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Since its establishment in 2002, this program has helped to launch world-class scholars into the exciting and emerging field of entrepreneurship research, thus laying a foundation for future scientific advancement. The findings generated by this effort will be translated into knowledge with immediate application for policymakers, educators, service providers, and entrepreneurs as well as high-quality academic research.
THE INVESTMENT HORIZON ISSUE IN USER-OWNED ORGANIZATIONS

By: Elaine L. Krumpelman-Farmer

ABSTRACT

Collective entrepreneurship is an emerging field in the study of collective action. Drawing on recent advances in organizational economics, this research investigates an important investment constraint in collective entrepreneurship—the horizon problem. Empirical data generated by research case studies and member surveys conducted between January 2003 and May 2005 tests to what degree the investment horizon problem exists in user-owned organizations. Contrary to previous hypotheses, results suggest that more than one type of horizon problem exists in patron-owned or user-owned organizations. Empirical results identify five variants of the horizon problem in user-owned organizations that face the newly defined horizon constraints.
THE INVESTMENT HORIZON ISSUE
IN USER-OWNED ORGANIZATIONS

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Ph.D. at University of Missouri-Columbia

2005

DISSERTATION EXECUTIVE SUMMARY

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THE INVESTMENT HORIZON ISSUE IN USER-OWNED ORGANIZATIONS
DISSECTATION EXECUTIVE SUMMARY

Collective entrepreneurship, the process through which a group of user-owners collectively designs an organization to pursue entrepreneurial opportunities and create value by leveraging their individual resources, is an emerging field. Collective entrepreneurs form an organization owned and controlled by the individuals who use or patronize the firm. Another distinguishing factor is the benefits in a user-owned organization are distributed primarily to user-owners on the basis of patronage rather than to investors on basis of their investment in an investor-owned firm (USDA, 1987). Organizational challenges in the field of collective entrepreneurship are the focus of this research.

Historically, the traditional user-owned organizational form has been successful, but many are currently struggling financially to undertake entrepreneurial opportunities due to limited ability in acquiring equity capital needed for capital-intensive investments in an integrated global economy. Cooperative scholars argue that new entrepreneurial organizational models will emerge to ameliorate the perceived financial constraints (Chaddad and Cook, 2002). Some cooperatives exited the traditional organizational form by liquidating or restructuring as investor-owned firms. Other user-owned organizations introduced alternative institutional arrangements (such as seek outside equity or pursue strategy of proportionality in internally generated capital) or developed a collective entrepreneurship strategy (Cook and Iliopoulos, 1998).

User-owned businesses, like agricultural cooperatives, share similar organizational issues and challenges with family-owned firms and sole proprietorships that are not experienced by investor-owned firms. Recent advances in organizational economics provide the means to address these complex structural challenges. Research identified five vaguely defined “user versus owner” property rights problems facing collective entrepreneurs: free rider, horizon, portfolio, control and influence cost (Vitaliano, 1985; Condon, 1990; Cook, 1995). The first three problems, categorized as investment constraints, affect the incentives for user-owners to invest in their organization. The latter two problems, categorized as collective decision-making constraints, influence the level of efficiency characterizing the decision-making in collective entrepreneurship (Iliopoulos, 1998).
This research investigates an important investment constraint in collective entrepreneurship—the horizon problem. Scholars have suggested restrictions on transferability of residual claimant rights and the restricted liquidity through a secondary market result in a disincentive for user-owners to invest in growth opportunities. However, despite the conceptual and anecdotal arguments supporting the existence of investment constraints, the empirical evidence is scarce and inconclusive. This study attempts to fill part of this void in the literature by investigating the investment horizon problem with multivariate data analysis of survey data collected from the memberships of four user-owned organizations.

HORIZON PROBLEM

This research divides the horizon problem literature into (1) the agent-control horizon problem and (2) the investment horizon problem, but focuses on the latter. The agent-control horizon problem in the corporate governance literature, occurs when a manager has an incentive to engage in activities that are not in the shareholder’s best interest especially if the manager is about to leave the firm. The investment horizon problem, in a subfield of finance, represents a situation where the individual stockholder has a disincentive to contribute to collective growth opportunities when the individual’s residual claim on the net income is shorter than the economic life of the underlying asset.

