



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.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Cooperation
1975

35898

UNIVERSITY OF CALIFORNIA
DAVIS

OCT 2 - 1975

Agricultural Economics Library

CONTRIBUTED PAPER

AAEA annual meeting, Columbus
Aug. 10-13, 1975.

FINANCIAL VARIABLES AFFECTING CAPITAL STRUCTURE
OF FARM SUPPLY AND DIVERSIFIED COOPERATIVES

by

Donald R. Davidson
Agricultural Economist
Farmer Cooperative Service
U. S. Department of Agriculture
Washington, D.C. 20250

ABSTRACT

Group Number XXXI

Group Title Alternative Strategies
for Capital Use

Financial Variables Affecting Capital Structure of Farm Supply
and Diversified Cooperatives

Donald R. Davidson, Farmer Cooperative Service, USDA

Study determined interrelationships of financial elements changing capital structure of subject cooperatives. Cooperative growth strategy involved expanding debt and equity at nearly parallel rates. Funds from term debt were applied mainly to financing fixed asset expansion. This freed funds from equity sources for patronage refunds, reducing debt and strengthening liquidity.

Footnotes

The author is indebted to Jack Armstrong, Gene Ingalsbe, Howard Mobley, Lila Walker, and other anonymous reviewers for their helpful comments.

1/ Regional cooperatives, as defined by Farmer Cooperative Service, are those listed with this agency which serve a district consisting of a number of counties, or a number of states. This includes all federated cooperatives--centralized associations serving several counties--and cooperatives with large volumes that are neither strictly federated nor strictly centralized as they have both local cooperatives and individual farmer members.

2/ In 1971, the Accounting Principles Board of the American Institute of Certified Public Accountants issued Opinion No. 19 indicating the SAUF statement include all changes in financial position and all important aspects of a firm's financing and investing activities regardless of whether cash or other elements of working capital are affected.

3/ Ibid.

FINANCIAL VARIABLES AFFECTING CAPITAL STRUCTURE OF FARM SUPPLY AND DIVERSIFIED COOPERATIVES*

As agriculture becomes more integrated and industrialized, farm supply regional cooperatives expand and diversify in adapting to these changes. Such adjustments in scale of activities often result in larger firms with more complex organizational and capital structures.

Many of these regionals have enlarged their operations into all types of farm supplies--running the gamut from feeds and fertilizers to petroleum and pesticides.^{1/} Others have begun processing and marketing farm products in addition to their basic activities of manufacturing, purchasing, wholesaling, and retailing farm production supplies.

All have had as their aim to provide better services to local member associations and individual family farmers. By striving to offer more complete lines of supplies and to coordinate both inputs and outputs connected with food and fiber production, these producer-owned businesses have as their broader goal a more efficient and productive agriculture.

The growing strength of such organizations is indicated by the status they occupy among the nation's 100 largest cooperatives. Regionals engaged primarily in providing producers with farm supplies (16) and those performing both farm supply and food marketing functions (22)--referred to in this study as diversified co-ops, account for nearly half the total business volume of the top 100 co-ops (Griffin, p. 37). These top 100 co-ops conduct about half the total business of all farmer co-ops in the U.S. Furthermore, of the six farmer co-ops included

*Presented as a contributed paper at the American Agricultural Economics Association annual meetings, Ohio State University, Columbus, August 1975. Donald R. Davidson is an agricultural economist with the Farmer Cooperative Service, USDA, Washington, D.C. 20250

in Fortune's 500 largest industrial corporations, four fall into the farm supply and diversified category (Fortune, pp. 210-229).

As part of a study currently underway by Farmer Cooperative Service (FCS) into financing of the top 100 co-ops, 25 of the 38 farm supply and diversified regionals included in the largest 100 group have been analyzed, using a source and use of funds (SAUF) approach (Jaedicke, p. 78; Horngren, p. 55; Lins). The SAUF method of analysis provides for a distinctive and realistic determination of a firm's allocation of financial resources in the growth process (Edwards, p. 156).

