



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Patron Demand Deposit Account and Regional Patronage Financing Activities of Agribusiness Cooperatives

Erica C. Brueckner, Ken D. Duft, and Jill J. McCluskey

This study investigates agribusiness cooperatives' reliance on patron demand deposit accounts (PDDAs) and regional patronage as sources of capital. Approximately 13% of cooperatives surveyed carry PDDAs, typically fruit cooperatives, of which over one-half have no financial protection against large unexpected withdrawals. Cooperatives with PDDAs must be concerned with potential legal conflicts regarding the handling of these accounts, as evidenced by a U.S. Supreme Court case classifying PDDAs as securities. Supply cooperatives are most likely to show investment in other cooperatives as a high percentage of total assets, which could generate insolvency issues for locals.

Key Words: cooperative financing, patron demand deposit accounts, regional patronage

Like all business enterprises, agribusiness cooperatives have some authority to choose which forms of financing activities to use. However, the system of patronage unique to cooperatives creates two options of financing not available to investor-owned firms (IOFs): (a) patron demand deposit accounts (PDDAs), and (b) regional patronage. Funds remaining as a result of unpaid pool proceeds or deposited into a cooperative patron's accounts, which receive interest payments and are available upon demand of the patron, in large part constitute the PDDAs. These arrangements create inexpensive financing for the cooperative and profitable investments for its patron-depositors. Regional patronage financing occurs when local cooperatives rely upon cash patronage and retired equity payments from regional cooperatives to increase net income, and/or rely upon retained equity in those regional cooperatives to increase total assets.

There is reason for concern regarding PDDAs and regional patronage financing. If a cooperative were to primarily depend upon the use of these funds, there exists

Erica Brueckner is former graduate student, Ken Duft is professor, and Jill McCluskey is assistant professor, all in the Department of Agricultural Economics, Washington State University, Pullman. The authors thank Maria Loureiro, Ken Casavant, and Ray Huffaker for helpful comments. Funding is gratefully acknowledged from the USDA Rural Business-Cooperative Service and the Washington State Council of Farmer Cooperatives. Any remaining errors are the responsibility of the authors.

a risk that these funds will not be available, causing serious financial strain on the cooperative. For instance, the “demand” characteristic of PDDAs allows patrons to withdraw funds from their PDDAs whenever they choose. If a large amount of funds held in PDDAs were to be withdrawn at one time, the cooperative could run short of operating funds, possibly to the extent that it could not distribute those monies demanded. Under these circumstances, patrons are faced with not knowing if or when they will receive their money. In the event the cooperative falls into bankruptcy, it is then held liable to its patrons for debt financing and is accountable under federal securities regulations. In the case of regional patronage financing, a local affiliated cooperative may not receive an annual patronage payment from its regional cooperatives, and thus be forced to look for other financing to support operating funds.

Notwithstanding that PDDA financing has been in use for approximately 20 years, some cooperatives are unaware of the potentially severe consequences these funds may bring (Duft, 1988, 1998). For several decades, local cooperatives have relied upon patronage received from regional cooperatives. Some cooperatives have grown dependent upon these funds to show a net operating profit. Therefore, with a goal of providing information to cooperatives in their decision-making efforts, the primary objective of this study is to determine the extent to which PDDA and regional patronage financing activities are relied upon, and analyze the implications of using these financing measures.

In the discussion that follows, we seek to identify the characteristics of agribusiness cooperatives that make them more predisposed to use PDDA and regional patronage financing activities. First, the extent to which cooperatives carry PDDAs is examined. Second, factors are identified which affect the likelihood that a particular cooperative will be involved with PDDA financing. Third, we analyze the severity of local cooperatives’ financial dependence upon regional cooperatives. Finally, we assess the factors found to influence the financial dependence of a local cooperative upon a regional cooperative.

