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Implications of the Cooperative Organizational Form for Vertical Expansion

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Abstract

This article examines the explanations that have been offered for why cooperatives have not expanded into processed product markets to a greater extent. Particular emphasis is placed on the unique organizational characteristics of cooperatives that affect their marketing and investment behavior. Topics covered include factors that may restrict cooperative access to capital, factors that may affect cooperative decisions about forward expansion, and the ability of cooperative directors to monitor activities in the later stages of the marketing channel. This article also discusses the relationship between cooperatives and risk, the extension of market risk in cooperatives, the use of unallocated reserves in accommodating risk and providing capital for vertical expansion, and cooperative strategies in interfirm consolidations and collaborations. When possible, established theories are evaluated in the context of empirical evidence or extended by recent contributions. The conclusions describe strategies that might be of benefit to cooperatives and their members.

Keywords: cooperatives, vertical expansion, organizational characteristics, equity financing

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Introduction

Agricultural cooperatives are typically involved in first-stage marketing and food processing activities as a result of their role as vertical extensions of the farming operations of their members. Consequently, the marketing and processing activities in which cooperatives participate generally occur in the early stages of the marketing channel and are associated with low margins and little market power in contrast to the later stages where the amount of processing and product differentiation is usually greater (Rogers and Marion, 1990).

As an example, consider the U.S. dairy industry. Dairy cooperatives are an important component of the cooperative sector. In 2007, milk and milk products accounted for 42 percent of the total farm products marketed by cooperatives (DeVille, Penn, and Eversull, 2008). Dairy cooperatives handled 156 billion pounds of milk, or 84 percent of the total milk marketed by producers. Of this milk, 63 percent was sold as raw milk and 37 percent was used by the cooperatives in processing or manufacturing dairy products (Ling, 2009).

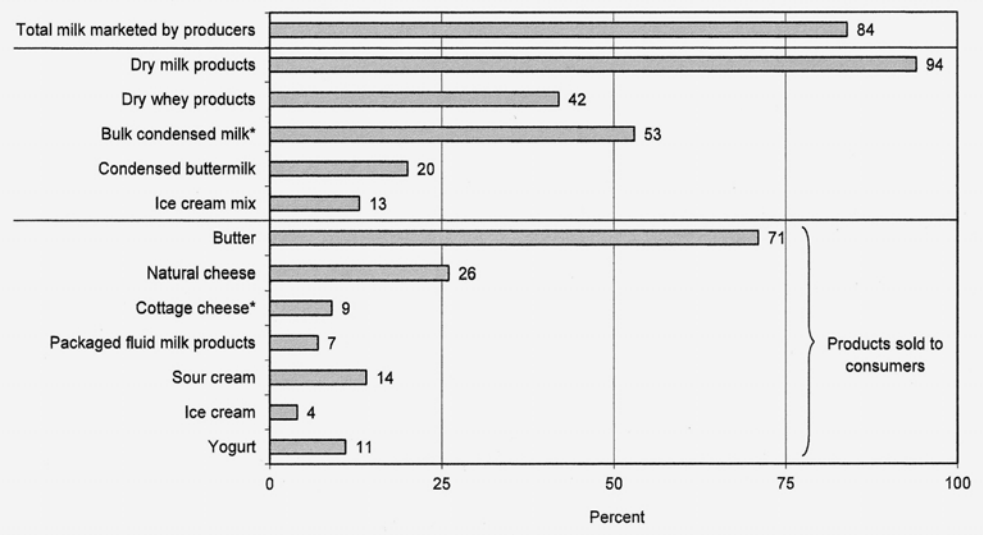
The 2007 cooperative market shares for various dairy products are shown in Figure 1. Dairy cooperatives typically held larger market shares for those products sold to manufacturers than for products sold directly to consumers. Indeed, cooperatives produced a majority of dry milk products and bulk condensed milk. On the other hand, cooperatives held about a quarter or less of the market for products sold to consumers, with the exception of butter, which is a relatively homogeneous product associated with a first-stage processing activity.

