Comparative Financial Performance Analysis of Canadian Co-operatives, Investor-Owned Firms, and Industry Norms

ANDREA HARRIS AND MURRAY FULTON

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ANDREA HARRIS
AND
MURRAY FULTON

Centre for the Study of Co-operatives
University of Saskatchewan

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Andrea Harris

Murray Fulton

Saskatoon

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Introduction and Summary of Results

Introduction

The performance of co-operatives in the Canadian economy is attracting increasing attention. The recent GATT and NAFTA agreements, industry structural change, increased competition, and deregulation raise concerns about Canadian co-operatives' ability to compete and survive. These events, however, also represent an opportunity for new co-operative development and for repositioning by existing co-operatives. Co-operative proposals for financial restructuring highlight the need for additional capital and raise questions about co-operatives' capacity to generate competitive rates of return that will attract outside investors. At the same time, co-operatives are under increased pressure to pursue local members' needs, such as community development, which are not wholly reflected in traditional rate of return figures.

An important aspect of Canadian co-operatives' ability to form, compete, attract capital, and provide services to their members is their financial and operating performance relative to other firms in the economy. Comparative performance data provides critical benchmarks for specific co-operatives. It also highlights the co-operative sector's strengths and weaknesses, which are useful in advertising the benefits of co-operatives to new members and the general public, and in encouraging new co-operative businesses to form.

Despite its importance, and although the ownership structure of firms has been shown to be an important factor in the competitiveness of firms, there is a lack of performance comparison data in Canada (Vining and Boardman). Available information from studies in the United States suggests co-operatives' financial performance is as strong as that of their investor-owned counterparts. The purpose of this paper is to empirically examine the financial performance of Canadian co-operatives and to compare this performance with that of investor-owned firms (IOF) and industry norms. The methodology used in this study focuses on comparing a number of accounting ratios and growth rates which provide insight into the liquidity, profitability, productivity, leverage, and growth of a firm.

This study differs from similar U.S. studies because it compares a number of ratios in each performance category and covers a broad range of industry sectors. The research follows the financial performance and growth of co-operatives over time and takes account of the industry in which the co-operative is operating. For instance, retail grocery co-operatives are compared to other retail groceries, while dairy co-operatives are compared to other dairies. Differences in scale are accounted for by comparing firms in two size categories.

Co-operatives in each sector are compared to published industry standards (with the exception of grains and oilseeds, for which comparable industry norms are unavailable). Non-parametric statistical tests are also undertaken to ascertain if significant differences between co-operatives and investor-owned firms exist. However, the range of co-operatives that can be directly compared with their investor-owned counterparts is restricted to those organizations which are relatively large. Table 1.1 provides an overview of the size of firms, the period covered, and the form of comparative analysis undertaken for each of the industry sectors examined in this study.

The empirical results are linked to a conceptual framework which explicitly considers the unique characteristics of co-operatives. This conceptual framework is developed by reference to the fairly large theoretical literature on co-operative behaviour which suggests that differences between the financial performance of co-operatives and other business organizations can be expected due to differences in their business objectives, strategies, and structure. The analysis therefore allows a number of questions to be analysed, including Canadian co-operatives' relative efficiency and profitability and whether Canadian co-operatives have greater constraints with respect to capital and growth. Questions such as these are important for co-operative policy makers and advocates, co-operative development workers, and co-operative members and managers.

Many of the benefits attributed to co-operative enterprise are difficult to measure and quantify. Hence, co-operatives are typically modeled as a variant of an investor-owned firm (IOF) and are evaluated using financial performance criteria, such as ratios and growth rates, developed for investor-owned firms. Financial ratios and growth rates reflect the effect of corporate strategic decisions and, as such, can provide insight into the impact different business strategies may be having on co-operative performance. Although financial performance indicators are difficult to interpret by themselves, they are well-suited to comparative analysis. Furthermore, because these are the criteria by which financial institutions and critics commonly use to judge co-operative performance, they can provide an indicator of co-operatives' ability to operate and survive in a market.

Table 1.1   Overview of Sectors Analysed and Methodology

Sector and Size of Firms Analysed	Type of Comparison	
	Co-op/IOF	Co-op/Ind.Norm
Retail Grocery		
Total Assets > $1,000,000	1989-1993	1989-1993
Total Assets > $250,000; < $1,000,000	-	1987-1993
Fruit and Vegetables		
Total Assets > $250,000	1990-1993	1990-1993
Dairy		
Total Assets > $1,000,000	-	1986-1993
Grains and Oilseeds		
Total Assets > $1,000,000	1989-1993	-
Feed		
Total Assets > $1,000,000	1989-1993	1989-1993
Total Assets > $250,000; < $1,000,000	-	1986-1993
Fish		
Total Assets > $1,000,000	1989-1993	1989-1993
Total Assets > $250,000; < $1,000,000	-	1986-1993

Summary of Results

The results of this study are based on a comparison of a number of performance criteria typically used to evaluate the financial performance of firms. The rates and ratios compared in the study are grouped into five broad performance categories: liquidity, profitability, productivity, leverage, and growth. Table 1.2 lists these performance indicators and how they are calculated from balance sheet and income statement entries.

The organizational structure of co-operatives is unique. Co-operatives can provide members with a number of benefits, both directly through patronage refunds, and indirectly, through the market, but they also face a number of problems unique to user-owned businesses. Co-operative theory suggests that both the positive and negative aspects of user-ownership and control will affect the business decisions and strategies of a co-operative firm.

The different goals and business strategies of co-operative firms versus investor-owned firms are expected to affect financial performance in a number of ways. A co-operative objective to increase the welfare of its members may lead to lower profit levels and higher liquidity ratios than IOF competitors or the industry norms. Moral hazard and horizon problems may cause operational inefficiencies and have a negative impact upon productivity ratios. Low levels of member investment may cause a co-operative to be more highly

leveraged. All of these factors can combine to have a negative impact upon the relative growth of co-operative firms.

To examine if the goals and business strategies have influenced the financial performance of co-operatives, mean and median values of the selected financial indicators for co-operatives in different sectors and size categories are compared with published industry norms over a number of years through the use of graphic analysis and yearly and summary statistics. Table 1.3 provides an indication of the expected difference between the ratios analysed for co-operatives versus IOFs in the first column, and also summarizes the results of the comparisons of co-operatives and industry norms for similarly sized firms. Plus signs indicate a larger overall average ratio for co-operatives than the industry norm and minus signs indicate a lower co-operative overall average ratio. Profit and growth measures could not be compared due to the unavailability of data.

In a number of sectors, co-operatives are also compared directly with investor-owned firms. Non-parametric statistical tests are conducted to examine if significant differences exist between the mean ratios of large co-operatives and IOFs. The null hypothesis is that co-operatives and IOFs have similar mean values for each of the performance indicators. Table 1.4 summarizes the results from these tests. The approximation symbol ($\approx$) is used to denote cases where the null hypothesis could not be rejected and plus and minus signs are used to indicate the relative difference between the co-operative mean ratio and the IOF mean ratio when the hypothesis is rejected.

Liquidity

Co-operatives operating in all of the sectors analysed in this study appear to be more liquid in the short-run than other firms in their industry. The results from the industry norm comparisons show that higher than average current and quick ratios were reported in each sector. In sectors where direct co-operative and IOF comparisons were made, co-operatives were found to be at least as liquid as the IOFs. These results suggest that further research is required regarding the attitudes of co-operatives towards risk. Perhaps, as Staatz (1984) suggests, co-operatives are more risk averse that other forms of enterprise and are therefore more likely to support business strategies which maintain a stable short-term debt position.

Profitability

The results from the non-parametric statistical comparisons of profitability measures for co-operatives and IOFs suggest that although co-operatives may not theoretically hold profit maximization as their primary objective, there is little evidence to suggest that this has had a significant impact upon their reported rates of return. Large co-operatives in the retail grocery and fish sectors report rates of return which are generally higher than their IOF counterparts, while co-operatives involved in the fruit and vegetable, feed, and grain handling sectors report rates of return which are generally similar to those of their IOF competitors.

Productivity

By examining asset turnover ratios, co-operatives in all sectors, with the exception of the retail grocery industry, appear to be more productive than what is considered the norm for the industries within which they operate. Co-operatives operating in the feed, fish, fruit and vegetable, and dairy sector generally report higher asset turnover ratios than the industry norm. Retail grocers as a whole report lower asset turnover ratios than the industry norm. In comparison to IOFs, large co-operatives in the feed, fish, fruit and vegetable, and grain handling industries all report similar mean sales-to-total asset and sales-to-inventory ratios, while retail grocers report lower sales-to-total asset figures. Feed, fish, and grain handling co-operatives also report higher sales-to-fixed asset ratios than their IOF competitors. The latter result could be due to operational efficiencies, but may also indicate a lack of capital investment on behalf of co-operatives.

With the exception of the dairy and retail grocery industry, co-operatives in the remaining sectors all reported lower levels of accounts receivable as a portion of sales when compared to industry norms, suggesting greater efficiency in credit collection. None of the comparisons made between co-operatives and IOFs (again, with the exception of retail grocers) indicate statistically significant differences in credit collection policies. The higher number of credit days reported by retail grocery co-operatives is not surprising when considering that a large percentage of their accounts receivable are likely being held by member-patrons.

Leverage

Based on the comparison of leverage ratios, the majority of co-operative firms analysed do not appear to be more leveraged or less financially secure in the long-run than other firms operating in the same industry. With the exception of co-operatives operating in the fruit and vegetable and fish sectors, co-operative firms report lower relative debt levels than comparable industry norms. Non-parametric analysis suggests that large co-operatives in the retail grocery, feed, and grain handling industry are less leveraged than their IOF competitors, while large commercial fish co-operatives are as leveraged as their IOF competitors. Fruit and vegetable co-operatives are, on the other hand, more leveraged than IOF processors and wholesalers.

It must be noted, however, that leverage ratios do not reveal the complete debt structure of co-operatives. This is because co-operatives frequently rely on retained earnings as a means of generating additional capital. Retained earnings are included in total equity figures even though they are, in some aspects, similar to debt in that they must be repaid to members at a future date.

Growth

Statistical comparisons of the sales and asset growth rates of co-operative firms and IOFs suggest that co-operatives in the retail grocery, fruit and vegetable, fish, and grain handling sector are growing at rates comparable to investor-owned firms. Co-operatives involved in feed milling report lower sales growth than their competitors, but a similar rate of asset growth. However, there are extremely high variances in the growth rates amongst the co-operative and investor-owned firms. One implication of this large variance is that the

rejection of statistical hypotheses is very difficult. Hence, conclusive statements regarding differences between co-operative and IOF growth are hard to make. An additional implication, is that both co-operatives and IOFs need to keep this variance in mind when comparing their growth rates with their industry counterparts.

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Theory and Methodology

Theoretical Basis for the Comparison of Co-operatives and IOFs

Co-operatives, like other business organizations, buy, sell, and produce goods and services. However, they are also distinct from other types of businesses operating in a market oriented economy because, in a co-operative, the patrons are also the owners of the firm. The people who use the services provided by the co-operative are the same people who own, finance, and control the organization. The links between ownership, control, and use provide co-operative members with a number of economic and social benefits.

One of the direct economic benefits from co-operative membership lies in the distribution of the earnings generated through a co-operative's business operations. Co-operative returns are either redistributed amongst the membership in proportion to participation in income generating activities or are retained for the further development of the firm. The amount of capital members invest in the co-operative does not affect their ability to control the co-operative, as each member receives one vote. In contrast, in investor-owned firms (IOFs), the amount of capital invested in the organization by an individual (who may or may not use the services of the firm) or company is the basis for determining voting power and allocating surplus.

Other economic benefits from co-operation are the result of co-operatives behaving as an extension of their members operations, or alternatively, as a form of vertical integration. As a form of vertical integration, co-operatives can realize economies of scale which are otherwise unattainable by members operating individually. Costs associated with the gathering and processing of information needed to carry out business transactions can be lowered through co-operation. Co-operative organizations, particularly those involved in marketing, can facilitate improved quality control, limit the variability in supply, and enable members to have a greater influence on prices. In some cases, co-operatives may offer services which would otherwise not be provided by the market, but which can open up additional income generating opportunities for their members.

Joint integration through co-operative enterprise can also enable members to overcome market power and introduce competition in monopsonistic or oligopsonistic markets. By acting as "competitive yardsticks" in industries with non-competitive tendencies, co-operatives can provide market benefits for both co-operative members and consumers or producers in general. The ability to act as a competitive yardstick stems from co-operatives having a broader set of business objectives than investor-owned firms. Whereas IOFs are generally limited to a primary objective of profit maximization, the objective of a co-operative can range from profit maximization to service at cost, depending upon the needs and desires of its membership. Hence, the presence of a co-operative in a market can force other firms to lower their prices (Cotterill).

Co-operatives also provide social benefits to their members. These benefits include such things as the provision of a physical location for people to meet and socialize, a forum for community issues to be discussed and acted upon, and a method by which a group of people can undertake other collective activities such as community development (Fulton and

Hammond Ketilson). Community development initiatives are often further supported by the management skills and experience (particularly with regards to the democratic process) that members can gain through co-operative involvement (Thordarson, International Joint Project on Co-operative Democracy).

Comparative Co-operative Performance

The co-operative structure which provides social and economic benefits to its members is also hypothesized to result in a number of inefficiencies in performance when compared to IOFs. Porter and Scully and Ferrier and Porter argue that because co-operative shares are not traded on the open market, co-operative share values cannot be used as a convenient performance gage, and therefore operational inefficiencies can go unobserved. Widely dispersed ownership, particularly in large co-operatives, also provides individual members with few incentives to monitor the performance of their co-operative.

In a similar vein, Parliament, Lerman, and Fulton propose that co-operatives may be less discriminating, and hence less efficient, when investing in their asset base due to moral hazard problems. They argue that co-operative managers may face a moral hazard - that is, a failure to correctly consider all risks and make the appropriate adjustments - because the risk of defaulting on obligations is not as great for co-operatives as it is for IOFs. It is suggested that the risk is not as great for co-operatives because "co-operative principles provide an insurance policy in case of adverse business outcomes, with strong co-operatives expected to bail out their failing fellow co-operatives (p. 4)." The authors cite Parliament and Taitt's study of Minnesota company mergers which suggests that co-operative mergers may be treated as alternatives to bankruptcy. Moral hazard behaviour could also be the result of government intervention to the point where co-operative incentives become distorted and inefficiencies occur (Porter and Scully, Ferrier and Porter), although such moral hazard problems will also occur with IOFs if subsidies are present.

Porter and Scully and Ferrier and Porter point out that co-operatives are prone to further inefficiencies due to under-investment as a result of the limited patronage horizon of co-operative members. It is maintained that because members only receive direct returns on their investment (through patronage refunds) while they patronize the co-operative, they will influence the co-operative to maximize short-term rather than long-term returns. The trading of shares in an IOF, on the other hand, allows the expected future earnings of long-term investments to be reflected in the value of the company, therefore eliminating horizon problems common to co-operatives.

In effect, the ownership of a co-operative conveys little economic benefit to individual members because they do not usually gain from a financial appreciation in the value of their share equity. Instead the economic benefits to co-operative shareholders arise through the use of the co-operative. This is means that while there is an incentive for co-operative members to patronize the co-operative, there is little incentive to invest in the co-operative. Therefore, members, behaving as individual profit maximizers, will only invest as much as is required for them to patronize the co-operative. While such a strategy will benefit the individual member in isolation, its adoption by the entire membership will lead to capital problems for the co-operative. As a consequence of this reluctance by shareholders (i.e., members) to invest directly in their co-operative, co-operatives are expected to rely more heavily on debt and other means of financing than IOFs.

A co-operative alternative to debt financing is retained earnings, whereby co-operatives members are made to invest in the organization by retaining a portion of the earnings for the purpose of growth. However, earnings retained in the co-operative belong to the members and are usually returned to them at some point in time. There are at least two consequences of the member equity redemption requirement. The first consequence is that member equity in a co-operative has some of the attributes of debt in that there is an expectation that the equity cannot stay in the co-operative forever and will be repaid. However, retained member equity is not like debt in that it does not have first claim on the earnings of the co-operative. While there is an expectation that the equity will be repaid, this payment can be delayed; in tough financial times the equity can even be converted into permanent equity. This dual nature of retained member equity is important and should be kept in mind when examining co-operative financial performance measures based on net worth.

The second consequence of the member equity redemption requirement is that when earnings are redeemed, the co-operative has fewer assets available for growth. Without an increase in the level of debt, an increase in the rate of earnings, and/or an increase in the proportion of earnings retained, the redemption of equity ultimately leads to a slower growth rate. Thus, theory suggests that, over the long run, co-operatives will grow more slowly than IOFs.

However, the long run growth of co-operatives can also be affected by other factors, most of which are closely linked to other aspects of firm performance. The level of growth in a firm is a function of a number of elements, including the rate of taxation, the rate of return on capital, and the rate of earnings retention. The point to make is that both the return on capital and the rate of earnings retention are choice variables for the co-operative and depend on the goals of the co-operative and its members. As an example of this choice, a co-operative could choose a high rate of growth – which may come at the expense of the welfare of some of the members – or it can decide that a portion of the benefits be returned to the members, thereby reducing the growth of the cooperative.

The question of co-operative goals is particularly important when it comes to financial performance comparisons with IOFs. Given that investors in an IOF wish to maximize profits, it is almost essential that an IOF grow in order to survive. An IOF wishing to attract investment must provide a rate of return at least as great as other investment opportunities. Failure to do so will result in investment funds being withdrawn from the firm. If the firm is able to earn a rate of return competitive with other investments, then investors will wish to reinvest their money in the firm.

This logic does not have to hold for co-operatives. If the goal of members is not the maximization of profits, growth and profit levels comparable to other companies are not necessarily required. For instance, if the objective of the co-operative is to be present in the market, either as a competitive yardstick or to offer services to members that are not available from IOFs, then it may not be necessary for the co-operative to grow. Conversely, however, in expanding markets or in markets occupied by large multinationals, growth may be necessary for a co-operative to retain market share and continue to provide benefits to members. The growth of the co-operative may also be affected by other factors that are more social and political in nature. For instance, as a co-operative grows, it may find members or potential members becoming increasingly disenchanted with the large scale of the organization. As members withdraw from the co-operative, growth will naturally be limited. The opposite may also be the case if, for instance, members believe they need to support the

co-operative at all costs in order for the co-operative to provide service or maintain a community presence.

Staatz (1984) also notes that the narrower short-term focus of co-operative members may influence co-operative organizations to adopt more conservative business strategies and undertake fewer risks than IOF competitors. Investments in co-operatives, particularly in agriculture, represent a greater commitment to a particular line of business than investments in IOFs, as co-operative members frequently rely more heavily on the services provided by their co-operative. It is argued that because ownership is tied to patronage, co-operative shareholders may pressure management to adopt more conservative business strategies than the shareholders of IOFs who often do not rely on the operations of the firm and who may have greater flexibility in diversifying their investment portfolios.

Performance Measurement

A number of studies have been undertaken to test hypotheses regarding co-operatives' financial performance relative to that of investor-owned businesses. Several studies use financial performance criteria, such as accounting ratios and growth rates, to compare co-operatives with IOFs operating in the U.S. agri-food industry. For example, Parliament, Lerman, and Fulton use non-parametric statistical methods to detect differences in financial ratios measuring the profitability, leverage, solvency, liquidity, and efficiency of co-operatives and IOFs in the dairy industry. They conclude that co-operatives perform as well as, if not better than, the IOFs in these areas. The same methodology is employed by Lerman and Parliament (1990) in comparing co-operative and investor-owned fruit and vegetable processors. Co-operatives in this industry are found to perform similarly in terms of profitability and leverage, but are less liquid, solvent, and efficient than their IOF counterparts.

Schrader et. al. report the results from a number of studies carried out at Purdue University which compare the financial performance of co-operatives and IOFs involved in agribusiness. The results from a comparison of financial ratios of small co-operative and IOF cheese plants, grain elevators, and farm supply businesses suggest that co-operatives in these areas report higher asset turnover, leverage, and return on asset figures than proprietary firms, but report lower rates of return on net worth. A similar comparative study of large, diversified co-operatives and IOFs suggests that investor-owned firms report higher asset turnover figures and are more profitable than their co-operative counterparts.

Chen, Babb, and Schrader develop a regression model to assess factors affecting the relative growth rates of large diversified co-operatives and IOFs operating in five food industries. They conclude that the co-operatives analysed have generally achieved higher levels of sales and asset growth than their IOF counterparts. The results from their study also suggest that profitability and mergers or acquisitions were the two most important variables affecting growth rates of co-operatives and IOFs. In the U.K, Hind also uses a regression model to analyze whether there are differences between selected financial ratios and business health indicators of co-operatives and IOFs operating in the agri-business sector. The study concludes that co-operatives do not perform differently than IOFs, despite their broader mandate "to balance member needs with the attainment of corporate goals (Hind, p.213)."

Co-operative financial performance has also been compared with published industry norms. Royer uses non-parametric statistical methods to compare financial ratios measuring the liquidity and solvency of U.S. farmer co-operatives with industry standards for firms

operating in similar industries. He concludes that some of the co-operatives involved in marketing are less liquid than industry standards, but that co-operatives are, in general, less leveraged than other firms. Industry standards have been used to assess the performance of co-operatives operating in specific regions as well. For example, Kenkel and Sanders compare co-operatives with industry standards in order to highlight the issues facing, and the financial condition of, Oklahoma grain and supply co-operatives.

Regardless of the frequency with which conventional financial performance criteria are used to compare and evaluate co-operatives, it is important to bear in mind that such studies can only tell part of the story. By focusing on financial performance data, important components of co-operative performance are ignored as many of the benefits from co-operation, such as member well-being and the provision of public goods, are not accounted for. As Sexton and Iskow state, because co-operatives and their members represent a joint, vertically integrated entity, "evaluating performance of the joint entity by examining data for only a portion of the entity (i.e., the co-operative subsidiary) will often be misleading" (p.22) as returns to the remaining portion (i.e., the members) are not included. Furthermore, public goods which may be generated by the co-operative, such as increased competition in oligopolistic markets and the provision of services for which a functioning market does not exist, are ignored in conventional accounting and finance practice.

Proposals to capture a broader range of benefits within co-operative performance measures have included approaches similar to those developed in the field of environmental economics. These methods include inferring values from observed behaviour and direct elicitation. For example, Parliament, Fulton, and Lerman suggest that co-operative performance can be inferred by measuring differences in the observed prices between co-operatives and IOFs. However, few studies have made use of these techniques, with the exception of some of the studies summarized in Schrader et al.

Schrader et al. report on qualitative information obtained on the perceptions of producers, managers, and other co-operative players regarding the comparative performance of co-operative pricing, competitiveness, service, and public responsibility. They also report on a set of studies which compare the prices and services of agricultural marketing and supply co-operatives with those of IOFs in similar industries. The study's results tend to support the perception that co-operatives offer more and better services to members, and that contrary to public opinion, there are few significant differences in the prices offered by co-operatives and IOFs. The set of studies did not, however, test the effect of the presence of co-operatives upon the performance of other firms in the same market nor did they attempt to estimate a value for the non-market dimensions of a co-operative.

A more general criticism of the use of financial criteria to compare and assess co-operative performance is that these measures lack a solid foundation in economic theory (Sexton and Iskow). Although commonly used in finance, financial ratios and growth rates are not precise measures of success and are simply indicators of areas which may need further investigation. Alternatives to using financial statement data for comparative purposes include the use of formal tests of efficiency developed through economic theory. However, a major drawback in the use of these methods is the availability of reliable data.

Several studies have been undertaken to measure co-operative efficiency from a purely economic standpoint in the U.S. agri-food sector. Porter and Scully statistically estimate a frontier-production function to test the relative economic efficiency of co-operative and IOF dairy processors. Similarly, Ferrier and Porter construct a non-parametric production

function using the same data set to compare allocative and technical efficiency and to determine the nature of returns to scale. Both studies conclude that co-operatives are inefficient when compared to other market alternatives, and their survival is attributable to government subsidies. Criticisms of these studies focus on the use of data proxies and the lack of consideration for differentials in geographic location and product mix (Sexton and Iskow).

To control for product output and mix, Akridge and Hertel use a multi-product variable cost function to compare the efficiency of farm supply co-operatives and IOFs. They conclude that there are no significant cost differences between co-operative and investor-owned farm supply firms. These results reflect similar findings of a study reported by Schrader et. al. which compares the costs and utilization of capacity for supply co-operatives using regression analysis and controlling for product mix.

Financial Ratios

The pitfalls of financial statement analysis withstanding, financial criteria are nonetheless a useful, albeit second-best, form of comparing the performance of co-operatives with other organizational forms and industry standards. Financial ratios and growth rates reflect the effect of corporate strategic decisions. As such, these ratios and growth rates can provide insight into the impact of different business strategies, and, although ratios are difficult to interpret by themselves, they are particularly well-suited to comparative analysis. Furthermore, because these are the criteria by which financial institutions and critics commonly judge co-operative performance, they can provide an indicator of co-operatives' ability to operate and survive in a market.

In this study the following five categories of financial performance measures are analysed:

•   Liquidity ratios – These indicate the ability of a company to meet its short-term obligations out of liquid assets.

•   Profitability ratios – These highlight the net return to investors and creditors on the sales, assets, and equity of a firm.

•   Productivity ratios – These indicate the efficiency with which a company is using its assets and is collecting on its short-term credit obligations.

•   Leverage ratios – These represent the amount of capital provided by owners and creditors in a firm and provide insight into the ability of the firm to meet its obligations over the long run.

•   Growth rates – These provide an indication of the long-term sustainability and competitiveness of a firm as they reflect the firm's ability to progress and change.

As a result of different business strategies and organizational structure, differences in each of these performance categories can be expected when comparing co-operatives with IOFs. In the following section the specific ratios and rates analysed in the study are defined and the expected differences between co-operatives and IOFs are discussed in detail. Table 2.1 provides an overview and summary of this discussion.

It is important to note that financial statement data is not absolute. Differences in financial performance measures may reflect different methods of accounting and operations, rather than strategic decisions influencing the performance of a firm. Furthermore, the performance categories analysed are highly correlated and individual measures can be

indicative of several aspects of financial performance. For example, growth rates are dependent upon the profitability and degree of leverage of a firm, and liquidity ratios can also signal operational inefficiencies. Some of the common short-comings and relationships between the measures analysed are also discussed in the following section.

Liquidity Ratios

Current Ratio (CURRENT) and Quick Ratio (QUICK)

Liquidity measures provide insight into the financial strength of firms as they reflect the ability of a firm to meet its current obligations. These measures provide an indication of the degree of protection afforded to investors and lenders and are therefore important from a risk perspective. The two most common liquidity ratios are the current ratio and the quick ratio. The current ratio is calculated as current assets divided by current liabilities. The quick ratio is a more conservative derivative of the current ratio, as it is defined as current assets less inventories divided by current liabilities. The quick ratio measures the ability of a firm to meet short-term obligations out of its most liquid assets.

Generally, higher liquidity ratios indicate a larger buffer between current obligations and a firm's ability to pay them, resulting in a better position for debt holders. However, an excessively high current ratio may signal slack management practices if current assets are excessive when compared to current needs. A current ratio of 2:1 is considered normal for most business, while 1:1 is the absolute minimum for a firm to remain liquid. However, norms vary in accordance with industry sectors and the composition and quality of a firm's current assets. The quick ratio provides an indication of the collectability of current liabilities in the case of a real crisis, as it assumes that inventories would have no value.

For co-operative firms, one could expect that the current and quick ratios may be somewhat higher than those of IOFs due to risk aversion, either on the part of the co-operatives themselves or as an extension of their members' risk aversion. Staatz notes that this may be particularly true in the case of farmer co-operatives, as investments in a co-operative represent a greater commitment to a particular line of business than investments in IOFs. In contrast, moral hazard considerations cited by Parliament, Lerman, and Fulton may induce co-operatives to assume a higher degree of risk than IOFs resulting in lower liquidity ratios for co-operatives.

Profitability Ratios

Rate of Return Ratios (ROA, ROE, ROS)

Profitability ratios provide investors and creditors with an indication of the ability of a firm to generate income from money invested in assets and held in equity, and generated from goods or services sold. The three profitability ratios analysed in this study are return on assets (ROA), return on equity (ROE), and return on sales (ROS). All rate of return ratios are expressed as percentage figures.

Returns are usually calculated using net income after taxes. However, this study uses income before tax deductions for the purpose of comparing co-operatives and IOFs. In most co-operatives, the taxes on the net earnings of the co-operative that are allocated to members are not paid by the co-operative, but by the members. Thus, pre-tax income is a more comparable figure for co-operatives and IOFs.

The return on asset ratio is calculated by dividing pre-tax income by total assets. The ROA measures a firm's performance in using assets to generate earnings independent of how the assets are financed. Hence, the ROA measures the profitability of a firm before any payments to the suppliers of capital have been made. This figure is of particular concern to creditors as they have the first claim on earnings and assets.

The return on equity is calculated by dividing pre-tax income by total shareholder equity. The ROE also measures a firm's performance in using assets to generate earnings but, unlike ROA, explicitly considers the financing of those assets. This figure is of primary interest to the shareholders of a firm as it reflects the return on their investment.

The return on sales ratio (ROS), or pre-tax profit margin, is calculated by dividing pre-tax income by sales. This ratio provides a measure of a firm's ability to sufficiently control costs and expenses, i.e., to leave a margin of reasonable compensation to shareholders for putting their capital at risk. It also reflects operational abilities, because by holding down costs a firm will be able to increase the profits from a given amount of revenue and thereby improve its profit margin ratio.

As was mentioned earlier, profitability measures are difficult to analyze in the context of co-operative firms as they are choice variables dependent upon the needs of the firm and its members. It is widely accepted by co-operative theorists that profit maximization, although attributed as the primary objective of IOFs, is not the primary objective of co-operative firms. Theoretically, the primary goal of member-owned and controlled businesses is to improve the returns available to members or to provide members with a needed service that would otherwise not be available (Levay). Following Helmberger and Hoos, this has led some theorists to argue that co-operatives have a zero-surplus objective. It has also been argued that co-operatives can best maximize member returns and welfare through a combination of favorable product pricing and profits which are returned to the member through patronage refunds (Enke). Such an objective implies that adequate profit levels need to be maintained in order to ensure the long-term sustainabilty of the firm.

Regardless of the precise objective pursued by co-operatives, one major branch of economic theory suggests co-operative firms are likely to report lower rates of return than profit-maximizing IOFs. In fact, if members recognize the objective of their co-operative as being inter-connected with their own objective of increased returns and service, a rate of return comparable to IOFs may not even be expected by co-operative investors (Parliament, Lerman, Fulton). For example, an agricultural marketing co-operative with a mandate to pay producers the highest possible price available will reflect extremely low rates of return on sales; however, the individual returns to farmers from their operations will be maximized.

Another branch of economic theory suggests, however, that co-operatives may report rates of return that are equal to or even higher than that of IOFs depending on the relative degree of market power. In industries where market power is low, both co-operatives and IOFs can be expected to earn relatively similar rates of return. Since firms in such an industry do not have an ability to influence price, price can be expected to be lowered to the point where a normal economic return is being earned. If a co-operative was able to operate successfully in such an industry, it would earn a rate of return similar to that of the IOFs. However, in industries where firms do possess market power, co-operatives may actually be able to earn profits equal to or greater than their IOF counterparts, even while they are acting as a competitive yardstick. If a co-operative is successful at providing a competitive yardstick, the rates of return earned by the co-operative is likely to be similar to that of the IOFs. In addition, if the co-operative's leadership role provides it with a substantial market share, the co-operative may be able to operate with greater economies of scale than an IOF, resulting in better rates of return.

Productivity Ratios

Productivity ratios provide an indication of the general efficiency of a firm. Sales-to-asset ratios offer insight into how a company is using its assets to generate sales, while credit days throw some light on the short-term collection strategies of a firm.

Sales to Asset Ratios (SALE2TA, SALE2FA, SALE2INV)

Net sales divided by total assets (SALE2TA), the asset turnover ratio, is a measure of a firm's ability to generate revenues from a particular level of investment in total assets. A firm with a high total asset turnover ratio is able to conduct business with comparatively little invested capital. This can serve to increase the return on equity and reduce financial leverage. However, if asset investment is too small, the firm may be providing poor service to customers or may be suffering from inefficient production. Low sales-to-total asset ratios may indicate lower than average sales or higher than normal asset investment, where funds tied up in assets might be more useful if they were used for more immediate, productive purposes (Miller and Miller).

While simple to calculate, it must be recognized that asset turnover ratios are limited in their value. Total asset figures incorporate a wide variety of assets which are valued at different cost levels from past periods. As a result, asset values may have little relation to current economic values. Another distortion is caused by a company's mix of product lines. For instance, most manufacturing activities are asset intensive, while others like service or wholesaling need relatively fewer assets to support the volume of revenues generated. The inclusion of several different product lines in total net sales figures will therefore cause distortions. For highly diversified firms, a more refined analysis involving a breakdown of total financial data into major product lines is thus more desirable than the generalized method used in this study (Helfert).

To overcome some of the problems associated with total asset turnover, the ratio is frequently separated into its component ratios; sales divided by fixed assets (SALE2FA) and sales divided by inventory (SALE2INV). The fixed asset and inventory turnover ratios are also subject to distortions however. The valuation of fixed assets may grow with any significant change in the level of inflation or with the appreciation of assets such as real estate. Different cost accounting methods (i.e., Last-In-First-Out versus First-In-First-Out) used to determine the value of inventories can have a considerable impact on inventory turnover. Inventory levels also tend to vary greatly throughout the course of the year; therefore the use of average asset levels in the calculation of asset turnover ratios is more precise. However, data restrictions require the analysis in this study to use year-end-levels, which may, or may not, coincide with the average inventory levels for a firm.

Generally, higher sales-to-asset and sales-to-fixed asset ratios are preferable, signaling the ability of a firm to generate positive sales volume on the resources employed. The interpretation of the sales-to-inventory ratio highlights opposing considerations. For example, management would like to sell as many goods as possible with a minimum of capital tied up in inventories. On the other hand, management does not want to have so little inventory on hand that shortages result and customers are turned away. Trade-offs are therefore required in deciding the optimum level of inventory for each firm, and hence the desirable level of this ratio (Davidson et al.).

The existence of co-operative inefficiencies, due to moral hazard problems or the absence of share trading, are expected to cause lower than normal sales-to-asset ratios. Lower sales-to-

asset ratios are usually indicative of operational and resource management inefficiencies, as a greater amount of assets will be used to generate a similar level of sales. However, higher sales-to-fixed asset ratios may also be expected for co-operatives due to capital shortages and an underinvestment in long-lived assets resulting from members shorter patronage horizons (Parliament, Lerman, and Fulton, Porter and Scully, Ferrier and Porter).

It is important to note that differences in productivity ratios can also reflect a number of co-operative features outside of efficient asset use and capital investment. Pricing strategies are implicitly included when sales figures, rather than the cost of goods sold, are used to calculate asset ratios. Recorded sales frequently include a markup that is not included in the stated cost of the inventories and assets. Lower sales-to-asset ratios for co-operative firms can therefore also be the result of co-operative pricing strategies designed to meet a zero- or minimal-surplus objective.

Days of Net Sales in Accounts Receivable (RECABLES)

Another aspect affecting the asset turnover of a firm is management's efficiency in collecting accounts receivable. The days of net sales in accounts receivable, or the receivables ratio, is computed by multiplying accounts receivable at year-end by 365 and dividing this total by the net sales for the year. The resulting ratio is expressed as a whole number indicating the average number of days required to convert account receivables to cash, and providing some broad information regarding the role of accounts receivable in a firm's operations. In general, if the number of credit days is too large, financial performance can be reduced through lower sales attainment and the need for borrowing. A low ratio can exert a favorable influence upon firm performance, increasing asset utilization. However, as with the other productivity measures, this is a rather crude measure of accounts receivable collection, as an exact analysis can only be made by examining the aging of the individual accounts recorded on the company's books. Interpreting a healthy level of days depends entirely on the credit terms and sales conducted on a cash basis for each individual firm.

The co-operative mandate of meeting members' needs may cause the days of net sales in accounts receivable to be higher for co-operative firms than IOFs. This could be the result of more favourable and lenient credit terms being offered to co-operative members, particularly in the case of retail grocery and agricultural supply co-operatives.

Leverage Ratios

Leverage ratios reflect a firm's ability to meet its current and long-term debt obligations. Leverage refers to the degree to which the returns of a firm are being financed by increased debt. The higher the leverage, the greater are the risks associated with the probability of default by the firm, while lower leverage generally indicates greater financial security.

Debt Ratio (DEBT2TA)

The debt ratio is calculated as total debt (liabilities) divided by total assets. It is a measure of the firm's total debt burden. In general a lower ratio is preferred by creditors since it implies greater protection of their investment in the firm. Higher debt ratios generally mean higher interest rates must be paid to offset the increased risk associated with the debt.

Net Sales to Net Worth (SALE2EQ)

The ratio of net sales divided by net worth measures the extent to which a firm's sales volume is supported by owners' equity. A sales-to-equity ratio substantially higher than other firms in the industry may indicate a company which is burdened by heavy debt and is conducting excessive sales on limited owners' equity. This type of behaviour by a firm is referred to as overtrading. Undertrading refers to a situation where a company is generating such a low level of sales that owners receive an inadequate return on their investment. Lower than normal sales-to-equity ratios can be a sign of undertrading. From a conservative standpoint, overtrading is less desirable than undertrading, as an overextended firm becomes much more vulnerable in the face of unexpected difficulties (Miller and Miller).

