

An empirical study of bank loan officers' functional fixation on agricultural co-operatives and their reported earnings

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Abstract

There has been a long held perception of bias against Australian agricultural co-operatives in the debt capital market. This perception may be attributable to the possibility that bank loan officers are functionally fixated on the reported earnings of co-operatives and on an entity type in forming their loan decisions. The independent variable in this study is comprised of the manipulated information content of financial variables which incorporate entity type choice and accounting policy choice, and is measured at four treatment levels of reporting. The dependent variables are comprised of the three loan officer decisions: interest rate above prime, need for extra information, and importance of financial variables. The results obtained do not support the hypothesis of functional fixation on reported earnings and on an entity title.

Introduction

Wallis' (1991) study reveals the inability of Australian co-operatives to maintain a strong internal capital base, which can be traced to the tax benefits¹ they receive as well as the special and restrictive nature of their share capital. This inability has led co-operatives to seek external debt capital in order to further their development. However, there has been a long held perception of bias against co-operatives in the financial market. The perception is that finance is difficult to obtain and usually at

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¹ Profits retained by co-operatives are taxed at the current corporate tax rate. However, if the co-operative can meet the criteria of conducting 90% of its business with members and having not less than 90% of its issued capital held by active suppliers, then they are able to claim the principal repayments of government loans (which have been used for asset acquisition) as a tax deduction as well as the associated interest. The 90% eligibility requirement for active (wet) shareholders means that the co-operative must take steps to reduce the number of dry shareholders by refunding to them at par value. The impact of this is to reduce the co-operative's internal capital base. This reduction is compounded by co-operatives being taxed on retained profits only. That is, co-operatives have a tendency to distribute most profit to take advantage of reduced taxation.

a higher cost (Bunning, 1981; Langdon, 1991; Wallis, 1991; Dairy Marketing Review Task Force, 1993; Pritchard, 1998). The 1986 MACC Report (Victorian Ministerial Advisory Committee on Co-operation) cites difficulty in obtaining finance at an acceptable interest rate as a problem facing co-operatives for their normal business operations and also future development. This perception may be attributable to the accounting policies implemented by agricultural co-operatives in reporting earnings and members' distributions and to the special nature of the entity type chosen, i.e., the co-operative structure (Langdon, 1991, 1992a, 1992b).

Langdon (1991, 1992a, 1992b) asserts that current divergent classification practices may have the effect of altering the earnings figure reported by the co-operative and may be detrimental to how debt capital markets perceive a co-operative's level of risk. The objective of this study is to provide some empirical evidence to the Australian agricultural co-operative arena² as to the effects of divergent reporting classification (as explained in a later section) within the debt capital market. The further focus of the study will be on the reception in the debt capital market to the traditional corporate structure of investor owned firm (IOF) compared to the reception in the same market to the co-operative structure. More specifically, this study utilises the functional fixation hypothesis (FFH) framework, e.g. Chen and Schoderbek (2000), to show whether bank loan officers would be functionally fixated on the reported earnings of Australian agricultural co-operatives and on an entity type in forming their loan decisions. The results of this empirical study will enhance our understanding of the reasons for the difficulty of agricultural co-operatives in gaining debt finance.

Co-operative accounting policy choice

From an Australian perspective there is very little specific law governing the financial reporting of an agricultural co-operative. Strictly speaking, all that is required is an annual list of income and expenditure, e.g., the Primary Producers' Co-operative Associations Law (Qld), 1923–1978, Part II of Schedule, Section 12. However, it is not unusual for an agricultural co-operative to place itself under the auspices of the Corporations Law in which case it is required to comply with some (but not all) of its requirements. As there are no Australian accounting standards dealing specifically with reporting for agricultural co-operat-

² For this study, the type of agricultural co-operative examined will be production and marketing co-operatives in Australia where raw product, e.g., milk, is purchased from members which undergoes a value-adding process and then marketed in the co-operative's name.

ives, then they need only comply with GAAP and relevant professional accounting standards³.

In accounting for agricultural co-operatives there are two types of payments made to co-operative members. An initial payment is made to the member upon delivery of the raw product which is often commensurate with current market prices. A second (and sometimes a third) payment, member rebates, is made anywhere between six months and two years after delivery which is calculated on the quantity and quality of product delivered. However, the calculation is based on the amount determined by the directors to be safely distributed to the members without unduly reducing available funds after the calculation of 'surplus' funds (Langdon, 1992a). 'Surplus' is defined as revenue less the initial product payment and other operating expenses. Thus these member rebates have two elements: as part of the expense of operations which will then determine profit for the period and as part of the profit distribution process at year's end (Langdon, 1992a, 1992b). Member rebates are therefore reported either above the line as an expense item or below the line as a profit distribution item.

In Australia, proponents of the 'expense' treatment can justify their choice by reference to the relevant state co-operative act, e.g., the Primary Producers' Co-operative Associations Act (Qld), 1923–1978, Part I of Schedule, Sections 48 and 49, which sees the second payment as purely a delayed payment of a contract price.⁴ Based on the principle of mutuality inherent in a co-operative, the revenue law in Australia allows the deduction of both member rebates and dividends paid to members from co-operative income. It appears that co-operatives that practise above the line reporting for member rebates are producing financial statements on a tax-basis format. This format is supported only by co-operative principles rather than any known GAAP or approved accounting standard which would lead to a general purpose reporting format required of a corporation (or co-operative) under the auspices of the Corporations Law. As there is no Australian accounting standard which deals specifically with agricultural co-operatives, there is no authority to govern the reporting of these patronage rebates. A review of

³ In the U.S.A., there is some direction available on certain aspects of co-operative accounting policy, such as the Statement of Position 85-3 'Accounting by Agricultural Producers and Agricultural Cooperatives' which deals with some specific issues relating to the treatment of an accounting item known as 'member rebates'. Paragraph 15 of the Statement of Position states that '... the distribution of earnings on the basis of patronage has been termed the 'price adjustment theory'.