This research identifies, through multivariate techniques, five variants of the investment horizon problem in user-owned organizations, like agricultural cooperatives:

- the wait-to-receive horizon problem;
- the hassle horizon problem;
- the current obligation horizon problem;
- the short-term residual horizon problem; and
- the appreciated value horizon problem.

Members who face the “wait-to-receive” horizon problem prefer the cooperative accelerate the redemption of previously allocated equities. Members who face the “hassle” horizon problem prefer limiting investment in the organization because it is too difficult or costly to understand or conform to the capital formation and equity redemption policies. Members who face the “current obligation” horizon problem prefer a higher percentage of cash payment in the year it is earned if the cost to pay taxes on the residual claims in combination with current working capital obligations is greater than the benefit of further cooperative investment. Members who face the
“short-term residual” horizon problem prefer the cooperative not invest in assets from which they cannot extract complete benefit during their membership horizon. Members who face the “appreciated value” horizon problem prefer the cooperative allocate or untie the appreciated value of the cooperative. If the cooperative does not allocate the appreciated value, the member might prefer the liquidation of the organization. Time and resources preclude the analysis of the “appreciated value” horizon problem in this study. However, it is important to note the identification of this class of investment horizon problem for future research.

RESEARCH DESIGN

In order to analyze the degree to which the horizon problem exists in user-owned organizations, this study utilizes both research case studies and member survey methodologies. The multiple research case studies inform the member survey design. The case studies examine multiple units of analyses within each agricultural cooperative: the strategy/structure interface, the financial structure and the member investment preferences. The four case studies were conducted in the period from January 2004 and August 2005, through secondary sources and through interviews with the cooperative management.

The subsequent member survey seeks to provide information as to the degree to which the variants of the horizon problem exist in the selected cooperatives by evaluating the member’s investment preferences for the cooperative’s equity redemption plan and the member’s preferences for future cooperative investment. The data used for testing the hypotheses were collected, in the period from November 2004 through May 2005, through a mail survey of the memberships of the four agricultural cooperatives.

The population of organizations considered for the multiple case studies is the entire population of agricultural cooperatives in advanced agricultural countries. The criteria to select the organizations for this research were organizational type\(^2\), payment type\(^3\), investment method\(^4\)

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\(^2\) Cooperatives may be categorized by organizational type as multipurpose or marketing. A multipurpose, or Nourse, cooperative includes local and regional cooperatives that operate in a geographic space to perform a combination of input procurement, service provision and/or product marketing. A marketing, or Sapiro, cooperative typically processes a commodity and sells the finished product through a form of vertical integration to increase the margin of a single or multiple commodities.

\(^3\) Cooperatives may be classified by payment type as a cost of goods sold cooperative or a pooled cooperative. A cost of goods sold cooperative distributes a portion of the net savings to permanent equity and allocates a portion to the members based on their level of patronage. In a pooled cooperative, the advances and final payments to producers are made after operating expenses have been deducted from gross income (Cobia, 1989).

\(^4\) The three types of investment methods are passive, pro-active and quasi-passive. A passive investment typically occurs in a cost of goods sold cooperative where the cooperative allocates a portion of the cooperative’s net income
and degree of investor/user benefit. In addition, the cooperatives were selected based on variability in size of member’s farm; variability in lengths of membership horizon; variation in attributes of equity acquisition and redemption policies and variability in intangible assets\(^5\). More than thirty agricultural cooperatives were identified for consideration for this research project. The criteria for the final four cooperatives who agreed to participate in each step of the project are summarized in Table 1.

