

An Alternative Patronage Refund Mechanism



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Extension

Motivation

- Co-op conversions to IOFs
 - Substitution of LLC model for co-op model
 - Creation of the Wyoming co-op model
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- Membership equity requirement is (perceived as) a constraint on growth

Motivation

- Farmers *cannot* invest (too poor)
- Farmers do not *want* to invest
 - Relatively low returns on equity
 - Slow equity returns
 - Fair returns on equity (bargain-rider issue)
 - Dislike of unallocated equity
 - Risk

Motivation

- Farmers have invested: average equity/member continues to increase
- Difficulty rewarding equity investment fairly
 - Traditional principle; defining characteristic
 - Legal constraints (Capper-Volstead)
 - Tax issues (double-taxation on dividends)
 - Balance with patronage, interaction with equity revolvment plans

Traditional Patronage Refund

Co-op profit function:

$$\Pi = P*Q - C(Q) - d(A - \sum_m E_m)$$

Patronage refund for member n :

$$R_n = r_n \Pi = r_n (P*Q - C(Q) - r_n d(A - \sum_m E_m))$$

Patronage share:

$$r_n = Q_n / \sum_m Q_m$$

Issue: share of interest savings is related to patronage not equity contribution. Unfair treatment of investor.

Solutions

- Pay dividends to reward equity
- Base capital equity redemption plan
 - Equity is revolved such that share of capital = share of patronage
 - Difficulty adopting; not widespread
 - Complex (administration costs)
 - Member dissatisfaction w/ uncertain/increasing equity
 - Burden on new members (who you want to attract)

Solutions

- New generation cooperative model
 - Share of capital = share of patronage
 - Share commits members to deliver certain quantity
 - Total shares = total quantity = total patronage
 - Total shares * Share price = Total member equity

Alternative: Patronage Payment

$$PP_n = r_n(P^*Q) - r_nC(Q) - s_n d(A - \sum_m E_m)$$

$$s_n = E_n / \sum_m E_m$$

Equity is rewarded in proportion to equity investment. Treatment of member as investor is fair, although equity share does not equal patronage share.

Simulation

Variable	
Revenue-Operating Costs	\$1,000,000
Interest rate	6%
Assets	\$2,000,000
Total membership equity	\$1,000,000
Member 1 equity percentage	50%
Member 2 equity percentage	50%
Member 1 patronage percentage	60%
Member 2 patronage percentage	40%

Simulations

- In all four, member 1 "invests" the most in either supply or equity.
- Case 1: equity is equal; M1 patronage = 60%, he/she is under invested.
- Case 2: base capital = NGC; M1 patronage = equity = 60%
- Case 3: patronage is equal; M1 equity = 60%
- Case 4: patronage is equal; M1 equity = 80%

Results—Case 1

Alternative Scenarios	Payments to Members	
	Member 1	Member 2
Traditional Refund	564,000	376,000
Refund + Dividend (no limit)	517,000	423,000
Refund + Dividend (8% limit on dividend)	322,000	228,000
*Patronage Payment	*570,000	370,000

Results—Case 2

Base-Capital Plan*		
Traditional Refund	564,000	376,000
Refund + Dividend (no limit)	564,000	376,000
Refund + Dividend (8% limit on dividend)	330,000	220,000
Patronage Payment	564,000	376,000

*Equity percentage equals patronage percentage: Member 1=60%, Member 2=40%

Results—Case 3

Change in Equity: Member 1 60%; Member 2 40%; Equal patronage shares		
Alternative Scenarios	Payments to Member	
	Member 1	Member 2
Traditional Refund	470,000	470,000
*Refund + Dividend (no limit)	*517,000	423,000
Refund + Dividend (8% limit on dividend)	283,000	267,000
Patronage Payment	464,000	476,000

Results—Case 4

- No surprises
- Refund + dividend mechanism the best performer
- As equity increases, total payment increases (not so with traditional or new payment)
- See clearly problem with not rewarding equity: M2 (under investor) receives ROE= 244%

Discussion

- Problem with the Patronage Payment method:
 - As equity *share* increases (patronage staying the same), payment decreases.
 - We want the opposite effect.
- Alternative—drop the percentage:

$$R_n = r_n(P^*Q) - r_n(CQ) - d(r_n A - E_n)$$

Discussion

- Dividends + Refunds could increase investment; limits free rider problem
- Limits on equity returns problematic
- The patronage payment alternative gets around such limitation.
- In case 1 (equity same, patronage different): M1 received higher payment than in base capital case.

Discussion

- *Transparent* accounting for equity investment important—also accounts for unallocated equity (part of equity on balance sheet)
- Additional methods needed to show members their returns, that they reflect equity investment.

Future Research

- Incorporate tax
- Time series data for an actual co-op
- Investment analysis (NPV; EV) from member perspective for alternative payment methods, including one we haven't tested
- Include actual changes in quantity—patronage as well as equity.
- Simulation for co-op with alternatives (incorporate costs associated w/ base-capital plan)