



Financial Performance of Australian Broadacre Agriculture

A report for the
Rural Adjustment Review Committee
by
Australasian Agribusiness Services Pty Ltd

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“Financial Performance of Australian Broadacre Agriculture”

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Foreword

In 1994, the Rural Industries Research and Development Corporation (RIRDC) commissioned a report titled *Benchmarking Financial Performance of Australian Broadacre Agriculture*. The report was prepared by Australasian Agribusiness Services Pty Ltd.

A review of the Rural Adjustment Scheme (RAS) was announced in September 1996 by the Federal Government and, as one of the inputs into the review, Australasian Agribusiness Services and RIRDC were asked whether the data from the 1994 report could be updated and broadened to include the dairy industry.

This update was commissioned and funded by RIRDC, the Australian Bankers Association and the Department of Primary Industries and Energy.

RIRDC is now publishing this updated report from Australasian Agribusiness Services Pty Ltd as a background paper to the RAS review and the Government's response to it.

Peter Core

Managing Director

Rural Industries Research and Development Corporation

EXECUTIVE SUMMARY

INTRODUCTORY COMMENTS

How do we develop and maintain Australian agriculture as a vibrant and sustainable industry? Those involved in agriculture, whether farmers, industry leaders, policy makers or consultants all have their own ideas on how to achieve this goal.

Some of these ideas represent little more than wishful thinking; others are founded on genuinely pragmatic assessments of the needs of agriculture. But none of these ideas, however creative, are likely to mature and develop without a commitment to change from the industry itself and without a continued commitment of resources to solving the industry's many problems.

The agricultural community and its stakeholders are undeniably passionate about their sector, and any change must be driven from within.

This analysis provides a starting point from which to examine and develop innovative ideas on how to overcome capital and equity problems in agriculture. The Federal Minister for Primary Industries and Energy and his agencies are encouraged to support and promote further debate in this area and to use this report as a basis from which to develop creative solutions for the problems of financing Australian agriculture.

KEY FINDINGS

The analysis of the financial performance of broadacre¹ agriculture in Australia, as reported in this document, has yielded the following industry characteristics:

1. The aggregated broadacre agricultural industry has not improved its financial performance. Over the past three years, the smallest 50 percent of farms (or Group 1 farmers) by revenue have become worse off in terms of returns on investment, while the largest farms have improved their performance.
2. The poor financial performance of the smallest 50 percent of farms (by revenue) drags down the sector's average returns, therefore giving the impression that the returns for the sector are unattractive.
3. Substantial economies of scale exist in the capital utilisation within broadacre agriculture. On the other hand, all groups with the exception of Group 1, have parity in operating efficiencies. Hence capital utilisation strongly affects the profitability of broadacre agriculture.
4. The best performers offer attractive returns on investment when compared with alternative investment options. These returns are comparable on the risk-return profile. The low correlation can also offer opportunities to diversify portfolios.
5. Farming's cash economy, tax incentives, welfare programs, insufficient alternative skills and lifestyle factors provide incentives for poor performing farmers to continue in the industry. Welfare programs only help perpetuate rather than

¹ Includes all broadacre livestock & cropping and the dairy industry.

alleviate the pain of farmers. The valuation of farm properties on the basis of market value and historical cost, as well as high exit costs in terms of capital equipment write-downs, prevent optimal decision making and the efficient use of resources.

6. Middle level performers are unable to access equity from capital markets to fund growth to improve profitability. Without access to equity or debt to fund expansion, they are unable to generate profitable expansion strategies.
7. There are many impediments to the capital markets investing equity in broadacre agriculture. These obstacles include the culture and attitudes of both farmers and investors, the lack of information in the markets about the performance of agriculture, lack of transparency between management and ownership and the illiquidity of investments.

KEY CONCLUSIONS

The failure of economic processes and inadequate structural adjustment in the agricultural industry is largely responsible for the industry's sustained weak performance.

The industry is plagued with false optimism that its woes will soon be over. Changes to GATT agreements, the development of East Asia's markets and improved infrastructure are some of the factors on which the industry has pinned its hopes.

Our analysis demonstrates, however, that these measures will be inadequate to generate positive returns for Group 1 farmers. The cost and valuation aspects of farming must be considered if the industry is to become profitable and world competitive. The need to improve farm productivity to reduce costs is overemphasised within the industry. This report clearly demonstrates that it is capital productivity and valuation that are more important.

Because the necessary measures to achieve financial efficiency in the industry could be regarded as drastic in terms of their social impact and could impinge on individual liberties, the authors believe that the government can only play a limited role. It is up to the industry's leaders and the farming community to develop and take ownership of a vision for agriculture and to make it a profitable and competitive industry.

KEY RECOMMENDATIONS

We recommend the following measures to the government to facilitate and encourage structural adjustment in the industry :

Develop A Bold Vision For Australian Agriculture

Industry leaders, in consultation with the government, the farming community and the public at large needs to develop a vision for the industry in the 21st century. Industry leaders and the farming community must 'own' the vision in order to create positive results.

Education Programs

Education plays an important role in the farmer's decision making. In the past, many farmers have made ill-judged decisions based on inadequate assessments of their situation. Today's farming education places a great deal of stress on

improving productivity by improving farm technology, farming techniques and risk management in farm activities.

The authors believe, however, that farm education must be restructured to cover a broader set of skills. A farm is a business and farmers need to know the techniques to manage a business. They need to have a firm grasp of basic accounting and valuation principles, economics and business strategy, all of which can help them make informed decisions. These skills can also improve transparency in management and ownership of farms, which would in turn facilitate external investments.

Cultural and Attitudinal Change

Cultural and attitudinal changes among both the farming community and investment managers must be encouraged. Farmers must regard their farms as independent businesses and must be able to separate their management and

ownership functions. They need to take pride not just in their property ownership but also in their management ability.

Investors should be encouraged to develop a positive attitude about agriculture. Too much emphasis has been placed on industry analysis of the average farm performance. As a result, investors are reluctant to consider opportunities in agriculture and reject the industry outright.

Communication of Performance

Improving the quality of information about agricultural performance is vital to unbiased assessments of the industry. The public generally has a poor opinion of Australia's agricultural performance because reports about the industry are based on averages. Yet Australians continue to support welfare measures for the industry because they strongly believe agriculture is a cultural foundation stone and because there is a great affinity and nostalgia for the rural lifestyle.

Portfolio managers who are aware of the disparity in performance within agriculture are willing to invest in the industry, but are under pressure from clients who have been influenced by adverse information about industry performance.

To change public perceptions about agriculture, the broad spectrum of performance that is achievable within the industry should be publicised. Attention must be directed away from mere averages and drawn to the outstanding successes of the industry.

Encourage Aggregation and Scale Efficiencies

Farms must be encouraged to expand and benefit from economies of scale. Alternative methods of farm expansion should be attempted, including co-operative measures like syndicate farming, capital sharing and increasing farm size by buying adjacent properties.

Facilitate Adjustment & Capital Market Involvement

Government can initiate the process of creating links between the capital markets and the industry, which will improve farmers' access to equity. It can also promote a market mechanism for the valuation of agricultural assets. By creating a market for farm investments, developing securitised investment

instruments and establishing a farm credit rating system, barriers to expansion will be removed and farm assets will be able to be valued on an earnings basis.