**Table 1 Criteria for Selection of Organizations to Study Horizon Problem**

<table>
<thead>
<tr>
<th>Organizational Type</th>
<th>Effingham Equity</th>
<th>West Central</th>
<th>NMGP</th>
<th>Fonterra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment Type</td>
<td>Cost of Goods Sold</td>
<td>Cost of Goods Sold</td>
<td>Cost of Goods Sold</td>
<td>Cost of Goods Sold</td>
</tr>
<tr>
<td>Investment Method</td>
<td>Passive</td>
<td>Passive</td>
<td>Pro-Active</td>
<td>Pro-Active</td>
</tr>
<tr>
<td>User vs. Investor Benefit</td>
<td>User benefit</td>
<td>User benefit</td>
<td>Primarily investor benefit</td>
<td>Primarily investor benefit</td>
</tr>
<tr>
<td>Producer Size Variability</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Years as Member Variability</td>
<td>Med-High</td>
<td>Med-High</td>
<td>Low</td>
<td>Recently Low</td>
</tr>
<tr>
<td>Equity Redemption Policy</td>
<td>12 yrs revolving; redeem if age 65 and retire</td>
<td>Redeem 9% of allocated each year (estates then oldest equities)</td>
<td>Base Capital</td>
<td>Base capital; redeem upon exit</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Return of Capital</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Return on Capital</td>
<td>Low</td>
<td>Low</td>
<td>Medium-High</td>
<td>Medium</td>
</tr>
</tbody>
</table>

\(^5\) Intangible asset measures the variability in the market value of the cooperative and the book value. “Low” means the market value might be less than the book value. “Medium” means the market value is approximately equal to the book value. “High” for Return of Capital means that members can receive their equity capital quickly when they cease their business with the cooperative, whereas “low” means the members must wait to receive their equity. “High” for Return on Capital means that members can transfer their equity capital and capture the appreciated value of the organization, whereas “low” means that members have few, if any, options to capture the appreciated value of their investment.
Effingham Equity is primarily a farm supply cooperative in southeastern Illinois that sells farm supply products including fertilizer, agricultural chemicals, seed and animal feeds through local retail branch locations. West Central is primarily a grain marketing and soybean-processing cooperative in west central Iowa. Similar to most traditional agricultural cooperatives, Effingham Equity and West Central Cooperative source equity capital through retained patronage refunds and from non-member business. Both cooperatives also revolve equity capital to the members based on first in, first-out redemption plan and use special equity redemption plans (Stroburg, 2005; Wente, 2002). Since there is a time delay between when the member invests in Effingham Equity and West Central Cooperative and when the cooperative redeems the member’s equity, the investment may not be in proportion to the member’s patronage.

Northeast Missouri Grain Processors, a new generation cooperative, invested in NEMO Grain, LLC to build a corn ethanol plant in Macon, Missouri. The ethanol plant produces distillers dried grain with soluble and carbon dioxide in addition to alcohol. During the initial equity drive, producers invested capital in the cooperative by purchasing a delivery right obligating them to deliver a specified amount of corn annually to the ethanol plant. The members can transfer or sell their shares to other corn producers in Missouri according to board policies. The member benefits as an investor through (1) dividends and (2) the appreciated value of the shares. The member also benefits as a user through a (1) reliable access to a market for their corn, (2) premium on share corn delivered, (3) freight allowance for share corn, and (4) at least a 20 cents per bushel increase in the corn basis level (Eggleston, 2005).

Fonterra is a multinational dairy cooperative in New Zealand that manufactures and markets quality ingredients under the NZMP brand and a wide range of dairy-based consumer and food service branded products. Equity capital is sourced from the members purchasing fair value shares in proportion to the quantity of milk solids delivered to the milk manufacturing plants. This purchase is transacted ex ante delivery. The fair value shares are redeemed immediately by the cooperative if the member reduces the quantity of milk delivered (Fonterra website). The members benefit primarily as an investor in the appreciated value of their shares.

**EMPIRICAL RESULTS**

The research hypotheses were tested using various multivariate data techniques. Descriptive and inferential statistics provided insights into the possible association and
relationships between variables related to the horizon problem. Factor analysis explained the horizon problem variables in terms of the common underlying dimensions or factors. Ordinal probit regression analysis helped identify the impact of the independent variables on the horizon problem variables that have an ordinal scale. Cluster analysis classified samples of respondents into small and mutually exclusive groups based on similarities among the respondents regarding their investment preferences related to the horizon problem.