Total Liabilities-to-Equity (DEBT2EQ) and
Long-term Debt-to-Equity (LTDBT2EQ)

The ratio of total liabilities divided by the equity of the firm gives an indication as to the degree of operating freedom a company enjoys. Comparatively low debt-to-equity ratios denote a strong ownership position in proportion to the liabilities incurred by the firm. Such a position allows a company relative freedom from creditors' demands for repayment or for controlling interest in the firm's management decisions. On the other hand, high ratios can signal debt pressures which can cause a firm to forgo profitable growth opportunities or investment in basic maintenance and upgrading.

Further breaking down the debt-to-equity ratio into long-term liabilities divided by equity, provides a clearer understanding of the type (i.e. short- or long-term) of debt pressure a firm may be facing. When the ratio level exceeds 1.0, lenders possess a larger stake in the firm then the investors. At levels approaching zero, the firm may be overcapitalized, indicating a lack of growth and restricted potential returns. Debt-to-equity ratios therefore provide an indication of a firm's long-term competitiveness and survival (Miller and Miller).

In general, low levels of member investment are expected to be reflected in comparably higher leverage ratios for co-operatives, indicating a low level of financial flexibility. Debt-to-equity ratios greater than one are of particular concern to co-operatives, as this indicates a situation where lenders possess a larger share in the co-operative than members and the co-operative principle of user-ownership comes into question. In addition, it is important to keep in mind that a portion of a co-operatives' equity may be in the form of retained earnings. Retained earnings share some of the attributes of debt as these earnings are expected to be returned to the members at some point in the future, however, these aspects are not captured within the selected leverage ratios.

Growth Rates

Asset Growth (ASSETGRO) and Sales Growth (SALESGRO)

Growth rates provide an indication of the degree to which a firm is able to increase such attributes as sales or assets on a year-by-year basis. There has been considerable debate concerning the kind of data to use to analyze firm growth (Padberg). The use of sales has both problems and advantages. As Oustapassidis shows, there are problems with sales data when short time periods are examined. Fluctuation of price levels is very common and such fluctuations do not necessarily represent firm growth. At the same time, sales or market share data has advantages because market power is often measured by firm sales. Total assets are often thought to be a good measure of the size of a firm, particularly when comparing firms

with very diverse operations (Collins and Preston). However, this advantage becomes a disadvantage when a measure of the size of a multi-product firm in a particular market sector is required. In this study, the growth rate of both sales and assets are used. The growth rate is calculated by taking the difference in the natural log of the sales or asset level in two consecutive years and multiplying the result by 100 to get a percentage figure.

The most important determinant of the growth rate of co-operative firms is the rate of return earned on assets, since the larger the earnings, the greater the ability to finance growth. Other factors also influence the growth of co-operatives, however. The literature review examined above suggests that co-operatives are likely to grow at a slower rate than their IOF counterparts. Part of the reason for this slower growth is the requirement that retained member equity be returned to members over time. The equity redemption requirement reduces the capital available to co-operatives and lowers the rate of co-operative growth. Co-operative growth is also likely to be lower because of co-operatives greater reliance on retained earnings and the difficulty co-operatives have in raising equity capital from their members. Finally, co-operative growth may be slower because of differences in the objectives and business goals of co-operatives and IOFs.

Methodology

This study compares the rates and ratios described in the previous section for co-operatives and IOFs operating in several different sectors. Two forms of comparative analysis are used: (a) direct co-operative and IOF comparisons; and (b) co-operative and industry norm comparisons. The form of analysis for each sector and size category is dependent upon the availability of data. The financial statements of individual IOFs were obtained from the *Compact D/Canada* database published by Disclosure, Inc. For co-operatives, financial data on individual co-operative firms collected by the Co-operatives Secretariat is used. Co-operatives are also compared with Canadian industry norms published by Dunn & Bradstreet. It was not possible to compare profitability measures or growth rates using industry norms due to incompatible data.

Larger co-operatives, those with total assets greater than $1,000,000, in the retail grocery, grain and oilseeds, feed, and fishing sectors are compared with investor-owned competitors over the five year time period from 1989 to 1993. Fruit and vegetable co-operatives with total assets greater than $250,000 are compared with IOF processors from 1990 to 1993. In these sectors, summary and yearly mean statistics are compared and non-parametric statistical tests are used to determine if the overall means of the co-operative and IOF samples are significantly different for each ratio. Non-parametric statistical methods do not require assumptions about the probability distributions of the data being examined. For example, in this study, because the sample size in each of the sectors is relatively small, it is difficult to assume that the observations are drawn from a normal distribution. In situations where the classical assumptions are met, non-parametric tests usually are less efficient, particularly for large samples (Royer).

The Wilcoxon Rank Sum test is the predominant non-parametric test used in this study for comparing the ratio means of the co-operative and IOF samples. The only assumption required for this test is that the observations are independent. The null hypothesis states that there are no significant differences in the financial performance between the two groups and that the mean ratios of the co-operative and IOF samples are the same. The alternative hypothesis states that the two means are different. A significance level of 5 percent is used to

reject the null hypothesis. The results from a normal approximation of the parametric t-test are also presented; however, the resulting values of these tests parallel those calculated using the Wilcoxon Rank Sum tests and they are therefore not discussed. The statistical analysis package *SAS* is used for all statistical calculations.

Large co-operatives in the retail grocery, fruit and vegetable, feed, and fish industry are also compared to industry norms for firms with similar operations. Comparable industry norms for each of the sectors are determined through the use of standard industrial classification codes (SIC codes). In these sectors, the co-operative overall and yearly mean financial ratios and growth rates are compared with figures reported as industry norms and based on median balance sheet and income statement data.

Co-operatives operating in the dairy industry with total assets greater than $1,000,000 and co-operatives in the retail grocery, feed, and fish sectors with total assets greater than $250,000 but less than $1,000,000 are also compared to industry norms. The median values of co-operatives in these categories are compared to the median industry norm figures for the seven year period from 1986 to 1993, with the exception of retail grocers which are compared over the period 1987 to 1993.

The use of medians is an advantage for small samples because the medians are more robust to large fluctuations and gross errors in the data than the means. However, because mean values are used throughout much of the analysis, outliers and extraordinary observations are removed from the data to minimize biased statistics. Appendix 2.1 at the end of this chapter outlines the criteria used to determine outliers within the different sector samples. Further sector specifics regarding data and methodology are described in greater detail in the appropriate chapters.

Co-operative Financial Performance

Appendix 2.1 Determination of Outliers and Extraordinary Observations

	Retail Grocers	Fruit & Vegetable	Dairy	Feed	Fish
Performance Indicator					
Liquidity					
Current	-20 – 20	-	-	-	-20 – 20
Quick	-20 – 20	-	-	-	-20 – 20
Profitability					
ROA	-200 – 200	-100 – 100	-	-200 – 200	-200 – 200
ROE	-200 – 200	-200 – 200	-	-	-200 – 200
ROS	-200 – 200	-	-	-	-200 – 200
Productivity					
SALE2TA	-	-	-	-	-
SALE2FA	-	-100 – 100	-100 – 100	-50 – 50	-100 – 100
SALE2INV	-	-100 – 100	-100 – 100	-	-200 – 200
RECABLES	0 – 365	0 – 365	-	-	0 – 365
Leverage					
DEBT2TA	-	-	-	-	-
SALE2EQ	-50 – 50	-100 – 100	-50 – 50	-	-100 – 100
DEBT2EQ	-20 – 20	-20 – 20	-20 – 20	-	-10 – 10
LTDBT2EQ	-20 – 20	-20 – 20	-20 – 20	-	-10 – 10
Growth					
SALESGRO	-	-	-	-	-
ASSETGRO	-	-	-	-	-

The above table outlines the guidelines used to determine outliers and extraordinary observations from the samples of co-operative and investor-oriented firm ratios and rates of growth. These guidelines are arbitrary and vary by sector, as only those values which are extraordinary relative to the rest of the values present in a particular sample are removed. The table lists the accepted ranges of values for the different ratios; values observed to be outside

of these ranges are removed from the samples. In a number of cases no observations are removed and, hence, a range of values is not provided. The analysis of firms in the grain and oilseeds sector represents a special case, as the observations from one firm (Continental) are removed from the IOF sample throughout much of the analysis (see chapter 6).

3

Retail Sector

Industry Overview

The Canadian retail grocery industry includes 340 consumer co-operative associations which serve over seven hundred thousand members. Generating nearly 2.2 billion dollars in sales in 1992, consumer food co-operatives account for one third of total consumer and supply sales in the country (Co-operatives Secretariat). Retail grocery co-operatives vary in size and sophistication from small buying clubs in which a few families pool grocery orders and buy from wholesale outlets, to natural food specialty co-operatives, to large diversified consumer co-operatives whose sales include not only groceries but hardware, home furnishings, home renovation, agricultural and petroleum products, and building materials. The analysis in this study focuses on comparing the larger diversified consumer co-operative retail grocers with other large firms involved in the retail grocery industry.

Table 3.1   Consumer Co-operatives in Canada, 1992

	Region				
	West	Ontario	Quebec	Atlantic	Canada
Number of Co-operatives	256	27	236	108	627
Membership (thousands)	1249	26	760	187	2222
Full-time Employees	5333	329	2036	1422	9120
Part-time Employees	5651	205	127	1717	7700
Volume of Business ($ M)	2082	175	459	588	3300
Assets ($ M)	831	38	129	164	1162
Members' Equity ($ M)	538	14	60	65	677

Source: Co-operatives Secretariat

Table 3.1 provides an overview of consumer co-operatives across Canada and Table 3.2 summarizes the volume and variety of consumer products sold. Food product sales account for the largest portion (78%) of consumer products sold by co-operatives. Calgary is home to the largest consumer co-operative in North America with nearly 40 percent of the local market and 515 million dollars in sales in 1993 (Federated Co-operatives). The majority of consumer retail co-operatives operating in the western region of Canada are members of Federated Co-operatives, Ltd., one of the largest non-financial co-operatives in Canada with nearly two billion dollars in sales and revenues in 1993. Similarly, Co-op Atlantic serves member retail co-operatives throughout the Atlantic region, with total sales for the wholesale co-operative amounting to $454 million in 1993. Consumer co-operatives in Ontario and Quebec generally provide services to the rural population, with little impact on the urban retail markets (Co-operatives Secretariat).

Table 3.2   **Consumer Products Sold by Co-operatives in Canada, 1992**

Goods Sold by Co-operatives:	Region				
	West	Ontario	Quebec	Atlantic	Canada
			-millions-		
Food Products	1204.8	94.2	368.1	521.3	2188.4
Dry Goods & Home Hardware	206.3	39.1	16.5	45.9	307.8
Other Consumer Goods	133.7	79.8	80.8	5.3	299.6
Total	1544.8	213.1	465.4	572.5	2795.8

Source: Co-operatives Secretariat.

Overall Results

Co-operatives in the retail grocery sector with total assets greater than $1,000,000 appear to be performing very well when compared to IOF competitors and industry norms. They are more liquid and are generating profits at similar, if not higher, levels than the IOFs examined. They also reported lower leverage ratios than IOFs and the industry indicating a greater degree of financial security. A comparison of sales and asset growth indicate that the co-operatives are also growing at rates comparable to IOFs in the industry. In terms of productivity, however, the co-operatives appear to be slightly less efficient in generating sales relative to assets than the IOFs and other firms in the industry. The co-operatives carry similar levels of net sales in accounts receivable.

In general, the above results are paralleled for smaller retail co-operatives with total assets between $250,000 and $1,000,000. The co-operatives in this category are more liquid in both the short and long-run than the industry norms for similarly sized grocers. Co-operatives appear to be less leveraged and more financially secure than the industry norm. However, the overall sales-to-asset and sales-to-inventory ratios for the co-operatives are lower than the industry norm, while the sales-to-fixed asset ratio and credit days are slightly higher. This suggests the medium-sized grocery co-operatives employ different strategies regarding the management of their resources than other firms in the industry; they may offer more liberal credit terms to their members and may follow more conservative strategies for fixed asset investment and inventory turnover.

Retail Grocers with Total Assets Greater than $1,000,000

Under the category of grocers with assets greater than $1,000,000, statistics measuring the financial performance of approximately 19 co-operative firms are compared to those of 12 investor-oriented retail grocery firms for the period 1989 to 1993. The actual sample size used to calculate ratio means for co-operatives, IOFs, and industry norms varies yearly. As is outlined in table 3.3, there are substantial differences in the scale between co-operatives and IOFs. This is partly because the firms included in the IOF sample are generally large grocery chains.

Large grocery and supermarket chains dominate the retail grocery industry. For example, in 1992 nine IOF grocery chains with annual sales over $700 million generated a total of

$15,832,601 in sales through the operation of 1,536 stores across Canada. This figure accounts for 76% of all supermarket sales in 1992. On the other hand, the 72 supermarkets (operating 963 stores) with annual sales less than $200 million, account for only 4.2% of total annual supermarket sales (Statistics Canada). In contrast to the IOFs' operations which generally cover various regions and provinces, the co-operative retail grocery associations operate in relatively narrow geographical regions. For example the Calgary Co-operative Association operates 14 grocery stores which are limited to the Calgary region, while the Saskatoon Co-operative Association operates two stores within the city of Saskatoon (Federated Co-operatives, Ltd.).

Another reason for the differences in scale between the two types of firms is due to differences in the diversification of their operations. The public and private companies included in this sample are involved in a number of different operations, many of which entail the manufacture and wholesale of grocery items. The co-operative associations included are not involved in wholesale operations, but are members of secondary co-operatives which wholesale on their behalf (e.g., Federated Co-operatives Ltd. and Co-op Atlantic). Although the co-operatives are diversified, they tend to focus on the retail of non-food consumer items (e.g., hardware, clothing, home renovation), agricultural inputs (e.g., feed and bulk petroleum) and pump gas. A listing of the IOF supermarkets included in this analysis and their different operations (classified by Standard Industrial Classification (SIC) codes) is provided in appendix 3.1 at the end of this chapter.

Selected financial performance indicators for the co-operatives and IOFs are statistically examined to determine whether significant differences exist between the two types of firms. In addition, the yearly means of each indicator for both groups are compared graphically with the industry norms for retail grocers (SIC 5411) with total assets greater than $1,000,000. As indicated in table 3.3, 208 firms are included in the calculation of the industry norm ratios. There are large differences in the mean annual sales and total assets of the firms used to calculate the industry norms and those included in our sample of co-operatives and IOFs. These differences are likely due to individual grocery stores being surveyed for industry norms, rather than grocery chain conglomerates.

Table 3.3   **Sample Summary of Retail Grocers with Total Assets Greater than $1,000,000**

	Type of Firm		
	Co-operatives	IOFs	Industry Norm
Selected Variables			
Number of Firms	19	12	208
Mean Annual Sales ($)	90,725,191	1,932,186,593	8,643,485
Mean Total Assets ($)	29,753,765	486,270,441	1,827,089
Mean Equity ($)	18,950,653	151,318,966	814,375

Table 3.4 reports the means and standard deviations of each performance indicator over the period 1988-1993 for the co-operative and IOF samples, and the industry norms. The table also presents the results from the statistical tests which compare the IOF and co-operative sample means. These results and graphical comparisons of the ratios in each performance category are now discussed.

Liquidity

The consumer co-operatives surveyed in this size category appear to be more liquid than their IOF counterparts as the null hypothesis of similar means was rejected for both the quick and current ratios. As is illustrated in figure 3.1, the co-operative mean is well above the industry norms and the average of the comparison IOF group throughout 1989 to 1993. However, the standard deviation of these ratios is much higher for the co-operatives than for the IOFs analysed, indicating a higher degree of variance amongst the co-operatives sampled.

Profitability

In general, the co-operatives analysed appear to be at least as profitable as their IOF counterparts. When comparing the return to total assets, retail co-operatives appear to perform better than their IOF counterparts, with a 8.7% mean return versus a 3.9% return. The co-operatives also appear to perform better than their IOF competitors when comparing the mean return on sales ratios, with a co-operative mean of 2.85% versus 0.93% for the IOFs. The null hypothesis of similar means was rejected for both ratios.

The null hypothesis was not rejected when comparing the rates of return on equity, indicating some doubt as to whether the mean rate of 17% for IOFs is significantly different from the mean return on co-operative equity of 12.4%. However, there are large differences in the variances between the two groups, which can influence the statistical tests in favour of not rejecting the null hypothesis. The rates of return on equity for co-operatives varied to a lesser extent than those of IOFs, which is indicated by a lower standard deviation in table 3.4.
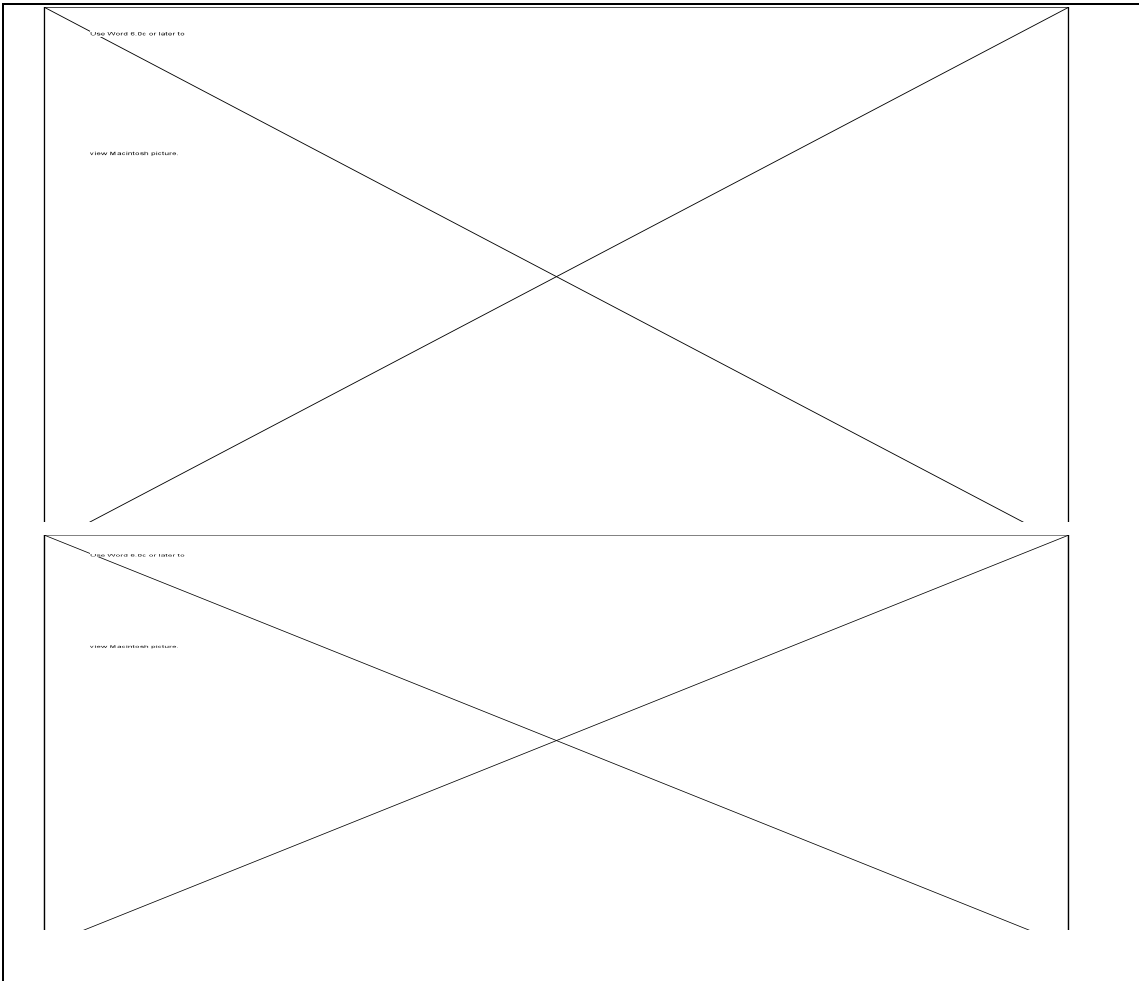
**Figure 3.1   Liquidity Ratios for Retail Grocers with
                 Total Assets Greater than $1,000,000, 1989-1993**

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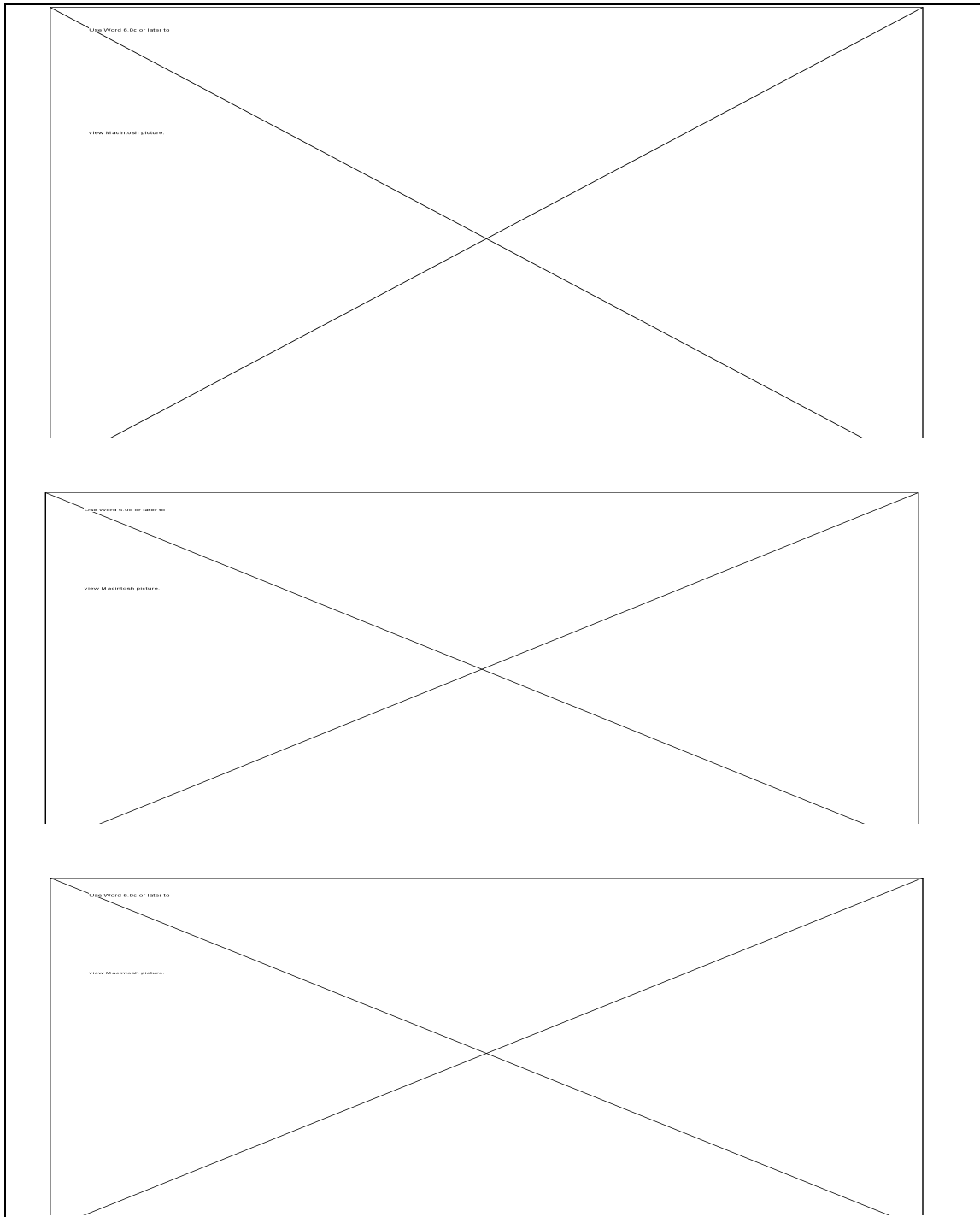
**Figure 3.2   Profitability Ratios for Retail Grocers with Total Assets
Greater than $1,000,000, 1989-1993**

Productivity

The results of the non-parametric tests for the productivity ratios suggest that the co-operatives in the sample generated lower sales relative to total assets than their IOF counterparts, but generated similar levels of sales with respect to fixed assets and inventory.

Examining figure 3.3 co-operatives appear to consistently report a lower sales-to-asset ratio than the IOFs; the co-operatives also appear to have relatively lower sales-to-fixed asset and sales-to-inventory ratios than the IOFs. The standard deviations presented in table 3.4 suggest that the non-parametric test results are affected by the variability in the sales-to-fixed asset and sales-to-inventory ratios. A comparison of the industry norms and the co-operatives suggests that the co-operatives are generating lower sales relative to total assets and fixed assets than other firms in the industry, but are at par in terms of sales-to-inventory ratios. Overall, the co-operative grocers appear to be less productive than other firms in the industry.

In collecting accounts receivable, the co-operatives are on average only a day slower (9 versus 8 days) than the IOFs. Both samples are above the industry norm average of 5 collection days throughout the period studied.

Leverage

Figure 3.4 depicts the yearly means of the four leverage ratios analysed. In general, it appears that the co-operatives are more financially secure and liquid in the long-run than the IOFs analysed. The null hypothesis was rejected for all four ratios in this category, suggesting that the true co-operative means are likely to be lower than those of the IOFs. The overall averages for the co-operatives are also lower than the industry norm averages over the period analysed.

Growth

The null hypothesis of similar means for co-operatives and IOFs could not be rejected for either of the growth rates analysed. However, this result is likely due to the high degree of variance within both samples as suggested by the large standard deviations. The is also a high variance in yearly growth rates indicated in figure 3.5., which graphs both asset and sales growth rates from 1990 to 1993 for the co-operatives and the IOFs. The co-operative mean sales growth figure is 3.6 percent and the IOF average growth rate is 2.9 percent. Average asset growth rates are 5.4 percent for co-operative grocers and 2.9 percent for IOFs.

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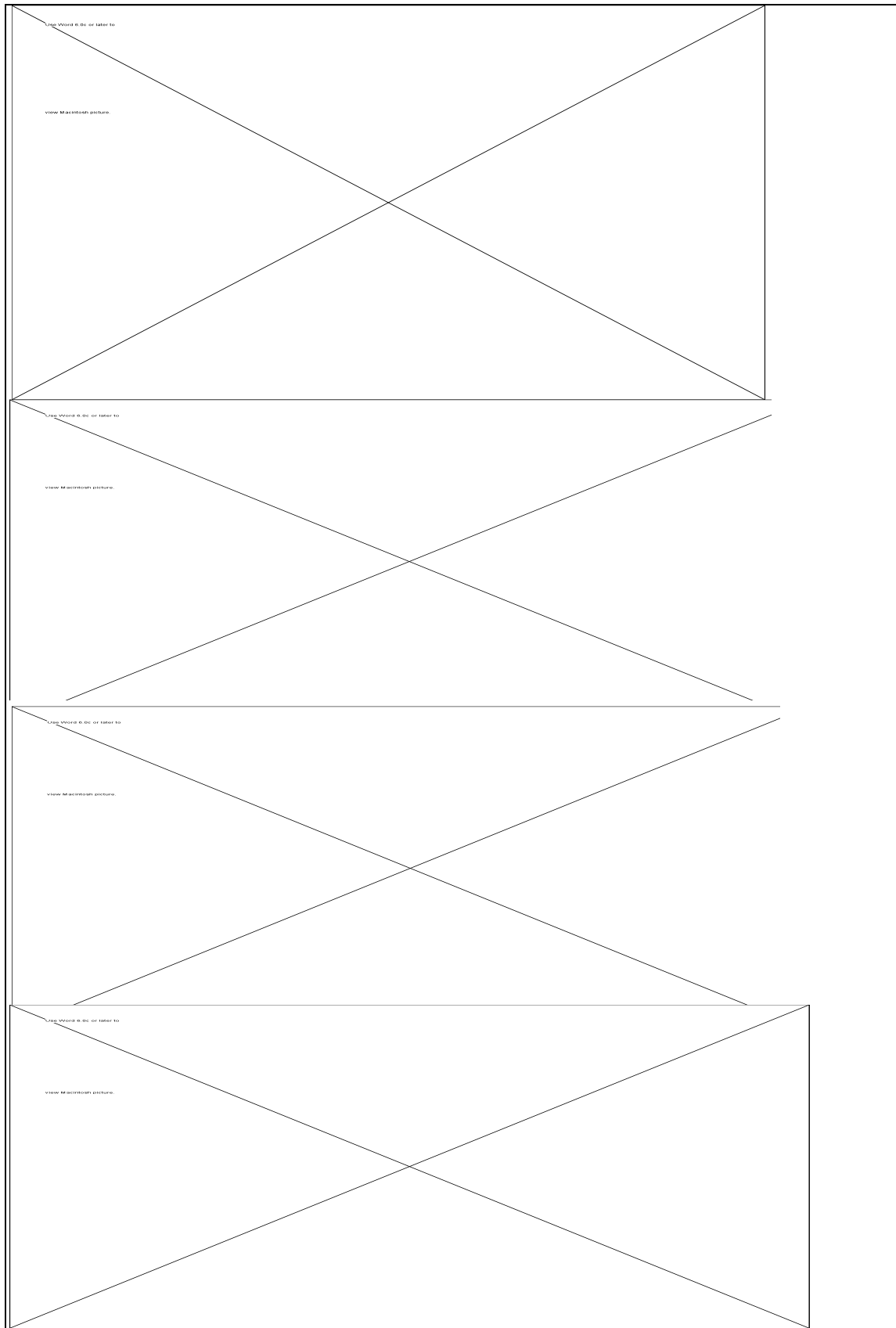
**Figure 3.3   Productivity Ratios for Retail Grocers with
Total Assets Greater than $1,000,000, 1989-1993**

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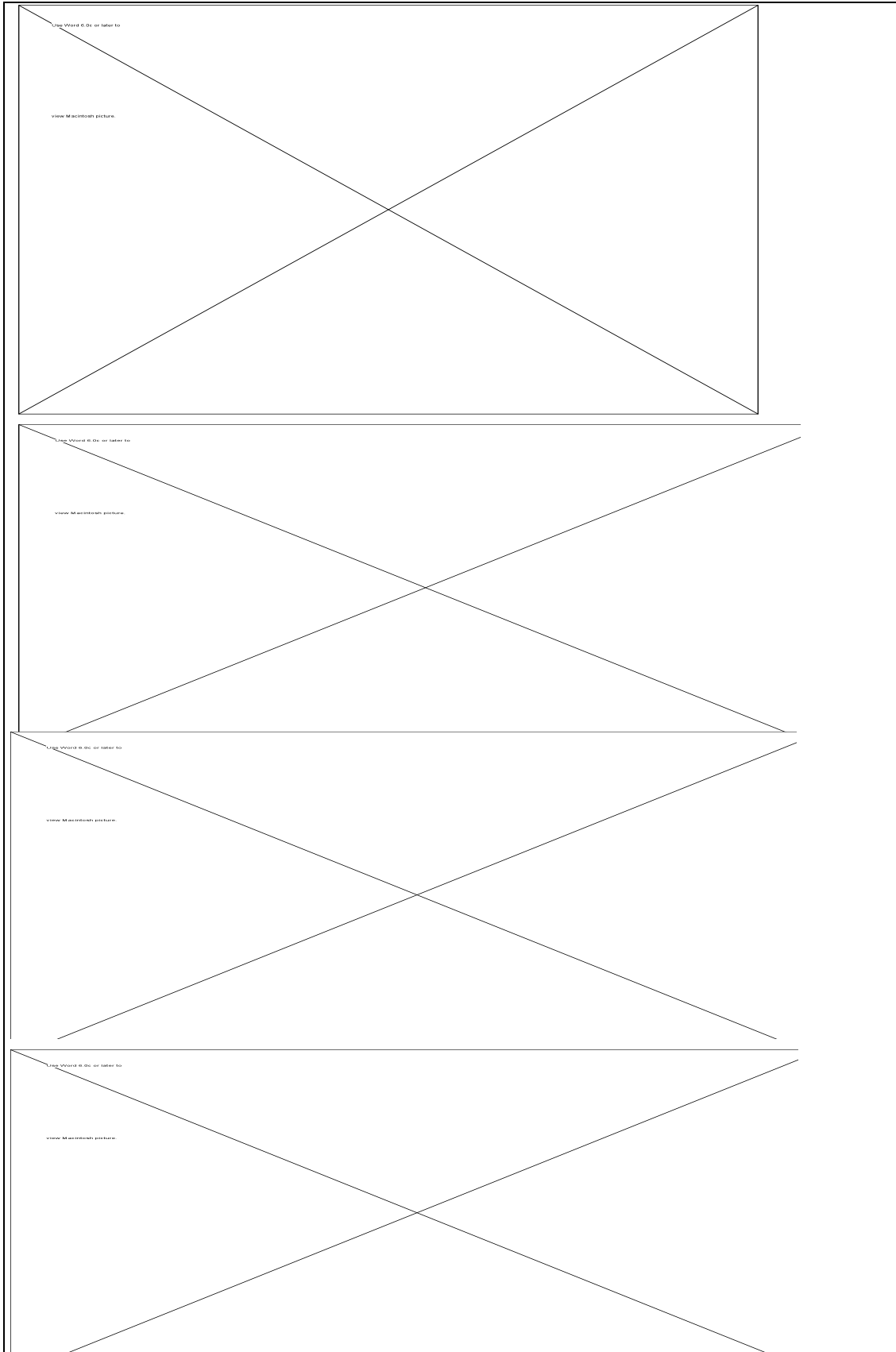
**Figure 3.4   Leverage Ratios for Retail Grocers with
                  Total Assets Greater than $1,000,000, 1989-1993**
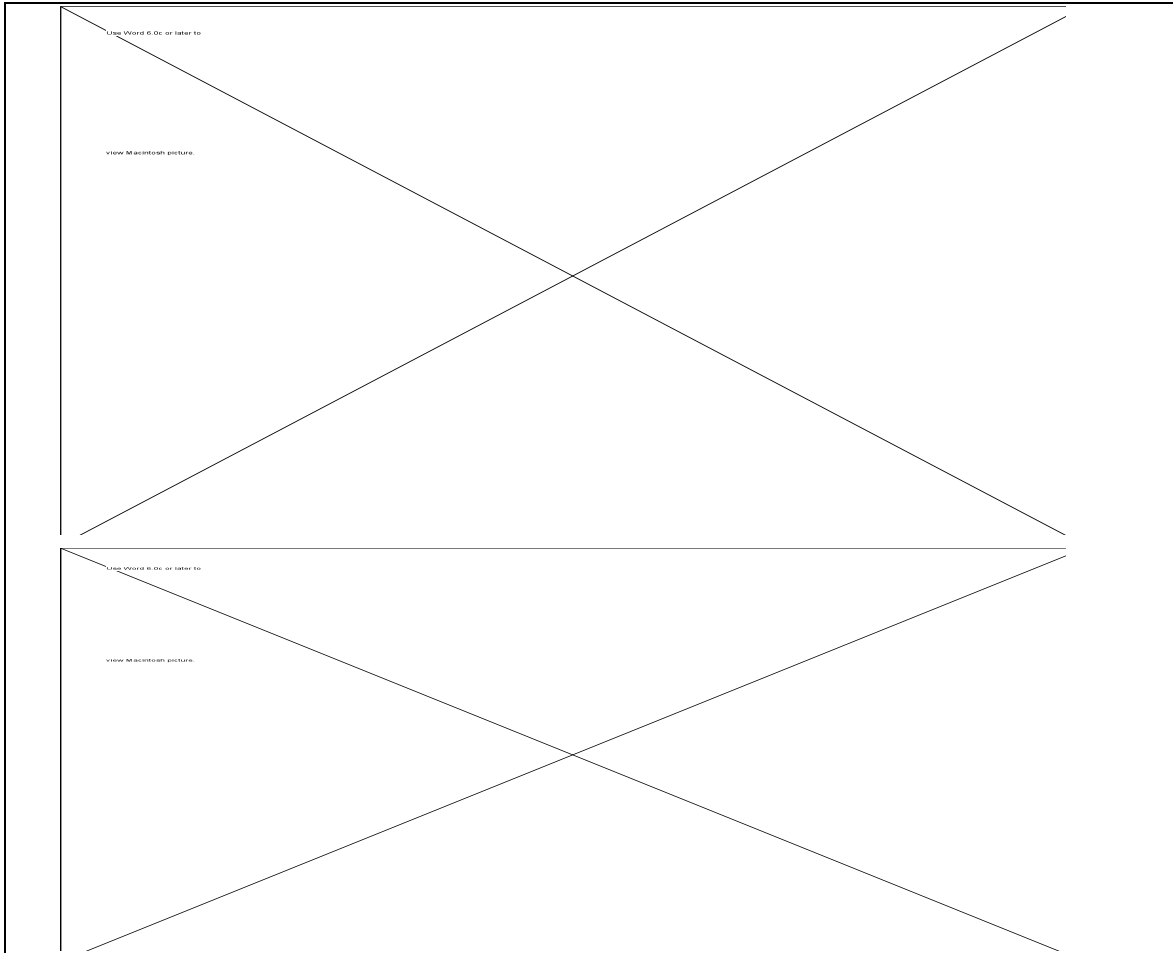
**Figure 3.5   Growth Rates for Retail Grocers with Total Assets
Greater than $1,000,000, 1990-1993**

Retail Grocers with Total Assets Less than $1,000,000 and Greater than $250,000

In this category yearly median ratios of 51 retail grocery co-operatives are compared with the industry norms of retail grocers with similar asset levels for the period 1987 to 1993. In calculating the industry norms, Dunn and Bradstreet surveyed 244 firms with grocery retailing as their primary operation and reported the median observation as the industry norm. These medians are used to calculate the selected financial ratios indicative of liquidity, productivity, and leverage used in this study. Appendix 3.2 at the end of this chapter provides the yearly medians of the financial performance indicators discussed for both the co-operatives analysed and those reported as industry norms.