⁴ A similar acknowledgement of the 'expense' treatment approach is seen in the U.S.A. where these patronage rebates are treated as deductions from the gross income of co-operatives for taxation purposes. This treatment then raises the argument of why the rebate is not treated as part of cost of goods sold rather than as an operational expense. However, such an argument raises possible transfer pricing problems and is beyond the scope of this study.

reporting practices among Australian agricultural co-operatives reveals that both alternatives for reporting rebates are in use and are acceptable from an audit point of view.

As all payments to patrons, whether in the form of payment for product purchased or distribution of earnings, are tax deductible, there appears to be no tax benefit to the co-operative in reporting these payments as determinants of operating income rather than a distribution of earnings. The choice of reporting practice does not lead to any change in the fundamental cash flow of the firm either internally or because of taxation effects. Therefore, it appears that the only effect that the choice of reporting alternative will have on the financial statements is that those who report the payment as an expense component will report less profit than those reporting the payment as a distribution of earnings.⁵ The difference in reporting profit by co-operatives resulting from the accounting policy choice raises the question of levels of apparent risk. If, *ceteris paribus*, the level of a firm's credit risk were to be measured financially by the reported earnings, then those co-operatives reporting member rebates above the line as an expense will report a lower profit figure and appear riskier than those co-operatives reporting below the line as a profit distribution.

Reported earnings

For the last 20 years, capital market research has tended to focus on the returns/earnings paradigm in a search for strong evidence of the usefulness of reported earnings in decision making. According to Lev (1990), Collins *et al.* (1995) and Charitou and Panagiotides (1999), this research paradigm has produced low correlations between the reported earnings figure and the returns to investors. Even though the low correlations are disappointing, Lev (1990) asserts that the earnings figure is a crucial signal directing resource allocation in capital markets. Researchers have found earnings to be useful in various capital market contexts and other situations, e.g., Bamber and Cheon (1995), Dechow *et al.* (1996), Burgstahler and Dichev (1997), Schleicher and Walker (1999), Liu and Thomas (2000), Wu and Wang (2000), Espahbodi (2000) and Hodgson and Stevenson-Clarke (2000).

Lev (1990) believes that it is possible for investors to make adjustments for a perceived low 'quality' of earnings when determining the level of investment risk. This adjustment behaviour may explain the consistently low correlations between returns and earnings. Beaver (1981) examines

⁵ There could, in fact, be some benefit to those co-operatives in regulated markets to report the payment as an expense component. By reporting a lower 'profit' figure the co-operative will have justification in requesting price rises.

studies from as early as 1973 (e.g., Beaver and Dukes, 1973) which reported evidence to suggest that investors look beyond the accounting numbers when making decisions. Given the weak association between earnings and returns, Lev (1990) suggests that future research should examine the possibility of investor adjustment for a perceived low 'quality' of earnings and seek information content in '...unusual circumstances, when market values are nonexistent or are of limited usefulness' (p. 179). In the debt capital market, for example, bank loan officers are frequent financial statement users who have a need similar to shareholders for financial statement information in their resource allocation decisions.

A co-operative fulfils Lev's 'unusual circumstance' as it has no public share transfer facility (such as the Australian Stock Exchange) for its shares, even though it is registered as a company. Hence market values may be difficult to determine. There are strict rules governing the ownership of its shares and in smaller co-operatives, ownership of shares can have a connotation of being membership subscriptions to gain access to supply or marketing sources. Also, the choice of agricultural co-operatives as the vehicle of study provides an opportunity to study the effects of a specific accounting policy choice (accounting for member rebates) which may have an impact on the perceived quality of the reported earnings figure. Therefore the primary focus of this study will be on the particular accounting entity type known as the agricultural co-operative in Australia which produces unusual circumstances in its capital structure and surplus/profit distribution. The unusual circumstances of the co-operative structure will place the study in the debt capital market (as opposed to the share capital market) where bank loan officers are investors (as opposed to shareholders). The current study will examine the debt capital market for evidence which may support the possibility of adjustments by loan officers for the quality of earnings. The results will add to the research into earnings usefulness in capital market contexts other than the share capital market. No known empirical studies in the past have examined the particular issues pertaining to agricultural co-operatives and reporting for member rebates upon which the current study focuses. Apart from the problem of levels of apparent risk because of differences in reporting member rebates, there is also a problem of perceived inherent risk and uncertainty with the status of co-operative as an entity.

The co-operative structure issue

Bunning (1981) sees co-operatives as providing an alternative structure to both private and state owned enterprises and a means for individuals who are economically weak to achieve a countervailing power against the strong by grouping together. However, he also reports that there is

a concern amongst farmers and their legal and financial advisers that a co-operative will almost always fail and that a company or some other legal entity is preferable. This concern is shared by banks according to McDade (1991) who says that banks are often reluctant to lend money to agricultural co-operatives in adverse seasons or to newly established co-operatives because of the inherent risk. Bunning (1981) and McDade (1991) discuss the notion of perceived inherent risk attaching to the title 'co-operative' and point to limited access to financial resources as a reason for this perception. Bunning (1981) also discusses the lack of financial accountability required under co-operative legislation and often inexperienced management as reasons why co-operatives are viewed as risky. McDade (1991) adds that the members in a new co-operative are untried as to their commitment, while Langdon (1990) believes that there is a general perception in Australia that co-operatives exhibit not only poor operating efficiency but also low profitability. The notion of 'service at cost' to members is usually part of the financial arrangements for members because of the concept of mutuality. This has often led to the perception that the co-operative should be considered a 'not-for-profit' organization because of the possibility of earning (inappropriately) low profit margins and distributing all surpluses to members (Wallis, 1991; Langdon, 1991, 1992a).

Wallis (1991) states that the perception of risk will lead to two types of behaviour in financial institutions both of which endeavour to mitigate the uncertainty attached to the borrower; namely, to incur greater costs in seeking to assess the credit-worthiness of the applicant (i.e., seek more information) and to conclude that capital should be more expensive. In the same vein, Libby (1979a), Gul (1987) and Wallis (1991) find that an uncertainty indicates an increase in the assessment of risk attaching to a loan application and an increase in the need for extra information to help mitigate the effects of the uncertainty. In addition, unusual circumstances of the firms could lead to different uses of financial variables. Although Wallis (1991) reports anecdotal statements to suggest that financial institutions do not discriminate against co-operatives per se but only in terms of the cost of the funds provided, he points out that no evidence was provided to support this claim.