Rogers and Marion attributed the relative infrequency with which cooperatives integrate forward into processed product markets to insufficient capitalization that restricts their ability to make the substantial investments in research and development and in advertising necessary for success in those markets. However, cooperative theorists have advanced additional explanations for why more cooperatives have not integrated forward into the later stages of the marketing channel. Most of those explanations are based on organizational characteristics of cooperatives that are considered to place them at a disadvantage in competing with other firms in processed product markets.

This article examines the explanations that have been offered for why cooperatives have not expanded into processed product markets to a greater extent. Particular emphasis is placed on the unique organizational characteristics of cooperatives that affect their marketing and investment behavior. Topics covered include factors that may restrict cooperative access to

capital, factors that may affect cooperative decisions about forward expansion, and the ability of cooperative directors to monitor activities in the later stages of the marketing channel. This article also discusses the relationship between cooperatives and risk, the extension of market risk in cooperatives, the use of unallocated reserves in accommodating risk and providing capital for vertical expansion, and cooperative strategies in interfirm consolidations and collaborations. When possible, established theories are evaluated in the context of empirical evidence or extended by recent contributions.[2]

Figure 1: U.S. cooperative market shares for various dairy products, 2007



* Data for 2002.

Sources: Ling (2004, 2009).

Issues concerning of equity capital

Limited access to equity capital

An inherent difficulty in raising equity capital is often advanced as a factor limiting cooperative vertical expansion. Because of the commitment of

2 The incentives cooperatives may have to integrate forward into processing activities in imperfect market structures are not discussed here. See Royer (2007).

cooperatives to return their earnings to members on the basis of patronage instead of stock ownership, cooperatives generally pay low dividend rates on capital stock. This commitment also precludes the appreciation of equity shares to reflect changes in the value of the organization. Consequently, there is little incentive for direct investment in cooperatives, and they must rely primarily on patronage-based methods for accumulating equity, i.e., retained patronage refunds or per-unit capital retains. Because of the limited incentive for direct investment and as a means of maintaining patron ownership and control, secondary markets for liquidating cooperative equities generally do not exist. Members must rely on the cooperative to eventually redeem equities in cash, usually at the discretion of the board of directors and according to the organization's financial condition.

These unique features of cooperative financing have led many analysts to conclude that cooperatives are at a disadvantage in raising equity capital and that undercapitalization discourages them from entering highly capital-intensive activities. Whereas other firms can raise additional equity capital by selling stock to the general public, a cooperative must rely almost exclusively on its members to increase its equity base. As a result, an expanding cooperative may tend to develop an unbalanced capital structure because it is easier to acquire debt capital than to obtain additional equity from members (Jamison, 1960). Due to the inflexibility associated with fixed loan repayment schedules, the cooperative will be less capable of withstanding business downturns.

Horizon problem

Another issue associated with cooperatives that implies undercapitalization is the horizon problem. The horizon problem arises when an investor's claim on the cash flow generated by an asset is expected to terminate before the end of the asset's useful life. As a result, the investor is likely to underinvest in the asset because the return to the investor is less than the return generated by the asset. The horizon problem occurs in cooperatives because residual claims are distributed to members as current payments. Consequently, the benefits a member receives from an investment are limited to the time horizon over which he or she expects to patronize the cooperative. Because of the horizon problem, cooperatives will tend to underinvest in assets with long-term payoffs, particularly research and development, marketing, and other intangible assets. According to Staatz (1987), the horizon problem may encourage members to pressure managers and boards of directors to increase current payments instead of investing in additional assets and to accelerate equity redemption instead of accumulating equity. Increased current payments can

include better cash prices and a higher proportion of patronage refunds paid in cash.

