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Profit Distribution Alternatives for Agricultural Cooperatives

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Abstract:

Agricultural cooperatives, like other cooperative firms, face a wide array of choices in how they distribute and retain profits. These choices impact the cooperative's solvency, liquidity, and cash flow as well as each member's cash flow and realized return from the cooperative. Taxation at both the firm and the patron level further complicates the picture. In recent years the availability of the Domestic Production Activities Deduction (DPAD) has impacted the profit distribution of many agricultural cooperatives (Barton, 2011). While cooperative CEOs and boards of directors appear to be astute in analyzing the tax and cash flow implications of profit distribution alternatives, it is not clear whether they understand the impacts on the members' return from the cooperative. This paper explicitly examines that question using financial data from 10 case study grain and farm supply cooperatives in Oklahoma

Background on Cooperative Finance

A cooperative is unique in that it distributes profits to its users in proportion to the volume of business conducted with the firm. This distribution is referred to as a patronage refund or patronage distribution and is a fundamental cooperative principle. This structure is in contrast to that of investor-owned firms where profits are distributed in proportion to ownership. This profit distribution structure creates a number of unique features of the cooperative firm. One of these unique features is the method by which cooperatives acquire equity capital.

While minor variations in structure are present, the traditional open membership is used by over 2,000 agricultural supply and grain marketing cooperatives across the U.S. as well as most dairy and cotton cooperatives (Cook and Chaddad, 2006, USDA, 2013). These cooperatives are often described as open membership cooperatives because producers can join at any time. In order to become a voting member and receive patronage from the cooperative, a producer has to submit a membership application for board approval and purchase a membership share. In many grain and farm supply cooperatives a producer can join for a fairly trivial investment of $50-$100. In other sectors, such as dairy cooperatives, the membership investment is more substantial and is earned out of patronage income over a period of time.

In the traditional open membership cooperative most of the equity is created by retaining profits. This process is accomplished in three ways: (1) Retaining a portion of patronage refunds and issuing equity shares to members instead of cash patronage, (2) Retaining profits from member business, paying corporate taxes on the profits and retaining the after-tax portion as unallocated reserves (retaining earnings); and (3) Retaining profits from nonmember business, paying corporate taxes on the profits and retaining the after tax portion as unallocated reserves. Profit distribution and retention decisions are at the discretion of the board of directors and impact the cooperative's balance sheet and cash flow as well as the members realized return from the cooperative.

The equity shares that are issued in the first of the profit retention strategies described above are generally referred to as "revolving equity." This equity is not tradeable but is instead redeemed by the cooperative at

its original book value at some later period in time. Cooperatives use a number of different systems for redeeming equity including systems based on the year the stock was issued, the age of the patron, a percentage pool, and other criteria. In all of these systems the redemption requires the approval of the board of directors. The length of the equity revolving period varies by the type of agricultural cooperative revolves. Grain and farm supply cooperatives have an average revolving fund length of 18-20 years (Eversull, 2010). Because the equity is redeemed at book value, the payment that the member receives reflects the profit distribution from a previous year and is not impacted by the growth of the firm or the current value of the firm. Because unallocated equity does not revolve, the member never receives the profits that were retained as unallocated equity unless the cooperative is dissolved or sold. Cook and Iliopoulos (2000) discuss these issues in the context of what they describe as ill-defined property rights in U.S. cooperatives.

Alternative cooperatives structures exist with different equity systems. These structures include the closed cooperative structure, often referred to as "New Generation Cooperatives" and non-stock cooperatives that accumulate capital through a system of per-unit retains (Cook and Chaddad, 2006). The issues we discuss with regard to profit distribution do not relate to those cooperative structures.

Cooperative Taxation

Cooperatives operate under the principle of single taxation. When a cooperative distributes patronage refunds it can deduct the distribution from its taxable income and the patrons receiving the patronage refunds must take them into account for tax purposes. From 1913 to 1962 the deduction of patronage

refunds from a cooperative's income were based on interpretations of generally applicable tax principles to the cooperative example. The tax treatment of farmer cooperatives was specifically described in Subchapter T of the Internal Revenue code that was enacted in 1962 (Frederick, 2005). Subchapter T specifies the tax treatment of patronage refund allocations by cooperative firms. Patronage refunds distributions, which are based on how much business the member conducted with the cooperative during the fiscal year, may be either cash refunds or non-cash funds (allocated retained refunds). Subchapter T also specifies that patronage refunds may be either "qualified" or "nonqualified". Qualified allocations are given to the patron with documentation that complies with the Subchapter T code. The patron agrees to include the entire amount of the qualified distribution in the taxable income for the current fiscal year. The cooperative can then exclude that amount from their taxable income.