On the other hand, the Registrar of Companies in South Australia has evidence which does not support the view that co-operatives will always fail (Bunning, 1981). This South Australian evidence shows that few co-operatives are actually wound up and many have either amalgamated or entered into joint arrangements with other co-operatives. The results of Lerman and Parliament's (1990) US study indicate that there is no significant difference in profitability between the two entity types. While a co-operative reporting member rebates below the line will report the same before tax profit figure as a comparable non-co-operative or inves-

tor owned firm (IOF) which uses the necessary below the line reporting for dividend distribution, the co-operative will show a higher after tax profit because of certain tax advantages (see footnote 1) a co-operative enjoys. In principle, *ceteris paribus*, if the level of risk were measured financially by the reported earnings, then the co-operative may appear less risky than an IOF because of the higher after tax profits (even though co-operative tax savings are usually distributed to members resulting in similar economic cash flows for both entity types). However, in spite of the higher after tax earnings reported by the co-operative, Langdon (1991) feels that the IOF appears to be seen as less risky than a co-operative reporting below the line.

Although several government commissioned reports, (e.g., MACC Report, 1986; Wallis, 1991; Langdon, 1991) attempt to identify problems faced by co-operatives so as to provide the appropriate legislative and funding support, the current literature largely consists of observations and comments. Reports such as Wallis (1991) and papers by Langdon (1991, 1992a, 1992b) mainly present anecdotal evidence and subjective comments on the difficulties faced by co-operatives in raising debt capital (amongst other matters). It is hoped that by utilising the functional fixation phenomenon the current study will provide empirical evidence in relation to the problem of perceived bias against co-operatives in the debt capital market.

Functional fixation hypothesis

The phenomenon of functional fixation begins in the psychology literature⁶. It was first introduced into accounting research in 1966 by Ijiri, Jaedicke and Knight who argue that according to psychologists, there appears to be functional fixation in most human behaviour. Framing it in an accounting context, Tinic (1990) simplifies the claims of the hypothesis as follows:

... that decision makers who are unfamiliar with different methods of producing accounting outputs rely on bottom line accounting numbers without paying attention to the procedures used in generating them (p. 783).

The above interpretation leads to the example that reported earnings numbers, which are manipulated because of a change in accounting procedures or the use of alternative accounting procedures, would be associated by functionally fixated decision makers with correspondingly different fundamental economic performance. This fixation would be

⁶ The well-known examples are the two-string problem initiated by Maier (1931) and replicated by Birch and Rabinowitz (1951), the candle experiment of Duncker (1945), and the electrical circuit experiment of Adamson and Taylor (1954).

maintained even though the choice of accounting procedure did not produce a change in the economic cash flows.

Early studies, based on laboratory and field studies, apply the FFH to individuals, e.g., managers and financial analysts, and focus on either operating decisions of managers or investment decisions of financial analysts. The results of those studies examining the investment decision are usually generalized to the share capital market. In their review Gonedes and Dopuch (1974) find that support for the FFH is actually mixed (e.g., Dyckman, 1964; Jensen, 1966; Livingstone, 1967; Mlynarczyk, 1969; Barrett, 1971; Beaver, 1972; McIntyre, 1973; Dopuch and Ronen, 1973). According to Gonedes and Dopuch (1974), the results appear to be highly sensitive to the following three factors: the type of accounting procedure examined, the manner of accounting number manipulation, and the choice of subjects used in the experiment (e.g., students versus executives). They also discuss at length the second factor and suggest that attempts to manipulate the income number (reported earnings) may fail to take into account the cumulative effect on Balance Sheet numbers and ratios. For example, a change from FIFO to LIFO reporting can result in a decrease in reported earnings but an increase in the rate of return on equity. Consequently, the results can be interpreted differently depending on whether the reported earnings or the rate of the return on equity is assumed to form the basis of the subject's decision. Furthermore, Ashton (1976) and Gonedes and Dopuch (1974) criticize the early empirical studies of the FFH because the results from a particular type of individual (e.g., financial analysts) are unlikely to lead to reliable generalizations about a relationship between accounting information and market equilibrium when that equilibrium is the result of aggregate behaviour of the system as a whole and not that of certain individuals.

Later studies (e.g., Reeve 1983; Wilkins and Zimmer, 1983, 1985) which examine an investment decision by individuals in the debt capital market and refer to the FFH also produce mixed results. Reeve (1983) finds that alternative disclosure methods for project financing do produce significant differences in bank loan decisions. When Wilkins and Zimmer (1983) examine the effects of lease disclosure alternatives, they cannot find similar support for the FFH. However, when Wilkins and Zimmer (1985) examine the effect of alternative methods of equity reporting (the equity method or cost method) on lending decisions, the results indicate that alternative methods of accounting for investments affect bank loan officer assessments. The extremes of reported earnings used in the Wilkins and Zimmer (1985) study appear to suggest that the loan officers are functionally fixated on this financial item. The authors themselves, however, suggest that the effect may have been through balance sheet indicators instead. There are several confounding factors

in the study by Wilkins and Zimmer (1985) which throw the results into doubt and can be aligned with the three sensitivity factors discussed by Gonedes and Dopuch (1974).

While early studies apply the FFH to individuals and generalize the results to the share capital market, Hand (1990) and Harris and Ohlson (1990) both extend the hypothesis directly to market data. An examination of the information content of oil and gas disclosures by Harris and Ohlson (1990) suggests that functional fixation on the book values of oil and gas reserves may have contributed to successful early trading. Hand's study (1990) examines the information content in the re-announcement of a debt-equity swap and finds that the reporting of the actual gain has information content. Chen and Schoderbek's (2000) findings provide evidence of investors' functional fixation on reported accounting numbers without regard to the effects of a tax rate increase on deferred taxes. The results from their study lend some empirical support for the (extended) FFH. In the share market setting, the FFH claims that investors fail to 'see through' the fact that alternative accounting methods may produce different accounting numbers. However, Tinic (1990) criticizes Hand (1990) and Harris and Ohlson (1990) by questioning the validity of applying the FFH to share market data as the original FFH in psychology literature is suggested for individuals rather than for such a collective data situation.

