

AN ABSTRACT OF THE THESIS OF

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Title CAPITAL FOR GROWTH AND ADJUSTMENT OF

AGRICULTURAL CO-OPERATIVES

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Agricultural co-operatives in Oregon have experienced financial problems in recent years due to changes in the economic environment in which they operate. Increasing amounts of new capital will be required to finance growth and adjustment of operations in the future. This places a growing importance on the role of long-range financial planning.

The major objectives of this study were (1) to develop a framework of over-all policy for business which emphasizes the importance of long-range capital planning; (2) to develop and test models for various capital structure mixes that take into account financial requirements for necessary growth and adjustment; (3) to determine to what extent co-operatives can, in a relatively competitive market structure, depend on the revolving fund for capital in the years ahead. Financial data for the past 10 to 12 years were collected from "representative" firms whose major activities were farm supplies, milk manufacturing and grain marketing. Capital structure models were constructed and tested by application to

existing firms, the hypothesis being that the revolving fund will necessarily decline in importance.

In each case a model capital structure for one point in time was constructed and the projected balance sheet method was used to project the firm's dollar sales, total assets and capital structure for a 10-year period in the future. The general objective was the attainment of a financial structure which would have the confidence of members and support the volume of service they require.

The model suggests that a "typical" supply co-operative should strive for an increase of 45 percent in dollar sales over the next 10 years in order to keep pace with inflation, growth of the market for farm supplies and a desire for a five percent increase in its share of the total market. Oregon farm supply co-operatives in general have shown only moderate growth in the past decade, compared to the model. Some firms have been able to achieve more rapid growth, however, and some have been successful in raising a substantial proportion of invested capital for expansion.

The revolving fund has proved to be a simple, economical and painless method of raising equity capital in the past. However, declining net margins and the requirement that at least 20 percent be distributed in cash indicate that it will not provide sufficient capital in the future. Equitability of the method itself with regard to the treatment of present vs. former and large vs. small members has been questioned.

Dairy manufacturing is a declining industry in Oregon. Co-operatives that have as their objective the provision of a continuing, stable and reliable market outlet for their producer-members face a challenge of increasing unit costs. A flexible financial position can be maintained in this situation by replacing much of the emphasis on revolving book credits with increased reserves.

Government policies have made up the largest exogenous factor affecting grain co-operatives in recent years. During the post-war period, government storage programs provided Oregon grain marketing co-operatives with an unexpected source of income, which enabled them to build up a strong equity position and shorten their revolving fund terms. Considerably more might have been done for the members, however, if these associations had borrowed additional capital and returned more of the earnings to producers for use in their farm businesses. The sound financial condition and size of the co-operatives would make it possible for them to borrow at lower rates of interest than individual members must pay for on-farm operating capital.

CAPITAL FOR GROWTH AND ADJUSTMENT OF
AGRICULTURAL CO-OPERATIVES

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CAPITAL FOR GROWTH AND ADJUSTMENT OF AGRICULTURAL CO-OPERATIVES

CHAPTER I

INTRODUCTION

Nature of the Problem

Many agricultural co-operatives in Oregon have experienced financial problems in recent years, due to changes in the economic environment in which they operate. This situation has not been confined to newly-formed or small associations. Some large, well-established co-operatives are also faced with a declining net returns position and have reason to be concerned about the future. Growth is essential to the financial viability of a business. Changing technology in agriculture has created the need for changes in the facilities and services offered by co-operatives. The incremental capital necessary to finance this growth and adjustment underlines the desirability of long-range financial planning.

A majority of the agricultural co-operatives in Oregon have relied heavily on the revolving fund as a source of capital. In some instances the revolving period has been extended due to higher costs and increased competition resulting in declining net margins and occasional net losses. This severely limits the size and reliability

of retained earnings as a source of capital funds. The prospects of the revolving fund supplying enough capital in the years ahead are not bright for some co-operatives. The requirements that 20 percent of the net margin be paid in cash each year will by itself extend the revolving period by one-fifth unless suitable alternative sources of capital are found.

In addition to the likelihood of providing insufficient resources for growth and development, the revolving fund method, per se, has been challenged as an equitable method of generating member capital for co-operatives. Erdman questions the assumption "that it is fair and desirable that each member of a co-operative association continues to bear his porportionate share of the burden of financing his co-operative," and advocates a mechanism for shifting the burden among members after it has been accumulated (3, p. 562). Fox cites the relatively poor member acceptance of revolving periods longer than five years, due to the need for capital on farms (5, p. 5). Others have suggested that substitutes for the revolving fund plan of financing can and should be developed.

A co-operatives financing system must be readily understood by both members and prospective investors, in order to attract the necessary investment capital. Farmer members frequently fail to recognize their co-operative as a necessary extension of their farm

business and to finance it accordingly.

Objectives of the Study

The major objectives of this study are:

(1) To develop a framework of over-all financial policy for business which emphasizes the importance of long-range capital planning.

(2) To develop and test models for various capital structure mixes that take into account financial requirements for necessary growth and adjustment.

(3) To determine to what extent co-operatives can, in a relatively competitive market structure, depend on the revolving fund for capital in the years ahead. In testing the feasibility of capital structure models, some sources worthy of further consideration are appraised, the hypothesis being that the revolving fund will necessarily decline in importance in the total capital structure of Oregon co-operatives.

Scope and Procedure

From a basic outline of the major capital needs in business and a reference to the problems of co-operatives in particular, some minimum capital requirements are set up for selected farm supply,

dairy and grain marketing associations. A basic assumption made in establishing capital needs in this study was that the firms under consideration have been in operation for some time; that they fill a recognized need in the community they serve; and that they have achieved a reasonable degree of success to date. The problem is one of projected future needs, from a given point in time.

Financial data for the past 10 to 12 years were collected from "representative" firms whose major activities were farm supplies, milk manufacturing and grain marketing. The past performance of these associations determine to some extent the composition of the models. In each case, a model and its projection over time is employed to depict a "balanced" capital structure. The model is then tested by application to the situations of existing firms. Attention is given to the feasibility and probable results of conforming to the model.

CHAPTER II

CAPITAL NEEDS AND PLANNING

Capital Needs in Business

General

Capital is essential for the operation of any business enterprise regardless of its basic structure or activity. Farm production, manufacturing, trading and service ventures all must have some degree of investment in assets. The form or combination of forms that such assets take, and the magnitude of assets in total will depend on each firm's individual circumstances. Exogenous factors contribute as much if not more than internal decisions to determining the need for and availability of resources. While it is obvious that the commitment of funds by a business will be limited by their availability, there is frequently no clear-cut pattern evident in the inter-relationship of sources and uses of capital. Walker and Baughn, in presenting the basis for an over-all financial plan, readily admit that "The total volume of resources committed to a given business enterprise is the result of judgement, chance and availability of funds" (26, p. 88). The role played by exogenous factors is recognized by Bonneville, Dewey and Kelly:

... those responsible for the raising and administration of funds used in the business have constantly to meet new problems occasioned not only by new activities within the business but by external developments brought about by competition, changed economic conditions and demand for the product of services sold (2, p. 5).

The goals and objectives of a business with respect to its type and size of operation, profit policy and influence in the market affect the amount and allocation of capital funds that will be used. Some basic differences exist in this connection between corporate and co-operative firms. These will be discussed later.

One categorization of areas for capital employment sees funds taking the form of fixed assets or facilities; working capital, (including inventories and accounts receivable); and cash and near-cash reserves. A more general break-down for purposes of discussing aggregate needs might simply consider two major categories: fixed asset or facility requirements and working capital (including cash and reserves).¹ While planning funds for fixed assets can be treated in a relatively straight-forward manner, a great number of variables are involved in the determination of working capital needs. There are no accepted rules of thumb or set formulae for deciding these requirements. A business needs a certain margin for operations, but the size of this margin depends on several factors which

¹Prather suggests that the term "circulating capital" be used, to draw attention to the circular-flow nature of working capital (26, p. 85). However, to avoid confusion in terminology, the widely used concept of working capital will be accepted in this study.

vary over time and with the type of business. Bonneville lists seven factors which should be considered:

1. General type of business
2. Turnover of receivables
3. Turnover of inventories
4. Relations of the terms of purchase and sale
5. Seasonal variations in the industry
6. Normal rate of expansion in the volume of business
7. Banking connections (2, p. 213).

Turnover of inventories was suggested as the most significant from the standpoint of working capital. This list of factors is not necessarily complete; and as implied earlier, a firm may de-emphasize one or more depending on its particular circumstances. Nevertheless they cannot all be eliminated as determinants of the major categories of funds for operations.

To simply maintain its position, a business firm must make continuing provision of capital funds for these needs and for adjustment to changing conditions. Some type of financial planning is essential in order to guarantee a continuous flow of resources. If growth is included as an objective of management (and one might reasonably conclude that it must be, for viability), then the incremental capital needs for ~~expansion~~ expansion of plant and facilities as well as operations become more significant. As a result, the role of an

over-all financial plan attains critical proportions in a growth situation.

In this discussion, the term "over-all financial plan" will be used in its broadest sense, to include those aspects of planning by management and owners concerned with the provision of new funds from outside the business, rather than simply the internal management within a given capital structure. When developing such a plan, consideration must be given not only to the magnitude and timing of drains or outflows of funds, but to various sources of capital, their relative costs, the feasibility of basic changes in capital structure and the relative merits of equity vs. borrowed funds as well. Four key questions underlying such a plan are:

1. What is the total amount of assets to be employed?
 2. When will various financial requirements materialize?
 3. How long will the requirements continue?
 4. What will be the sources of funds to acquire assets?
- (26, p. 88).

Fund requirements for the major categories of assets, as influenced by factors such as general type of business, seasonal variations in the industry, etc. combine to determine the aggregate capital needs of a firm. The development of an appropriate over-all financial plan can be carried out only after these aggregate needs have been determined. Characteristics of each major category of

asset investment and its drain on capital sources will be examined in order to clarify its contribution to total capital needs.

Working Capital

The three components of working capital as set forth, viz. cash and near-cash reserves, inventories and accounts receivable will be discussed in turn.

Cash and near-cash reserves. Investments in liquid assets are normally made for several reasons, the most significant being operational, protection and accumulation motives. Cash on hand facilitates payment by check and numerous other conveniences of operation. Bank service charges are frequently avoided when the average deposit is high enough. Stocks of liquid resources absorb normal ebbs and flows in funds, thus protecting the firms position. Receipts and outflows fluctuate on a daily, monthly and seasonal basis and are seldom equal at any point in time. Large seasonal flows may require term borrowing or other measures, but reserves of cash can provide the needed cushion for short-term fluctuations. Anticipating large outlays for expansion of assets and debt retirement can be met without strain if liquid funds are accumulated in advance. Other functions of investment in liquid assets include insurance against unexpected price changes or other contingencies, taking advantage of

opportunities for investment or bulk purchase and maintaining relations of confidence with banks and other sources of credit. A certain prestige value may be attached by a firm's management to a highly liquid position. This may easily be carried to an excess however, with economy in the use of borrowed funds being overlooked. A discussion of debt vs. equity capital will follow in a later section. In any case, the exact level of cash held by a business is essentially a residual figure, with decisions as to its use often being made after it has been accumulated. "Consequently, the level of a firm's cash at any particular time may be as much the result of happenstance as of conscious decision and plan" (12, p. 91).

Near-cash reserves provide for liquidity against unexpected needs, and a small income may be derived at the same time. However, since the rate of return on liquid investments is low, smaller firms with less cash will seldom find it worthwhile. Even more relevant for the small firm is the fact that a relative scarcity of funds invariably imposes restrictions on cash reserves leaving little or no excess to invest in near-cash reserves. While unlike inventories and accounts receivable, investments in cash and near-cash reserves entail little or no operating risk, there are both direct and indirect costs involved in carrying them and in many cases firms could reduce their total capital needs by reducing liquid assets and/or

making more efficient use of those on hand. The limit to such a reduction is set by the estimated likelihood of threats to liquidity. Walker and Baughn regard excess liquidity as the more desirable of two extremes: "Liquidity is expensive from the standpoint of use of funds. Insufficient liquidity may be more expensive if it results in financial embarrassment" (26, p. 94).

Inventories. The proportion of total assets accounted for by investment in inventories varies widely from industry to industry, but with the exception of banks and other financial business, it is typically greater than the proportion attributed to cash and near-cash reserves. Somewhat similar motives exist for carrying the two types of assets however; the aspects of protection and facilitating operations are prominent in both. The necessary passage of time for the movement of goods through production and distribution channels and uncertainties as to future decisions of suppliers and customers faced by individual firms account for the existence of inventory investments. As for the optimum level of inventories, factors associated with safety, operations and cost are of major concern. Key considerations should be: protection against production stoppages, economies of purchase, protection against price changes, volume of sales anticipated, operating costs of carrying stocks, and costs and availability of capital. The last two listed, concerning costs of funds

for investment in inventories, have direct bearing on long-range financial policies. Lindsay and Sametz attribute the function of internal inventory management primarily to the cost consideration:

Inventories are either revenue-producing or cost-avoiding, or both, and this is the point of having them. But they are also cost-producing. The managers of a firm, therefore, will aim at balancing against one another these positive and negative attributes (16, p. 106).

While the volatility of inventory levels through its deferred effect on funds flows creates problems for internal management, it is the average commitment of capital to inventories on a macro-basis which is relevant in this study.

Implicit in the motives for carrying inventories is a minimum limit which must be observed to avoid loss of sales opportunities (or failure to provide a service desired by members, in the case of an agricultural cooperative). This limit is determined largely by subjective considerations and as such, will vary from firm to firm. Except in the case of a firm with access to unlimited capital at nominal cost, a maximum limit on the commitment of funds to inventories also exists; and again, the determining factors are far from being completely objective. A widely accepted dictum is that over the long run, movements of inventory investment should follow closely, changes in sales volume. Obviously, firms engaged in the pooling and marketing of agricultural products, the supply of which is

not subject to control over time, (grains, and to some extent manufacturing milk), are exceptions to this general rule. It could also be seriously challenged in the case of firms which have experienced shifts in product-mix over time, rapid technological developments in the industry or structural changes in the market in which they operate. Many agricultural cooperatives in Oregon have had such experiences in the past and indications are that they will continue to do so in the future. In spite of these qualifications, however, sales volume should be a major factor in the fluctuations of inventories and long-range volume predictions can be used in estimating future capital drains. In a situation where two or more firms operate under similar conditions, a comparison of inventory-sales ratios will help to point out distinctive policies followed by each competitor. Each firm can, on the basis of forecasts and its own particular circumstances, establish a "reasonable" limit to the proportion of its working capital that will be committed to inventories. It should then be particularly wary of exceeding the limit, as risks to liquidity and possibly even solvency may be the result. On the other hand, within limits, a reduction of inventory investment can have the effects of a source of funds, thereby reducing the over-all working capital requirement for other sources.

Accounts receivable. The general trend of receivables/sales

ratios has been upward in recent years. While individual firms may carry a larger volume on credit ostensibly to meet competition, the basic objective of receivables is, through increased volume, to maximize returns on investment (or provide more service to patrons). The level of accounts receivable which is ideal from the standpoint of return on investment and/or accommodation for customers may be out of reach due to limited resources. Certain costs are associated with the extension of credit. When the opportunity cost of funds tied up in receivables plus the more direct cost of increased bad debt losses curtail the investment in accounts receivable to less than the ideal level for returns and service, a capital "shortage" exists. Within the restriction set by availability of capital for that purpose, factors determining the investment in receivables include: average terms of credit offered, policies for determining eligibility of customers, paying policies of credit buyers, rigor of collection policies and total volume of credit sales themselves. The latter has the most direct influence since with a given set of terms and eligibility policies (which change only infrequently), volume of receivables will vary proportionately to sales, subject to a short lag. Most important changes in the receivables/sales ratio are traceable to revisions in the firm's credit-granting policies, or on occasion, a widespread change in paying policies of customers. This may take

the form of new attitudes re: discounts for prompt payment, service charges, etc. Year-end data on receivables compared to years-total sales figures give a misleading picture of ratios, since the short lag is not taken into account. For this reason, an aging schedule for accounts receivable is desirable to reflect past fluctuations. Nevertheless, long-term trends in the receivables/sales ratio will reveal past drains on working capital and possibly contribute to estimates of future requirements.

Fixed Assets

Perhaps the biggest single step in business finance is the decision to buy- or not to buy- additional plant and equipment. With the possible exception of wage settlements under collective bargaining, no other decision is likely to involve the disposal of so much money at a single throw. Nor are there any other single acts that fix so irrevocably the course of a firm's future (16, p. 78).

The distinctive characteristics of fixed assets are reflected in the motives and policies for investing funds in this direction. Both require a continuing investment of funds. However, in the case of working capital, the assets purchased actually move through the firm, for example during the course of a year or less. Fixed assets, by definition, do not.

Ultimately, the objective of investment in fixed assets is identical to that of working capital; to increase service and hence

return on total investment. The immediate purpose at the time of actual funds outlay, however, may be more precise, e. g. : expansion of capacity for producing existing or new products (services), replacement of existing but obsolete facilities to cut costs or produce more benefits, replacement of worn-out or otherwise unserviceable assets. Investment in facilities, as a proportion of total assets, depends on the nature of a business' operations and varies widely with technological development and industry characteristics. Some types of operations lend themselves well to renting or leasing facilities, some to subcontracting and specialization, others to the purchase of used equipment (particularly where the rate of technological change has been slow).¹ All of these can reduce to some extent the burden of permanent capital required to stay in business.

Characteristically, investments in fixed assets can be planned in advance, they are made in substantial units, they lack liquidity and they are irreversible. Hunt, Williams and Donaldson see little reason for additions to facilities being made without ample advance study and planning: they occur in "... sizable increments which can be considered deliberately and consciously as discrete proposals"(12, p. 103).

¹In the case of agricultural supply co-operatives and to a degree in marketing co-ops, the association provides these advantages to the farm businesses of its members. Fertilizer storage and application, seed cleaning and treating, bulk milk cooler service are examples of facility investment being carried on for the benefit of member patrons.

Purchases of plant and equipment create a financial commitment that will be binding over a period of years, thus reducing the flexibility of future policies. The investment is retrievable only over an extended period and even then, subject to uncertainty. Changes in demand or price and obsolescence are very real dangers; and the loss sustained from a forced sale of obsolete or excess facilities can be considerable. These aspects of fixed assets serve to emphasize the desirability of financial planning with respect to their acquisition. Before taking such action, careful consideration should be given to prospects for recovery of cost, and a reasonable return on investment. Particularly where capital is limited, consideration should also be given to the financial effects of tying up the funds required for the length of time involved.

A key question as to the flow of funds associated with fixed assets is: when must payment be made? The actual payment typically does not coincide with the acquisition of the asset, nor is its distribution over time likely to bear any direct relation to that of its use. An inflow of funds will also occur, as new facilities are expected to generate income. Its distribution over time contributes to determination of the net drain on capital. It cannot be assumed that the funds flow returned as a result of a new fixed asset over its lifetime will necessarily cover costs of acquisition and operation. Even if full recovery of original cost is realized, provision for replacement

cost will inevitably require additional capital. Depreciation charges are usually designed simply to return the cost of assets over their lifetime. As a result, they seldom recover replacement costs; due to inflation, if for no other reason. "Running to keep standing still," or the need for more and more incremental capital to simply maintain their present fixed asset position, has represented a considerable burden for many firms in recent years. A net demand for capital to augment internal sources has been a feature of the postwar period in general:

Since American business has been adding to its stock of fixed assets, acquisition in the postwar years of fixed assets has represented a major use of funds and one well in excess of the operational cash inflows measured by depreciation (12, p. 111).