The results show that more than one type of horizon problem exists in user-owned agricultural cooperatives. The horizon problem is expressed in at least four ways through the wait-to-receive horizon problem; the hassle horizon problem; the current obligation horizon problem; and the short-term residual horizon problem. Each horizon problem is more important in certain contexts and for different types of cooperatives, which leads to different implications and policies that user-owned organizations can implement to ameliorate the horizon problems.

The results suggest the “wait-to-receive” horizon problem is more prevalent in cooperatives with passive investment where the investment is redeemed over longer revolving periods. As expected, the “hassle” horizon problem was more prevalent in organizations where the user and investor benefits are not separable, thus making the capital formation process complex to understand. As the investment method becomes more active, the user and investor benefits are more separable and consequently less complex. The results suggest the “current obligation” horizon problem weakly exists in cost of goods sold cooperatives that pay the minimum percent of allocated equities in cash in year generated. As expected, the “short-term residual” horizon problem exists in organizations where the members cannot transfer their shares or cooperative investment.

A summary of the results is shown in Table 2. The table provides a typology showing the degree to which the horizon problems exist under certain cooperative characteristics. Time, scope and resources precluded this study from analyzing the existence of the horizon problem categories represented by an NA for Not Applicable.

**IMPLICATIONS FOR CAPITAL STRUCTURE POLICY**

The analysis of the investment horizon problem, an investment constraint in user-owned agricultural organizations, generated several important implications for collective entrepreneurships. This study shows that subgroups of members within user-owned
Table 2 Results Indicating Degree of Existence of Horizon Problem by Cooperative Characteristics

<table>
<thead>
<tr>
<th>Organizational Type</th>
<th>Wait-to-Receive</th>
<th>Hassle</th>
<th>Current Obligation</th>
<th>Short-term Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multipurpose (Nourse)</td>
<td>Medium to High</td>
<td>Medium</td>
<td>Low to Medium</td>
<td>Medium to High</td>
</tr>
<tr>
<td>Marketing (Sapiro)</td>
<td>Low to Medium</td>
<td>Low to Medium</td>
<td>NA</td>
<td>Medium</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Payment Type</th>
<th>Cost of Goods Sold</th>
<th>Payment Type</th>
<th>Cost of Goods Sold</th>
<th>Payment Type</th>
<th>Cost of Goods Sold</th>
<th>Payment Type</th>
<th>Cost of Goods Sold</th>
<th>Payment Type</th>
<th>Cost of Goods Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pooled</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investment Method</th>
<th>Investor Benefit</th>
<th>User Benefit</th>
<th>Degree of Investor/User Benefit</th>
<th>Degree of User Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro-Active</td>
<td>None to Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Quasi Passive</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Passive</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Investor Benefit</td>
<td>None to Low</td>
<td>None to Low</td>
<td>NA</td>
<td>Low to Medium</td>
</tr>
<tr>
<td>User Benefit</td>
<td>High</td>
<td>High</td>
<td>Medium to High</td>
<td>Medium to High</td>
</tr>
</tbody>
</table>
organizations have different preferences for equity redemption policies as well as different preferences for future investments by the organization.

The adoption of an effective equity redemption plan affects the “wait-to-receive” horizon constraint. Traditional user-owned organizations that generate risk capital through passive investment are affected more by the “wait-to-receive” horizon constraint than organizations that generate risk capital primarily with pro-active direct investment. In addition, the “wait-to-receive” horizon constraint is manifested in user-owned organizations with longer revolving periods and in organizations that do not have a policy allowing the full redemption of allocated equities when the member reaches a certain age.

Adopting an adaptation to the current equity redemption plan, like the dividend allocation rule, can help to ameliorate the pressures from the “wait-to-receive” horizon problem. The dividend allocation rule, an Internal Revenue Service interpretation of the tax code, requires user-owned organizations that pay dividends on equity investments to allocate the dividends on a pro rata basis between the patronage and non-patronage income. Under the provisions in the American Jobs Creation Act of 2004, user-owned organizations can pay dividends on stock entirely out of non-patronage income that allows the organization to reduce the tax cost of paying dividends on their equity investments and, at the same time, return more of their margins to patrons as patronage refunds (Frederick, 2005). Some user-owned organizations are considering using the dividend allocation rule to retain additional capital in the cooperative and ameliorate some of the liquidity issues for those members who want their equity out. The plan would convert the member’s stock into a non-voting stock (rather than in cash), which is redeemable upon the member’s request at the discretion of the board of directors. The non-voting stock would receive an interest bearing dividend using profits from the non-member business.