FURTHER RESEARCH & STUDY

We recommend a further extension of this study into the following three areas:

Geographical Segmentation

The available data could be broken down geographically to help identify those regions experiencing severe problems. Focused government programs can then be implemented in those areas with the greatest needs. Analytical tools to measure the profitability of investments in certain geographical areas could also be developed to identify those farms that do not have profit potential. Segmenting the data geographically can also reduce the distortions created by using industry averages to report agricultural performance.

International Comparisons

A similar study could be conducted on agriculture in the United States or New Zealand to gain a better understanding of successful industry ownership and operational structures. Such a study would provide more insight into the policies required for structural adjustment and what could be achieved. It could potentially change our perceptions on structural adjustment in the industry.

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1.0 INTRODUCTION

Australian agriculture is in a state of transition. We are now beginning to see the emergence of a new breed of agriculturalists and agriculture experts who believe that this sector should be regarded in the same way as any other industry sector.

In the past Australia's policy makers have shown a marked reluctance to treat the agricultural sector as an industry, and have tended to ignore the rational criteria they would have used to evaluate other industries.

Agriculture played a significant role in the Australian economy in the first half of Australia's 200-year history. It has a cultural grounding in the Australian ethos and for many Australians is the subject of much nostalgic hankering.

Therefore, any discussion of economic processes in agriculture is often met by strong defiance and emotional appeals, which only serves to inhibit the development of a rational debate on the future direction of Australian agriculture. These views stand in marked contrast against those of our international competitors. Other countries with whom we compete in global markets view agriculture purely as a business proposition.

This report aims to go beyond the emotion-charged arguments and provide a rational financial framework by which to assess this sector.

The report's authors sincerely hope that this report does more than just add to the bulk of the traditional debate on agriculture, but provide the optimistic perspective that it deserves.

1.1 BACKGROUND

This document is the update of a report produced in November 1994. The following chapter provides some background to the report and its purpose. The methodology adopted is briefly discussed and some definitions and references used throughout the report are explained. To maintain the original 1994 report's continuity, amendments to structure and content are also explained. We consider sections of Chapter 2 in the original report as an important reference for this update. Therefore, a condensed version is provided at the end of the chapter.

With the ministerial review of the Rural Adjustment Scheme under way, this update re-examines the report's earlier assumptions using 1996 data from the Australian Bureau of Agricultural and Resource Economics (ABARE). The report's authors have also taken the opportunity to consider a number of other policy initiatives that would have a wide ranging impact on the sector.

The 1994 report, *Benchmarking The Financial Performance of Broadacre Agriculture*², was grounded on the premise that significant economies of scale could be gained by increasing the size of farms. Consistently poor financial performance was identified as the major impediment for farmers' ability to increase farm size to capture the benefits of scale. If agriculture is to be efficient it must continue to improve its economies of scale.

² AAS Pty Ltd November 1994

When the financial sector was deregulated, it was hoped that appropriate and adequate debt instruments would be made available to finance the agricultural sector. While there has been some improvement in this regard, the sector remains wedded to the belief that debt can solve all of the sector's financial problems. The role of equity is scarcely given any due consideration.

The viability of any business venture or project is assessed on the basis of its Weighted Average Cost of Capital (WACC). Agriculture is no different and there is a strong need for improved attention to the issues surrounding the use, availability and costs of equity in this sector. This report commences this process.

1.2 OBJECTIVES OF THE STUDY

The report's specific objectives are:

- To evaluate the financial and operational characteristics of agriculture;
- To investigate the attractiveness of investing in agriculture;
- To identify the impediments to capital flow into agriculture;
- To assess the need for structural adjustment in agriculture and the processes required to achieve it.

While the report deals with the above mentioned objectives, it also discusses a number of other related issues considered useful. The following hypotheses were tested during the course of the study:

- Agriculture is significant for Australia now and in the future.
- Structural adjustment in agriculture is vital.
- There are economies of scale to be had in agriculture.
- Agriculture is an attractive investment proposition.
- Funds in the form of equity are unavailable to agriculture due to a number of factors.
- Opportunities can be created to improve capital flow into agriculture.

1.3 METHODOLOGY

The study's methodology involved the following tasks:

- Collection and collation of data
- Analysis, comparison and interpretation
- Review and discussion

A detailed discussion of the first two tasks were incorporated in the 1994 document and have also been included in the appendix of this report.

Only broadacre farms with an Estimated Value of Agricultural Operations (EVAO)³ of over \$22,500 are included in the survey, as only these are considered economically viable units of production. This limitation, however, has lead to the following drawbacks in trend analysis:

- ¥ With fluctuating commodity prices, farm revenues can vary from year to year. Hence the inclusion of a farm in the scope of the survey is dependent on

³ EVAO is the sum of derived values for all crop and livestock activities for each establishment.

commodity prices. It is not possible to accurately estimate from the data if the actual population of farms has changed over a given period.

- ¥ The inclusion of a farm in a sector is also dependent on the farm satisfying the eligibility criteria of each sector. Hence, the farm that is initially included in the beef sector may in the following year be accounted for in the beef-sheep sector because its eligibility has changed.

The data, however, can be used to account for the performance and capital employed by the average farm in each group.

Scant information is available on the operations of the corporate agricultural sector because financial institutions and investors are hesitant to release relevant data. The operations of the Australian Agriculture Company are used for comparison as their results were in the public domain until the end of 1994.

To examine the investment attractiveness of agriculture, the sector's performance was measured against the performance of the Australian stock market, overseas stock markets, risk-free fixed interest government securities, short-term bills and notes and property.

1.3.1 ANALYSIS, COMPARISON AND INTERPRETATION

The data was arranged to reveal the performance and financial characteristics of each investment alternative. Consistency was maintained to make the data comparable. Standard practices used by the financial markets were used to analyse the investment attractiveness of the agriculture sector. The peculiarities were examined and interpreted. The report's authors developed some performance criteria for agriculture, based on a number of assumptions, to allow comparisons to be made. However, care was taken to prevent those assumptions from contaminating the interpretation of results.

1.3.2 REVIEW AND DISCUSSION

While data interpretation relies on facts, some subjectivity is involved in developing a model and making predictions. The process of making a realistic case requires numerous issues, circumstances and historical references to be incorporated. Extensive discussions with industry experts and in-depth research are also conducted. The information gathered is assimilated and interpreted to make a coherent argument based on contemporary economic, financial and strategic thought.

1.4 DEFINITIONS AND REFERENCES

The appendices contain a comprehensive list of definitions and the terminology used in the report. To be consistent with the report's premise that agriculture is just another industry, the authors have endeavoured to use terms that are understood by the layman and are common in other industries. A list of references is included for those who require a more detailed understanding of the report's concepts.

1.5 AMENDMENTS FROM PREVIOUS REPORT

For the sake of continuity, the following section provides the link between this report and the original published in 1994. While the report has a similar structure, a considerable portion has been developed since then.

1.5.1 CHAPTER ONE AND TWO

It was not considered worthwhile to restate these chapters from the previous report in their entirety. Hence, Chapter One summarises the important aspects of the first two chapters in the 1994 report. The appendix includes explanations in some detail of the 1994 report.

Chapter Two of this report is entirely new and has been developed specifically to understand the policy implications of the study. It assesses the requirements and impact of the Rural Adjustment Scheme on Australian agriculture and examines the various viewpoints in the agriculture debate. Effort has been made not only to provide an understanding of the existing issues but also to assess strategic implications. It is hoped that this provides a valuable direction for agriculture and the policies governing the industry.