Table 3.5 summarizes the average characteristics of the two groups. The overall average median annual sales and total asset figures are similar, indicating no significant differences in the scale of the firms analysed. This is likely due to the fact that the co-operative associations included in this category operate only one or two stores each, as do the firms included in the calculation of industry norms. It is worth noting that the average net worth of the co-operative firms is considerably higher than those firms included in the industry norm calculation. This may be due to significant levels of retained earnings included in co-operative equity figures.

**Table 3.5   Averages of Selected Variables for Retail Grocers with Total Assets
Greater than $250,000 and Less than $1,000,000, 1987-1993**

	Type of Firm	
	Co-operatives	Industry Norm
Selected Variables		
Number of Firms	51	244
Mean Annual Sales ($)	1,433,668	1,927,770
Mean Total Assets ($)	525,033	469,599
Mean Total Liabilities ($)	183,111	299,864
Mean Net Worth ($)	321,408	169,735

Liquidity

As is illustrated in figure 3.6 the co-operatives analysed are more liquid over the period studied than is considered the norm for retail grocers. The average median current ratio for co-operatives is 2.50, whereas the industry norm is 1.32. For the quick ratio, the co-operative seven year average is 0.75 and the industry norm is 0.46.

Productivity

As shown in figure 3.7, co-operatives in this category generally have a lower sales-to-total asset and sales-to-inventory ratios than similar firms in the industry, but have a higher sales-to-fixed asset ratio. The overall median average ratio of sales-to-total assets for co-operatives is 3.10 versus 4.11 for the industry. The average co-operative sales-to-inventory ratio of 8.80 is also less than the average of 12.53 reported by the industry. In contrast the sales-to-fixed asset ratio is 11.12, versus 10.02 for the industry. These results suggest that the co-operative grocers may be holding more inventory, or generating lower sales, than their competitors. Slightly higher sales-to-fixed asset ratios may signal a lower level of investment in fixed assets than similarly sized retail grocers.

The co-operative grocers have a slightly longer average collection period than other firms. The co-operative overall average is 8 days compared to the industry norm of 6 days. If a large portion of the co-operatives' accounts receivable is in the form of customer credit, this result is likely due to more favourable credit terms for co-operative members.

Leverage

In general, all four leverage ratios are on average considerably lower for the co-operatives than the industry norms. This suggests that the co-operative retail grocers in this size category are more financially secure and less leveraged than other firms in the industry. The seven year median average for the debt-to-total asset and sales-to-equity ratios are 0.36 and 4.65 respectively for the co-operative firms, versus an average of 0.64 and 11.38 for the industry. The co-operative average debt-to-equity ratio is 0.46 and the long-term debt-to-equity ratio is 0.10. The mean debt-to-equity ratio for the industry is 1.77 and the mean

long-term debt-to-equity ratio is 0.71. Figure 3.8 illustrates how the differentials between the co-operatives and the industry median ratios are consistent throughout the period analysed.

Quick Ratio

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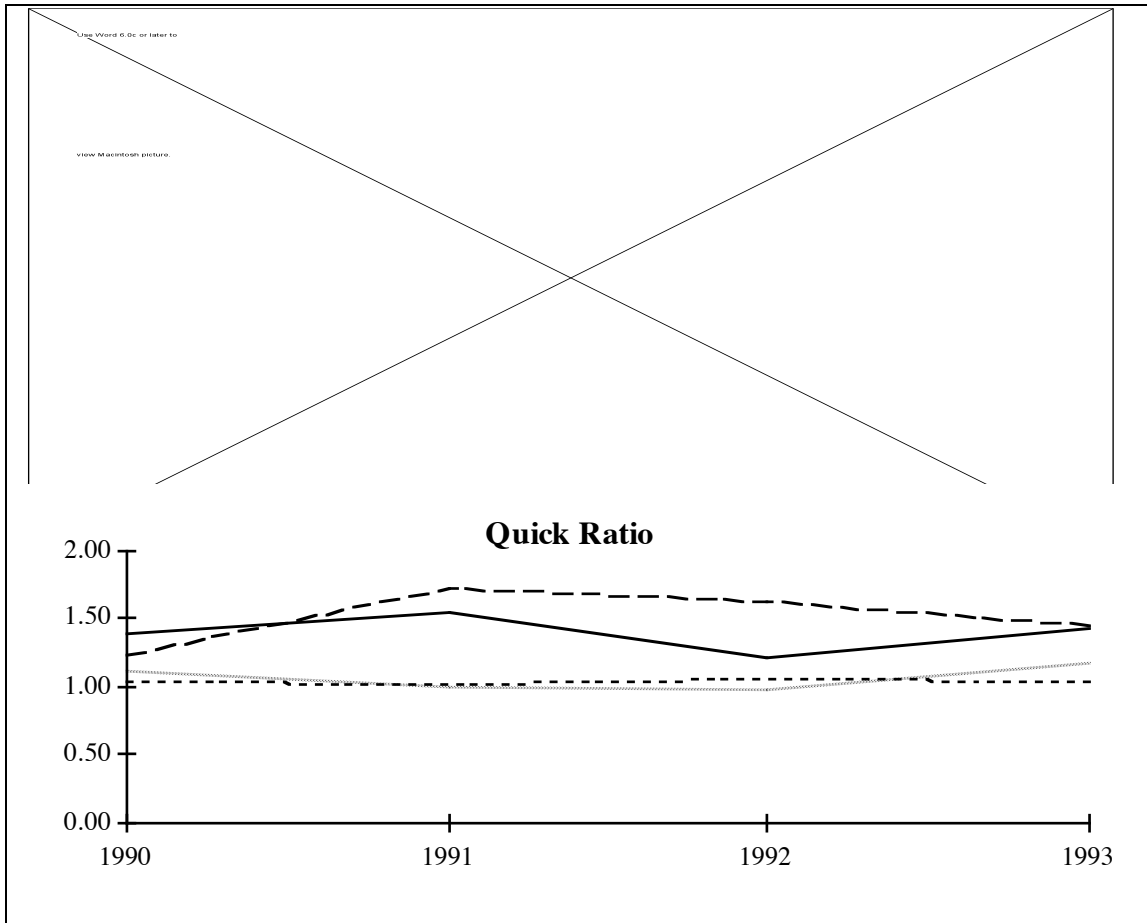
Figure 3.6 **Liquidity Ratios for Retail Grocers With Total Assets Greater than $250,000 and Less than $1,000,000, 1987-1993**

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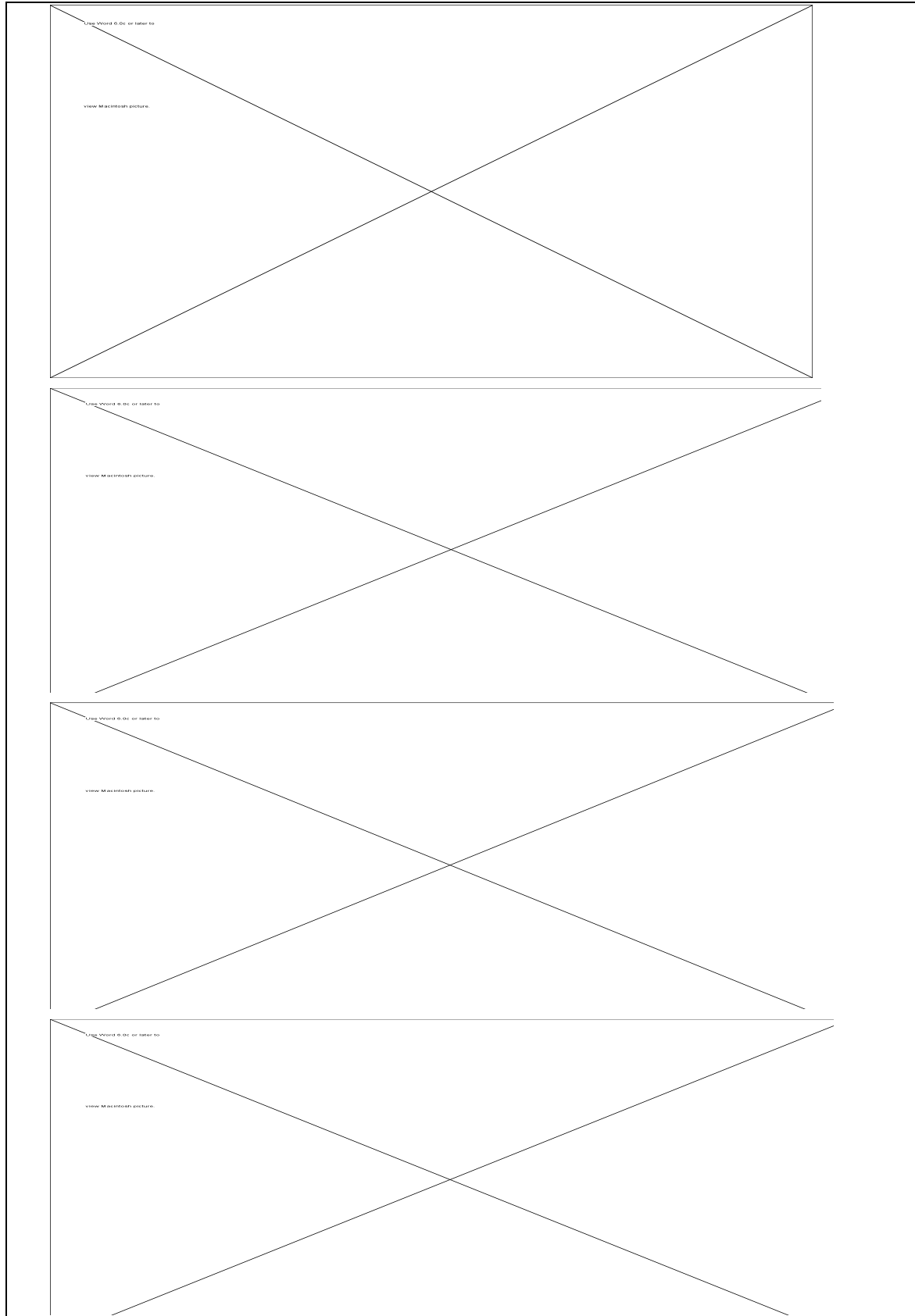
**Figure 3.7   Productivity Ratios for Retail Grocers With Total Assets
              Greater than $250,000 and Less than $1,000,000, 1987-1993**

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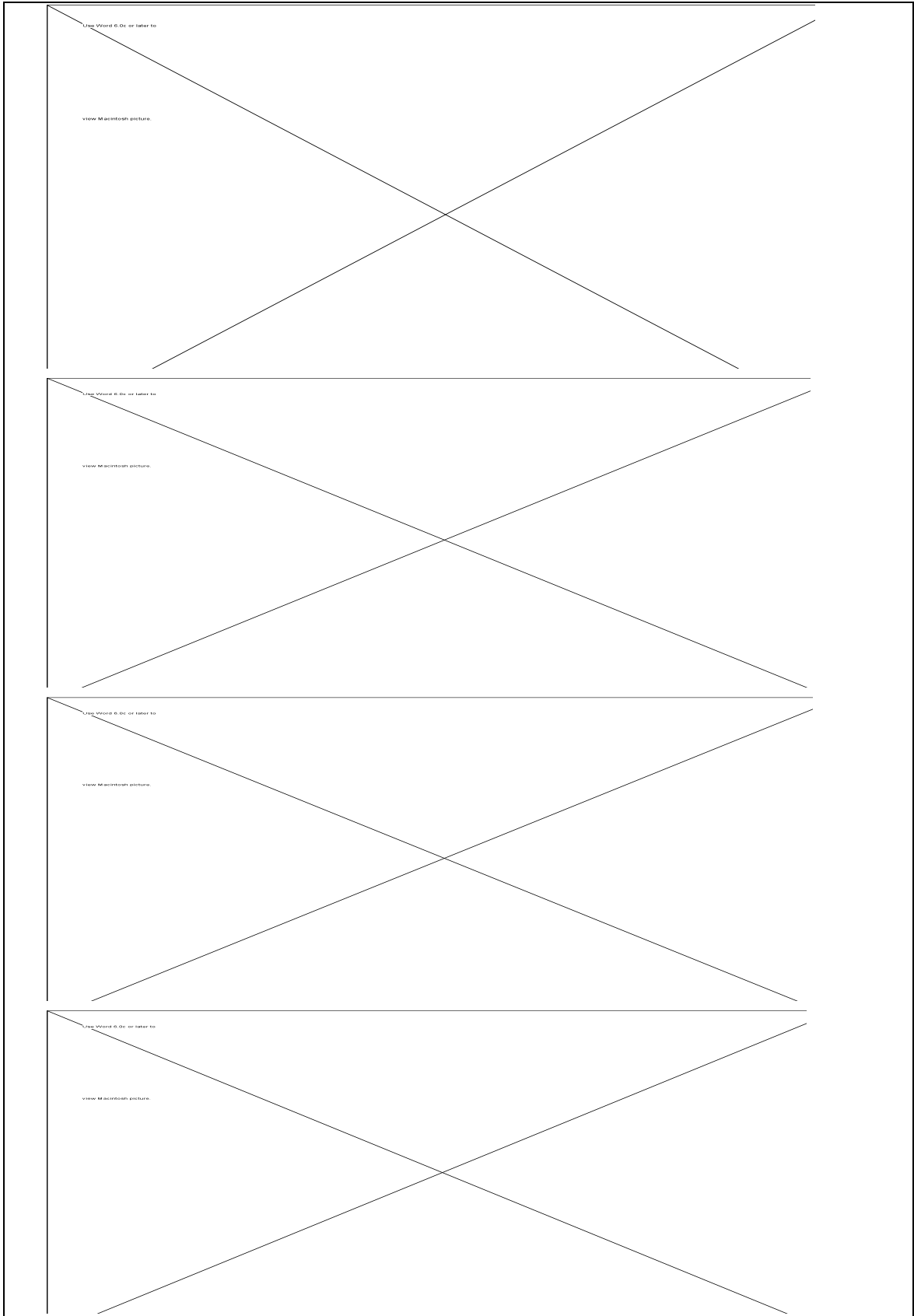
**Figure 3.8   Leverage Ratios for Retail Grocers With Total Assets
Greater than $250,000 and Less than $1,000,000, 1987-1993**

Appendix 3.1 Investor-Owned Retail Grocers and Their Operations

(Source: Disclosure, Inc.)

Alimentation Couche-Tard Inc. - Quebec

　　5411 Retails - Grocery Stores

　　5541 Retails - Gasoline Service Stations

　　5812 Retails - Eating Places

Becker Milk Company - Ontario

　　5411 Retails-Grocery Stores

　　5451 Retails-Dairy Products Stores

　　2026 Mfrs-Fluid Milk

　　3085 Mfrs-Plastics Bottles

Begin et Olivier Inc. - Quebec

　　5411 Retails-Grocery Stores

C Corp Inc. - Quebec

　　5411 Retails-Grocery Stores

　　5172 Wholesales-Petroleum and Petroleum Products

　　5541 Retails-Gasoline Service Stations

　　6794 Patent Owners and Lessors

Canada Safeway Ltd. - Alberta

　　5411 Retails-Grocery Stores

　　2026 Mfrs-Fluid Milk

　　2051 Mfrs-Bread & Other Bakery Products Except Cookies & Crackers

　　2099 Mfrs-Food Preparations (various)

Loblaw Companies Ltd. - Ontario

　　5411 Retails-Grocery Stores

　　5141 Wholesales-Groceries

Marche Bellerose Inc. - Quebec

　　5411　Retails-Grocery Stores

Marche Montee Gagnon Inc. - Quebec

5411 Retails-Grocery Stores

Provigo Inc. - Quebec

5411 Retails-Grocery Stores

5141 Wholesales-Groceries, General Line

6794 Patent Owners and Lessors

Silcorp Ltd. - Ontario

5411 Retails-Grocery Stores

5541 Retails-Gasoline

Southland Canada Inc.(7-Eleven food stores) - British Columbia

5411 Retails-Grocery Stores

Steinberg Inc. (Valdi Ltd.) - Quebec

5411 Retails-Grocery Stores

5141 Wholesales-Groceries, General Line

5311 Retails-Department Stores

Supermarche Crevier (Repentigny) Inc. - Quebec

5411 Retails-Grocery Stores

Westfair Foods Ltd. - Alberta

5411 Retails-Grocery Stores

5141 Wholesales-Groceries

4

Fruit and Vegetable Sector

Industry Overview

In 1992, fruit and vegetable marketing co-operatives generated an estimate 307 million dollars in business volume in Canada and had an estimated 14 percent market share. There are approximately 71 co-operatives in this sector with a total membership of 4,416 producers. Table 4.1 provides additional summary statistics of Canadian co-operatives operating in the fruit and vegetable sector.

Table 4.1   Summary of Canadian Fruit and Vegetable Co-operatives, 1992

Number of Co-operatives	71
Membership	4416
Full-time Employees	839
Part-time Employees	1257
Salaries and Wages ($ M)	33
Volume of Business	307
Assets ($ M)	131
Members Equity ($ M)	36

Source: Co-operatives Secretariat.

Table 4.2   Geographic Distribution of Sales by Fruit and Vegetable Co-operatives, 1992

	Region				
	West	Ontario	Quebec	Atlantic	Canada
Sales					

Fruit	101.6	17.9	4.7	5.2	129.4
Vegetables	106.9	21.1	15.2	10.3	153.5
Total	**208.5**	**39.0**	**19.9**	**15.5**	**282.9**

Source: Co-operatives Secretariat.

As outlined in table 4.2 the majority of co-operative fruit and vegetable business volume is generated in the West. This is mainly because of the marketing efforts of co-operatives associated with the B.C. Tree Fruit Marketing board. Co-operatives in British Columbia also have the largest regional market share in the vegetable sector. Fraser Valley Mushroom Growers Co-op, B.C. Fruit Packers Co-op, and Western Greenhouse Growers' Co-operative are all based in British Colombia and rank in the top 50 Canadian co-operatives. Norfolk Fruit-Growers in Ontario and Scotian Gold in Nova Scotia also have important market shares in their regions. In Quebec, co-operatives have almost 20 percent of the fruit and vegetable market (Co-operatives Secretariat).

In general, the principle function of co-operatives in this sector is the marketing of fresh fruit and vegetables such as potatoes, berries, tomatoes, carrots, onions, apples, and cigar tobacco. Approximately 60 percent of the total domestic production of fruit and vegetables are destined for fresh markets, while the remaining 40 percent of production provides raw material to the processing industry (Minister of Industry, Science and Technology, 1991b). Canadian fruit and vegetable co-operatives primarily provide fresh product storage facilities and, to a lessor extent, are involved in the processing of fruit and vegetables. Many of the co-operatives in B.C. are involved in canning and preserving and a number of co-operative processors also exist in the Atlantic region. In Ontario there are several vegetable co-operatives which freeze product.

The majority of fruit and vegetable processing is accounted for by firms that are foreign-controlled (55 percent of industry shipments). Canning and preserving operations are the principle activities of fruit and vegetable processing firms, accounting for 72 percent of industry shipments, while the remaining 28 percent of shipments are in the form of frozen products. The majority of the large canning companies in Canada are subsidiaries of U.S. multinationals. These companies generally produce brand-name products for the domestic market on a year-round basis. They benefit from the marketing strength of their parent firms and often possess a mix of products ranging from simply processed foods to value-added packaged products. Ownership is particularly concentrated in the canning sector, where only 7 percent of the total number of firms control about 45 percent of shipments. Firms tend to be domestically owned in the smaller frozen foods subsector (Minister of Industry, Science and Technology, 1991b).

One of the major structural influences on the industry are horticultural marketing boards. The fruit and vegetable marketing boards are under provincial authority and are involved in negotiating prices and conditions with processors on behalf of growers. The systems of negotiation and arbitration vary by province. None of the marketing boards are involved in the management of production as do the dairy, chicken, and egg boards. Many

co-operatives play an active role in securing favorable prices for their members as administrative agents of the marketing boards (Minister of Industry, Science and Technology, 1991b).

Overall Results

The results of this study suggest that co-operatives are as liquid as the IOF processors analysed, and are more liquid than what is considered normal for the fresh fruit and vegetable wholesale industry. In terms of long-term liquidity, or leverage, it would appear that co-operatives carry a larger debt to equity load than both the IOFs and the industry norms for this sector. Higher debt-to-equity ratios and similar growth rates between co-operatives and IOFs would seem to indicate a greater reliance on long-term debt to fuel the growth of the co-operatives. However, the overall debt carried relative to the total asset level of the co-operatives does not appear critical, as the debt-to-total-asset ratios for co-operatives are similar to both those of the IOFs and industry norms. The sales-to-equity ratios are also similar when comparing co-operatives to IOFs and industry norms, implying that the co-operatives are not likely to be overtrading to offset high debt levels.

Based on the results of the statistical tests conducted, it is difficult to say how co-operatives in this sector compare with IOFs in terms of profitability. There is a large degree of variance within both samples which can influence the statistical tests by making it more likely that the null hypothesis of similar means will not be rejected. For example, the null hypothesis of similar return-on-total asset ratios could not be rejected, even though the co-operative mean ratio is well below that of the IOFs throughout the period analysed (with the exception of 1993.) The null hypothesis for the return-on-equity ratio was also not rejected and the ratio varied significantly both amongst firms and throughout the four years studied. The null hypothesis was rejected for the return-on-sales ratio and co-operatives consistently reported a lower rate of return on sales. The profitability of the fruit and vegetable co-operatives does not seem to have impacted their growth rates significantly, as the null hypothesis of similar means could not be rejected for either the sales and asset growth measures.

Co-operatives appear to hold different strategies with respect to asset management when compared to IOFs and industry norms in this sector. Although there are no significant differences in the sales-to-total asset ratios between the three groups of firms, the sales-to-inventory ratio is substantially higher for co-operatives than IOFs and industry standards. The latter result may reflect a co-operative policy of carrying very low inventories in order to ensure the movement of members' produce. The sales-to-fixed asset ratio is also lower for co-operatives than IOFs. This result could be due to differences in operations between the co-operatives and IOFs analysed, as the IOFs are mainly involved in processing and the co-operative sales-to-fixed asset ratio is similar to that of the industry norm for fruit and vegetable wholesalers.

A study by Lerman and Parliament (1990) comparing fruit and vegetable co-operatives with IOF processors operating in the U.S., also concluded that co-operatives in this sector reported lower sales-to-fixed asset ratios and similar returns on equity than IOFs. However, in contrast to the results presented in this study, U.S. co-operatives reported lower levels of inventory turnover and lower current ratios than their IOF counterparts and similar debt-to-equity ratios.

Fruit and Vegetable Firms with Total Assets Greater than $250,000

In this category approximately 16 fruit and vegetable co-operatives are compared to 10 investor-owned firms involved in the processing and wholesale of fruit and vegetables for the four year period from 1990 to 1993. Both co-operative and IOF firms have total assets greater than $250,000. However, there are significant differences in the scale of the two types of firms, as only one IOF has assets lower than $1 million but greater than $250,000, while the majority of co-operatives fall into this size category. The differences in scale are attributable to the IOFs having larger scale processing and value-added operations than co-operatives which have a greater focus on fresh fruit and vegetable marketing. Appendix 4.1 at the end of this chapter provides a listing of the names and a description of the operations of the IOF fruit and vegetable processors used in this study. Table 4.3 highlights summary statistics of the co-operative and IOF samples.

Table 4.3   Summary Statistics for Fruit and Vegetable Firms

	Type of Firm			
	Co-operatives	IOFs	Ind Norm 1	Ind Norm 2
Selected Variables				
Mean Number of Firms	16	10	50	34
Mean Total Assets ($)	2,984,650	72,838,220	2,429,382	546,892
Mean Annual Sales ($)	8,244,344	94,754,195	7,938,505	2,429,382

The co-operative firms are also compared to the industry norms for firms involved in the wholesale of fresh fruit and vegetables (SIC 5148). Given the range in the size of the firms in the co-operative sample, the industry norms for two sizes of fruit and vegetable firms are reported. Industry norms for firms with total assets over $1,000,000 are referred to as Ind Norm 1. The mean total asset and mean annual sales of this group closely resemble the means of the co-operatives (see table 4.3). The industry norms for firms with total assets greater than 250,000 but under $1 million are referred to as Ind Norm 2. It is important to note that the industry norms are calculated using median balance sheet and income statement data for firms surveyed by Dunn and Bradstreet, while mean values are used for the co-operative and IOF samples.

Table 4.4 lists the four year mean ratios and rates for each of the groups of firms analysed and reports the results from the non-parametric tests undertaken to determine if statistically significant differences exist between the mean ratios of the co-operatives and IOFs.

Liquidity

The results from the non-parametric tests on the current and quick ratios indicate that there are no significant differences in the liquidity of the co-operative and investor-owned firms analysed, as the null hypothesis could not be rejected in either case. An examination of figure 4.1 indicates that although the co-operative means for both ratios are generally lower than that of the IOF sample of processors, they are consistently higher than the industry norm for fresh fruit and vegetable wholesale firms over the period analysed.

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Quick Ratio
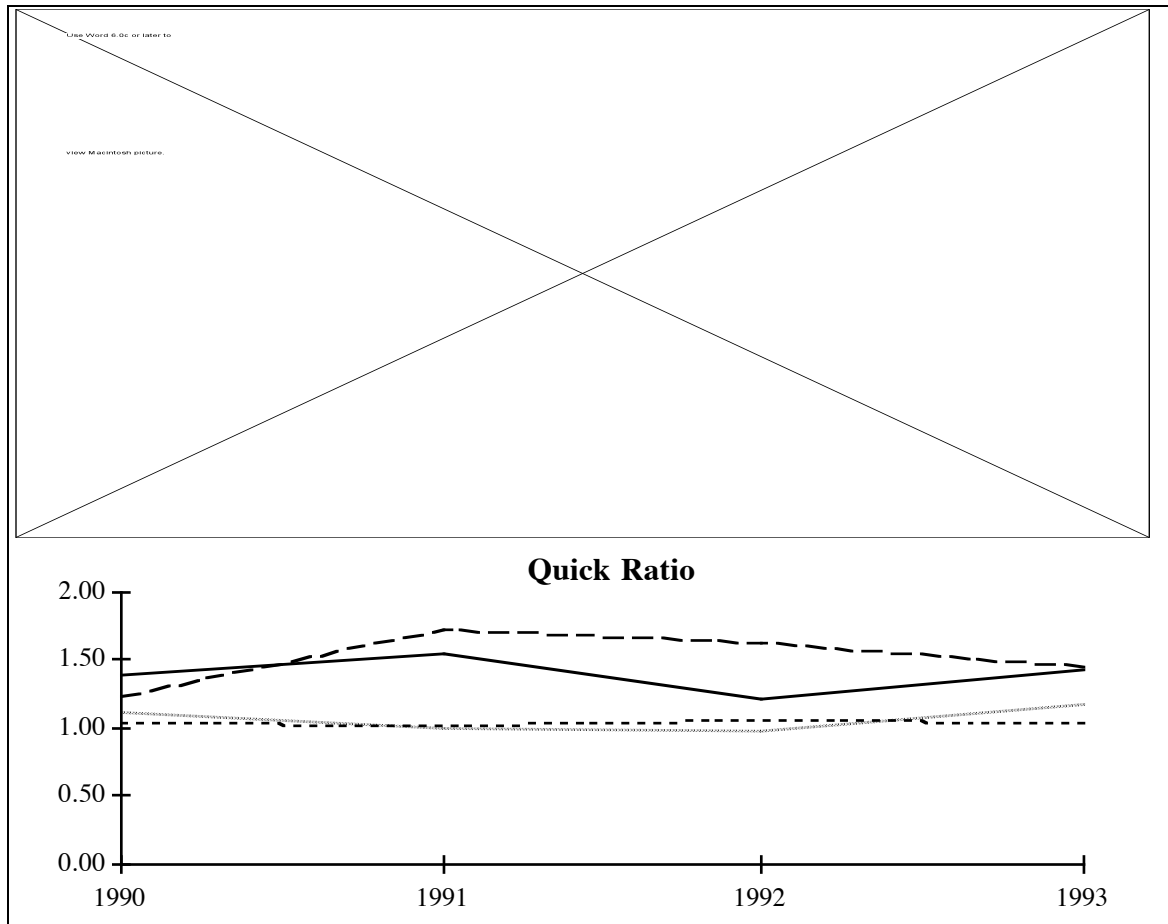
**Figure 4.1   Liquidity Ratios for Fruit and Vegetable Firms with
Total Assets Greater than $250,000, 1990-93**

Profitability

The variance of the rate of return ratios for both the co-operatives and IOFs sampled make it difficult to say much regarding the relative profitability of co-operative firms in this sector. The null hypothesis of similar means could not be rejected for the return on asset and the return on equity figures. One of the reasons for this result is that both ratios have very large standard deviations. For the rate of return-on-sales ratio the null hypothesis was rejected, providing an indication that co-operatives generate less revenue from their sales in this sector. A visual examination of figure 4.2 further supports the notion that the co-operatives analysed generally report lower rates of return than the IOFs analysed. One reason for this is likely to be the different focus in operations of the two groups.

Productivity

Differences in the operations of the co-operatives and the IOFs are apparent when examining of the three selected sales-to-asset ratios. Although statistically significant differences are not found to exist between the sales to total asset ratios of the co-operatives and IOFs, significant differences exist when the sales-to-fixed asset and sales-to-inventory ratios are compared. It is likely that the higher mean sales to inventory ratio for co-operatives (43.08 versus 17.01 for IOFs) is due to the co-operatives' dominance in the fresh wholesale market where inventories are minimal, while lower sales-to-fixed asset ratios (12.95 versus 24.08 for IOFs) could be the result of lower returns on fresh product than on value added processed products. A large degree of variability in the productivity measures exists among both co-operatives and IOFs as is shown by the high standard deviations.

In comparison to the industry norms for fruit and vegetable wholesale firms, co-operatives appear to be as productive as other firms in the industry. Co-operatives have similar sales-to-total asset ratios, although their ratios are slightly lower in more recent years. Co-operatives also report slightly higher mean ratios for the sales-to-fixed asset ratio and a much higher average sales-to-inventory ratio. The higher sales-to-inventory ratio could be due to co-operatives wanting to move as much of their members product as quickly as possible in an effort to meet member needs.

The null hypothesis could not be rejected for the ratio of net sales-to-accounts receivable, implying no significant differences in credit collection policies. However, this result is probably due to the large degree of variance within both samples. Figure 4.3 indicates co-operatives are likely have more liberal credit terms than their IOF counterparts. The number of days in accounts receivable for co-operatives closely resemble the industry norm for fresh produce wholesalers with total assets greater than $1,000,000.
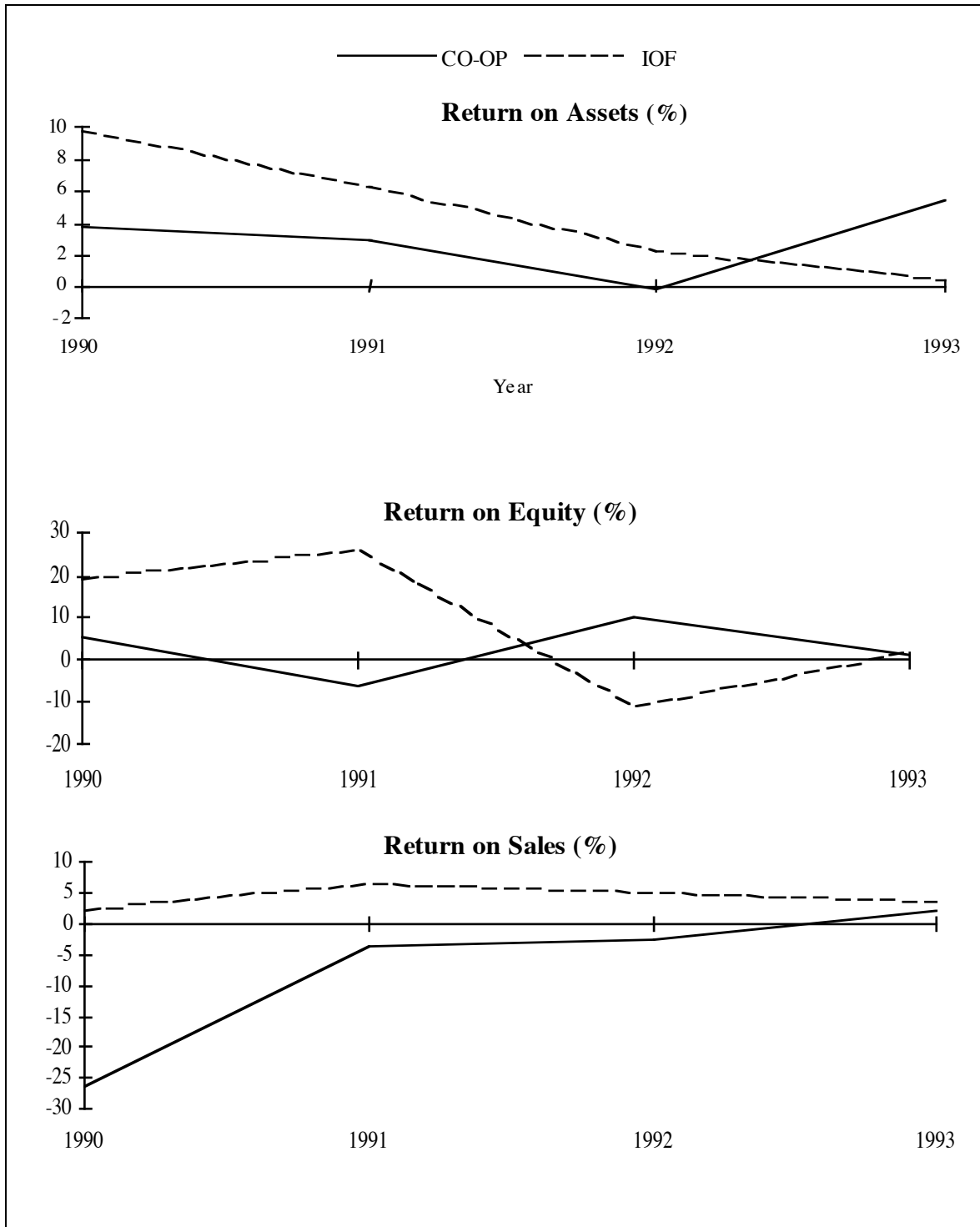
Figure 4.2   Profitability Ratios for Fruit and Vegetable Firms with Total Assets Greater than $250,000, 1990-1993

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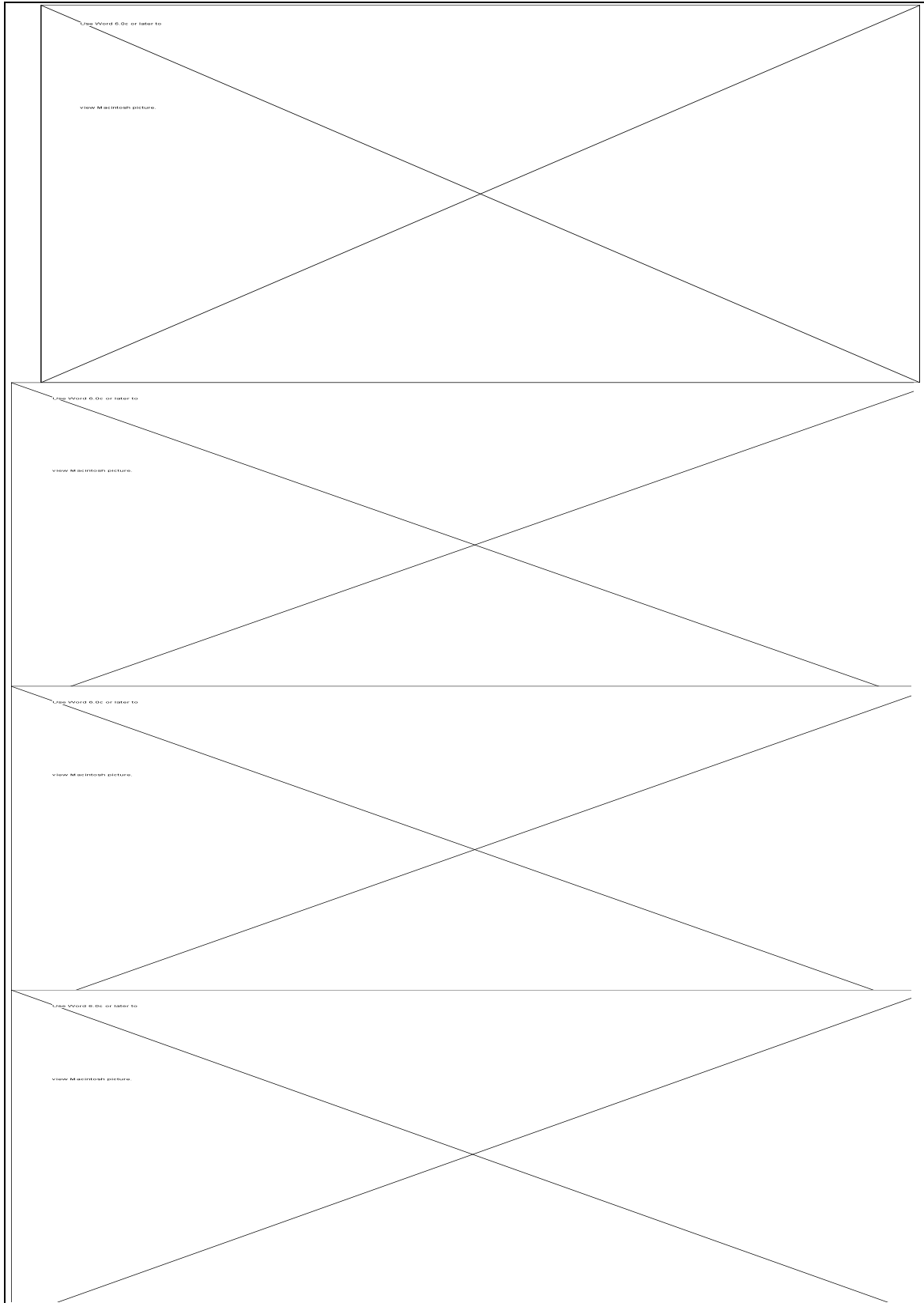
**Figure 4.3   Productivity Ratios for Fruit and Vegetable Firms with
Total Assets Greater than $250,000, 1990-1993**

Leverage

The debt-to-equity and long-term debt-to-equity ratios are considerably higher for co-operatives than their IOF counterparts and the industry norms throughout the period analysed (see bottom panels of figure 4.4). The null hypothesis for both ratios was rejected, indicating that these differences are statistically significant.