Olesen (2007) has taken an alternative approach in analyzing the horizon problem. Instead of focusing on the investment incentives of exiting members in determining the cooperative's level of investment, he focuses on the incentives of the majority of members because it is the majority, not the exiting members, who determine investment levels. In his model, there are two types of members—"certain" members who with certainty will not exit the cooperative and "uncertain" members who are subject to exit according to a particular probability, or survival rate. According to Olesen, his model can be thought of as representing an intergenerational conflict between members by regarding the certain members as younger members and the uncertain members as older members.

He demonstrates that the horizon problem can be eliminated if the cooperative pays exiting members an exit payment equal to either the cost of the investment, i.e., full redemption of their equity shares, or the expected payoff from the investment. Given that exit payment, both certain and uncertain members will support the first-best level of investment. However, certain members will prefer lower exit payments because they will receive more of the investment's payoff if the cooperative pays less to exiting members. Similarly, uncertain members will support higher exit payments.

Olesen shows that when exit payments are low, certain members will support more costly investments, possibly including some for which the expected payoff is less than the investment cost. On the other hand, when exit payments are high, it is uncertain members who will support costly investments, again possibly including some that are unprofitable. Regardless of which type of member constitutes the majority, that group can be expected to set the level of the exit payment to benefit itself and the exit payment will encourage costly investments, some of which may be unprofitable. In either case, the exit payment may lead to a problem of overinvestment, not underinvestment as in the standard horizon model.

Expropriation of the equity capital of former members

In a similar model described by Hansmann (1999), democratic control enables current members of a cooperative to expropriate the equity shares of former members. Through this expropriation, the cooperative accesses an additional source of equity, thus reducing the effects of the horizon problem or limitations on other equity sources.

In the model, members nearing retirement will favor a policy under which the cooperative will redeem their equity shares in full immediately upon

retirement. Those individuals planning to continue as members for a substantial period of time will oppose full redemption. The interests of continuing members would be best served if the equity shares of former members were treated as a free source of capital and used by the cooperative for their benefit. Although continuing members will be subject to the same redemption policy when they retire, the immediate benefits they receive from the expropriation of the equity shares of retired members will for many exceed the present value of the costs they will incur from the expropriation of their own shares. Thus, in a vote on the cooperative's equity redemption policy, members close to retirement are likely to vote for full redemption while many continuing members are likely to vote for only partial redemption.

On this basis, Hansmann concludes that it is not surprising that most cooperatives do not redeem equity in full upon retirement and many do not have systematic equity redemption programs. According to Rathbone and Wissman (1993), only 42 percent of U.S. cooperatives operated systematic equity redemption programs such as revolving fund and base capital plans. An earlier study by Brown and Volkin (1977) found that 69 percent of centralized cooperatives held equity issued to inactive members and those members accounted for 22 percent of total allocated equity.

Cash patronage refunds are an important benefit for continuing members and compete with equity redemption for a cooperative's cash flow. A study by Royer and Shihipar (1997) examined how member preferences regarding cash patronage refunds and equity redemption are affected by age and other factors, and its results are relevant to the Hansmann model. Using data from a sample of Kansas farm operators, the study simulated the operation of a revolving fund plan and compared the present value of a program of low cash patronage refunds (20 percent) and relatively rapid equity redemption to that of a program of high cash patronage refunds (45 percent) and relatively slow redemption.

The study found that the present value of the median member's cash flow would be maximized if the cooperative chose the program consisting of 20 percent cash patronage refunds and relatively rapid equity redemption. Thus a majority of members could be expected to vote for the program, a result that was remarkably robust to changes in the median voter's age, the discount rate, and other variables. Moreover, the result was consistent with the actual practices of U.S. farmer cooperatives reported by Rathbone and Wissman (1993). According to that study, 35 percent of centralized cooperatives paid between 20 and 24 percent of their patronage refunds in cash, more than for any other category.

Thus the Royer and Shihipar study lends empirical support to Hansmann's argument for expecting partial redemption of a retiring member's equities. It also suggests that members will prefer lower levels of cash patronage refunds and relatively rapid equity redemption, a conclusion that is contrary to the standard model of the horizon problem.

