Co-operative Limited*, a case representing a centralized marketing co-operative operating in a supply-managed industry; and *Alberta Honey Producers Co-operative*, a case representing a centralized marketing

co-operative operating in an unregulated industry. The two cases were selected to explore whether supply management influences agency costs of debt. Lilydale Poultry Co-operative Limited operates six poultry farms, seven poultry-processing plants, two further-processing operations, five hatcheries, a rendering plant, and egg-grading and -processing plants. The Alberta Honey Producers Co-operative processes and packages pure natural honey and honey-related products.

Data on sales of co-operative output, costs of labor, costs of raw material inputs, costs of other variable inputs, depreciation, capital investment, property, buildings, equipment, and long-term debt are obtained from annual reports for the two co-operatives. Additional data are obtained from various Statistics Canada publications and web sites. To empirically investigate the impacts of agency costs of debt on resource allocation, a translog cost function is used that incorporates pre-existing debt as a "shift-variable".

Results[1]

Agency costs of debt are measured and tested using the statistical significance of the cost elasticity of debt. The cost elasticity of debt is calculated at mean values of the variables in the model for both co-operatives. For the Alberta Honey Producers Co-operative model the estimated cost elasticity of debt averages 0.067 and it is statistically significant at the 5% level. This is consistent with the prediction that agency costs of debt may cause a potential deterioration in cost efficiency (Barnea, Haugen, and Senbet 1985; Jensen and Meckling 1976). This finding suggests that, with other things held constant, a 10% increase in the level of debt results in 0.67% increase in the total variable costs of production for Alberta Honey Producers Co-operative that is attributable to agency problems.

For Lilydale Poultry Co-operative, the estimated cost elasticity of debt is 0.06, but is statistically insignificant. Based on the theoretical claim and empirical results, it is likely that supply management has lessened agency costs of debt. This might be due to the fact that supply management through predetermined levels of raw materials is equivalent to monitoring the level of processor output, avoid-

ing managerial *shirking effects* that negatively affect the level of output.

Conclusion

Though previous empirical evidence has invariably reported the existence of agency costs for aggregate sample or industries, the agency cost of debt in these case studies was found to be firm-specific. Evidence of statistically significant agency costs of debt was found in one of the two case co-operatives. Agency costs of debt may have a consequential influence on the cost efficiency of co-operative agribusiness firms. The agency costs of debt may have different impacts under different regulatory environments. Thus if there are any agency costs, capital-investment decisions or capital-budgeting analysis should account for the agency costs of debt, and cash flows should be discounted at the agency cost-adjusted cost of capital. Finally, since this is a comparative case study, the findings cannot be generalized to other co-operatives.

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[1] The translog cost-functions parameter and elasticity estimates are available upon request.