Patron Demand Deposit Accounts

Partly due to record high levels of the prime lending rate, United States agriculture was faced with great financial strain in the late 1970s and early 1980s. As a result, agricultural cooperatives needed lower cost sources of financing than were available through established banking institutions. Further, many cooperatives had met their maximum allowed borrowing capacity from banks (Bartsch and Dahlgren, 1997; Duft, 1988). Of course, farmers (who comprised the membership of these cooperatives) were concurrently experiencing financial stress. Additionally, members began to express their unease that cooperatives had continued to retain equity (non-interest-bearing money) which members owned but could not use. The culmination of these factors in the late 1970s led to the creation of PDDAs in Washington State (Duft, 1988, 1998).

The fresh fruit and grain cooperative industries of the State of Washington have similar systems of paying their member-growers for commodities. Upon delivery of the product, the grower is paid a portion of the expected pool value. Subsequent pool payments are made to the grower throughout the following months as portions of the product are sold by the cooperative. By spring, payments begin overlapping with grower supply purchases and storage payments to the cooperative. In some grower-cooperative relationships, it was suggested that those later payments simply be credited to the member-grower's account, against which purchases or payments could be made, or funds withdrawn if needed, by the member (Duft, 1988, 1998).

At this point, cooperatives and members jointly recognized that the cooperatives, through deposited funds in member-growers' accounts, were being allowed access to capital at no cost. As a result of this realization, cooperatives began paying a modest rate of interest to growers based on the amount of funds in growers' accounts. This rate was set such that it fell within a window above the interest rate the member could gain from placing that money in a savings or related deposit account at the local bank, and below the rate paid by the cooperative for borrowing operating funds from a banking institution (Duft, 1988, 1998; Hanson et al., 1999).

It also appears that some of the payments made to grain producers were kept as credit balances in order to delay payment until the next tax year, thereby providing a tax benefit to the grower. In these cases, the member may have been paid a similar rate of interest for the time over which the payment was deferred (Duft, 1988).

The use of PDDAs spread rapidly from Washington State throughout the Northwest and into other regions of the country. In fact, in Washington alone, funds in PDDAs grew from approximately \$3 million in the early 1980s to around \$100 million in 1986 (Duft, 1988, 1998). This exponential increase in PDDAs raised serious concerns, ultimately leading to the identification of several potential problems.

One drawback of PDDAs is that members are allowed to deposit additional funds in their grower demand accounts which may or may not be patronage related, i.e., these monies have sometimes been personal funds generated from sources other than agricultural production. Occasionally, funds have also been accepted from the general public. Allowing these situations to occur could be destructive to cooperative principles, with such consequences as non-appreciating stock value, limited return on patrons' invested capital, and a lack of equal access to services by all patrons (Duft, 1988, 1998).

Second, a conflict of interest emerged when the individuals who set the rate paid on these funds (the cooperative's management and the Board of Directors) were allowed to leave large sums of money in PDDAs. A further critical observation pointed to the occasion of a drastic decrease in the prime rate. Specifically, if a cooperative's Board of Directors was unable to meet in a timely manner to lower the interest rate paid (to reflect the prime rate change), the cooperative would sometimes be paying a higher rate of interest on PDDAs than on its commercial loans (Duft, 1988, 1998).

Third, the tax treatment of interest paid on PDDAs came into question. It was unclear whether the Internal Revenue Service would consider it to be the cost of debt, investment earnings of patrons, or patronage allocations to members (Duft, 1988, 1998; Hanson et al., 1999).

Finally, there are legal questions surrounding the use of PDDAs. Funds in PDDAs are available to the member upon demand. If a large quantity of these funds were to be requested by members at once, it is possible the cooperative may be unable to comply—i.e., those monies may have been invested elsewhere, or the cooperative simply may not have the available capital to satisfy a large aggregate demand. Cooperatives are not held responsible by federal securities regulations to provide security for their equity holders with the FDIC or a similar organization, as are banks (Duft, 1988, 1998). Therefore, beyond a cooperative's line of credit being available through a bank to cover large PDDA withdrawals, there is no security protection for account holders against those funds in PDDAs. Additionally, if a cooperative were to go bankrupt, the limited liability of cooperatives may be challenged (insofar as member losses could exceed member investment).