The null hypothesis of similar means could not be rejected when comparing both the debt-to-asset and sales-to-equity ratio (although there is a high degree of variance in the sales-to-equity ratio). The co-operative mean sales-to-asset ratio is also very similar to the average median values for the industry (0.64 for co-operatives, 0.63 for Ind. Norm 1, 0.65 for Ind. Norm 2). The sales-to-equity ratio average for co-operatives (12.83) is higher than that of the industry norm for the larger firms (8.98), but only slightly higher than the average industry norm for medium-sized firms (11.31).

In general, the leverage ratios indicate that although co-operatives may be incurring debt levels at a comparable rate to other companies with similar levels of assets, they may be facing a shortage of equity capital causing a greater reliance on long-term debt to finance capital investment. This could, in part, be the result of low levels of member investment in the co-operatives. The sales-to-equity ratios are similar when comparing co-operatives to IOFs and industry norms, implying that the co-operatives are not likely to be overtrading.

Growth

The rate of sales and asset growth would appear to be higher for co-operatives than the IOFs. Figure 4.5 shows that sales growth for co-operatives in this sector has been declining over the three year period from 1991 to 1993, while asset growth peaked in 1992. The increase in co-operative asset growth corresponds to a slight increase in the long-term debt to equity ratio in the same year, indicated in figure 4.5. However, the higher growth rates for co-operatives are not statistically significant as the null hypothesis of similar means could not be rejected. Again, however, this result is likely due to the high degree of variance within both samples.

CO-OP	IOF	IND NORM 1	IND NORM 2

Debt to Total Assets

0.8
0.7
0.6
0.5
0.4

1990   1991   1992   1993

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Long-term Debt to Equity

2.00
1.50
1.00
0.50
0.00
-0.50
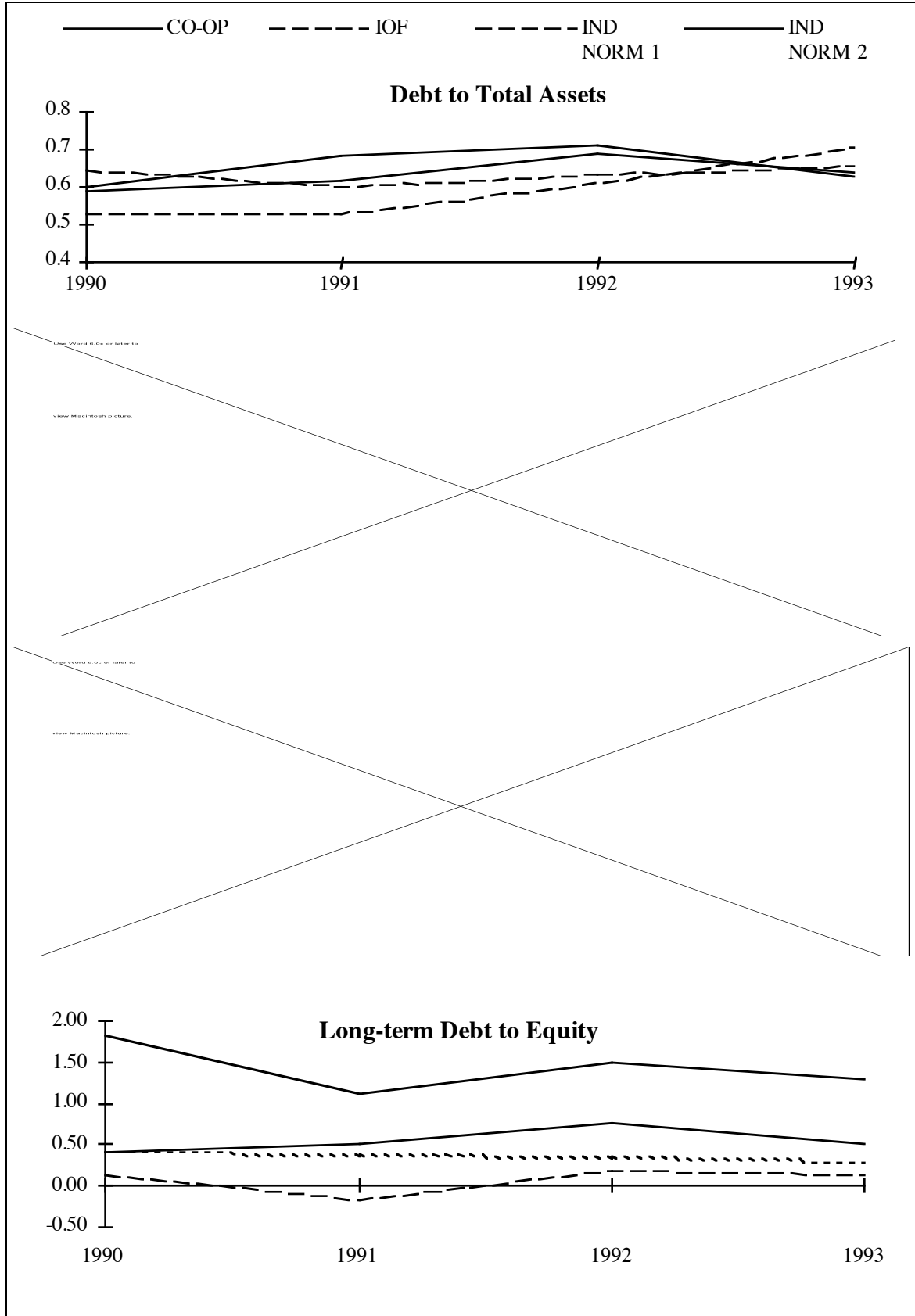
1990   1991   1992   1993

**Figure 4.4   Leverage Ratios for Fruit and Vegetable Firms with
Total Assets Greater than $250,000, 1990-1993**
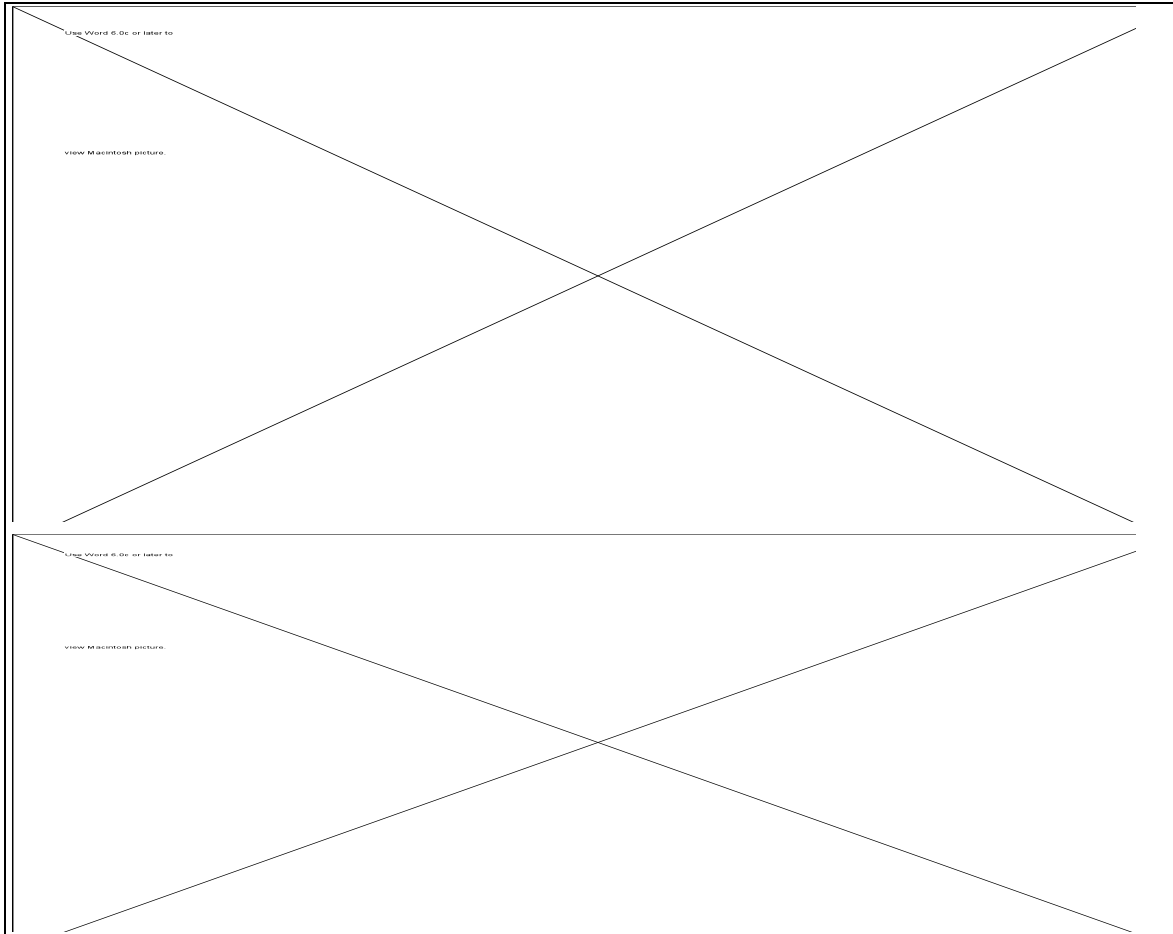
Figure 4.5   Growth Rates for Fruit and Vegetable Firms with Total Assets Greater than $250,000, 1991-1993

Appendix 4.1 Description of Operations for Investor-Owned Fruit and Vegetable Firms

(Source: Disclosure, Inc.)

Algonquin Mercantile Corporation - Ontario

Primary SIC Code:

 5148 Wholesales-Fresh Fruits and Vegetables

SIC Codes:

 5148 Wholesales-Fresh Fruits and Vegetables

 5912 Retails-Drug Stores and Proprietary Stores

Description of Business: Algonquin Mercantile, directly and through subsidiaries, retails drugs and related products and wholesales, packages and distributes fresh fruits and vegetables. The company has locations across Ontario which include three plants, wholesale distribution centres and 32 drug stores.

Borden Co. Ltd - Ontario

Primary SIC Code:

 6719 Offices of Holding Companies

SIC Codes:

 6719 Offices of Holding Companies

 2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

 2037 Mfrs-Frozen Fruits, Fruit Juices, and Vegetables

 2023 Mfrs-Dry, Condensed, and Evaporated Dairy Products

 3080 Miscellaneous Plastics Products

 2821 Mfrs-Plastic Matrls,Synth Resins,Nonvulcanizable Elastomers

 2819 Mfrs-Industrial Inorganic Chemicals (various)

 2842 Mfrs-Specialty Cleaning, Polishing & Sanitation Preparations

 2087 Mfrs-Flavoring Extracts and Flavoring Syrups

Description of Business: A holding company engaged in the manufacture of flavouring extracts, tinned foods, juices, condensed milk, industrial and consumer chemical products and plastic goods.

Chiquita (Canada) Inc - Ontario

Primary SIC Code:

 5148 Wholesales-Fresh Fruits and Vegetables

SIC Codes:

 5148 Wholesales-Fresh Fruits and Vegetables

Description of Business: The wholesale of fresh fruit.

Cobi Foods Inc - Nova Scotia

Primary SIC Code:

 2037 Mfrs-Frozen Fruits, Fruit Juices, and Vegetables

SIC Codes:

 2037 Mfrs-Frozen Fruits, Fruit Juices, and Vegetables

 2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

 2034 Mfrs-Dried and Dehydrated Fruits, Vegetables, and Soup Mixes

 2032 Mfrs-Canned Specialties

 5411 Retails-Grocery Stores

 5431 Retails-Fruit and Vegetable Markets

 5499 Retails-Miscellaneous Food Stores

Description of Business: Cobi Foods processes and markets canned and frozen vegetables and fruit, canned beans with pork and kidney beans and Honeydew frozen fruit-flavoured beverage concentrates for retail, under the brand names Graves, Libby's, Stokely-Van Camp, Avon and Nature's Best.

Compagnie Agricole Et Maraichere De Sherrington (CAMS) - Quebec

Primary SIC Code:

 0161 Agri Prod-Vegetables and Melons

SIC Codes:

 0161 Agri Prod-Vegetables and Melons

 0170 Fruits and Tree Nuts

 5148 Wholesales-Fresh Fruits and Vegetables

Description of Business: Terres Noires (CAMS) is engaged in specialized agricultural operations. The company cultivates, distributes, exports and imports fruit and vegetables. It also markets a packaged salad product sold in Quebec stores, and supplies produce to institutions such as hospitals and restaurants.

Fruits Botner Ltee - Quebec

Primary SIC Code:

 5148 Wholesales-Fresh Fruits and Vegetables

SIC Codes:

 5148 Wholesales-Fresh Fruits and Vegetables

Description of Business: Fruits Botner wholesales fresh fruit.

J A Ferland & Fils (1972) Ltee - Quebec

Primary SIC Code:

 2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

SIC Codes:

2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

Description of Business: J A Ferland & Fils (1972) was engaged in the processing and packaging of tinned vegetables.

Lassonde Industries Inc - Quebec

Primary SIC Code:

2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

SIC Codes:

2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

2032 Mfrs-Canned Specialties

2034 Mfrs-Dried and Dehydrated Fruits, Vegetables, and Soup Mixes

2086 Mfrs-Bottled and Canned Soft Drinks and Carbonated Waters

2099 Mfrs-Food Preparations (various)

5145 Wholesales-Confectionery

5149 Wholesales-Groceries and Related Products

Description of Business: Industries Lassonde, through its subsidiaries, manufactures and markets pure juices and fruit drinks, processes and cans corn, manufactures fondue bouillons and sauces as well as barbecue sauces and marinades, and produces and markets fillings for the food service industry.

Niagara Fruit & Vegetable Growers Ltd - Ontario

Primary SIC Code:

5148 Wholesales-Fresh Fruits and Vegetables

SIC Codes:

5148 Wholesales-Fresh Fruits and Vegetables

5083 Wholesales-Farm and Garden Machinery and Equipment

5431 Retails-Fruit and Vegetable Markets

Description of Business: Niagara Fruit & Vegetable is engaged in the retail of fresh fruit and vegetables and farming supplies.

Norton Simon Canada Inc - Ontario

Primary SIC Code:

2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

SIC Codes:

2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

5149 Wholesales-Groceries and Related Products

Description of Business: Norton Simon Canada was a manufacturer and distributor of tomato products in cans and glass jars (sauces and pastes) and of popping corn.

Select Agro Produce Ltd - Quebec

Primary SIC Code:

 5148 Wholesales-Fresh Fruits and Vegetables

SIC CODES:

 5148 Wholesales-Fresh Fruits and Vegetables

Description of Business: Select Agro Produce is engaged in the wholesale of fruits and vegetables.

Slade & Stewart Ltd - British Columbia

Primary SIC Code:

 5148 Wholesales-Fresh Fruits and Vegetables

SIC Codes:

 5148 Wholesales-Fresh Fruits and Vegetables

Description of Business: Slade & Stewart is engaged in the wholesale of fruit.

Sun-Rype Products Ltd - British Columbia

 Primary SIC Code:

 2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

SIC Codes:

 2033 Mfrs-Canned Fruits, Vegetables, Preserves, Jams, and Jellies

 2064 Mfrs-Candy and Other Confectionery Products

Description of Business: Sun-Rype Products is engaged in the manufacture of over 150 products including apple and citrus juices; cocktails and nectars; ice tea and lemonade; apple sauce; sparklers and carbonated juice beverages; "Bag in a Box" 6 litre containers; and granola bars.

V-H Foods Inc - Quebec

 Primary SIC Code:

 2035 Mfrs-Pickled Fruits & Vegetables,Sauces,Seasonings,Dressings

SIC Codes:

 2035 Mfrs-Pickled Fruits & Vegetables,Sauces,Seasonings,Dressings

 2032 Mfrs-Canned Specialties

Description of Business: V-H Foods Inc was engaged in the manufacture of food products. Formerly Aliments Beatrice Quebec Inc.

5

Dairy Sector

Industry Overview

Co-operatives command a leading position in the dairy processing and marketing industry in Canada. In 1992, 26 co-operatives marketed 60 percent of the milk produced by Canadian farmers. Co-operatives are involved in the processing of almost all dairy products, including natural and processed cheese, creamery butter, condensed and evaporated milk, ice cream, yogurt, whole and skim milk powder, frozen desserts, and milk-based fruit drinks. Table 5.1 provides additional summary statistics for dairy co-operatives in Canada.

The two principle types of dairy production are referred to as "fluid" and "industrial". Fluid milk production primarily involves the pasteurization of milk and the production of creams. Fluid-type products use 39 percent of the raw milk produced in Canada. Industrial production makes use of the remaining 61 percent of raw milk and processes it into value-added food products. Approximately half of the firms in the dairy processing industry are co-operatives which mainly operate industrial milk plants. Fluid milk processing is done primarily by corporations and privately held companies, which respectively, make up approximately 35 percent and 15 percent of firms in the industry (Ministry of Industry, Science, and Technology, 1991a).

Table 5.1   Summary of Canadian Dairy Co-operatives, 1992

Number of Co-operatives	26
Membership	23,599
Full-time Employees	8,967
Part-time Employees	794
Salaries and Wages ($ M)	297
Volume of Business	3,193
Assets ($ M)	1,092
Members Equity ($ M)	387

Source: Co-operatives Secretariat

Dairy co-operatives are most prominent in Quebec, representing around 50 percent of the volume of business of all the Canadian dairy co-operatives. Six dairy co-operatives in Quebec (of which Agropur is the largest) control more than 80 percent of the industrial milk market and about 50 percent of the fluid milk market. Dairy co-operatives in western Canada account for 35 percent of Canadian co-operative milk sales, while co-operatives in the Atlantic region account for 11 percent of sales (Co-operatives Secretariat). Table 5.2 provides a regional overview of Canadian dairy products sold by co-operatives in 1992.

Table 5.2   **Dairy Products Sold by Canadian Co-operatives, 1992**

Region	
	- million dollars -
West	1,004
Ontario	171
Quebec	1,357
Atlantic	300
Canada	**2,832**

Source: Co-operatives Secretariat

The performance of the Canadian dairy products industry must be assessed within the context of a highly regulated market which has evolved under a national milk supply management policy. Under national legislation, the dairy industry is subject to import controls, domestic levies and domestic price-support systems designed to provide a satisfactory return to milk producers. The industrial milk target price is set by the federal government, while fluid milk prices are set by provincial agencies. This structure has had a direct bearing on the dairy processing industry's competitiveness as it has tended to preserve the regional nature of Canada's dairy sector (Ministry of Industry, Science, and Technology, 1991a).

Traditionally, the distribution of dairy plants has reflected provincial quota allocations, since fluid milk products were sold within the province of origin. The distribution of industrial milk products has been less restrictive as products having higher value-added or longer shelf life than milk can be sold interprovincially, whereas the milk supplies from which they are made are regulated provincially. These regulations have resulted in only a few establishments being organized and equipped to supply out-of-province markets on a national basis as the scale of dairy operations has been largely established relative to provincial quota allocation (Ministry of Industry, Science, and Technology 1991a)

However, the future of provincial dairy regulations is not clear as new international trading rules are having a significant impact upon the industry. For co-operatives these industry changes have resulted in growing competition from such national and international companies as Beatrice Foods and Kraft General Foods. Co-operatives are also being forced to deal with the expectations of the impending removal of provincial government regulations which have protected them somewhat in the past. In order to remain competitive, therefore, many co-operative dairies have made significant strategic changes in their operations, including mergers, plant consolidations, and joint-ventures. For example, during 1992 three formerly independent western Canadian dairy co-operatives (Fraser Valley Milk Producers, Central Alberta Dairy Pool, and Northern Alberta Dairy Pool Ltd.) merged to form Agrifoods International Co-operative Ltd. In February of 1990, five Quebec dairy co-operatives decided to pool their milk processing and marketing operations, jointly forming Groupe Lactel.

Overall Results

Overall, large dairy co-operatives appear to be performing very well in comparison to the reported industry norms for dairy processing firms. The co-operative firms analysed report higher short-term liquidity and asset turnover ratios than other firms in the industry. Dairy co-operatives also appear to be carrying lower levels of debt than the industry norm. Lower leverage ratios combined with higher liquidity ratios may be an indication of dairy co-operatives being more risk averse and financially secure than other firms operating in the dairy industry.

The results of this study closely resemble the conclusions of a similar study comparing the financial performance of co-operatives and IOFs operating in the U.S. dairy industry (Parliament, Lerman, and Fulton). The U.S. study determined that co-operatives report higher fixed asset and inventory turnover ratios than IOFs. The median co-operative current ratio was also reported to be higher than the IOF median, while no significant differences in debt-to-equity ratios were detected.

Dairy Firms with Total Assets Greater than $1,000,000

The median observations of approximately 22 dairy co-operatives (ranging from 23 firms in 1986 to 18 firms in 1993) with total assets greater than $1,000,000 are compared with the industry norms for similarly sized firms classified as manufacturers of dairy products (SIC 2020). Data for individual IOFs was not available. The industry norms are calculated by Dunn and Bradstreet by taking the median observation of roughly 39 firms. The overall average of the yearly medians are also calculated and compared. A summary table of the medians and the eight year median averages is provided in appendix 5.1 at the end of this chapter. A comparison of the profitability and growth of co-operative dairy processors with industry norms was not possible due to a lack of data.

Liquidity

Over the eight year period analysed, co-operatives appear to be slightly more liquid than the norm for firms operating in the industry. As is shown on figure 5.1, the current ratio for co-operative firms is consistently higher than the industry norm up until 1992, when it begins to fall below the norm. The overall median average for the period studied is 1.46 for co-operatives and 1.41 for the industry norm. The median quick ratio for co-operatives is very similar to that of the industry throughout the period, with the exception of 1989, where it peaked at 0.94 whereas the norm dropped to a low of 0.74. The eight year average quick ratio was 0.89 for co-operatives, and 0.84 for the industry.
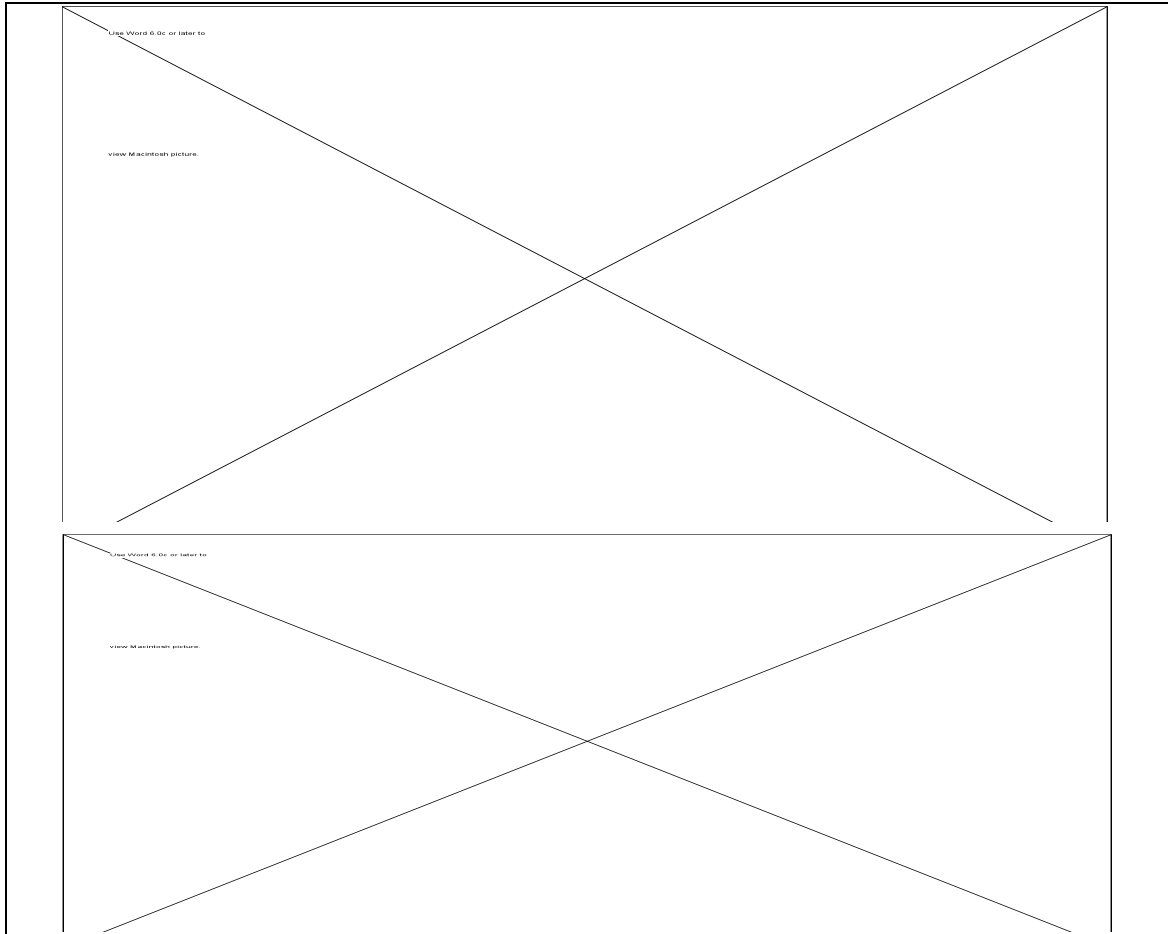
Figure 5.1   Liquidity Ratios for Dairy Firms with Total Assets Greater than $1,000,000, 1986-1993

Productivity

Generally the medians for all three asset turnover ratios analysed are higher for co-operatives than those reported as the industry norms. As is illustrated in figure 5.2, the total asset, fixed asset, and inventory turnover ratios are above the industry norms for co-operatives throughout the period, with the exception of 1992, when the industry norm ratios peaked and the co-operative ratios dropped. Throughout the eight year period the average sales-to-total asset ratio for co-operatives is 3.05, which is slightly higher than the industry norm average of 2.83. Similarly, the sales-to-fixed asset ratio average was 7.75 for co-operatives and 6.39 for the industry, and the average sales-to-inventory ratio was 15.08 for co-operatives and 14.14 for the industry. These results run contrary to the notion that member-owned dairies are less efficient in asset use than other firms in the industry.

The overall average days of net sales in account receivables is only slightly higher for co-operatives, at 31 days, than the industry norm average of 30 days. It is worth noting, however, that the median ratio for the industry fluctuated considerably more than that of the co-operatives throughout the period studied (see bottom panel figure 5.2). The industry norm fluctuated from 37 days in 1987 to 25 days in 1992, whereas the co-operative median remained fairly steady. These results would seem to indicate that no significant differences exist in the overall credit strategies of co-operatives and other firms, except perhaps in terms of consistency.

Leverage

Figure 5.3 graphs the median leverage ratios for co-operatives and the industry norm. In general, it appears that co-operative firms have a greater degree of financial security than what is normal for the industry. Co-operatives report lower debt-to-equity and long-term debt-to-equity ratios than the industry norm. The overall average debt-to-equity ratio for co-operatives is 1.06, whereas the industry norm is 1.39. It would seem that the differences in debt-to-equity ratios can be attributed to relative differences in long-term debt, as the long-term debt-to-equity ratio mean for co-operatives is 0.33, whereas it is 0.53 for the industry. The graphs in figure 5.3 indicate that the median debt-to-equity and long-term debt-to-equity ratios are considerably lower for co-operatives throughout the period, with the exception of 1992, when the median for the industry dropped down to just below the co-operative median ratio in both cases. The median debt-to equity-ratios appear to be more stable for co-operatives throughout the period than the industry norms.

The overall median average debt to total asset ratio for co-operatives is 0.51, versus 0.58 for the industry norm. Similarly, the average sales-to-equity ratio is lower for co-operatives, at 6.18 than the industry norm average of 6.72. While the median ratios are lower for co-operatives than the industry norms, indicating greater financial security and flexibility, they do not appear to be sufficiently low so as to raise concerns regarding undertrading.

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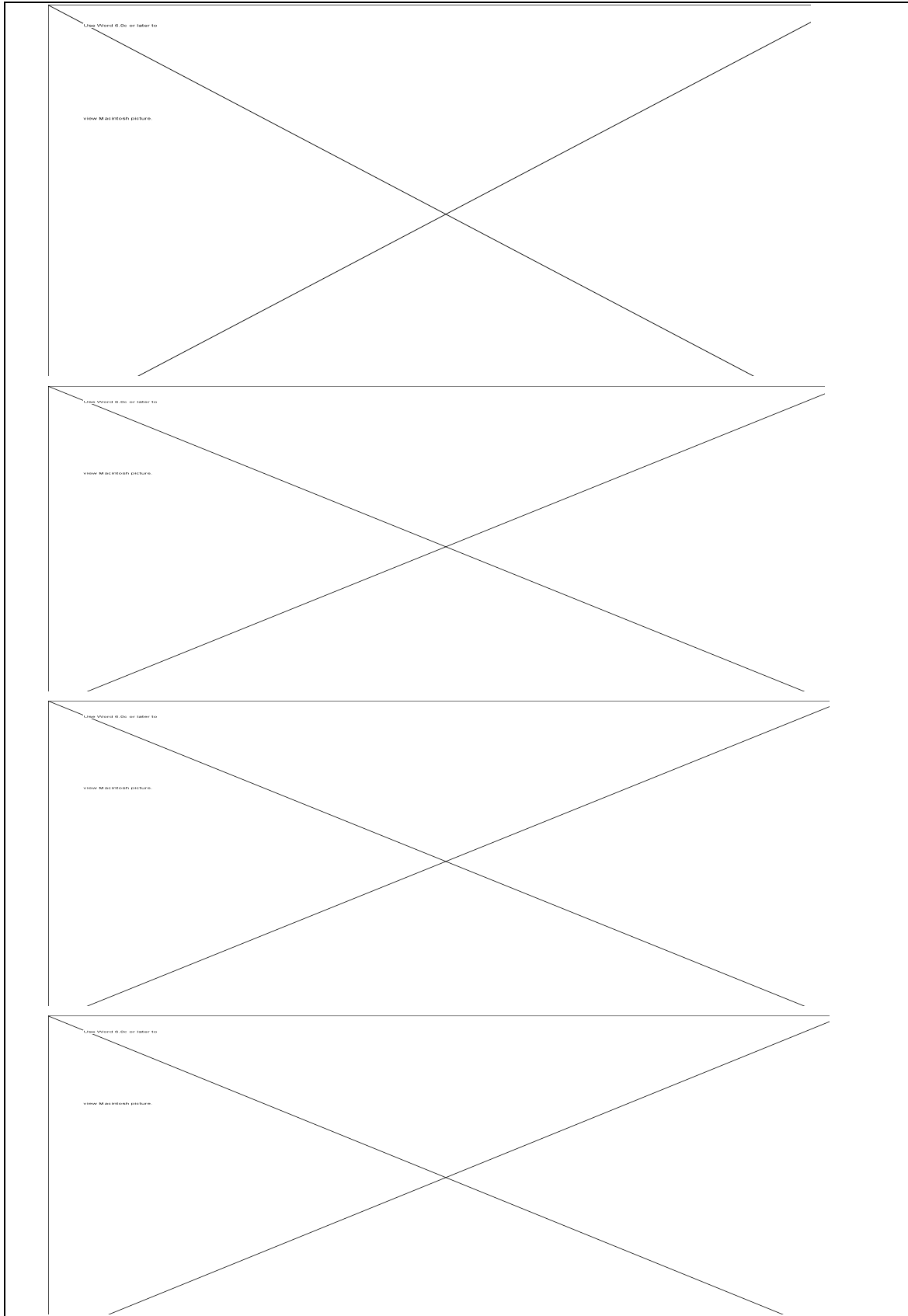
**Figure 5.2   Productivity Ratios for Dairy Firms with Total Assets
Greater than $1,000,000, 1986-1993**
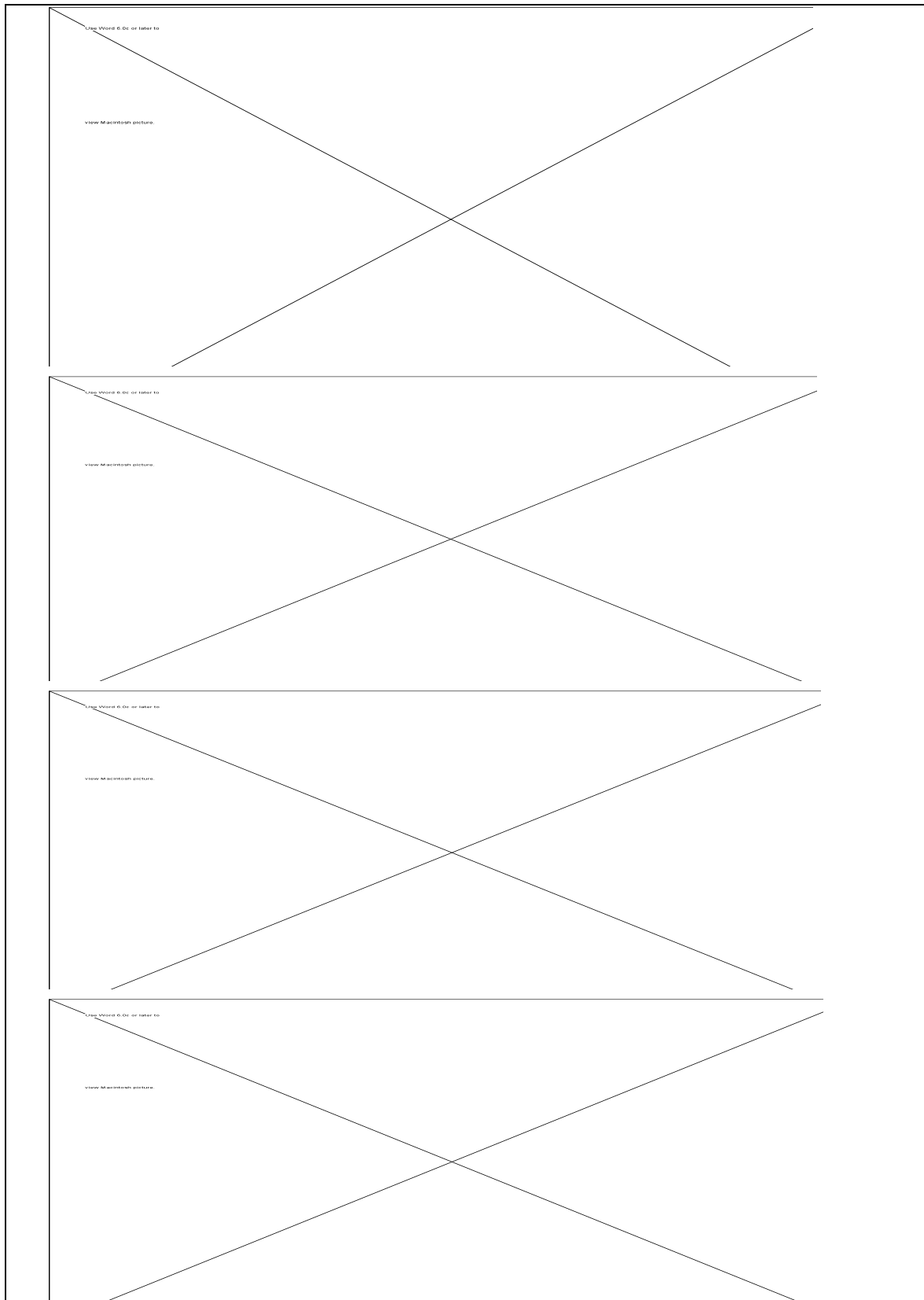
**Figure 5.3   Leverage Ratios for Dairy Firms with Total Assets
             Greater than $1,000,000, 1986-1993**

6

Grain and Oilseeds Handling Sector

Industry Overview

Co-operatives play a dominant role in the Canadian grain and oilseeds handling industry. The largest grain and oilseeds handling companies include the three Prairie Pools; Saskatchewan Wheat Pool (SWP), the Alberta Wheat Pool (AWP), and Manitoba Pool Elevators (MPE). The three Pools operate 57 percent of Canada's primary elevators, and handle approximately 60 percent of the six major grains produced in western Canada. As is illustrated in table 6.1, co-operatives are also involved in the marketing of grain, oilseeds, and specialty crops in other parts of Canada but on a smaller scale. For example, Cooperative Federee de Quebec handled over 35 percent of Quebec's grain marketing sales in 1992, representing 22 million dollars in sales. In contrast, the Pools combined sales generated 3,358 million dollars. Table 6.2 provides a summary of grain and oilseeds handling co-operatives' impact on the Canadian economy.

