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Overview of Research on Cooperative Finance

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Abstract: The objective of this article is to describe the key elements of cooperative finance that have been found in the literature and illustrate how they relate to the function and structure of cooperatives.

Key words: cooperatives, equity, finance

Overview of Research on Cooperative Finance

Agricultural economists have studied cooperatives since the earliest beginnings of agricultural economics' departments. Cooperatives were made an explicit mission of the Cooperative Extension Service in the 1920s (Froker 1933). By the mid-1970s, more than 40 agricultural economists were devoted to the study of cooperatives in the land grant university system, and more than 100 agricultural economists were working on cooperative issues in the U.S. Department of Agriculture. As a group of organizations, cooperatives are thought to be the largest contributor of endowments in agricultural economics' departments with more than $19 million in at least 12 universities that is used to fund faculty endowed chairs, graduate student fellowships, undergraduate student scholarships, classroom naming rights, and other similar activities.

A review of AgEcon Search, the journals of the Agricultural and Applied Economics Association, and journal aggregators such as JSTOR finds that the most important research topic studied has been cooperative finance, and in particular, access to equity capital and management of existing equity capital. The data used by Boland and Crespi (2010) reveals that this topic has been the subject of more than 100 dissertations since 1951. This topic is also a key area of business policy since Congress continues to provide resources for cooperative research and education, and portions of the Rural Development title in the Farm Bill are devoted to cooperative programs.

In recent years, the U.S. Department of Agriculture's Economic Research Service and Rural Development have held several symposia with economists invited to speak on this business policy topic, and a number of cooperative agreements have been entered into with agricultural economists on this topic. A recent U.S. Department of Agriculture study group comprised of economists and senior industry leaders of cooperatives identified cooperative finance issues as

one of four key areas for future research. The objective of this article is to describe the key elements of cooperative finance that have been found in the literature and illustrate how they relate to the function and structure of cooperatives.

Elements of Cooperative Finance

Barton et al. (2011e) have provided the most recent overview of the fundamentals of the cooperative finance model. A cooperative is a business operated primarily to provide benefits to members through marketing transactions, including input buying and output selling, and through a distribution of patronage earnings from these transactions. In return, members have a responsibility to provide equity capital—ownership—and exercise member control—governance. Members are quick to seek out the benefits of the cooperative business model but often reluctant to accept the corresponding responsibilities of ownership and control.

In general, cooperative users may engage in four unique and separate roles: customer, patron, owner, and member. The first three roles are closely related to finance. Since not all users engage in all four roles, except in pure cooperatives, it is useful to understand the nature of each role. Customers are those who engage in buy or sell marketing transactions with the co-op. Patrons are customers who are granted a claim on the cooperative's profits proportional to use, as a patron and customer. The claim is not based on ownership and is not proportional to ownership unless the cooperative specifically manages equity to be proportional to patronage. This claim on the residual profits is the core difference between patron-oriented and investor-oriented business models. Owners are those who own at least one class of equity and therefore have a claim on the assets. Equity may be purchased with cash or "earned" by patrons through a distribution of patronage income in the form of retained patronage refunds or per unit retains. Most cooperatives require patrons to invest in at least one class of equity to use the cooperative, so patrons are almost always owners. Members are those who have voting rights or power. In a pure cooperative with no non-member or non-patronage business, a customer or user is also a patron, owner, and member. But most cooperatives are not pure cooperatives and have a significant business volume with user-customers who are either (1) patrons who have not acquired voting rights (patronage business by non-member customers) or (2) not patrons or members (non- member, non-patronage business by customers). Many cooperatives prefer to use the term member instead of patron to convey the primary user role but non-patronage and non-member business are not equivalent in the cooperative financial business model except in pure cooperatives.

The selection and implementation of an effective financial strategy is critical to the long-term success of any business, especially a cooperative business. A critical factor is the ability to understand the uniqueness of the cooperative business model and incorporate it into the standard business financial model. The uniqueness of the cooperative business model results from its focus on the role of the patron and the relationship of this role to the other roles of owner, member, and customer. The theory of cooperatives usually begins with profit maximization. In the case of an agricultural cooperative, the objective of the cooperative firm is to maximize both the members' combined profits from the farm business and their share of the cooperative's profits.