This situation was addressed in *Reeves v. Ernst and Young* (U.S. Supreme Court), which resulted from the bankruptcy of Farmer's Cooperative of Arkansas and Oklahoma. Farmer's Cooperative sold demand notes to its patrons (a version of PDDAs), without clear disclosure as to the risks involved. The cooperative went into bankruptcy and was unable to repay the patron demand notes. Note holders and the cooperative's bankruptcy trustee sued individuals of decision-making authority in the cooperative and the cooperative's accounting firm (Baarda, 1989). The result was personal liability of directors, accountants, lawyers, and other individuals, in addition to the decision that demand notes were in fact "securities" (Baarda, 1990). The cooperative was held accountable to antifraud provisions of securities laws.

Regional Patronage Dependency

As the agricultural cooperative trend developed in the mid-1900s, some very successful cooperatives grew to be recognized statewide, regionally, and even nationally. The benefits to being a member of a cooperative enticed several small cooperatives to become members of larger regional federated cooperatives. Over time, these member cooperatives built up large equities in the affiliated regionals. Just as members of local cooperatives often wait for several years to receive retired equity allocated to them for a certain year's patronage, the local cooperatives also must often wait many years to receive membership equity from the regional cooperatives. If a strong financial dependency is present, there exists the risk that business failure at the regional level will be detrimental to the financial viability of the local member cooperatives.

Previous Studies

Over the past two decades, research of agricultural cooperatives has focused on four main topics: equity redemption, capital structure, developments in cooperative theory, and comparisons between cooperatives and investor-owned firms (IOFs). Only six papers have been published between 1988 and 1999 in relation to PDDA financing. Of these, four have been strictly directed to the legal aspects of PDDAs (Baarda, 1989, 1990; Bartsch and Dahlgren, 1997; and Hanson et al., 1999). The remaining two papers (Duft, 1988, 1998) dealt with the background and characteristics of PDDAs.

Two additional studies analyzed federated patronage dependency of local cooperatives (Cobia, Ingalsbe, and Royer, 1989; and Royer and Smith, 1982). Royer and Smith (1982) investigated the intensity of member cooperatives' equity in the affiliated regionals. Using 1976 data, they calculated that regional annual patronage refunds accounted for 27.9% of net income and losses for locals. Investment in other cooperatives was found to represent 8.5% of total assets and 24.2% of local patrons' equity. In reporting the findings of their 1989 analysis, Cobia, Ingalsbe, and Royer emphasized that local cooperatives have great limitations when they are not receiving cash flow in the form of equity redemption and cash patronage from regional cooperatives.

Data

The cooperatives surveyed in this data set were identified from two sources, the Washington State Council of Farmer Cooperatives and the U.S. Department of Agriculture (USDA) Rural Business-Cooperative Service. The survey group was limited to exclude cooperatives that do not handle patronage in any way and those that function strictly as bargaining associations. Seafood-related marketing or processing cooperatives and those that would soon be dissolving were also eliminated. Sixty-eight of the 72 remaining agricultural cooperatives in the State of Washington voluntarily participated in the survey for this study.

The interviews were conducted in person in order to obtain a higher response rate and to facilitate a better understanding of the survey than could have been possible with phone interviews or mail surveys. The survey was designed to gather data on the cooperative's demographics (type of cooperative and its structure), as well as to identify factors which determine the existence and characteristics of PDDAs, and presence and handling of regional patronage received. In addition, 1998 financial statements were collected from the participating cooperatives.