Several exogenous factors were responsible for this trend: a backlog of low investment levels in pre-war and wartime, a rise in population and general prosperity increasing effective demand after the war, development of new products, changes in production processes and methods, pressure for labor-saving equipment due to higher labor costs, and the fact that financing was forthcoming, making much of the investment possible. While there has been a general shift in the economy in recent years from expansion to emphasis on modernization and replacement of fixed assets, the magnitude of investment and its effect has not diminished.

The aggregate outlays of business for new fixed assets are great enough to have major impact on the total demand for funds by business and hence on the conditions of the capital market faced by the individual firm needing external financing (12, p. 111).

Within the individual firm, the potential impact of fixed asset outlays on the financial position is obvious. Unreasonably heavy commitments of limited resources to illiquid assets, even those promising substantial long-term earning power, can result in risks of extreme financial difficulty.

As with inventories and accounts receivable, the ratio approach is commonly employed in analyzing a firm's investment in fixed assets. The percentage of total assets represented, or the turnover of fixed assets, as determined each year for a particular firm may not really be too meaningful for measuring past performance or predicting future capital needs by itself, however. Changes in technology and other developments may render obsolete any pre-set standards held by management. Nevertheless, a comparison of trends in one firm with those of others in similar circumstances will prove useful in revealing distinct policies or weaknesses. The nature of an industry is by far the largest single factor affecting the ratio of fixed to total assets. Utilities, for example, have a large proportion of capital tied up in facilities and as a result, realize a low turnover of fixed assets. This is compensated for in the rate of return

on investment by a higher profit rate on operations.

Over-All Financial Planning

General

In addition to the magnitude of total capital needs, the timing of future drains on a business' capital must be known in order to make adequate provision possible. Some degree of control can be exerted over capital needs only if a prediction or estimate is made in advance. Forecasted needs provide the necessary guidelines for planning capital procurement from one or more alternative sources. The foregoing discussion of investments in fixed assets and the categories of working capital provides a basis for estimating future capital needs for various purposes. Internal management aspects within each area can be considered as integral parts of an over-all financial plan to be developed for a particular firm. It is in terms of an over-all plan that capital needs and capital-structure models will be developed in this study. Various combinations will be tested by application to particular firms which are judged to be representative of a large group of their type in Oregon.

The nucleus for development of an over-all financial plan is a forecast of future needs for funds. At the individual firm level, the cash budget approach, (with profit budgeting as a foundation),

or the projected balance sheet method could be used to evaluate tentative plans in the light of their probable impact on a firm's financial position. Some references to the latter method would be more appropriate for this study, since it requires less detailed information of the case-study type, and can be used to make general prediction applicable to other firms. Briefly, the projected balance sheet approach is built around a forecasted size of key items in the balance sheet at a selected future date. Once an over-all objective (in terms of sales, total assets and net worth position) has been set for the firm, four major steps remain: (1) a certain predictable investment in each category of assets is required to carry out plans which have been made; (2) an estimated amount of liabilities can be anticipated; (3) the firm can estimate the total sources of funds (credit and owner investment) to make up net worth on the future date; and (4) future needs and future sources are compared, to determine whether additional capital should be negotiated in advance. The estimated investments in assets can be made by applying past ratios, adjusted for policy changes that are planned. Estimates of net worth should include plans for both sales and retirements of stock, etc., and the application of retained earnings to surplus funds. Provision for stock retirement will be included in the capital models of a later chapter. One limitation in the use of this method to estimate total funds requirements in the future is that it illustrates a likely

situation at one point in time only; as a result, peak requirements may not be revealed. This is particularly significant for firms such as agricultural co-operatives, with heavy seasonal fluctuations in cash, inventories and receivables. Since setting the minimum cash requirement high enough to cover maximum needs would be costly and unrealistic, the best alternative would appear to be the addition of "reasonable" margin, to cover seasonal borrowing.

One of the practical limitations to effective financial planning within a firm is the fact that day-to-day problems compete for time and attention of management. However, daily decisions cannot be separated from some over-all plan.

The long-term financial plan evolves out of many day-to-day decisions designed to meet present financial needs. Yet these decisions should be made within the framework of a carefully considered long-term financial plan (26, p. 88).

Another objection is that as conditions change, predictions are subject to error. This becomes particularly significant in farm-associated businesses, where unpredictable weather can cause severe fluctuations in volume. In spite of these potential shortcomings, however, the use of planning will yield improved results over the long run, particularly when a degree of flexibility is built into the plan. If it is assumed that a reasonable degree of success can be achieved in realizing the objectives of financial planning, then the use

of planning is implicitly better than not using it. One potential result of the latter is a situation of less than adequate capital, which creates a variety of problems:

1. Inability to carry inventory commensurate with optimum operating level.
2. Restriction of buying policies and inability to take advantage of quantity or cash discounts.
3. Chronic pressure on cash position which will impair credit position.
4. Inability to make necessary outlays for machinery and equipment to improve efficiency.
5. Inability to take advantage of sudden changes in business opportunity.
6. Required retention of earnings at the expense of a proper dividend policy.
7. Inability to weather minor reversals in business conditions and the resulting threat of insolvency (26, p. 100).

In order to enhance the usefulness of planning in an unpredictable situation, certain measures can be taken. It should be recognized that a margin of error exists in the forecasts, and a range of results rather than a specific quantity may occur. Various assumptions may be made concerning a key variable, in which case several forecasts, one for each assumption, should be made. Frequent revision of forecasts as changing conditions develop, can give advance notice of changing needs. Lastly, a firm should adjust its organization to fit the degree of variability of its future needs (12, ch. 9).

Planning Capital Sources

Most businesses cannot operate on the assumption that funds required for alternative investment plans will be available unless some effort is made specifically for their provision. Some advance consideration is needed with regard to alternative sources of capital. While a primary activity in planning capital investments is the allocation of resources among alternative uses (as determined by the relative gains realized from each), its achievements will be limited by a restricted capital supply. The planning of capital sources seeks to modify this restriction to the extent that prior examination may improve future supplies. A particular application of funds within a business may be completely practical in terms of "paying its way" and contributing to management's objectives, but problems encountered in actually obtaining funds for such an investment may more than offset its potential benefits.

The suitability of a particular financing method for the end in view, as well as its relative cost, should be taken into account. For example, the source of funds should be matched with the length of time the funds will be needed; permanent capital should not be raised on a short-term basis and temporary financial requirements should not be met with long-term, inflexible contracts. A firm may

plan its future capital supply in order to meet anticipated needs as a major policy, but can also provide for sources that act as reserves against unexpected developments and thus protect its financial position. The relative importance placed on "safety margins" and provisions for flexibility, as pointed out earlier, will vary from firm to firm. At a given point in time, however, each firm will have a particular capital mix which must act as a starting point for analysis. Examination of the present capital structure in the light of future plans may point to the desirability of changes in composition, using the same basic sources; or it may be concluded that a major revision is necessary. Long-run considerations may support extensive replacement of present capital sources but in the process overlook the possible disruptive effects on the continuous inflow of funds necessary for operations. A firm's financial measures and policies must be readily understood in order to maintain the confidence of customers and investors. Too frequent and complicated changes may eventually undermine this confidence and reduce the new system's over-all value.

The wide variety of financing measures available to business in general is evidenced by one author's classification of working capital sources:

A. Sources of long-term working capital financing.

1. Capital invested by owners (sale of stock, etc.)
2. Long-term borrowing (bonds, etc.)
3. Accumulated profits invested in current assets
4. Sale of fixed assets no longer needed in the business
5. Depreciation allowances on fixed assets.

B. Sources of intermediate working capital financing

1. Term loans
2. Loans by U. S. Government agencies
3. Federal Reserve Bank direct loans to business.

C. Sources of short-term working capital financing

1. Trade credit in the form of:
 - a. accounts payable
 - b. notes payable
 - c. trade acceptances
2. Bank loans (secured by collateral or unsecured)
3. Banker's acceptances
4. Sale of Commercial paper in the open market (2, p. 215).

Individual firms will be faced with variations of this or another list, depending on their nature and circumstances. Co-operatives, for example, would not have access to some sources listed above, but would include the Bank for Co-operatives as an alternative. In general terms, capital sources can be grouped according to two major characteristics of the funds involved: (1) length of time for which they are committed and (2) ownership. When an attempt is being made to choose a capital source appropriate to its intended use, the two are often interrelated.

Permanent versus temporary capital. Working capital (or "circulating" capital, as Prather prefers to call it), is usually considered in terms of a "permanent," "regular" or "minimum"

portion on one hand and a "seasonable" or "variable" portion on the other. The level of minimum requirements should depend primarily on relative growth in the firm and general economic conditions at the time. "Seasonal" capital will normally represent the added amount of current assets provided for peak seasons, plus a cushion for contingencies. Rules of thumb concerning allocation between these two portions are numerous. The commercial bankers' opinion that all firms should be out of debt to their bank at least once a year is reflected in a representative statement: "Permanent capital should be sufficient to finance all fixed assets, plus minimum working capital. In this case minimum usually refers to working capital at its lowest point during the year" (26, p. 102). In recent years, with the increased use of term lending for inventories and specialized lending for operating capital, this approach may be modified somewhat; but it could still be argued that only exceptional cases can justify maintaining less than minimum working requirements in the form of permanent capital. A more liquid position has apparently been popular in recent years:

Irrespective of the arguments in favor of and opposed to the accumulation of excess amounts of working capital assets, the trend among business firms is toward the achievement of greater liquidity of assets. Repeated experience with business fluctuations, wide price movements, and rapid technological changes have caused management of major companies to follow conservative working capital policies (17, p. 119).

When attempting to compare the suitability of permanent and temporary capital for a particular purpose, flexibility must be considered, along with the alternative costs and risks. The probable ease with which sudden changes in requirements (up or down) can be met is important. At one extreme, a firm may rely entirely on permanent capital. If the supply is sufficient to cover peak demands, and outlays cannot be distributed over time to exactly match revenue flows, there will occasionally be surplus funds on hand. The decision to use permanent capital exclusively under these conditions should be determined by the relative cost of short-term funds, size and endurance of likely surpluses and possible earnings from short-term funds if they were invested in the market. Small firms, by virtue of size alone being more vulnerable to changes in external conditions, should be particularly wary of over-reliance on permanent capital. Walker and Baughn, in fact, contend that they should not run the risk at all:

For a smaller firm with a definite seasonal pattern and one that acquires major fixed assets only every few years, financial planning becomes an entirely different problem. Of major concern is the question of how the peak inventory and receivables will be financed, or how the new machinery will be acquired. Short- and intermediate-term credit in such cases must be a part of the financial structure. Permanent financing would be ruled out on a cost basis (26, p. 107).

While many agricultural co-operatives do fit the category of a small firm and experience definite seasonal fluctuations in volume, in their

case the complete elimination of permanent capital may not be appropriate for reasons unique to the co-operative form of business. It is often considered a cohesive force and a sign of healthy membership relations when members of a co-operative have a degree of permanent investment in their association. The revolving fund method of financing used by co-operatives can be considered as a semi-permanent source of capital, and in most cases funds are obtained from the members virtually free of charge, thus eliminating the direct-cost consideration.

Debt versus equity capital. The roles played by equity or debt financing provide the subject of a considerable amount of literature, some of it placing strong emphasis on the problems involved: "The decision as to the optimum balance in financing through debt and ownership funds is one of the most important financial decisions in most firms..." (12, p. 17). Some characteristics of each are relevant to determining this balance. Prather lists three basic features of proprietary or equity capital as opposed to borrowed funds:

1. ...a business concern is not legally bound to pay any return to those who provide it.
2. ...usually there is no stated time when the funds supplied by owners must be returned.
3. ...those who provide it are responsible, at least in theory for the control and management of the business enterprise (17, p. 138).

On the other hand, debt capital has certain points in its favor.

Borrowed funds can often be obtained for a rate of interest which is lower than the dividend rate required to attract equity funds, voting control of the firm need not be sacrificed in return for new capital, and the principle of financial leverage can be employed to increase net returns to equity shareholders. Some general restraints exist which limit management's ability to go beyond certain points in either direction.

First and foremost, the amount and stability of earnings set the foundation for all negotiation for long-term capital. Second, management will seek flexibility to maneuver in the event of unexpected changes¹. . . Third, trading on equity is limited by the fact that the investors' appraisal of the quality of debt declines as the proportion of debt rises (8).

One type of capital is not a substitute for the other: the problem is one of proper proportions of debt and equity capital under given circumstances. The best combination will be one that takes relative costs, relative risks and desired control into consideration.

Exact costs of debt capital can be readily determined, but the costs to a firm of equity funds are difficult to measure precisely.

Walker and Baughn consider such measurement to be impossible;

¹That is, the maintenance of a reserve of borrowing power; however, "flexibility in the broader sense means the ability to negotiate from a position of strength for the use of all sources of capital, at all times" (8).

the cost to present stockholders of various alternatives must be compared to estimated profit, and "Even if we assume that the expected profit rate actually materialized, there would be a difference of opinion as to the extent of the cost" (26, p. 108). Haseley and Garoian suggest that "The cost of capital is the amount of difference between the net proceeds made available to the borrower and the burden incurred as a result of the financing arrangement," and that "conservative estimates" can be used in lieu of precise measurement (8). The size of a debt burden must be measured in relation to the cash inflows available to meet it. It is quite generally accepted, however, that "prudent" use of bank loans for seasonal operations is wise business practice and can greatly enhance a firm's earnings position as it eliminates the need for carrying surplus capital during the rest of the year.¹

The case of grain marketing co-operatives in Oregon suggests that full advantage of borrowing for working capital purposes is not being taken, to realize maximum benefit for members. Substantial growth has occurred in the owned portion of total assets in recent years, reaching net worth to total assets ratios of from 85 to over 99 percent for some firms. While it is desirable that the members

¹ A dramatic example is cited by Hasely and Garoian to illustrate the relative costs of bank loans vs. accounts payable as a source of working capital (8).

have substantial investments in the association, they are faced with the need for capital on their farms as well, and must borrow it, typically at relatively unattractive rates of interest. With the advantage of an extremely low debt/equity ratio, the associations are in a position to benefit their members considerably by borrowing on much more favorable terms for working capital and returning a greater share of each years earnings to members for use on their farms. The net result could be an increased return on total investment (on- and off-farm), and/or improved services for the members.

The precise contractual nature of debt-servicing costs and the possibility that earnings will not remain stable and at a high level, create the need for relative risk considerations in choosing between debt and equity capital. While the direct cost of borrowed funds may be less than estimated alternative-costs for an equal amount of equity capital, the advantage can be more than offset by the risk of default. Obligations to investors are binding, whereas owners can forego profits or even sustain losses in the event of a sudden decrease in earnings. Various rules of thumb put forth as to what constitutes a "safe" proportion of debt are not too meaningful, as they usually imply the assumption that past cycles and fluctuations will be repeated in the future. This approach is felt by some to create overly-cautious standards: "There is good evidence that the financial policy

covering the use of debt capital may in many cases be too conservative rather than too risky" (26, p. 111). In the case of large corporate firms with widely distributed ownership, such conservatism may well be the result of a compromise favoring management in the conflict of interest between owners seeking high returns (at some risk), and management preserving its position and the status quo.

Conflicting viewpoints regarding the "right" balance for capital structures may also exist between different classes of owners, viz. current shareholders, (members or users, in a co-operative), as opposed to new shareholders. Both seek control of the firm's financial policies to protect their investment. Haseley and Garoian choose the view held by existing owners, since "holders of the common equity accept the basic risks and commit resources for the protection of senior security holders" (8).¹ Lerner feels that in

¹Haseley and Garoian's analysis of alternatives from the viewpoint of existing shareholders is summarized:

Debt normally offers the best alternative for maximizing earnings per share. This is because of the low cost and opportunity to trade on the equity of fewer stockholders for returns above cost. But it involves more risk because of the fixed annual burden on cash. Preferred stock may be less risky because of a smaller and more flexible annual burden. It may be less desirable from an income and control viewpoint. Additional common is less attractive to current shareholders because it may reduce earnings and dilute control (8).

most cases, adverse effects (from dilution) of new common stock on the returns position of existing shareholders will be temporary:

Sometimes sale of common stock is desirable only because it strengthens the capital structure, permits more borrowing, permits a higher dividend, or pays off a pressing debt. . . . More generally, raising new capital by sale of common stock benefits the original stockholders to the extent that it improves earnings or dividends of the original stock. Of course, the short run effect of such sale is often to increase the supply faster than demand. And there is an inevitable period of dilution before the new capital can be put to work productively (15, p. 145).

Internally generated capital. Major additions are made to a firm's equity capital by the retention of internally generated funds. This source is usually considered separately because of the direct role played by management in its determination. Since growth rate and rate of earnings are controlled to some extent from within, this partially governs the need for outside financing in the form of new capital stock or borrowings. The long term trend has been one of increased emphasis on internal financing; Table 1 shows that it represented almost 66 percent of total financing for all corporations in the United States in 1957-1961. Much of the increase has been due to the growing importance of depreciation allowances. The absolute amount of retained earnings has increased during the post-war years, but the needs for investment have grown relatively faster, with the result that in porportion to total financing, retained earnings have

actually declined. Their importance as a source of funds for expansion, therefore, has weakened sharply.

Table 1. Sources of corporate funds, all U. S. corporations, 1947-56 and 1957-61 (percent of total).

Sources	1947-56	1957-61
Internal - retained profits	26	17
- depreciation	38	49
External - stock issues	6	8
- long-term debt	15	16
- short-term debt	<u>15</u>	<u>10</u>
	100%	100%

Source: (16, p. 348)

Table 1 also shows that while there has been a trend away from external financing, the composition of external sources has changed as well, with the proportion of short-term debt declining in favor of stock. This would seem to indicate a greater use of equity funds for working capital and reliance on borrowed capital for investment in fixed plant and equipment.

The ability of a firm to achieve a substantial degree of growth from internal sources is a function of (1) size of additions to invested capital and (2) net increases in earnings resulting from the additions. Since it has been assumed that growth is an essential objective of most business firms, a satisfactory return on investment

should be a likely prospect and a significant proportion of internally generated funds should be retained if a firm intends to rely heavily on internal capital sources for expansion.

Objectives of a Financial Plan

As can be seen from the foregoing discussion, the exact type of over-all financial plan that will be used by a firm is governed by a large number of factors. The number of variables that enter into the decision will be determined by a combination of internal and external forces. Evaluation of alternatives is always made more complex by the time factor. Decisions must be based on current conditions, but techniques which are satisfactory for the present may be rendered obsolete by constantly changing conditions. As a result, nearly all the decisions are compromises between obvious current advantages and possible long-term disadvantages; they will attempt to balance potential gains and potential risks.

To begin with, the magnitude and timing of future capital needs are to a large extent unpredictable. Even when needs are estimated within limits, no precise, objective standard can be used to measure capital adequacy. It is a matter of judgement and individual circumstance. Obvious cases of surplus or severe capital shortage can be recognized, but not quantified; the degree of shortage or surplus

depends on the assumptions made, and "There is no way to remove subjective consideration from this aspect of financial policy" (26, p. 96). Industry characteristics such as stability of volume and earnings, growth factors and product competition also influence financial plans of a firm. Competition intensifies the problems of obsolescence and seasonality as mentioned earlier and, therefore, is a basic factor in working capital management. The status of the firm itself (age, position in the market, reputation and credit standing, etc.), and future growth plans add to the list of variables. Most business firms expect to grow larger than they are, but it is not always easy to know the exact direction in which to grow, or what limits to set. Planning will depend on whether growth in the level of operations comes in "lumps" or is continual and comes in small units. There is no simple answer as to how far in advance total commitments should be planned. "Making current financial decisions with the view of being able to provide for tomorrow's growth is fundamental to effective financial management " (26, p. 95), and current financial plans must take into account any plans for the future, even if they are indefinite at the time.

With such a degree of uncertainty in the conditions faced and the need for maintaining the confidence of patrons and investors alike, a firm should strive for three major objectives in designing its

over-all financial plan: balance, flexibility and simplicity.