Undervaluation of the cost of equity capital

In contrast to models that imply cooperatives use too little equity capital, Dahl and Dobson (1976) have argued that some cooperatives may use too much of it. Their argument is based on the premise that cooperative managers and directors tend to undervalue the cost of equity in their organizations. This undervaluation is attributed to the fact that cooperatives typically pay low dividends on capital stock and no dividends whatsoever on equity certificates representing retained patronage refunds. In addition, because of the lack of a secondary market for cooperative equities, no market value exists for establishing an appropriate cost of capital. According to Dahl and Dobson, failure to consider the opportunity cost to members of providing equity has led cooperatives to rely too heavily on equity capital, thereby resulting in capital costs that are higher than necessary, and to underestimate overall capital costs, thus resulting in overinvestment in assets.

This tendency may be exacerbated by the fact that a substantial amount of cooperative equity is held by inactive members. Inactive equity holders generally do not receive compensation for providing this capital. Furthermore, they are usually disenfranchised by their organizations in an effort to comply with various statutory requirements intended to restrict membership to agricultural producers. Consequently, they have no direct voice in determining the policies of the organizations, particularly those that affect them directly, such as those concerning the payment of dividends on equity and equity redemption.

Empirical evidence

Although the notion that cooperatives have only limited access to equity capital seems to be widely accepted, empirical support is mixed. Many cooperatives were caught in an overleveraged position at the onset of the agricultural recession of the early 1980s. However, a set of studies published shortly afterward suggests that cooperatives were not on average financially weaker than other firms in the same industries.

Parliament, Lerman, and Fulton (1990) compared several financial ratios of dairy cooperatives for the 1971–87 period to industry standards and found no evidence of equity undercapitalization among the cooperatives. In general, the

median debt/equity ratios for the cooperatives were not significantly different than the industry standards. In fact, the median debt/equity ratios for the cooperatives were significantly lower than the industry standards from 1976 to 1987. In a related study that sought to account for size and industry effects, Lerman and Parliament (1990) compared the median debt/equity ratios of dairy cooperatives and fruit and vegetable processing cooperatives to industry standards for the 1976–87 period. The debt/equity ratios for the fruit and vegetable cooperatives were not significantly different than the industry standards, and those for the dairy cooperatives were once again significantly lower.

Royer (1991) compared the debt/equity ratios of cooperatives at the end of fiscal 1987 with industry standards for thirteen classifications based on principal product or function. There was little evidence that cooperatives were financially weaker than other firms. Indeed, the results suggested that cooperatives were generally less leveraged. The debt/equity ratios of cooperatives were judged to be less than the industry standards in seven categories, including dairy, local grain, and local farm supply cooperatives. Only two groups, regional grain and regional farm supply cooperatives, were judged to have debt/equity ratios greater than the industry standards.

The functions of local and regional cooperatives are quite different in nature, and this is reflected in their respective financial structures. The lower leverage ratios for the local grain and farm supply cooperatives are consistent with Dahl and Dobson's argument that cooperatives tend to undervalue the cost of equity, which was made in the context of local farm supply cooperatives. On the other hand, the higher leverage ratios of the regional cooperatives are consistent with limited access to equity capital. Royer suggested that regional cooperatives may have greater difficulty acquiring equity capital to finance the size and scope of services they provide their local cooperatives than do the local cooperatives in providing services to their producer members. In any case, the financial structure of regional cooperatives is more important to this discussion given they are more likely to be in the position to consider vertical expansion.

Cooperative organizational characteristics and risk aversion

Because members typically invest in a cooperative on the basis of patronage rather than stock purchase, their investment portfolios are less diversified than those of independent investors, who can diversify their portfolios by investing in a wide variety of investments. Furthermore, the risks facing cooperative

members may be highly related to the risks faced by the cooperative because the business activities of the cooperative are limited to marketing or processing the commodities produced by the members. Staatz (1987) has argued that due to the undiversified nature of cooperatives, members may pressure management to adopt business strategies that are more conservative than those of investor-owned firms (IOFs).