Table 6.1   Grains and Oilseeds Sold by all Co-operatives in Canada, 1992

	Region				
	West	Ontario	Quebec	Atlantic	Canada
Sales	- million dollars -				
Grains	2813.7	75.3	22.0	0.1	2911.1
Oilseeds	544.4	17.8	-	-	562.2
Total	**3358.1**	**93.1**	**22.0**	**0.1**	**3473.3**

Source: Co-operatives Secretariat

Table 6.2   Grains and Oilseeds Co-operatives in Canada, 1992

Number of Co-operatives	20
Membership (thousands)	158 754
Full-time Employees	6 983
Part-time Employees	158
Salaries and Wages ($ M)	267
Volume of Business ($ M)	4895
Assets ($ M)	1607
Members' Equity ($ M)	838

Source: Co-operatives Secretariat

The remaining major players in the industry are Cargill, Ltd., Parrish and Heimbecher, Ltd., Pioneer Grain Company, Ltd., and N.M. Paterson and Sons, Ltd., which are privately owned, and United Grain Growers, Ltd., a former co-operative and now a publicly traded company. Smaller companies operating primary elevators include the Continental Grain Company Ltd., Weyburn Inland Terminals Ltd., and Stow Seed Processors. During the 1993-94 crop year the Canadian primary elevator system consisted of 1,465 elevators across Canada, with a storage capacity of 6,921,100 tonnes of grain (Canadian Grain Commission).

The principle function of the grain and oilseeds handling companies is to provide grain producers with immediate cash markets or storage for grain in relatively close proximity to their farms. The companies operate primary elevators, which are usually located at delivery points on railway lines, and in many cases, operate terminal elevators at export positions. In addition to handling wheat and barley marketed by the Canadian Wheat Board, they also market other grains such as oats, canola, flax, and specialty crops.

The primary services offered by elevator companies form the source of several different types of income; earnings accrue from the resale of grain purchased from producers and accumulated in bulk form, elevation and handling charges, storage charges, and charges for additional services such as the drying and cleaning of grain. However, the major grain and oilseed handling companies, including the Pools, are highly diversified firms. Therefore, a large portion of the income of these firms comes from operations outside of the handling, storage, and marketing of grain, oilseeds, and specialty crops. For example, in 1994 approximately 40 percent of SWP's total earnings were generated through investments outside of the grain and oilseeds sector. The diversified investments of the primary elevator companies are frequently agriculture-based activities such as the marketing of livestock, farm supplies, and commodity processing. Appendix 6.1 at the end of this chapter provides a brief summary of the activities engaged in by the grain and oilseed handling companies analysed in this study.

Overall Results

The analysis of the grains and oilseeds sector accentuates some of the problems associated with the use of financial statement data for comparison purposes. Although the firms analysed in this study are limited to those operating primary grain and oilseeds handling facilities, large differentials exist among some of the firms. The Continental Grain Company, one of the three IOFs studied, appears to have undergone major restructuring throughout the period analysed. These changes have frequently rendered the financial ratio figures of Continental incomparable to those of the remaining firms for which data is available. As a result, a number of performance indicators are compared on an individual firm basis and the statistical analysis is limited to a comparison of the three Prairie Pools versus UGG and Cargill.

In general there appears to be little difference in the profitability and growth of the Pools and the IOFs. The null hypothesis of similar means between the Pools and the IOFs, excluding Continental, could not be rejected for the rates of return on assets, return on equity, return on sales, sales growth, and asset growth. However, a high degree of variance exists amongst the observations in these samples increasing the likelihood of not rejecting the null hypothesis. The variance in the growth rates of grain and oilseeds handling firms is also highlighted in Fulton, Fulton, Clark, and Parliaments' study analysing the growth of seven North American co-operative grain handlers.

The Pools appear to be at least as productive as Cargill and UGG, as they report similar sales-to-total asset and sales-to-inventory ratios and a higher average sales-to-fixed asset ratio. However, a large differential between the Pools and the IOFs exist when Continental is included in the IOF sample, as Continental reports unusually high sales-to-total asset and sales-to-inventory ratios. This finding suggests that Continental was perhaps overtrading throughout the period in order to offset low profit levels.

In terms of liquidity, the mean current and quick ratios are very similar for both types of firms throughout the period analysed. With respect to long-term liquidity, lower debt-to-asset, sales-to-equity, debt-to-equity, and long-term debt-to-equity ratios suggest that the Pools are more financially secure and less leveraged than other firms in the industry.

Comparison of Grain and Oilseeds Handling Companies

The financial performance of six grain and oilseeds handling companies is analysed. The six companies include three co-operative elevator companies, SWP, AWP, and MPE, and three IOFs, Cargill, Ltd., United Grain Growers, Ltd. (UGG), and the smaller Continental Grain Company, Ltd. The financial performance of these six firms are compared over the 5-year period from 1989 to 1993 (with the exception of Cargill, for which data was unavailable for 1993). Table 6.3 provides summary statistics for each of the firms. There are considerable differences in the size of the individual firms, particularly between Continental and the other IOFs. Continental has also faced considerable losses in recent years, resulting in a negative average income for the period analysed and a lower average for the IOF sample.

In order to overcome the bias of including Continental, the statistical comparison of co-operatives and IOFs is limited to a comparison of the three Pools with UGG and Cargill. Table 6.4 outlines the results of the non-parametric tests between the Pools and the IOFs excluding Continental, and lists the means for the co-operatives and the IOFs with (incl. Cont.) and without (excl. Cont.) the Continental Grain Company. Several of the financial performance indicators for the IOFs are also graphed both with and without the inclusion of Continental. Appendix 6.2 at the end of this chapter lists the ratios and the mean ratios for the firms analysed over the five-year period 1989 to 1993.

Table 6.3   **Mean Statistics for Grain and Oilseeds Handling Companies, 1989-1993**

	Net Sales	Gross Income	Total Assets	Equity
	\- Canadian dollars -			
Co-operatives				
AWP	992,894,000	7,839,000	425,210,000	199,632,600
MPE	610,235,926	7,195,129	201,561,683	89,765,310
SWP	1,912,378,120	33,400,449	765,428,200	370,719,600
Average	**1,171,836,015**	**16,144,859**	**464,066,628**	**220,039,170**
IOFs				
Cargill[1]	1,647,332,000	18,681,000	530,842,500	221,489,250
Continental	223,994,400	-1,016,600	25,940,000	11,035,000
UGG	1,076,426,800	5,704,800	401,287,600	97,916,200
Average	**912,388,000**	**6,948,567**	**300,731,667**	**100,078,700**

[1]Mean statistics for 1989-1992.

Liquidity

Figure 6.1 graphs the average liquidity ratios of the co-operative and IOF (including Continental) firms for the years 1989 to 1993. The five year average current and quick ratio are similar for both the Pools and the IOFs and the null hypothesis not be rejected in either case. These results suggest that there are no significant differences in business strategies regarding short-term liquidity between the two types of firms.
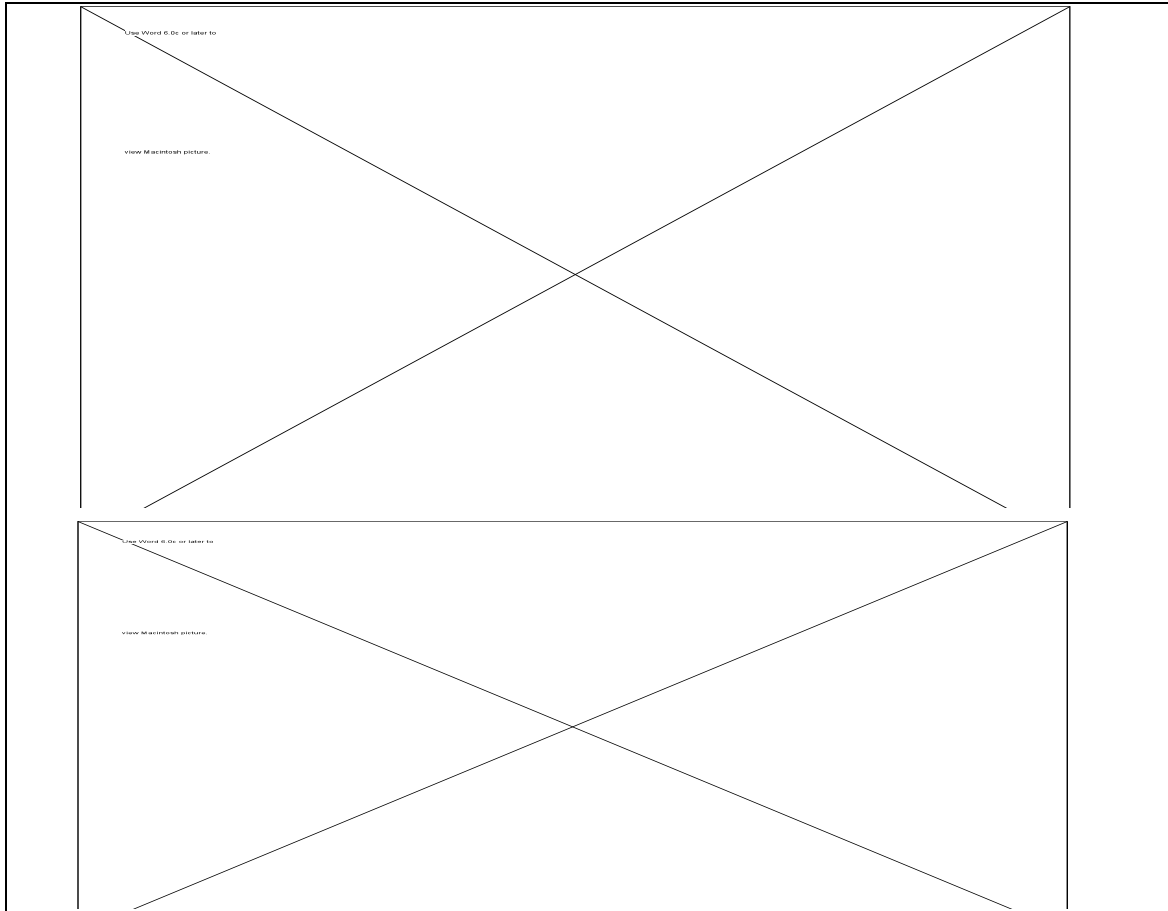
**Figure 6.1   Liquidity Ratios for Grain and Oilseeds Handling Companies,
                 1989 - 1993**

Profitability

With respect to profitability, the Pools appear to be performing at least as good as other firms in the grain and oilseeds handling industry. In the case of the rate of return on asset ratio, the co-operatives report a higher average ROA (3.17) than the IOF average (0.30). However, by graphing each of the firms' yearly return on asset ratios separately (see figure 6.2), it becomes clear that the inclusion of Continental is causing a significant bias in the IOF average. Once Continental is removed from the IOF sample, the gap between the average rate of return figures of the Pools and the IOFs narrows, as the IOF (excl. Cont.) average rises to 2.32. The results from the non-parametric tests conclude that this difference is not significant, therefore, the co-operative mean ROA is similar to the combined mean of Cargill and UGG.

The return-on-sales ratios for the Pools are also higher throughout the period analysed than those of the IOFs, as shown in figure 6.3. The overall Pool average ROS is 1.20, the IOF average is 0.48, and the combined Cargill and UGG average is 0.81. The statistical tests indicate that there are no significant differences in the mean ROS of the Pools and the mean ROS of Cargill and UGG. Similarly, the average return-on-equity figure for the Pools is 6.85 as compared to 6.95 for UGG and Cargill together, and 1.64 for all three IOFs. The null hypothesis could not be rejected when comparing the ROE of the Pools to that of the IOFs excluding Continental.

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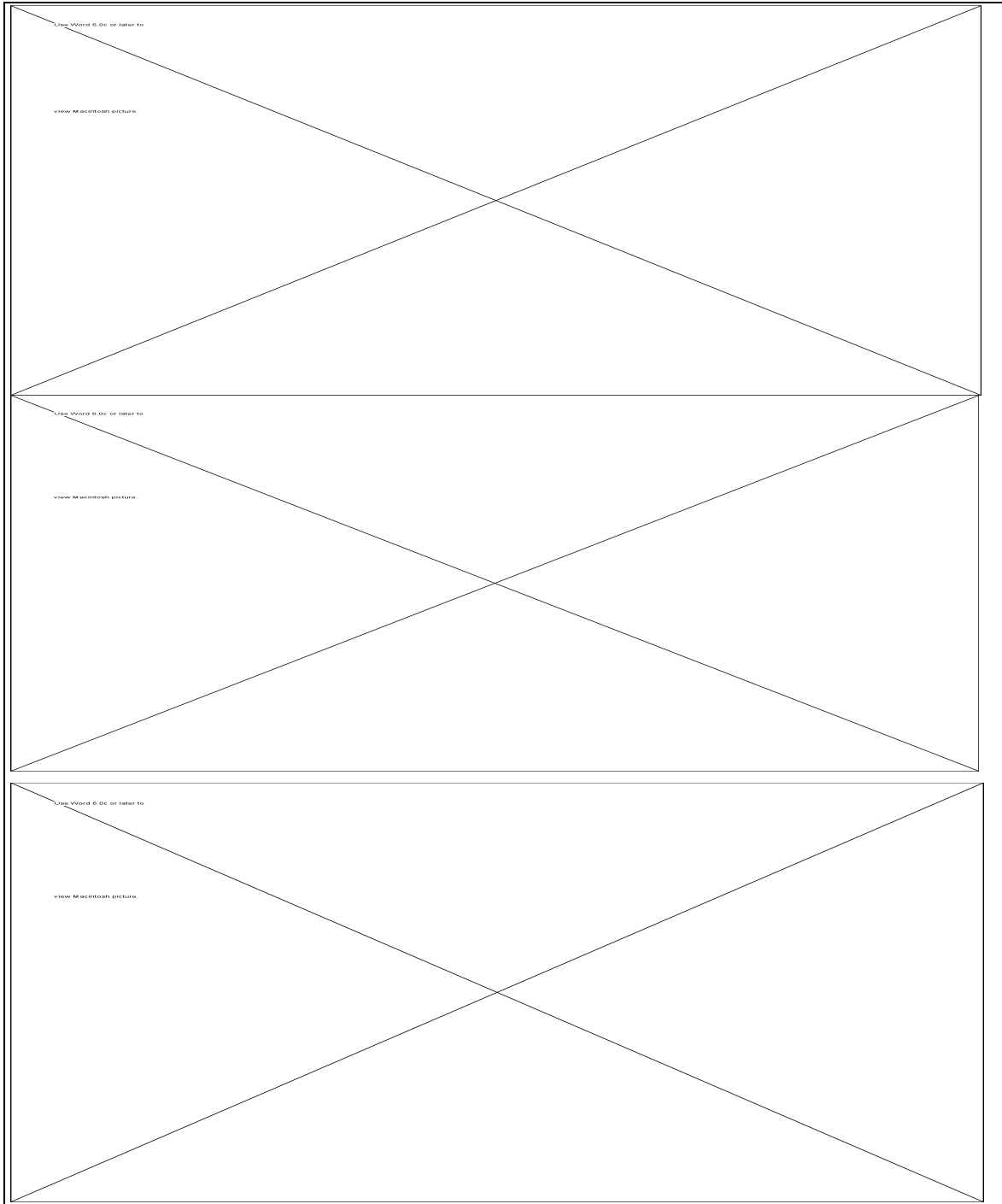
Figure 6.2   Rates of Return on Assets for Grain and Oilseeds Handling Companies, 1989-1993.
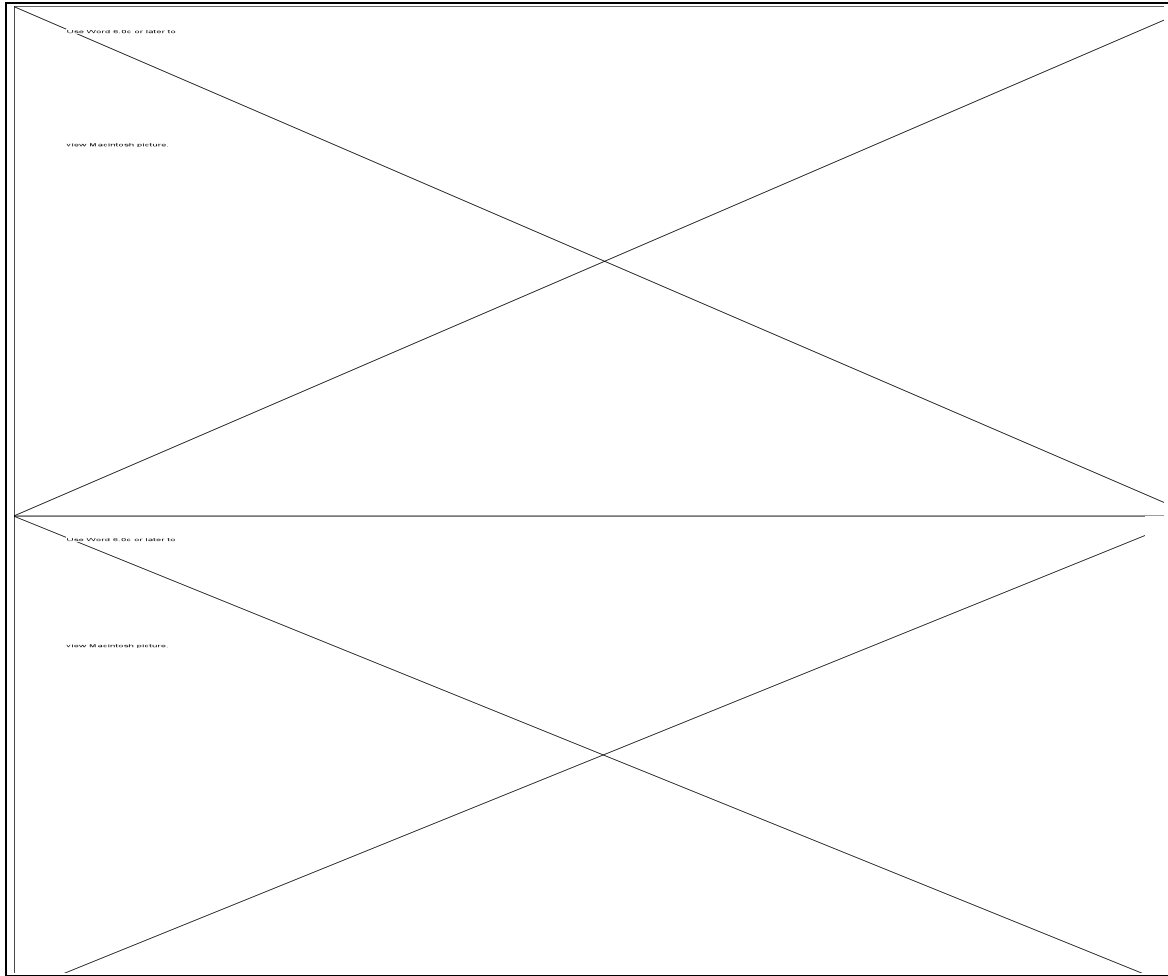
Figure 6.3   Return on Sales and Return on Equity Ratios for Grain and Oilseeds Handling Companies.

Productivity

Figure 6.4 graphs the yearly mean productivity ratios for the Pools and investor-owned grain handlers. A comparison of the mean sales-to-total asset ratios of the firms suggests that the Pools are not performing as well as their IOF counterparts (the co-operative overall average is 2.64 and the IOF average is 4.97). However, it would also appear that this result is largely due to the inclusion of Continental in the sample, for when this firm is not included the IOF average drops down to 2.88. The null hypothesis of similar means between the Pools and the IOFs, excluding Continental, could not be rejected.

A similar story unfolds when the sales-to-inventory ratio is analysed; the Pool average 5-year ratio of 9.97 is below the average of 12.71 reported by the three IOFs, but is very similar to the 9.35 average reported once Continental is removed from the IOF sample. Again, the null hypothesis could not be rejected when comparing the Pools and the IOFs excluding Continental.

The sales to fixed asset figures were not available for Continental, therefore the Pools could only be compared to UGG and Cargill in this case. On average the Pools generated a greater level of sales relative to fixed assets (9.34) than the two IOFs (6.72), and the null

hypothesis was rejected, suggesting that this difference is statistically significant. This may be due to lower levels of capital investment by the Pools.

An analysis of the ratio of net sales in accounts receivable graphed in the bottom panel of figure 6.4 suggests that the Pools are slower in collecting outstanding short-term credit obligations. The overall average for the Pools is 41 days, while the IOF average is 24 days. This may be the result of the Pool's member orientation if the majority of accounts receivable are in the form of member credit on handling fees and other agricultural inputs.

Leverage

By examining the average leverage ratios, illustrated in figure 6.5, it would appear that the Pools are more financially secure and less leveraged than their IOF counterparts for the period. For each of the leverage ratios, the co-operatives reported a lower overall average than the IOFs (both with and without the inclusion of Continental) and the null hypothesis of similar means was rejected. The lower sales-to-equity ratio of the Pools could, however, also be indicative of inefficiencies in generating an adequate level of sales considering the level of investment. In contrast, Continentals' high sales-to-equity ratio, combined with the high asset turnover ratios, is likely due to overtrading (conducting excessive sales on limited owners' equity) in an effort to offset heavy debt or operating losses.

It must be noted, however, that the Pools carry much higher levels of equity than either UGG or Cargill. The higher equity levels for the co-operatives is not surprising, as a portion of this equity may be construed as a form of debt, in that it must eventually be returned to the member. Therefore, long-term liquidity measures involving equity may not be an accurate way to assess the relative leverage of co-operatives unless the nature of the co-operative equity and the co-operative equity redemption programs are fully understood. For this reason, the relatively lower debt-to-total assets ratios of the Pools may provide a better indication of their financial stability.

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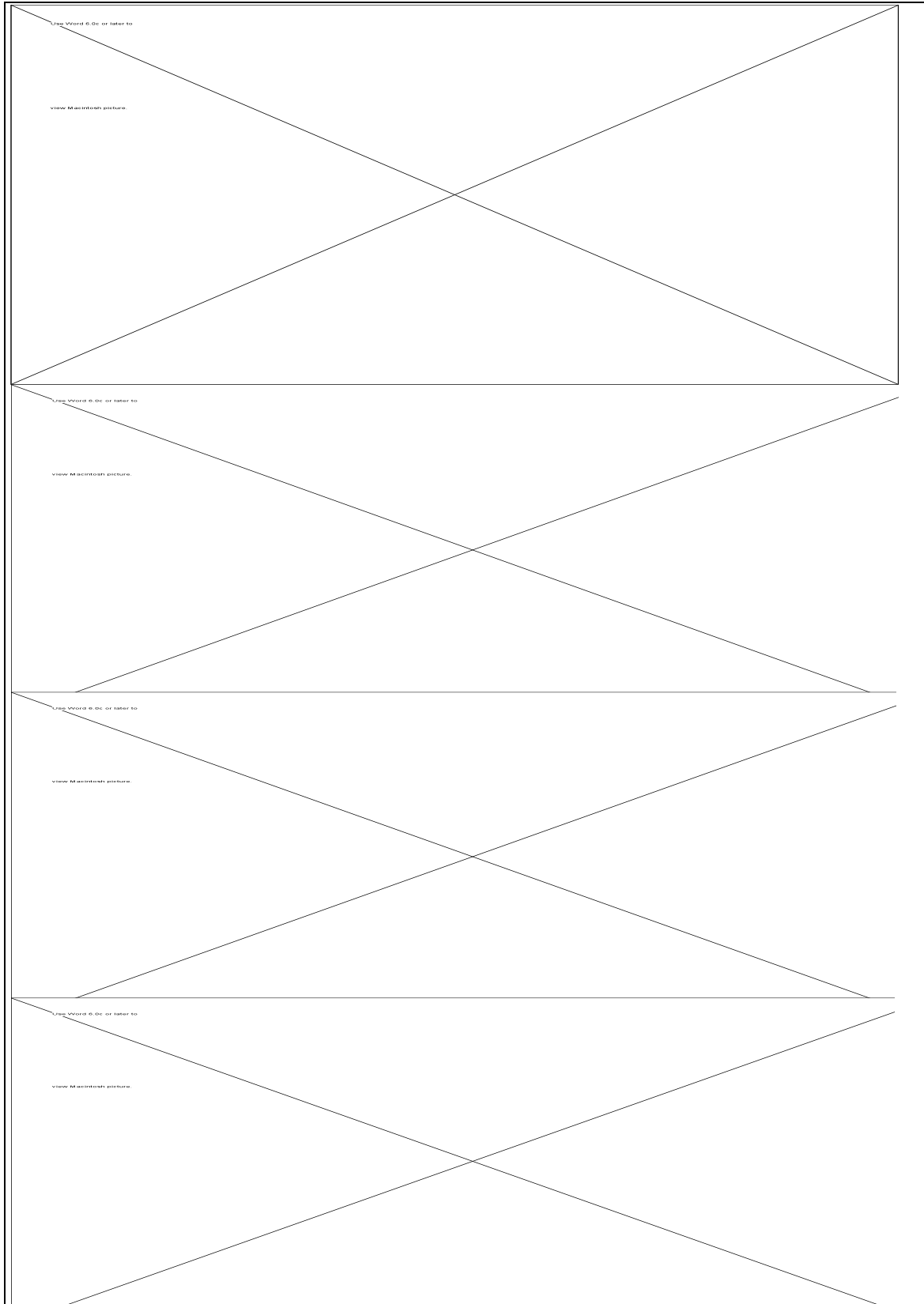
**Figure 6.4   Productivity Ratios for Grain and Oilseeds Handling Companies,
1989-1993**

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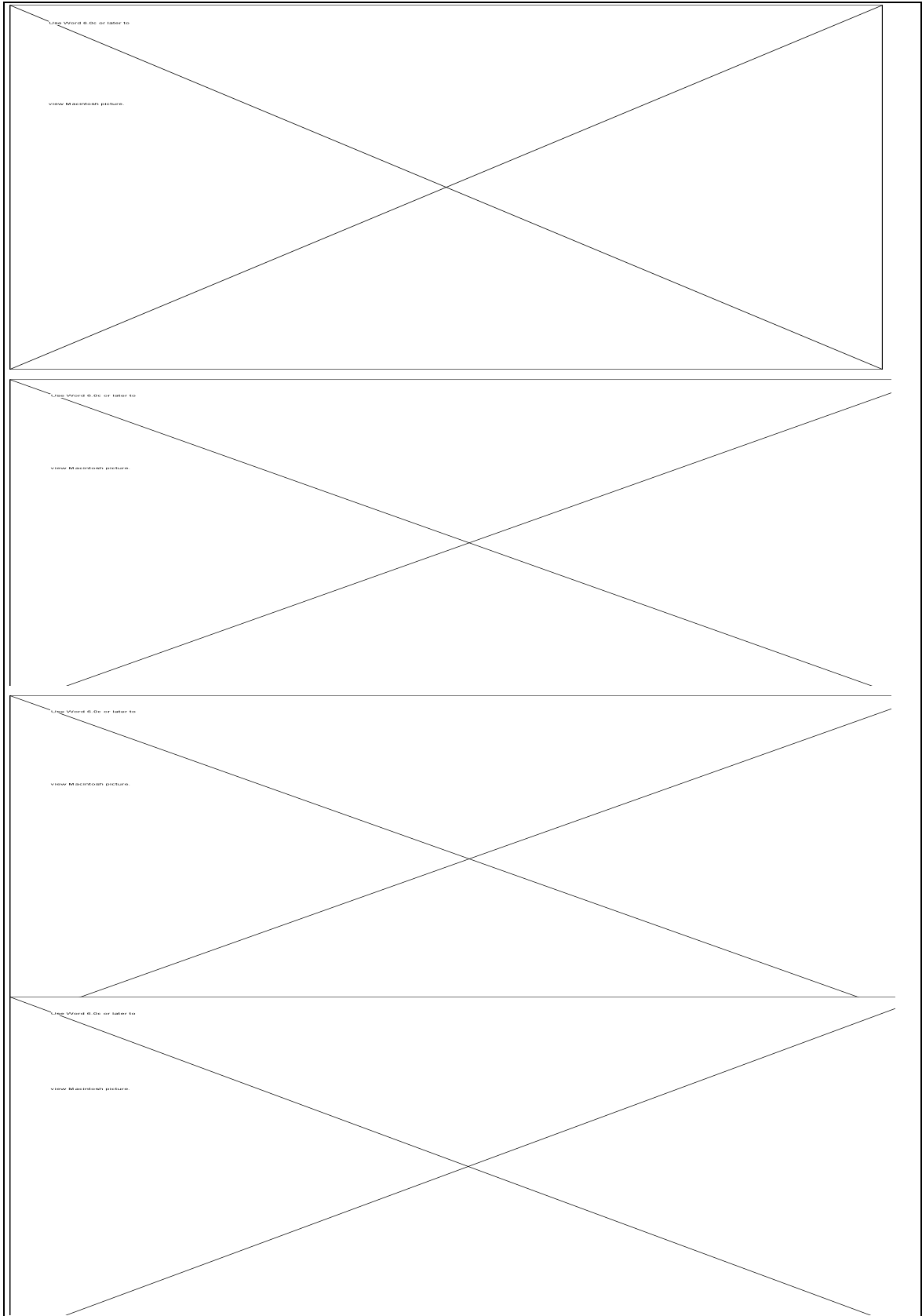
Figure 6.5   Leverage Ratios for Grain and Oilseeds Handling Companies, 1989-1993

Growth

Figure 6.6 graphs the sales growth for each of the grain and oilseeds handling firms for the period from 1990 to 1993 (with the exception of Cargill, where the growth rates are only available from 1990 to 1992). The top two panels illustrate how much variability exists among the individual firms' rates of sales growth. The sales of SWP and MPE appear to have grown at rates which are at least as high as UGG. In contrast, AWP's sales growth is considerably lower than the other Pools and appears to follow trends similar to those of Continental. When comparing all of the Pools together, their sales appear to be growing at a higher overall rate (-2.2%) than all three IOFs combined (-7.5%), but they fall below the combined sales growth rates of UGG and Cargill (3%). The null hypothesis of similar means between the Pools and the IOFs (excluding Continental) could not be rejected, a result which is likely due to the high degree of variance within each of the samples.

The rates of asset growth are graphed in figure 6.7. The top two panels illustrate how the Pools and UGG have followed very similar patterns of asset growth. Cargill's asset growth has been steady from 1990 to 1992, while Continental's asset growth rates have risen steadily from an extremely low level in 1990 to a very high rate in 1993. The overall combined mean asset growth rate over the period analysed is the same for both the Pools and the three IOFs (5.2%). If Continental is removed from the IOF sample, the Pools average asset growth rate remains similar to that of Cargill and UGG combined (4.9%) and the null hypothesis could not be rejected.

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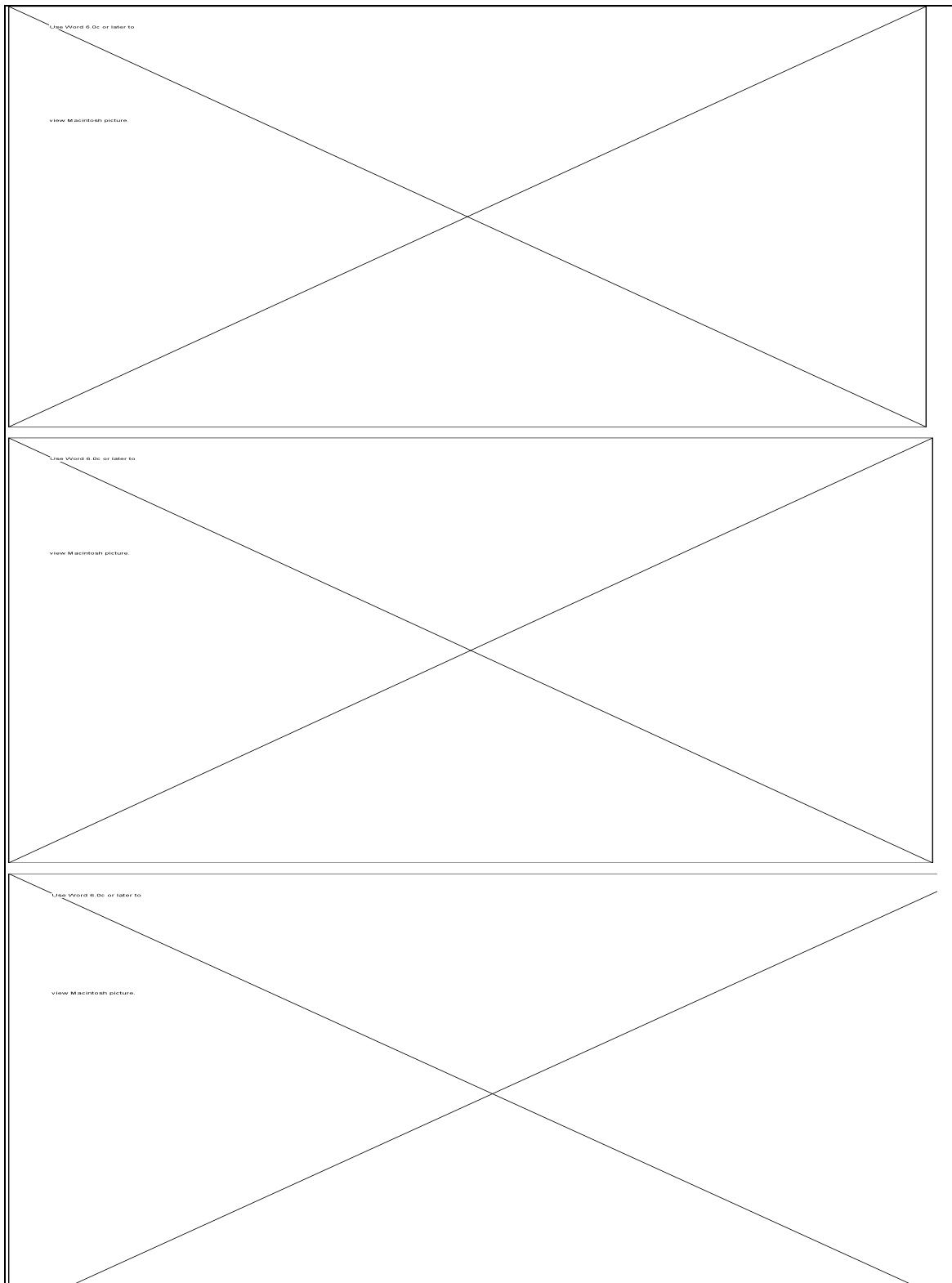
Figure 6.6   Sales Growth Rates for Grain and Oilseeds Handling Companies, 1990-1993

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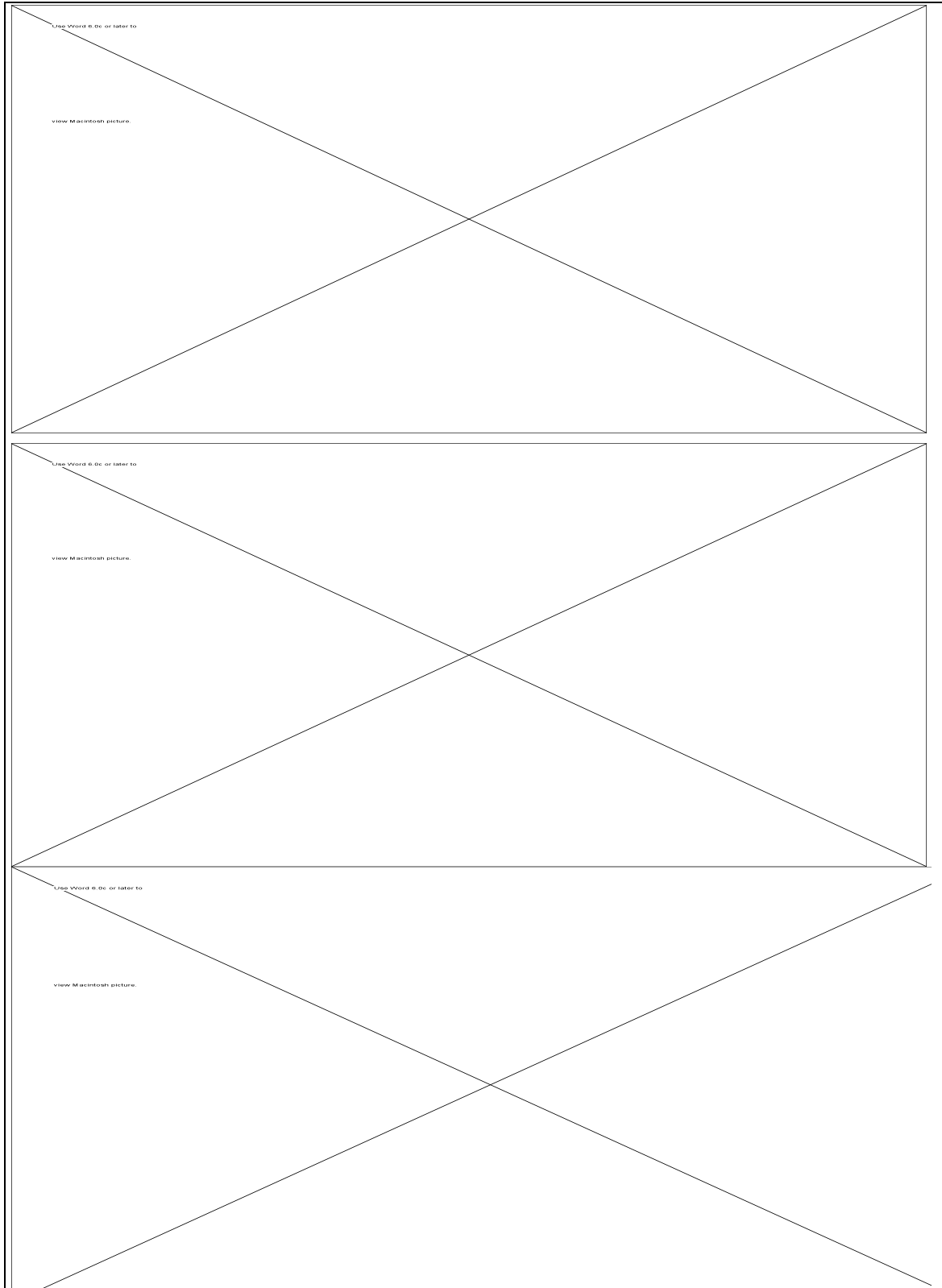
**Figure 6.7   Total Asset Growth Rates for Grain and Oilseeds Handling
                 Companies, 1990-1993**

Appendix 6.1 Description and Operations of Grain and Oilseeds Handling Companies

(Source: Disclosure, Inc.)