No plan is perfect, and can consider only some of the important variables involved. A particular plan is good or bad depending on how it fits specific circumstances; it will have an influence both on the firm's ability to employ resources profitably and its ability to secure funds under various arrangements. There are very few precise rules that can be used to govern the combination of sources employed in an over-all capital structure. While many present financial practices may be the result of learning from the experience of past mistakes, lessons from past mistakes indicate only what was unsatisfactory in particular situations. Changed conditions may have made the recommendations obsolete by now.

While the costs and availability of funds may be established by external forces, a firm's over-all financial structure should be determined by individual circumstances that exist at the time. Once established, however, financial plans and policies will be continually subjected to both internal and external pressures for modification and change. "The financial plan must be able to adjust . . . The best interests of the firm demand that flexibility be a primary practical objective of financial planning" (26, p. 118). Two major advantages of such flexibility are the ability of a firm to adjust its resources to external changes with a minimum of disturbance and

cost; and the ability to take advantage of changes in the cost and terms for which funds can be secured. It is self-evident that in order to realize the full potential of these advantages, provision for flexibility should be made in advance of such opportunities.

Although certain apparent advantages are supposed to be realized from the use of a wide variety of stock issues and debt contracts, these advantages, from a practical point of view, must be weighed against the obvious advantages of simplicity in the capital structure (26, p. 118).

The appeal of simplicity has reason to be even more pronounced in the case of co-operatives, with their unique identity of patrons and owners of the firm. Welch suggests that "economic motivation is paramount in a farmer co-operative" and that this motivation exists primarily at the level of the member as a user of the co-operatives services (27, p. 175). However the same motives and incentives can be carried through to aspects of financing the organization by members as well. The nature of a financing program may well determine member's attitudes in this regard; a complicated structure, confusing to an individual member, may tend to discourage him from investing any more than is necessary for current, obvious needs. Zeddies refers to this as a weakness of the revolving fund plan in his proposal for a substitute method:

This plan is not conducive to member education. As a matter of fact it has encouraged deception and censorship of the true condition of many co-ops. It

has discouraged boards of directors from acknowledging the fact and informing the members of their responsibility to provide risk and long-term capital for their co-operative (28, p. 1).

Confidence of investors (or members) in a firm's position and therefore in its securities will yield stability in the flow of source capital. Developing this confidence to the point where no problem exists in selling certificates, preferred stock or other instruments necessary for financing expansion of facilities and services is a long-term accomplishment and should be included as an objective of the overall financial plan. It is unrealistic to simply begin a policy of "planned" financing and expect sufficient invested capital to be forthcoming immediately. The problem of securing continued confidence has exaggerated effects in a co-operative, since the appeal must be made to virtually the same group of people as customers or patrons on the one hand and investors or owners on the other. This fact provides considerable justification for "member education" programs carried on by some co-operatives and the suggestion that Oregon co-operatives should engage in such activity to a greater degree.¹

¹Wholesale co-operatives and their member associations in other states, notably the mid-west, make rather extensive use of publications and other media designed to keep members "close" to their co-operatives. It has been suggested that Oregon farmer co-operatives are far behind in this type of activity, thereby losing an opportunity to improve their image and enhance their financial position.

The fostering of member attitudes conducive to sound support of their farmer co-operatives is highly desirable. They should regard the association as an extension of their farm business, a service entity which they own and must finance properly in order to secure from it the service and benefits they desire.¹ In addition to these benefits accruing from ready comprehension by owners and patrons, simplicity in a financial plan will often have highly desirable tax implications and effect economies in bookkeeping and administration. Managers of several representative firms among Oregon agricultural co-operatives have voiced concern over the mounting expense associated with detailed accounting of individual members' equities and purchases. Frequent preparation of various members' statements and distribution of interest, dividend or refund checks represent a substantial cash expense for many firms.

Corporate Versus Co-operative Firms

Since the empirical data used and models to be constructed in this study refer to firms of the co-operative form of organization, it

¹The Farmer Co-operative service points out that in addition to providing a service for members in news and advertising, a co-operative can use a newspaper or magazine to "remind the member of his responsibility as part owner of his co-op." Regular reports on the progress of the association can create a sense of loyalty and pride of ownership. Maintaining member interest and support is vital to any co-operative's continued success (23).

is appropriate to review some major points of comparison with the corporate form. Once the characteristic goals and objectives and structural features have been outlined, the discussion of capital and financing in general can give way to some of the problems faced by co-operatives in particular. Unique problems will require unique solutions, or at least some modification of the general approaches.

"The basic reason for being of most business enterprizes is to build maximum sustainable values for the owners" (12, p. 15). If this is accepted, then a primary obligation of management is to use the funds of owners to the best advantage for the owners. The total value eventually built up for owners may be in terms of higher market value for stock, claims to a larger proportion of assets, or increased earning-power of securities held. Most widely accepted as an objective and measure of performance is that of profits in relation to the amount of funds invested, i. e. the "return on investment." This approach recognizes the value of capital in terms of its alternative uses and limited supply, it puts a premium on the economical use of capital, and points out areas for possible improvement in operations. Since the rate of return on asset investment is a product of rate of profits on sales and rate of turnover of assets, it will benefit from an increase in either of these two ratios. Return on investment is calculated in terms of total assets, or of more

significance to owners, on the equity portion of total assets.

Traditional theory of the firm, using the marginal utility approach establishes a basic concept of profit maximization: a firm will continue to hire inputs to the point where $MC = MR$. If employment of resources is carried past that point, or falls short of it, profits will be less, therefore the situation less desirable. This maximizing behavior of the firm has other implications, e. g. the goal of obtaining and financing the optimum assets versus optimum output; the ideal amount of assets, liabilities and net worth; the optimum sources and uses of funds for a given firm. Through application of the marginal technique, a "theory of finance" can be developed from the economic theory of the firm (16, p. 29). The basic question in a theory of finance becomes: will a given additional use of funds (assuming the cheapest source) yield more in revenues than it adds to cost? That is, marginal considerations are restricted to financial aspects only. $MR = MC$ will represent a standard, not for output, but for uses of funds. Uses will be expanded so long as the increased rate of return will exceed the cost of rewarding the sources. In corporate finance, one more step is involved; the objective is one of maximizing gains for the stockholders by contributing to maximum market prices for common stock. (A record of high and persistent dividend earnings will greatly enhance the market value of

stock.) A firm can obtain funds from a variety of sources, both internal and external; it can use funds to acquire a variety of assets. The basic principle of optimum assets (uses) and optimum methods of finance (sources) involves comparison of the prospective cost and yield for each new use before making a decision. Making a choice between alternatives for an individual firm falls within the area of micro-management. This study is concerned more with capital financing in the macro-sense; long-range capital requirements of business firms and from what combinations of sources they should be obtained. Nevertheless, the general objectives held by a particular type of firm and the structural framework within which it operates will largely determine the methods chosen to deal with a given problem. It is in this respect that corporations and co-operatives basically differ. Lindsay and Sametz admit that there are exceptions to the rule and that profit maximization may not be the only goal of a theory of the firm; however, subject to modification, it is considered to be the primary raison d'etre for corporate businesses: "...the maximum profit solution must be known before relaxing its vigor to allow for the fact that management has objectives that are not expressible in terms of profits alone" (16, p. 36).

Co-operatives, as opposed to private corporations, have distinctive characteristics with regard to goals and objectives, and

relationships involving owners and patrons. These structural differences create problems peculiar to co-operatives, and any solutions to financial problems of a general nature must be modified accordingly when applied to a co-operative firm. Numerous definitions attempt to point out the objectives and purposes of co-operatives and to explain by inference why some of their policies and methods should differ from those of corporations, e. g. : "Co-operatives are off-farm business tools owned and used jointly by agricultural producers in an effort to gain higher prices for the products they sell and lower prices for the farm supplies and services they buy" (9).

The Capper-Volstead Act defines a company as a co-operative

...if it operates for the mutual benefit of its members, and if each member has one vote regardless of the number of shares of stock he may own, or in lieu thereof, if dividends on capital stock or membership capital are not in excess of 8 percent per annum; ... the association shall not deal in the products of nonmembers to an amount greater than such as are handled by it for members (1, p. 4).

However, in order to include each of the major aspects which contribute to the unique characteristics of co-operatives, a brief reference will be made to the seven original co-operative principles:¹

1. Open membership
2. Democratic control (one-man-one-vote)

¹As reported by a special committee of the International Co-operative Alliance at its 1937 Congress.

3. Distribution of surplus to members in proportion to patronage
4. Limited interest on capital
5. Political and religious neutrality
6. Cash trading
7. Promotion of education (4, p. 9).

The first four of these principles in particular distinguish co-operatives from corporate businesses. Policies for which they provide a basis must be expected to differ from those developed for the sole purpose of increasing return on investment.

A major factor behind the probable direction of business policies in a co-operative is the system of "democratic control" whereby member-owners command a voice in policy decisions on the basis of one vote per member (with occasional additional votes proportional to patronage in the case of marketing co-operatives). Policies favorable to the "small" member and those providing service to members out of proportion to patronage will have a definite advantage in competing for adoption. This is obviously not the case in corporate business where voting power is determined by the amount of capital invested. The other important area of contrast having a bearing on the direction of policies is the interrelationship of patrons, owners and the firm itself. A co-operative's customers are its owners, primarily; even non-members become part owners in most associations. They are regarded more as members of a club than as clientele, by management; and this theoretically removes the

problem of conflict of interest between owners and customers. The patrons of a private corporation on the other hand, seldom include its owners, although they may include any one who is willing to buy. In theory, this results in a desire for low selling prices, low margins and low interest rates on borrowed funds on the part of customers, and high prices, margins and interest by the owners.

Within this organizational framework and with policies aimed at "service at cost" and limited return on investment, the marginal approach to traditional theory of the firm must be modified for co-operatives. The maximization of profit for the firm itself is not necessarily the primary objective; the association may desire to stop short of the point where $MR = MC$, or go past it, in the interests of service to the members. Present accommodations for member-patron-owners may be provided at the expense of additional future earnings for the firm as such, but it will presumably contribute to the success of their farm businesses, which is the ultimate aim of the association in any case. Agricultural co-operatives in particular frequently encounter conditions which appear to justify taking less than maximum profits. Characteristics of the local market in which they operate often exaggerate the effects of weather and crop fluctuations; the range of members' operations is typically not diverse and the products or commodities handled add to the seasonal imbalance in

volume. The competition for capital on the farms, as mentioned earlier, creates problems which may be better understood, but seldom alleviated, by expanded programs of member education.

The foregoing conditions notwithstanding, since co-operatives are engaged in business activities, it will pay them to adopt certain proven standards which have been accepted in the general business world, for handling financial problems. This concession is often generalized to the extreme by arguing that co-operatives are really no different after all:

There is no magic about the word co-operative, or the co-operative form of organization. Co-op success requires the same type of business principles and management as any other form of business organization. Poorly run and poorly financed co-operative fail just like other businesses (9).

Some point between the two extremes of total rejection of and complete adherence to corporate finance models would seem appropriate for most co-operatives. In any event, the desirability of over-all financial planning with regard for the firm's ultimate goals, remains apparent. Co-operatives and private concerns alike

... must look forward and make financial decisions which will achieve the objective ... whether that objective is increasing profits, maximizing dividends, or preparing for a merger or consolidation (2, p. 4).

In the case of co-operatives, the influence on market prices of farm products and the provision of farm supplies and services at cost may

be added to the list of alternatives. The tools of forecasting and budgeting can be employed to make the best use of funds, thereby enabling the firm to do a better job with a given investment or the same job with less investment. An equitable and "businesslike" combination of measures must be worked out to provide the capital needed for future adjustment and growth.

CHAPTER III

CAPITAL STRUCTURE MODELS FOR OREGON CO-OPERATIVES

The Model Approach

Capital structure models developed in this chapter are designed to serve only as illustrations or examples of one way in which the problem of capital requirements can be approached through financial planning. The capital mix used in each model is based partly on the actual situation of one or more Oregon co-operatives which are representative of the type being considered, but it may not reflect exactly the policies of any firm in particular. Rather, the composite seeks to combine desirable features from each, with some further modifications based on generally accepted economic and financial reasoning as to what is "desirable" and "sound." The result in each case is a capital structure which is hypothetical, but nevertheless reasonable and possible for Oregon co-operatives to achieve. Actual experiences of firms will be cited to indicate how well existing co-operatives have been able to approximate the models as constructed. While specific goals of some firms and exogenous factors encountered may not have been conducive to the results suggested by the models, the general objective can be assumed to have

been the same, namely the attainment of a financial structure which has the confidence of members and adequately supports the volume and service they require. Trends for the past 10 to 12 years will provide some indication of factors leading to the present situation and point out areas of weakness which have been developing gradually in existing financial structures.

From the "ideal" financial structure at a point in time, as suggested by the model in each case (farm supply, dairy and grain marketing), a projection of future levels is made for sales volume, total assets and their financing. Guidelines for the composition and growth of capital structures provided by these projections will then be compared to trends displayed by representative co-operatives in the past. The purpose of comparison will not be to "evaluate" past performance, but rather to indicate whether the suggested goals are more likely to be achieved through continuation of present policies, or whether major changes in direction are in order.

The general approach of the projected balance sheet method is used to forecast future capital requirements of model firms. As was pointed out in an earlier section, systematic forecasting enables management of a firm to determine the advisability of programs in the light of their impact of the financial position. Plans must be made to fit the firm's financial capabilities. The planning of capital sources

then, is carried out for two primary motives; contingency and accumulation. Advance knowledge of an impending need for funds makes planning and the use of superior financing methods possible; so-called "crash programs" for raising funds invariably prove to be expensive.

Capital budgeting or long range planning of fixed asset expansion as presented in this study focuses attention on a few key items and relies on ratios and assumed conditions for determination of secondary components. A target figure is established for total sales volume at the end of the projected period. Total assets needed to support this volume are then estimated, with their individual components being determined partly by past trends in fixed assets/total sales and other ratios, partly by widely supported rules of thumb for the type of operation concerned, and partly by foreseeable changes in conditions affecting the industry. Once the estimated total uses of capital at a future date are known, intelligent and methodical plans can be made for providing the necessary funds. As with total assets, the individual components of the capital structure are derived in part by applying ratios and rules of thumb, with allowances being made for anticipated future conditions. As the size of operation increases, ratios of several components to total sales, assets or capital can be expected to change somewhat, particularly those which

are subject to restrictions of "minimum quantity" and those which by nature remain relatively constant in amount.

A Model Farm Supply Co-operative

Total Sales

While several measures of firm size may be employed, the most common yardstick for general surface comparison appears to be that of gross annual sales. By this standard, Oregon supply co-operatives range in size from less than \$250,000 to over \$1,250,000; however, the majority have sales of \$1,000,000 or less, with a large number in the \$500,000 range. A representative figure of \$600,000 per year was chosen for this model. The product mix reflects a reasonable balance between the major categories of farm supplies and equipment sold by co-operatives. Table 2 shows the breakdown of sales by category:

Table 2. Product mix of a model farm supply co-operative.

Product	Percent of Total Sales
All petroleum products	45
Fertilizer and chemicals	20
Small equipment and hardware	25
Tires, batteries and accessories	10
TOTAL	100

Several Oregon co-operatives were established originally as petroleum supply firms and continue to show a concentration of sales in that direction; one or two others have acquired farm implement dealerships, thus greatly expanding the equipment and hardware portion; others as a policy do not handle certain product lines. However, the particular mix presented here has been approximated by a number of firms, and is within reach of all of them.

It is reasonable for currently successful firms to strive for and expect to achieve some degree of expansion and growth in the future. Since sales are used here as a measure of size, growth in sales figures is the appropriate goal to examine. Three major factors are evident in the need for expansion of total sales in terms of dollars: (1) inflation, (2) growth of the market itself, and (3) the

firms ambitions or goals concerning its share of the market. Each will be dealt with in turn.

If for no other reason, dollar sales must increase to keep up with the pace of inflation. This growth, as measured by the index of wholesale prices for all commodities was 1.6 percent per year from 1950 to 1962 (25). If it is assumed that the same rate will continue for the next ten years, this means that a 17.24 percent increase in the dollar volume of sales will be necessary simply to offset the effects of inflation. In the absence of evidence to the contrary, such an assumption will be made, and the amount will be rounded to 17.00 percent for use in the model.

The growth of farmers' production expenses, consisting primarily of expenditures for supplies and equipment, gives an indication of the potential market for farm supply co-operatives. As shown in Table 3, total farm production expenses in Oregon rose from \$192.6 million in 1950 to \$239.5 million in 1961, an increase of 24.35 percent over an 11 year period. (It can be seen that some individual categories of supply expenditures grew even more rapidly.) This rate could conceivably decrease slightly in the future, but in order to allow for the possibility of new changes in technology and increased mechanization, a conservative estimate of approximately 21 percent is used for the projected period.

Table 3. Current farm operating expenses, total and selected components, Oregon, by year. (21, p. 45)

Year	Feed	Fertilizer and lime	Repairs and operation of capital items	Misc. 1/	Total
(million dollars)					
1949	45.4	5.9	37.8	22.2	180.7
1950	49.1	8.9	39.4	23.6	192.6
1951	61.9	8.8	43.1	31.3	227.2
1952	59.3	9.5	46.5	29.0	215.9
1953	48.2	10.0	47.0	28.7	201.8
1954	46.6	10.4	46.0	29.1	200.2
1955	46.8	11.6	47.1	29.7	204.6
1956	48.8	11.6	48.8	33.4	212.4
1957	48.5	14.1	50.8	31.9	219.4
1958	53.0	13.0	51.0	32.6	225.7
1959	56.0	13.5	53.4	35.7	231.7
1960	55.7	13.7	52.5	37.3	227.4
1961	55.7	15.0	52.3	39.3	239.5

1/ Includes pesticides, harness, blacksmithing, hardware, veterinary medicines, dairy, nursery and greenhouse supplies

Combining the factors for inflation and growth of the market, the model co-operative is faced with the task of increasing sales by 38 percent in order to simply maintain its position in the market. This should be regarded as the minimum goal for a viable firm. Some farm supply co-operatives may find themselves continually altering product mix and adjusting their direction of operation to meet changing conditions and remain sufficiently viable in that way. Most of them, however, have an implicit, if not explicit objective of expanding to some degree their share of the available market. Past trends indicate that co-operatives, as an industry group, have in fact made moderate gains in their position in the farm supply and equipment field, compared with expenditures of all farmers. A study by the Farmer Co-operative Service compares the annual index of the net value handled by co-operatives, total cash expenditures of all farmers for supplies and Gross National Product from 1950 to 1960. Figure 1 indicates the relative trends.¹

Another study by Korzan has shown that the dollar volume of sales by 27 supply co-operatives in Oregon increased faster than farmers' expenditures for production supplies and equipment over the ten-year period, 1950 to 1959 (13, p. 1-3). For this model, the goal of increasing the firms share of the market by five percent over

¹See Table 4 for detailed comparisons of the indexes.