Hendrikse (1998) argues that the existence of two decision making units in European cooperatives—the board of directors and the general assembly—results in cooperatives making more conservative decisions relative to IOFs.[3] In his model, firms must choose to accept or reject individual projects, which may be either profitable or unprofitable. The IOF consists of a single decision-making unit whereas the cooperative consists of two decision units. Moreover, the cooperative accepts a project only if both decision units decide to accept it. Thus the cooperative decision-making process is more conservative, but it is preferred if it is more important to reject unprofitable projects than to accept profitable ones. The IOF is preferred if it is more important to accept profitable projects.

Based on Zusman's (1988) observation that the risk-sharing and mutual assistance features of Israeli moshavim may distort individual incentives and lead to moral hazard behavior, Parliament, Lerman, and Fulton (1990) have hypothesized that the norms of risk sharing and mutual responsibility may lead to similar behavior in other forms of cooperatives. They cite data that show mergers between cooperatives are much more likely to involve a partner with losses than mergers between IOFs, which they say implies an obligation of financially strong cooperatives to offer failing cooperatives an opportunity for merger as an alternative to bankruptcy. They argue that because of the expectation of this safety net, cooperatives are more likely than IOFs to assume higher levels of risk and leverage, accept lower levels of liquidity, and overinvest in fixed assets.

This latter model does not appear to be very useful in explaining cooperative behavior. Both Parliament, Lerman, and Fulton (1990) and Lerman and Parliament (1990) tested the model in their studies of dairy cooperatives and fruit and vegetable processing cooperatives. They concluded that there was little evidence of either overinvestment or moral hazard behavior. Moreover, there are other explanations for overinvestment in assets. In addition to those explanations offered by Dahl and Dobson (1976) and Olesen (2007), Caves and Petersen (1986) have explained causal evidence of asset overinvestment in

3 Hendrikse's arguments are not applicable to U.S. cooperatives given the usual absence of general assemblies in their governance structures.

local cooperatives to be attributable to democratic voting when member utility is uncorrelated with patronage and patronage is unevenly distributed.

Production orientation of directors

As a means of ensuring member control, cooperatives generally prohibit or restrict nonmembers from serving on the board of directors. Although federated regional cooperatives may include managers of local member cooperatives on their boards and some state incorporation statues provide for public representation, nonmember representation is usually minor compared to that on IOF boards (Staatz, 1987). As a result, cooperatives may not have the same access to skills necessary for successful vertical expansion.

According to Jamison (1960), the production orientation of directors restricts the ability of a cooperative board to supervise and assist management as the organization's scope grows vertically and increasingly involves consumer-oriented merchandising activities. As the cooperative's scope grows and its activities move away from the producer level, the management skills required become broader and the management team must include more specialists. Although cooperative boards may seek ways to fill this need, the directors themselves become less capable of performing two of their vital functions—close supervision of management's performance and advising and assisting management on policy matters. Whereas many IOFs that compete directly with cooperatives include on their boards specialists in fields that are important to their operations, such as finance, law, administration, and accounting, cooperatives are usually precluded from this type of board by requirements that restrict board membership to producers.

Cooperatives and risk

Producers may have an incentive to join cooperatives because membership provides them a means for reducing risks. For example, members of marketing cooperatives frequently share risks by pooling their products. The variation in prices during the harvest season is smoothed out over the pooling period, thus reducing the price risk faced by individual pool participants. Cooperatives can also reduce member risks through market assurance, vertical integration, and other forms of risk sharing. However, the effectiveness of cooperative membership in reducing member risk is limited by the extent to which the business risks of farmers and their cooperatives are related. By their very

nature, cooperatives handle the same commodities as their members. Thus the business outcomes of cooperatives and their members may be highly correlated.

In addition, both business and financial risks may be greater for cooperatives than other firms. Cooperatives may face greater business risks because their operations are typically focused narrowly on a particular commodity, geographic area, industry, or stage of the marketing channel (Sporleder and Goldsmith, 1997; Manfredo and Richards, 2007). Cooperatives are largely unable to diversify into other business activities because their primary purpose is to market or process their members' products. In addition, because cooperatives usually handle commodity-based products early in the marketing channel, they face greater price variability than firms that operate in later stages.