Cash patronage refunds are one type of qualified refunds since the cooperative excludes the cash patronage from its taxable earnings and the patron agrees to include the cash patronage in their taxable income. The distinction between qualified and nonqualified refunds is most relevant in discussing retained patronage distributions. In a retained patronage distribution, the patronage earnings are placed in a patron's equity account, and the funds are retained by the cooperative to fund infrastructure and operations. The equity accounts are eventually refunded to the patron (at the discretion of the board) through an equity redemption program. In addition to the requirement that the patron agrees to include the qualified retained distribution in their taxable income, a cooperative making a qualified retained patronage distribution is required to pay at least 20% of the total patronage distribution in cash. Qualified retained

patronage distributions have been the historical choice of U.S. agricultural cooperatives (Boland and Barton, 2012)

Under Sub-chapter T, cooperatives also have the opportunity to make a second type of retained patronage allocation, a nonqualified distribution. Under a nonqualified retained distribution the patron does not include the distribution in their taxable income and the cooperative does not exclude the distributed earnings from its taxable income. These outcomes result in the cooperative paying taxes on the earnings in the distribution year. Nonqualified retained patronage refunds are credited to patron equity accounts just like qualified retained distributions and are redeemed (at the discretion of the board) through the equity redemption program. At the time the equity is redeemed the cooperative receives an income tax deduction and the patron must include the redeemed amount as taxable income. A nonqualified retained distribution therefore maintains the principle of pass through taxation at the patron's tax rate but the timing of the taxation for the patron is shifted to the time at which the equity is redeemed. No minimum cash requirement is present with a nonqualified distribution.

A cooperative can also distribute a portion of patronage based income as cash patronage and retain the remainder as unallocated reserves (retained earnings). Unallocated reserves function as permanent equity that does not require redemption. This profit distribution strategy has become more prevalent in recent years since the creation of the Domestic Production Activities Deduction (DPAD) which is discussed below (Dahlgren, 2008, Barton, 2011, Boland and Barton, 2012).

The DPAD, also commonly referred to as the Section 199 Deduction, was introduced into U.S. tax law as part of the American Jobs Creation Act of 2004. In addition to traditional manufacturing activities the DPAD applies to producers who manufacture, produce, grow or extract agricultural or horticultural products. Cooperatives that market agricultural or horticultural products for their patrons can elect to show the deduction at the cooperative level (Barton, 2011). The DPAD is generally limited to the lower of the qualified production activities income (QPAI) or 9% of its taxable income or 50% of the production W-2 wages paid during the year. A cooperative's taxable income and QPAI are computed without taking into account any deductions for patronage dividends, per-unit retain allocations, and non-patronage distributions under I.R.C. § 1382(b) and (c). This method can provide the cooperative with a tax deduction in the current year that can be used to offset the tax liability which would otherwise result from nonqualified retained patronage distribution or increasing unallocated reserves. Therefore, the cooperative can maintain the same cash patronage rate as was used with a qualified retained patronage distribution.

Previous Research

Cooperative capital formulation and profit distribution can be examined at the firm level, by considering the members' returns through patronage and revolving equity. Royer and Shihipar (1997) use a simulation approach to examine varying combinations of cash patronage and qualified revolving equity. The study assume very similar tax rates for both the member and the cooperative (approximately 22%), which eliminates tax effects. The study's results suggested that younger patrons

would prefer a higher level of cash patronage and a longer revolving period while older patrons would favor a shift to a lower cash patronage and an accelerated equity revolving cycle. The authors do not consider retaining profits in the form of unallocated equity or by issuing non-qualified retained patronage.

VanSickle and Ladd (1983) used an optimization approach to model choices of cash patronage, retained qualified patronage and debt financing. They focused on a cooperative structured to meet the 521 C requirements of the Internal Revenue Service code. Section 521 is a more restricted category of cooperative. One of the notable differences is that cooperatives operating under Section 521 pay patronage refunds to both members and nonmembers. They can also deduct patronage distributions for both member and non-member business. The study does not consider retaining funds as nonqualified equity or as unallocated equity. The authors assume a 35% tax rate for the member and do not model taxation at the cooperative level since they assume all profits are distributed as cash and qualified stock resulting in no taxable income at the cooperative level. The study results suggest that the cooperative should pay a relatively high percentage of cash patronage and have relatively high leverage.