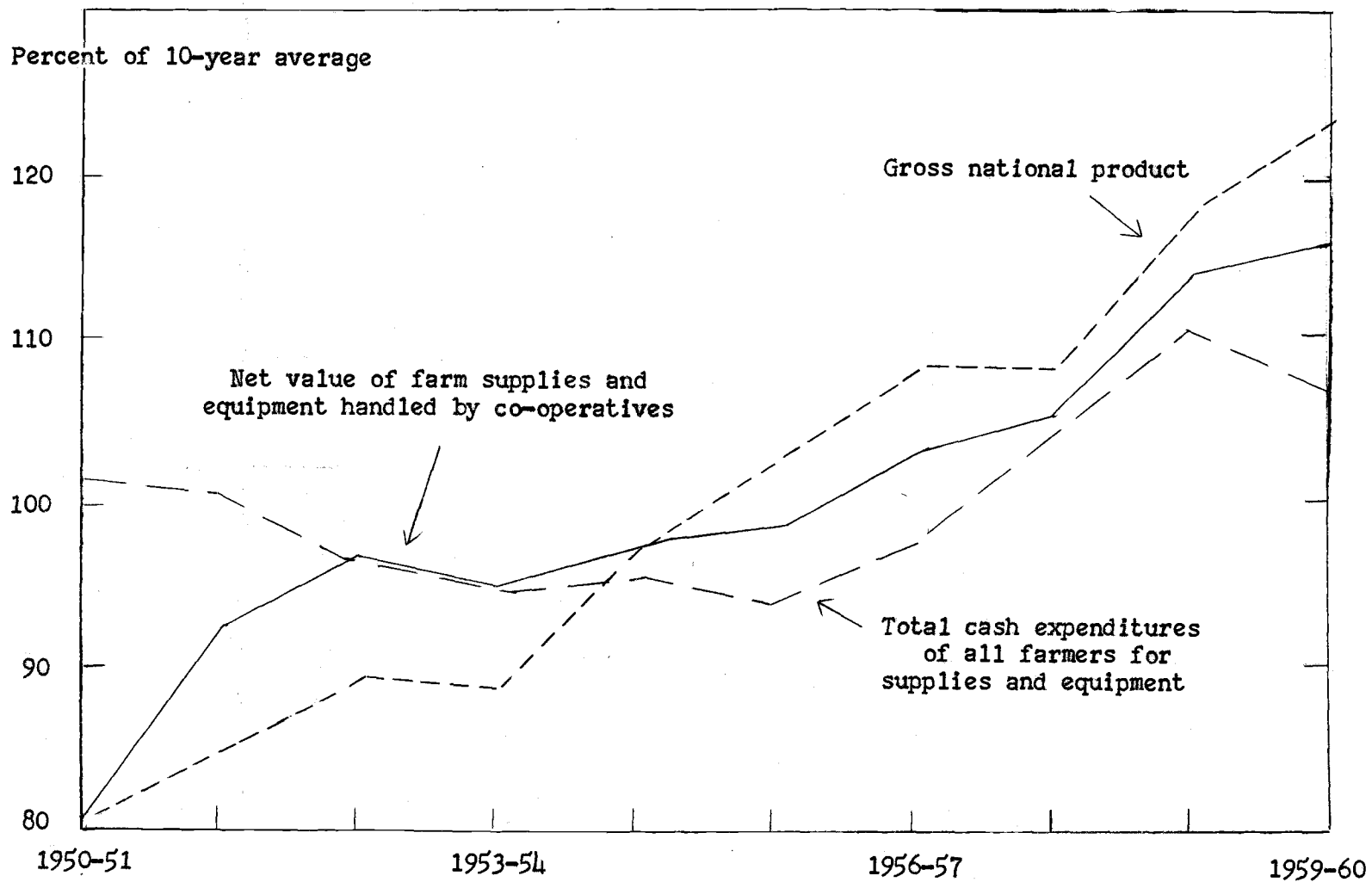


Figure 1. Growth trends of supplies and equipment handled cooperatively, cash expenditures of all farmers for supplies and equipment, and gross national product, 1950-60. (10, p. 12)

Table 4. Comparison of annual indexes of net values of farm supplies and equipment obtained through cooperatives, total cash expenditures of all farmers for supplies and equipment, and gross national product. (10, p. 11)

Net value of farm supplies and equipment handled by cooperatives ^{1/}			Total cash expenditures of all farmers for supplies and equipment			Gross national product	
Fiscal year	Index based on percent of 10-year average	Difference between cooperative and GNP indexes	Calendar year	Index based on percent of 10-year average	Difference between all farmers' and GNP indexes	Calendar year	Index based on percent of 10-year average
1950-51	81.1	+0.8	1951	101.3	+21.0	1951	80.3
1951-52	92.4	+7.7	1952	100.6	+15.9	1952	84.7
1952-53	96.9	+7.7	1953	96.4	+7.2	1953	89.2
1953-54	95.2	+6.6	1954	94.4	+5.8	1954	88.6
1954-55	97.3	+0.3	1955	95.2	-1.8	1955	97.0
1955-56	98.5	-3.9	1956	93.9	-8.5	1956	102.4
1956-57	103.3	-4.8	1957	97.4	-10.7	1957	108.1
1957-58	105.3	-3.2	1958	104.0	-4.5	1958	108.5
1958-59	114.1	-3.8	1959	110.2	-7.7	1959	117.9
1959-60	115.9	-7.3	1960	106.6	-16.6	1960	123.2
10-year average	100.0		10-year average	100.0		10-year average	100.0

^{1/} Net value after adjustment for duplications arising from business between cooperatives.

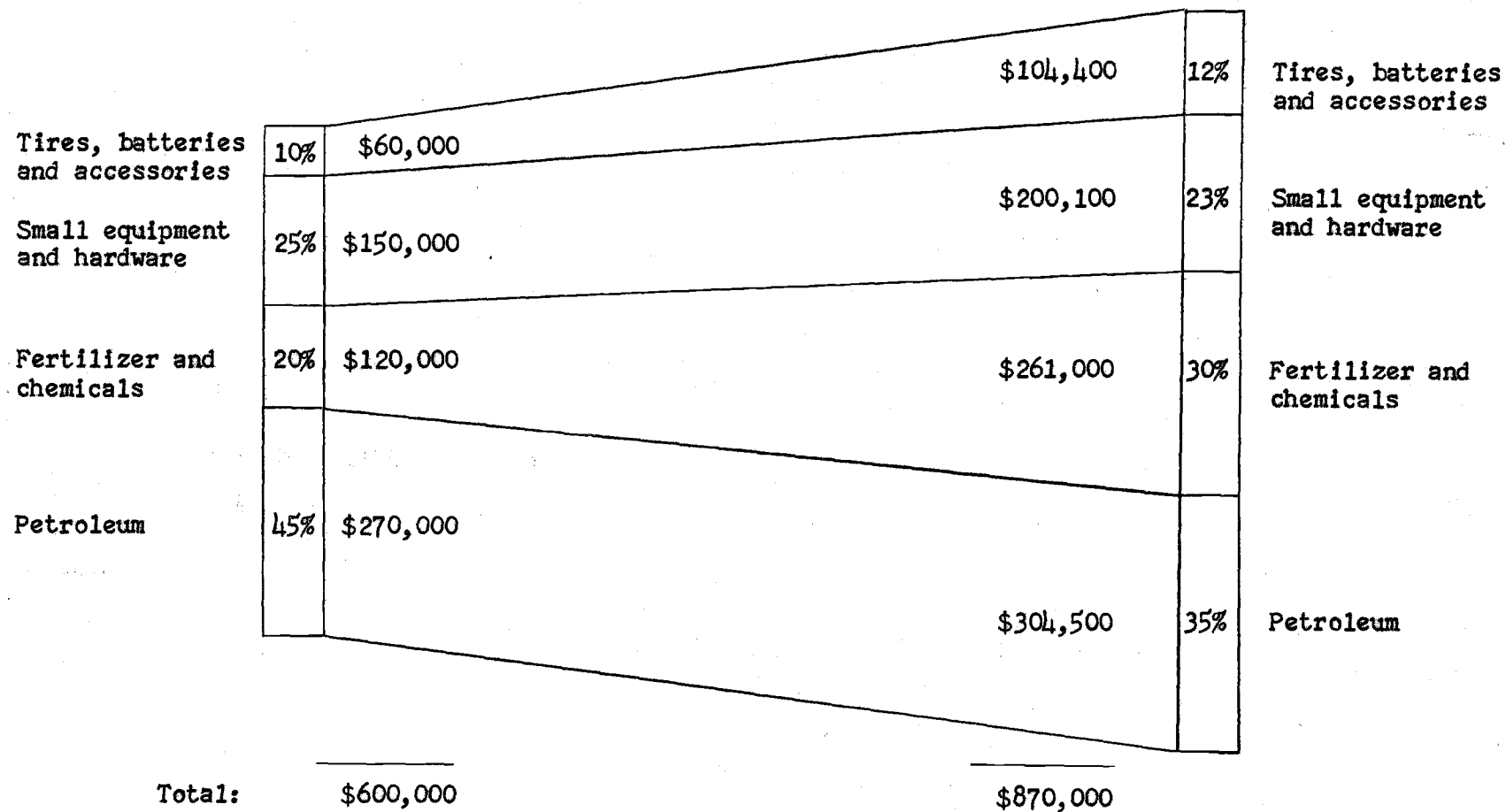


Figure 2. Current and projected sales for a model farm supply co-operative, 10-year projection.

a period of ten years has been chosen. In order to achieve this increase over and above the effects of inflation and expansion of the market itself, actual volume in dollars must increase by an amount equal to 1.38×5 percent, or approximately seven percent during the projected period. The total increase desired in dollar sales then, will be 38 plus 7, or 45 percent, resulting in a figure of \$870,000 in the target year. Figure 2 illustrates the current and projected sales for the model.

The changes in composition of total sales as shown are results to be expected, with an over-all increase in volume under the conditions assumed. A projection of prevailing market conditions would support the relative decline of petroleum sales as indicated. While the trend of technological change continues, farmer's purchases of petroleum products remain relatively stable in physical terms. The product is not used exclusively by farmers and price competition is severe for many Oregon co-operatives, who face a market which is oversupplied, each dealer striving to increase volume at the expense of others. With little or no prospect of price increases (in excess of inflation), or growth of the market potential, co-operatives can expect petroleum to decline as a proportion of total sales. The prospects for fertilizer and chemicals on the other hand, have reason for improvement in the future. As shown in Table 3,

Oregon farmers' expenditures for fertilizer and lime increased from \$8.9 million in 1950 to \$15.0 million in 1961. Changes in technology and further specialization in crops and production methods point to increased use of chemicals other than fertilizer.¹

These are products used almost exclusively by farmers, they lend themselves to bulk handling and are easily stored. Farmer co-operatives are in a natural position to provide service in this field. The large investment required in fixed plant and facilities, particularly for the handling of liquid fertilizer, effectively controls the number of suppliers in an area and encourages the handling of large volumes, so that facilities are used to capacity. All of these factors point to a greater share of sales in this direction. Small equipment and hardware again are more stable in terms of volume purchased by farmers. As a co-operative grows larger, it should become more diversified in the service it offers and the inventories carried.²

¹One co-operative experienced an increase in fertilizer and chemical sales from three percent to 32 percent of total sales as a result of adding a lime service to its operations. This more than offset the loss of petroleum sales due to price competition and the firm was able to maintain its position. The introduction of a liquid fertilizer service resulted in new sales accounting for 16 percent of total sales after one year of operation in another supply co-operative.

²In some cases, co-operatives have felt the need to carry a major farm implement line and have added a full agency to their operations. This is not included in the model however, since it is not typical of supply associations in Oregon.

Tires, batteries and accessory sales are shown as increasing slightly, reflecting the increasing degree of mechanization.

Total Assets

The operation of any business, no matter how small its volume of sales, requires some assets. The amount of total assets needed to support and create a given volume of sales depends on several factors, the primary one in most cases, being the type of product(s) handled. Sales policies and relationships with suppliers also have a bearing through the effects of accounts receivable and inventory burdens. Farm supply co-operatives in Oregon have experienced substantial increases in the costs of doing business over the past decade. To keep pace with the technological advances and increased mechanization in farming, co-operatives have had to provide a broader range of services, often requiring the purchase of complex equipment and facilities. The introduction of liquid fertilizer, for example, involves large outlays for storage tanks and distributing apparatus; frequently the co-operative finds itself needing to finance equipment for custom application of chemicals, lime and fertilizer, to relieve its members of this burden. Sales will vary from year to year depending on crop and weather conditions, while much of the assets investment is long-term and binding. The result

has been a trend in the past 10 to 12 years for total assets to increase as a percentage of total sales, or expressed in another way, for the annual rate of turnover of total assets to decline. Indications are that this trend is likely to continue in the future.

Consideration was given to generally accepted financial principles, product mix being used and past successes of Oregon co-operatives with similar operations, in determination of total assets required in this model. A figure of \$300,000 or 50 percent of sales is used for the current operating year. In line with the expected trend for all farm supply firms and the theory that as a supply co-operative grows in absolute size it will become involved in more diverse activities and services to members, (some of which will operate at less than optimum capacity), total assets of the model are increased in relation to total sales over the projected period. They will amount to \$565,000, or 65 percent of total volume in the tenth year. Figure 3 shows the totals and components for current and projected years.

The changes in composition as indicated in Figure 3 can be explained largely in terms of growth of the firm and its total assets over the projected period. Cash is shown to decrease slightly as a proportion of total assets. This reflects the gradual reduction in relative need (in terms of dollars) for liquid funds as a firm increases

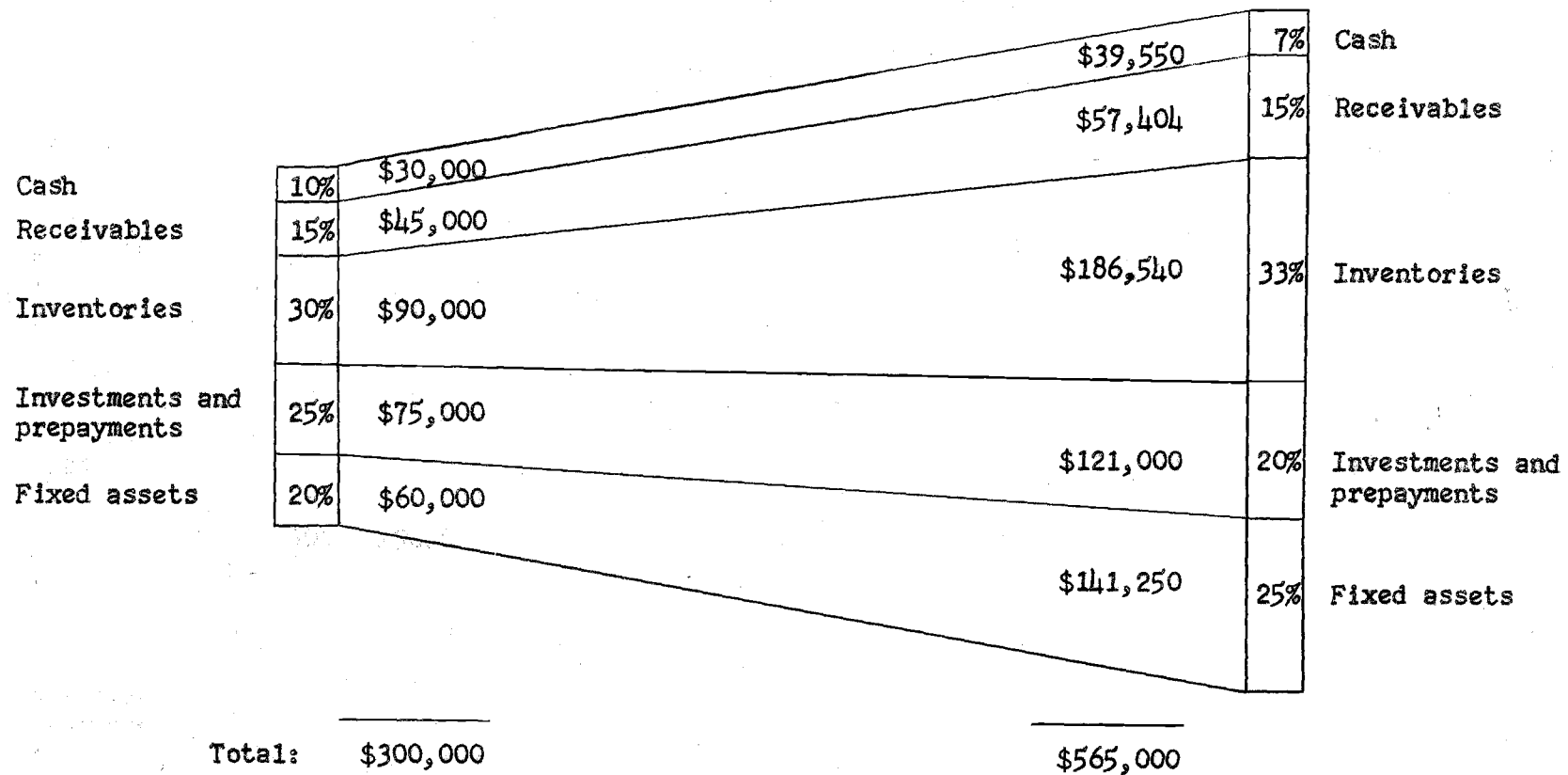


Figure 3. Current and projected total assets for a model farm supply co-operative, 10-year projection. 59

in size. Cash and liquid reserve holdings are subject to certain "minimum quantity" requirements which may keep the amount on hand for day to day operations and contingencies out of proportion in a small firm. Accounts receivable, as a proportion of total assets, will vary with a firm's sales policies. Since any changes in policy with regard to credit terms are usually brought about primarily to meet or gain advantage over competition, their magnitude and timing are difficult to predict. Therefore, in spite of a noticeable trend in recent years toward more liberal credit terms being offered, for the purposes of this study it will be assumed that policies will remain essentially the same throughout the period projected.¹ The share of assets invested in inventories frequently remains constant unless a major change in product-mix occurs. In the farm supply field, however, the greater diversity of stocks and service expected of a large co-operative may more than offset its relative efficiency in inventory turnover. This has been assumed, in projecting an increase of inventories from 30 percent to 33 percent of total assets in the model.

¹ A gradual increase in the accounts receivable portion of total assets due to more generous terms being offered may be partly offset by the fact that a larger and more diversified farm supply co-operative is in a relatively stronger position to "hold the line" on members' accounts, as it has more to offer in the way of service and benefits in return for prompt payment.

Investments in wholesale co-operatives comprise most of the percentage decrease in the "investments and prepayments" item in Figure 3. These are essential assets for most retail co-operatives, particularly the smaller firms. This is pointed out in a study by Korzan, which suggests that the relationship should be strengthened since "In future market structures, the relatively small retail association will find it increasingly difficult to survive unless tied to a multimillion dollar wholesale co-operative of which it is part owner" (13, p. 4). However, as a retail co-operative becomes larger and more solidly established as an integral part of its members' farm businesses, the relative extent to which it relies on its wholesale association for financing inventories on account and subsidized field services should decline. As a result, these investments, like cash, due to the "minimum quantity effect," are able to represent a smaller proportion of total assets for large firms.

Fixed assets account for a more obvious part of the increase in total assets from 50 percent to 65 percent of total sales. As mentioned earlier, the trend has been toward slower turnover of fixed assets for all farm supply co-operatives. The more complex equipment needed to service mechanized agriculture and the greater diversity of inventory and services (some of which will be marginal operations) expected from a larger co-operative are largely

responsible for the increased share of total assets invested in fixed plant and facilities. Unlike other components, fixed assets characteristically come in "lumps" and as a result cannot be expected to grow exactly proportionately with volume.¹ This would be portrayed more accurately by a series of step-increments for the fixed assets portion in Figure 3. However, it is more the purpose of this model to illustrate the total requirements and over-all effects of long range planning. The ten-year projection is intended to provide general guidelines showing the average rates of growth rather than a detailed plan of action for a particular firm.