Continental Grain Co. (Canada) Ltd

Primary SIC Code:

 5153 Wholesales-Grain and Field Beans

SIC Codes:

 5153 Wholesales-Grain and Field Beans

 4221 Farm Product Warehousing and Storage

Description of Business: Continental Grain Co, principal business activity is the wholesale and storage of grain.

Cargill Ltd

Primary SIC Code:

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

SIC Codes:

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

5153 Wholesales-Grain and Field Beans

5191 Wholesales-Farm Supplies

4221 Farm Product Warehousing and Storage

2011 Mfrs-Meat Packing Plants

2013 Mfrs-Sausages and Other Prepared Meat Products

Description of Business: Cargill is engaged in the manufacture and wholesale of livestock feed products, grain, seed, agricultural chemicals, fertilizer and the storage and transportation of grain, as well as beef processing.

United Grain Growers, Ltd.

Primary SIC Code:

5153 Wholesales-Grain and Field Beans

SIC Codes:

5153 Wholesales-Grain and Field Beans

5191 Wholesales-Farm Supplies

4221 Farm Product Warehousing and Storage

8740 Management and Public Relations Services

2711 Mfrs-Newspapers: Publishing, or Publishing and Printing

2721 Mfrs-Periodicals: Publishing, or Publishing and Printing

6331 Fire, Marine, and Casualty Insurance

Description of Business: United Grain Growers is engaged in the wholesale of grain, and animal feed. The company is also engaged in the operation and construction of grain elevators. Also involved in agricultural consulting, newsletter and magazine publications.

Alberta Wheat Pool

Primary SIC Code:

 4221 Farm Product Warehousing and Storage

SIC Codes:

 4221 Farm Product Warehousing and Storage

 5191 Wholesales-Farm Supplies

 5153 Wholesales-Grain and Field Beans

Description of Business: Alberta Wheat Pool is a farmer co-operative active in grain marketing, grain terminal operations, fertilizer sales and oil exploration. The co-operative has 58,493 members and operates primarily in Alberta and northeastern British Columbia.

Manitoba Pool Elevators

Primary SIC Code:

 5153 Wholesales-Grain and Field Beans

SIC Codes:

 5153 Wholesales-Grain and Field Beans

 4221 Farm Product Warehousing and Storage

 5191 Wholesales-Farm Supplies

Description of Business: Manitoba Pool Elevators is a producer owned co-operative, formed to provide service to its farmer members. There are 122 active Pool locals and 8 active associations operating on behalf of those members. There are 8 Pool districts in the province, and each district contains 5 sub-districts.

Saskatchewan Wheat Pool

Primary SIC Code:

 5153 Wholesales-Grain and Field Beans

SIC Codes:

 5153 Wholesales-Grain and Field Beans

 2041 Mfrs-Flour and Other Grain Mill Products

 5154 Wholesales-Livestock

 5159 Wholesales-Farm-Product Raw Materials

 5149 Wholesales-Groceries and Related Products

 5191 Wholesales-Farm Supplies

 2873 Mfrs-Nitrogenous Fertilizers

 2741 Mfrs-Miscellaneous Publishing

Description Of Business: Saskatchewan Wheat Pool markets grain, oilseeds and livestock that is produced by the 60,000 farmers who are its members. The Pool also helps farmers diversify their production, and develop new methods that will preserve soil, water and other environmental resources.

7
Feed Sector

Industry Overview

Co-operative participation in the manufacture, wholesale, and retail of agricultural inputs plays a major role in the Canadian economy. In 1992, there were 239 farm supply co-operatives in the country, generating close to two billion dollars in business volume. Table 7.1 provides summary statistics of Canadian farm supply co-operatives, which includes those co-operatives involved in the retail of agricultural supplies and petroleum, as well as the manufacture of feed, fertilizer, and chemicals (Co-operatives Secretariat).

Table 7.1   Summary of Farm Supply Co-operatives in Canada, 1992

	Region				
	West	Ontario	Quebec	Atlantic	Canada
Number of Co-operatives	121	33	73	12	239
Membership (thousands)	233	87	67	6	393
Full-time Employees	1502	1513	1917	66	4998
Part-time Employees	422	148	286	31	887
Salaries and Wages ($ Million)	49	46.8	61	2	158
Volume of Business ($ Million)	757	502	630	27	1916
Assets ($ Million)	324	235	258	11	828
Members' Equity ($ Million)	228	43	110	4	384

Source: Co-operatives Secretariat

Table 7.2 provides a breakdown of the products sold by farm supply co-operatives across Canada. Animal feed is an important part of co-operative participation in the supply of agricultural inputs, accounting for 30 percent of farm supplies sold by co-operatives. Indeed, co-operatives supply 27 percent of all Canadian feed sales. Co-operatives also supply 36 percent of fertilizers and chemical sales and 19 percent of seed sales. The member co-operatives of the central Cooperative Federee de Quebec sell nearly half of the $553 million of animal feed supplied by co-operatives in Canada. Western co-operatives supply over 27 percent, Ontario 18 percent, and Atlantic Canada co-operatives just over 6 percent (Co-operatives Secretariat).

Firms in the feed industry, both co-operative and privately owned, are primarily involved in the manufacture of swine, dairy and poultry feeds. They are also extensively involved in the retail sales of their own products. In 1989 the Canadian feed industry was comprised of an estimated 510 production establishments. The largest firms in the industry are often highly diversified and include operations such as meat packing, oilseed processing, and grain handling. Fewer than 10 organizations account for about 70 percent of total production in the country, and, although there is strong foreign presence in the industry, Canadian

ownership is predominant among small and medium-sized firms (Ministry of Industry, Science, and Technology, 1991c).

Table 7.2   Farm Supplies Sold by Co-operatives in Canada, 1992

Sales	Region				
	West	Ontario	Quebec	Atlantic	Canada
Animal Feed	148.2	100.1	270.0	34.4	552.7
Fertilizers and Chemicals	536.0	113.3	56.0	5.4	710.7
Seeds	68.9	11.4	11.7	1.9	93.9
Other Farm Supplies	199.9	54.8	126.2	13.1	394.0
Machinery	41.5	3.0	57.4	3.7	105.6
Total	**994.5**	**282.6**	**521.3**	**58.5**	**1856.9**

Source: Co-operatives Secretariat

The polarization of firm ownership and size is largely due to the nature of the economies of scale in the industry. Although economies of scale are important in the production process, proximity to the customer is one of the most important factors affecting competitiveness. Long-distance transportation costs have led to the development of a network of feed mills across Canada designed to serve local and regional markets. Most manufactured feeds are sold within a 100-kilometer radius of a plant, although higher-valued specialty feeds and ingredients are traded globally. These factors have led to an increase in on-farm mixing of feeds, using premixes and feed concentrates and grains grown on the farm (Ministry of Industry, Science, and Technology, 1991c).

On-farm mixing represents a serious long-term competitive consideration for all independent feed manufacturers. Further integration of livestock and poultry production with feed production will also increase competitive pressures. Trends suggest that to remain viable, firms in the feed industry must demonstrate to large livestock and poultry operators that it is more cost-effective to leave the technical side of feed production to outside specialists. This involves the provision of nutrition and animal health consulting and specialized advisory support. Co-operative firms may have advantages in the provision of such services as they are themselves a form of vertical integration for agricultural producers and may therefore be more aware of their members needs (Fulton and Harris).

Overall Results

Overall, feed co-operatives appear to be more liquid in the short-run and more financially secure in the long-run than other firms operating in the industry. The large co-operatives have significantly higher liquidity ratios and lower leverage ratios than their IOF competitors. Similarly, medium-sized co-operatives also report higher liquidity ratios and lower leverage ratios than comparable industry norms.

Large co-operatives report asset turnover ratios similar to those of IOFs, with the exception of higher sales to fixed asset ratios, which may be indicative of a lower level of capital investment on behalf of co-operative firms. Medium-sized co-operatives also report total asset and inventory turnover ratios similar to those of the industry and relatively higher sales-to-fixed-asset ratios.

It is difficult to make any definitive statements with respect to the relative profitability and growth of the larger co-operatives and IOFs due to the high degree of variance within the samples. However, the statistical results suggest that co-operatives generate lower rates of return on equity, and similar rates of return on assets and sales. The growth rates of sales appear to be lower, while the difference in asset growth is, on average, not significant.

Feed Companies with Total Assets Greater than $1,000,000

In this category, non-parametric tests are undertaken to determine if significant differences in the mean ratios of selected performance indicators exist between approximately 23 co-operatives and 5 IOFs over the 5-year period from 1989 to 1993. There are large differences in the scale of the co-operatives and IOFs. Table 7.3 outlines the mean total assets and mean annual sales of both samples. All of the IOFs have total assets in excess of $10 million, while the co-operatives generally have assets between $1 and $10 million. The IOFs are also highly diversified and some are foreign-owned subsidiaries. More details regarding these companies are provided in appendix 7.1 which outlines the different manufacturing operations and provides a description of each company. Unfortunately, this level of detail could not be provided for the co-operatives; however, all of the co-operatives' primary operations are feed mills.

Table 7.3 Summary Statistics for Feed Firms and Industry Norms Analysed

	Type of Firm		
	Co-operatives	IOFs	Ind Norm
Selected Variables			
Mean Number of Firms	23	5	30
Mean Total Assets	6,104,341	188,350,375	4,493,041
Mean Annual Sales	14,746,204	530,911,708	7,116,369
Mean Equity	2,565,569	71,706,541	1,742,002

In addition, the co-operatives are compared to the industry norms calculated as the median value for firms involved in the manufacturing of prepared feeds and feed ingredients for animals and fowls (SIC code 2048) over the same time period. The firms included in the calculation of the industry norms are much closer in size to the co-operative firms analysed. Table 7.4 summarizes the results from the non-parametric tests undertaken between the co-operative and IOF firms, and provides the overall 5-year mean values for the co-operatives, IOFs, and the industry norms.
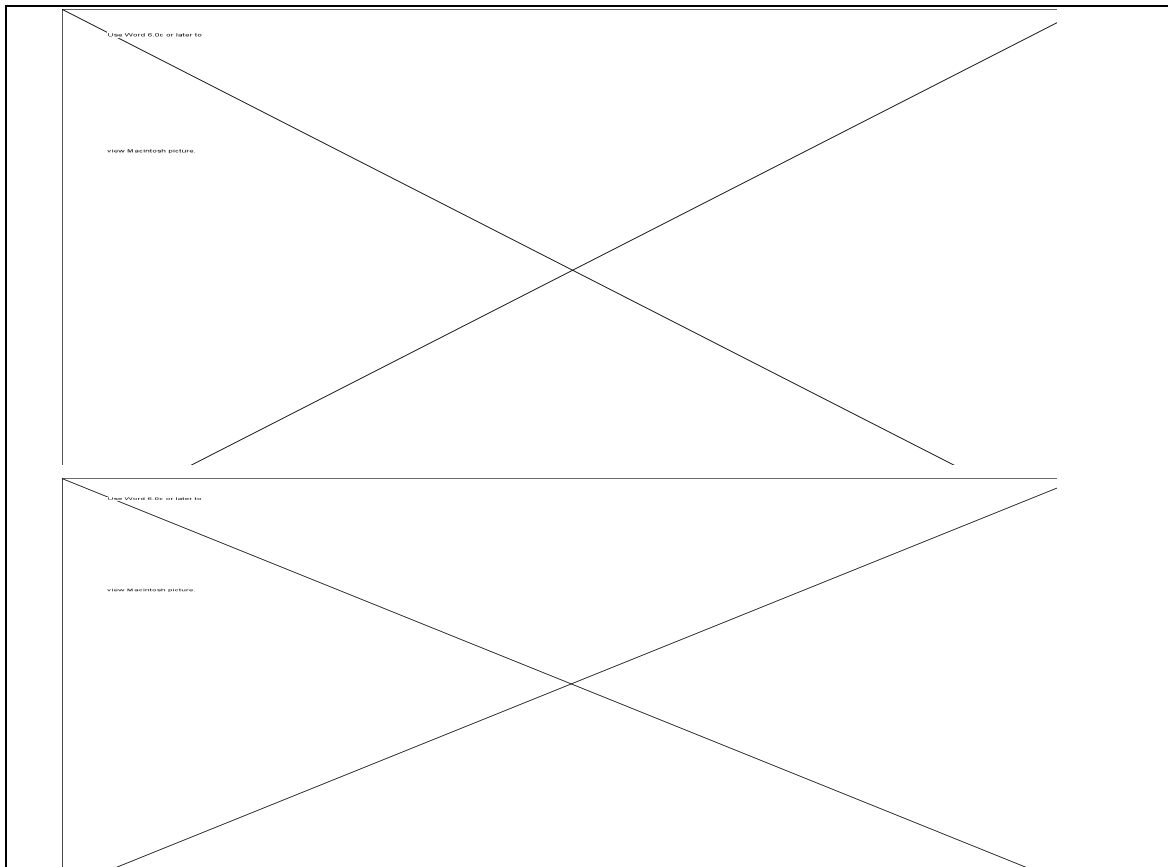

Figure 7.1   Liquidity Ratios for Feed Companies with Total Assets Greater than $1,000,000, 1989-1993

Liquidity

The results from this analysis indicate that co-operatives in the feed sector are more liquid than the large IOF firms and the industry norms. The null hypothesis of similar means between the co-operatives and the IOFs was rejected for both the current and quick ratio. Figure 7.1 illustrates how the co-operative yearly means are consistently above those of the industry and the IOFs.

Profitability

Due to the high degree of variability it is difficult to make any strong conclusions based on the statistical analysis regarding the relative profitability of feed manufacturing co-operatives. Although the null hypothesis was not rejected when comparing the mean ROA and ROS figures for co-operatives and IOFs, the high variances for the two groups suggests that this is part of the reason for non-rejection. For instance, even though the IOFs have a higher ROE than the co-operatives throughout the period, as shown in figure 7.2, the difference is not statistically significant because the standard deviations are large. The graphs in figure 7.2 suggest that the co-operatives are likely to be less profitable than their IOF competitors. This could be a result of the large diversified IOFs having more opportunities to cross subsidize their income with operations not related to agriculture. Unfortunately, profitability measures for the industry norms are unavailable.

Productivity

A comparison of the productivity ratios suggest that co-operatives in this sector are at least as productive as other firms in the industry. The hypothesis of similar means between the sales-to-total-asset and sales-to-inventory ratios of the co-operatives and IOFs could not be rejected, indicating no significant differences exist between the two types of firms. The graphs in figure 7.3 support this result, as the co-operative and IOF means are very similar throughout the period analysed. The ratios for both types of firms are also above the industry norms.

In the case of the sales-to-fixed asset ratio, the null hypothesis was rejected, with the co-operatives reporting a higher mean (8.79) than that of the IOFs (5.84) and the industry norm (4.20). These results suggest that the co-operatives are either more productive than their counterparts in generating sales with respect to fixed assets, or they may not be investing as much capital in fixed assets as other firms in the industry.

Co-operatives appear to be as efficient in collecting their outstanding accounts receivable as the IOFs and more efficient than the industry in general. The co-operatives also appear to have a more consistent strategy over time regarding credit collection, as is indicated in the bottom panel of figure 7.3. A lower level of credit days for co-operatives than the industry norm can, on the one hand, reflect greater efficiency, but it can also reflect a certain level of hardship on behalf of members to whom credit is extended. Such considerations are particularly important in the case of agricultural input supply co-operatives.

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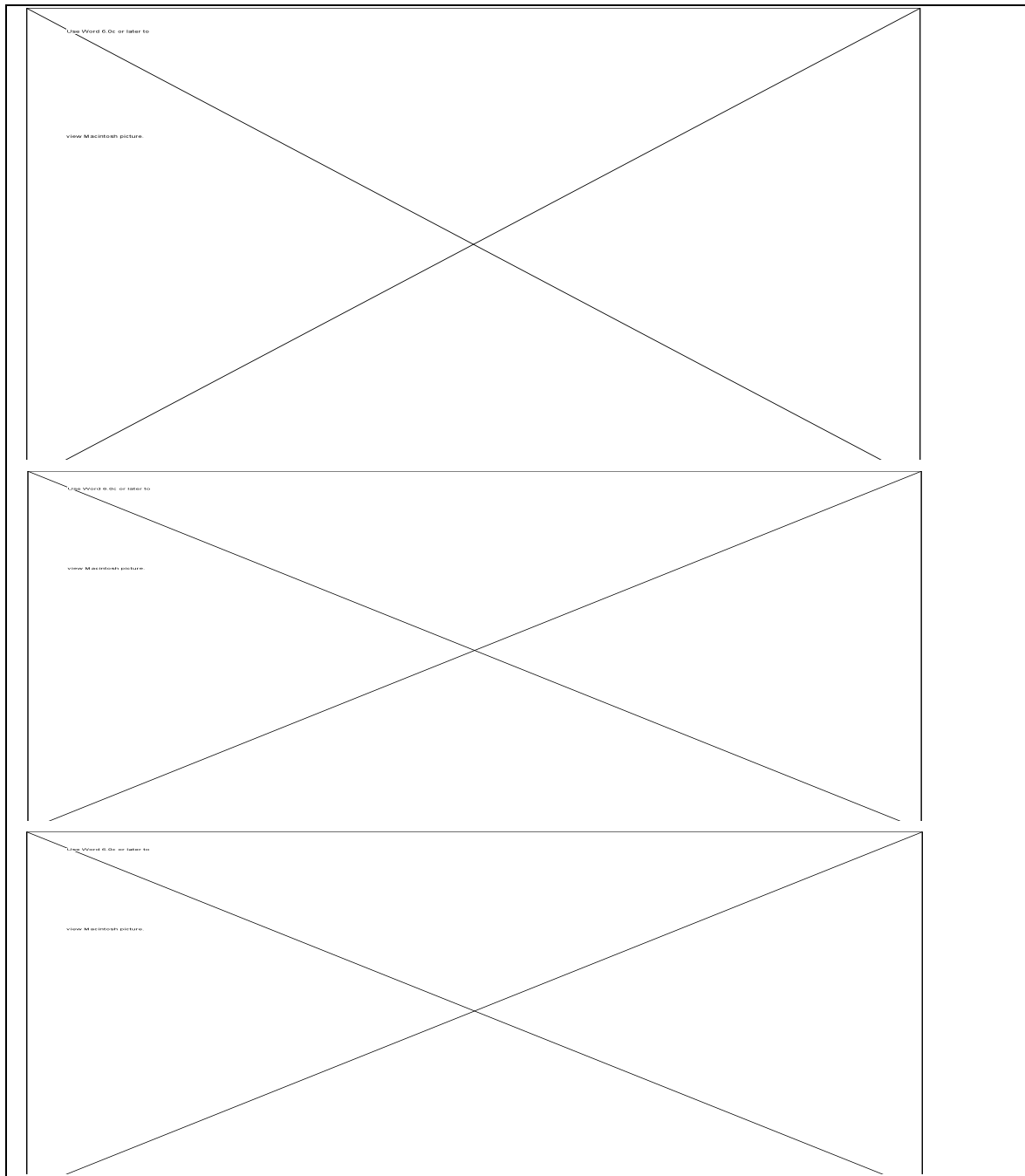
Figure 7.2   Profitability Ratios for Feed Companies with Total Assets Greater than $1,000,000, 1989-1993

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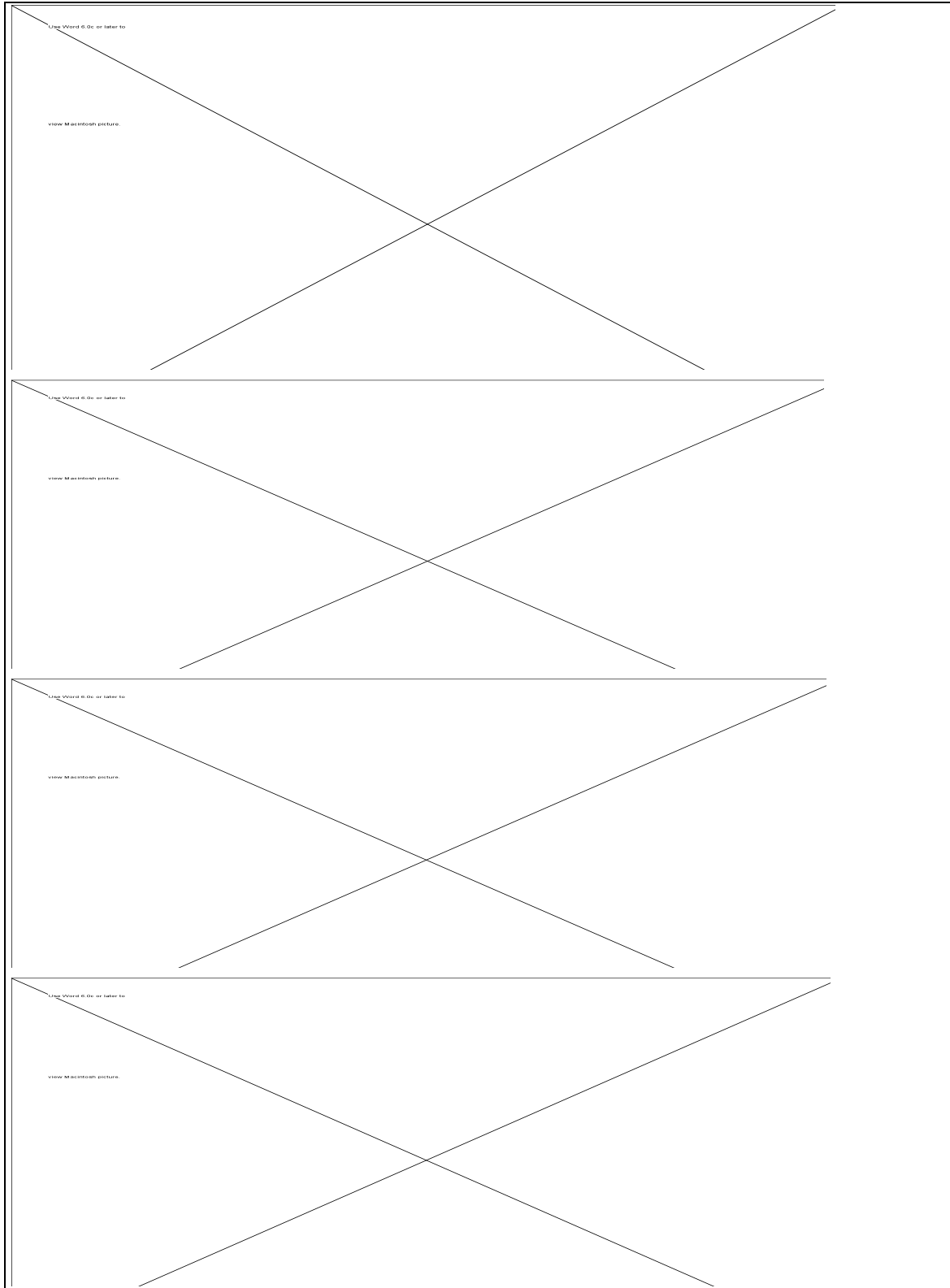
Figure 7.3   Productivity Ratios for Feed Firms with Total Assets Greater than $1,000,000, 1989-1993

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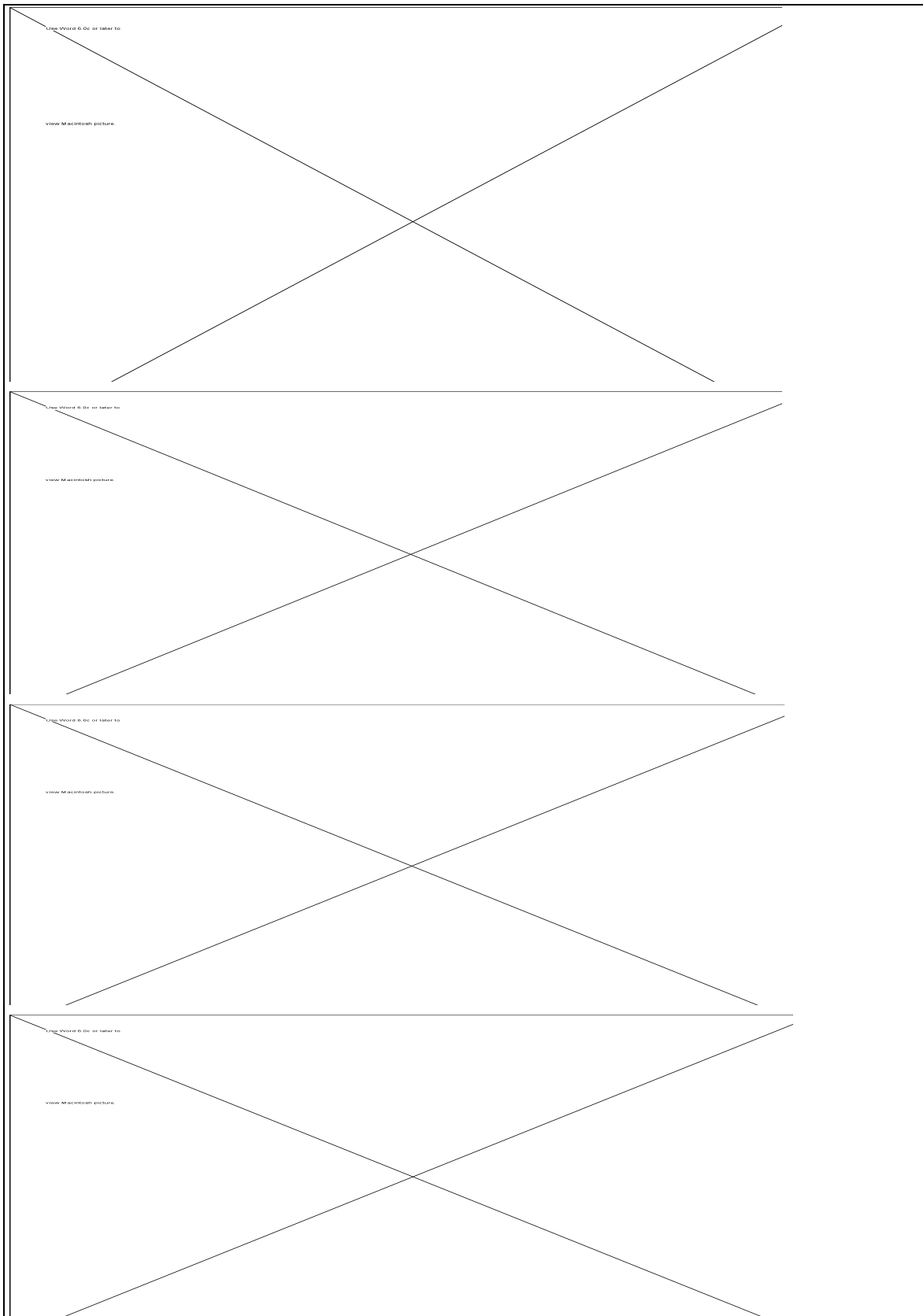
Figure 7.4   Leverage Ratios for Feed Firms with Total Assets Greater than
$1,000,000, 1989-1993

Leverage

In general, co-operatives report lower leverage ratios than their large IOF competitors. The co-operatives report a lower debt-to-total asset ratio than the IOFs throughout the period (as illustrated in the top panel of figure 7.4) and the null hypothesis of similar means was rejected. The co-operative mean debt-to-total-asset ratio is also lower than the industry norm. In the case of the sales-to-equity ratio, the co-operatives appear to generate less sales relative to equity than the IOFs (the null hypothesis was rejected indicating this difference to be significant), but are still performing better than the industry norm. The difference in sales-to-equity ratios between co-operatives and IOFs may be due to lower mark-ups on co-operative feed prices or to relatively higher levels of equity.

Co-operatives appear to have significantly lower debt-to-equity ratios than the IOFs, as the null hypothesis of similar means was rejected. The co-operative mean debt-to-equity ratio (1.22) is also lower than that of the industry (1.58). Although figure 7.4 illustrates that co-operatives, on average, have lower long-term debt-to-equity ratios than both the IOFs and the industry norm throughout the period, the null hypothesis of similar means could not be rejected. The non-rejection of the null hypothesis is likely due to the high degree of variance in both samples.

Growth

The graphs in figure 7.5 seem to indicate that co-operatives in this sector have a lower rate of sales and asset growth than their larger IOF competitors from 1990 to 1993. However, the statistical tests suggest that this difference is only significant in the case of sales growth. Caution is required in interpreting the results of the non-parametric statistical tests, however, due to a great degree of variance within the samples, as is indicated by the relatively large standard deviations. Large variances among firms within the samples make it more likely that the null hypothesis of similar means will not be rejected.

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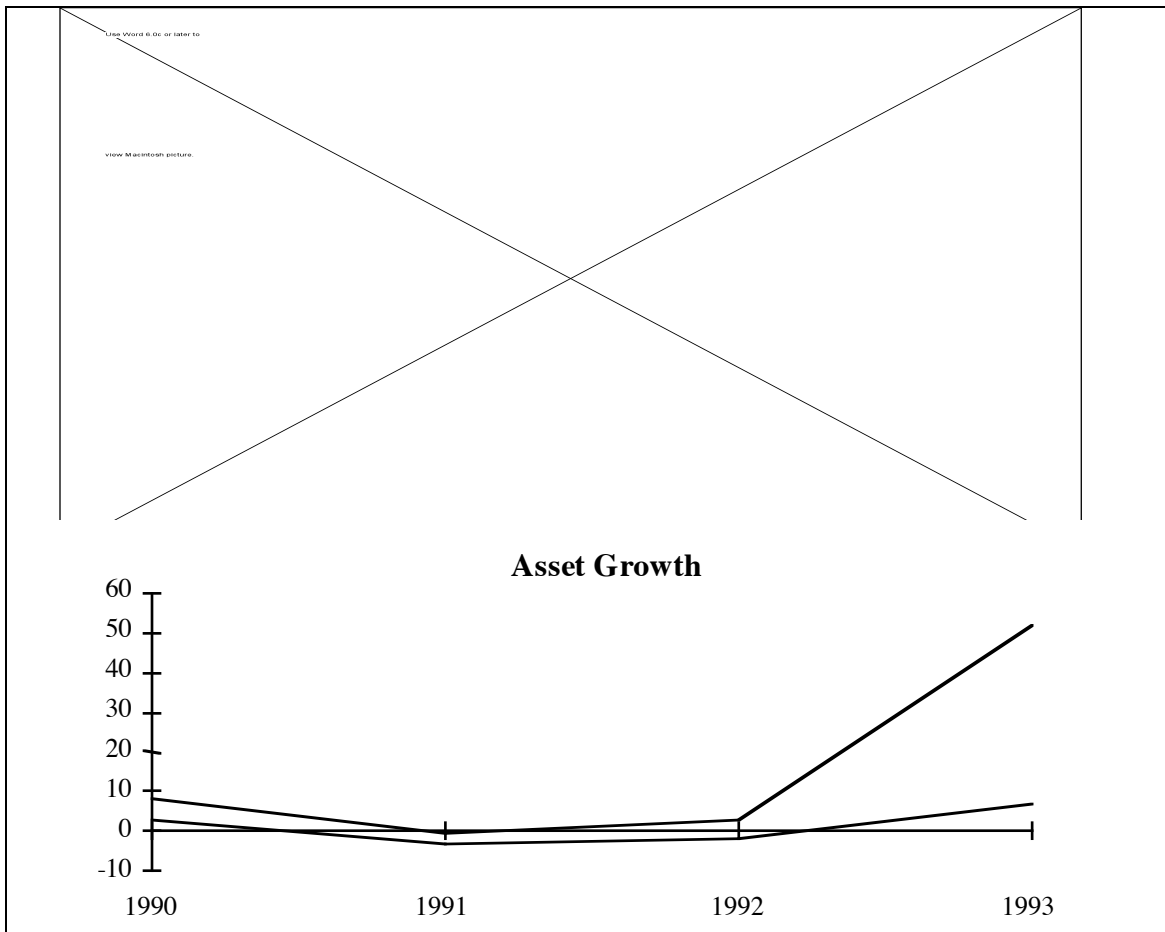
Asset Growth

Figure 7.5   Growth Rates for Feed Firms with Total Assets Greater than $1,000,000, 1990-1993

Feed Companies with Total Assets Greater than $250,000 and Less than $1,000,000

In this sector co-operatives with total assets greater than $250,000 but less than $1,000,000 are compared with the industry norms for feed manufacturers (SIC 2048) in the same size category. The median ratios of an average of 12 co-operatives (ranging from 18 co-operatives in 1986, to 9 in 1993) are compared with the median ratios of approximately 13 firms with various ownership structures for the seven year period from 1986 to 1989, and 1991 to 1993. Industry norm observations are not available for the year 1990. Appendix 7.2 outlines the yearly median performance indicators and the overall averages for the co-operatives and industry norms.

The two groups of feed firms compared in this category are of a similar size. The seven year mean of total assets for the co-operatives is $637,950, and $504,487 for the industry norm. The overall mean sales are $1,785,693 for co-operative firms and $1,202,143 for the industry.

Liquidity

As with the larger firms, co-operative feed mills in this size category appear to be more liquid than other firms in the industry over the period analysed (see figure 7.6). The overall 8-year average median values for the co-operatives' current ratio is 2.67, compared to 1.26 for the industry. The co-operative average quick ratio is 1.31, which is also considerably higher than the 0.72 average reported as the industry norm.
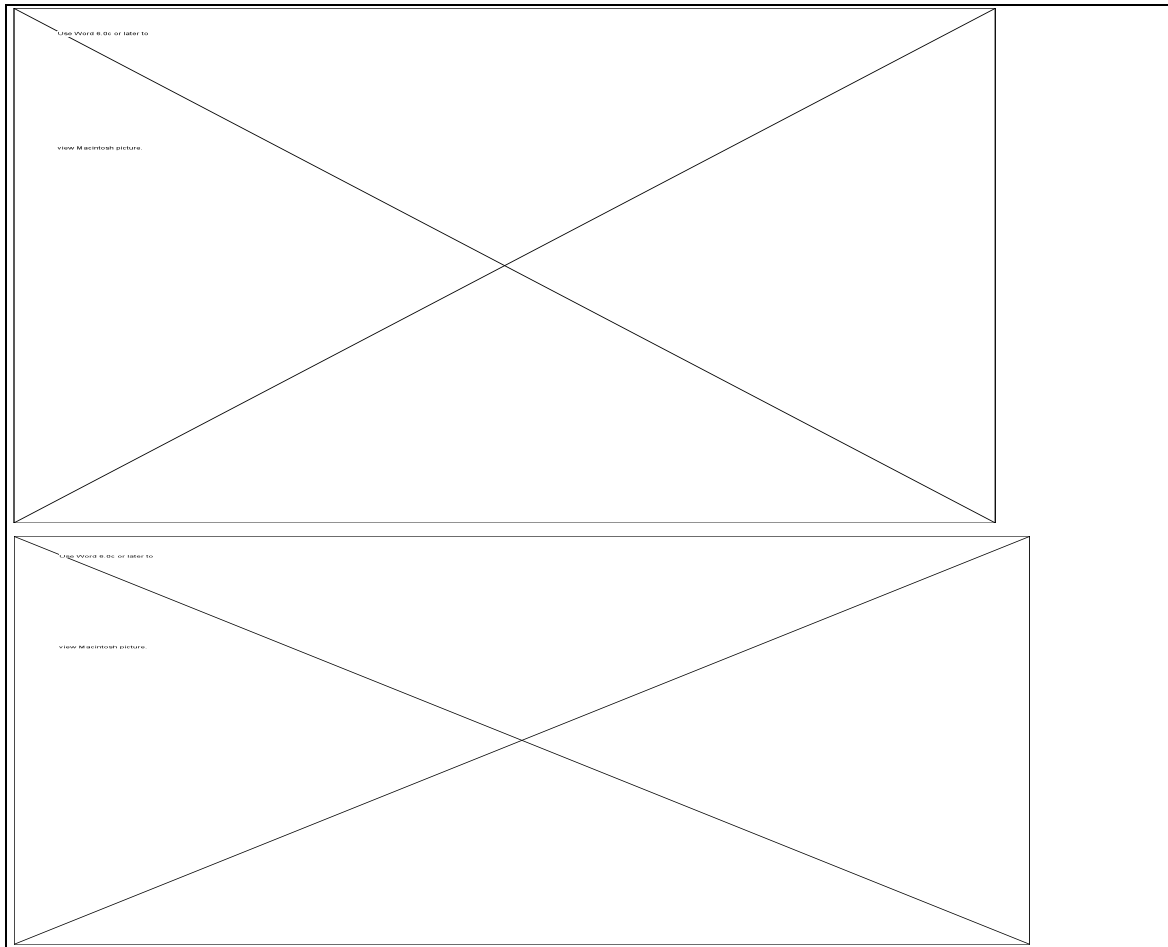
Figure 7.6   Liquidity Ratios for Feed Companies with Total Assets Greater than $250,000 and Less than $1,000,000, 1986-1993

Productivity

When examining the median values of the productivity ratios for the co-operatives and industry norms in this sector, one of the more striking features is the fluctuation of the industry norms over the period analysed. This variability is important to note as it affects the conclusions that are drawn. For example, the mean sales-to-total asset ratio for co-operatives is 2.49, whereas the overall average industry norm ratio is 2.39. However, by looking at the top panel of figure 7.7 it is difficult to tell if co-operatives truly are generating more sales with respect to total assets than what is normal for the industry, particularly since industry norms for 1990 are unavailable.