Beierlein and Schrader (1978) use a simulation approach to examine a wider range of financial policies. Their study considers both qualified and nonqualified retained patronage, unallocated retained equity, debt and dividend paying stock. Their results illustrate the complexity and interconnectivity of the components of a cooperative's profit distribution and capital structure. For example, they find that dividend payments on member capital reduce the stream of cash patronage while strategies of

higher cash patronage (without dividends on equity) lead to longer revolving periods. Their simulation also demonstrates an inverse relationship between the level of cash patronage refunds and the growth rate of the cooperative.

The cooperative firm can also be analyzed as an extension of the farm business. Under this approach, it is necessary to consider both the members' returns in their farm operation as well as their returns through patronizing the cooperative. Knoeber and Baumer (1983) develop a two asset model reflecting the returns on the farm and at the cooperative. Given that they find that returns to the cooperative are higher than farming returns, they conclude that cash patronage refunds (which are invested in the farm) should be low.   Russell and Briggeman (2014) use a similar two asset portfolio model to examine two income distribution strategies (cash patronage and retaining funds as unallocated equity) under differing tax rates and member risk preferences.   Because of the higher returns and lower variance of cooperative returns their results indicate that a low percentage (10-12%) of profits should be returned to members in the form of cash patronage with the remainder retained as unallocated equity. The study does not consider the alternatives of retaining funds as either qualified or nonqualified revolving equity. The study provides estimates of effective tax rates for cooperative members and grain and supply cooperatives. Those estimates, which are based on data from the CoBank Risk Analyst database and the Kansas Farm Management Association, are used in this current research.

As these studies illustrate, profit distribution and capital structure in an agricultural cooperative are complex. When examined at the firm

level, inherent tradeoffs exist between cash patronage, retaining funds for investment in the cooperative and the revolving cycle of previously issued equity. Modeling the cooperative as a two asset portfolio (an extension of the farm firm) requires assumptions on the rates of return and tax rates at the cooperative and member level. It also requires assumptions of the members' discount rate and risk aversion. While the two asset portfolio model is analytically appealing, it does not reflect the decision frame work of most cooperative's boards of directors. In general, those boards strive to maintain or increase the cooperative asset base to match their members' requirements for input supply and commodity marketing. They view the need to retain funds as a constraint and are not attempting to grow or shrink the cooperative in response to differential rates of return between the cooperative and farm operations. After protecting the cooperative's cash flow needs, boards are interested in distributing profits to members in the most beneficial form. Research on profit distribution alternatives could improve their decisions.

Objective

The objective of this study is to exam the impact of profit distribution alternatives on cooperative members' return from the cooperative subject to the typical cash flow requirements of the cooperative firm.

Data and Methods

A six year time series of financial data was obtained for 10 Oklahoma farm supply and grain marketing cooperatives. The data was used to create a 30 year time series of pro-forma financial statements for

each cooperative. The long time series is necessary in order to model revolving equity. Sales volumes and margins for grain, fertilizer, petroleum and miscellaneous farm supplies are based on the historical averages. Patronage from regional cooperatives was considered because local cooperatives typically include regional patronage in their calculation of profits which they distribute to members. The cooperative tax code stipulates that a local cooperative must pay taxes on regional patronage income unless it passes the regional patronage on to its farmer members within 8 ½ months. Regional patronage was projected from the historic relationship with farm supply sales with the split between cash and stock regional patronage based on historic averages. The cash portion of regional patronage is included in the projected profits and cash flows. No attempt is made to model redemption of regional patronage. Several regional cooperatives are moving to base capital and/or permanent equity models making it unclear as to whether a local cooperative should anticipate the redemption of regional equity. The redemption of regional patronage does not affect a cooperative's total profit so it is not directly related to profit distribution choices.

Most of the fixed expense categories such as depreciation, maintenance and repairs, insurance and property tax are modeled based on their historic relationship with fixed asset levels. Personnel expense is based on the most recent fiscal years. Residual expenses are projected at their historical average value. Inventory and accounts receivable levels were modeled based on their historic relationship with farm supply sales. Investment in fixed assets is modeled at a constant 5% growth rate.   This growth rate is a conservative approach as compared to the average fixed asset growth rate of 18.6% for the case study cooperatives. The firm

specific growth rates are not used because many of the case study cooperatives have recently replaced major assets such as grain bins or fertilizer warehouses during the previous six years. It therefore seemed likely that their long term asset growth will be lower than their recent historical average. The five percent fixed asset investment is roughly equivalent to the depreciation expense for most of the case study firms.