The Capital Structure

Whereas the relationship of total assets to planned or expected sales volume can be determined as a matter of policy and within limits altered over time, the capital structure or total sources of funds, by definition, must exactly equal the total assets. In the short run, a firm's capital structure is fixed; its total assets are determined by the total sources of funds available. Over a longer period, management can take the approach of setting a target or goal for total assets,

¹In most cases, additions to plant and equipment not only must be purchased in "blocks" or "lumps," but must be financed for some time before any increase in sales or earnings will accrue. This adds to the problem of raising sufficient capital from various sources.

and through conscious effort and planning, cause the capital structure to meet this predetermined level. The actual composition as well as the total amount of capital needed by successful Oregon co-operatives is the concern of this study. A variety of sources is available; the question facing each firm once the total requirements have been determined, is that of which sources to use and in what combination, in order to best meet its needs. Fox suggests several questions that should be asked with regard to balance between the sources and kinds of funds:

1. How much money should come from members?
2. How much money should come from members through investing their patronage dividends?
3. How much money should come from the Bank for co-operatives? ...

When we use our members' money, should we think in terms of the non-interest-bearing funds that are revolved out in due time? Should we think in terms of long-term borrowing from our members at equitable interest rates? Should we think in terms of short-term borrowing from our members? (5, p. 3).

In addition to balance between equity and borrowed capital, agricultural co-operatives in particular should pay close attention to the objectives of flexibility and simplicity in planning their capital structures. The two previous sections have established current and projected future sales volumes for a model supply co-operative, and a complement of total assets with which to carry on that level of

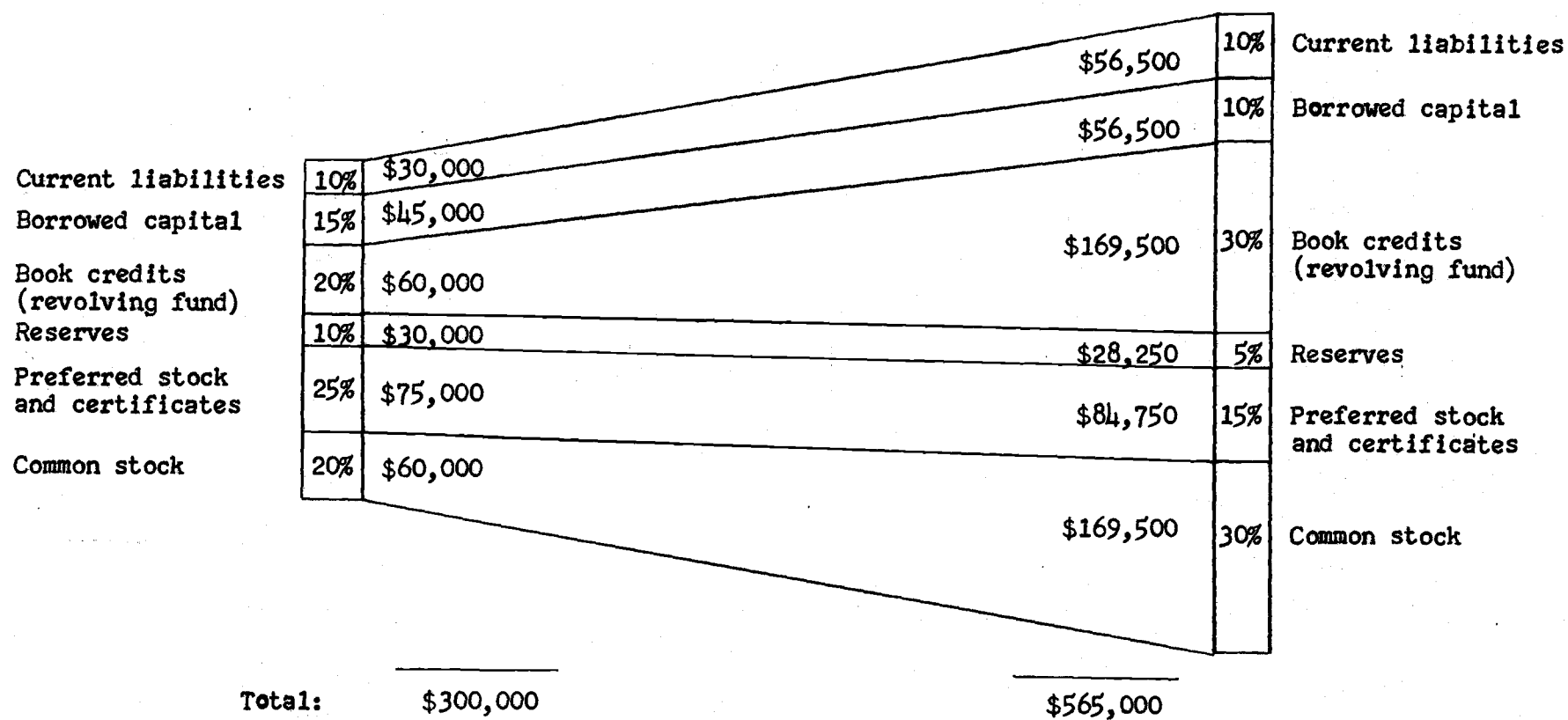


Figure 4. Current and projected capital structure of a model farm supply co-operative, 10-year projection.

operations. Figure 4 illustrates a capital structure designed to finance these assets. The combination of sources used here incorporates a degree of balance, flexibility and simplicity, and would be realistic for Oregon supply co-operatives within the size range being considered by this study.

As can be seen from the model, a debt-to-equity ratio of 1:1 is suggested, when current liabilities and preferred stock are included as debt. This may be considered as an unsound situation from the point of view of conventional corporate finance. However, when it is emphasized that most of the preferred certificates and notes and a substantial share of the preferred stock will be held by members themselves, it becomes apparent that the financial position is not as precarious as it would appear.¹ In the early stages of

¹ A variety of recommended debt/equity ratios are put forth in rules of thumb. Haseley and Garoian suggest a 45/55 relationship:

45% debt	35% long-term debt (notes, certificates) 10% preferred stock
55% equity	25% common stock 30% retained earnings (revolving fund) (8).

Fox recommends one-half debt and one-half equity:

50% debt	25% from banks and other leaders 25% certificates, preferred stock, members' notes
50% equity	25% revolving fund 25% (or more) - foundation capital (common stock, reserves, membership fees) (5).

financing a co-operative, since the members do feel an economic need for the association and should be willing to finance it, it is not unusual to find personal notes of a few members providing a portion of the foundation capital. These may later be replaced by certificates of preferred interest and/or preferred stock as more of the members begin to make cash investments in the association.

Figure 4 depicts that situation.

The current liabilities portion of the capital structure consists primarily of accounts payable and accrued expenses, and is assumed to maintain a more or less constant proportion as the firm expands.

Capital borrowed from the Bank for co-operatives, commercial banks or other lending institutions includes long-term loans for facilities and the average amount outstanding on a current basis

A survey of local marketing associations by the Farmer Co-operative Service showed an average of 33 percent debt and 67 percent equity being used (10, p. 5).

Of the Oregon co-operatives selected for this study, the approximate ranges were as follows:

Supply (small)	35-40% debt 60-65% equity
(large)	20-30% debt 70-80% equity
Dairy	20-30% debt 70-80% equity
Grain Marketing	5-15% debt 85-95% equity

for seasonal operations. This should be a key element in the capital structure of every co-operative. Balance must be maintained when borrowing capital and the source of funds should be chosen to fit the intended use:

To rely too heavily upon this type of financing for operating capital is a sad mistake for a co-operative. However, it is considered sound business for a co-operative, or any other business, to borrow large sums of money to finance their commodities, or their inventories (6, p. 242).

When the opportunity cost and the possible limitations on growth potential as well as direct costs are considered, borrowed funds can frequently be shown to be a more economical source than equity capital. The availability of borrowed funds can act as a limitation on their use. However, a firm should have no severe problems in this regard if it has maintained a sound financial position (net worth/total assets), successful operations and a good reputation in the past.¹ This is not to say that borrowing is a cure-all and can be used to solve the basic financial problems of co-operatives.

Lawrence warns against such an illusion: "The obsessing notion that a weak co-operative business can borrow itself out of its troubles and into a state of success and prosperity has led many co-operative

¹A reasonable degree of all of these is implicit in the assumptions concerning the selected co-operatives, made at the outset of the study.

directors and managers astray" (19, p. 167). The extent to which bank borrowings are utilized in this model does not suggest going to that extreme; nor does it represent a proportion large enough to endanger the solvency of the firm.

It should be pointed out that while the share of total capital borrowed from banks declined from 15 percent to 10 percent during the course of the model's projected growth, there are basic differences in reasoning behind the borrowing by small and large co-operatives. A small co-operative will (or should) want to grow in size. Present low volumes, because of higher unit costs, produce low percentage net margins. This low base, less the portion of net earnings paid to members in cash (at least 20 percent, by law), results in a low volume of retained earnings for addition to the total equity capital. If the firm relies heavily on the revolving fund for expansion of operations and service, growth may be hampered, and the association will eventually lose out to competition for members' business. The need for new investment capital (as distinct from earnings retained as stock or certificates) is urgent in most small co-operatives. However, since the co-operative principle of dividend limitations on stocks precludes the possibility of enhancement in value of shares above par, members must receive their dividends on common stock and other "free" capital in the form of service and

benefits for their farm businesses. A small co-operative is unable to provide a wide range of benefits and diversified service, so farmers have little at stake and frequently lack confidence in its successful operation. Under such conditions, it is difficult to attract voluntary investment in common stock and a vicious circle develops. This leaves two major alternatives for obtaining new funds: preferred stock and bank loans. Both sources can provide a substantial portion of the total financing for smaller firms but decline in relative importance when growth occurs, as projected in Figure 4. Preferred stock yields dividends in cash rather than intangible benefits, so that the business may be able to obtain investment capital from non-members as well as members, without needing to dilute membership control over policies of the association. The widespread use of bank loans for financing inventory building was noted by Lindsay and Sametz in some observations of recent trends in capital structure practice (16, p. 358). This is particularly appropriate for the smaller, less diversified supply co-operatives where seasonal fluctuations in sales are more pronounced. In such cases, borrowed capital is often not only cheaper, but simply more available than equity funds.

The desirability of bank borrowings in the capital structure of a large diversified farm co-operative stems less from the need

of the association itself than from the benefits that could accrue to members and their farm businesses as a result. A large organization in reasonably sound condition can readily obtain funds for seasonal inventory financing and other purposes without endangering its position, and at a much more favorable rate than individual members are able to borrow for farm operations.¹ The co-operative could take advantage of this situation and ease the burden for its members through price discounts at the time of sale, quarterly payment of dividends, revolving book credits during the peak season, or financing temporary increases in receivables. Thus we have a situation in which supply co-operatives borrow of necessity when they are small, and as a service to their members when they are large and sound.

In the process of achieving relatively large size, diversification and a solid financial position, a co-operative such as portrayed by this model will also gradually shift emphasis from preferred to common stock. The association will have had a period of years during which the revolving fund and reserves could be built up by retaining earnings, and a regular term for revolving book credits established. The members will derive more benefits in the form of

¹At the present time, funds can be borrowed from the Bank for Co-operatives at an interest rate of four and three-fourths percent.

service and favorable prices for their supplies; consequently they will have more confidence in the business, and with more at stake in the future of their co-operative, they will be more willing to provide "free" capital either through retains, or cash investment.

The projection in Figure 4 shows an over-all financing program which follows the general pattern described: considerable emphasis on bank borrowings and preferred stock when small, with a slight reduction in the proportion of borrowings and a shift to more common stock and revolving book credits as the firm grows. A reasonable balance is maintained throughout the plan between debt and equity, and between the alternative sources of equity capital; the proportion of equity has increased over time. Reserves, as might be expected, represent a smaller proportion of total financing for the larger, projected firm. This recognizes the fact that a contingency of a given magnitude would be of more significance to a small firm with fewer resources to absorb the loss. Also, the reserve item will be determined partly by minimum requirements.

Flexibility is provided within the general guidelines of this capital structure as well. The proportion in book credits and common stock need not necessarily be held rigid and equal. Associations frequently issue the non-cash portion of net earnings in shares of common stock; others revolve common stock as a regular policy.

Other sources, for example common and preferred stock, can also be interchanged in proportion, within limits. A co-operative should review its financial position each year as it relates to goals of the over-all plan and make changes in direction if necessary. Changes can be made without strain if the capital structure is not limited by excessive use of binding long-term contracts. Changes in technology are unpredictable and may alter the entire pattern of farming in an area, rendering present operations of the co-operative obsolete in a few years. Such developments have been provided for, at least in part, by the built-in flexibility of the model. In actual operation, as the firm's performance is checked against the projection each year, allowance can be made for changes in exogenous factors or errors in the original assumptions, and if deviations still appear to be inevitable, it may be deemed necessary to alter the plan to make it more realistic.

The detailed analysis of the projected capital structure as presented in Table 5 brings out several significant points concerning the annual sources and applications of new capital. Assuming an average net margin of five percent on total sales and a ten-year revolving fund period, the newly generated funds available for "retained earnings" each year would be more than adequate to provide for (1) revolving or paying out the declared portion of book credits

Table 5. Year by year analysis of the projected capital structure for a model farm supply co-operative. ten-year projection.

Year	Net Margin	Less 20% Cash Refund	Maximum Retainable Earnings (80%)	Increase in Book Credits over Last Year	Needed to Revolve 10% of Total Outstanding Book Credits	Total Capital Needed for the Revolving Fund	Additional Borrowed Capital Needed	Additional Preferred Stock Needed	Additional Common Stock Needed
--Dollars--									
0	30,000	5,000	25,000	---	---	---	---	---	---
1	31,020	6,204	24,816	7,095	6,000	13,095	1,328	1,680	7,095
2	32,098	6,420	25,678	7,764	6,709	14,473	1,311	1,581	7,764
3	33,196	6,639	26,557	8,489	7,486	15,975	1,287	1,463	8,489
4	34,396	6,879	27,517	9,278	8,335	17,613	1,250	1,322	9,277
5	35,650	7,130	28,520	10,130	9,263	19,393	1,206	1,158	10,131
6	36,960	7,392	29,568	11,057	10,756	21,833	1,151	965	11,057
7	38,378	7,676	30,702	12,060	11,381	23,441	1,083	744	12,059
8	39,957	7,991	31,966	13,146	12,587	25,733	1,003	489	13,146
9	41,699	8,340	33,359	14,324	13,902	28,226	906	199	14,324
10	43,500	8,700	34,800	16,157	15,334	31,491	980	147	16,157

outstanding from previous years and (2) increasing the current total outstanding in line with the over-all plan. For example, in the fifth year of the projection, the estimates are as follows:

Total sales	\$712,993
Net margin at five percent.....	35,650
Less 20 percent paid to members in cash ...	<u>7,130</u>
Maximum available for application as "retained earnings".....	<u>\$ 28,520</u>
Revolving approximately 10 percent of previous years' Book Credits	\$ 9,263 ¹
Planned increase in current total outstanding.....	<u>10,130</u>
Total new funds needed to service book credits	<u>\$ 19,393</u>

In the same year, the projected net additions to the capital structure through other sources are:²

Common stock	\$10,131
Preferred stock	1,158
Borrowed capital	1,206

A co-operative with a financial position as sound as the model firm would have little problem in obtaining the additional bank credit, and

¹ The listing of a provision for revolving previous years' book credits before that of increasing the present total outstanding is intentional, as the strict maintenance of a declared revolving fund period is suggested as a policy for the model. This will be discussed in a later section.

² Current liabilities are projected to increase in proportion to the over-all growth of assets, and reserves will actually decline, so will not be considered as "needs for new funds. "

attracting investment by its members in preferred stock. The net margin remaining after servicing the book credits could be issued to the members in the form of common stock, thus providing a major portion of the planned increase in that source. Again, the flexibility of the capital structure plan allows for the fact that capital requirements for fixed assets occur in sizeable increments or "blocks" rather than in an even flow, that net margin percentages are seldom consistent, and that reserves for contingencies must be periodically replenished or increased. In a year when net margins plus depreciation yields insufficient liquid funds to finance desired replacement and expansion of assets, other sources, notably new investments by members and a reserve of borrowing power, must be employed.

As total assets and the amount in common stock and revolving book credits grow, each member will accumulate a larger equity of "free" capital in the association. Provision must be made for the paying off or repurchasing of the equities of members who leave the co-operative through retirement or death. Such occurrences are unpredictable, so that the designation of annual amounts or a special fund is somewhat unrealistic; however, a policy which is equitable to the members and "businesslike" should be established and followed. (Safeguards are typically built into the death-benefit policy in the form of maximum limits to be paid by the association in any one

year.) The inherent flexibility of a capital structure which avoids using each source of funds to its limit at all times can finance such a policy. If necessary, the firm in this model could resort to additional short-term borrowing for the repurchase of common stock and limited acceleration of revolving book credits in order to maintain its declared policy.

The combination of financing methods used in this model employs variety sufficient for balance and flexibility, yet limited enough to avoid confusion of members as to their co-operative's capital structure. An understanding of the financial structure is essential for members to be confident and willing to invest additional capital as it is needed. The sources can be grouped roughly into three major categories: (1) capital "owed to outsiders" (current liabilities, and bank loans); (2) "member capital, interest-bearing," (preferred stock); and (3) "member capital, non-interest-bearing," (reserves, common stock and book credits). It should also be pointed out that in most cases, while reserves and common stock are virtually permanent contributions of the members, book credits are supplied on a revolving or temporary basis, thereby in theory spreading that portion of the financial burden among members roughly in proportion to their patronage. A periodic explanation of the capital structure in these terms, plus clear-cut policies regarding the revolving fund and

and equities of members who retire or die; and a reputation for adhering to those policies, will greatly enhance a co-operative's ability to raise equity capital. Fox refers to the impatience of co-operative members with the revolving fund method and suggests that "... the problem becomes one of adequate amounts of equity capital as well as the kind which is good for the co-operative and understood and accepted by the farmer" (5, p. 6).

Testing the Model

How does the model capital structure and its projection compare with the actual situation of farm supply co-operatives in Oregon? What major deviations exist in the combination of sources, and what has been the relative success of firms using them? Examples of historical data on financial operations, conditions and policies of several "typical" firms will be presented to suggest some answers to these questions. The possible effects of alternative models, with emphasis on different combinations of capital sources will also be explored.

The total volume of sales (and its growth rate), in providing a measure of the economic need for a co-operative, sets the starting point from which total assets and capital structure requirements are determined. During the past decade the performance of Oregon farm

supply co-operatives has been characterized by growth in sales volume, but with notable exceptions, the rate of growth has been only moderate in comparison with the model presented in this study. Tables 6, 7, 8 and 9 list approximate data and trends for four representative firms. Co-operative "A", for example, is typical of those in the "small" (under \$250,000 annual sales) volume range. The approximate composition of assets and capital structure indicated in Table 6 clearly resembles the model. Product mix changed somewhat over time, with expansion of specialty crops in the area increasing the market for irrigation supplies and hardware. This co-operative achieved an increase in volume of 28 percent over the past eight years, or the equivalent of 35 percent in ten years. While on the surface this may appear satisfactory, the real gains are less than desirable for a small firm, assuming the rates of inflation and potential market growth set forth earlier. Shifts in the predominant type of farming enterprise in the area have forced changes in product mix and resulted in declining sales since the early 1950's for Co-operative "B". Co-operative "C", while maintaining a relatively static combination of services, increased sales by 19 percent in ten years. Exceptional growth was achieved by Co-operative "D", which was able to increase sales by 93 percent in a decade, 88 percent of it in the last six years. Substantial shifts in emphasis and

Table 6. Total sales, total assets and capital structure, co-operative "A", 1955-62.