Neither the operating statement nor the balance sheet alone show the interrelationship and movement of financial resources responsible for changes in elements of capital structure (Yu, p. 572). The SAUF statement does this and also (1) identifies the financial variables involved in development (or contraction) of operations over time and (2) contributes the necessary continuity and linkage between the other two statements.

Characteristics of Sample

Data show that 14 of the 25 had diversified from farm supplies into marketing; or, as in a few cases, from marketing into farm supplies. The other 11 associations in the sample specialized primarily in farm supplies.

Significantly, three of the 11 farm supply regionals had been set up specifically to furnish fertilizer, petroleum, and other farm production supplies to their member regionals. These three inter-regional suppliers did most of their business with the 22 regionals included in this sample. Such inter-regional integration into purchasing, manufacturing, and distribution assures regional members of control over essential inputs.

In combining financial data of the 25 to show the overall results of their business activities with local member co-ops and individual family farmers, all significant inter-regional transactions were eliminated to avoid duplication.

From Table 1, it is clear that farm supply (mainly petroleum, fertilizer, feed, seed and equipment) was the major income-producing category, accounting for 62 percent of total revenues in 1972. Marketing activities (principally grain, soybeans, livestock and poultry products) contributed 37 percent, with miscellaneous income giving the remaining one percent.

Business volume of the regionals varied widely--from \$25 million to \$755 million with a median of \$137 million. Assets, likewise, ranged greatly from \$11 million to \$419 million with a median of \$62 million.

Only three had centralized membership structures, with individual farmers holding direct ownership. Individual members per co-op ranged from 6,500 to 110,000. The largest enterprise--one of the 13 federations--belonged to 2,000 local co-ops, which in turn were owned by thousands of individual farmers and ranchers. Nine of the 25 concerns had mixed memberships of both individuals and co-ops.

This study revealed that many regionals used the parent-subsidiary device extensively to separate various manufacturing, farm supply, and marketing functions. Also, when adding new services--such as leasing assets, financing receivables and equipment, providing insurance and data processing services--the regionals often formed new companies or subsidiaries in which they owned all or a majority of the voting stock.

Of the 25 regionals studied, 21 had subsidiaries. These co-ops owned from one subsidiary, a finance company, to 16 each, covering various supply, marketing,

and service activities. In all, they reported 86 subsidiaries.

Sources of Working Capital

Where did these regional farm supply and diversified co-ops get funds to: Build or purchase additional plants? Replace worn-out equipment? Modernize facilities? Meet pollution control requirements? Research and develop new products? Establish new sales outlets and service centers? Invest in new marketing ventures? Finance new subsidiaries? Cover long-term debts? Revolve members' equity? Pay patronage refunds...dividends on capital stock...income taxes?

Table 2 answers these questions by showing the sources and uses of funds. Net margins of \$136 million--taken from the Statement of Operations (Table 1)-- proved the single most important source, providing 31 percent of the \$442 million of total working capital funds generated in 1972.

However, to get a complete picture of funds produced from operations, net margins must be adjusted for expense and income items not affecting working capital, as Table 2 denotes. Depreciation and depletion of \$107 million--the major noncash charges against revenues--used no funds and were thus added back to net margins. Noncash patronage refunds of \$13 million received from other co-ops supplied no working capital and were deducted from net margins.

After these adjustments to net margins to get operations on a working capital funds basis, it becomes evident that revenues from operations provided more than half of all the funds the 25 regionals secured in 1972. Such working capital funds generated from operations--comprised chiefly of net margins plus depreciation--are often referred to as cash flow (Mason, p. 4).

Next in importance to net margins and depreciation in producing funds was

long-term debt. From such long-term debt came \$126 million or 28 percent of total funds provided in 1972.

As Table 2 shows, these farm supply and diversified regionals obtained funds from long-term debt principally from increases in (1) loans from banks for cooperatives and (2) subordinated debenture bonds issued by the regionals themselves. Methods the regionals used in obtaining long-term debt funds are classified in the following tabulation:

Method	Cooperatives
	<u>Number</u>
Bank loans (primarily banks for cooperatives)	6
Debt securities (primarily subordinated debenture bonds)	4
Combination of debt securities and bank loans	11
Insurance companies, bank loans and capitalized lease obligations	2
Other cooperatives primarily	2
Total	25

Nearly three-fourths of the \$57 million of long-term debt increase (see Table 3) came from new issues of debenture bonds. In 1972, debt securities of \$318 million, primarily debentures, surpassed bank loans of \$314 million as the single largest source of long-term debt. Thus, these co-ops in total tilted slightly in favor of issuing their own debt securities to raise working capital, depending somewhat less on banks for their long-term borrowing.

