A Multiple Case Study of Decision Making on Pipfruit Orchards.

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Abstract

Traditional farm management texts view the farming firm as family oriented, owned and operated. In owner-operated settings owner's and manager's goals are assumed to be the same. However, corporate ownership structures, with ownership separated from management, make an important contribution to New Zealand agriculture. To further farm management research, teaching, and extension it is necessary to understand decision making within the specialised management structure of land-based corporates.

Decision making, as described in the business literature, takes place in activities (primary or support). Decisions are of three types; structured, semi-structured and unstructured and are linked to decision levels; operational, tactical and strategic. Decision types and levels can be compartmentalised by management level. The relationship between decision making activity and decision type and level is unclear. Further, the relationship between activity and management level is yet to be explained.

A multiple case study procedure, with an embedded design, was used to investigate decision making on corporate and owner-operated pipfruit orchards. Patterns were identified to describe actual decision making. These patterns were linked to the extant theory to identify the concepts and underlying propositions of managements' decision making.

Decisions were classified into primary and support activities, decision type (structured, semi-structured or unstructured), and decision level (operational, tactical or strategic). The case study owner-operator predominantly made semi-structured operational decisions in primary activities. The corporate orchardist attempted to compartmentalise decision making by management level. However, this compartmentalisation was incomplete. The corporate made a significant number of unstructured and semi-structured decisions at lower management levels.

Orchardists could improve decision making by making more decisions structured. In addition, the corporate has the ability to compartmentalise decision making which may lead to further improvements in decision making. A set of hypotheses are suggested that identify critical propositions between the three concepts of decision making and alternative management structures.

Chapter One

Introduction

"We are what we repeatedly do. Excellence, then, is not an act, but a habit."

ARISTOTLE

1.1. OWNERSHIP OF AGRICULTURAL FIRMS

Traditional farm management texts view the farming firm as family oriented, owned and operated. For example, all Kadlec's (1985) farm management problems were discussed in terms of a family owned and operated pig farm. Kadlec examined alternative structures in relation to the family pig farm. The notion of incorporated companies and their associated ownership structures was ignored. Other farm management texts such as Boehlje and Eidman (1984), Buckett (1988), Harsh, Connor, and Schwab (1981), Kay (1981) and Squire and Delahunty (1982) also provide little reference to alternative ownership structures.

Two notable exceptions are Castle, Becker, and Nelson (1987) and Johnson (1990). Castle, Becker, and Nelson reviewed farm business arrangements in the United States. They noted that although the majority of United States farm businesses are operated by one individual or family, joint venture arrangements were becoming more common. Suggested joint venture arrangements include partnerships, corporations, and simpler employee, lease and operating arrangements. Johnson (1990) examined business organisation in tropical farming. He recognised that the sole proprietorship is the oldest and simplest business arrangement. However, he suggested this type of business has several disadvantages that partnerships and company farming may avoid, for example, those of limited resources and unlimited liability.

Farm management research tends to have focused on "records and accounts, production and economic thinking, linear programming, decision theory and systems simulation approaches" (Malcolm, 1990, p. 24). Issues of ownership, in particular its effects on decision making have been largely neglected to date.

Organisational structures adopted by agricultural enterprises include the sole-proprietorship, partnerships, trusts and companies (Lockhart, 1990). A sole-proprietorship is a business owned by one individual (Love, 1991). The owner legally owns the assets of the business, is taxed as an individual, and is personally liable for the business debts. Sole-proprietorship's are limited in their ability to raise capital (Castle, Becker, & Nelson, 1987). Owners gear their own resources to finance and raise capital for the operation and development of the business. Sole-proprietorship's, therefore, are the simplest ownership structure.

One claimed advantage of the sole-proprietorship is the sole responsibility for business decisions (Johnson, 1990). However, this may not strictly be correct. Owner-operated orchards often employ some level of debt capital. In such cases the lender may be involved with business decisions, particularly strategic decisions to protect their own capital. Sole-proprietorships have unlimited liability, therefore, the owner bears all losses if the business fails. The personal assets of the owner must, if necessary, be used to pay off business debts.

A partnership is a business owned by two or more people. Partnerships are governed by similar rules to sole-proprietors, additional regulation is outlined in the Partnership Act of 1908. Partnerships usually have specially prepared agreements which outline how the business is conducted. The provisions contained in the Partnership Act 1908 apply to the business if an agreement is not completed. The likelihood of disagreements increases and decision making is likely to be increasingly separated from ownership as the number of partners increases. For example, while all partners may be involved with strategic decision making, or determining the nature of the firm's business, they are unlikely to participate in day-to-day operations.