1.5.2 CHAPTER THREE AND FOUR

Chapter Three has been reconstructed with recent 10-year data starting from 1987 to 1996. Apart from updating the data contained in Chapter Three, a section has been added to depict the trends that have occurred since the publication of our 1994 report. The data on the dairy industry provides a more comprehensive coverage of agriculture.

Chapter Four includes the update stated above. A section also assesses the ownership structure of Australian agriculture.

1.5.3 CHAPTER FIVE AND SIX

The introduction to investment management provided in the 1994 report has been summarised in section 5.1. While most readers will be familiar with these concepts, they can be found in any basic finance textbook. A model of an efficient portfolio of agricultural investments has been added to clarify how agriculture can be used to diversify an investment portfolio. This model is hypothetical and is used only as an illustration.

While the implications of Chapter Six remain unchanged, the message has been conveyed through more traditional financial concepts to enable business practitioners to grasp the message in more familiar terms.

1.5.4 CHAPTER SEVEN AND EIGHT

While Chapter Seven does not contain any significant changes, some aspects of modern economic theory has been introduced to define the ideas. In Chapter Eight, some new ideas to speed the adjustment process in the industry are explored. It is hoped that policy makers, investors, fund managers, farm operators and industry leaders can use these ideas to create a vibrant agricultural industry in Australia.

1.6 AGRICULTURE, BUSINESS AND FINANCE - REVISITING CHAPTER TWO

Chapter Two from the 1994 report has been summarised in this section to allow the reader to under the report's background. For the complete script please refer to the earlier version of the report.

1.6.1 FINANCING THE BUSINESS OF BROADACRE FARMING

ABARE⁴ estimates that 99.6 percent of Australian broadacre farm enterprises can be classified as family businesses⁵. In addition to providing a means of generating a family income, the farm provides the family with a household and a lifestyle. Because of the family structure of farm units, farmers often do not differentiate between the farm's expenses and income and those of the household. This failure can lead to sub-optimal decision making for the business and to financial inefficiencies.

⁴ ABARE: Farm Surveys Report 1996

⁵ ABARE defines a family farm as "Farms with 48 weeks or more of family input".

While a small proprietorship in another sector may be run along similar lines, legislative provisions and stakeholder attitudes forces the owner to recognise the activity as an independent business unit. Broadacre enterprises are predominantly small to medium-sized business enterprises (SME) and must compete as such in the major markets for capital and finance in various forms.

A business is financed through equity or debt or a mezzanine combination of the two. The two forms of finance are compared in the table below.

Table 1.1

	Equity	Debt
1. Form of Returns	Dividend and capital gains	Interest
2. Returns	No commitment of timing or size	Contractual repayment obligation
3. Claims	Residual claim on income	Claim on income ranking ahead of equity investors
1. Bankruptcy provisions	Potential to lose all capital	Lenders and creditors have first claim on assets
2. Control	Control over activities	Indirect control mostly exercised in times of non performance
4. Basis of control	In large corporations control through the exercise of voting rights, trading of shares on the market and the threat of takeover. In small firms through direct participation in management.	The need to meet interest payments and the threat of seizure of assets in case of default places a degree of control.

A range of capital alternatives exist between debt and equity that have the characteristics of both. These include redeemable preference shares, subordinated debt, debt with equity conversion rights and perpetual debt.

The required rate of return for debt and equity is determined primarily by the accompanying risk of the investment. The risk of the investment includes the business risk of the assets and the financing risk. With a higher level of debt, the financing risk increases as the probability of default increases. There is an optimal level of debt and equity for a business determined by the riskiness of the business, among other factors. This debt/equity ratio gives the optimal cost of capital for the business, also called the weighted average cost of capital (WACC). To be a worthwhile investment the venture must generate returns which are at least equal to the WACC. The choice about the level of debt and equity in a business is determined by the WACC and the desired level of control over the business.

The Australian agricultural sector is predominantly financed by owner/operators using private capital and retained earnings. Additional finance to fund above normal farm activity is sought for the following reasons:

- ¥ farm growth
- ¥ farm restructuring
- ¥ emergency or carry-on finance for operational, seasonal or speculative requirements

A theme developed throughout this paper is that there is an imperative for agriculture to access the benefits available from improving the economies of scale of operation. Empirical evidence⁶ suggests that Australian farms are most capital efficient when they are large. This is due largely to the elimination of duplicate fixed and capital assets that characterises the small holdings.

⁶ See Chapter 3.

The growth of a farm enterprise may be due to the following reasons:

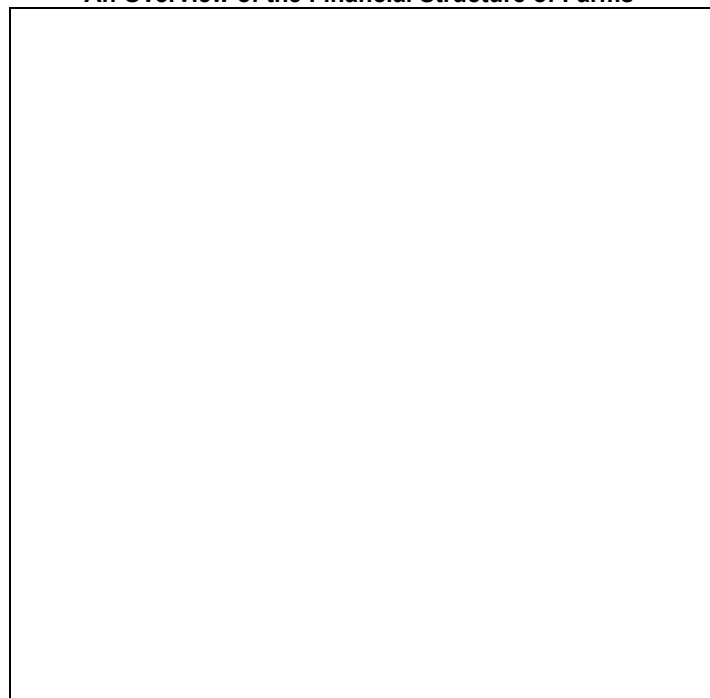
- ¥ the need for additional land
- ¥ more intensive use of existing land
- ¥ adoption of technology
- ¥ diversification into new enterprises

The components of investment in agriculture are land, building and furnishings, plant and equipment and livestock. The returns on the investment are in the form of farm income, capital gains. Agriculture is like property, where capital gains can play a substantial role in determining profitability. However, unlike any other industry, a substantial proportion of smaller farms are dependent on off-farm income for survival. In general, land values have been rising over time, reflecting fundamental inflationary trends in the community as well as the particular returns achievable in the industry.

1.6.2 FINANCIAL STRUCTURE OF THE FARM ENTERPRISE

While the owner of an agricultural enterprise has the same fundamental financing choices as other businesses, there are some constraints. These constraints are detailed in Chapter 2. An overview of the financial structure of farms is illustrated below.