Manfredo and Richards (2007) argue that cooperatives are more susceptible to financial risks than other firms because they tend to be too reliant on borrowed capital. They also contend that cooperatives have a greater need to manage risk than other firms. According to the "risk management irrelevance proposition," IOFs cannot in theory improve the wealth of their shareholders by offering risk management services because shareholders can manage hedging as efficiently as firms. On the other hand, cooperative members typically do not have access to outside capital markets in which they can hedge against their equity interests in the cooperative. Thus Manfredo and Richards conclude that cooperatives can benefit from implementing risk management strategies that can lower risk both for themselves and their members. According to them, by managing risks instead of accommodating them, cooperatives would be able to fund additional projects, return more capital to members, and reduce the costs of both equity and borrowed capital.

Extension of market risk

Vertical integration may represent one opportunity for cooperatives to reduce business risk. According to Sporleder and Goldsmith (1977), price variability, and hence price risk, decreases as a product moves through the stages of the marketing channel from the farm gate to retail markets. Because cooperatives typically operate in the early stages of the marketing channel, expansion into later stages could result in lower price risks for the organizations and their members in addition to greater returns.

On the other hand, as a cooperative expands toward the consumer market by entering into processing, wholesaling, and retailing activities, producers

must extend their ownership of the product over a longer period. Consequently, they must obtain additional operating capital and are exposed to an extension of market risk (Jamison, 1960). The extension of producer ownership interest in a commodity is most apparent in pooling cooperatives, in which producers maintain title to the commodity until the pool is settled and the final payment is made once the commodity has been processed and sold.

However, even when the cooperative pays cash for a commodity and takes title at delivery, the producer may be subject to indirect market risk. If the cooperative nets a margin on the commodity, the producer may receive a patronage refund. On the other hand, if the cooperative nets a loss, the cooperative may choose to write the loss off against member equity allocations. If it does not, losses can still affect the timing of the redemption of equities held by the producer. Equities allocated in the current year are even subject to being written down by future losses. Because members often hold large amounts of equity upon retirement, they are subject to substantial risk with respect to the timing of redemptions and the possibility that the cooperative may be unable to redeem equity allocations in the future.[4]

An alternative for reducing member risk at the farm level without the extension of ownership interest associated with cooperative vertical expansion is for members to hedge against that risk by investing in publicly traded stocks. More specifically, Duval and Featherstone (2002) have suggested that farmers might benefit from investing in food and agribusiness stocks. By investing in those stocks, farmers would have an opportunity to hedge within the value chain so as to capture some of the advantages of retained ownership.

To examine whether there are benefits to farmers from investing specifically in food and agribusiness stocks, Duval and Featherstone computed investment portfolios for a group of Kansas farmers that included a broad set of publicly traded stocks represented by a stock market index and a set of individual food and agribusiness stocks. Although the food and agribusiness

4 The potential impact on members of the extension of market risk and uncertainties can be illustrated by the recent experiences of Fonterra, a New Zealand dairy cooperative consisting of approximately 10,500 members and responsible for more than a third of the international dairy trade. In 2005, Fonterra signed a joint venture agreement with the Sanlu Group, a Chinese dairy products company that sold one of the most popular brands of infant milk formula in China. Three years later, Sanlu infant formula was found to have been contaminated with melamine. As a result, 294,000 infants became ill and six died. Sanlu was ordered to halt production, and Fonterra was forced to write off its entire investment of NZD 201 million, or about NZD 18,895 (USD 13,404 or EUR 8,853) per member.

stocks were associated with greater returns than the diversified portfolio, the level of risk associated with those stocks was also greater because it included both systematic and unsystematic risk. The results suggested that investments in individual food and agribusiness firms were preferable to investment in the diversified portfolio. In particular, the optimal portfolios included the stocks of food and agribusiness firms that operated toward the retail end of the food marketing channel, closer to consumers.