All the partners are responsible for the actions of other partners and, therefore, are personally liable for any and all the debts accrued by the partnership. Profits from the partnership are distributed among the partners and each partner is taxed as an individual (Westpac Banking Corporation, 1990). Partnerships generally have access to greater capital resources than the sole-proprietor because partners are able to pool their resources.

Partnerships in pipfruit orchards in New Zealand are, commonly, husband-and-wife partnerships (Lockhart, 1990) formed to spread tax liability over two persons (to take advantage of New Zealand's progressive tax regime). In such cases one partner may have a greater influence on orchard decision making, similar to a sole-proprietor.

Special Partnerships are another form of partnership found in agriculture. These were particularly common in kiwifruit developments in the early 1980's (Eglinton, 1984). Regulations governing the operation of Special Partnerships are outlined in Part II of the Partnership Act of 1908. Special Partnerships consist of general partners and special partners. General partners are managing partners with unlimited liability, whereas special partners liability is limited to the amount of their capital contribution (Partnership Act, 1908).

Trusts may be established by any one person during their life (a settlor) or under the terms of their will (a testor). Essentially a trust obligates a person (trustee) to administer and manage a particular property for the benefit of beneficiaries (McRae, 1990). The manner in which the trustee may operate is set out in the trust deed established by the founder. A trust deed may allow the trustee wide discretionary powers or may dictate exactly how the capital is used and income distributed. Trusts in orcharding are less common than sole-proprietors and partnerships (Lockhart, 1990). However, they do offer an alternative ownership structure for orchardists to utilise.

The Companies Act 1993 is the principal legislation dealing with the formation and operation of New Zealand companies. This Act took effect on the 1st of July 1994, superseding the Companies Act of 1955. The legislation provides for *unlimited companies* (no limit to the liability of members) and *companies limited by guarantee* (members' liability is limited to a predetermined amount). The majority of companies in New Zealand are *companies limited by share*, in which the owners (shareholders) are liable for company debts to the level of any unpaid share capital (Beck & Borrowdale, 1990).

The most significant difference between companies and sole proprietorships, or partnerships, is that a company is a legal entity in its own right. A company is distinct from those who own it; ownership often in the form of shares. In the sole proprietorship or partnership the owners and the firm are one and are personally responsible for the actions of the organisation. Whereas in a company, the owners and the company are separate legal entities and not liable for each other's obligations. The company is taxed as a separate entity. Tax-paid profits are then distributed to shareholders (dividends). Dividends are again taxable in the hands of the shareholders, although credits can be attached which recognise that tax has already been paid by the company (Westpac Banking Corporation, 1990).

Partnerships, trusts and companies are investment vehicles that can facilitate the separation of ownership and management. However, not all companies separate ownership from management thereby encouraging the use of specialised management. Companies vary from the small farming company with few, commonly family, shareholders to companies listed on the Stock Exchange with several thousand shareholders. The separation of ownership and management is more likely to occur in larger companies (corporates).

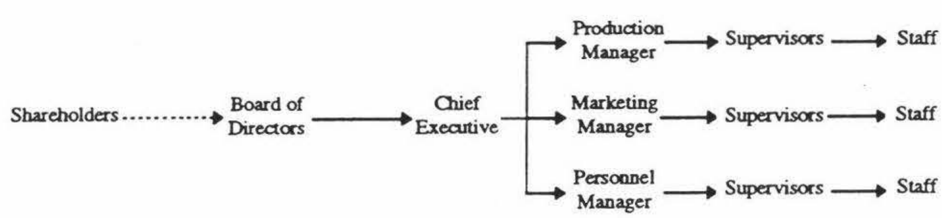
Company members elect directors who formulate policy and monitor the performance of the company on behalf of the shareholders. The directors appoint officers and management personnel that are responsible for operations. In turn, management may delegate specific decision making roles to lower management allowing greater specialisation when making decisions. Trotman (1994) suggests that...