Diagram 1.1
An Overview of the Financial Structure of Farms⁷



Source: Powell & Milham

Sustainable agricultural enterprises have traditionally had high equity ratios. ABARE estimated that in 1996⁸, the average owner equity was 87 percent across all broadacre industries[□]. The reasons for this high equity ratio include:

- ¥ the high levels of risk in farming
- ¥ the volatility of farm income

⁷ R. Powell. & N. Milham, 'Capital, Investment & Finance in Agriculture in the Australian Economy' - editor D.B. Williams

⁸ ABARE Farm Surveys Report, 1996

¥ inability to consistently meet loan-servicing costs

¥ overvaluation of assets⁹

Because of low margins and high income volatility, broadacre agriculture is unable to sustain debt-to-equity ratios and meet regular payments at levels similar to other key non-agricultural industry sectors. The performance ratios examined later in this review identify that the underlying profitability of most farms is so low that they cannot afford to take on even comparatively low levels of debt. The bigger the enterprise, the more debt it can service, and therefore the lower the equity required to achieve control over greater productive assets. High equity levels in a pastoral enterprise generally represents a more sustainable form of financing primary production assets.

Agriculture, like small business enterprises in other sectors, has difficulty accessing equity markets. A number of arrangements have been developed to help overcome this problem but they are not widely used.

Traditionally, the most accessible form of finance for farm businesses, as for many other small businesses, has been debt. Banks, credit Co-ops, pastoral houses and other lending institutions make debt finance available quite readily to farms because of their asset rich nature and high equity levels.

There has been quite a dramatic rise in the real level of rural indebtedness from the late 1970s to the mid-1990s, from \$9.3 billion in 1977-78 to \$15.1 billion in 1992-93 (real) ¹⁰. The proportion of this increase attributable to new borrowings for expansion versus that capitalised from unserviceable interest expense on pre-existing debts is unclear. Altogether, there has been an increase of almost 50 percent in the size of rural lending.

A significant financial hurdle exists for the small and medium sized farm business endeavouring to achieve business growth and access improved efficiencies of scale through expansion. The unattractive investment returns in the medium sized farms (and below), limits the availability of non-debt based finance from professional investors and fund managers. Debt finance is readily available given conservative gearing ratios but is not well suited to funding growth in this sector. We term this the 'growth conundrum'.

1.6.3 FINANCIAL RISK AND FARMING

Australian agriculture is inherently risky because of such factors as climatic variability, high dependence on world commodity markets, external economic factors influencing demand, cost of funds, availability of labour and rates of inflation.

Risks in agriculture stem primarily from those unpredictable components of the farm and business operating environments. Broadly speaking the following categories of risk can be identified:

¥ Production risk -- includes environmental conditions such as pests, diseases and climate, all of which influence production.

⁹ A case can be sustained that broadacre agricultural assets are overvalued relative to their financial returns that they can deliver (see Chapter 2.4.2). This is due in part to 'non-financial' returns which are sought by some owners (ie. lifestyle factors). This characteristic is most evident in the smaller farming properties (Group 1 & Group 2).

¹⁰ Ibid

- ¥ Market risk -- includes the lack of control that farmers and the farming community have over the markets in which they operate.
- Market risk has been managed in some agricultural industries by high levels of integration between the market and production (e.g. the poultry industry). The broadacre industry has struggled to achieve any vertical integration, with most attempts being cumbersome and generally producer-driven rather than market-driven.
- ¥ Personal risk -- relates to the management and owner/operator status of many farms. Personal risks are less critical in the larger operations run by professional managers.
- ¥ Financial risk -- relates to the financial structure of the business and its relationship and dependence on the financial markets.
- ¥ Foreign exchange rates -- relating to uncertain movement in international currency of trading partners.
- ¥ Government and political risk -- change in government policy both Australian and, more significantly, overseas with respect to subsidies, import regulations and market access.
- ¥ Technological risk -- potential paradigm shifts in methods and markets brought on by technological change.

The Australian farming community has adjusted well to managing the short-term variations that dominate this industry. While factors like prolonged periods of extreme drought are less manageable, they nevertheless appear to be an inevitable part of the long-term cycle of Australian agriculture.

Production risk and market risk impact directly on the ability of any agricultural enterprise to sustain the financial risks associated with operating in this industry. Adopting the appropriate financial structure is particularly important. An inappropriate financial structure will expose the enterprise to an inappropriate level of debt and financial risk.

2.0 THE AGENDA FOR AGRICULTURE

The benefits of an efficient agricultural industry can be expected to percolate to the average farmer only if industry leaders are prepared to change their attitudes and are determined to achieve best practice in financial performance. Unless a methodical approach to structural adjustment is applied to broadacre agriculture, it will fail to develop as a vibrant and sustainable industry.

Broadacre agriculture is failing to provide the returns necessary to attract and retain investment capital. Yet many in the sector fail to respond to the warning signs that in other industries would prompt rationalisation or pressures for management change. The result is a stagnant ownership base that is unable to replenish its capital and to reinvest in improving economies of scale, introducing technology and reforming management.

This chapter evaluates the agricultural sector on its economic, financial and social performance. It assesses the need for structural change in the industry, examines the often cited factors that will revive Australian agriculture in the future and discusses the implications of agricultural policies.

2.1 THE PERFORMANCE OF AGRICULTURE

Although low returns has been a feature of the agricultural sector for many years, the number of agricultural enterprises has not significantly declined. More than \$96 billion of capital is estimated to be invested into the industry, yet the returns from it are a meagre 1.05 percent¹¹. These inefficient returns on investment hinders the development of the entire nation, yet there is reluctance to either, recognise the need or implement the corrective economic processes that will rectify the situation.

2.1.1 FINANCIAL INDICATORS

The financial and operating characteristics of agriculture are assessed in Chapter Three. The reconstruction of the ABARE data suggests that there are benefits available from economies of scale in farming. These economies can be achieved in both operating and capital efficiencies, the absence of which adversely affect the profitability of the bottom 50 percent of farmers (based on annual farm revenue: termed Group 1).

Group 1 farmers have sustained business losses in their independent farming business for most of the past 10 years. However, few have had cash losses over the same period. When off-farm revenue is included with farm revenue, these farmers generate a sufficient level of cash income to cover outflows and to allow them to continue to farm.

At this level, it seems that farmers fail to evaluate their businesses in terms of opportunity costs, their personal labour costs and the cost of capital. As a result, poor business decisions are made. The data analysis in this report suggests that farm owners' capital is being eroded and that farming businesses are subsidised by non-farm income. This positive cash flow for the farm Social-economic unit (SEU)¹² is one factor that prevents rationalisation in the sector.

¹¹ Determined from the average profit (as total return) achieved over a 10 year period.

¹² The social-economic unit (SEU) defines the collective activities of the farm business enterprise, non farming income generating activities undertaken to sustain the social unit of the farm (ie the family).

2.1.2 FAILURE OF ECONOMIC PROCESSES

Why do farmers remain in farming when they face continual financial failure? Why don't the normal economic processes of structural adjustment take place in this sector?

Positive cash flow gained from non-farm income, together with lifestyle considerations keeps farmers on the land long after the enterprise itself has ceased to make meaningful profits. In this way, normal economic processes are hindered in the sector. Cross subsidisation disguises capital erosion. Despite poor returns, few Group 1 farmers retire their capital from the industry into investments yielding higher returns¹³. The farms are not evaluated on the basis of opportunity costs or as independent business units.

The failure of the farm sector to respond to the normal financial signals has a serious impact on the overall economy. The industry's competitive potential cannot be realised when it is burdened by poor financial returns and an inability or unwillingness to implement sound financial principles. In the absence of any corrective action, further strain on the agricultural economy can be expected and will impede the industry's development.