It would appear from the discussion by Tinic (1990) that the primary item of fixation in the FFH is reported 'bottom line accounting numbers' (p. 783). However, Ijiri et al. (1966) present a more general view of functional fixation where a person, through past experience, attaches a meaning or use to an item (title or object, e.g., manufacturing cost) and cannot see the possibility of alternative meanings or uses. Although the item may, in fact, be quite different from what it was in the past, a functionally fixated person will view the item as it had been used previously (Ijiri et al., 1966). From this point of view, a person could be functionally fixated on any item in the financial statement or, for example, upon the title used to describe the entity type. Because of the nature of the report, the majority of financial statement items consist of two parts: a title, i.e., the name of the item and an attached accounting number. Prior accounting research utilizing the FFH focuses on a title, e.g., reported earnings, with an accounting number attached. No accounting research has focused on the possible fixation on a title (e.g., co-operative) without an accounting number attached.

In the current study, entities operating as co-operatives have a specific accounting policy choice available to them. This choice involves the treatment of a financial item (member rebates) as either an expense component included in the operating profit calculation or as a profit distribution component. Either way there is no fundamental difference

involved in the economic cash flows of the entity but a co-operative which reports member rebates above the line will produce a lower earnings figure. It is possible that a lower reported earnings figure would lead to a perception of higher risk and uncertainty. Applying the functional fixation phenomenon, loan officers will respond as if they are functionally fixated on the reported earnings figure and cannot 'see through' the fact that different accounting policy choices can produce different reported earnings.

Also, a second item of functional fixation examined by the current study will be that of the entity type choice which refers to the choice between an entity operating as a co-operative or as an IOF. Choosing to operate as a co-operative presents taxation advantages which will impact on the reported earnings figure. However, an apparent bias against co-operatives in the debt capital market may disadvantage the use of the title 'co-operative' in the name of the firm by inducing a perception of inherent risk and uncertainty. Because of this apparent bias, it is believed that the functional fixation on the title 'co-operative' produced by the entity type choice will over-ride the functional fixation on reported earnings when the co-operative and IOF are compared. That is, even though the co-operative may report a higher level of earnings because of the tax effect on IOFs, it is believed that loan officers will functionally fixate on the title 'co-operative' and view it as corresponding to low profitability and poor operating efficiency. It follows that the co-operative is likely to be viewed as a higher risk than the IOF even though the fundamental economic cash flows do not change. Although funds are saved by the co-operative through taxation benefits, these funds are usually distributed to members resulting in a total cash outflow similar to an IOF.

Model and hypothesis development

Because of the loan officers' functional fixation on reported earnings and entity type, their perception of risk and uncertainty will lead to a difference in the following items: interest rate above prime at which the loan will be granted, the levels of need for extra information in making a decision, and possibly the importance placed on financial variables. The model used for empirical investigation, as shown in Figure 1, has one independent variable and three dependent variables. The independent variable is comprised of the manipulated information content of financial variables incorporating entity type choice and accounting policy choice and is measured at four treatment levels of reporting. The dependent variables are comprised of the three loan officer decisions: interest rate above prime, need for extra information, and importance of financial variables, which are represented by data 1, 2 and 3 respectively. This model adopts an ANOVA between-subject design where the

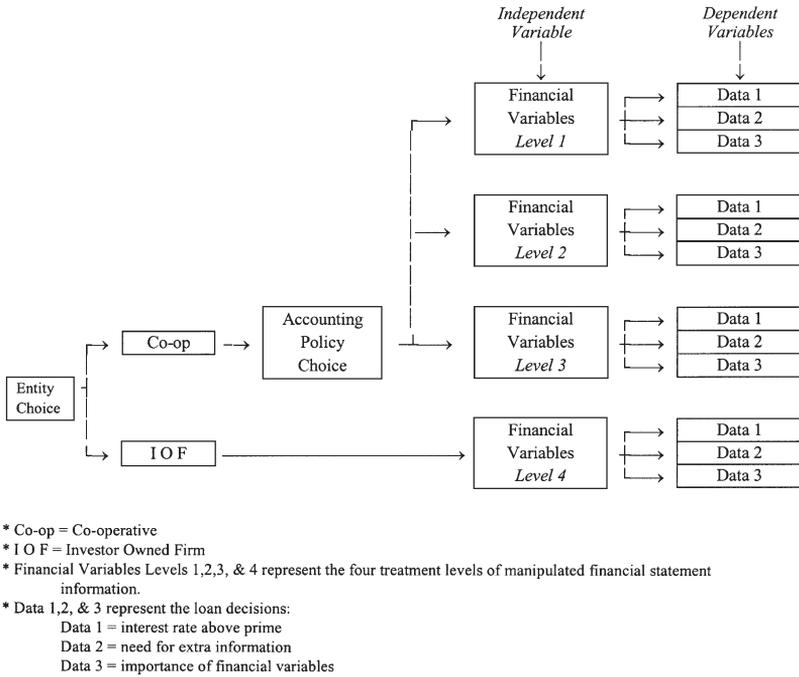


Figure 1 – The empirical model.

independent variable is treated as a discrete variable and the dependent variables are treated as continuous variables.

Using the Schedule 5 format from the Corporations Law⁷, Table 1 shows the four treatment levels which present four ‘bottom line’ (operating profit after tax) scenarios. Level 1 reports member rebates above the line and appears to carry the most risk because of reducing reported earnings. Level 2 similarly reports member rebates above the line but has a note added to the bottom of the Profit and Loss Statement explaining that the item ‘Member Rebates on Patronage’ while presented as a profit calculation item also has elements of being a profit distribution item. The addition of the explanatory footnote should have the effect of reducing some uncertainty and thereby resulting in the perception of less risk than level 1. Level 3 adopts a ‘below the line’ profit distribution scenario which is similar to an IOF reporting. Level 4 financial statements are consistent with an IOF which has taxation

⁷ There are in fact three formats of financial statement reporting which have been identified as being used by Australian agricultural co-operatives. They are: (1) simple format—the financial statements are presented in a ‘T’ account format and/or are little more than statements of receipts and expenses, (2) textbook format—the financial statements are presented in a narrative style with the profit and loss statement and the balance sheet showing full itemised detail in the body of the statement and (3) Schedule 5 format—the financial statements are presented in the ‘minimum disclosure’ format as stipulated in the Corporations Law.