Thirteen of the 25 regionals used long-term leases, to some extent, in financing property, plant and equipment (PP&E). Seven capitalized such lease obligations, including them in their capital structures. Table 3 shows that capitalized lease obligations increased \$5.5 million during the year and equaled \$19 million. This amounted only to about three percent of their long-term

debt in 1972.

The remaining six regionals did not treat their long-term leases as fixed assets financed by long-term debt. Annual rental fees on leases not capitalized amounted to about \$6 million of "off-the-balance sheet" current liabilities.

Besides the major sources of funds--cash flow from operations and long-term debt--regionals also obtained working capital from the disposal of fixed assets. In 1972 these associations received \$50 million--or 11 percent of total funds--from the (1) sale of unneeded PP&E and (2) redemption of investments in other co-operatives and banks for cooperatives as part of their revolving capital programs.

Mainly because of mergers with affiliated co-ops, a few of these regionals reclassified long-term investments resulting in a \$20 million increase in PP&E. Although such action didn't provide working capital, it did lower long-term investments and raise PP&E balances. This produced the same financial change as if the investments had been sold and the resulting funds spent on additional PP&E. Therefore, the \$20 million drop in long-term investments and concurrent increase in PP&E due to reclassification is included in the \$153 million of total funds the regionals applied to expanding PP&E, as Table 2 indicates.^{2/}

Finally, these farm supply and diversified regionals obtained \$29 million, or seven percent of their 1972 funds, from the sale of capital stock and certificates, and other increases in equity capital. Some regionals, for instance, reported equity increases from a change in the valuation of Class C stock purchased from banks for cooperatives. Although such change didn't add to working capital, it nevertheless affected the regionals' capital structure by raising their fixed capital and long-term investments in these banks by \$6 million.^{3/}

Application of Funds

Roughly half--or 46 percent--of the working capital generated by these 25 regionals in 1972 went into growth and expansion of marketing and supply activities.

Of this \$203 million expended on fixed assets, \$153 million--or three fourths--was used to replace old equipment, acquire additional land, build new plants, add sales and branch outlets, and so on. The other fourth went into long-term investments in (1) other farmer-owned businesses, (2) banks for cooperatives, and (3) unconsolidated subsidiaries.

During this same period, disposals of property, plant and equipment amounted to \$13 million. Depreciation and depletion further reduced PP&E by \$107 million. This combined \$120 million reduction in PP&E, when compared to the \$153 million spent on PP&E, shows a \$33 million net increase in PP&E that year (see Table 3).

These regionals put \$32 million--or seven percent of their working capital in 1972--into long-term investments in other farmer-owned businesses and in banks for co-ops. However, such investments declined by \$1 million that year (see Table 3). This phenomenon is explained (see Table 2) by a \$13 million decrease in long-term investments redeemed in cash that year, plus another \$20 million transferred from investments to PP&E, largely because of co-op mergers.

Unconsolidated subsidiaries--such as insurance companies and finance companies--constituted the third type of long-term investment, using \$9.8 million in working capital. Since these co-op-owned companies usually performed dissimilar functions from marketing and farm supplies, regional co-op management felt their financial statements should not be consolidated with the parent company. (Investments in consolidated subsidiaries are included in the \$153 million spent on PP&E.)

The above-mentioned fixed assets represent the regionals' major priority in using working capital in 1972. This type of spending did not lower total equity--since working capital was exchanged for fixed capital--but merely reduced the firms' liquidity or purchasing power.

However, funds expended in paying patronage refunds, income taxes, dividends on capital stock and redeeming prior year's equity did deplete total equity and decrease liquidity. These kinds of expenditures ranked next in importance with the regionals and demonstrated a unique aspect of cooperatives.