There is therefore a case for some form of facilitated structural adjustment in agriculture to correct these financial inefficiencies.

2.2 THE FUTURE OF AGRICULTURE

2.2.1 IN SUPPORT OF AGRICULTURE

Numerous arguments are cited to support the revival of Australian agriculture in the near future. The oft repeated ones are:

- The effect of GATT trade agreements will lead to an improvement in the terms of trade for agriculture. It is hoped that the implementation of these agreements will see the reduction in other countries of agricultural subsidies, import tariffs and restrictions on agricultural produce. This will lead to lower production, a subsequent upward movement in agricultural prices and improved farm profitability.
- The East Asian economies are growing vigorously. Rising per capita incomes is lifting expenditure on food and agricultural produce. These countries are unable to provide for themselves because of land pressures, low agricultural productivity and the migration of rural populations. Being in close proximity, Australia is ideally placed to grab a large share of the Asian market. Moreover, it can provide counter seasonal produce for which it receives premium prices. This market has the potential to boost agriculture in Australia
- Poor storage and distribution infrastructure and inadequate marketing efforts for agricultural produce have a detrimental impact on returns. Improved storage and

¹³ The analysis developed in this report identifies that less than 2,000 farmers are recorded as leaving the industry per year during the past 3 years. This assessment is reliant on the ABARE definition of a farm as an enterprise that has a revenue base that is > \$22,500/Ann. Given the somewhat dramatic change in commodity prices that have occurred in the past three years it is likely that the actual decline is somewhat lower than 2,000.

transport facilities as well as port and other export infrastructure will improve farm earnings.

- Marketing campaigns similar to those promoting New Zealand's agricultural produce will create demand for Australian produce and improve profitability.

2.2.2 BUSINESS REALITIES

These projected benefits must be viewed in the context of the business realities operating in the sector. The problems facing broadacre agriculture is far greater than the panacea offered by these opportunities.

The data developed during the course of this project can be used to estimate the enormity of the task required to achieve adequate returns from the farm sector.

Improving the Terms of Trade

The analysis draws the following conclusions:

- To generate even a modest 5 percent return on equity for the entire farming community, prices must rise by 23.2 percent above the average prices for the past 10 years.
- For Group 1 farmers to achieve a similar return on equity, prices must rise by 45 percent over those of 1995-96.
- Similar reductions in input costs could be expected to deliver the same level of profit improvement.

Given that the terms of trade for agriculture in 1994-95 and 1995-96 were exceedingly favourable compared with those during the previous four years, formidable challenges clearly remain.

Furthermore, any improvement in prices tends to benefit the larger producers who are currently already generating good returns. Any benefits flowing from the GATT agreements, from developments in East Asia and from infrastructure improvements must be significant indeed before Group 1 farmers can become profitable.

Revaluation of Agricultural Assets

An alternative scenario is to consider the write down in the value of agricultural assets necessary for the current terms of trade to deliver returns to investors that are equal to 5 percent on equity (all other factors remaining equal). Based on our analysis such a devaluation would strip from the agricultural capital base some \$70 billion worth of value or more than \$840,000 per average farm.

The hopes invested in these major economic changes by the sector, and in particular by Group 1 farmers, is somewhat unrealistic given the business realities of the operating environment. Again this provides further support for facilitating structural change in the sector.

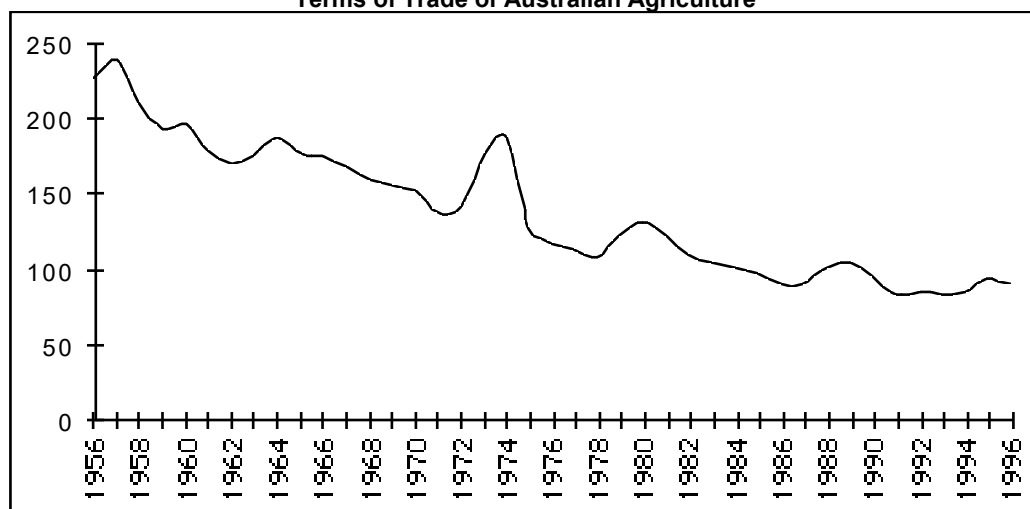
2.2.3 MAJOR CONSTRAINTS IN ACHIEVING BENEFITS

Apart from these business realities, there are numerous constraints that prevent the sector from achieving the optimistic forecasts alluded to in section 2.2.1.

¥ Global Productivity Gains

Agricultural productivity is improving worldwide. The increase in supply due to improvements in productivity has been faster than the growth in demand for agricultural produce. Thus the trend in falling terms of trade for agriculture is expected to continue and prices are not expected to improve. This is a long-term trend and any improvements in the terms of trade achieved through GATT are likely to be short lived and unsustainable. The graph below shows the terms of trade for Australian farmers over the past 40 years.

Diag 2.1
Terms of Trade of Australian Agriculture



Source: ABARE

¥ Infusion Time

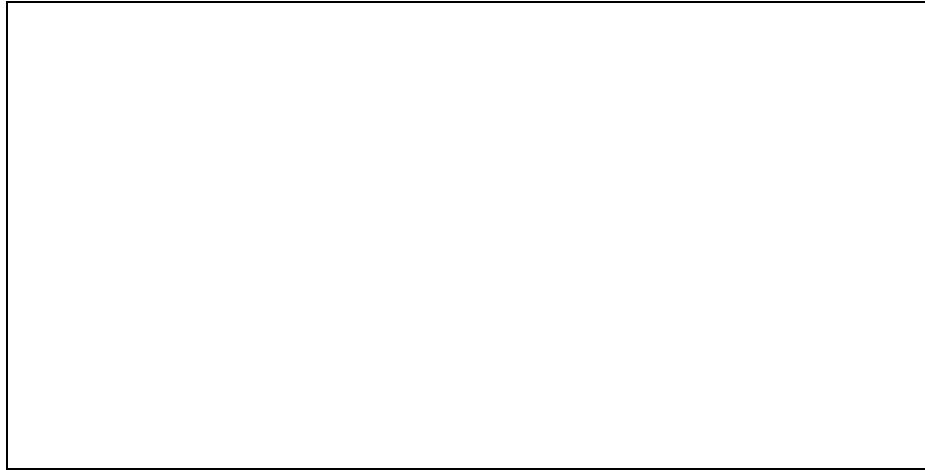
Major global changes such as socioeconomic developments in Asia and the impact of the GATT agreements take a long time to unfold. It would be naive, for example, not to expect local pressures and political expediencies to retard the pace of implementing GATT. Furthermore, the development of trading blocs could further impinge on the free flow of agricultural produce in the global market.