Unallocated retained earnings

One way cooperatives accommodate risks is to use capital reserves to absorb losses. Generally, those reserves take the form of unallocated retained earnings, which are earnings retained by a cooperative but not allocated to individual members. Although unallocated retained earnings are usually derived from nonmember or nonpatronage-source business, they frequently are based on member business. Unallocated retained earnings are often accumulated at a cooperative's discretion as a buffer against future operating losses and the need to charge those losses against the allocated equity accounts of members (Royer, Wissman, and Kraenzle, 1990).

U.S. cooperatives have made increasing use of unallocated earnings over time. The share of cooperative equity held in unallocated form increased from 11.9 percent to 32.1 percent between 1962 and 2008. During that same period, the proportion of cooperative net earnings retained as unallocated equity increased from 3.8 percent to 31.2 percent. In fact, unallocated retained earnings provided more new equity capital in 2008 than did retained patronage refund allocations. In the same year, 94.4 percent of operating losses were charged against unallocated reserves (Royer, Wissman, and Kraenzle, 1990; Rathbone and Wissman, 2000; Eversull, 2011).

Although the increase in the proportion of equity held in unallocated form has been linked to growth in nonmember and nonpatronage-source income (Rathbone and Wissman, 1993), there is evidence that cooperatives have built up unallocated reserves beyond earlier levels in anticipation of future losses (Royer, 1992). Both Murray (1963) and Olesen (2007) have suggested that the increased importance of unallocated reserves may represent management efforts to attenuate the horizon problem. By building up unallocated equity accounts, a cooperative is less reliant on allocated equities, which are subject to pressure by older or exiting members for redemption.

Given unallocated equities are not subject to redemption and their use avoids the need for charging losses to member equity accounts, they might be

expected to be an important source of risk capital for financing cooperative vertical expansion. However, data (Rathbone and Wissman, 2000) indicate that local cooperatives hold a larger share of their equity in unallocated form than either centralized regional cooperatives or federated cooperatives, both of which would seem to be better positioned than local organizations to integrate into consumer markets.

Some financial experts have advocated greater use of unallocated earnings based on what they consider to be advantages over retained patronage refunds. Bradley (1972), for example, has suggested that cooperatives consider replacing revolving funds consisting of retained patronage refunds with permanent unallocated equity. According to him, corporations that accumulate retained earnings without an obligation to redeem them have an advantage over cooperatives that have an obligation to redeem allocated equity on a revolving basis. Ryan (1981) has argued that because there is no expressed or implied call on unallocated equity, it can be used to acquire more leverage than retained patronage refund allocations.

Others, including Murray (1983), have contended that the assignment of substantial amounts to unallocated reserves represents a divergence from operating on a cooperative basis and a violation of the cooperative principle of operation at cost. They have argued that, to the extent that allocated equity is replaced by unallocated reserves, members no longer have a financial interest in the cooperative as an ongoing business concern, thus threatening member loyalty and control. Members become less interested in decision making, leaving management too much discretion in making key decisions.

Cooperative strategies in interfirm consolidations and collaborations

Van der Krogt, Nilsson, and Høst (2007) have examined whether differences between the interfirm consolidation and collaboration strategies of cooperatives and IOFs can be explained by organizational characteristics of cooperatives, specifically limited access to equity and greater aversion to risk.

In addition to the benefits that may result from mergers, acquisitions, and alliances, there may be substantial risks. According to Das and Teng (1996), these risks can be classified as relational risks and performance risks. Relational risks may occur when the possibility exists for one partner to place its interests above collective interests to the detriment of its partner. Relational risks may result from opportunistic behavior, externalities, asymmetric information, or adverse selection. Performance risks are general business risks not associated with the internal aspects of the partnership. Performance risks

may stem from such factors as unexpected market changes and uncertainties related to research and development.