Of the \$110 million in this category (see Table 2), three fourths or \$83 million had to do with providing family farmers with services at cost. Cash patronage refunds on 1972 operations totaled \$53 million. Redemption of prior years' equity came to \$30 million. This \$83 million represented savings returned to producers on a patronage basis.

The importance of patronage refunds in returning earnings to patrons is illustrated in Table 1. These 25 regional co-ops distributed \$98 million or 72 percent of their \$136 million net margins in 1972 as patronage refunds.

Of this \$98 million, \$53 million were cash refunds; \$45, non-cash. Such treatment of earnings points up the regionals' true nature as vertically-integrated extensions of family-farm operations. It also underscores their prime objective of providing services at cost...or on a nonprofit basis (Davidson, p. 5).

Another major use of funds consisted of paying off some of the long-term debt included in the capital structure of the 25 regionals. Most of these funds went to cooperative banks and to the retirement of maturing debentures issued by the regionals in prior years. These regionals used \$69 million or 16 percent of total funds applied to reduce long-term debt.

Notwithstanding these applications, long-term debt increased during the year, from \$642 million to \$699 million (see Table 3). This happened because funds borrowed (\$126 million) exceeded funds applied (\$69 million) by \$57 million (see Table 2).

Of the \$57 million additional borrowed funds, management had spent 81 percent (\$46 million) by the close of the year to build fixed assets (see Fig. 1). The remaining 19 percent (\$11 million) was used to increase working capital. This explains the decrease in fixed capital from \$442 million to \$431 million (see Table 3) because fixed capital is lowered by the extent that long-term debt is used to increase working capital instead of fixed assets.

Finally, Table 2 shows that the 25 regionals used 14 percent (\$61 million) of total funds obtained in 1972 to increase working capital. This means, as Table 3 shows, that at the end of 1971 they had on hand \$442 million in working capital. During 1972, they generated an additional \$442 million. Within that year this additional working capital--coming from operations, long-term debt, redemption of investments, disposal of fixed assets, sale of capital stock, etc.--they applied to expanding fixed assets, returning equity to patrons and paying off long-term debt. This used all of the funds generated except 14 percent or \$61 million, which wound up 1972 with a bigger working capital balance of \$503 million.

Strategy of Growth

Fig. 1 illustrates that long-term debt financed all of the \$46 million growth in fixed assets, plus \$11 million of the \$61 million increase in working capital. As the following tabulation explains, these regionals used long-term debt to finance fixed assets basically but also to aid current asset growth:

Financing	Asset Growth, 1971 to 1972		
	Fixed	Current	Total
<u>Mil. Dol.</u>			
Long-term debt	46	11	57
Working capital	0	50	50
Short-term debt	0	8	8
Total	<u>46</u>	<u>69</u>	<u>115</u>

Long-term debt was the single major contributor to the \$115 million expansion in total assets registered by the regionals during the year. Working capital was next in line as the most important factor in financing asset growth, with short-term debt coming in third.

To summarize, the regionals enlarged total debt by \$65 million--composed of \$57 million, long-term and \$8 million, short-term--as the composite capital pool in Fig. 1 illustrates. Total debt increases financed all fixed asset expansion plus \$19 million or 28 percent of current asset gains--comprised of \$11 million long-term debt and \$8 million of short-term debt--as shown above.

Total equity increases financed 72 percent of the current asset enlargement and all but \$11 million of the \$61 million growth in working capital.

Overall, these 25 leading farm supply and diversified co-ops wound up the year in good financial shape. They expanded plant and equipment, offered new services, opened new outlets--all intensive users of working capital. Yet, they had more working capital, were more liquid, at year's end than at the beginning.

One reason for this was that profitable operations during the year produced a substantial cash flow which was the major source of working capital.

However, as Table 1 shows, the regionals' combined profit margin was modest registering 2.8 percent on sales. (This compares to a 2.2 percent return on sales for food companies included in Fortune's 500 largest industrials and 4.1 percent for all industries represented in the listing.)

The strategic factor appears to be their reliance on long-term debt for working capital applied to expanding fixed assets. This freed working capital produced from equity sources--such as earnings, depreciation, asset disposals, and stock sales--for use in other outlets.