Table 1 – Financial statements by treatment levels

Profit & Loss Item	CO-OPERATIVES						IOF	
	Level 1		Level 2		Level 3		Level 4	
	\$'000		\$'000		\$'000		\$'000	
	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1
Base calculation before int & taxes ⁺	9753	8094	9753	8094				
Less member rebates on patronage	5293	4486	5293	4486*				
Operating profit before int & taxes	4460	3608	4460	3608	9753	8094	9753	8094
Less interest expense	2576	2109	2576	2109	2576	2109	2576	2109
Operating profit before tax	1884	1499	1884	1499	7177	5985	7177	5985
Less tax attributable to oper. profit	nil	nil	nil	nil	nil	nil	2799	2334
Operating profit after tax	1884	1499	1884	1499	7177	5985	4378	3651
Retained profits at beginning of year	12868	11772	12868	11772	12868	11772	12868	11772
Total available for appropriation	14752	13271	14752	13271	20045	17757	17246	15423
Less distributions:								
Member rebates on patronage					5293	4486		
Interest on capital	423	403	423	403	423	403		
Dividends							2917	2555
Retained profits at end of year \$	14329	12868	14329	12868	14329	12868	14329	12868
Total distributions:								
Member rebate (as component of OPBIT)	5293	4486	5293	4486				
Member rebate (as component of profit distribution)					5293	4486		
Interest on capital	423	403	423	403	423	403		
Dividends							2917	2555
Taxation							2799	2334
Total distributions \$	5716	4889	5716	4889	5716	4889	5716	4889

⁺Base calculation before interest & taxes for levels 1 & 2 equals operating profit before interest and taxes for levels 3 & 4.

*Treatment level 2 contained a note explaining that member rebates on patronage also had elements of a profit distribution.

implications and adopts the necessary profit distribution method of reporting for dividends.

Since level 3 reports member rebates below the line as profit distribution and consequently its reported earnings are higher than those of levels 1 and 2, level 3 should appear less risky than levels 1 and 2. However, the total distribution between these three levels has not changed nor have the recipients changed. The only change has been in the labelling and placement of the item within the financial statements.

Level 4 can, in fact, be contrasted against levels 1 and 2 as well as level 3 because all of these first three levels adopt the entity choice of 'co-operative' compared to the choice of 'IOF' for level 4. However, for practical purposes, level 3 appears the most appropriate to compare to level 4 because the accounting policy choice of level 3 (i.e., reporting below the line) is comparable to that of level 4 with its necessary reporting for dividends as a profit distribution. Therefore, level 3 and level 4 can be more clearly analysed for differences of entity type choice. Due to tax implications, even though level 3 will report the same before tax profit figure as level 4, differences will occur in the after tax profit. This study has manipulated the financial statement information so that there is no fundamental economic differences affecting cash flow between levels 3 and 4. In level 3, co-operative taxation savings have been distributed to members as part of the items labelled 'Member Rebates on Patronage' and 'Interest on Capital'. The lower part of Table 1 shows that total distributions between these two levels do not change although they have been distributed to different recipients. Distribution in level 3 is only to members in the form of rebates and interest on capital and the 'distribution' in level 4 is to shareholders and the taxation department.

The four treatment levels are employed as an input variable incorporated into a 'black box' decision process approach previously used by Wilkins (1980) and Birnberg and Shields (1989). The decision outputs are then assessed and statistically analysed for association with the inputs.

Six specific research questions arise from the above discussion, which lead to six hypotheses in the null form in relation to the three data items used to measure the loan officer responses. The first and second questions address the issue of whether loan officers, in forming their decision on interest rate above prime, are functionally fixated on earnings figures manipulated through accounting policy choice and the entity type choice of the firm structure. Hence:

Ho1: Differences in earnings data (operating profit after tax) reported by co-operatives because of accounting policy choice have no significant effect on loan officers in forming their loan decision on interest rate above prime.

Ho2: Differences in earnings data (operating profit after tax) reported by an entity because of entity type choice have no significant effect on loan officers in forming their loan decision on interest rate above prime.

Hypothesis one will examine data one (interest rate) for differences between levels 1, 2 and 3 while hypothesis two will examine data one for differences between levels 3 and 4.

In wishing to seek extra information, will loan officers be functionally fixated on reported earnings as shown through the accounting policy choice and on the entity type choice of the firm structure? This question leads to hypotheses three and four.

Ho3: There will be no significant difference in the level of the need for extra information reported by loan officers because of the accounting policy choice.

Ho4: There will be no significant difference in the level of the need for extra information reported by loan officers because of the entity type choice.

Hypotheses three and four will examine data two (need for extra information) for differences between levels 1, 2 and 3 and between 3 and 4 respectively.

Finally, the fifth and sixth questions address the issue of whether loan officers, in forming their decisions, place equal importance on raw data variables in their financial statement analysis regardless of any functional fixation on the accounting policy choice and entity type choice. Therefore the following hypotheses are tested:

Ho5: There will be no significant difference between the reported importance placed on raw data variables by loan officers in forming their loan decision because of the accounting policy choice.

Ho6: There will be no significant difference between the reported importance placed on raw data variables by loan officers in forming their loan decision because of the entity type choice.

Hypothesis five examines levels 1, 2 and 3 while hypothesis six examines levels 3 and 4, for any differences in data three (importance of financial variables).

Research design

By adopting a field experiment approach utilizing a survey technique, this research aims to capture as much of the realism of the actual decision situation as possible. The survey questionnaire asked the participant for a series of opinions after assessing a hypothetical applicant for a three-year \$5 million loan. The research instruments comprised: a covering letter, instructions for completing the task, background information for the hypothetical case scenarios, one of a set of systematically manipulated case scenarios, a questionnaire seeking specific opinions based on the information given, and a debriefing questionnaire. The covering letter contained assurances of anonymity and participants were specifically asked not to discuss the completion of the survey with their colleagues. Further enhancement of anonymity was made by enclosing a reply-paid self-addressed return envelope for the anonymous

questionnaire and a reply-paid postcard, both of which were to be returned separately. This is seen by Kanuk and Berenson (1975) as a successful approach to gaining response and the postcard with the bank's name attached allows the researcher to send follow-up letters to late respondents. The background information included the age of the entity, the type of product manufactured, the type of market in which the product was sold, an intimation of factory and management efficiency, and details of the reason for the loan.