The type and level of risk associated with a particular interfirm partnership depend on the purpose of the partnership and the resources involved. However, the partners can choose how the partnership is structured, including the extent to which it is integrated, in an effort to reduce the combined performance and relational risks. Das and Teng argue that when relational risk is large relative to performance risk, the partners may prefer a greater degree of integration, both with respect to decision making and the commitment of equity capital. As a result, the interests of the partners are more likely to be aligned and opportunistic behavior can be reduced. In contrast, when performance risk is relatively more important, contractual arrangements may be preferred because they preserve strategic flexibility and require less equity. More equity is necessary when there is a greater degree of integration as in mergers and acquisitions. Of course, in the case of an acquisition, the acquiring firm must commit more equity than in a merger because it must purchase the equity of the other firm's shareholders.

Van der Krogt, Nilsson, and Høst hypothesized that because of the greater aversion of cooperatives to risk, they will avoid situations in which relational and performance risks are high and prefer collaborative agreements that reduce those risks. The authors also hypothesized that because of the limited access of cooperatives to equity, they will prefer collaborative arrangements to close integration and prefer mergers over acquisitions when there is full integration.

To test these hypotheses, Van der Krogt, Nilsson, and Høst examined mergers, acquisitions, and interfirm collaborative activities of the fifteen largest dairy firms in the European Union between 1998 and 2002. Of the fifteen dairy firms, seven were cooperatives and eight were IOFs. The interfirm collaborative activities included equity shareholdings in partner firms, joint ventures, technology and brand licensing agreements, and general collaborative agreements. They found significant differences between the interfirm strategies of the cooperatives and IOFs. Cooperatives were more likely to engage in mergers, joint ventures, licensing, and collaborative agreements while IOFs were more likely to be involved in acquisitions and equity shareholding, findings that are consistent with their hypotheses. They also found that cooperatives tended to concentrate on markets that were either domestic or close to home and they preferred other cooperatives as partners, further suggesting that the organizations chose strategies intended to reduce risks.

Conclusions

Various explanations based on the unique organizational characteristics of cooperatives have been advanced for why cooperatives have not expanded into processed product markets to a greater extent. The most common explanations are based on the idea that cooperatives have limited access to equity capital because of their commitment to return earnings to members on a patronage basis.

Some authors have offered arguments challenging these explanations, and the few empirical studies that have been conducted are mixed in their support of them. Although studies of the dairy industry have failed to provide evidence that cooperatives are undercapitalized relative to other firms, there has been evidence of undercapitalization among regional farm supply and marketing cooperatives, organizations that would seem to be well positioned for vertical expansion. Moreover, analysis of interfirm consolidations and collaborations among large dairy firms suggests that the strategic behavior of the cooperatives is consistent with both limited access to equity and risk aversion. In addition, the argument that cooperative boards of directors are limited in their ability to monitor complex tasks due to their production orientation seems to have some power to explain the financial debacles in which cooperatives have been involved far beyond the farm gate.

Nonetheless, there are strategies available that might be of benefit to cooperatives and their members. Several authors have recommended that cooperatives should be more aggressive in managing risk and providing risk management services to members. They suggest that by managing risk instead of accommodating it, cooperatives could fund additional projects, return more capital to members, and reduce the cost of capital. Some cooperatives have used the new generation model effectively to avoid the organizational limitations of traditional cooperatives and finance value-added activities.

Other cooperatives have made increasing use of unallocated retained earnings, particularly from nonmember and nonpatronage income, to protect members from business risk. Although unallocated earnings would seem to be a potential source of risk capital for vertical expansion, there is little evidence that cooperatives have used them for that purpose. In addition, some authors have warned that increased use of unallocated equity represents a divergence from operating on a cooperative basis and threatens member loyalty and control.

Finally, it appears that member investments in food and agribusiness stocks may provide an effective way to hedge against business risk at the farm level while capturing some of the benefits of retained ownership without an

extension of ownership interest. This topic deserves additional attention, especially given the importance of the apparent barriers to cooperative forward expansion.

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