Profiles of equity by age of patron or age of stock (as appropriate) were obtained for each cooperative. Five of the ten case study cooperative used and age of patron equity retirement system while the remainder used an age of stock system. Equity retirement triggers ranged from 18-20 years for age of stock plans and from age 65 to age 70 for age of patron plans. The baseline profit distribution of cash patronage, retained qualified equity and retained unallocated equity is based on historical patterns. In cases where the cash patronage rate was not constant, phone interviews with the CEOs were conducted to determine the most typical profit distribution. The percentage of nonmember business (which is not provided in the audited financial statements) was also obtained from the CEO interviews.

Two tax rate scenarios are used. The first scenario had higher tax rates representing the marginal tax rates from the personal and corporate tax schedules. The marginal tax rates are 41% for the cooperative and 45% for the member (including self employment tax). The second tax rate scenario is the effective tax rates used by Russell and Briggeman (2014) which are 9.4% for the cooperative firm and 14.10% for farmer members.

Nine of the case study cooperatives distributed profits in a combination of cash and qualified stock, with the cash portion ranging

from 21% to 50%. One cooperative distributed a combination of cash and nonqualified stock with a 15% cash portion. None of the case study cooperatives retained member profits in the form on unallocated equity but they all retained the after tax portion of nonmember profits as unallocated equity. The percentage of nonmember business ranged from 8% to 30%. The distributions in the combination of qualified retained equity and cash patronage are used as the baseline scenario. Those baselines represent the current profit distribution for nine of the case study firms and a cash flow equivalent qualified retained equity distribution for the cooperative currently distributing nonqualified retained equity.

Using the generated pro-forma financial statements the members' internal rate of return (IRR) are calculated for each cooperative under alternative profit distribution strategies The members' IRR is calculated using the value of the members' total equity as the year zero investment and the members after tax cash flow from cash patronage and equity retirement as the annual cash flow. The 30 year simulation period was selected to provide an adequate reflection of the equity retirement cash flows. There are alternative measures of members' return from a cooperative such as net cash flows or return on equity. The internal rate of return method is selected because it considers both the magnitude and timing of after tax cash flows, and it is largely independent of accounting convention for profit calculation.

For each case study cooperative the members' IRR is calculated for three profit distribution strategies; cash and qualified retained patronage which is the baseline, cash and nonqualified retained patronage and cash and unallocated retained equity. In the remainder of this paper

these distribution strategies are referred to as "qualified", "nonqualified" and "unallocated". The three strategies are examined under two tax rate assumptions, with and without the assumption that the cooperative utilizes the DPAD. All of the straegies are cash neutral with the baseline strategy in the distribution year. It should be noted that when a cooperative retains patronage in the form of nonqualified equity they get a tax deduction when the equity is redeemed. For that reason a nonqualified stock distribution that is cash neutral with a qualified retained equity strategy in the distribution year will eventually create a higher cash flow for the cooperative. Since equity revolving periods can be 20 years or longer, most cooperative boards would be expected to restrict their choices that are cash flow neutral in the distribution year.

Results

The average baseline cash patronage rates for the profit distribution alternatives are shown in Table 1. The cash flow neutral cash patronage rate for the marginal tax rate is lower than the level at the effective tax rates. While all of the member profits are distributed in a tax deductible form under the qualified strategy, the nonmember business profits create differential taxes and the cash patronage adjustment. Under the marginal tax rates the cooperatives have to reduce cash patronage significantly from the qualified level in order to retain funds in the form of nonqualified equity or unallocated equity. Less of a reduction occurs under the lower effective tax rates. When the cooperative utilize the DPAD the cash patronage rate for the nonqualified and unallocated strategies are identical with that of the qualified (baseline).

The member IRR, averaged over the ten cash study cooperatives is shown in Figure 1. The nonqualified strategy provides the highest member return while retaining funds as unallocated reserves yields the lowest return. The rankings were consistent at both high and low tax rates. The intuitions are fairly straightforward. Because the members' tax rate is higher than the cooperative's, the cash flow neutral cash patronage level with the nonqualified distribution still provides the member a higher after tax cash flow relative to the qualified distribution. For that reason, the nonqualified strategy outperforms the qualified. The unallocated strategy has the same cash patronage as the nonqualified but the member does not receive an equity redemption payment. The eventual cash flow from equity redemption results in the nonqualified strategy always being preferred to the unallocated.