The statistical characteristics of the sample can be found in table 1. Grain handling/marketing cooperatives constituted 29.4% of the industry, 45.6% were farm supply cooperatives, 20.6% handled and marketed fruits and vegetables, 1.5% dealt with products of the dairy industry, and the remaining 2.9% provided strictly financial products. Almost all of the cooperatives (95.6%) were locally owned by

Table 1. Descriptive Statistics and Definitions of Variables for the Cooperatives Surveyed (N = 68)

Variable	Definition	Mean
<i>PDDA</i>	patron demand deposit accounts (0 = no, 1 = yes)	0.132
<i>GRAIN</i>	grain cooperative (0 = no, 1 = yes)	0.294
<i>SUPPLY</i>	supply cooperative (0 = no, 1 = yes)	0.456
<i>FRUIT</i>	fruit cooperative (0 = no, 1 = yes)	0.206
<i>DAIRY</i>	dairy cooperative (0 = no, 1 = yes)	0.015
<i>FINCL</i>	financial cooperative (0 = no, 1 = yes)	0.029
<i>LOCAL</i>	locally owned by farmers (0 = no, 1 = yes)	0.956
<i>RPD</i>	regional patronage dependent (0 = no, 1 = yes)	0.927
<i>REGNLS</i>	percentage of local patronage provided by regionals	2.7
<i>YEARS</i>	number of years cooperative in existence	60.0
<i>RETIRE</i>	years to retire local equity	13.3
<i>PATREC</i>	patronage payments received from other cooperatives	\$183,511
<i>NI</i>	net income	\$4,450,974
<i>IIOC</i>	investment in other cooperatives	\$4,227,880
<i>TA</i>	total assets	\$366,327,544
<i>PDDADOL</i>	quantity of funds in PDDAs	\$4,516,126
<i>TL</i>	total liabilities	\$320,079,216
<i>PE</i>	patrons' equity	\$46,105,419
<i>PREC/PE</i>	regional patronage payments received/patrons' equity	0.033
<i>PREC/NI</i>	regional patronage payments received/net income	0.219
<i>IIOC/PE</i>	investment in other cooperatives/patrons' equity	0.233
<i>IIOC/TA</i>	investment in other cooperatives/total assets	0.146
<i>PDLRS/TL</i>	funds in PDDAs/total liabilities	0.135

farmers and ranchers, whereas the remainder were owned by larger cooperative structures, the regional or federated cooperatives. As expected, 92.7% of cooperatives were financially dependent upon regional patronage, with independent locals receiving an average of 2.7% of their patronage from regional cooperatives. The cooperatives in our data set retained equity for 13.3 years before retiring these funds to the allocated members, with a range of zero to 34 years. Finally, the average age (length of operation) of the cooperatives in our sample is 60 years. Considering recent mergers and acquisitions, this length of operation ranged from two to 93 years.

Table 1. Extended

Std. Dev.	Minimum	Maximum	No. Cases
0.341	0	1	9
0.459	0	1	20
0.502	0	1	31
0.407	0	1	14
0.121	0	1	1
0.170	0	1	2
0.207	0	1	65
0.262	0	1	63
1.5	0	7	68
20.5	2	93	68
8.3	0	34	68
\$724,672	0	\$5,876,000	65
\$21,475,258	-\$919,359	\$150,203,000	65
\$28,380,028	0	\$229,446,000	65
\$2,486,823,570	\$122,659	\$19,914,914,000	65
\$8,341,623	\$391,256	\$23,310,000	7
\$2,295,252,080	\$46,431	\$18,465,332,000	65
\$224,681,575	\$220,747	\$1,449,582,000	65
0.033	0.001	0.157	58
1.240	-6.569	4.044	59
0.192	0.011	0.846	59
0.145	0.000	0.551	65
0.090	0.035	0.241	7

Findings: Patron Demand Deposit Accounts

In general, PDDAs are no longer common in Washington State. Only nine of the 68 cooperatives in our sample (13.2%) reported using these accounts (table 1). The lack of PDDAs may be explained by the fact that if cooperatives get into financial trouble and cannot cover their PDDAs, the legal reprimands can be severe. We also found that many local cooperatives are dependent upon their investments in other cooperatives to represent a large portion of total assets and the annual patronage payments from regional cooperatives to support higher net returns.