¥ Global Competition

Our share of the East Asian food market has declined in the past 10 years. There is a mistaken belief that our geographical proximity to Asia will enable us to take easy advantage of opportunities. The graph below shows we have a long way to go before we can capitalise on our proximity¹⁴.

¹⁴ R Garnaut, Prof., 1996, Address to the inaugural Agribusiness Awards for Excellence, Melbourne.
9708

Diag 2.2
Australian Share of Agricultural Trade to Asia



Source: Prof R. Garnaut; after Drysdale & Lu.¹⁵

Notes: East Asia includes ASEAN (including Singapore), Japan, China, Korea, Taiwan, Hong Kong, Cambodia, Laos, and Vietnam.

The emerging competition for Australia is from such low-cost producers as Chile, which has low labour costs and a sufficient level of technology. These countries would dampen the price of agri-commodities as their farm sectors grow.

The optimistic projections surrounding Asia, GATT and productivity gains through improved infrastructure only herald a false dawn for the bulk of Australia's broadacre farmers.

For many farmers, they only serve to perpetuate the myth that their financial performance can only get better. The reality is that most small farms are perpetually on the verge of financial collapse and survive only because they are subsidised by non-farm income. On pure business grounds they would realistically not survive long enough to enjoy the improvements brought on by these major changes.

2.3 ECONOMIC SIGNIFICANCE OF AGRICULTURE FOR AUSTRALIA

According to the Industry Commission¹⁶, the significance of agriculture is rapidly declining in Australia. Based on this evaluation, the commission argues that little benefit can be gained from continuing to assist the adjustment process in this sector. We suggest the Industry Commission has significantly underestimated the value and contribution of agriculture to the nation.

Agriculture's contribution to the national GDP has declined from 18 percent in 1953 to 3 percent in 1996. At 1989-90 prices, this contribution stands at 3.5 percent. These figures can easily lead to the assumption that agriculture plays a small role in the economy. One macro economic indicator, however, is inadequate to evaluate its true contribution. The merchandise export contribution of agriculture in 1996 was 27.2 percent and it constituted 20.9 percent of total exports, amounting to \$20.4 billion. It provides direct employment to 4.5 percent of the workforce or 373,000 people. Moreover, if the agri-based industries are aggregated in the statistics, the contribution of agriculture is substantially higher.

¹⁵ Drysdale, P. and Lu, W.; Australian Export Performance.

¹⁶ Industry Commission (Productivity Commission), Nov. 1996, Industry Commission submission to "The Mid Term Review of the Rural Adjustment Scheme".

It is agreed that Australia's economy is heavily dependent on commodity exports, and together with the mining sector agriculture is a significant contributor. The cash flow generated by agriculture is a vital fuel for the economy. Moreover, agricultural income is widely dispersed and accounts for a substantial proportion of consumption expenditure. This cash flow impact provides a powerful driver to the economy, one which can easily be overlooked by traditional economic evaluation.

Agriculture is a significant industry for Australia, which provides a vital and regenerative source of national cash flow. It is an important part of the foundation of the Australian economy. Yet it seems somewhat fashionable to regard the sector as unimportant.

2.3.1 IS BROADACRE AGRICULTURE AN INDUSTRY IN DEMISE?

There is ample empirical evidence to support that as economies grow, a higher proportion of GDP is realised from manufacturing and services rather than from agriculture. This does not, however, indicate that agriculture is in demise. Agriculture as a 'primary' industry represents a foundation stone for economic growth. The fall in the relative contribution that agriculture now makes to GDP should not be allowed to understate its role in a rapidly developing economy. It can remain a highly productive and efficient industry as long as it can adjust to the new environment.

Broadacre agriculture however is financially inefficient. This financial inefficiency is in part a reflection of the industry's failure to make adequate and timely adjustments to the new demands that are required by rapidly changing national and global markets. If agriculture remains burdened with financial inefficiency, the nation cannot expect to reap the benefits that it should be able to from the distinctive competencies we have in the other sections of our agricultural production system.

2.4 THE NEED FOR STRUCTURAL ADJUSTMENT

What is structural adjustment and when should government facilitate structural adjustment?

Structural adjustment is the process in which the potential of an economy is realised over time. It calls for altering the industry structure in terms of ownership, operations and attitudes of the stakeholders in the industry. Structural adjustment helps further the development of a country and the efficient use of its resources. External facilitation for structural adjustment is desirable when economic processes have failed. We will not get into the various beliefs about economic systems, but will try and explain the need for external structural adjustment in the agriculture industry because of the breakdown of economic processes. The need for the government to facilitate structural adjustment is discussed in section 2.6.

The definition of structural adjustment that is provided in the IC review¹⁷ has limited application. While the statute specifies that it involves supporting industries that have a future potential, it does not allow for the prospect of individuals exiting an industry when assets are inefficiently utilised and exit costs are high. The effect of external factors requires that structural adjustment should be used both in supporting future potential and in helping individuals exit the industry. In agriculture, there are various reasons why structural adjustment becomes important.

¹⁷ Ibid.
9708

2.4.1 EXTERNALITIES AND COMPLEMENTARITIES

A very large capital base in Australia is devoted to broadacre agriculture. This capital base does not provide efficient returns, which impedes the development of the entire nation. The allocation of resources is inefficient and acts as a brake on the economy. If the industry is to reverse this impact, actions must be taken to allow this capital to work efficiently.

An efficient agricultural sector can result in substantial returns to the food processing and export industries. These complementarities can provide significant gains to Australia as a whole. Inadequate infrastructure after farm gate also has a complementary effect on agriculture's efficiency. The interdependence of industries provides strong reasons for structural adjustments to be made in agriculture. Progress in this area can only benefit the entire nation.

2.4.2 FAILURE TO ADJUST

Evidence of the failure of the agricultural sector to adjust to economic and market forces is most strong in the following four areas:

- Information Inadequacy
- Asset Valuation
- Risk management policies of financial institutions
- Entry/Exit Barriers
- Information Inadequacy

The inadequate availability of meaningful information on the agricultural sector results in poor analysis and represents a major failing. The lack of high-quality information also limits the market from supporting ventures that have a future potential.

The self-interest of major information dissemination, such as ABARE and the National Farmers' Federation (NFF), and other related rural and political institutions has led to the adoption of a reporting methodology that is designed to highlight poor and inadequate performance rather than to identify the differences that exist between successful and poor financial management. Little if any promotion of the elite financial performers ever reaches the press or debating table.

Clearly these groups are aiming to satisfy the requirements of their constituencies. However in doing so, and by presenting arguments based on data that is distorted to best represent the plight of the bulk of farmers, they inadvertently skew the message to the broader community, and in particular to the capital markets, that this sector is on its knees.

This report identifies that the best performers in agriculture can offer attractive and stable returns to their owners. This is generally achieved by establishing the right scale of operation and the correct balance of equity and debt.

Secondly, the key information vendors also represent the industry from the doctrinaire position that ownership and management are rights in this sector. No attention is addressed to the benefits of separating these and the implicit adjustment that would follow from such a systematic separation.

- Asset Valuation Methodology

The true value of any business is the net present value of future cash flows. The low returns that farmers seem willing to accept indicate that they value agricultural assets, specifically land, not on net present value but in reference to an historical cost or some other basis which may reflect the value placed by a farmer and his family on the ‘non-financial’ returns associated with farming. This places a burden on the capital base of the business and results in insufficient returns.