> the corporate form encourages management by specialists who need not be shareholders. Specialist management is critical in the efficient use of large

> amounts of capital and fosters widespread investment in commercial activity. It frees the investor from the burdens of management. Specialists could also manage a partnership business but the partnership form does not encourage this because each partner is individually liable for the actions of management. (p. 6,203)

Corporate structures appear to have the critical mass necessary, in terms of capital and personnel, to employ specialist management 'in search of excellence' (Peters & Waterman, 1981). The employment of specialist management commonly results in a hierarchical structure (as displayed in Figure 1.1). However, horizontal structures also exist and are being postulated to further improve management's performance (Kaplan & Murdock, 1991; Ostroff & Smith, 1992). Figure 1.1 represents a typical specialist management structure, from shareholders to staff, where supervisors are employed to carry out production, marketing and personnel operations independently.

Figure 1.1. A generic example of a corporate structure.



Source: Adapted from Boxall & Green (1994).

In a publicly listed company ownership may not always be fully separated from management. Owners may be involved in strategic decision making and policy setting. Directors of publicly listed companies often own significant shareholding's in their companies. The level of director's ownership, for example, in three New Zealand corporations with land-based interests Apple Fields, Eastern Equities, and Grocorp in presented in Table 1.1.

Table 1.1. Annual levels of directors' ownership in Apple Fields, Grocorp, and Eastern Equities (publicly listed land-based corporations).

	Level of directors (and associated persons) ownership		
Year	Apple Fields	Eastern Equities	Grocorp[1]
1989	63.7%	56.5%	0.4%
1990	48.5%	52.4%	0.2%
1991	51.1%	54.9%	0.2%
1992	41.1%	41.0%	0.2%
1993	41.1%	26.1%	0.4%
1994	37.4%	21.0%	0.6%

Note: 1. Grocorp is largely owned by two companies who both have representatives on the board. (The shareholding of these companies is discussed in Section 1.2).

1.2. INVESTMENT IN AGRICULTURAL FIRMS

During the mid-1980's the New Zealand sharemarket expanded at an extraordinary rate. Investment opportunities increased for several reasons, predominantly fuelled by the Labour Government's deregulation of financial markets. The Labour Government, elected in July 1984, discontinued prevailing interventionist policies with the desire to increase efficiency and competition in financial markets (Parker, 1987).

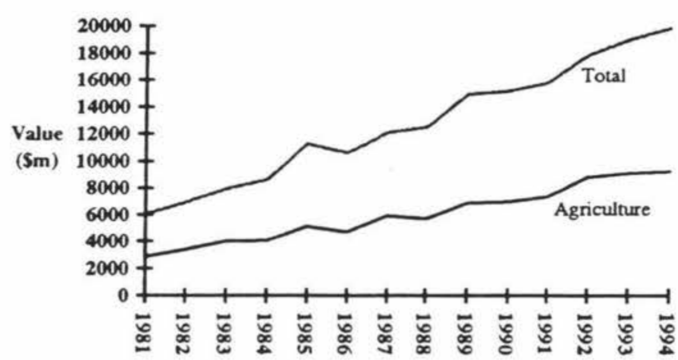
The performance of the New Zealand sharemarket is closely linked to the performance of several foreign share markets. In particular, movements in the NZSE 40[1] often correspond with fluctuations in the Dow Jones Industrial Index (New York), the FTSE-100 (London) and the Nikkei Average (Tokyo). In the mid-1980's various foreign governments were also in the process of privatising state enterprises (Cowley, 1990). Shares in privatised enterprises were issued to the public and subsequently floated on the share market, often at prices above subscription (Bose, 1988). This investment in foreign share markets further fuelled investment in the New Zealand share market.

[1] The NZSE 40 is an index based on the market capitalisation of the top 40 listed companies in New Zealand.

National reforms and privatisation led to an abundance of opportunities for both small and large investors. Banks and financiers were described as "throwing credit at their customers instead of dispensing it with lordy caution" (Parker, 1987, p.2). Several agricultural companies were among the investment opportunities offered to the public.

Agriculture (including horticulture) has an important place in the New Zealand economy due to its significant contribution to overseas trade (Johnson, 1992b). Exports of agricultural produce and total merchandise from New Zealand for the period 1986 to 1994 are shown in Figure 1.2.

Figure 1.2. Exports of agricultural produce and total merchandise from New Zealand for the period 1986 to 1994 (June year).



Source: Department of Statistics (1992, 1990, 1988, 1984); Statistics New Zealand (1994).