Under most market conditions, this objective is analogous to simply maximizing the cooperative's profits since the cooperative firm does not impact the market price for inputs or commodities. Cooperatives are therefore no different than investor-oriented firms in regard to the objective of profit maximization. Aligning their business with the needs of customers who are also the patrons and owners has been shown to be highly correlated with profitability since the patron-customers view the cooperative as the natural extension of the farm business. The theory of cooperatives includes this vertical integration of the farm business and the cooperative as noted by Emelianoff (1942).

Three functions underlie broad cooperative principles today. These functions are benefits, control, and ownership. Benefits include both market access at fair prices and other terms of trade and a claim on the income from these marketing transactions, usually distributed to patrons as patronage refunds proportional to use or patronage. Control is exercised through voting by members on governance issues including bylaw approvals, business mergers and dissolutions, and election of directors. Voting power may only be one-member, one-vote, sometimes championed as democratic control, or may include votes based on patronage and/or equity investment. So governance control can also be influenced by the financial factors of patronage volume or income and ownership.

Ownership is obtained by the investment of equity capital by patrons either through direct investment or through the retention of income from operations. Income may be retained in allocated form as per unit retains or retained patronage refunds, or in unallocated form as retained earnings. The cooperative business model is unique because it is user- or patron-oriented instead of investor-oriented, and profit distribution is not related to investment. Research on market share by patrons has found that often a small percentage of members account for a large share of the volume of the cooperative's products and services. Barton and Schmidt (1988) note that this phenomenon and its relationship to a

member's life-cycle are critical in understanding cooperative finance and estimating the future impact of alternative financial policies.

Cooperative Finance Research Over Time

Cooperatives have been widely associated with the "competitive yardstick principle" under which cooperatives provide a benchmark to offset market power that might be exhibited by an investor-oriented firm (Nourse 1922). Operationally, this practice has been construed as cooperatives pricing products and services in a competitive manner (i.e., by being low-cost providers of products and services) but distributing excess earnings to members in some fashion that does not jeopardize the balance sheet of the cooperative and is in the best interests of the membership. Sapiro (1921) advocated the use of cooperatives to orderly market agricultural products along commodity lines and this structure was widely used in California.

The strategy cooperatives should use, or can use, to price their products and services has been widely debated in the literature. Robotka (1947), Helmberger and Hoos (1962), Sexton (1986), and Staatz (1983), among others, have contributed much to our understanding of the theory in that regard as well as the conditions under which cooperatives will form over time. Cook (1995) and Chaddad and Cook (2004) show how cooperative theory could be applied to the institutional economics literature.

A commonly accepted principle of cooperative finance is that firms should practice balance sheet management over time (Wells 1935, Barton 2011d). That is, the firm should maintain adequate risk capital as equity in combination with long-term debt and short-term liabilities to finance assets and ensure financial stability. This also means that the firm will be in alignment with minimum liquidity and solvency targets laid out by its lenders and ideal liquidity and solvency targets set by the board of directors. Then a firm can decide to pay out patronage refunds or retain additional earnings as equity. The co-op can pay out cash in excess of liquidity and solvency targets as cash refunds and equity redemptions to patron-owners. Owners always get what is left over in any business, as residual claimants. Thus, excess earnings and excess retained equity come from a profitable business strategy.

A key principle of cooperatives is that control of the cooperative must be in the hands of its patron-owners. Manuel (1957) and Briscoe, Enix, and Anderson (1968) studied the impact of inactive members on cooperative governance and offered recommendations for more effective policies. Most

cooperatives' boards of directors update their membership roster every year to maintain this principle.

However, control is most often based around a one member, one vote situation that is not proportional to volume (Royer 1993). The primary purpose of the cooperative is to service its customers in a profitable manner. An inherent conflict of interest exists between the member, patron, owner, and customer roles. However, the literature suggests that the customer role is the most important role of the cooperative as opposed to identifying the best income distribution method (concentrating on the patron role) or equity management method (concentrating on the ownership role) or best redistricting method (concentrating on the member role). The customer role is considered essential because it is aligned with profitability and investment in a appropriate complement to physical assets.