Co-operatives appear to be generating a higher degree of sales-to-fixed assets than the industry, with a co-operative overall ratio of 13.78 versus the 7-year industry norm average of 6.38. This differential could be due to greater productivity or a lower rate of capital investment on behalf of the co-operatives. In the case of the sales-to-inventory ratio, the co-operative average (7.94) is lower that of the industry norm (10.36), which may be due to co-operatives maintaining higher levels of inventory than other firms in order to ensure members' supply needs are met.

Similar to the larger feed co-operatives, co-operatives in this category have lower days of net sales in accounts receivable than other firms in the industry. The industry average days for the period analysed is 45, whereas the co-operative average is only 32.

Leverage

In general, co-operatives in this sector appear to be more financially secure and more stable in the long-run than what is considered normal for the industry. Co-operatives report a lower average debt-to-total asset ratio (with a mean value of 0.28) than the industry (with a mean of 0.64) as well as a lower average sales-to-equity ratio (3.70 versus 6.76 for the industry).

As is illustrated in figure 7.8, the co-operatives also report lower median values for the debt-to-equity ratio than the industry throughout the period, with an overall average of 0.39 versus 1.84 for the industry. The values for the long-term debt-to-equity ratio display a similar trend, with the overall mean long-term debt-to-equity ratio for co-operatives as 0.09 versus the industry average of 0.62. This differential may be due to a reluctance on behalf of the co-operatives to incur long-term debt outside of equity financing to support investment in fixed assets.

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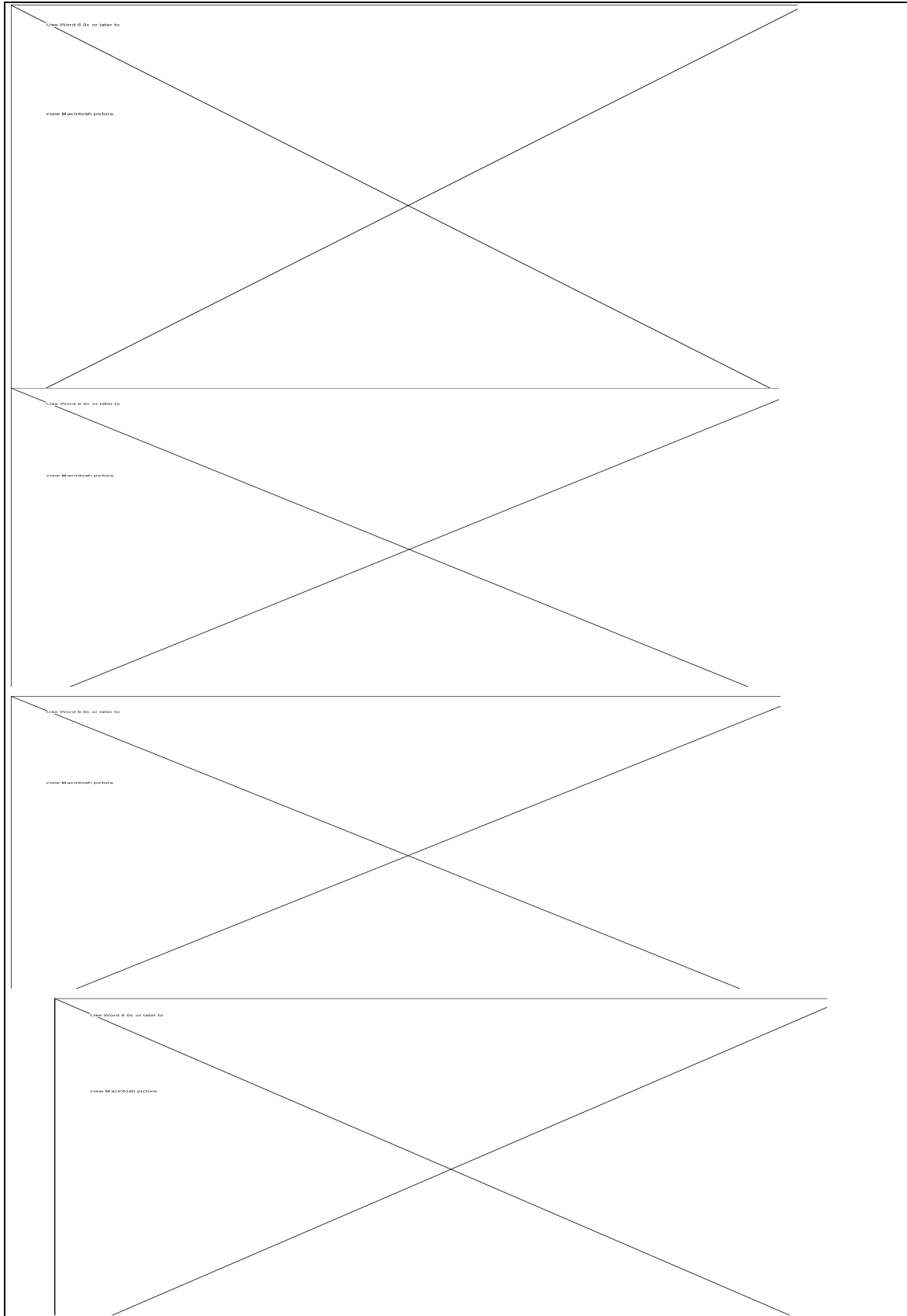
Figure 7.7   Productivity Ratios for Feed Firms with Assets Greater than $250,000 and Less than $1,000,000, 1986-1993

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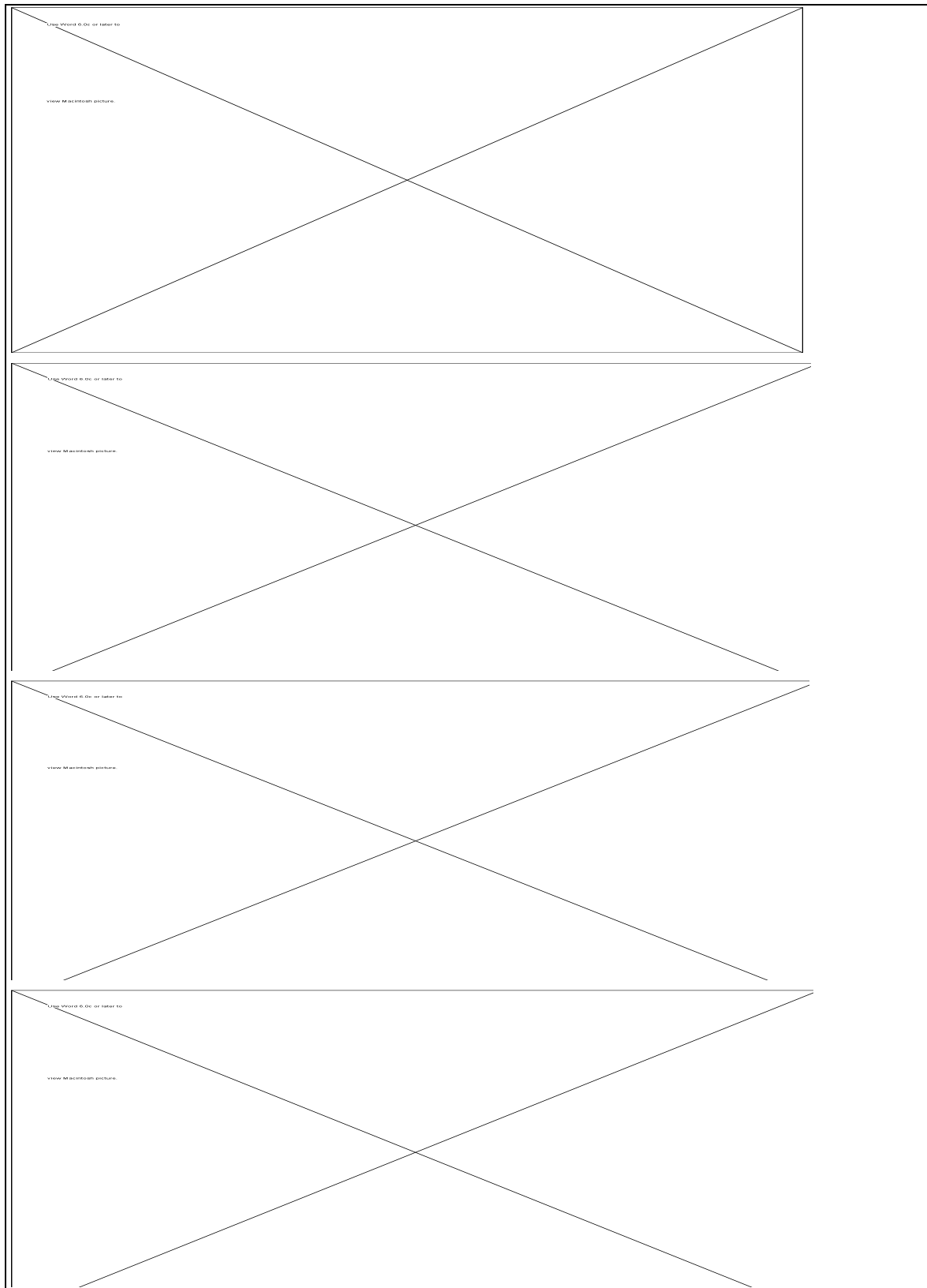
Figure 7.8 **Leverage Ratios for Feed Firms with Assets Greater than $250,000 and Less than $1,000,000, 1986-1993**

Appendix 7.1 Description of Investor-Owned Feed Companies

(Source: Disclosure, Inc.)

Agritek Bio Ingredients Corporation, Ontario (Public)

Primary SIC Code:

8731 Commercial Physical and Biological Research

SIC Codes:

8731 Commercial Physical and Biological Research

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

2834 Mfrs-Pharmaceutical Preparations

2869 Mfrs-Industrial Organic Chemicals (various)

Description of Business: Agritek Bio Ingredients Corp is a vertically integrated global enterprise in the animal feed ingredient industry. The company develops, manufactures and markets natural bio-nutrient feed additives, as well as environmental products for the waste management field.

Hoffmann-La Roche Ltd, Ontario (Private)

Primary SIC Code:

2834 Mfrs-Pharmaceutical Preparations

SIC Codes:

2834 Mfrs-Pharmaceutical Preparations

2833 Mfrs-Medicinal Chemicals and Botanical Products

2835 Mfrs-In Vitro and In Vivo Diagnostic Substances

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

Description of Business: Hoffmann-La Roche is engaged in the manufacture of pharmaceuticals, vitamin, biological products, animal feed premixes, flavours and fragrances.

Cargill Ltd., Manitoba (Private)

Primary SIC Code:

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

SIC Codes:

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

5153 Wholesales-Grain and Field Beans

5191 Wholesales-Farm Supplies

4221 Farm Product Warehousing and Storage

2011 Mfrs-Meat Packing Plants

2013 Mfrs-Sausages and Other Prepared Meat Products

Description of Business: Cargill is engaged in the manufacture and wholesale of livestock feed products, grain, seed, agricultural chemicals, fertilizer and the storage and transportation of grain, as well as beef processing.

Grand Valley Fortifiers Ltd, Ontario (Private)

Primary SIC Code:

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

SIC Codes:

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

5191 Wholesales-Farm Supplies

Description of Business: Grand Valley Fortifiers is engaged in the manufacture and wholesale of vitamin and mineral premixes for animals.

Ralston Purina Canada Inc., Ontario (Private)

Primary SIC Code:

2047 Mfrs-Dog and Cat Food

SIC Codes:

2047 Mfrs-Dog and Cat Food

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

Description of Business: Ralston Purina manufactures and wholesales animal feed and is also engaged in the processing of poultry.

Robin Hood Multifoods Inc., Ontario (Private)

Primary SIC Code:

2041 Mfrs-Flour and Other Grain Mill Products

SIC Codes:

2041 Mfrs-Flour and Other Grain Mill Products

2045 Mfrs-Prepared Flour Mixes and Doughs

2099 Mfrs-Food Preparations (various)

2035 Mfrs-Pickled Fruits & Vegetables, Sauces, Seasonings, Dressings

2051 Mfrs-Bread & Other Bakery Products Except Cookies & Crackers

2048 Mfrs-Prepared Feeds & Feed Ingredients for Animals & Fowls

2013 Mfrs-Sausages and Other Prepared Meat Products

5461 Retails-Bakeries

6794 Patent Owners and Lessors

Description of Business: Robin Hood Multifoods is engaged in the manufacture of flour, pickled fruits, sauces, seasonings, vegetables, and animal feeds, and the operation of fast food restaurants.

8

Fishing Sector

Industry Overview

Canadian co-operatives sold over 180 million dollars worth of fish and fish products in 1992. The majority of co-operative fish sales are generated in the Atlantic provinces, which account for over 111 million dollars in sales, while the western provinces and Ontario sold close to 58 million dollars, and Quebec sold nearly 12 million dollars. There were an estimated 59 co-operative fisheries operating in Canada in 1992, with a membership of over ten thousand. Table 8.1 provides further summary statistics on Canadian fishing co-operatives.

Table 8.1   Summary of Canadian Fishing Co-operatives, 1992

	Region			
	West and Ontario	Quebec	Atlantic	Canada
Number of Co-operatives	25	3	31	59
Membership	5,110	78	5,488	10,676
Full-time Employees	181	20	128	329
Part-time Employees	533	-	2,328	2,861
Salaries and Wages ($ Million)	9	1	10	19
Volume of Business ($ Million)	61	5	126	192
Assets ($ Million)	29	2	49	80
Members Equity ($ Million)	6	1	18	25

Source: Co-operatives Secretariat

The Canadian fisheries can be divided geographically into east (Atlantic) coast , west (Pacific) coast, and freshwater (inland) commercial fisheries. The Atlantic fishery has historically been dominated by groundfish (such as cod, ocean perch, and haddock), but recently shell fish (such as scallops, lobsters and shrimp) have surpassed groundfish in landed value. The west coast fisheries are primarily based on Pacific salmon and, to a lessor, extent herring. The Canadian commercial freshwater fishery is most significant in the areas surrounding the Great Lakes in Ontario and the large lakes in southern Manitoba. The freshwater fisheries principally harvest perch, yellow pickerel, whitefish, smelt, and sauger. All three Canadian fisheries are strongly export-oriented (Ministry of Industry, Science, and Technology, 1991d).

Due to its export orientation, the Atlantic fishing industry has been extremely vulnerable to cyclical swings which are largely outside of the control of the firms involved. In the early 1980s a financial crisis, born of economic recession, threatened the collapse of the fishery,

leading governments to intervene and restructure the industry. Following a number of profitable years after restructuring, the industry has again been facing difficulties due to declining stocks of groundfish. A moratorium placed on fishing Northern cod stocks in Atlantic Canada has caused fishery co-operatives and IOFs alike to struggle for survival in recent years. Many firms have downsized or diversified their operations to incorporate innovative methods of processing non-traditional fish products. Co-operatives have also supplemented revenues by transforming unused space in plants into government sponsored retraining centres for displaced plant workers and fishers (Co-operatives Secretariat).

Cyclical changes have also affected the Pacific salmon fishery. Salmon markets have been adversely affected by increased world production of farmed salmon since 1989. This was a principle factor leading one of the largest Canadian fish processing co-operatives, Prince Rupert Fisherman's Co-op Association, to sell its processing facilities in 1994. The business may continue to operate as a marketing co-operative in the future (Co-operatives Secretariat).

The freshwater fishery has not been affected to the same degree by the recent downturn in the industry. Freshwater species seem to have a more exclusive market which is not as susceptible to the same competitive pressures. The performance of many smaller co-operatives involved in the freshwater fishery has therefore been relatively stable compared to Atlantic and Pacific based commercial fisheries. (Co-operatives Secretariat)

Overall Results

A prominent feature in the comparison of the larger-sized fish co-operatives (with total assets greater than $1,000,000) with IOFs and industry norms is the degree of fluctuation among the yearly mean and median values within each group. This variability is likely due to the significant amount of structural change affecting the industry throughout 1989 to 1993. Unfortunately the methodology used in this analysis does not account for factors such as the geographic dispersion of the industry and the different products and operations of commercial fisheries.

Keeping in mind the limitations of this analysis, it would appear that the larger fish co-operatives (with total assets greater than $1,000,000) are more liquid and productive than the industry norm for commercial fisheries, and at least as liquid and productive as IOFs in the industry. Co-operatives also appear to be doing better at generating positive rates of return than their IOF counterparts. In terms of leverage, the co-operatives report debt levels similar to those of the IOFs. However, both the co-operatives and the IOFs report higher levels of debt than other firms in the industry as suggested by the industry norms. The difference in the mean growth rates of the co-operatives and the IOFs is not statistically significant. However, the high degree of variance among the growth rates does not allow for conclusive statements to be made regarding the relative growth of co-operative fisheries.

The comparison of medium sized co-operatives (with total assets between $250,000 and $1,000,000) with industry norms for commercial fisheries suggests that co-operatives are more liquid and productive than other firms in the industry. Co-operatives also appear to carry a similar level of overall debt and a lower level of long-term debt. However, these results require further investigation due to the possibility that the primary operations of the two groups of firms may be different. The possibility of differing operations is highlighted by the large differential between the median net sales and fixed asset figures of the co-operatives

and the industry norms and, in turn, the relatively high sales-to-fixed asset and sales-to-equity ratios for co-operatives.

Fish Firms with Total Assets Greater than $1,000,000

In this sector the mean financial ratios and growth rates from 11 co-operatives are compared to those of 8 investor-owned firms over the 5 year period from 1989 to 1993. The co-operative means are also compared to the industry norms for commercial fisheries (SIC 910) from 1989 to 1992. The industry norms are calculated using the median values of approximately 14 firms with total assets greater than $1,000,000.

Table 8.2   Summary Statistics of Fish Firms with Total Assets Greater than $1,000,000

	Type of Firm		
	Co-operatives	IOFs	Industry Norm
Selected Variables			
Number of Firms	11	8	14
Mean Sales	11,886,450	146,898,703	1,709,475
Mean Assets	6,719,039	81,641,051	1,669,265

As is indicated in table 8.2, there are considerable differences in the scale of the co-operative firms and the IOFs, as the IOFs have mean asset levels which are over ten times greater than the co-operative firms. The differences in the scale of the two types of firms are likely due to differences in the primary operations of co-operatives and the investor-owned commercial fisheries. The IOFs are primarily involved in commercial fishing and the processing and wholesaling of a wide variety of fish and fish products. Co-operative firms are, on average, are primarily marketing organizations and are generally less diversified than the IOFs. Appendix 8.1 provides the names and a description of the firms included in this group. It is worth noting that one of the firms (Freshwater Fish Marketing Corporation) included in the IOF sample is a crown corporation responsible for purchasing all legally caught fish within the Prairie provinces and the Northwest Territories.

In contrast, the firms included in the calculation of the industry norms appear to be smaller in size than the co-operatives, as the median average assets of the firms surveyed for the industry norms are a quarter the size of average co-operative assets. Given the smaller scale, the firms included in the industry norm calculations may tend to specialize in one or two products or process limited product lines complementing production in a particular region.

Table 8.3 provides a summary of the results of the comparative analysis of this sector. The first two columns report the 5-year overall averages for the co-operatives and the IOFs and the standard deviations, as well as the 4-year median averages calculated from the industry norm data. The results from the non-parametric tests undertaken to assess the differences in the overall means of the co-operatives and IOFs are also provided.

Liquidity

The mean liquidity ratios for the co-operatives are higher than both the IOF means and the industry norms over the period analysed (see figure 8.1). However, the results from the non-parametric tests indicate that the difference between the co-operative and IOF current ratio is not statistically significant (the standard deviations are large, which could be responsible for this result). In the case of the quick ratio, the difference between the co-operatives and the IOFs is significant, suggesting that the co-operatives are slightly more liquid if inventories are discounted.

Profitability

As is indicated in figure 8.2, there is a great deal of variance in the mean profitability ratios for the co-operatives and IOFs throughout the period analysed. The null hypothesis of similar means between co-operatives and the IOFs was rejected in the case of the return-on-assets and return-on-sales ratios, but was not rejected for the return-on-equity ratio. The large standard deviations of the overall averages are partly responsible for the non-rejection of the null hypotheses. By examining the yearly means illustrated in figure 8.2, it would appear that the co-operative firms generally report higher rates of return on assets and on sales throughout 1989 to 1992. Co-operatives also generally report higher rates of return on equity up until 1992.

Productivity

By comparing the mean and median productivity ratios over time (figure 8.3) it would appear that co-operatives are more efficient in generating sales in comparison to assets than both the IOFs and other firms in the industry. The co-operative firms report higher yearly means for all three asset turnover ratios than the IOFs and industry norms (with the exception of 1993 when the sales-to-total asset ratio of co-operatives dropped below the IOF mean). However, the difference between the co-operative and IOF mean sales-to-total-asset and sales-to-inventory ratios is not statistically significant, as the null hypothesis of similar means could not be rejected in either case. The null hypothesis was rejected in the case of the sales-to-fixed asset ratio, where the co-operative mean is double that of the IOFs. Such a large differential between the co-operatives and the IOFs could signal greater efficiency or lower levels of investment in fixed assets due to possible undercapitalization, or it could be due to different primary operations, such as marketing instead of processing.
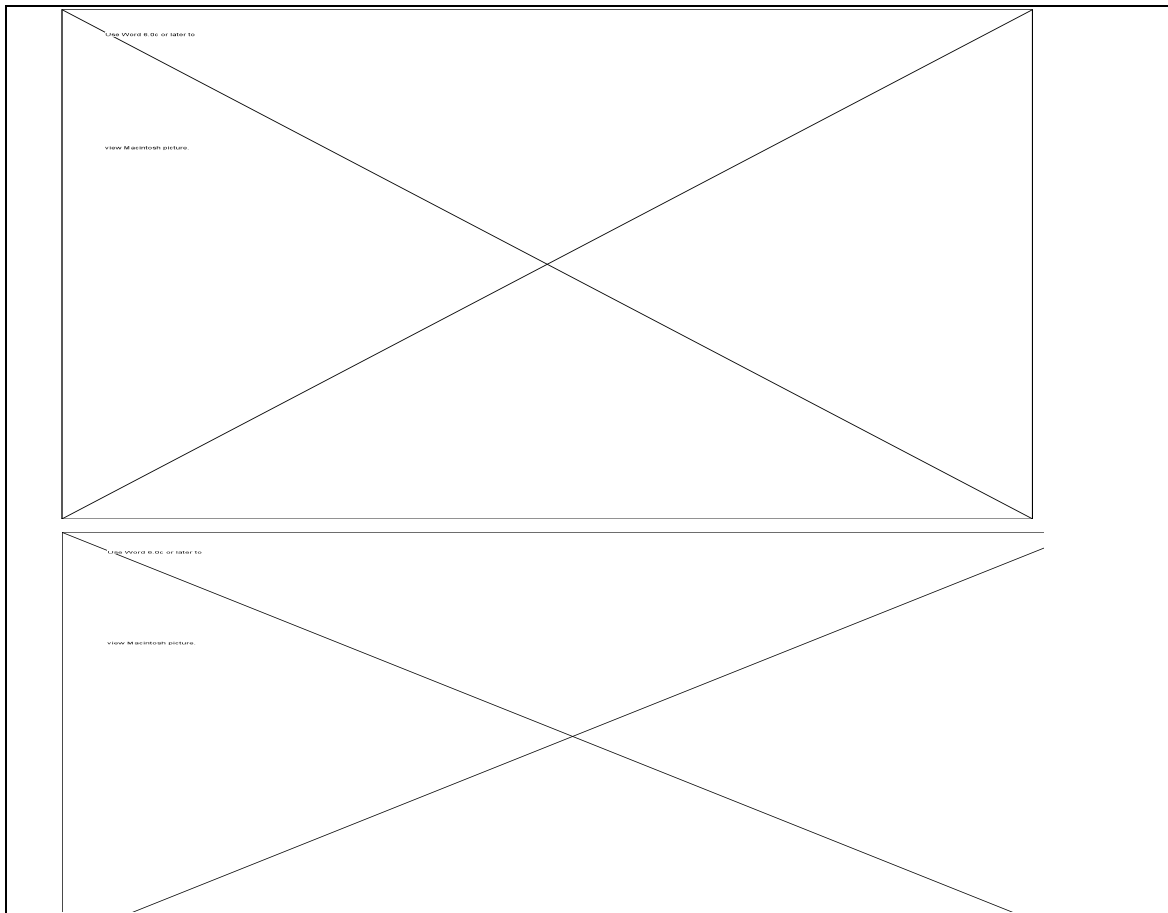
Figure 8.1   Liquidity Ratios for Fish Firms with Total Assets Greater than $1,000,000, 1989-1993

The results of the non-parametric tests suggest that the overall mean values for the ratio of days of net sales in accounts receivable are similar for the co-operatives and the IOFs as the null hypothesis could not be rejected. However, the non-rejection of the null hypothesis is likely due to the high variance within each of the samples (with a standard deviation of 41

days). Significant fluctuations in the yearly IOF mean and industry norms also exist and are illustrated in figure 8.3.
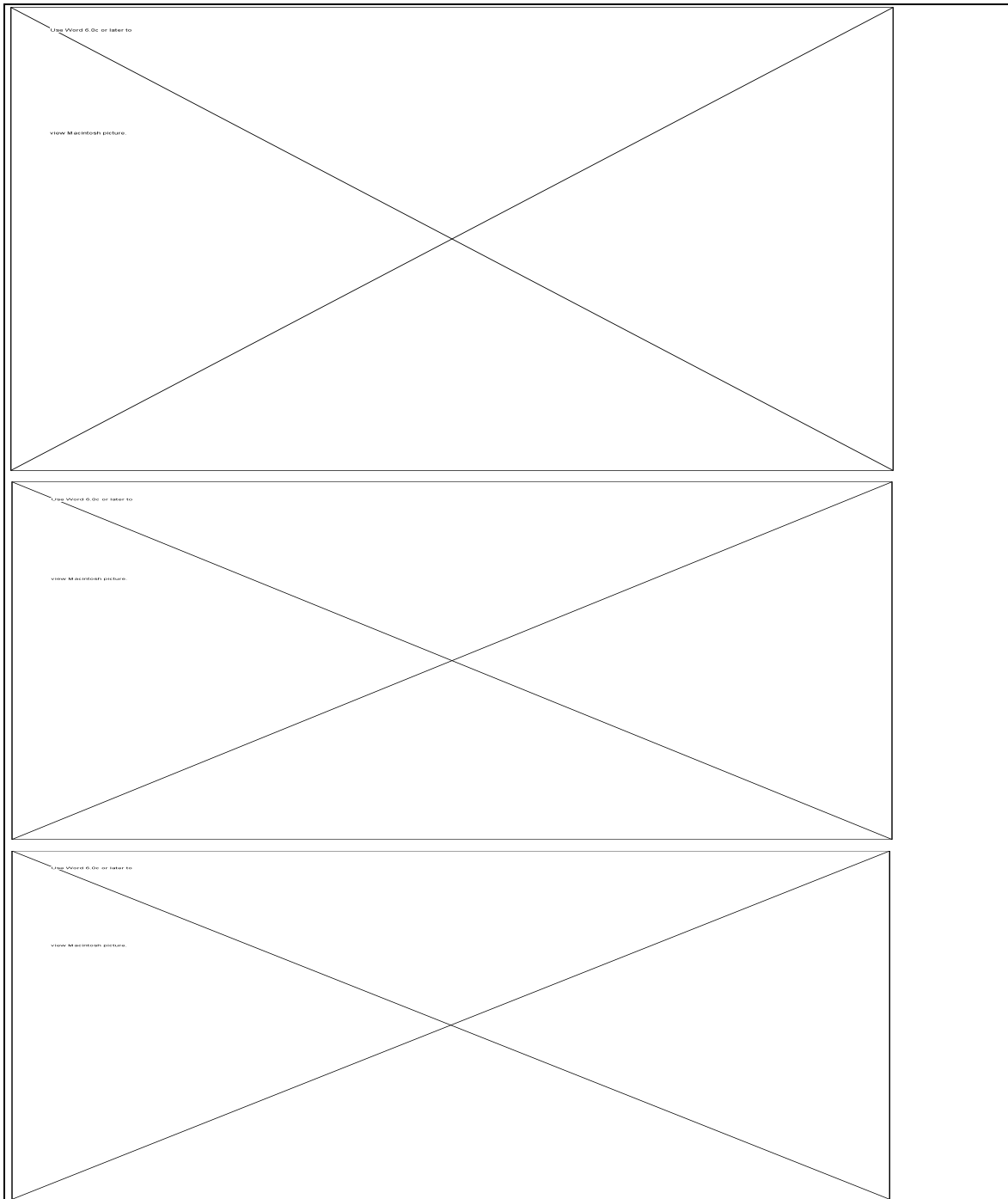
Figure 8.2   Profitability Ratios for Fish Firms with Total Assets Greater than $1,000,000, 1989-1993

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Figure 8.3   Productivity Ratios for Fish Firms with Total Assets Greater than $1,000,000, 1989-1993

Leverage

The null hypothesis of similar means between co-operatives and IOFs could not be rejected for all four of the ratios indicative of firm leverage. Figure 8.4 indicates that the co-operative debt position has remained fairly consistent throughout the period and has not fluctuated as much as the debt levels of investor-owned firms, particularly in the case of long-term debt. In general, these results suggest that the co-operatives are as leveraged and as liquid in the long-run as the IOFs.

However, when compared to the industry norms, it would appear that both the co-operatives and the IOFs are more leveraged than the commercial fishing industry in general, as both groups of firms have higher debt-to-equity and debt-to-total asset ratios. The higher co-operative debt-to-equity ratio appears to be due to a greater reliance on short-term debt, as the differential in the long-term debt-to-equity ratios between co-operatives and the industry is not as large. Higher co-operative sales-to-equity ratios in comparison to industry norms may be the result of overtrading by co-operatives in order to generate as much out of each dollar invested as possible.

Growth

By examining the yearly growth rates in figure 8.4, it would seem that co-operative rates of sales growth have been lower than that of the IOFs, but that co-operative asset growth rates have been higher. However, the null hypothesis of similar means could not be rejected in either case. The high standard deviation for the growth rates for both types of firms must be noted as this may be affecting the results of the non-parametric tests by making it more likely that the null hypothesis will not be rejected.

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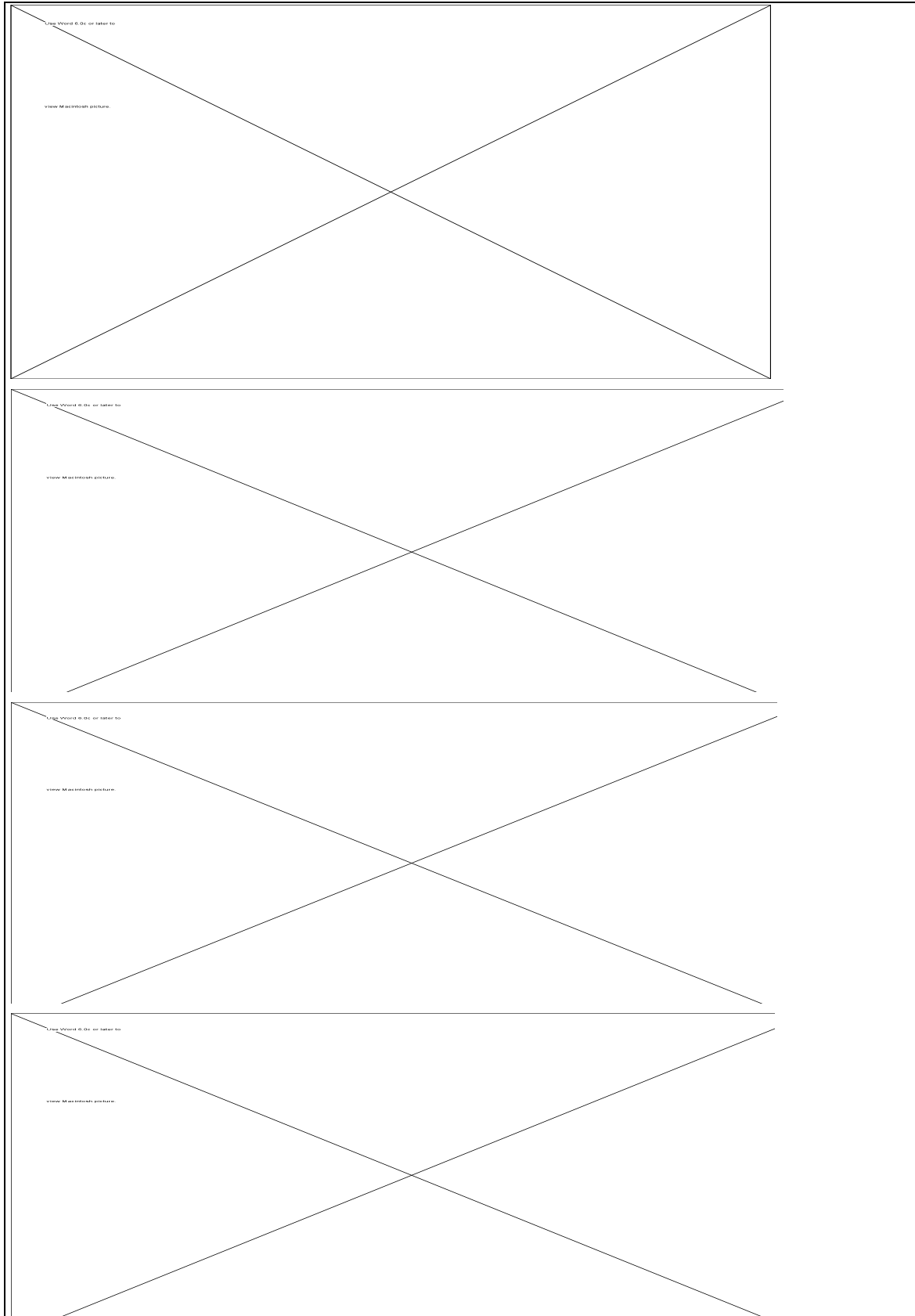
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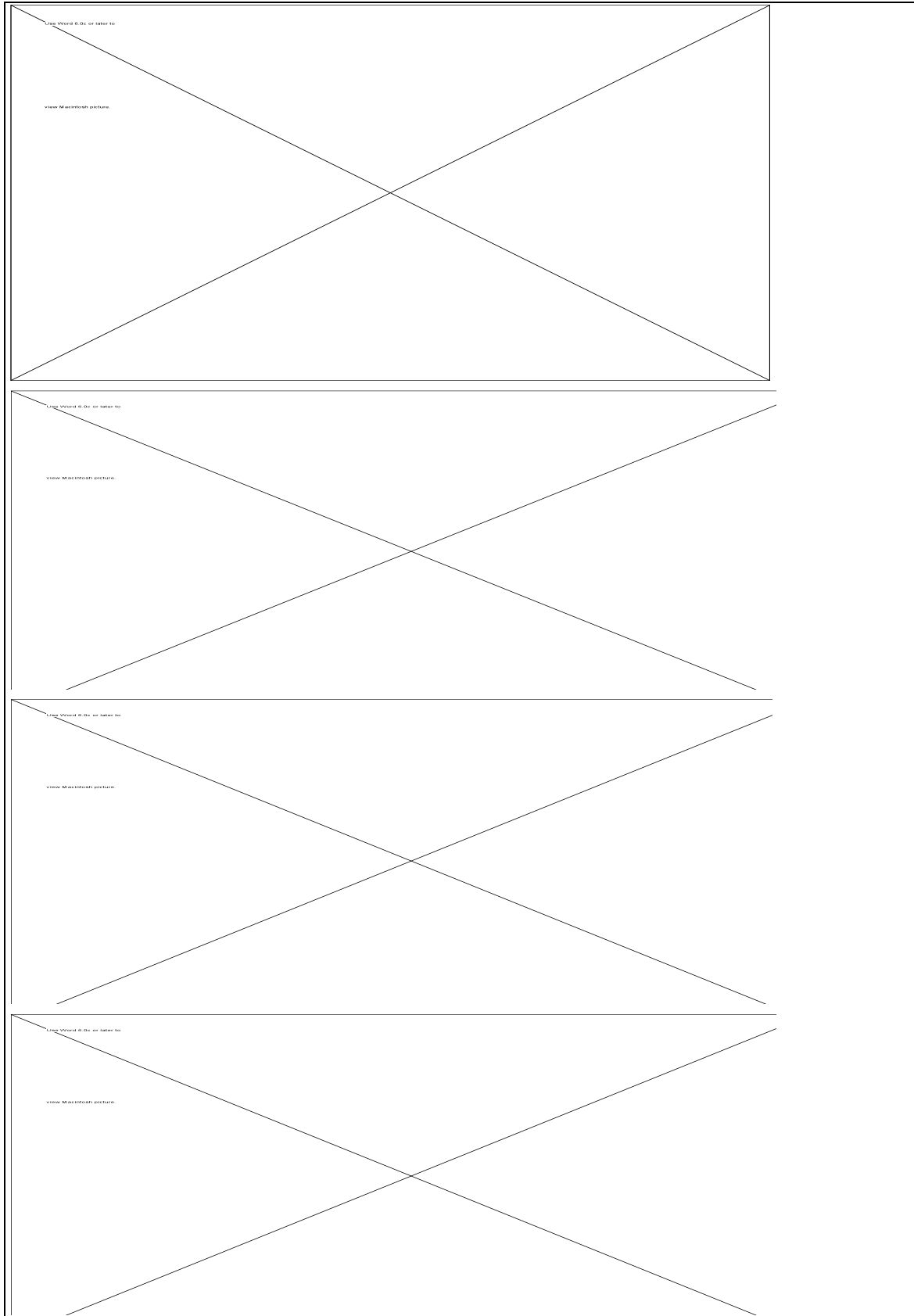
Figure 8.4   Leverage Ratios for Fish Firms with Total Assets Greater than
** $1,000,000, 1989-1993**
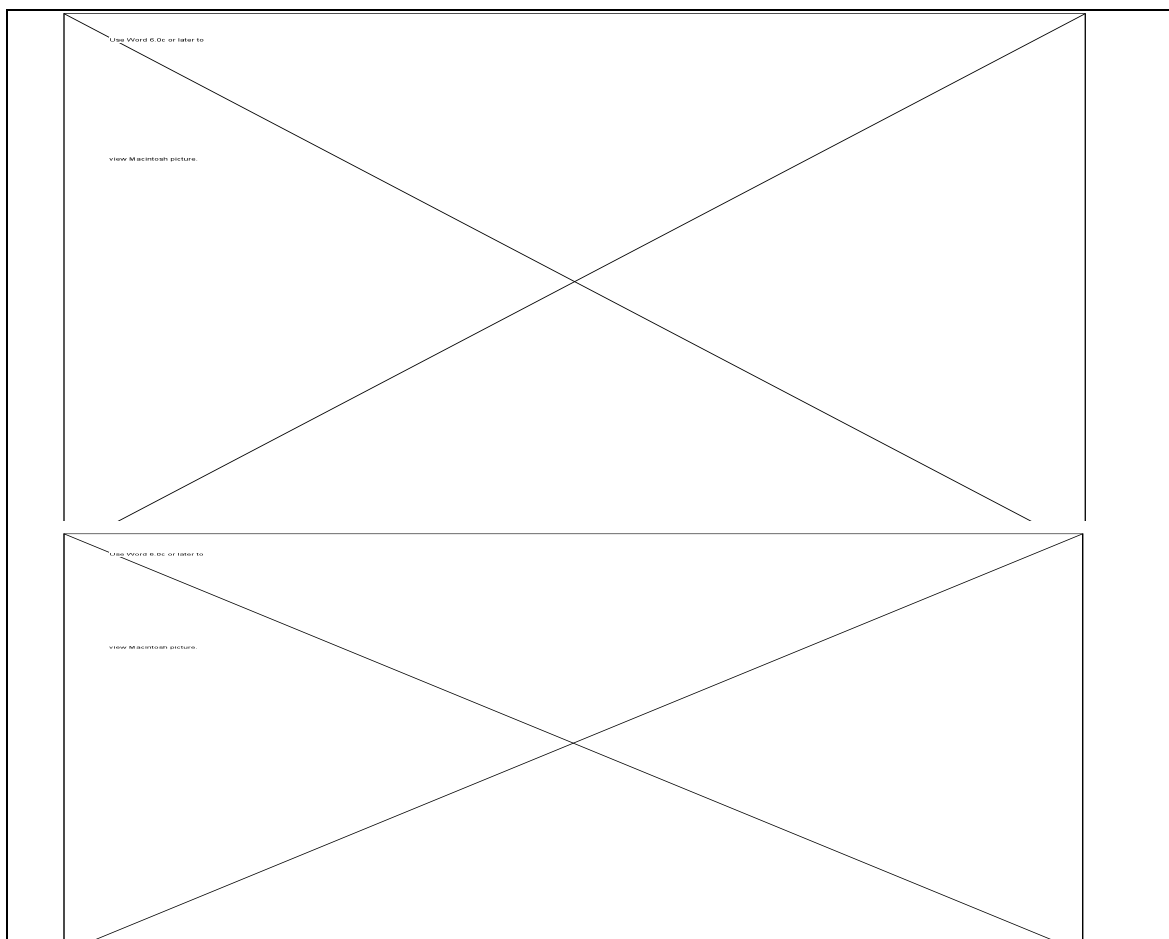
Figure 8.5   Growth Rates for Fish Firms with Total Assets Greater than $1,000,000, 1990-1993

Fish Firms with Total Assets Greater than $250,000 and Less than $1,000,000

In this category the median ratios of approximately 8 co-operatives are compared to the industry norms (also median values) for an average of 16 firms for the period from 1986 to 1991. The overall average of the yearly median sales for co-operatives is $2,138,393 and the overall average of yearly median total assets is $468,012 for the period analysed. The industry norm average sales are $437,235 and mean total assets are $453,246. The differences in the sales figures may be due to different operations of the two groups of firms. A low level of investment in property, plants, and equipment by the co-operatives (averaging $125,384 in fixed assets) relative to the industry (averaging $260,747) suggests that the co-operatives may be more involved in the marketing of fresh fish rather than the actual harvesting and processing of seafood and fish products.