Year:	1955	1956	1957	1958	1959	1960	1961	1962
Total sales (thous. \$) ^{/1} :	163	178	185	204	198	219	205	212
Net margin percentage (% of total sales):	3.05	4.82	5.18	5.51	5.92	8.25	5.43	4.58
Total assets (thous. \$):	76	86	100	108	106	114	118	137
<u>Total assets</u> <u>Total sales</u> (%):	46.7	48.7	53.7	52.8	53.4	52.0	57.5	64.5
Composition of total assets (%):								
Cash	4.2	3.2	2.4	1.0	2.5	2.6	2.7	2.3
Receivables	17.6	20.4	19.7	23.0	22.1	25.6	26.2	25.1
Inventories	23.3	27.5	34.2	32.6	31.0	25.7	27.3	32.6
Investments and prepayments	33.0	31.9	30.1	31.8	33.7	37.0	35.4	30.3
Fixed assets	21.9	17.0	13.6	11.6	10.7	9.1	8.4	9.7
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Composition of capital structure (%):								
Current liabilities	2.7	6.4	10.5	10.0	2.3	2.8	8.8	15.9
Borrowed capital	3.9	3.8	4.0	4.6	4.7	-	-	3.7
Book credits	34.8	36.0	37.7	39.1	40.9	47.0	40.0	34.9
Reserves	14.9	7.3	-	-	2.2	2.5	4.0	6.0
Preferred stock	26.5	23.9	20.4	18.6	18.9	16.9	13.8	10.2
Common stock	17.2	22.6	27.4	27.7	31.0	30.8	33.4	29.3
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

^{/1} In 1962, the product mix was: petroleum, 67.9%; fertilizer and chemicals, 8.4%; small equipment and hardware, 23.7%. 5

2. 1962, the product mix was:

Table 7. Total sales, total assets and capital structure, co-operative "B". 1950-1961.

Year:	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Total Sales (\$) ^{/1}	1,037,151	1,131,237	1,117,145	1,025,290	945,942	994,252	988,252	862,571	870,180	781,212	605,040	724,943
Net Margin Percentage (% of total sales)	7.84	8.72	4.50	4.66	2.63	3.29	4.70	2.96	4.08	2.13	2.52	4.58
Total Assets (\$)	453,862	527,724	557,332	558,055	549,412	562,149	573,859	556,959	556,992	556,628	565,225	558,435
<u>Total Assets</u> Total Sales (%)	43.8	46.7	49.9	57.4	58.0	56.5	58.0	64.6	70.9	71.3	93.41	77.03
Composition of Total Assets (%):												
Cash	11	8	8	14	17	15	12	11	12	5	3	7
Receivables	5	5	4	5	5	4	6	5	5	6	6	4
Inventories	35	36	38	34	33	31	33	36	35	13	20	22
Investments and prepayments	4	7	8	8	7	7	7	7	8	8	9	9
Fixed Assets	<u>44</u>	<u>44</u>	<u>41</u>	<u>39</u>	<u>37</u>	<u>33</u>	<u>33</u>	<u>32</u>	<u>30</u>	<u>11</u>	<u>47</u>	<u>47</u>
	100	100	100	100	100	100	100	100	100	100	100	100
Composition of Capital Structure (%):												
Current Liabilities	1.2	2.2	2.3	.8	1.2	1.4	.9	1.0	1.0	1.0	2.9	2.9
Borrowed Capital	---	---	---	---	---	---	---	---	---	---	---	---
Book Credits	50.3	51.8	49.7	47.0	42.8	39.0	42.1	37.3	35.1	31.3	35.7	37.2
Reserves ^{/2}	---	---	---	---	---	---	---	---	---	---	---	---
Preferred Stock	21.5	23.1	23.0	25.6	28.4	31.3	28.4	30.7	31.0	34.4	33.2	31.9
Common Stock	<u>27.0</u>	<u>22.9</u>	<u>24.9</u>	<u>26.6</u>	<u>27.9</u>	<u>28.3</u>	<u>28.6</u>	<u>31.1</u>	<u>32.8</u>	<u>33.3</u>	<u>30.7</u>	<u>28.0</u>
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

^{/1} In 1961, the product mix was: seed and feed, 38%; petroleum 11%; and small equipment and hardware, 49%.

^{/2} "Allocated Reserves" included in Book Credits.

Table 8. Total sales, total assets and capital structure, co-operative "C", 1951-60.

Year:	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Total sales (thous. \$) ^{/1} :	363	388	451	440	469	422	454	390	390	411
Net margin percentage (% of total sales):	4.68	2.48	5.03	1.30	2.12	1.42	4.60	1.49	2.09	1.37
Total assets (thous. \$):	218	202	221	223	236	261	251	248	254	250
<u>Total assets</u> <u>Total sales</u> (%):	59.9	51.9	48.9	50.6	50.4	62.1	55.2	63.7	65.0	60.9
Composition of assets (% of total):										
Cash	5	9	9	4	4	5	3	3	2	4
Receivables	11	11	14	17	15	15	18	17	15	15
Inventories	38	29	28	31	37	38	38	40	40	38
Investments and prepayments	28	32	31	24	23	23	24	25	25	26
Fixed assets	18	20	18	23	21	18	17	16	17	16
	100	100	100	100	100	100	100	100	100	100
Composition of capital structure (% of total):										
Current liabilities	8	6	7	6	9	13	5	7	9	8
Borrowed capital	20	10	11	14	14	17	14	13	12	14
Book credits	40	51	47	49	46	43	45	45	48	49
Reserves	12	6	12	7	7	6	12	6	7	5
Preferred stock	9	10	10	10	9	9	10	10	10	10
Common stock	8	11	11	12	12	11	12	14	13	13
	100	100	100	100	100	100	100	100	100	100

^{/1} In 1961, the product mix was: petroleum, 45%; tires, batteries and accessories, 2%; hardware, 19%;
and fertilizer and chemicals, 32%.

Table 9. Total sales, total assets and capital structure, co-operative "D", 1955-60.

Year:	1955	1956	1957	1958	1959	1960
Total sales (thous. \$) ^{/1} :	633	697	735	820	943	1,033
Net margin percentage (% of total assets):	3.18	5.35	3.20	4.04	4.86	3.37
Total assets (thous. \$):	387	521	538	631	659	762
<u>Total assets</u> <u>Total sales</u> (%):	61.0	74.7	72.9	76.9	70.0	73.8

Composition of total assets (%):

Cash	5	4	5	3	2	2
Receivables	10	9	11	15	15	12
Inventories	35	36	34	35	38	46
Investments and prepayments	39	30	30	27	27	26
Fixed assets	12	21	20	19	17	16
	100	100	100	100	100	100

Composition of capital structure (%):

Current liabilities	3	5	4	4	4	6
Borrowed capital	-	13	9	15	12	16
Book credits ^{/2}	93	75	74	68	67	60
Reserves	-	-	-	-	-	-
Preferred stock	4	7	13	13	17	18
Common stock	-	-	-	-	-	-
	100	100	100	100	100	100

^{/1} In 1961, the product mix was: petroleum, 25%; tires, batteries and accessories, 16%; machinery, parts and hardware, 43%; and fertilizer and chemicals, 16%.

^{/2} Includes allocated reserves.

introduction of new services to meet changing technology appear to be largely responsible in this case.

Some further details on the composition and financing of total assets and policies employed by these selected co-operatives during recent periods of growth (or decline) are appropriate for comparison with the model. Tests of the suggested capital structure and alternative combinations can be made by application to existing firms' situations.

Co-operative "A", as did the model firm, used preferred stock as a major source of capital and gradually replaced a large portion of it with book credits and common stock as association earnings and member equities accumulated. No definite promotional effort was used to recall the interest-bearing stock; as shares were turned in, they were simply not re-issued. The current policy requires a minimum paid-in or earned equity of \$100 in common stock for each voting member, after which the full net margin is paid to him in cash each year. While this policy is popular with members and no doubt attracts a certain volume of sales, it provides no funds to increase working capital or to finance future expansion of facilities. The shortage of working capital and strain of the revolving fund on net margins due to low volume have been recurrent problems for the association. Additions to fixed assets, designed to increase volume,

were financed entirely by lengthening the revolving fund period.

While the period is relatively short at present, the pressures likely in the near future could increase reliance on this source, if no newly invested equity capital were forthcoming. No provision is apparent for paying member equities in the event of death, indicating a further need for flexibility.

An alternative model, making greater use of the revolving fund, could be applied to this firm. It would necessitate a reduction in cash payment of net margins to members, in order to revolve and replenish the fund; and this may have a dampening effect on new sales. A small co-operative in particular feels the need to attract members and patrons with short-run incentives, and hence is reluctant to abandon a popular policy in favor of longer-range benefits.

The effect of heavier emphasis on preferred stock as a source of equity capital would appear to be less hazardous in this case. As pointed out earlier, small firms are able to attract investment from members and non-members alike with securities which yield a specific cash return, and the benefits to the association from additional working capital may more than offset the larger interest burden under the circumstances faced by Co-operative "A".

Common and preferred stock have provided the major source of equity capital for Co-operative "B". The emphasis on allocated

reserves or book credits has declined over the past decade and long-term borrowing has not been used at all. Current liabilities have been consistently held at a much lower level than in the model projection. The increase in interest-bearing preferred stock has to some extent taken the place of bank borrowings and has at the same time encouraged members to make cash investments in their co-operative and finance it on a current basis. This association has been particularly effective in obtaining equity capital from direct investment, in spite of the large number of members (1700-1800 in total), many of whom are small or marginal patrons with little at stake in the way of potential savings.

In previous years, no cash payments of patronage refunds were made in the year declared. The policy was to apply net margins in approximately equal portions to allocated reserves or book credits, and to common stock. After ten years, the reserves portion was transferred to stock, which was revolved in five years. (This term was lengthened to seven years after 1959.) This in effect created a revolving fund period of 15 (17) years for the book credit portion and kept the common stock somewhat active and circulating. An accelerated revolving policy applies to equities of deceased members. The capital portion is paid in cash at the time of death and the equity portion is paid when it is transferred to common stock.

Table 7 indicates the trend in sales for Co-operative "B", which declined $27\frac{1}{2}$ percent over an 11 year period. The trend in the farming pattern in this firm's area of operations has been away from grain and in favor of livestock, which has forced changes in product mix and placed a premium on flexibility of position. Balance and diversification have been achieved to the extent that seasonal pressures from receivables have presented little or no problem for several years. The association was able to recover from a fire which destroyed all facilities in 1959 and currently holds a cash reserve, to be used for an addition to facilities or to accelerate the revolving of book credits. Both of these accomplishments reflect a sound and flexible financial position.

The application of a capital structure model stressing borrowed funds would have some merit for this firm, but would not necessarily be a substantial improvement over the increase in preferred stock, which has been used. Additional facilities and inventories, financed by borrowing, might create sufficient new volume to reverse the downward trend of sales. However, total assets have increased from approximately 44 to 77 percent of total sales in the past 11 years, suggesting that the solution may not be that simple. Also, fixed annual payments on principle reduce the flexibility of a firm's operations, whereas preferred stock can provide needed

capital with less severe restrictions.

Heavier use of the revolving fund would not appear advisable for co-operative "B" in view of past trends and future prospects for sales and net margins. As earnings decline in absolute amount over time, it becomes increasingly difficult to finance the revolving of past years' book credit allocations. The law requiring that 20 percent of net margins be refunded in cash further reduces the amount available for that purpose. In 1961, the value of redeemed capital stock and book credits was nearly equal to the total net margin for the year. It is clear that in its present situation, co-operative "B" must place less reliance, not more, on this method of financing.

In comparison to the model, Co-operative "C" has relied more heavily on the revolving fund, slightly more on borrowed capital, and less on common and preferred stock for its financing in the past. Its product mix approximately resembles that of the current model and has changed very little in the past ten years. Total assets were 51 percent of sales ten years ago; they are 61 percent currently. Shortage of working capital has been a persistent problem for this association. This undoubtedly caused in part by the heavy investment in inventories and difficulty in controlling receivables, which are the

concern of internal management.¹ The supply of permanent capital to support the volume of operations and revolving book credits has also been a limitation. A considerable amount of financing was provided by short-term notes of members, which were later replaced entirely by outside financing in the form of bank loans, most of which were on longer terms. (Conversion of members' notes to preferred stock with provision for redemption might have been an advisable alternative.) Additions to plant and equipment were financed by some new outside borrowing and by lengthening the revolving fund period, a process which has continued for seven or eight years. The death benefit policy is not specified in by-law form, but a loose commitment is made to pay the stock portion immediately and to revolve the book credits in their turn. Planning in advance and securing finances for more expansion and modernization of facilities will be necessary again in the near future in order to maintain a competitive position.

A long-range financial plan including more outside borrowing by Co-operative "C" would place a heavier burden of interest and fixed payments on the firm, but since the financial condition is sound

¹ An independent auditor pointed out that in 1960 this co-operative's inventories represented 72 percent of current assets, compared to an average of 38 percent in other similar associations. The need for strengthening the credit policies is also frequently mentioned in auditor's reports on co-operative "C".

and operations have been steady, additional bank credit should be readily accessible. New funds provided in this way could be used for improvement of facilities and diversification of service which would strengthen the firm's position for expanding volume in the future. On the other hand, the apparent soundness of condition should also attract more cash investment by members, in the form of preferred stock. Institution of a more definite policy for revolving the book credits would do much to restore members' confidence concerning retained earnings and thus encourage sales. The transfer of a portion of these credits to common stock offers a partial solution, provided that prompt payment of stock equities to members in the event of death or retirement is not affected as a result.

Increased use of the revolving fund does not offer a suitable alternative plan for Co-operative "C". It would not enhance members' confidence, particularly since the existing fund has not been revolved for eight years. Historically, sales volume of the association has grown only at a modest rate, and margins have little prospect of increasing. The 20 percent cash refund requirement will reduce returns further. Severe price competition poses a constant threat to earnings from petroleum, which currently represents over 40 percent of total volume. A gradual reduction in financing through revolving fund credits in favor of other member equities over time,

appears to be more appropriate in this case.

Borrowed capital and to an increasing extent preferred stock, have played an important part in the capital financing plan of Co-operative "D" since 1955. Sales volume increased by 88 percent in that time, and the introduction of new services plus additions to fixed assets and inventories required to support such growth created the need for substantial increments of equity capital.¹ The proportion provided by retained earnings has declined steadily, however.

Advance planning and financing of new product lines or facilities before their need becomes urgent (and a margin of business is lost to competitors), has been a policy of this association. Typically, members were informed of the advantages and estimated cost of a potential new service made desirable by changes in technology. If and when a substantial portion of the cost was raised in new equity capital (interest-bearing certificates or preferred stock), the expansion was carried out. Thus members were made aware of the cost and importance of each new service provided by their co-operative and had more at stake in its successful operation. Patronage of the association benefited, undoubtedly, as a result.

¹The installation of storage and distribution facilities for liquid fertilizer, for example, required an initial outlay of nearly \$100,000. Additional amounts were needed to finance applicator units and inventories for the first year's operations.

In this association the preferred stock issued is kept active and circulating by members, who can take advantage of an investment opportunity while financing the co-operative. (The interest rate was recently increased to six percent from four percent.) No attempt is made to promote this source of capital beyond what is actually needed, however, as it is desirable to avoid heavy interest expense and to maintain a "reserve" of members' willingness to invest, for future requirements. This is a reflection of the over-all attempt which should be made by all supply co-operatives, to match appropriate sources of funds with their intended use. Newly invested capital is used for expansion of facilities only, while current earnings and depreciation support operations and replacement. Co-operative "D" strives to keep depreciation allowances reserved for replacement, carrying over from one year to the next the portion not actually used for that purpose. If more funds are needed for working capital in any year, they are borrowed. While this policy may appear rigid in the short-run, it does avoid the possible difficulties occasioned by cumulative pressures, and in that way adds to the firms over-all flexibility. During a period of rising sales, the temptation for many co-operatives is to retain most of the expanded earnings and finance expansion and working capital from the revolving fund. Co-operative "D" has kept a substantial portion of current earnings

flowing back to its members. It has made cash refunds of 25 percent from association earnings and passed on a portion of the wholesale co-operatives refunds in cash as well. This measure enhances member relations by serving as a reminder of current benefits from patronage. The revolving period for earnings allocated to book credits is 11 years at present.

Death benefit provisions for member equities involve a degree of acceleration for revolving book credits. In addition to the regular revolving of the oldest credits (e. g. 11 years), cash redemption of newer allocations are made up to a maximum of \$750 per member or a total of \$3,000 for the association, in any one year. Preferred stocks or certificates are purchased for cash immediately, and resold to other members. Management and directors feel that a goal for equitable handling of earnings should be in the neighborhood of a 50 percent cash patronage refund and 50 percent allocation to the revolving fund, with a revolving period of 10 to 12 years; 15 years is considered a maximum.

While some similar trends are exhibited in product mix, as indicated by Table 9, Co-operative "D" does not closely resemble the model in its capital structure for the period under study. However, it does illustrate the value of balance, flexibility and members' confidence in a capital structure. The firm has been particularly

successful in building up its equity capital to provide adequate financing for growth and adjustment. Balance has been achieved in reducing reliance on the revolving fund from 93 percent to 59 percent, the proportion represented by book credits and common stock in the model. Systematic planning in advance has made timely introduction of new services possible without incurring the burden of "crash" financing programs. The flexibility and safety of Co-operative "D's" position is illustrated by the fact that the recent tax law requiring 20 percent cash refunds of earnings will not exert any pressure on policies already in effect.

One alternative approach in this case might be the conversion of some revolving fund credits to common stock, as it would reduce the annual commitment of funds to redeem old allocations. There has been no apparent burden while sales were increasing, but margin percentages are likely to decline in the future, and continued expansion of preferred will add to the interest expense item.

The Revolving Fund Method of Financing

The foregoing model and discussion have projected total future capital requirements for a supply co-operative and suggested a capital structure designed to adequately meet those needs. How much of the total should come from outside sources? How much

should come from the members? What is the best method of acquiring equity capital? These are basic questions facing a co-operative when it determines what its financial structure will be. Models in this study have stressed several alternatives for raising member capital. Some Oregon co-operatives employ a variety of sources, but most have relied on the revolving fund method to a much greater extent than has been suggested by the models. While the prospect of a continuing and increasing need for new member capital is generally accepted, the revolving fund has been challenged as the best approach to equity financing in the future. A brief examination of this method will be made from the standpoint of principles behind its use, some results in actual operation and prospects for its suitability under future conditions.

Terminology used in reference to funds obtained by the method in question varies widely. In this study, "the revolving fund," "revolving book credits" or "book equities" will be used to include all equity funds obtained from members through authorized deductions or earnings retained from current operations.¹ They may be

¹Occasionally, certificates of equity or allocated book credits are purchased outright by members, but the proportion is usually negligible in Oregon co-operatives. A sample of 1,157 firms in a study by the Farmer Co-operative Service showed that over 87 percent of the total "allocated capital credits" of farm supply co-operatives was acquired through retained refunds. Another eight percent was acquired by a combination of retained refunds and authorized deductions. Only 3.3 percent was purchased outright by patrons (10).

evidenced by certificates of equity issued to members, or simply credited to individual patrons on the books of the association. In principle, funds thus obtained are held as additions to total capital and when the association has reached the point where its financial position warrants it, capital supplied by the current year's patrons is used to start retiring the oldest outstanding revolving fund investments supplied by patrons of earlier years.

The principle of distributing margins or savings according to patronage or individual use is unique to co-operatives. An "equitable" method of financing is desired, so that the capital furnished by each member bears a relationship to his patronage as well.¹ As a solution to this problem, many co-operatives have adopted the revolving fund plan. It is frequently promoted as the most equitable method, as it combines these three principles:

1. Continued investment by members and patrons in the capital structure of the co-operative according to use.
2. Continued accumulation of capital from year to year by the co-operative.
3. Continued retirement of members' and patrons' oldest outstanding capital first (11, p. 2).

¹A statement by Knapp illustrates the attitude that financing and patronage should reveal similar distributions among the members: "... inasmuch as members of co-operatives expect to share in patronage refunds in proportion to the volume they deliver, it is equitable that they subscribe to the original capital on the same basis. If the association revolves its capital, ... periodic adjustment is made of the capital contributions of members" (23, p. 4).