Risk has not always been widely discussed in the context of cooperative finance literature presumably because agriculture, for a long-time, obtained most of its inputs (e.g., fertilizer, chemicals, credit, machinery) from domestic production, and government policy programs kept producers shielded from exchange rate risk (Boland 2008). Cooperatives managed that risk for its producers as noted by Boyd et al. (2007) in their literature review on the impact of management in cooperative decision-making. Furthermore, cooperatives had developed centralized or federated systems by further integrating the local cooperatives into a larger regional cooperative to achieve economies of size in purchasing inputs or selling outputs. These regional cooperatives owned by producers (in a centralized system) or cooperatives (in a federated system) helped insulate owners from risk. With many agricultural inputs being acquired globally (e.g., fertilizer, energy), and agricultural output prices being decoupled from government programs, this risk (and hence reward) has become greater for local and regional cooperatives.

Equity Management Programs

A case can be made that in no other institution have agricultural economists been so influential as with cooperatives, and in particular the study of cooperative finance and equity management programs. Cooperative finance, although relatively straight-forward, has advanced far enough such that its principles have been adopted by cooperative educators including those in academia and by practitioners. A number of cooperative scholars have discussed the types of equity management programs used by cooperatives. Brown and Volkin (1977), Rathbone and Wissman (1993), Cobia et al. (1982) and Barton and Schmidt (1988) are probably the most succinct. These discussions include estate

settlements, age-of-patron, revolving funds (oldest equity revolved first), percentage pools, and base capital plans. Input supply and some grain marketing cooperatives were the only ones to use age-of-patron programs and the Eversull (2010) study indicates that there has been a large movement away from those programs into revolving funds which research has shown to be a superior program due to its ability to be linked with proportional use by members. An analysis of the three USDA studies (see Eversull (2010) for an example) shows that agricultural marketing cooperatives have continued to use revolving fund programs through the use of per unit retains.

Agricultural economists have long studied equity management and made contributions to various equity redemption programs that are still in effect today. Many of these topics appear in every decade. For example, Hedges (1951) discusses the history of income distribution and how income is allocated as member capital. A common lament has been the lack of education with patrons about why patronage income is being retained by the cooperative. Koller (1952) writes that, “A considerable educational job is involved in making clear to the patrons the purpose and operation of the plan. What is more, the job of patron education is a continuing one since there generally is a large turnover of patrons each year.”

Cook (1976) found that inflation was eroding the value of equity that members had in cooperatives and causing increased pressure from members to revolve equity faster. Dahl and Dobson (1976) was the first of several studies done by agricultural economists looking at ways to optimize growth, capital structure, and equity redemption. A U.S. Government Accounting office study in 1979 sparked a number of financial analyses and dissertations on the use of equity capital in cooperatives. The report called for cooperatives to reduce financing costs, increase cash patronage refunds, lessen financial sacrifices of members, reduce the length of revolving periods, and retire equity capital of members who die, retire, or leave the cooperative's trade area. A landmark study by Cobia et al. in 1982 reported on the advantages and disadvantages of the various equity management programs being used by cooperatives and the origins of these programs.

Koller (1952) led a three year study at the National Bureau of Economic Research in the early 1950s and found that the revolving fund method was most preferred and most used by cooperatives. The U.S. Department of Agriculture Rural Business Services periodically surveys cooperatives in an effort to learn more about equity management programs (Brown and Volkin, 1977; Rathbone and Wissman, 1993; Eversull, 2010). Many of the same themes arise in those

surveys. For example, in 1977, Brown and Volkin found that 71 percent of 857 farmer cooperatives surveyed in the U.S. have some sort of program for redeeming equity capital to member users. One-third of those with equity redemption programs had systematic programs for retiring retained equities, while thirty-nine percent had equity redemption programs that function under special circumstances, such as death or retirement. Table 1 in that study shows that inactive members owned 22 to 32 percent of the retained equities. The authors note that,

> "Mandatory equity redemption would ensure more timely retirement of equity, benefiting former patrons and overinvested current patrons. . . However, a mandatory program could significantly restrict a cooperatives' flexibility to determine growth, capital expenditures, and distribution of cash benefits among patrons. In some cases, if indiscriminantly applied, mandatory redemption of equity could affect adversely the cooperative's cash flow, creating financial hardships, and forcing bankruptcy. . . Traditionally, equity has served as risk capital. . . Without mandatory redemption of equity, a cooperative that encounters a series of difficult years can slow down temporarily equity retirement until it regains its financial strength. However, under mandatory equity redemption, the cooperative would be obligated to retire equity in a manner similar to debt, diminishing its capacity to absorb the uncertainties of the business environment."