Seven of the nine cooperatives carrying PDDAs were fruit cooperatives; the remaining two were grain cooperatives. Of the nine cooperatives with PDDAs, four stated they did have a financial support system in place to protect themselves in the event a large portion of funds in PDDAs were suddenly demanded in withdrawals by the respective members. These support systems included an operating line of credit which would cover all or a percentage of the funds tied up in PDDAs and/or an agreement with the bank to cover these large withdrawals if they should unexpectedly occur. Agreements with the banking institutions verified the banks were aware of the practice of PDDA financing in use at the cooperatives and the risks involved. It appears that the five PDDA-carrying cooperatives not supported by available credit are either ignorant of the risks involved with PDDAs, or are knowledgeable of that risk but do not consider it to be potentially hazardous to their continued business operations.

For those cooperatives carrying PDDAs, a ratio was calculated of dollars in PDDAs to total liabilities, *PDLRS/TL* (see table 1). This ratio averaged 0.135, with a range from 0.035 to 0.241. Although the actual dollar amounts held in PDDAs may be very significant, it appears that the quantity of these funds in relation to total liabilities is not extremely significant.

Based on information provided during the survey, it was determined that two of these cooperatives held not only grower demand deposits, but also grower debenture deposits, which carried time constraints during which the member could not withdraw funds. These debenture funds are considered long-term liabilities in the cooperatives' financial statements, as opposed to demand deposit funds, which are short-term liabilities. At fiscal year end 1998, one of these cooperatives relied strictly upon grower debenture deposits for long-term debt financing.

Of the 20 grain cooperatives surveyed, 16 allowed deferred payment contracts upon request of their members. Two of the 16 pay interest on these funds for the duration of the contract. Three of the 16 reported they pay a premium on grain on which payment is deferred. Under these premiums, the cooperatives are safeguarded, as they are not paying interest to the members and are therefore not involved with PDDAs. Of the 14 fruit and vegetable cooperatives surveyed, three carried late season pool payments as member account balances, on which one paid interest. Member-patrons deposited funds as investment at three fruit cooperatives. None of the cooperatives accepted deposits as investment from nonmember patrons or public investors.

In cases where interest was paid on member accounts, the rate characteristics were fairly consistent. The chief financial officer, the controller, the manager, the board of directors, or any combination thereof, is responsible for setting the interest rates. Such rates are determined according to either CoBank lending rates, the prime rate, money market rates, demand deposit rates, or local bank rates accessible for grower loans. In all cases the rate was adjusted monthly, except for one cooperative applying a 5% flat rate.

With reference to the background of PDDAs, our findings contradict previously held beliefs about the use of these funds. Based on our survey results, fruit and grain

cooperatives typically do not provide production supplies to their members. The general implication of the managers interviewed was that any funds receiving interest payments were not used as member account credit balances against which to purchase products.

Factors Affecting the Choice to Use PDDAs

Univariate logit models can be used to analyze the factors affecting choices. We use a standard binary choice model in which the cooperative chooses whether or not to use PDDA financing. Formally,

$$(1) \quad V(y, \mathbf{z}) = \boldsymbol{\beta}\mathbf{z} + \varepsilon$$

and

$$(2) \quad y = \begin{cases} 1 & \text{if } V(\cdot) \geq 0 \text{ or } \varepsilon \geq -\mathbf{z}\boldsymbol{\beta}, \\ 0 & \text{if } V(\cdot) < 0, \end{cases}$$

where $V(\cdot)$ is an unobserved latent response variable, $\boldsymbol{\beta}$ is a vector of unknown parameters to be estimated, \mathbf{z} is a vector of explanatory variables, ε denotes the error terms which are assumed to have a logistic distribution, and y is the dependent variable representing the observed outcome of a binary choice.