Nonetheless, in this growth process, these regionals did not let debt get out of hand. They more than balanced off the rate of debt increase with equity gains. Figure 1 clearly shows that in absolute terms, total debt rose more than total equity, or \$65 million as compared to \$50 million. However, the significant factor is that based on rate of increase, equity surpassed debt.

The \$50 million equity increase amounted to a 5.6 percent rise over 1971 equity of \$884 million; whereas, the \$65 million debt increase equaled a 4.8 percent expansion of \$1.4 billion of 1971 debt. This resulted in a stronger equity base in 1972--with total equity comprising 40 percent of total assets in 1972 as compared to 39 percent in 1971. Likewise, the proportion of total debt to total assets declined from 61 percent in 1971 to 60 percent in 1972.

This strong equity base--resulting from additional working capital of \$50 million--heightens the regionals' ability to obtain additional borrowing when necessary. It also increases their purchasing power through improved liquidity and solvency...key factors in the financial viability of any organization.

Table 1--Statement of Operations, 25 Regional Farm Supply and Diversified Cooperatives, for fiscal years ended in 1972 ^{1/}

Item	: Million dollars	: Percent
Revenues:		
Farm supply sales	3,022.0	61.8
Marketing sales	1,812.2	37.1
Other income	<u>55.9</u>	<u>1.1</u>
Total revenue	4,890.1	100.0
Costs and expenses	<u>4,753.8</u>	<u>97.2</u>
Net margins	<u>136.3</u>	<u>2.8</u>
Disposition of net margins:		
Patronage refunds:		
Cash (54%)	\$53.1	
Noncash (46%)	<u>44.9</u>	98.0
Income taxes (mostly federal)	14.6	10.7
Retained earnings (unallocated margins)	10.9	8.0
Dividends on stock (mostly preferred)	7.6	5.6
Other distributions	<u>5.2</u>	<u>3.8</u>
	<u>136.3</u>	<u>100.0</u>

^{1/} All significant inter-regional sales and net margins have been eliminated in combining operations of the 25 regional cooperatives.

Table 2--Statement of sources and uses of funds, 25 regional farm supply and diversified cooperatives, 1972

Funds provided from	:Mil. dol.: Percent ::		Funds applied to	:Mil. dol.: Percent	
<u>Net Earnings of Business:</u>					
Net margins (from Table 1)	136.3	30.8	Additions to property, plant and equipment	152.7	34.5
Adjusted to funds basis by adding (deducting) items not using (providing) working capital:					
Depreciation and depletion	106.8	24.2	Investments:		
Amortization and other charges	6.9	1.5	Additional investments, principally in other cooperatives and banks for cooperatives	32.0	7.2
Noncash patronage refunds received	(12.6)	(2.8)	Increase in investments in unconsolidated subsidiaries	9.8	2.2
Other credits	(0.3)	(0.1)	Other increases in fixed assets	8.7	2.0
Total from operations (Cash flow)	237.1	53.6	Total	203.2	45.9
<u>Increase in Long-Term Debt:</u>					
Loans from banks (primarily banks for cooperatives)	60.3	13.6	Portion of current year's patronage refunds payable in cash	53.1	12.0
Debt securities (primarily subordinated debenture bonds) issued by cooperatives	54.8	12.4	Redemption of prior years' equity	30.4	6.9
Capitalized lease obligations	6.8	1.5	Payment of income taxes	1/ 18.4	4.2
Other sources	3.8	0.9	Payment of dividends on capital stock	7.6	1.7
Total	125.7	28.4	Total	109.5	24.8
<u>Disposal of Fixed Assets:</u>					
Proceeds from sale of property, plant and equipment	13.4	3.0	Pay-off Long-Term Debt:		
Investments:			Loan repayment to banks (mainly banks for cooperatives)	50.2	11.4
Redemption of investments in other cooperatives and banks for cooperatives	13.2	3.0	Redemption of debt securities (chiefly subordinated debenture bonds) issued by cooperatives	12.5	2.8
Reclassification from investment category to property, plant and equipment resulting principally from mergers with other co-ops	19.8	4.5	Rental payments on capitalized lease obligations	1.3	0.3
Other decreases in fixed assets	4.0	0.9	Loan repayment to insurance companies	0.9	0.2
Total	50.4	11.4	Other payments	3.7	0.8
			Total	68.6	15.5
<u>Additional Investments in Equity Capital:</u>					
Proceeds from sale of capital stock and capital certificates	18.8	4.3	Increase Working Capital (from Table 3)	60.9	13.8
Increase in equity resulting from change in basis of valuing banks for cooperatives "Class C" stock	5.7	1.3			
Other equity increases	4.5	1.0			
Total	29.0	6.6			
<u>Total Sources</u>	<u>442.2</u>	<u>100.0</u>	<u>Total Uses</u>	<u>442.2</u>	<u>100.0</u>