Maintenance of ownership control in the hands of members currently using the co-operative as well as distribution of the financing burden on that basis is claimed as an advantage of the revolving fund system. A time lag equal to the length of the revolving period itself is involved, however, so that financing is not kept completely current.

While an association may provide in its bylaws for a fixed revolving fund period, in most co-operatives the length of this term is reviewed and determined each year by the board of directors. The fixed revolving period is regarded as a disadvantage by many, as it restricts flexibility in management of the total capital fund:

Most of the disadvantages of revolving fund financing reported by associations could be avoided by leaving the actual period of revolution to the discretion of the board of directors. Thus, associations would not be required to revolve capital in a year when it was financially inadvisable to do so (11, p. 32).

On the other hand, however, an indefinite policy of revolving, subject to review and delay each year, may encourage laxity in management of the firms total finances, and can have the effect of undermining members' confidence in their co-operative. Successful operation of the revolving fund plan must be based on an adequate understanding by the members of its operation and of the financial objectives of the association. Periodic contact with the members to keep them informed, a relatively stable revolving period, and a reputation for meeting that commitment will do much to enhance this

understanding. Members' confidence in their association and their willingness to contribute to its financing are increased as a result.

The same reservation applies to the treatment of members wishing to withdraw their investment from a co-operative when they no longer use or need its services. Membership in a co-operative changes over time. Many members of agricultural co-operatives would prefer a policy under which their equity could be recovered immediately in the event of death or their retirement from business. While this is seldom possible, it should nevertheless be just as important to provide ways for a member to get his money out of a co-operative as it is to provide methods for him to get his money into one. The revolving fund, in theory, provides a method whereby individual members' investments can be withdrawn in a "... systematic, orderly manner without crippling or disturbing the financial condition of the association" (22, p. 2). In practice, the financial condition of the firm and benefits to current members (in the form of higher market prices or discounts on purchases) often receive higher priority and the claims of ex-members are delayed by increases in the length of the revolving fund period. Long range confidence of members is again undermined unless a reasonably constant revolving term is observed.

Some of the more severe criticisms of the revolving fund question the validity of its basic operation--the retention of margins

or earnings rather than full distribution to members each year.

Welch suggests that the legal and tax implications involved may be significant:

If such overcharges, under-payments, and "retains" are not to be paid in cash, then both the provisions of the bylaws and the actual handling of such non-cash settlements must clearly separate the obligation of the co-operative to operate at cost from the obligation of the patron, as such, to provide for part of the financing of the co-operative by the "savings" or "retains" route. The two are separate and distinct, and in the absence of specific provisions in the bylaws for the co-operative to "withhold" cash savings or "retains" and issue some evidence of increased ownership in the co-operative and/or evidence of a loan to the co-operative by the patron then the question arises as to whether the settlement has actually been made so as to adjust tentative prices for services rendered to an actual cost basis. The tax implications here affect both the co-operative and the individual patron (27, p. 174).

Zeddies charges that generation of member capital under the revolving plan of financing has been "completely unscientific" and that there is not the proper relationship between the timing of capital needs and the speed with which it is generated (3). The use of automatic withholding schemes in place of voluntary investment by members is considered by Erdman to aggravate the difficulties faced by farmers who are short of capital on their farms. Need is suggested for a system which "takes the investments off the hands of needy members and places them in the hands of other members who are able and willing to invest additional funds in the association" (3,

p. 564). Smaby suggests that it is unfair to compare the performance of a co-operative operating on interest free capital with that of co-operatives or other businesses which pay for the use of their funds, as this may invite a more lax performance by those with free capital (18, p. 92-93).

Even if it were conceded that the revolving fund method is "equitable" and "businesslike" as a means of raising equity capital, its characteristics suggest that its use, as a proportion of total financing, should be limited. A balanced and flexible financial structure cannot rely on a fluctuating level of earnings for all of its foundation and growth capital. Fox strongly advocates a greater use of common stock to form a wide base of permanent capital for financing fixed assets as co-operatives grow and diversify, but does not reject the use of retained earnings for operating capital: "This is not to condemn the revolving fund as an equitable and good source of capital for assets which turn over more frequently" (5, p. 5). It is assumed that in any year when net retains fall short of the operating needs, other sources such as borrowed funds could be tapped on short notice. The major weakness in a policy of using retained earnings for permanent facilities and expansion is that the source cannot be controlled to match any long-range plan of expenditures. A period of declining or negative margins is often the time when

additional funds for expansion and modernization of facilities are most needed. It is true that during the period of rapid growth in sales and substantial margins after the war, many co-operatives used the revolving fund almost exclusively and found that it worked rather well. It supported the objective that producers and members who benefit from a co-operative should provide the bulk of the risk capital required, and was a relatively simple and painless way of generating equity financing. In fact, an important practical feature of the revolving fund method has been the ease, simplicity and economy of achieving additional capital. The procedure of simply withholding savings or retains at the end of the year and advising each member of the amount of money he had "invested" or "loaned" to the association was easier than actively seeking new investment from the members. As a result, the temptation for many co-operatives was to over-use this source of capital and to neglect the alternatives which required more effort and expense to secure. This tendency creates problems when conditions become less favorable:

... when and if adversity strikes, and the co-operative operates at a loss for a year or longer period, both the problem and the cost of achieving equity in apportioning such losses becomes quite serious; and expansion of services (even though they may be needed) will be seriously curtailed if such plans have been formed on the assumption of having net savings to retain for such purposes (27, p. 179).

Regardless of conditions and apparent success of financing growth

through retained earnings in the past, the principle itself is open to question. Over-all financial planning and long-term projections for growth and stability require that equity capital needs and sources be determined in advance of their actual use. Zeddies suggests that capital should not be determined at the end of the year in which it is used:

There is no reason in the world why the members and patrons of co-operatives should not be making arrangements for furnishing member capital either at the time they transact business with the co-operative or before, rather than after the close of the year when net margins are determined, and the capital accumulation becomes final out of these margins (28, p. 12).

Any co-operative which operates on a revolving fund system of financing continuously needs new capital for (1) growth and adjustment of facilities and working capital and (2) revolvment of funds in the plan. The prospects for sufficient growth of retainable net margins to meet these needs in the future are not promising. While co-operatives may be able to expect some growth in total volume of sales, net margin percentages are likely to decline due to stiffer competition (particularly in farm supplies) and the increasing costs of doing business. Total net margins in dollars, therefore, will be smaller and less reliable from year to year as a source of funds. The recently imposed 20 percent minimum cash payment of dividends further limits the portion available for retention in the business, as a

result, this source in the future will yield, as a maximum, 80 percent of a smaller and smaller amount. In the face of a continuous and increasing need for incremental capital, with considerable emphasis on the proper timing to match planned expenditures, there is a strong possibility that the revolving fund method will become obsolete as a source of foundation capital. The need for alternatives is imminent.

Oregon co-operatives have relied heavily on the revolving fund in the past and in some cases it is approaching the limits of its effectiveness. Several firms have had to increase the length of the revolving term in the past five years. Three have revolved nothing since 1955; two since 1950; and one since 1936. What began as a method of accumulating member capital on a circulating or revolving basis has apparently bogged down. This acts as a detriment to the over-all confidence of members in their co-operative and will adversely effect its ability to accumulate funds in the future. In addition to the evidence of difficulty in revolving past earnings, several associations have paid no cash dividends for six years or more. Only one firm interviewed for this study has consistently paid ten percent or more. The new Revenue Code will exert a definite pressure on the financial policies of the others.

Alternatives suggested by the models in this study consist

primarily of common and preferred stock, with some increased use of borrowed funds. To simply conclude that more and more common and preferred stock must be sold may be an unrealistic solution, since they can be sold only in an environment of confidence, which many co-operatives find difficult to establish. However, if members were made aware of the need for invested capital and the benefits which could accrue to them as owners and patrons of a well-financed co-operative, they would be more inclined to support their association, with both invested funds and patronage. In this respect, member education is a vital part of any co-operative's over-all financial program.

A Model Dairy Co-operative

Dairy manufacturing co-operatives, as do other marketing co-operatives, differ basically in the nature of their operations from farm supply firms. A marketing co-operative is more obviously a vital and integral part of the farm business and as such, is reasonably assured of handling all or most of each members production of the commodity involved. Patronage commitments are usually made on a longer term basis (i. e. one crop year or production period). This is in contrast to the farm supply business where each transaction, on a day-to-day basis, must meet the test of competition

and provide satisfaction in order to ensure future volume. A firm whose operations consist of pooling (and/or processing) and selling a commodity to a few buyers and returning the proceeds to producers has another advantage over one which must solicit patronage on an individual basis from many buyers who are also its owners. The former will have large volumes of funds moving through the business during the normal course of operations, making it a relatively simple matter to "siphon off" or withhold the amount necessary to cover operating costs, a margin for refunds and when necessary, additional financing for expansion for facilities and service. To the extent that this can be done through management of prices paid to farmers, marketing co-operatives are in a better position to plan and achieve their goals of margins and capital financing.

On the other hand, the size of operation achieved by a marketing co-operative is limited to the total volume of raw product or commodity which is forthcoming from its members. This supply is in turn determined largely by exogenous factors. Alternative land uses, government programs and weather conditions all may influence total production and thus affect the operations of co-operatives handling them.

External conditions facing dairy manufacturing plants in Oregon are those of a declining industry. Butter production in the

state declined from 17.5 million pounds in 1950 to 11.5 million in 1962. Cheese production decreased 20 percent in the last decade, while for the United States as a whole, it increased 30 percent. Ice cream production has followed similar trends (24). Shortage of raw product has been the cause of this decline; small milk producers are disappearing and the larger operators find it more profitable to concentrate on the fluid milk or "Grade A" market. Increased land values due to urban expansion and competition from specialty crops in the Willamette Valley have eliminated many of the small shippers in that area. As a result, milk manufacturing plants are faced with excess capacity and increasing unit costs. Flexibility of financial position and efficient use of technology are essential for survival under such conditions. Careful management is needed to keep unit costs within the range of competitive operation.

The objectives of a milk manufacturing co-operative should be the provision of a continuing, stable and reliable market outlet for its producer members. Conditions in the industry suggest that any significant growth in volume would be an unrealistic objective for Oregon dairy co-operatives in the future. The model presented here portrays a declining volume situation of a magnitude that is expected to develop over the next decade.

Total Sales

The decline in volume (in physical terms) of butter, cheese and ice cream production in Oregon has more than offset the effects of inflation on dollar sales during the past ten years. Butter production declined 30 percent and cheese 20 percent in that period. Total sales of manufactured dairy products by firms in this study are reflected approximately by the projection in Figure 5. Factors apparent in the market and consumption patterns are the basis of the future trends indicated for product mix viz. butter decreasing as a percentage of the total, cheese increasing slightly and ice cream, milk powder and other products increasing from 10 to 15 percent. Table 10 indicates past trends in the per capita consumption of butter, cheese and ice cream. Substitute products have decreased the effective demand for butter. Cheese consumption has been rising and promises to provide a ready market in the future.

Table 10. Apparent civilian per capita consumption of dairy products in the United States, calendar years.

	1947-49 Ave.	1957-59 Ave.	1960	1961	1962
	(pounds)				
Butter	10.6	8.2	7.5	7.4	7.2
Cheese	7.0	7.9	8.4	8.6	9.2
Ice Cream	18.7	18.4	18.3	18.0	17.9

Source: (22, p. 7).

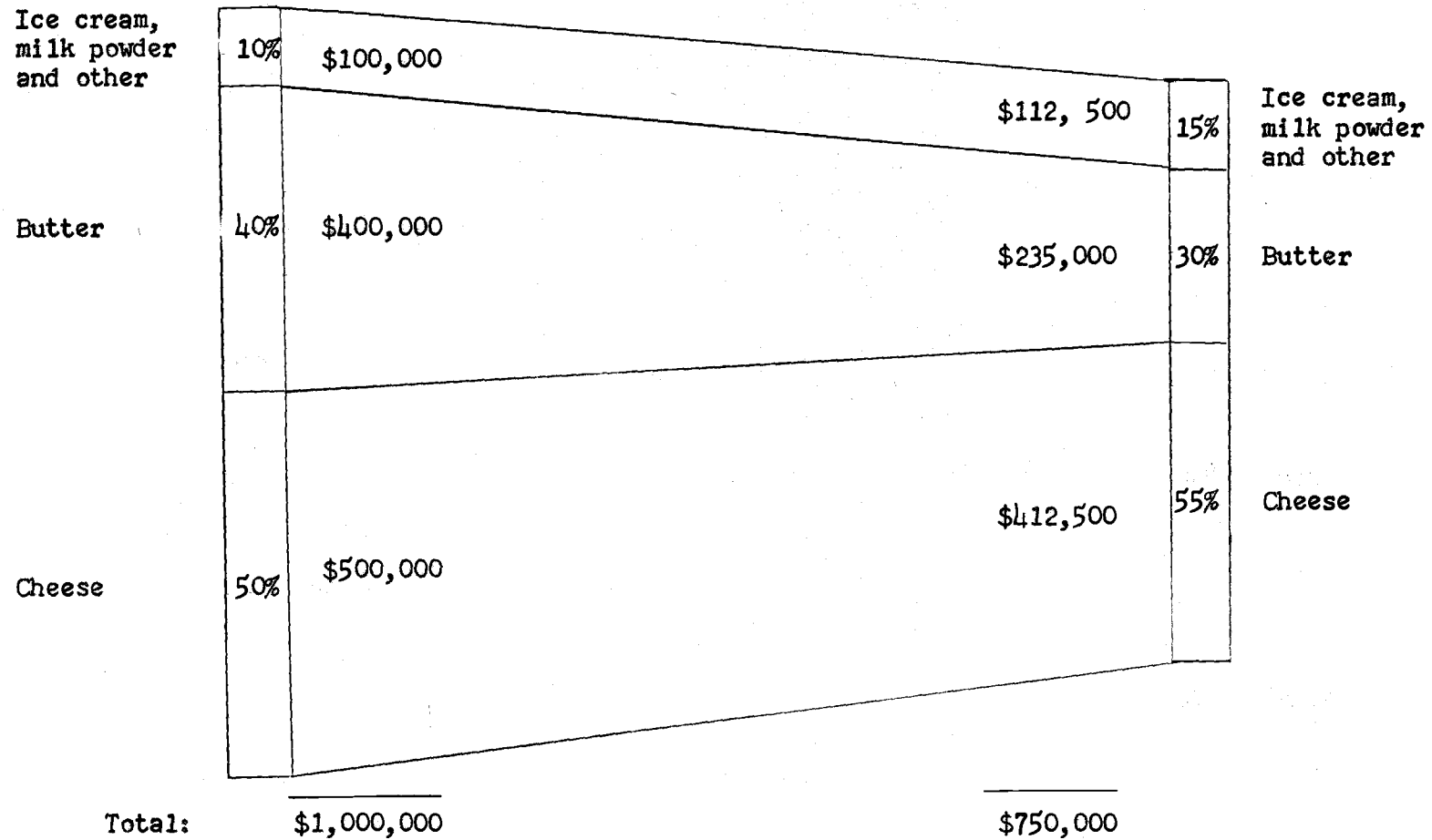


Figure 5. Current and projected total sales for a model dairy co-operative, 10-year projection.

Cash	5%	\$15,000	\$13,125	5%	Cash
Receivables	20%	\$60,000	\$52,500	20%	Receivables
Inventories	20%	\$60,000	\$39,375	15%	Inventories
Investments and prepayments	10%	\$30,000	\$26,250	10%	Investments and prepayments
Fixed assets	45%	\$135,000	\$131,250	50%	Fixed assets
Total:		\$300,000	\$262,500		

Figure 6. Current and projected total assets for a model dairy co-operative, 10-year projection.

The category "ice cream, milk powder and other" used in the model is shown to increase as a percentage and in absolute amount. This projection is based on the expected increase in the use of instant and prepared foods, which will utilize milk powders and other more processed forms.

Total Assets

As was pointed out in the discussion concerning supply co-operatives, increasing costs have resulted in a slower turnover of total assets. In the case of dairy manufacturing firms, additional pressure is exerted by the decline in volume being processed by existing facilities. The projection in Figure 6 shows an increase in total assets as a percentage of sales over ten years, and an increase in fixed assets as a proportion of the total. Inventories are shown to decrease somewhat as a percentage of total assets over time.

The Capital Structure

Figure 7 indicates a change in emphasis from the revolving fund to reserves over the projected period. This reflects the need for an increasing degree of flexibility in a declining volume situation. Smaller net margins will be available each year for servicing the

Current liabilities	15%	\$45,000	\$39,375	15%	Current liabilities
Borrowed capital	10%	\$30,000	\$26,250	10%	Borrowed capital
Reserves	20%	\$60,000	\$78,750	30%	Reserves
Revolving fund	45%	\$135,000	\$91,875	35%	Revolving fund
Preferred and common stock	10%	\$30,000	\$26,250	10%	Preferred and common stock
Total:		\$300,000	\$262,500		

Figure 7. Current and projected capital structure for a model dairy co-operative, 10-year projection.

revolving fund; consequently the burden should be reduced by paying off old equities, and any further retains should be applied to reserves. The same debt/equity ratio is maintained, but the firm is in a better position to deal with contingencies and to make changes in the direction of operations if necessary.

Testing the Model

As pointed out earlier, while past performance of selected firms influenced the composition of models in this study, the models themselves do not necessarily resemble any one firm in particular. All three of the co-operatives considered here are presently involved to some degree in the Grade A business as well as manufacturing. One recently purchased a local fluid plant as a separate operation, one has a completely integrated operation of fluid distribution and manufacturing, and one simply collects the Grade A portion from its members for resale to an outside distributor. Because of these unique situations, a direct comparison of total operations cannot be made. However, some aspects of the manufacturing portion can be discussed as they relate to the model.

Co-operative "E" purchased a local fluid milk plant partly as a move to protect its own supply of raw product for manufacturing. Essentially the same group of producers was involved in both

operations; the supply for manufacturing was in fact the surplus production of the Grade A shippers. Up to the time of this purchase, the volume of raw product had been declining slightly, but it is felt that a steady supply is now more or less assured for the future.¹

The number of active, shipping members has declined to approximately 90, but the average herd size and productivity have risen so that the total volume of milk produced in the area has remained quite stable.

No cash investment is required to become a member in cooperative "E", since the \$10 membership share can be earned through retains. The policy in recent years has been to pay high prices to shippers, with the result that there is little or no margin at the end of the year for distribution, or retirement of old equities. The major capital source for operations is the depreciation allowance. No outstanding equities of members or former members have been revolved as yet, no interest has been paid on them, and no plans exist at the moment for their future retirement. Death benefits provide only for repurchase of the \$10 membership share, or its conversion to preferred stock. This capital structure is one in which

¹Alternative land uses or pressure from urban expansion do not appear to threaten raw milk production in the area served by this firm.

present members are being highly subsidized by the former members. They have, in effect, "inherited" the use and benefits of the association, complete with equity financing. Former members received a lower total pay-out, since a portion of their savings was retained for operation of the business and expansion of facilities, whereas present shippers receive full payment of net margins in the form of higher prices for their milk and are not contributing to the financing of the association. The existing situation is completely inequitable and unbusinesslike. As indicated in Table 11, co-operative "E" currently relies on book credits for approximately three-fourths of its total financing. By making use of borrowed funds and adopting a policy for realizing a net margin on operations, the firm could initiate a repayment program for old equities without restricting current working capital. A gradual shift in emphasis could then be made toward reserves. This would place the co-operative in a more flexible position and restore members' confidence in its financing policies. Under present conditions, members are not willing to contribute to revolving capital, because in the past it has not been revolved.

Expansion of Grade A operations and absorption of other small plants in the area have largely accounted for the steady growth and success of co-operative "F" in the past 10 to 14 years. Fluid

Table 11. Total sales, total assets and capital structure, co-operative "E", 1950-59.