The median ratios for the co-operatives analysed and the industry norms are provided in appendix 8.2 at the end of this chapter.

Liquidity

Medium sized co-operatives in the fish sector appear to be more liquid than the industry norm for similarly sized commercial fisheries. Both the yearly median current and quick ratios are generally above those of the industry norm throughout the period analysed (see figure 8.6). The overall median average for the co-operative current ratio is 1.98 compared to the industry norm average of 1.32. For the quick ratio the overall average is 1.53 for the co-operatives and 0.87 for the industry norms.

Figure 8.6   Liquidity Ratios for Fish Firms with Total Assets Greater than $250,000 and Less than $1,000,000, 1986-1991

Productivity

The co-operatives in this category appear to have much higher asset turnover ratios than the industry norm, as is illustrated in the top three panels in figure 8.7. The average of the yearly median sales-to-total asset ratio is 4.47 for co-operatives and 0.97 for the industry. The overall average sales-to-fixed asset ratio is 18.85 for co-operatives and 1.71 for the industry, while the sales-to-inventory ratio average is 33.86 for co-operatives and 12.72 for the industry. The extremely large differentials between the latter two ratios are likely not solely attributable to increased efficiency on behalf of co-operatives. Higher productivity ratios could be caused by differences in the primary operations of the two groups of firms (as was suggested earlier by the difference in average sales and fixed asset figures).

Co-operatives report a lower number of credit days than what is considered the norm for the industry. The median average number of days for co-operatives is only 11, whereas the industry norm average is 46. This would indicate that the co-operatives in this sector are quite stringent in collecting on their outstanding accounts receivable.

Leverage

In the case of the debt-to-total asset ratio, the co-operative yearly median average is 0.54, which is almost identical to the industry norm of 0.55. However, as is indicated in figure 8.8, the co-operative level of debt has a tendency to fluctuate more widely than the industry norm. It would appear that there are large differences between the sales-to-equity ratios between co-operatives and other firms in the industry, as the co-operative median average ratio is 10.31 versus 2.25 reported as the industry norm. A high sales-to-equity ratio could be indicative of heavy debt for co-operative firms, however the relative debt-to-equity and long-term debt-to-equity ratios would seem to indicate otherwise. The mean debt-to-equity ratio for co-operatives for the period is equal to that of the industry (1.29), although the yearly medians for co-operatives are more variable. As well, the long-term debt to-equity ratio is consistently lower for co-operative firms than the industry norm, with a co-operative average of 0.11 and an industry norm average of 0.68.

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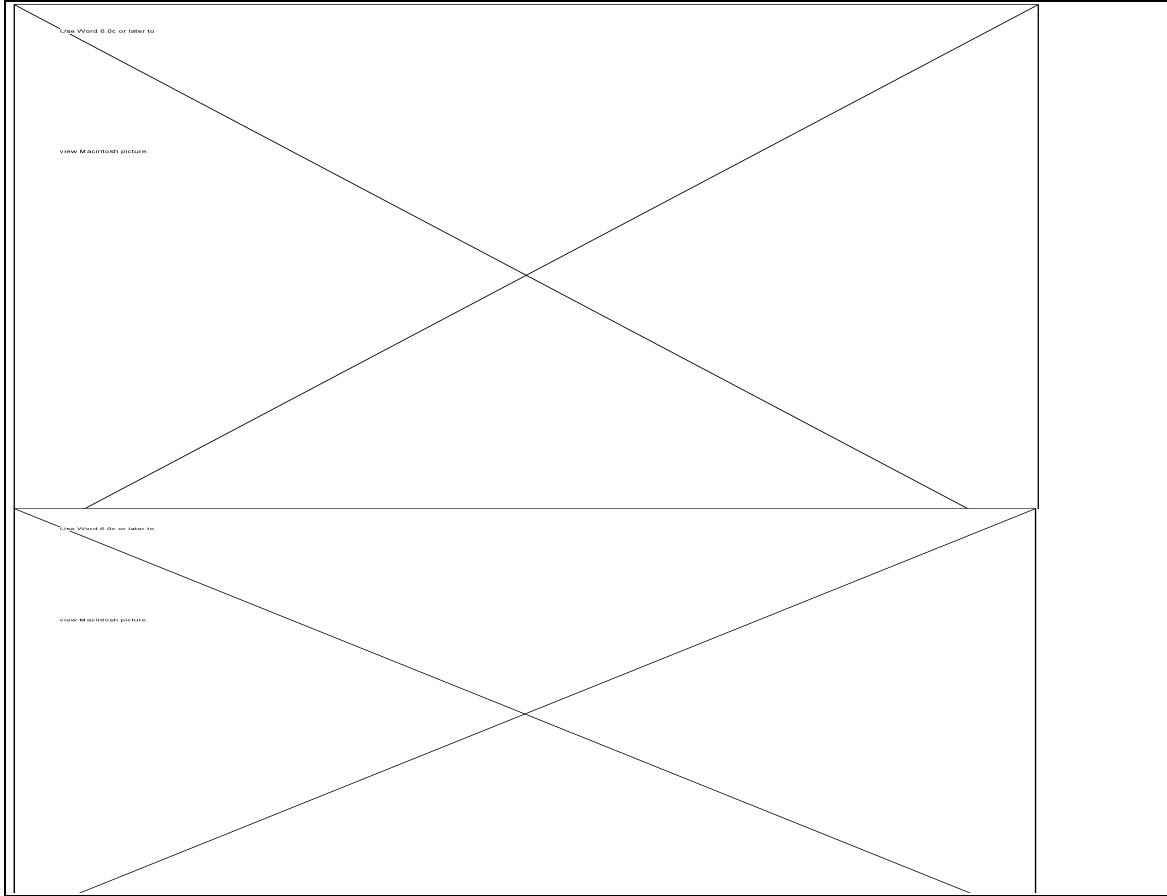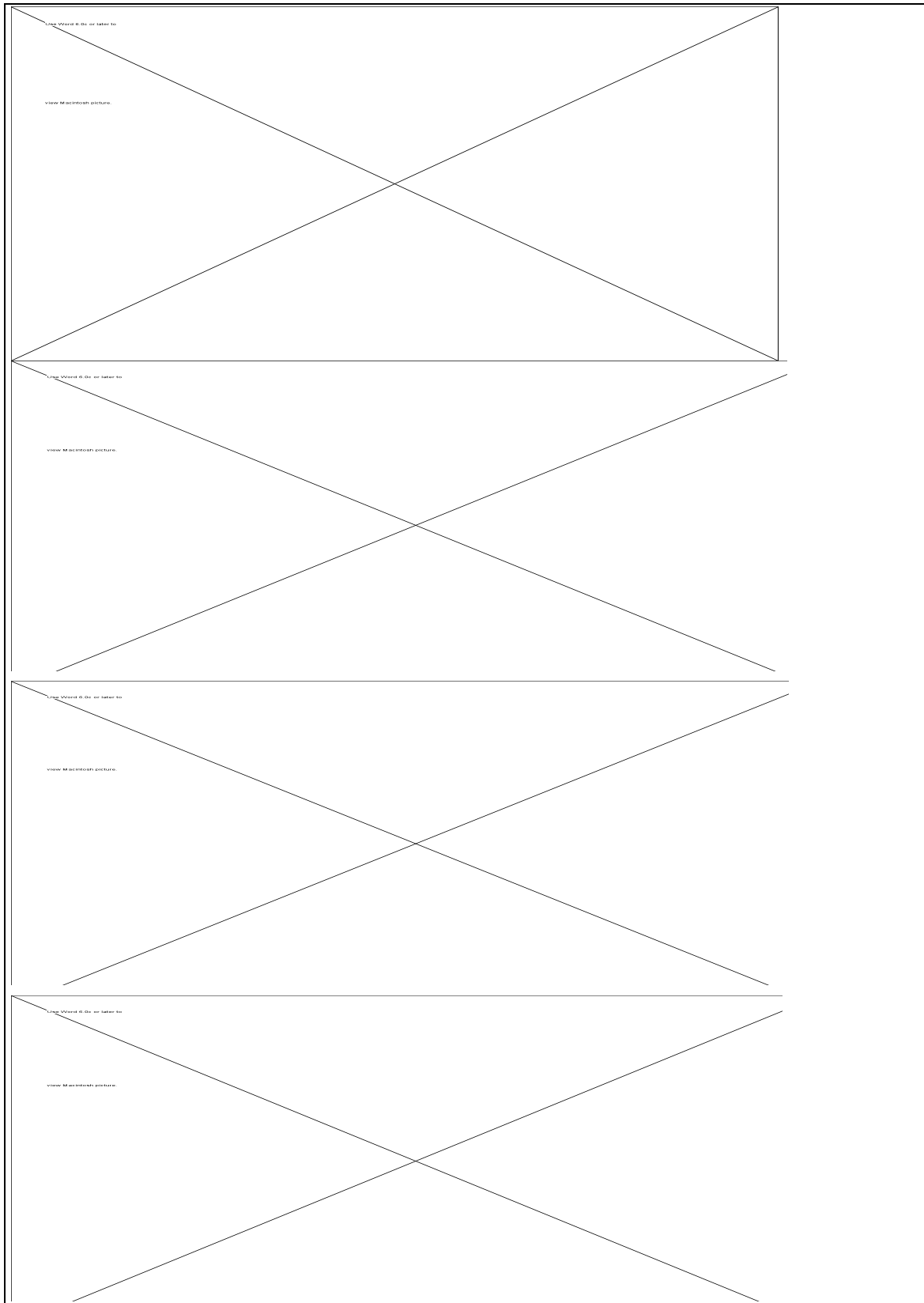**Figure 8.7   Productivity Ratios for Fish Firms with Total Assets Greater than $250,000 and Less than $1,000,000, 1986-1991**

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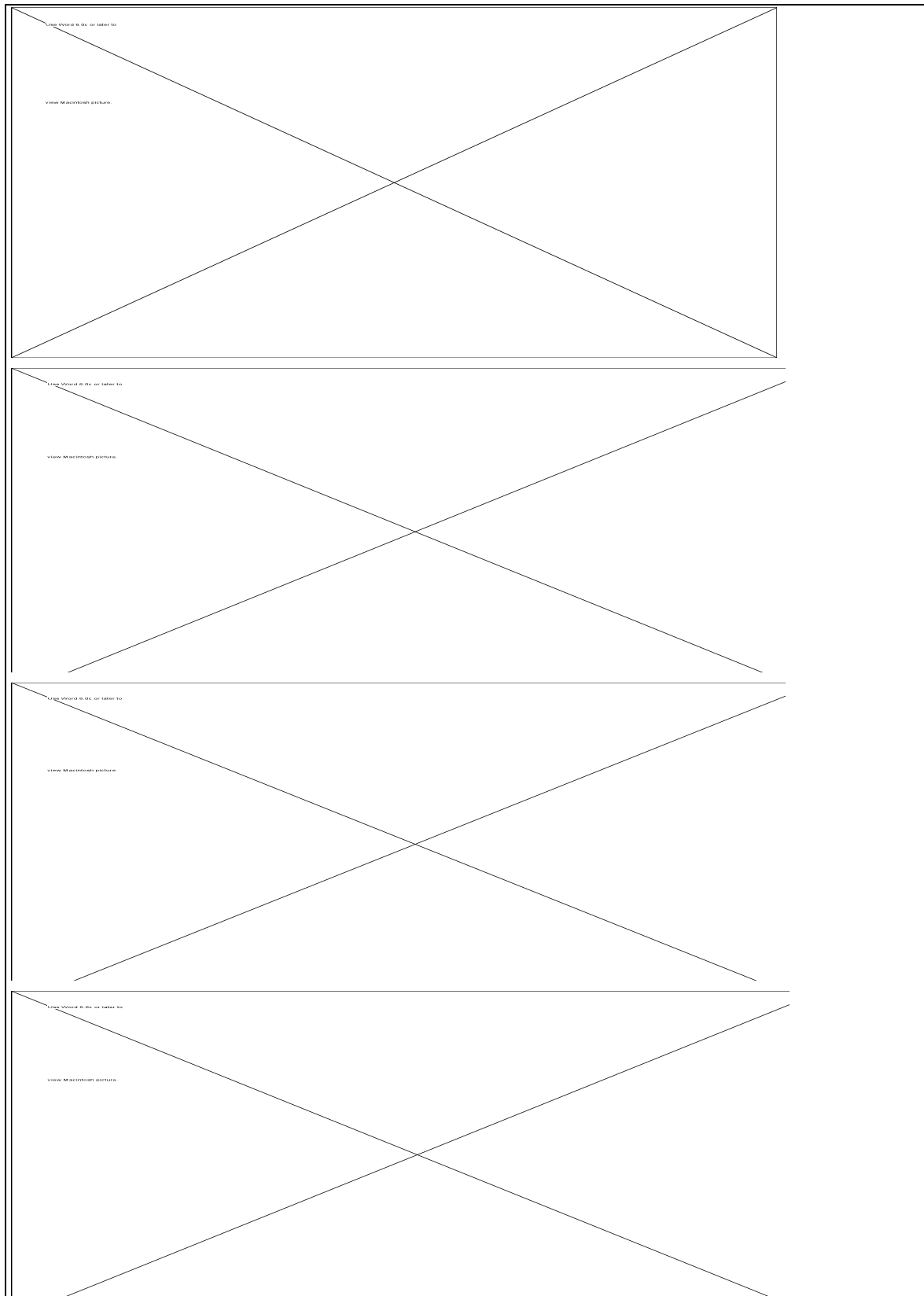
Figure 8.8   Leverage Ratios for Fish Firms with Total Assets Greater than $250,000 and Less than $1,000,000, 1986-1991

**Appendix 8.1 Description of Investor-Owned Fish Firms
with Total Assets Greater than $1,000,000**

(Source: Disclosure, Inc.)

Hagensborg Resources Ltd

British Columbia

Legal Status: Public

Primary SIC Code:

0279 Agri Prod-Animal Specialties (various)

SIC Codes:

0279 Agri Prod-Animal Specialties (various)

2091 Mfrs-Canned and Cured Fish and Seafoods

5149 Wholesales-Groceries and Related Products

Description of Business: Hagensborg Resources is engaged in the operation of salmon farms and aquaculture, and the processing and marketing of fish products.

Conpak Seafoods Inc

Newfoundland

Legal Status: Public

Primary SIC Code:

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

SIC Codes:

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

2091 Mfrs-Canned and Cured Fish and Seafoods

5142 Wholesales-Packaged Frozen Foods

0912 Commercial Fishing-Finfish

Description of Business: ConPak Seafoods is a Newfoundland based purchaser, processor and marketer of seafood products.

Consolidated General Sea Harvest Corporation

British Columbia

Legal Status: Public

Primary SIC Code:

0279 Agri Prod-Animal Specialties (various)

SIC Codes:

 0279 Agri Prod-Animal Specialties (various)

0912 Commercial Fishing-Finfish

Description of Business: Consolidated General operated salmon hatcheries and farms.

FPI Limited

Newfoundland

Legal Status: Public

Primary Sic Code:

0912 Commercial Fishing-Finfish

SIC Codes:

0912 Commercial Fishing-Finfish

0913 Commercial Fishing-Shellfish

2091 Mfrs-Canned and Cured Fish and Seafoods

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

5142 Wholesales-Packaged Frozen Foods

Description of Business: FPI is an international seafood company, with interests in the harvesting and processing of seafood, and the wholesale of seafood and frozen food products. The company has sales offices in Canada, the U.S. and Europe, and processing plants in Newfoundland, Nova Scotia and Massachusetts.

National Sea Products Limited

Nova Scotia

Legal Status: Public

Primary SIC Code:

0912 Commercial Fishing-Finfish

SIC Codes:

0912 Commercial Fishing-Finfish

0913 Commercial Fishing-Shellfish

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

5146 Wholesales-Fish and Seafoods

8731 Commercial Physical and Biological Research

Description of Business: National Sea Products concentrates on seafood harvesting, processing, procurement and export operations in North America. The company engages in the research and development of innovative strategies for ocean harvesting and new product development.

Western Harvest Seafarms Ltd.

British Columbia

Legal Status: Public

Primary SIC Code:

0279 Agri Prod-Animal Specialties (various)

SIC Codes:

0279 Agri Prod-Animal Specialties (various)

Description of Business: Western Harvest Seafarms Ltd., is an aquaculture company operating salmon farms in the Zeballos area of northwestern Vancouver Island.

LEF International Inc.

Ontario

Legal Status: Public

Primary SIC Code:

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

SIC Codes:

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

5146 Wholesales-Fish and Seafoods

Description Of Business: LEF purchases, processes and markets freshwater fish and also distributes other seafood products. The fish is bought primarily from independent commercial fisherman operating in the Canadian waters of Lake Erie and, to a lesser extent, in other Canadian lakes and from fishermen's cooperatives.

Lions Gate Fisheries Ltd.

British Columbia

Legal Status: Private

Primary SIC Code:

2091 Mfrs-Canned and Cured Fish and Seafoods

SIC CODES:

2091 Mfrs-Canned and Cured Fish and Seafoods

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

Description of Business: Lions Gate Fisheries are processors and marketers of wild and farmed salmon, ground fish and halibut, shrimp and other pacific fish.

Peches Nordiques Inc.

Quebec

Legal Status: Private

Primary SIC Code:

0913 Commercial Fishing-Shellfish

SIC Codes:

0913 Commercial Fishing-Shellfish

0912 Commercial Fishing-Finfish

2091 Mfrs-Canned and Cured Fish and Seafoods

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

Description of Business: Peches Nordiques is engaged in the operation of shellfish and finfish fisheries and the processing of seafood.

E Gagnon & Fils Ltee

Quebec

Legal Status: Private

Primary SIC Code:

2091 Mfrs-Canned and Cured Fish and Seafoods

SIC Codes:

2091 Mfrs-Canned and Cured Fish and Seafoods

2092 Mfrs-Prepared Fresh or Frozen Fish and Seafoods

Description of Business: E Gagnon & Fils is engaged in the processing of tinned and frozen seafood products.

Freshwater Fish Marketing Corp.

Manitoba

Legal Status: Crown

Primary SIC Code:

9512 Land, Mineral, Wildlife, and Forest Conservation

SIC Codes:

9512 Land, Mineral, Wildlife, and Forest Conservation

9651 Regulation, Licensing, Inspection of Misc Commercial Sectors

Description of Business: Freshwater Fish Marketing is engaged in the marketing and trading of fish and fish products.

9

Conclusions

Summary of Results

The objective of this study is to empirically examine the relative financial performance and growth of Canadian co-operatives. To achieve this objective, conventional accounting ratios and growth rates developed from financial statement data are used as indicators of financial performance in five broad areas: liquidity, profitability, productivity, leverage, and growth. The selected performance measures of co-operative firms are compared to those of investor-owned firms (IOFs) and industry norms on a sector-by-sector basis.

Direct comparisons of investor-owned and co-operative enterprises are limited to those firms with total assets greater than $1,000,000. Non-parametric statistical tests are used to determine if significant differences in the overall mean performance indicators exist between the two groups of firms in this size category. The null hypothesis tested is that the underlying mean of the two groups is the same. Large co-operatives as well as medium-sized co-operatives (i.e., those with total assets less than $1,000,000 but greater than $250,000) are compared to industry norms by graphing yearly mean and median values and by examining averages for the period analysed.

The rest of this section summarizes the results of the study on a sector-by-sector basis. Conclusions and areas for further research are examined in the following section.

Retail Grocery

Large retail grocery co-operatives appear to be performing very well when compared to IOF competitors and industry norms. They are more liquid and are generating profits at similar, if not higher, levels than the IOFs examined. They also report lower leverage ratios than IOFs and the industry, indicating a greater degree of financial security. A comparison of sales and asset growth suggests that the co-operatives are also growing at rates comparable to investor-owned groceries. In terms of productivity, the co-operatives appear to be slightly less efficient in generating sales relative to total assets than IOFs and other firms in the industry, but report similar sales-to-fixed asset and sales-to-inventory ratios. Large co-operatives also report higher levels of accounts receivable as a portion of net sales.

The results from the comparison of medium-sized retail co-operatives with industry norms closely parallel those found when comparing the large co-operatives directly to IOFs. Medium-sized co-operatives are more liquid in both the short-run and less leveraged than the industry norms for similarly-sized grocers. However, the overall sales-to-total asset and sales-to-inventory ratios for the co-operatives are lower than the industry, and the sales-to-fixed asset ratios and credit days are slightly higher.

These results suggest that co-operative retail grocers may employ different strategies regarding the management of their assets than other firms in the industry. They likely offer more liberal credit terms to their customers than their competitors. Medium-sized co-operatives may also follow slightly more conservative strategies in maintaining inventory and investing in fixed assets.

Fruit and Vegetables

Co-operatives in the fruit and vegetable sector appear to be as liquid as the IOF processors analysed, and more liquid than what is considered normal for the fresh fruit and vegetable wholesale industry. In terms of long-term liquidity, or leverage, it would appear that co-operatives report higher debt-to-equity ratios than IOFs and the industry norms. However, the debt-to-total asset ratios are similar to those of IOFs and industry norms. The co-operative sales-to-equity ratios are also similar to IOFs but are higher than the industry norm.

The analysis of productivity ratios suggests that co-operatives in this sector manage their assets differently when compared to IOFs and industry norms. Although there are no significant differences in the sales-to-total asset ratios between the firms, the sales-to-inventory ratio is substantially higher for co-operatives than IOFs and industry standards. The sales-to-fixed asset ratio is also lower for co-operatives than for IOFs. These results could be due to differences in productivity, but they may also be caused by differences in the primary operations of the co-operatives and IOFs analysed; the co-operatives may be more involved the wholesale of fresh produce, whereas the IOFs are heavily involved in processing.

Based on the results of the statistical tests conducted it is difficult to say how co-operatives in this sector compare with IOFs in terms of profitability and growth. There is a large degree of variance within both samples making it more likely that the null hypothesis of similar means will not be rejected. For instance, the null hypothesis of similar rates of return on total assets and on equity could not be rejected even though the yearly means of the co-operative sample are well below those of the IOFs for three out of the four years analysed. The null hypothesis was rejected for the return on sales ratio. It would therefore appear that co-operatives in this sector are less profitable than the IOF processors. However, lower profitability does not seem to have had a significant impact on the sales and asset growth of co-operatives, as the null hypothesis of similar means could not be rejected for either growth rate (but, again, the standard deviations of both samples are very high).

Dairy

Overall, large dairy co-operatives appear to be performing very well in comparison to published industry norms for dairy processing firms. The co-operative firms analysed report higher short-term liquidity ratios and asset turnover ratios than other firms in the industry. Dairy co-operatives also appear to be carrying lower levels of debt than the industry norm.

The results from this comparison closely resemble those of a similar study conducted in the United States. Parliament, Lerman, and Fulton determined that U.S. dairy co-operatives are more liquid and report higher fixed asset and inventory turnover ratios than investor-owned dairies. Significant differences in debt-to-equity ratios were not detected in the U.S. study.

Grain and Oilseeds Handling

The analysis in this sector is limited to a comparison of three grain handling co-operatives (the three prairie Pools) and two IOFs: United Grain Growers (UGG) and Cargill. A third IOF, Continental, is excluded from much of the analysis as this company faced some major structural shifts throughout the period studied. In general, the results

indicate that there are no significant differences in the financial performance of the Pools and two of their major competitors.

There appears to be little difference in the profitability and growth of the Pools and the IOFs. The null hypothesis of similar means between the co-operatives and the IOFs could not be rejected for the rates of return on assets, return on equity, return on sales, sales growth, and asset growth. However, the high degree of variance amongst the observations in both groups of firms has likely influenced this result. A graphical examination of the yearly means of each of the firms analysed would seem to suggest that the Pools on average reported higher profits throughout the period, but attained lower growth rates.

The Pools also appear to be less burdened by debt and to be at least as productive and liquid as Cargill and UGG. With respect to leverage, the Pools report lower average debt-to-asset, sales-to-equity, debt-to-equity, and long-term debt-to-equity ratios than their competitors. The co-operatives have similar sales-to-total asset and sales-to-inventory ratios, but have higher average sales-to-fixed asset ratios than the IOFs. The latter result could be due to greater productivity by the Pools, but it could also be the result of lower levels of capital invested in fixed assets. There are no significant differences in the liquidity measures between the two types of firms.

Feed Milling

Generally, feed co-operatives appear to be more liquid in the short-run, more financially secure in the long-run, and as productive as other firms operating in the industry. The large co-operatives have significantly higher liquidity ratios and lower leverage ratios than their IOF competitors. Similarly, medium-sized co-operatives also report higher liquidity ratios and lower leverage ratios than comparable industry norms. Large co-operatives report asset turnover ratios similar to those of IOFs, with the exception of higher sales-to-fixed asset ratios, which may be indicative of a lower level of capital investment on behalf of co-operative firms. Medium-sized co-operatives also report total asset and inventory turnover ratios similar to those of the industry and higher sales-to-fixed-asset ratios.

Definitive statements with respect to the relative profitability and growth of the larger co-operatives and IOFs are difficult to make due to the high degree of variance within the samples. However, the statistical results suggest that co-operatives generate similar rates of return on assets and sales and lower rates of return on equity. The growth rates of sales appear to be lower, while the difference in asset growth is not statistically significant.

Fish

Co-operatives in the fish sector appear to be performing relatively well considering the tremendous structural change affecting the industry in recent years. Large fish co-operatives are more liquid and productive than the industry norm for commercial fisheries, and are at least as liquid and productive as IOFs in the industry. Co-operatives also appear to be doing better at generating positive rates of return than their IOF counterparts. In terms of leverage, the co-operatives are as financially secure as the IOFs. However, both the co-operatives and the IOFs report levels of debt which are higher than the industry norms. The mean growth rates of the co-operatives and the IOFs were not statistically different. However, the high degree of variance amongst the observations in both the co-operative and IOF samples must

be noted, as the large standard deviations make it more likely that the null hypothesis is not rejected.

The comparison of medium sized co-operatives with industry norms suggests that co-operatives in this category are also more liquid and productive than other firms in the industry and appear to carry a similar level of overall debt and a lower level of long-term debt. However, these results require further investigation due to the possibility that the primary operations of the co-operatives may differ from those of the firms included in the calculation of the industry norms for commercial fisheries.

Conclusions, Limitations, and Areas for Further Research

As is evident in the above summary, co-operative performance differs significantly across the six sectors analysed in this study. This difference makes it difficult to make definitive statements regarding the overall financial performance of Canadian co-operatives relative to other forms of business organizations. Nonetheless, the following five results provide a starting point from which to discuss general conclusions from the study, limitations of the analysis, as well as areas which will require further research before more definitive conclusions can be reached.

1. In all six sectors analysed, co-operatives report short-term liquidity measures which are higher than the industry norm, and at least as high as their investor-owned competitors.

2. In the majority of sectors analysed (the two exceptions being the fruit and vegetable and fish sectors) co-operatives reported average leverage ratios lower or similar to those reported by investor-owned firms and published as industry norms. However, leverage ratios do not reveal the entire debt structure of co-operatives as they are based on total equity figures which include retained earnings.

3. Statistically significant differences in the productivity ratios of co-operatives, IOFs, and published industry norms exist in a number of the sectors analysed (particularly those sectors where co-operatives are primarily involved in the marketing of fresh products).

4. Large variances exist within the co-operative and IOF samples of many of the performance measures (especially those indicative of profit and growth).

5. On average, the co-operative rates of return and rates of growth are similar to those reported by their investor-owned competitors.

The relatively higher liquidity of co-operatives analysed in this study points to the need for further research into the attitudes of co-operative managers and members towards risk. Although higher liquidity ratios are generally preferred, as they reflect a greater ability by a firm to meet its short-term obligations, a strong aversion to risk may prevent co-operatives from growing and seizing new opportunities which could, in turn, provide significant advantages to their members. The ability to take well-calculated risks is becoming more critical to the success of firms and producers operating in the agri-food industry.

An aversion to risk may also be one of the reasons why the majority of co-operatives report leverage ratios similar or lower than those of their competitors. However, a strong caveat must be placed on the comparison of conventional leverage ratios, as co-operative equity can, in part, be viewed as a form of debt. Because earnings retained by a co-operative belong to its members, the co-operative is in effect "borrowing" from the membership.

Therefore the "true" level of debt for a co-operative cannot be fully ascertained unless total equity figures are broken down into permanent and redeemable equity.

The consideration of co-operative equity, and hence relative debt levels, effectively illustrates one of the critical drawbacks of this study; financial data does not capture important aspects of co-operative performance. Accounting ratios and growth rates ignore member well-being and the provision of public goods, factors which are often critical in co-operative decision making. The usefulness of conventional accounting methods to compare co-operative performance is therefore limited.

The differences in the productivity ratios of co-operatives, IOFs, and industry norms serve to highlight the various factors which must be considered when interpreting comparative financial data. For example, although in most sectors there are no significant differences in the sales-to-total asset ratios, the sales-to-fixed asset ratios were higher, on average, for co-operatives. Higher sales-to-fixed asset ratios could be reflective of greater efficiencies in the management of fixed assets and in generating sales, but they could also reflect a lower level of capital investment in fixed assets. For co-operatives, a lower level of investment may be due to a lack of capital available for such investments. However, lower leverage ratios tend to suggest that co-operatives are not undercapitalized. But, again, leverage ratios do not capture the whole story either, as the retained earnings of co-operative firms are considered equity.

Differences in the operations of co-operatives and IOFs are also likely to influence financial performance measures. For instance, in most sectors there are no significant differences in the sales-to-inventory ratios of co-operatives and IOFs. The one exception is co-operatives operating in the fruit and vegetable sector who report much higher sales-to-inventory ratios than their IOF counterparts. Although this result may be due to greater efficiency in inventory management, it is likely due to the differences in the operations of the co-operatives and IOFs in this sector. Firms involved in the marketing and wholesaling of fresh fruit and vegetables will have extremely low levels of inventory when compared to fruit and vegetable canning and processing operations. Therefore, differences in the operations of firms involved in the same sector must be considered.

Controlling for differences in the activities of firms operating in agri-food sectors is difficult. Large, diversified, IOF conglomerates frequently hold dominant positions in food processing activities close to the consumer market. In contrast, co-operatives in these same sectors are often less diversified and are frequently limited to first-stage marketing and food processing activities in order to a meet a mandate to secure a competitive market for their members production (Royer and Bhuyan; Rogers and Marion; Chen, Babb, and Schrader). The clustering of the two different organizational forms at opposite ends of the food marketing chain can therefore cause problems in finding firms with comparable business activities operating in the same sector. Differences in the structure of co-operatives, whose operations may be limited to one commodity or to a particular region, and diversified IOF conglomerates also cause problems in ensuring that differences in size are properly considered (Lerman and Parliament, 1989).

The results of this study also point to the wide range of values of performance measures within groups of firms which are either member- or investor-owned. This range reflects a natural degree of variation among firms, in accordance with differences in operational and productive efficiency, as well as intangible factors such as managerial capacity. Amongst co-operative firms, this range of values may also be attributed to differences in the objectives of

the firms, and the degree to which non-economic factors, such as member and community welfare, influence business decisions.

The financial strategies of a firm are based upon a number of different factors and depend upon the priorities of its owners, managers, and customers. Hence, performance measures can reflect numerous opposing considerations, which may be weighed differently by co-operatives and IOFs. For example, sales-to-inventory ratios reflect the need to generate both an efficient level of sales as well as the need to maintain efficient levels of inventory. For medium-sized co-operative grocery or input suppliers, sales-to-inventory ratios lower than the norm may not be a signal of inefficient inventory management, but rather a signal of greater emphasis being placed on ensuring products are available upon members' demand.

The difference in co-operative objectives are also expected to influence credit collection policies. However, in many of the sectors analysed, co-operatives do not appear to have different strategies in this area. A notable exception is the retail grocery industry where co-operatives reported higher credit days than their competitors. One would expect retail co-operatives to extend more lenient credit terms to their customer-members, as the increase in the members welfare from such policies may override any losses in the efficiency of the firm.

Notwithstanding some of the apparent differences in the business strategies between co-operative and investor-owned firms in some sectors, these differences do not appear to have resulted in significant differences in the profit or growth rates of co-operatives. The comparison of profit and growth rates are particularly important as these measures incorporate decisions regarding all aspects of financial management. An expansion of the analysis to include a comparison of the profitability and growth of medium sized firms would therefore be useful in determining the full impact of the differences in the liquidity, productivity, and leverage ratios reported by co-operatives relative to industry norms.

In general, the overall results from the comparative analysis undertaken in this study would seem to indicate that, contrary to hypotheses suggested by co-operative theory, a co-operative organizational structure does not appear to have a significant overriding impact upon the financial performance of firms. Indeed, agri-food co-operatives appear to be performing at least as well as other firms in the majority of sectors analysed. This may not be surprising when one considers the results of a survey by Schrader, et. al. which found that co-operative managers pursue goals similar to those of IOFs. These findings suggest that financial performance indicators, such as ratios and growth rates, may set a standard for all businesses, regardless of ownership structure, which must be adhered to in order for firms to remain competitive and viable in the long-run.

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