Traditional user-owned organizations that utilize passive or quasi-passive investment methods might have members who experience the “current-obligation” horizon constraint. To alleviate the “current obligation” constraint, the organization could pay a higher percent of the qualified allocated equities in cash or allocate the equities as non-qualified where the organization pays the taxes on the equities and later redeems to the member at the discretion of the board of directors.
Separating the investor benefits from the user benefits helps reduce the complexity of the user-owned organization’s capital formation and therefore helps to ameliorate the “hassle” horizon problem. In some new generation cooperatives, the member receives benefits as an investor through dividends and as a user through a competitive price and access to a market for their commodity. However, in traditional multipurpose cooperatives, the member typically does not receive a benefit as an investor, and therefore may perceive the capital formation of the organization as too complex to understand. Members with a higher level of patronage with the user-owned organization begin to think of their investment as an investor.

The creation of a secondary market for cooperative shares and/or delivery rights provides a mechanism for members to capture the market value of their investment decision by selling their residual claims to the cooperative’s future net income. User-owned organizations that have a secondary market for the organization’s shares or delivery rights have reduced the impact of the “short-term residual” horizon problem. Members who can capture the market value of their investment decision might be more willing to support investments in intangible assets, such as research and development or brand name development, and tangible assets that have an economic life beyond their membership horizon.

RECOMMENDATIONS FOR FUTURE RESEARCH

A study of the investment horizon problem in collective enterprises, however comprehensive it may be, cannot discuss, analyze, and empirically test all aspects of the investment constraint. Areas for future research at both the theoretical and empirical levels are:

1. a more thorough investigation of the “appreciated value” horizon problem;
2. refinement of the survey design to measure the member’s incentive to invest;
3. assessment of the relationship between the horizon and portfolio investment constraints; and
4. identification of the various techniques developed as solutions by cooperative managers to ameliorate the five subtypes of the horizon problem.

The “appreciated value” horizon problem affects member’s investment incentives in collective entrepreneurship where the organization’s market value is perceived to be greater
than the book value. The study of the “appreciated value” horizon problem was beyond the scope of this study due to time and resources. A similar case study and survey approach would provide insights into the organization’s characteristics that manifest the “appreciated value” horizon problem.

All subtypes of horizon problem can be informed in greater depth through analysis of additional user-owned organizations that have passive, quasi-passive and active investment methods. The two organizations with passive investment chosen for this study have a shorter revolving period than the average cost of goods sold cooperative. Increasing the sample of user-owned organizations with longer revolving periods would generate a richer data set by which more knowledge can be gathered about the “wait-to-receive” horizon problem and the “current obligation” horizon problem.

The analysis of the existence of the investment horizon constraint focused on the association of member characteristics with their “disincentive to invest”. Since two of the organizations analyzed have traditional user-owned organizational structures with passive investment, the members do not actively invest additional capital. This study indicated the member’s preference to not invest as measured by a request for equity to be returned more quickly. Future research could incorporate measures to capture the member’s preference to invest additional capital in their organizations if they were provided the opportunity.

To date, the investment horizon problem and the portfolio problem have been analyzed in separate studies. However, both the horizon and the portfolio issues are considered investment constraints in user-owned agricultural cooperatives. An analysis of the interrelationships between the two investment constraints can help improve the ability of collective entrepreneurs to acquire risk capital. Reducing the horizon problem could lead to a greater portfolio problem if not analyzed carefully.

This study focused on the degree to which the investment horizon issue exists in user-owned agricultural cooperatives. The results identified five different subtypes of horizon problem that might exist and identified organizational characteristics that are associated with each type. Further research can help develop a typology of the solutions that might ameliorate the several variants of the horizon problem.
REFERENCES