The choice equation (whether to use PDDAs) can be written as:

$$(3) \quad y = \boldsymbol{\beta}'\mathbf{z} + \varepsilon,$$

where

$$y = \begin{cases} 1 & \text{if PDDAs are used,} \\ 0 & \text{otherwise.} \end{cases}$$

The conditional probability that a particular cooperative, given \mathbf{z} , will use PDDAs is expressed as:

$$(4) \quad P(y = 1 | \mathbf{z}) = P(\boldsymbol{\beta}'\mathbf{z} + \varepsilon \geq 0 | \mathbf{z}).$$

The estimated logit equation was formulated as follows:

$$(5) \quad y = \beta_1 FRUIT + \beta_2 YEARS + \beta_3 IIOC + \varepsilon,$$

where y indicates the usage of patron demand deposit accounts (0=no, 1=yes); *FRUIT* represents fruit cooperative (0=no, 1=yes); *YEARS* indicates number of years the cooperative has been in existence; and *IIOC* represents total dollars invested in all other cooperatives. Other variables such as other types of cooperatives (grain, supply, dairy, and financial) were excluded from this formulation of the logit equation because they were not statistically significant in predicting PDDA presence.

Table 2. Discrete Choice Model Estimation Results (Dependent Variable = Use of PDDAs)

Variable	Coefficient	<i>t</i> -Statistic	Marginal Effects
<i>FRUIT</i>	2.02*	2.67	0.437E-2
<i>YEARS</i>	-0.03*	-3.40	-0.612E-4
<i>IIOC</i>	-1.20E-6*	-2.03	-0.248E-8
Correct Predictions: 83.08%			

Note: An asterisk (*) denotes coefficient is significant at the $\alpha = 0.01$ level.

The estimation results from the choice equation (5) are presented in table 2. All of the explanatory variables have the expected sign and are significant. Our findings show fruit cooperatives are likely to have PDDAs. The explanation for the positive effect is that the pool payments in fruit cooperatives are distributed over nearly half of the year, overlapping the time when grower payments are made to the cooperative; in contrast, other cooperatives do not typically have this type of payment system. Grain cooperatives use similar deferred payments; however, they are usually at the request of the producer, to serve as a tax benefit.

The higher the number of years the cooperative has been in operation, the less likely the cooperative is to carry PDDAs (table 2). This finding is not unexpected, since newer cooperatives would be more likely to venture into diverse financing activities. Further, because younger cooperatives encountered early on the financial agricultural hardships of the late 1970s and 1980s, they likely had little built-up equity to carry them through this time. Compared with the more stable, older cooperatives, these younger cooperatives had a greater need to find more efficient financing resources.

Finally, results from table 2 indicate that total investment in other cooperatives has a negative effect on the probability that a cooperative will use PDDAs. Thus a local cooperative with little investment in regional cooperatives is more likely to be active in PDDA financing than locals with larger regional equity stores. This is logical, as receiving a lesser amount of patronage from other cooperatives would bring about the need for obtaining operating funds from some other source—for example, through PDDAs.

Findings: Regional Patronage Dependency

The ratio of patronage received from other cooperatives to net income ($PREC/NI$) is a measure of intensity or severity of a cooperative's dependency upon regional patronage. This ratio averaged 0.219, and ranged from -6.569 to 4.044 (see table 1). Clearly, some local cooperatives are in fact significantly dependent upon regional

patronage payments for profitability. Additionally, from the financial data, seven local cooperatives were observed to show a net loss before receiving regional patronage from other cooperatives, and a net income if regional patronage payments were added. If this situation were to take place over a period of several consecutive years, long-run viability of the local cooperative is potentially being misrepresented to its member-patrons.

In a cooperative's financial statements, investment in other cooperatives is listed under non-current assets. When investment in other cooperatives accounts for a significant percentage of total assets, the cooperative's ability to remain solvent is decreased, as these funds can only be made available at the discretion of all other cooperatives in which equity is held.