The questionnaire proper was prefaced by financial statements in Schedule 5 format, an extract from notes to the accounts and an auditors' report. The financial statement information was taken from an existing agricultural co-operative to provide realism but the information was disguised to preserve its anonymity. Four treatment levels were used to manipulate a change in the financial report information as shown in Table 1. In the current study, because of the specific nature of the accounting policy choice and the necessary comparison of a co-operative to an IOF, it was felt that a within-subject design would lead the participant to anticipate quickly the outcomes which were desired by the study. Therefore, the current study adopted a between-subjects design using four treatment levels for comparison of responses. This choice of design minimizes the need to control for learning effects and demand characteristics in the preparation of the survey which can have the effect of biasing the results in a within-subject design. The background information presented for the co-operatives was changed minimally for the IOF.

Question 1 in the main questionnaire replicated those used by Libby (1979b) and Gul (1987, 1988) and was designed to test hypotheses 1 and 2 which examined data one (interest rate above prime). A two-part approach was used in the question. The first part asked participants to indicate if they were willing to grant a loan. If the answer was 'yes', then the participant was asked for the interest rate above prime they would attach to the loan. If the answer was 'no', then the participant was asked for the interest rate above prime at which they believed a loan would be granted but by someone else. Gul (1988) believes that this approach provides an acceptable interval measure of risk (unidimensional) without forcing the participants to grant a loan. Question 1 enabled a comparison of the means of the interest rate above prime for the four treatment levels.

Questions 2, 3, and 4 sought to test hypotheses 3 and 4 which focused on data two (need for extra information on three topics: financial information, industry information, and information about the entity). Questions 5 tested hypotheses 5 and 6, concerning differences in importance on fourteen raw data variables (as shown in Table 6) because of functional fixation on reported earnings and on entity type choice. Partici-

part opinions for questions 2 to 5 were measured using a 7-point equal interval Likert scale. Only the two end points (the extremes of the scale) carried a caption. According to Knapp (1987) this approach supports the assumption that the intervals on the scale are equal. Two scales were shown: one to measure responses using the captions 'very little information' to 'substantial information' for questions 2, 3 and 4, and the other responses from 'very little importance' to 'very high importance' for question 5. An extra box at the end of a Likert scale allowed the participant to indicate a definite 'no' to the question rather than trying to determine an interval between 'none' and 'some' at the lower end of the continuum extremes. The decision making process of the participants was treated as a 'black box' (Wilkins, 1980; Birnberg and Shields, 1989) because the current study was not concerned with 'how' the participant made the decision but with 'what' the decision was.

Debriefing questions were asked to assess the quality of response and the quality of the instrument according to subjects' perception. To assess the quality of response the participants from all treatment level groups were asked (1) how much previous banking experience they had in the rural sector. Also, level groups one, two, and three dealing with a co-operative were asked to indicate (2) their level of understanding of the nature of co-operative business, and (3) their level of previous banking experience with co-operatives. In addition all participants were asked to indicate their years of employment in their current position title and the size of loans on which they could make recommendations. To assess the perceived quality of the instrument the participants were asked (1) whether they were satisfied with the amount and type of information provided with which to perform the task, (2) whether the instructions were adequate and of sufficient clarity, and (3) how interesting they found the task. The participants were given a seven point Likert scale for each question and asked to indicate their opinion as to their level of understanding and experience.

Banks appropriate for this study were those involved in commercial or corporate lending and were identified in the Australian Banking and Finance Directory (1993). Those which dealt mainly with personal and retail accounts or real estate development were not approached. State and regional managers of these appropriate banks were asked to supply the names and mailing addresses of loan officers willing to participate. Because of the geographical dispersion of the participants, a mailed questionnaire was the most appropriate method of data collection (Kanuk and Berenson, 1975; Linsky, 1975; Zikmund, 1988). A total of 107 bank loan officers indicated their willingness to participate in the project. The second step was to randomize the distribution of the treatment levels to the list of bank officers. The list of officers was prepared in a random order based on the timing of the receipt by mail or

fax of the officers' names and addresses. A random number was chosen and allocation of treatment level began in a sequential order from the name corresponding with the chosen number on the list. A relatively high level of internal validity should thus be achieved by utilizing these procedures (Abdel-khalik and Ajinka, 1979; Campbell and Stanley, 1963). The follow-up procedure involved a reminder letter approximately three weeks after the initial mailing and then a second follow-up by telephone approximately two weeks after that.

Results

A total of 107 questionnaires were distributed to interested loan officers of which 87 were completed and returned, giving a response rate of 81.3%. Of those returned 77 were usable, which gave a net response rate of 72%. These rates compare favourably with prior studies which follow a similar procedure of posting instruments to a pre-arranged list of possible participants (e.g., Wilkins, 1980; Gul, 1987). In addition to answering the questions, some participants showed their workings in the instrument. The final participant loan officers were drawn from twenty banks. There is a possibility that the larger number of participants from one bank may have influenced the results through that particular bank's lending policy. However, because the questionnaires were returned anonymously, it is not possible to present a breakdown of usable responses by each individual bank and so the results for such possible influence cannot be determined. Table 2 provides a breakdown of the participants in each treatment level group and their current position titles within the bank. The participants listed as 'other' appeared to have bank-specific position titles which they felt could not be classified according to the position titles given.