With the ease of securing capital, the public sought investment opportunities in New Zealand's land-based industries. Unfortunately, world prices for traditional agricultural commodities including sheepmeat, wool, and beef fell during the early 1980's (Manson & Mitchell, 1987). Falling world prices normally leads to reduced farm incomes. At the time, however, interventionist government policies subsidised farm income in New Zealand (Johnson, 1992a). These subsidies ensured farmers maintained a higher standard of living, albeit artificial, than if returns were dictated by market forces. Companies' production forecasts were often *over-enthusiastic* and expected prices appeared to embrace the continuance of subsidised returns. Therefore, investment was attracted to a sector that was not performing satisfactorily.

As subsidies were gradually reduced, beginning in 1984 and continuing through to 1989 (Sandrey & Reynolds, 1990), agricultural companies received returns substantially lower than those forecast in many company prospectuses. The failure to achieve expected returns was initially masked by the devaluation of the New Zealand dollar in 1984, which immediately increased export earnings. As a result of reduced returns, and the massive fall in share value that occurred with the global share market crash in October 1987, several agricultural companies were liquidated and their assets sold. A selected list of public companies with agricultural interests floated between 1984 and 1987, and their current status, is presented in Table 1.2 (listed in alphabetical order).

Table 1.2. Selected public companies with agricultural interests floated between 1984 and 1987, and their status in 1995.

Company	Year floated	Initial interests	Status in 1995
Agland	1987	Pastoral farming	still trading
Agricola	1986	Kiwifruit / Goats	delisted 1991
Apple Fields	1987	Apples	still trading
Cashmere Pacific	1986	Goats	delisted 1988
Eastern Equities	1985	Deer	still trading
Grocorp Pacific	1984	Horticulture	still trading
Producorp	1987	Horticulture	delisted 1990

Public companies with interests in orcharding currently include Apple Fields Limited, Eastern Equities Corporation Limited and Grocorp Pacific Limited. The important attributes of each of these three companies, in alphabetical order, are now discussed.

1.2.1. Apple Fields Limited

Apple Fields Limited is a Canterbury based corporation with interests primarily in dairy farming and apple orcharding. The company was listed on the stock exchange in 1987, 130 hectares was then purchased to be developed into apple orchards. Apple Fields Limited has since diversified into dairy farming - becoming New Zealand's largest dairy farmer - and by 1995 increased their total orchard area to 524 hectares. In 1994 Apple

Fields Limited supplied 575,000 export tray carton equivalent[2] (tce) to become the largest single supplier of export apples to ENZA New Zealand (International) Ltd (Apple Fields Limited, 1994).

At their last balance date, 30th September 1994, Apple Fields Limited owned assets valued at $134.8 million, up from $109.5 million in 1993 (Apple Fields Limited, 1994). Shareholders' funds were $70.2 million compared to $56.6 million in 1993 and, as a percentage of total assets, increased from 51.7% to 52.1%. Asset backing per share is now $2.40 compared to $2.13 in 1993. Apple Fields Limited is owned by 1,298 shareholders of whom the majority are New Zealand residents.

The company reported an operating loss after tax of $489,000 in 1994. This was reduced from a loss of $3,792,000 in 1993 and operating profit (loss) could be expected to increase as their orchards reach full production. In addition, Apple Fields forecast an improvement in world apple prices leading to a profit in the apple division (Apple Fields Limited, 1993).

1.2.2. Eastern Equities Corporation Limited

Eastern Equities Corporation Limited is a diversified corporation based in Hawkes Bay. The company was floated in 1985 as Eastern Deer Corporation Limited. Established primarily as a premium deer breeding operation, the company diversified into pipfruit in 1987. After a trial planting in Central Hawkes Bay the company planted 125 hectares of apples in 1988. A further 22 hectares was purchased in 1991 with the option to purchase an adjacent warehouse to develop a packhouse. In 1992, a separate division of Eastern Equities Corporation Limited was created; Eastern Equities Corporation Horticulture Limited (EEC Hort). In the same year EEC Hort began development of their packhouse which was used for the first time in 1993. In October 1992 the horticultural division purchased Limnos Investments Limited, a subsidiary of Brierley Investments Limited. This acquisition consisted of a coolstore, and seven

[2] A tray carton equivalent (tce) is equal to one bushel, or approximately 20 kg of fruit.

orchards with total area of 221 hectares including 199 hectares planted in apples. EEC Hort now own twelve orchards with 351 hectares planted in apples, a packhouse and a coolstore complex.