The following linear regression model uses a ratio of investment in other cooperatives to total assets (*IIOC/TA*) as the dependent variable. Of the cooperatives surveyed, their *IIOC/TA* ratio averaged 0.146, ranging from 0.0 to 0.551 (see table 1). This suggests that some of Washington's agribusiness cooperatives are heavily invested in other cooperatives and have a significant potential for insolvency conflicts.

To analyze the relationship between certain cooperative characteristics and the ratio of investment in other cooperatives to total assets, we estimated the following equation:

$$(6) \quad IIOC/TA = \beta_0 + \beta_1 SUPPLY + RETIRE + e,$$

where *SUPPLY* denotes supply cooperative (0 = no, 1 = yes); *RETIRE* represents number of years for the local cooperative to retire local certificates of equity; and *e* is a white noise error term.

The estimation results from equation (6) are presented in table 3. Other types of cooperatives (grain, fruit, dairy, and financial) were excluded from this model because they were not statistically significant. The coefficients for both of the explanatory variables (*SUPPLY* and *RETIRE*) are positive and highly significant. The supply cooperatives have a higher ratio of investment in other cooperatives to total assets. This can be explained by the fact that most supply cooperatives are members of Cenex/Harvest States, one of the largest regional cooperatives in the United States. The supply cooperatives obtain a large portion of their products from Cenex/Harvest States, and therefore hold large equities in this particular regional cooperative. Fruit, grain, dairy, and financial cooperatives tend to be more diversified in the equity they hold in other cooperatives. For instance, these types of cooperatives would be patrons to a number of smaller, more specialized regional or local cooperatives, resulting in a less significant total equity in other cooperatives.

Table 3 results also show a positive correlation between the number of years it takes the local cooperative to retire local certificates of equity and the ratio of investment in other cooperatives to total assets. Regional cooperatives may not revolve equity in those years of difficult financial circumstances, subsequently

Table 3. Estimation Results: Relationship of Cooperative Characteristics to the Ratio of Investment in Other Cooperatives to Total Assets

Variable	Coefficient	<i>t</i> -Statistic
Constant	0.616	0.31
<i>SUPPLY</i>	0.215*	9.83
<i>RETIRE</i>	0.003*	2.49
$R^2 = 0.68$		

Note: An asterisk (*) denotes coefficient is significant at the $\alpha = 0.01$ level.

accumulating higher ratio values of investment in other cooperatives to total assets for the local member cooperatives (Cobia, Ingalsbe, and Royer, 1989). The resulting decreased cash flow in regional patronage makes it more difficult to distribute local equity stores to members, prolonging the number of years it takes for the local cooperative to retire certificates of equity to its members.

During the interview process, managers were asked how regional patronage received was accounted for and distributed to local members. In theory, it can be done one of two ways. First, a regional patronage check (current cash patronage plus the previous year's retired equity) may be deposited in the local cooperative's general fund and accounted for as a portion of net income, which is then allocated to local members as the current year's patronage equity. Second, a regional patronage payment may be deposited and recorded separately as the current year's cash patronage and retired equity from a specific year's allocation. The local cooperative's extensive equity records system would immediately distribute the regional retired equity funds to the patrons who were allocated local equity in that same fiscal year. In other words, regional retired equity would not be given to current local patrons; rather, it would be passed directly to those members who funded local cooperative operations in the year of the earlier regional equity allocation.

All cooperatives in our study used the first method for regional patronage accounting and distribution. Therefore, local cooperatives are relying heavily upon regional patronage payments to provide a greater amount of operating capital. More specifically, net income is higher because regional retired equity is kept with regional cash patronage, as opposed to the second option discussed above. This higher level of net income leaves a greater amount of funds to be allocated as the current year's local cash patronage or retained equity, the latter creating operating capital. If local cooperatives were to use the second option described earlier, they would be retiring a greater amount of local equity. This would result in decreasing the length of time equity is held, creating a more satisfied membership, and eventually decreasing the financial dependence upon regional cooperatives.