While the market value of the land may be higher than net present value from a purely business perspective, the farmer should value it on the basis of the returns it generates for the farm. Any difference between these two values will provide a measure of the capital inefficiencies to the rational investor¹⁸ or cost of the ‘non-financial’ returns being drawn by the family unit.

Rural property will only be sold to a rational investor if it provides sufficient returns to the buyer. Generally, however, when a farm is on sale, rational investors are unwilling to pay the value expected by the seller. This prevents rationalisation in the sector.

- **High Enterprise Level Entry/Exit Costs**

There are significant impediments at the individual enterprise level to both entering and exiting the industry. These include:

- Overvaluation
- Excessively disaggregated capital base
- Management and ownership not separated
- The heritage impediment

Asset Overvaluation

In adverse times, unprofitable farmers have difficulty exiting the industry as exit costs are very high. Two factors contribute to high exit costs. First is the attitude of not treating farms as independent businesses. Farm incomes and expenses are not kept separate to those of the household, so the farmer is unable to make informed decisions. The second factor is the valuation method used to determine property values. Property values based on historical cost approach, versus net present value, will tend to be high relevant to market price when a poor business cycle prevails. At such times, farmers prefer to wait for an economic recovery before they sell. In good times they become optimistic and are unable to make rational choices.

Disaggregated Capital Base

The high level of disaggregation of agricultures productive assets leads to high levels of duplication of fixed capital. Buyers of rural property often include neighbouring farmers who wish to increase the productive capacity of their farms, so their interest is primarily in the land. The pre-existing infrastructure¹⁹, fixed capital and machinery is unlikely to add much value to the purchase as they result only in duplication and defeat the aim of creating operating and financial synergies. This raises the exit costs and again hinders farmers from making rational decisions.

¹⁸ Rational investor is used here to describe the investor making choices based purely on the net cash returns from the business and not on any non-financial returns.

¹⁹ Infrastructure including, sheds, fences, houses and related fixed improvements.

The Management & Ownership Linkage

More so than almost any other industry in Australia, farm management is carried out by the farm owner. Farm ownership is seen as a right of management. This linkage of ownership and management provides a major limiting factor to the industry. Good managers do not always have access to the capital required to fund growth and ownership is not always a good precursor for management excellence.

The Heritage Impediment

Inherited properties also carry the additional emotional baggage that prevents owners from assessing the performance of their farms in pure business terms.

- **Institutional Risk Management Strategies**

Banks have a large exposure to farms and are generally reluctant to force farmers off the land. Some major banks even have unstated policies of not evicting farmers²⁰. They were willing to fund these unprofitable ventures by securing properties at historical market values. Had they valued those properties on the basis of cash flows and profitability, the banks would have been forced to recognise that the level of security on their loans was inadequate. Rather than face these realities the banks have instead chosen not to be prudent lenders and have thus contributed to the failure of the sector's economic processes.

- **Skills Base**

The absence of alternative skills and the uncertainty of establishing new lifestyles is a great deterrent to farmers leaving the industry.

2.4.3 LIFESTYLE EFFECT

Some farmers continue to farm because of established attitudes and lifestyle expectations. While any assistance to farmers for the lifestyle choices they make cannot be justified, they should nevertheless be encouraged to make informed choices. The attitude of the family farm being an integral part of an individual, rather than an independent business, can lead not only to bad management decisions but the wrong decision about whether or not to continue farming.

This raises important issues about education and cultural change in the farming community. The farming community must recognise that all lifestyle decisions come at a cost²¹.

The inclusion of this cost into the business will impact on its financial effectiveness and to reduce the financial returns achieved. As noted above, the lifestyle cost tends to manifest itself in the value placed by farmers on the farm assets. The cost of lifestyle decisions can be estimated against the opportunity value of the capital being more effectively invested. Using an opportunity cost of 5 percent, the average farm is paying \$39,000/annum to retain their lifestyle. At an industry level, lifestyle costs cannot be borne if the industry is to compete for capital and survive as a financially attractive investment.

2.5 POLICY IMPLICATION & STRATEGIC DEVELOPMENT

²⁰ Confidential information available to the authors and based on experience with major Banks loan book management.

²¹ AAS Pty Ltd, March 1996, Aust Farm Management Society Conference. "Financing the Lifestyle of your Farm"

It is our hypothesis that Australia can develop a sustainable competitive advantage in agriculture and we have not as yet seen any reason to suspect otherwise. The availability of land and high use of technology indicate that Australia can be competitive. Even though most of our international competitors offer subsidies to farmers, Australia is an important player in the world trade in beef, wheat, wool, sugar, mutton and lamb, pulses and dairy products. No other industry in Australia, with the exception of mining, has gained the high profile status in world markets that agriculture has. The market for primary produce will continue to grow in the long run. Innovative farming techniques are making it possible to use the denuded landmass of Australia productively. An efficient agricultural economy can provide a strong base to industries that are dependent on agriculture. Therefore, strategic investments in agriculture can lead to attractive pay-offs for the country.

A number of policy implications follow from the above assessment to facilitate structural adjustment. These are discussed below.

2.5.1 IMPROVING THE ECONOMIES OF SCALE

An important conclusion of this report is that the vast majority of broadacre farms are not of sufficient size to take advantage of the economies of scale that exist in the industry. These economies of scale are achieved through operating and capital efficiencies. Hence, the aggregation of capital in the industry should be encouraged. The challenge for the industry and its leaders is to find mechanisms that will encourage aggregation and create the framework for cultural and attitudinal change in this sector.

Consolidation can only be achieved by increasing farm size. This may be achieved through a spectrum of creative mechanisms such as cooperative and syndicate farming or equity driven mechanisms that fund a good farm managers to buy smaller farms.

- **Syndicate farming**
Attempts at syndicate farming have been made in the past. For historical and cultural reasons, farmers are possessive about their property and are not easily persuaded to develop cooperative structures. Within such arrangements there is also a potential for conflict of interest among the operators. If the business is viewed as a partnership, farmers are more positive about the arrangement. They become even more enthusiastic when the potential performance of the syndicated farm is contrasted against their current situation.
- **Rationalisation**
Group 3 and 4 farmers can obtain good pay-offs from increasing their farm size. However, they are limited by their finances to do so. An optimal debt-equity ratio is necessary to provide efficient gains. While debt finance is readily available, poor returns to equity, duplication of and overvaluation of assets, hinders the process. This is illustrated with the help of models in Chapter 6 of the report.

The agriculture industry is characterised by a high level of equity, some of which is a deferred loss, as discussed earlier. But ownership of agricultural assets is too widely dispersed to easily affect improved economies of scale. Other businesses and sectors appear to more readily restructure the ownership base. Farmers are less able to do so. The reasons why farmers are handicapped in this regard are discussed in Chapter 7.

Attracting new, patient equity into agriculture has provided a difficult task. The perception that returns are universally poor is a fundamental reason for this. However, the overlap between management and ownership of the farm is another important factor that hinders investment from financial markets. It is important to note, however, that investment in agriculture can provide attractive returns for the investment community. Chapter 5 verifies this proposition.

By encouraging farmers to retire duplicate capital machinery and increase farm size, the financial performance of the sector can be improved. Syndicate farming and rationalisation require farmers to segregate ownership from management. This can be achieved by communication, education and cultural change. Effort also has to be made to encourage financial market investment in the farm sector.