The debriefing data was examined to indicate the mean number of years experience held by the participants in each level group for their current

Table 2 – Participant current position title

<i>Position title</i>	<i>Treatment level group</i>				<i>Total</i>
	<i>One</i>	<i>Two</i>	<i>Three</i>	<i>Four</i>	
Commercial loan officer	3	1	3	2	9
Ass. commercial manager	0	3	1	3	7
Commercial manager	8	5	6	9	28
Assistant regional commercial manager	1	0	0	2	3
Regional commercial manager	3	4	4	3	14
Other	5	5	5	1	16
Totals	20	18	19	20	77

position title and the size of the loan upon which participants could make recommendations on loan applications. While not particularly high, the means indicate that the participants did have experience in a relevant position suitable to appraise the loan application. The results also indicate that the mean class (size of loan) fell between the categories three and four with the corresponding loan size between \$3 million and \$7 million. As the loan application in this study was for \$5 million the participants had sufficient experience to handle a loan of this size.

An examination was made of the participants' perceived levels of (1) experience with rural banking, (2) understanding of the nature of co-operative business and (3) banking experience with co-operatives. In general, the majority of participants in all level groups were at or below the mid-point range, suggesting that they had some knowledge of but were not highly experienced in rural and co-operative banking. This was expected as the research aimed at examining any possible bias against a rural co-operative loan applicant because it was unusual.

The majority of participants in all groups indicated that they had a low level of satisfaction with the amount and type of information provided with which to perform the task. The information was limited because the study required a participant response to the need for extra information which (it was hypothesised) would vary with the treatment level. Also most participants found the instructions adequate and sufficiently clear for them to complete the task. With regard to interest in the task, most participants were within a mid-point range of 3 to 5, suggesting that they found the task neither very interesting nor very uninteresting. However, the level of interest also is reflected in the high gross response rate (81.3%) to the survey.

The analysis shows some variability in the levels of experience in each level group. To test the effect of these variations, statistical analysis was conducted using the variable 'interest rate above prime'. The participants in each treatment level group were re-grouped three times by their levels of (1) current position title, (2) current experience, and (3) range of loan size. Further analysis was conducted by re-grouping on experience with (4) rural banking, (5) the nature of co-operative business, and (6) co-operative banking. Using a one-way ANOVA test (with Duncan's multi-range comparison testing when necessary), the experience groups within each treatment level group were analysed by comparing the mean interest rates above prime of these experience groups. Examining the F values for all tests shows that only some minor differences at $p < .10^8$ are evident in the mean interest rate above prime.

⁸ The statistical differences may not be considered significant if the customary .10 is used as a cut-off point.

Table 3 – Chi square test of frequency on Yes/No response

Response	Treatment level group				Totals <i>n</i>
	One <i>n</i>	Two <i>n</i>	Three <i>n</i>	Four <i>n</i>	
YES	12	8	9	7	36
NO	8	10	10	13	41
Totals	20	18	19	20	77

Chi-square statistics for table of yes/no response by level

Statistic	Df	Value	Prob
Chi-square	3	2.561	0.464
Likelihood ratio chi-square	3	2.584	0.460
Mantel-Haenszel chi-square	1	2.090	0.148

Moreover the differences are scattered and do not present any discernible patterns and hence the effect of any variation in these levels of experience will be minimal.

To analyse the participants' responses to the research questions, the main method employed is a between-subject ANOVA. Even though the groups in this study have unequal balances, the procedure used will be a one-way ANOVA which allows the use of balanced arithmetic regardless of how unbalanced the cell counts are (Cody and Smith, 1991). Table 3 gives the results of a chi-square test of frequency on the yes/no response to question one. The results show that there is no significant difference between the numbers indicating YES compared to NO in each treatment level. This means that there is no bias by any treatment level group as to whether the participant would grant the loan themselves or prefer some other bank to grant the loan.

The results in Table 4 show that there is no significant difference in the dependent variable, interest rate above prime, between the four treatment level groups (F value = 0.73, $Pr > F = 0.5391$). Hence changes in

Table 4 – ANOVA results for variations between treatment levels 1, 2, 3 & 4 – loan decision data one (interest rate response)

Dependent variable	Variable mean	Model statistics				Pr > F
		df	ss	Mean square	F value	
Interest rate above prime	1.82	3	2.48	0.83	0.73	0.5391
		73	83.04	1.14		

reported earnings data because of accounting policy choice have no significant effect on loan officers' reporting of the interest rate above prime at which the loan would be granted. Therefore, hypothesis one cannot be rejected. Also the lack of significant results in the mean interest rate above prime between the four treatment groups indicates that loan officers do not discriminate in favour of an IOF because of the entity type choice. Thus, the null hypothesis two that entity type choice has no significant effect on loan officers' interest rate above prime responses cannot be rejected.

As shown in Table 5, there are no significant differences in any of the extra information variables between any of the four treatment level groups. According to these results, neither of the null hypotheses three and four can be rejected. That is, there appears to be no significant difference in the need for extra information reported by loan officers regardless of accounting policy choice or entity type choice.

Table 6 presents the model statistics for the ANOVA performed on each of the financial variables for each treatment level group. There are no significant differences between all treatment level groups in any of the financial variables which indicate that the null hypotheses five and six cannot be rejected. That is, there are no significant differences between the importance placed on raw data variables because of accounting policy choice or entity type choice. The current study examined groups of individuals in the debt capital market and the results do not support the hypothesis of functional fixation on reported earnings and an entity title. Research results are consistent with the findings of Beaver, 1981; Beaver and Dukes, 1973; Lerman and Parliament, 1990; and Wilkins and Zimmer, 1983.