At their last balance date, 31st August 1994, Eastern Equities Corporation Limited owned assets valued at $58.5 million, up from $55.4 million in 1993 (Eastern Equities Corporation Limited, 1994). Shareholders' funds were $31.1 million compared to $30.2 million in 1993 and as a percentage of total assets decreased from 54.2% to 53.2%. Asset backing per share is now $0.92 compared to $0.89 in 1993. Eastern Equities Corporation Limited is owned by 2,528 shareholders of whom the majority are New Zealand residents.

The company reported a pre-tax profit of $5.379 million in 1994 up from $3.612 million in 1993. The total apple crop decreased slightly with 966,135 bushels produced in 1993 compared to 971,000 in 1993. The export packout of 495,168 cartons represents 51.3% of total production and is 17% higher than that achieved in 1993.

1.2.3. Grocorp Pacific Limited

Grocorp Pacific Limited was floated as a public company in 1984. Established in Hawkes Bay as a large scale stonefruit producer, Grocorp Pacific Limited has since diversified into apple production. Thornton Station, purchased in 1984, was the first orchard development with 58 hectares of apples planted in 1986. Expansion continued in 1987 with the purchase of Tikokino and Te Papa orchards which were both planted in apples. More recent acquisitions include Kinross and Ngapuka orchards. The area planted in apples is currently 272 hectares.

At their last balance date, 30th September 1994, Grocorp Pacific Limited owned assets valued at $28.8 million, down from $29.8 million in 1993 (Grocorp Pacific Limited, 1994). Shareholders' funds were $17.5 million compared to $16.6 million in 1993 and as a percentage of total assets increased from 55.7% to 60.8%. Asset backing per share is now $0.33 compared to $0.31 in 1993. Grocorp Pacific Limited is owned by

1,265 share holders with 87% of the shares owned by overseas residents. Grocorp Pacific Limited has two major shareholders, one owning 49.99%, and one owning 36.66%. Both major shareholders are companies which have representatives on the Board of Directors.

The company posted a profit of $1.747 million after tax and minority interests in 1994, compared with a $1.595 million loss the previous year. The reversal was partly the result of higher returns from apple operations due to increased prices overseas and a better apple growing season. Grocorp Pacific Limited reports a commitment to diversifying income streams to invest in crops and product lines over which the company has greater marketing control (Grocorp Pacific Limited, 1993). Significant statistics for each of Apple Fields, Grocorp, Eastern Equities and the MAF Model Orchard[3] are presented in Table 1.3.

Table 1.3. Significant statistics for each of Apple Fields, Eastern Equities, Grocorp and the MAF Model Orchard.

1994	Apple Fields	Eastern Equities	Grocorp	MAF Model
Directors' ownership	37.4%	21.0%	0.6%	100%
Total Assets	$134,768,000	$58,539,000	$28,765,000	$498,200[1]
Capital invested in pipfruit	51.4%	41.9%	-	100%
Area	524 ha	351 ha	272 ha	10.6 ha
Total production	1,400,000 tce	966,135 tce	386,200 tce	24,500 tce
Segment Profit/(loss)[2]	($0.388 m)	$0.763 m	-	$93,000

Source: Apple Fields Limited (1994); David Buys (personal communication, January 27th, 1995); Eastern Equities Corporation Limited (1994); Grocorp Pacific Limited (1994); Carmen Hoy (personal communication, January 25th, 1995); Ministry of Agriculture and Fisheries (1994a).

Notes: 1. This is an estimated orchard value based on $47,000 ha.

2. This is an operating surplus/(deficit) before tax, interest, depreciation, drawings and development.

[3] The MAF model orchard is 10.6 ha, based on data weighted from orchards in Hawkes Bay (54%), Nelson (34%), and Canterbury (12%). The model is indicative of a *typical* owner-operated orchard.

1.3. COMPARISON OF CORPORATE AND OWNER-OPERATED ORCHARDS

Management is responsible for strategic, tactical and operational decision making (Boehlje & Eidman, 1984). On an owner-operated orchard, all levels of decision making are undertaken by the owner. Decision makers, however, are limited by the amount of information that they can process at any one time (Simon, 1978). Consequently, as orchard size increases it becomes increasingly difficult to operate the business in the mode of an owner-operator. Therefore, a specialised management structure may be required to overcome these limitations.