1/ Includes \$3.8 million of Federal income taxes paid in 1972 that represents additional IRS assessments on prior years' operations.

Table 3--Comparative balance sheet, 25 regional farm supply and diversified cooperatives 1/

Item	1972	1971	: Increase :(decrease)
Million Dollars			
<u>Assets:</u>			
Current (or short-term)	1,226.5	1,157.9	68.6
Fixed (or long-term):			
Investments:			
Principally in other farmer-owned businesses and banks for cooperatives	128.5	129.5	(1.0)
Unconsolidated subsidiaries	64.9	55.1	9.8
Property, plant and equipment	877.6	845.1	32.5
Other fixed assets	58.9	54.2	4.7
Total fixed assets	<u>1,129.9</u>	<u>1,083.9</u>	<u>46.0</u>
Total assets	<u>2,356.4</u>	<u>2,241.8</u>	<u>114.6</u>
<u>Liabilities:</u>			
Current (or short-term)	723.7	716.0	7.7
Long-term debt:			
Debt securities (primarily subordinated debenture bonds issued by cooperatives)	318.3	276.0	42.3
Bank loans (mainly from banks for cooperatives)	313.6	303.5	10.1
Insurance company loans	35.9	36.8	(0.9)
Capitalized lease obligations	19.0	13.5	5.5
Other long-term liabilities	11.8	11.7	0.1
Total long-term debt	<u>698.6</u>	<u>641.5</u>	<u>57.1</u>
Total liabilities	1,422.3	1,357.5	64.8
<u>Equity Capital:</u>			
Working (or short-term) <u>2/</u>	502.8	441.9	60.9
Fixed (or long-term) <u>3/</u>	<u>431.3</u>	<u>442.4</u>	<u>(11.1)</u>
Total members' equity	934.1	884.3	49.8
Total liabilities and members' equity	<u>2,356.4</u>	<u>2,241.8</u>	<u>114.6</u>