Year:	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Total sales (thous. \$)	1,041	950	844	742	871	740	742	724	740	813
Product mix (% of total sales):										
Butter	32	28		19		16		16		18
Cheese	60	57		59		67		62		62
Ice cream, milk powder and other	8	15		22		17		22		20
	100	100		100		100		100		100
Composition of assets (% of total):										
Cash	3.2	14.2	2.1	.7	2.5	10.3	4.7	10.0	2.1	2.2
Receivables	5.7	7.8	26.7	3.4	14.6	11.3	7.5	9.2	14.5	20.6
Inventories	28.6	16.8	32.3	53.8	19.4	21.8	43.6	18.5	25.6	23.5
Investments and prepayments	3.9	4.5	3.5	4.2	6.7	6.2	5.6	7.1	3.6	2.9
Fixed assets	58.6	56.7	35.1	37.9	56.8	50.4	38.6	55.2	54.2	50.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Composition of capital structure (% of total):										
Current liabilities	10.4	13.3	4.3	10.3	6.0	4.9	9.8	7.7	9.2	10.6
Borrowed capital	7.3	6.8	46.1	38.4	15.3	12.6	21.3	-	-	-
Book credits	48.3	65.6	42.5	46.2	70.0	71.6	47.4	77.4	75.9	74.0
Reserves	27.0	7.6	3.0	.6	1.8	3.7	15.9	7.0	7.0	7.6
Preferred stock	3.0	2.9	1.8	1.9	3.0	3.0	3.0	4.2	4.1	4.0
Common stock	4.0	3.8	2.3	2.6	4.0	4.0	2.5	3.7	3.6	3.5
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

milk distribution now represents over three-fourths of its total business. Nevertheless, many features of its operations and financial policies are worthwhile for study or possible emulation by manufacturing firms.

Joint operations with another dairy co-operative approximately 80 miles distant and membership in a co-operative sales organization both contribute to efficiency in production and a favorable sales situation. An arrangement with another fluid manufacturing association provides advantages of specialization and economies of scale for both firms. For example, co-operative "F" manufactures all the cottage cheese and milk powder for the two markets, and the other plant makes all the ice cream for both. Raw product surpluses are sold back and forth as necessary, at market prices. Access to a market extending from Seattle to Los Angeles, with an outlet in The Phillipines, and the use of its widely known brand name are advantages of membership in the sales co-operative. The organization has taken all the surplus butter and milk powder for co-operative "F" every year to date, so that none has had to be sold to the Government as surplus.

A combination of the revolving fund and allocated reserves provides approximately one-half of the capital for this association. Preferred stock and long-term debt have been used to finance

expansion, as in the purchase of small creameries and plants in the area. This avoided cutting working capital when it was needed, and indicates a sound policy of matching sources of funds to needs. The preferred stock portion of capital is kept active and only occasional effort is required to keep the authorized amount fully subscribed.

Over the past ten years, the revolving period for book credits has varied somewhat with the size of margins and past years' earnings, but cash payment of approximately ten percent of the current outstanding equities has been consistent. The death benefit policy provides for immediate cash payment of the oldest equities up to \$1000, with the remainder to be revolved in its regular term. Payment of a portion of earnings to members as a "Christmas bonus," based on volume shipped, has been a regular practice for several years.

The sound capital position and success of financing policies which characterize co-operative "F" have resulted from keeping the members informed in advance of their associations financial needs and plans for meeting them. Member confidence is maintained by adherence to definite policies for revolving book credits and payment of death benefits.

Co-operative "G" more closely resembles the model firm in this study. It handles Grade A milk for its members, but only as a

central collection agent and is not engaged in retail distribution.

The supply of raw product has been declining steadily over the past decade, as more and more small shippers discontinued milk production in favor of specialty crops. Membership totaled 3,400 in 1942; 1800 in 1952 and 760 in 1962. Table 12 indicates the declining trend in volume of operations. Butter production decreased by 61 percent and cheese production by 30 percent from 1954 to 1961. It is clear that under such circumstances, capital needs for expansion of facilities are likely to be small or zero. Prospective markets for the firms products have had to be ignored, and sales are almost discouraged, to prevent the embarrassment of falling short on orders. The pressure of declining volume on unit costs is a major problem however, and advantage must be taken of every efficiency in management and processing innovations to simply maintain the present position. Increments of capital are needed for periodic modernization of equipment and other adjustments in operations.

While approximately 40 percent of the total financing comes from the revolving fund, the proportion in reserves has been increased in recent years. At the same time, a plan has been carried out to lengthen the revolving term by redeeming one-half the value of old equities in cash and one-half in certificates which are revolved one term later. This "reduced payment" method avoids a complete

Table 12. Volume of operations, co-operative "G", by year, 1954-61.

Year:	1954	1955	1956	1957	1958	1959	1960	1961
	(Thousand pounds)							
Total milk received	26,779	24,973	23,258	21,975	20,255	19,148	18,951	18,476
Total butterfat received	1,723	1,647	1,043	1,407	1,281	1,225	1,189	1,124
Total butter manufactured	1,199	1,067	981	767	638	573	517	463
Total cheese manufactured	1,111	1,073	952	883	838	749	850	781

interruption in revolvment, which might undermine the confidence of members. Equities of deceased members are paid in cash, subject to maximum limits of \$1000 per individual or \$5000 for the association each year until completely refunded, regardless of the revolving term in effect. Book credits of members who discontinue operations or move from the area are revolved in the normal term.

Alternatives open to this firm are limited. The fluid milk market in the area is saturated and expensive to enter. Conversion to another type of operation, e. g. fruit or vegetable processing would be expensive and inappropriate for the present membership. The co-operative has fulfilled its original objectives in providing a market outlet and service for its producer members. Changed conditions may eventually eliminate milk production in the area and with it the need for a co-operative. Termination of business and the sale of assets at that time should not necessarily be interpreted as failure, but rather a wise economic decision.

A Model Grain Marketing Co-operative

Characteristics of marketing (as opposed to supply) co-operatives are particularly evident in the case of grain marketing firms. Membership turn-over is typically low, and a majority of the members usually market their total production through the association.

Volume is therefore predictable at least on an annual basis, in terms of the average yield in the area and acreage planted by members. Capital sources can be planned considerably in advance of estimated needs. As in any marketing association, the primary objective of grain co-operatives is the provision of a market outlet which will return to its members a price at least as high as the market average. Most Oregon grain marketing associations are sufficiently large to influence the market price itself, and to set a standard which competition must meet, in the price paid to farmers. Three representative firms included in this study each handle approximately one-half of the total wheat marketed in their respective areas. In this situation all producers, including non-members, benefit from the existence of the co-operative. Patrons may of course derive additional benefits in the form of grain treatment services, insurance and technical advice.

Total Sales

Perhaps the largest single exogenous factor affecting the fortunes of grain co-operatives is the trend in government programs for wheat and other grains. The direction of these policies over time not only influences the total production and market price, but in the case of storage programs, it can determine the extent of a direct

source of revenue for many firms. During the post-war period, government storage programs resulted in an unexpected source of income for Oregon grain marketing co-operatives.¹ This has enabled those with storage facilities to realize a higher rate of return on their investment in fixed assets and to build up their equity position in a much shorter period of time. The role that will be played by storage in the future revenue position of grain co-operatives is uncertain, however. Programs which limit or encourage production are also unpredictable over an extended period, and their effects can be compounded by yield variations due to weather. As a result, the type of sales or revenue projection made for supply and dairy co-operatives may be much less realistic as a dynamic model for grain marketing firms. However, the application of principles illustrated in the model will still be appropriate. The projection can be treated as a series of static models, within the size range indicated. Figure 8 shows the projection or range and composition of total revenues, from \$2.0 million to \$4.0 million.

Total Assets

Due to the large proportion in fixed plant and facilities, total

¹ Revenues from government storage of grain in their facilities accounted for over 50 percent of total revenues for representative firms during the peak period of 1955-56.

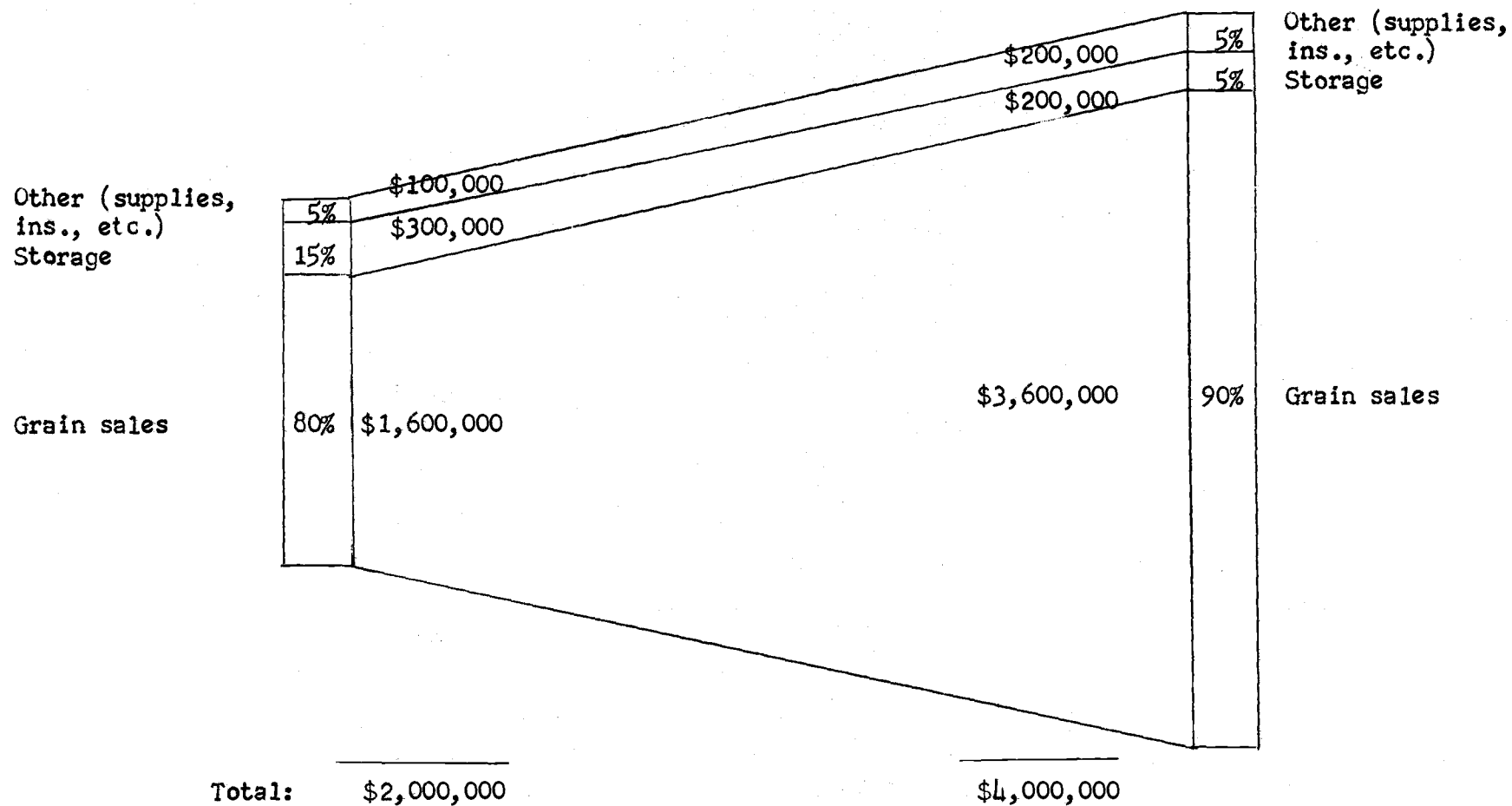


Figure 8. Projected total revenue and components for a model grain marketing co-operative.

assets of grain marketing firms do not follow sales or revenue closely in their fluctuations. Permanent facilities are established to handle an average (or better) crop, and fluctuations in volume simply mean moving more or less grain through the same facilities. Certain minimum size requirements exist, so that total assets will usually represent a lower percentage of sales as volume increases. The level and composition of total assets estimated for the range of sales is shown in Figure 9.

The Capital Structure

As in the case of supply and dairy co-operatives, this model (Figure 10) suggests a heavier emphasis on borrowed capital and less on common stock (including membership fees) for a small-sized firm. Reserves are reduced and the revolving fund proportion is increased as larger volume is achieved.

Again, there are two different justifications for borrowing capital when the firm is small and when it is large and sound. Moreso than in other types of business, a large complement of fixed assets is needed to begin operations in grain marketing, and subsequent additions to facilities come in larger "lumps" or "blocks" as well. This suggests the need for borrowing large sums at the outset, secured by mortgages on the facilities purchased. The Bank for

			\$50,000	5%	Cash
			\$100,000	10%	Receivables
Cash	10%	\$75,000			
Receivables	10%	\$75,000			
Inventories	5%	\$37,500			
Investments and prepayments	10%	\$75,000			
Fixed assets	65%	\$487,500	\$700,000	70%	Fixed assets
Total:		\$750,000	\$1,000,000		

Figure 9. Projected total assets and components for a model grain marketing co-operative.

			\$50,000	5%	Current liabilities
Current liabilities	10%	\$75,000	\$150,000	15%	Borrowed capital
Borrowed capital	25%	\$187,500	\$100,000	10%	Reserves
Reserves	20%	\$150,000			
			\$600,000	60%	Revolving fund
Revolving fund	40%	\$300,000			
Common and preferred stock	5%	\$37,500			
			\$100,000	10%	Common and preferred stock
Total:		\$750,000	\$1,000,000		

Figure 10. Projected capital structure for a model grain marketing co-operative.

Co-operatives is a common lender for this purpose. Once substantial size has been attained and facility loans are paid off, borrowing can still be desirable from the standpoint of service to the members.

Testing the Model

The actual situation of grain co-operatives in Oregon can be depicted by a composite of financial data from three representative firms. Their volume of sales, "product mix" and composition of total assets all fall within the range set by the model. Some important differences exist in the capital structure, however, notably the relative proportions in revolving fund and borrowed capital. The complete absence of long-term debt as a part of total financing has characterized these firms since 1956. Roughly 75 to 80 percent of total financing is now provided by the revolving fund. Several firms were able to increase their ratio of net worth/total assets from an average of less than 60 percent in 1952 to over 95 percent in 1962. A reduction in the length of revolving term was accomplished during the same period.

While this is an impressive record from the standpoint of achieving a sound financial position for the firm as such, considerably more might have been done for the benefit of members and their

farm businesses. In most cases, members are in need of additional capital to finance their farm operations. A co-operative in sound condition is able to borrow funds for operating capital at a much more favorable rate than individual members themselves (e. g. $4\frac{1}{4}$ percent from the Bank for Co-operatives). By continuing to borrow a portion of its total assets, a typical firm would have been able to return more of the invested equity and proceeds of operations to its members. The potential return from acceleration of the revolving fund can be seen from the capital structure in Figure 10. With total assets of \$1,000,000 and no borrowed capital, the extent of revolving fund financing would likely be \$750,000. Borrowing up to 15 percent of total assets would allow a reduction of 20 percent in outstanding book credits, or a shortening of the revolving period by one-fifth. That portion returned would either be used for working capital on the farm or saved by the members. In either case, a net benefit is realized from the policy. An obsession with the goal of becoming "debt-free" for its own sake is not in line with desirable objectives for co-operatives.

SUMMARY AND CONCLUSIONS

Agricultural co-operatives in Oregon will require increasing amounts of capital for growth and adjustment in the future. Long-range financial planning will be essential if these needs are to be adequately met. Data analyzed in this study suggest that methods of financing employed by many Oregon co-operatives in the past should be re-examined in view of changes in the economic environment in which the firms operate.

Determinants of aggregate capital requirements for business in general were discussed in this study. Characteristics of fixed asset investment and of each component of working capital were examined with respect to the role played by each in estimating future capital needs. The development of an over-all financial policy involves planning in advance and matching appropriate capital sources to anticipated needs. The combination of sources employed should be a result of a consciously designed program, with balance, flexibility and simplicity in the capital structure as its objectives. Capital structure problems are not solved when a firm has reached a certain size or point in its development. Financial planning must be a continuous and dynamic process.

While much of the theory of capital planning applies to all

types of business, some unique features of co-operatives warrant differential treatment from the corporate form. The primary objective of a co-operative need not be the maximization of return on investment. In the interest of service to members, the association may choose to stop short of the point where $MC = MR$ or exceed it. The basic co-operative principles of "democratic control," limited returns on invested capital and distribution of surplus according to patronage, and the identity of patrons and owners also provide a basis for policies which differ from those of private corporations.

The projected balance sheet approach can be used to estimate future capital requirements of model firms once a realistic sales target has been set. A farm supply co-operative should plan to increase dollar sales by 45 percent in the next ten years if it expects to keep pace with inflation and growth of the market for farm supplies, and increase its share of the market by five percent. Total assets needed to support this volume can be expected to increase from 50 to 65 percent of sales. A change in capital structure emphasis from preferred stock and borrowed capital to common stock and book credits over the ten-year projection is suggested.

Several co-operatives have been able to achieve a growth rate equal to or exceeding that of the model, but frequently the revolving term has been lengthened to provide the necessary increase in equity

capital. Firms which have made a policy of financing expansion or major adjustments with newly invested capital (preferred and common stock) have been the most successful. The fact that their policies have been accomplished indicates that more firms should explore the alternatives to increasing reliance on bank credits. Only one supply firm studied has consistently paid out at least 20 percent of net margins in cash without apparent restriction of working capital.

The revolving fund has provided a simple, economical and painless method of accumulating equity capital in the past. However, its prospects for the future are not bright. The decline in net margins plus the recent Revenue Code, have reduced the potential annual yield of new capital from this source. Incremental capital requirements in the future will occur in substantial "lumps" or blocks and the timing of sources will be critical. Retained earnings will not likely be able to meet these requirements.

The equitability of financing expansion with retained earnings is also questioned. While in theory the revolving fund distributes the financing burden according to current patronage, associations often become lax in revolving equities of members who leave or die. An indefinite revolving period, subject to lengthening or delay when margins are small, undermines the confidence of members and

discourages voluntary investment. Common stock as an alternative source of free permanent capital has the advantages of simplicity and economy is not as subject to misunderstanding. The atmosphere of confidence necessary to attract investment in common and preferred stock can be developed to some extent by member education.

Cheese and butter manufacturing is a declining industry in Oregon. Production of manufacturing milk is decreasing due to urban expansion, growth of specialty crops and the appeal of the Grade A market to the large producers. A decline in volume of 25 percent in ten years is suggested as a conservative projection for a model manufacturing firm. Emphasis within the capital structure is directed toward increasing reserves and decreasing reliance on the revolving fund, to provide the greater degree of flexibility necessary in a declining situation. One firm has been able to hold down unit costs in the face of a declining supply of raw product with frequent innovation and efficient management. It has fulfilled its objective of providing a continuing, stable and reliable market outlet for its producer members and has built up its reserves position while maintaining declared policies for revolving member equities.

Total revenue is reasonably predictable on an annual basis for grain co-operatives, due to the characteristic nature of patronage commitments and low turnover of members. However, over a period

of years, the uncertainty regarding government programs controlling the grain production can be compounded by the weather and long-term volume predictions are difficult to make. Government storage programs can influence revenue directly, and during the post-war period provided grain co-operatives with an unexpected source of income. As a result, these firms have achieved a net worth/total assets ratio of more than 95 percent and have shortened their revolving terms by several years. However, in view of the sound financial condition, considerably more might have been done in the way of returning benefits of the association to members. The co-operatives have access to borrowed funds at a more favorable rate than that available to individual producers. A net gain would accrue to the membership, therefore, if each firm were to borrow operating capital and return more equity funds to producers for use in their farm operations.

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