Table 5 – ANOVA results for variations between treatment levels 1, 2, 3 & 4 – loan decision data two (extra information response)

<i>Dependent variable</i>	<i>Variable mean</i>	<i>Model statistics</i>				<i>Pr > F</i>	
		<i>df</i>	<i>ss</i>	<i>Mean square</i>	<i>F value</i>		
Extra financial information	5.32	3	73	4.69 155.83	1.56 2.13	0.73	0.5362
Extra industry information	5.00	3	73	7.25 136.75	2.42 1.87	1.29	0.2840
Extra entity information	5.04	3	73	2.19 182.70	0.73 2.50	0.29	0.8315

Table 6 – ANOVA results for variations between treatment levels 1, 2, 3 & 4 – loan decision data three (importance placed on variables)

<i>Dependent variable</i>	<i>Variable mean</i>	<i>Model statistics</i>				<i>Pr > F</i>
		<i>df</i>	<i>ss</i>	<i>Mean square</i>	<i>F Value</i>	
Cash flow statement	5.60	3	1.09	0.36	0.14	0.9331
		73	183.43	2.51		
Operating profit before interest and taxes	5.79	3	0.15	0.45	0.04	0.9892
		73	90.53	1.24		
Operating profit before taxes	5.03	3	6.54	2.18	0.81	0.4900
		73	195.41	2.68		
Operating profit after taxes	4.38	3	2.54	0.85	0.21	0.8867
		73	289.54	3.97		
Operating revenue	5.01	3	3.96	1.32	0.69	0.5598
		73	139.03	1.90		
Shareholders' equity	5.52	3	4.44	1.48	1.12	0.3483
		73	96.78	1.33		
Total assets	4.75	3	3.21	1.07	0.52	0.6670
		73	149.09	2.04		
Current assets	5.30	3	6.00	2.00	1.62	0.1921
		73	90.13	1.23		
Total liabilities	5.45	3	1.77	0.59	.038	0.7669
		73	113.32	1.55		
Current liabilities	5.56	3	3.77	1.26	1.13	0.3433
		73	81.22	1.11		
Quick assets	5.06	3	4.77	1.59	0.85	0.4692
		73	135.91	1.86		
Tangible assets	4.86	3	3.19	1.06	0.47	0.7061
		73	166.43	2.28		
Receivables	5.36	3	6.84	2.28	1.35	0.2637
		73	122.98	1.68		
Inventories	5.06	3	4.97	1.66	0.80	0.4996
		73	151.71	2.08		

Conclusions

Early studies which refer to the FFH produce mixed results and this is explained by the three sensitivity factors suggested by Gonedes and Dopuch (1974), namely, the type of accounting procedure upon which the experiment is based, the manner used to manipulate the accounting numbers, and the choice of subjects. Unlike previous studies when applying the FFH, this research avoids the unfavourable effects of these sensitivity factors on the validity of research results. Firstly, the type of accounting procedure used for the current study deals with alternative reporting methods which produce a cosmetic change, involving only a choice of positioning a data item on the financial statement without altering the fundamental economic cash flows of the firm. Moreover, the taxation implications attached to levels 3 and 4 are negated because

the co-operative distributes the tax savings to its members thus producing equivalent cash outflows for these levels.

Also, the manner used to manipulate the accounting procedure in the current study is closely associated with the type of accounting procedure examined. In prior studies, such as Dopuch and Ronen (1973), the accounting procedure examined has an effect on a profit and loss item as well as balance sheet items. This could have the effect of confounding the results as the loan officers may have focused on either the reported earnings or the rate of return on equity for their decision. In the current study, the accounting procedure only affects the format of the Profit and Loss statement. Therefore the rate of return on equity ratio only changes in the same direction as any change in the reported earnings. This ensures that one financial statement data item does not counteract the effect of another. Finally, the choice of subject for the current experiment was carefully constructed to enable the best possible match of participant to the task. Surrogates (e.g., students) were not used for this project and the participants were chosen from people in the actual loan decision environment in the debt capital market.

The results do not provide any indication of bias (either in the cost of finance, the need for extra information or importance placed on financial variables) in the debt capital market because of accounting policy choice. The inference is that bank loan officers adjust for the perceived low quality of earnings or alternatively that the investment decision is not based on the earnings figure alone. Although participants were not very experience in rural and co-operative banking, they had sufficient knowledge in this area and experience in a relevant position suitable to handle a loan of \$5 million. It is possible that they 'saw through' the difference in reporting profit resulting from the accounting policy choice. The title of the co-operative, its background information and the significance of the rebates included in the research instrument might have alerted the experienced bank loan officers to the possibility of an alternative presentation and prompted them to adjust the figures in the profit and loss statement before reaching a decision. This presumption is supported by the existence of workings shown on some returned questionnaires. However, this study was not concerned with 'how' a decision was made but with 'what' it was.

The current study further indicates that there is no perceived bias against a co-operative entity in the debt capital market compared to an IOF in the same industry and economic situation. Any perceived bias may be an industry bias and not an entity bias as currently examined. According to McDade (1991), banks may be unwilling to lend to rural co-operatives during adverse seasons. It is, therefore, likely that an adverse season would affect lending to any type of rural endeavour regardless of entity type. Also, since the majority of the participants do

not have a high level of experience in rural banking, it may be expected that any type of entity in the rural sector would be treated with more caution than an entity in a non-rural sector. If this is the case then government funds should be channelled into mitigating some of the problems which precipitate the perception of risk and uncertainty possibly inherent in the rural industry.

There are several factors which conceivably may limit the usefulness of the results obtained from the current study. The use of a case study approach presents artificiality although the study attempted to provide as much realism as possible for the decision process. In a normal loan decision setting, loan officers would have access to considerably more information and could demand specific information from the applicant. The hypothetical nature of the setting may have predisposed the participant to take less care than normal in making the loan decision. Also, it was not possible to incorporate controls for the environment in which to complete the task. It is felt, however, that these factors were not critical for the purpose of this study. Although the sample of participants was drawn from eligible participants Australia wide, they were in fact volunteers. Therefore, caution must be exercised in attempting to make any generalizations of the results to other lending officers. Further, the results show no significant differences between all four treatments levels in any of the financial variables. It should be noted that bank loan officers may take into consideration of non-financial indicators, such as the availability of security, and macroeconomic and industry indicators (Gadenne and Iselin, 1995; Morris, 1997). Some of these indicators may be included in future research to promote a better understanding of the co-operative's ability to seek external debt capital. This is specially relevant when Australian agricultural co-operatives in the dairy and wheat sectors are experiencing changes to their traditional operating environments as a result of the industry's regulatory change in recent years (Pritchard, 1998).

Furthermore, this project chose to present the financial statements in Schedule 5 format as required by the Corporations Law. This step was necessary because the project was limited in its access to a sufficient number of experienced loan officers with which to test the effect of other identified reporting formats used by co-operatives (see footnote 7). The other formats, if used, may have produced a higher perception of risk because they are less professional in their presentation.

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