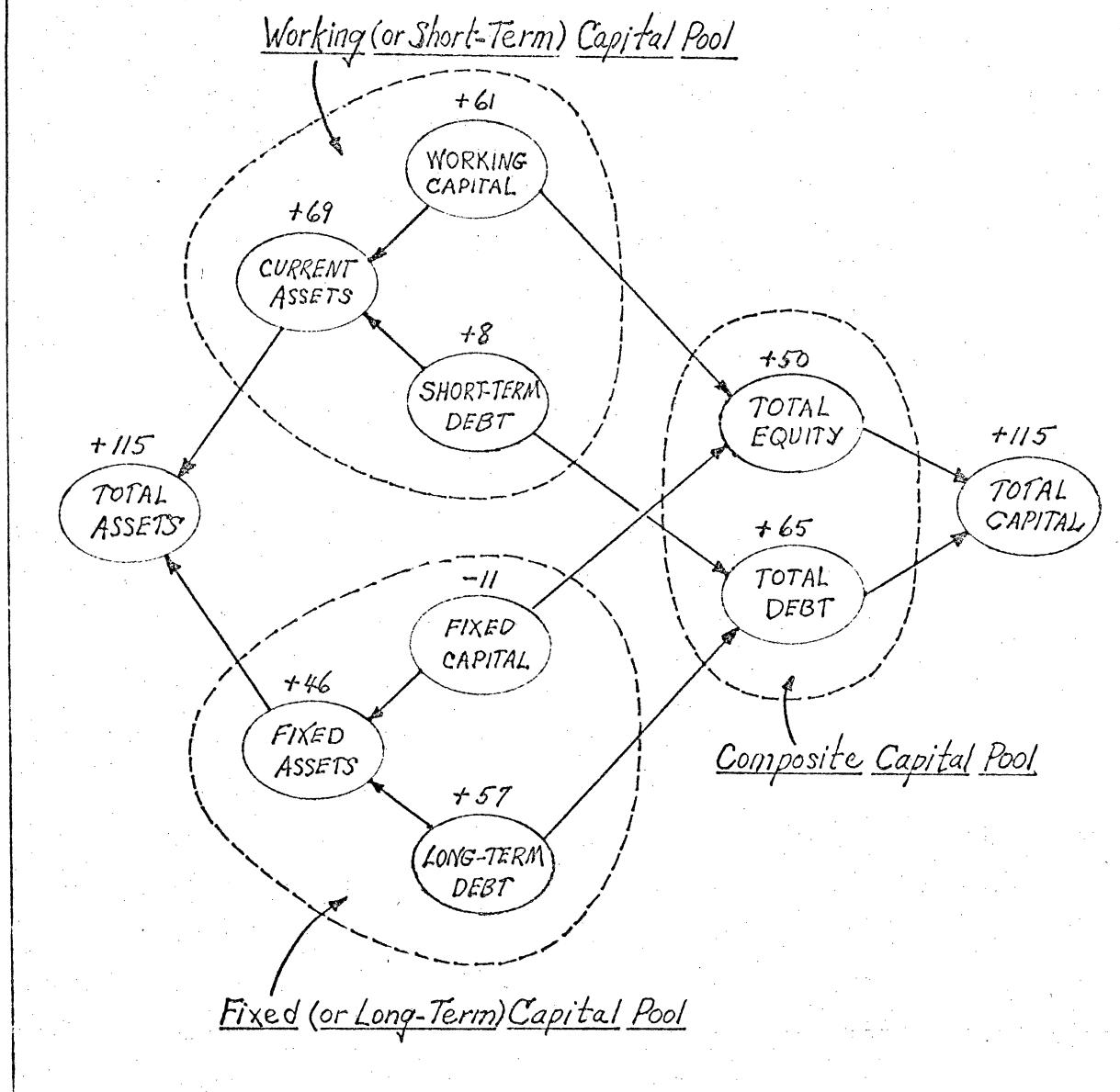
1/ All significant inter-regional investments and related equities have been eliminated in combining assets, liabilities and net worth of the 25 regional cooperatives.

2/ Current assets less current liabilities.

3/ Fixed assets less long-term debt.

25-FARM SUPPLY AND DIVERSIFIED CO-OPs

Figure 1-Changes in Elements of Capital Structure
(IN MILLIONS OF DOLLARS)



References

Davidson, Donald R., "How Farm Marketing Cooperatives Return Savings to Patrons," FCS Research Report 7, U. S. Department of Agriculture, Washington, D. C., December 1969.

Edwards, Edgar O., "Funds Statements for Short- and Long-Run Analyses," Journal of Business, July 1952.

Fortune, Published monthly by Time, Inc., Chicago, May 1973.

Griffin, Nelda, "A Financial Profile of Farmer Cooperatives in the United States," FCS Research Report 23, U. S. Department of Agriculture, Washington, D. C., October 1972.

Horngren, Charles T., "The Funds Statement and Its Use by Analysts," Journal of Accountancy, New York, January 1956.

Jaedicke, Robert K. and Robert T. Sprouse, "Accounting Flows: Income, Funds, and Cash," Foundations of Finance Series, Prentice-Hall, Inc., New Jersey, 1965.

Lins, David A., "An Analysis of Sources and Uses of Funds in the Farm Sector of the United States," Unpublished Ph. D. Thesis, University of Illinois, 1972.

Mason, Perry, "Cash Flow Analysis and the Funds Statement," Accounting Research Study No. 2, Published by the American Institute of Certified Public Accountants, 1961.

Yu, S. C., "A Flow-of-Resources Statement for Business Enterprises," The Accounting Review, July 1969.