As firm size increases, further hierarchical levels of management are required (Hodge & Anthony, 1991). Strategic decision making is then separated from operational decision making. Williamson (1967) suggested that "the larger and more authoritarian the organisation, the better the chance that top decision makers will be operating in purely imaginary worlds" (p. 123). He implied that managerial inefficiency may partly be related to the size or complexity of the organisational structure. The likelihood of operating in Williamson's *imaginary worlds* will be reduced through streamlining the management hierarchy and efficient communication of decisions between hierarchical levels.

Export pipfruit has traditionally been grown by owner-operated orchardists in New Zealand. From a survey of Hawkes Bay orchardists Lockhart (1990) reported that 59% were operated as partnerships, mostly between married couples, and 18% were sole traders. Therefore, nearly four-fifths of the survey orchards were owned and operated in the traditional manner.

Owner-operator orchards are significantly smaller than corporate orchards. The average New Zealand orchard is 8.7 hectares (Statistics New Zealand, 1993). An orchard of this size is most likely to be managed as an owner-operator orchard where the owner is responsible for all decision making. Corporate pipfruit orchards are significantly larger, the average size of the three corporates' (Apple Fields Limited, Grocorp Pacific Limited and Eastern Equities Corporation Limited) orchard holdings is 382 hectares.

The corporate orchardist may compartmentalise levels of decision making. For example, in a corporate, the board of directors may be involved with policy setting and strategic decisions, whereas operational managers will make day-to-day decisions (Hodge & Anthony, 1991). Successful compartmentalisation *may* lead to efficient decision making as each person within the firm's structure performs fewer tasks, supposedly at a higher level of proficiency.

The three public companies, introduced in Section 1.2; Apple Fields Limited, Grocorp Pacific Limited and Eastern Equities Corporation Limited endured the same difficult economic and physical conditions experienced by other public companies with agricultural interests in New Zealand. However, they have all subsequently posted profits and continue to operate in an encouraging economic climate. The success of these companies may, in part, be due to successful management structures and decision making.

To date, farm management research has prescribed a normative model of decision making, largely for owner-operated enterprises (Boehlje & Eidman, 1984). However, it is unclear whether the model described for the owner-operator is appropriate for the corporate structure, where decision making is compartmentalised. Further, the extent to which normative models describe actual decision making in farm management remains largely unknown. Mintzberg (1988) suggests that there is often a difference between behavioural (descriptive) models of decision making, based on actual decision making and normative models, based on how decision making ought to be. Farm management research has largely ignored behavioural models of decision making. To further farm management research, teaching, and extension it is necessary to understand decision making within the specialised management structure of land-based corporates.

1.4. RESEARCH OBJECTIVES

This study is part of a larger research programme initiated by a group at Massey University (Gray, Lockhart and Todd) investigating decision making in agricultural enterprises. These researchers have recently published results of an investigation into drying-off decisions on seasonal supply dairy farms (see Todd, Gray, Lockhart, and Parker, 1993).

This study of orchardists' decision making was conducted in conjunction with another Masters student in the Department of Agricultural and Horticultural Systems Management at Massey University. That study, investigating information used in orchardists' decision making (Hall, 1995), was also part of the same research programme investigating decision making. The data collection for this study (discussed in Section 4.3) was conducted alongside Hall's study.

The aim of the research is to identify and describe decisions made by orchard management and discuss how decision making changes among the hierarchy of a corporate's management structure. The research compares a corporate's decision-making with that of an owner-operator. Managements' decision-making is then compared, and contrasted to the theoretical views expressed in the farm management, strategic management, and decision making literature.

The specific research objectives are:

1. To examine the relationship between the principles of decision making in farm management, and business management.

2. To identify and describe decision making within corporate, and owner-operated farm businesses.

3. To compare and contrast decision making within corporate, and owner-operated farm businesses.

4. To compare and contrast corporate, and owner-operator decision making with the literature.

1.5. OUTLINE OF THE STUDY

This chapter has provided an overview of the ownership structures commonly used in agriculture in New Zealand. The justifications for the study and the research objectives were then outlined. Chapter Two provides a brief overview of the philosophy of science and the methodology adopted in this study. A framework for describing the research method is then discussed. A review of farm management and decision making is presented in Chapter Three. Recent farm and business management literature is discussed with particular reference to management activities, decision types, decision levels and the decision making process. A description of the case study research procedure adopted for this study is introduced and discussed in Chapter Four. The case study descriptions for each case study are then presented in Chapter Five. Results are presented and discussed in Chapter Six. The chapter includes comparisons between the two case studies and the extant literature. The study's conclusions are then presented in Chapter Seven.