These observations are just as true today as they were in 1982 and could have also easily been written fifty years ago.

Suggestions for Future Research

Historically, local cooperatives pursued horizontal integration to obtain efficiencies of size and scope. Regional cooperatives pursued vertical integration strategies to help their members' access lower costs in input supply and marketing. A more globalized economy coupled with larger producers and fewer farmers, and hence fewer cooperative memberships, has helped change the dynamics of competition. Research on understanding what future structural alternatives might be available is needed in light of these trends. Historically, scholars and practitioners focused on centralized versus federated structures. However, virtually every regional cooperative now uses some form of a mixed

structure. Nonetheless, some thought about the various property rights is useful in this discussion.

Barton (2004) compared traditional forms of equity capitalization used in U.S. cooperatives to newly emerging forms, including traditional or open cooperatives and new generation or closed cooperatives. Some of the factors considered included access to capital, liquidity and appreciation of stock. Eight cooperatives were described and compared. More up-to-date comparisons of alternative business and capitalization forms are needed.

A recent phenomenon has been the increase in the use of a board-approved income distribution policy in which a large fraction of patronage-sourced income is not distributed to patrons as cash patronage and retained patronage. Instead it is used to create unallocated retained earnings as permanent equity that does not require redemption (Dahlgren 2008). This phenomenon is relatively new in many agricultural cooperatives and it has cooperative cash flow, patron after-tax cash flow and cooperative business philosophy issues that should be considered before looking at it as a preferred strategy.

Kenkel (2012) has developed an intensive spreadsheet for use by students and cooperative stakeholders to simulate a cooperative's income statement, cash flow statement, and balance sheet. This tool is useful for teaching and can be incorporated into case studies of cooperatives to analyze various decisions. However, not every course in cooperatives has instructors who are comfortable using such tools. An intensive short course focused on teaching financial and accounting concepts in cooperatives would be useful for new instructors. The movement towards a global economy and less agricultural subsidies suggests the need to better understand the role of risk and its impact on a cooperative's balance sheet.

Barton (2011d) identified six recommended financial practices that are described in Table 1. These practices are based on prior research and preparation of case studies such as those reported by Fifield (2011) and Barton (2006a, 2006b, 2006c, 2011a, 2011b, 2011c). They deserve additional research to validate their impact and effectiveness under a wide variety of situations. Some argue that as long as producers control the cooperative (farmer-elected board of directors), whether the equity is allocated or unallocated makes no difference. The growing preference for permanent equity in the form of unallocated equity (retained earnings) over allocated equity (equity with a patron's name on it) needs research and discussion as noted by Boland (2012).

Much research has been expended on cooperative finance issues. In many cases, the advice is known, but the amount of education regarding best practices on the topic is less than before. A new generation of cooperative scholars and practitioners is needed to continue research on cooperative finance and continue extending the research findings to academic peers, industry leaders, and members.

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Table 1. Barton's (2011d) List of Six Successful Cooperative Finance Practices

1. Be cost efficient, be price and service competitive, make as much profit as possible and always have a strong balance sheet.

2. Be creative in income distribution by evaluating the full array of options, including use of non-qualified distributions, and by considering patron perceptions and after-tax cash flow.

3. Invest only in highly productive people and assets. Eliminate low performers sooner instead of later.

4. Use balance sheet management to give owners what is left over after protecting the co-op with strong liquidity and solvency policies and by distributing as much cash as possible to the patron-owners as a consequence of calculating a redemption budget and/or cash patronage refund budget.

5. Manage patron equity accounts by calculating a strict redemption budget for each "revolving" equity class. Then maintain flexibility and proportionality by using a preferred redemption method, such as a revolving fund or base capital.

6. Custom fit a finance strategy to your co-op based on the many options available consistent with co-op finance principles and your co-op's unique circumstances.