We also found that many local cooperatives have equity stored in regional cooperatives, allocated to them several years previously. Some local managers

were not aware of how many years' worth of equity their cooperative had built up in the regional cooperatives. Recently, with mergers of the larger regional cooperatives (for example, the Cenex/Harvest States/Land O' Lakes merger of 1998), equity distribution is being slowed further to facilitate higher than normal capital requirements.

Conclusions

During the period of financial difficulty in agriculture of the late 1970s and 1980s, agricultural cooperatives and producers began looking for more efficient methods of financing. The benefits of reserving patronage-sourced funds as operating capital, with the cost of interest paid to the respective patrons, became widely used in Washington State. This practice became known as patron demand deposit account (PDDA) financing. In addition, local cooperatives increasingly began to rely on patronage received from regional cooperatives to support local annual net income.

This study has analyzed these two forms of financing. Using a survey of agribusiness cooperatives in the State of Washington, we found that nine of the 68 cooperatives carried PDDAs, and 63 received annual patronage payments from regional cooperatives. Fruit cooperatives are most likely to be active in PDDA financing. Additionally, newer cooperatives and those with a lower investment in other cooperatives are more likely to carry PDDAs. Of the cooperatives involved with PDDA financing, approximately half have anticipated the possibility of financial failure due to a sudden, large withdrawal of such funds. These cooperatives have secured operating lines of credit and/or other agreements with their banking institutions to protect their financial position if such an event should occur. However, the outcome of *Reeves v. Ernst and Young*, in which the U.S. Supreme Court classified patron demand notes as securities, confirms there is sufficient cause for concern by all cooperatives paying interest to their member-patrons-depositors for the use of their funds.

The results from a linear regression model allow us to conclude that supply cooperatives are most likely to be dependent upon regional patronage received. We also found that the greater the number of years equity is retained by local cooperatives, the greater is their level of investment in other cooperatives. Based on the results of a ratio of investment in other cooperatives to total assets, some local cooperatives could face insolvency difficulties (with this ratio being as high as 0.551). According to financial data provided by participating cooperatives, seven out of 65 cooperatives relied upon regional patronage payments to show a net income rather than a net loss in 1998. Given these findings, some local cooperatives appear to have become too dependent on their investment earnings in other cooperatives for their financial status to be acceptable to their local patrons.

The primary purpose of a cooperative is to serve its membership. When regional patronage is not being redeemed to its members (local cooperatives), then local

cooperatives are not able to redeem local patronage as efficiently to their members (producers). Therefore, regional cooperatives are not serving their membership as effectively as possible.

References

- Baarda, J. R. (1989). "Bankruptcy case decision: Demand notes not securities." *Farmer Cooperatives* 55(10), 25.
- . (1990). "Unusual co-op financing method causes problems." *Farmer Cooperatives* 57(2), 23.
- Bartsch, E. A., and J. L. Dahlgren. (1997, Winter). "Interest-bearing patron credit balances—A liability trap for everyone." *The Cooperative Accountant*, pp. 45–47.
- Cobia, D. W., G. Ingalsbe, and J. S. Royer. (1989). "Equity redemption." In D. W. Cobia (ed.), *Cooperatives in Agriculture* (pp. 267–285). Englewood Cliffs, NJ: Prentice Hall.
- Duft, K. D. (1988). "Prospects and problems of general ledger financing by agricultural cooperatives." *American Cooperation*, pp. 217–226.
- . (1998, Summer). "Patron demand deposit account financing by cooperatives: Prospects and pitfalls." *The Cooperative Accountant*, pp. 15–21.
- Hanson, M. J., R. D. McFall, K. R. Prohaska, and J. R. Thompson. (1999, Summer). "Cooperative patron note programs." *The Cooperative Accountant*, pp. 3–10.
- Royer, J. S., and D. P. Smith. (1982). "Equity redemption." *American Cooperation*, pp. 295–302.