The unallocated strategy has a lower member IRR relative to the qualified scenario. In the case of this comparison there are three underlying effects. In the distribution year the qualified distribution has a higher cash patronage relative to the unallocated but also creates a tax obligation for the member. In the redemption year a cash flow is associated with the qualified but not with the unallocated. At both tax rates, the positive effects of higher cash patronage and redemption more than offset the distribution year tax obligation. As discussed in the next section, that ranking changes when the DPAD was considered.

The results under the assumptions that the cooperative uses the DPAD are shown in Figure 2. The nonqualified distribution continues to outperform both the qualified and unallocated scenario. The advantage of nonqualified over qualified increases because the cooperative can maintain

the same cash patronage rate. The nonqualified scenario also continues to outperform the unallocated distribution. The only change in ranking due to the DPAD is that the unallocated strategy outperforms the qualified distribution. When the DPAD is used the cash patronage rates for the qualified and unallocated strategies are identical. When cash patronage rates are identical, the relative ranking of the qualified and unallocated depends on whether the member's tax burden from receiving qualified stock is offset by the present value of the future equity redemption payment. In the case of three of the case study cooperatives, those with low cash patronage percentages and long equity revolving periods, the unallocated scenario had a higher return. That caused the average IRR to favor unallocated over qualified. The nonqualified scenario remained the best choice for member return, but in some cases, members can actually be better off forgoing the tax effect and the eventual equity redemption associated with qualified stock. That ranking only occurs with the DPAD where the cash flow equivalent cash patronage rate is the same for the qualified and unallocated scenario.

Conclusions

The study provides some very useful conclusions for cooperative managers and boards of directors. Marketing and supply cooperatives must retain profits to fund infrastructure and to revolve previously issued equity. Historically, these firms have retained funds by distributing qualified retained patronage. Our results suggest that nonqualified retained patronage provides a higher member return relative to qualified retained patronage. The results also indicate that nonqualified retained patronage resulted in higher member IRR relative to retaining profits as

unallocated equity. Those results hold at both high and low tax rates and with and without the use of the DPAD. The impact of the DPAD (or a similar future tax credit) is to increase the advantage of nonqualified over qualified.

The advantage of nonqualified distributions, which very few U.S. agricultural cooperatives use, over the traditional qualified distribution is a function of the differential tax rates between the cooperative and the member. Our estimates of both marginal and effective tax rates reflect a higher tax rate for the cooperative member relative to the tax rate for the cooperative firm. That assumption implies an advantage of nonqualified distributions over qualified distributions. The magnitude of the differential is a function of the patronage and equity retirement cash flows. Our case study cooperatives provide a measure of the differences in the context of typical grain and farm supply cooperatives. To put the impact in perspective, personnel costs in the case study cooperatives would have to decrease by 10-20% to achieve the same improvement in member IRR as could be obtained by transitioning to nonqualified retained patronage.

Some agricultural cooperatives retain a portion of member profits as unallocated equity. While this strategy increases taxes at the cooperative level it avoids the obligation to redeem the equity. Russell and Briggeman (2014) modeled this strategy as the cooperative's only alternative in retaining funds. Our results indicate that a nonqualified distribution is a better choice if the cooperative seeks to maximize member return. In fact, unless the cooperative can take advantage of the DPAD or a similar tax credit, retaining funds as unallocated reserves is the least preferred strategy in terms of member return.

Historically, cooperative members have had a somewhat negative or at best an ambiguous attitude toward their retained patronage equity. Part of this perception may be due to the historical choice to issue qualified retained patronage which is taxable to the member in the distribution year. Nonqualified distributions could improve the member perception of cooperative equity because it matches the timing of the tax obligation with the timing of the cash flow. The cooperative receives a tax deduction in the year in which the equity is redeemed which reduces the redemption budget. This research suggests that nonqualified distributions, in addition to improving the perception of cooperative equity, could also maximize the members' return.

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Table 1: Cash flow Neutral Cash Patronage Percentages-Average of Case Study Cooperatives

	Qualified	Nonqualified	Unallocated Equity
Marginal Tax Rates	47%	13%	13%
Effective Tax Rates	58%	49%	49%
Marginal Rate-DPAD	47%	47%	47%
Effective Rate-DPAD	58%	58%	58%

Figure 1: Member IRR for Alternative Profit Distribution Strategies

Figure 2: Member IRR for Alternative Profit Distribtutin Strategies with DPAD