2.5.2 MARKETING AND INFRASTRUCTURE

Poor infrastructure for the storage and distribution of agricultural produce results in low returns for farmers. High port charges, infrequent vessels, inadequate storage facilities and a lack of communication channels prevents farmers from realising the true value of their produce. Various studies have estimated that this infrastructure is only 60 percent as competitive as that of the United States. While reports such as *Supermarket to Asia* have emphasised this issue, hardly any initiatives has been made to improve the returns for farmers. In the global market, goods have to compete on price. Unless values lost in the interim between the farm gate and the consumer is recovered, Australian agriculture will be handicapped.

A strategic marketing effort can also develop attractive markets and result in premium prices. New Zealand has successfully used this approach to penetrate markets and develop brand equity. They have popularised specific products and as a result have established stable markets. This strategy requires a financially fit farm sector.

2.5.3 EDUCATION

We have already argued that a cultural and attitudinal change is required in the farming community if Australian agriculture is to remain economically efficient. Education is as important in agriculture as it is in any other industry. Farming technology is stressed in agricultural schools, but farmers must also absorb management skills, which include basic accounting, economics, risk management and strategy. Education must focus on changing the attitudes so that farmers view their farms as independent businesses. They must become comfortable with managing a farm independent of ownership.

2.5.4 THE ROLE OF SUBSIDY AND WELFARE

The role of welfare in this sector is to ease the pain rather than to perpetuate it. Any subsidy to non-viable units only perpetuates the pain. It is recommended that any financial subsidies should be regarded as part of the welfare system rather than as a part of rural adjustment. Any investment in the sector must be recoverable. Farmers who continue on farms for lifestyle reasons should not be subsidised.

Farmers wanting to expand the size of the farm to achieve economies of scale could benefit from improved access to appropriate sources of equity or debt finance. Facilitating mechanisms to enable this to happen is a role that government should

consider favourably. Managing and capitalising any new mechanisms or instruments, however, must ultimately be the task of the financial and capital markets.

2.5.5 EXIT POLICY

There is strong evidence that farmers are "locked in" to agriculture and a case exists for helping non-viable farmers to leave the industry. It is important, however, that any assistance provided results in an improvement in the sector's efficiency through increases in economies of scale. A rigorous cost-benefit analysis of an exit scheme would be prudent.

2.5.6 RISK MANAGEMENT

Various schemes and mechanisms have and do operate to safeguard the industry from risks. Some are legitimate risk management and hedging tools. Others, however, essentially interfere with normal market processes. There can be no justification for industry schemes based around 'managing' markets. These will only result in delaying important management signals. Each business has an accompanying risk and the business must adapt to it.

However, these risk management schemes are not always used by those who can benefit from them as they cannot afford them. Such farmers are hand-to-mouth operators and cannot even spare cash for savings. Farmers with a better cash position use their cash to minimise their tax burdens rather than to manage risk. Farms must therefore build the capability to adapt to fluctuations. Farmers who cannot do so would perhaps be better off leaving the sector.

2.6 STRUCTURAL ADJUSTMENT - WHOSE BABY?

Structural adjustment must be a co-operative effort between industry and government. The industry must drive the evolution of a vision for itself and work with government and the community to see the vision implemented.

The role of the government should be that of an accessory. The government needs to generate a debate and motivate the industry bodies to take the initiative. Support schemes do not always have to be monetary, though monetary help may be given if the opportunity warrants it. The government can provide seed capital for certain programs rather than run long-term schemes. The aim should always be to make the industry increasingly efficient and self-sufficient rather than making it dependent on the government.

Industry leaders and associations have to be aligned with any government agenda. Their support is vital for the success of any government initiative. The industry associations can take the lead in driving the cultural change through information sessions and workshops. They can also develop marketing programs and develop a common infrastructure.

Initiatives to develop equity instruments or investment portfolios for the agriculture sector should come from the industry with development support from the government. The industry associations must be committed to value creation for the industry rather than to simply access government funding.

2.6.1 IMPEDIMENTS TO THE ADJUSTMENT PROCESS - A SOCIO ECONOMIC PERSPECTIVE

We presume that Australia has the capability of sustaining a competitive advantage in agriculture. To do so, however, will require the industry's leaders to commit to restructuring the industry to ensure that it is capable of achieving world-class competitiveness. The question that industry leaders and politicians must address is not whether they should be assisting the adjustment process but the greater question of what vision do they and the country have for its agriculture sector and what must be done to achieve this vision.

As mentioned earlier, there is a lack of business focus and desire to create value in the industry. Industry leaders and associations are often after the protection of their constituency and the preservation of the status quo. This results in short-term gains to individuals at the expense of long-term industry gains to the economy as a whole.

The government has, for a long time, pacified these groups out of political expediency. Banks and financial institutions have been an accessory due to their exposure to the industry.

If, as a nation, we want our broadacre agriculture to be world competitive, we must first make it financially efficient. This will require the implementation of a bold and long-term vision for the industry in the 21st century. This vision will by necessity include developing strategies that will result in proactive adjustments to allow for the best farm managers to expand their operations to achieve the requisite economies of scale and for owners to receive returns that are adequate for their risk.

A comprehensive strategy is needed to focus the sector on those key areas where it must achieve performance improvements. Restructuring the financial base of broadacre agriculture and the relationship of ownership and management is probably the area demanding most immediate attention. Correction of these market failings is the first step to delivering performance improvements in the sector.

The industry is caught in a vicious circle and needs an entrepreneurial focus to rescue it. The stakeholders of the industry should rid themselves of the nostalgic romance related to life in the bush and manage that industry as a business.

3.0 AGRICULTURE - A FINANCIAL PERSPECTIVE

In the following chapter, the financial structure and characteristics of Australian broadacre agricultural industries, including the dairy sector, are examined to establish a framework for subsequent analysis.

The base data employed is obtained from ABARE Farm Surveys and is representative of more than 84,000 agricultural enterprises in Australia. The definitions and terminology adopted have been discussed in the Appendices.

3.1 OVERVIEW

In 1996, an estimated 84,305 broadacre farmers generated revenue of approximately \$16.3 billion. During the same period, average assets required to achieve this income was about \$1,135,000 per enterprise or about \$95.7 billion in total. Average owner equity in each farm was 87 per cent.

The aggregate annual return (including capital appreciation) from all broadacre agriculture for the past 10 years averaged \$903 million per annum. This represents only a 1.05 per cent return on the \$96 billion of assets committed to this industry.

Table 3.1
Overview
Australian Broad Acre Industries
Key Capital & Financial Indicators

SECTOR	1996						10 Yr. Averages	
	Population	Ave Income /Farm (\$'000)	Total Farm Revenue (\$ mill)	Average Assets/ Farm(\$'000)	Total Assets (\$ mill)	Equity (%)	Total Return ¹ (\$ mill)	Return on Assets (%)
Beef	21,015	119	2,491	1,294	27,185	88	160	0.76
Mixed	17,951	198	3,548	1,068	19,174	86	42	0.23
Sheep/Beef	11,602	115	1,334	1,036	12,023	90	15	0.15
Sheep	8,214	88	721	921	7,566	87	(58)	-0.37
Cropping	11,656	456	5,310	1,279	14,910	84	327	3.93
Dairy	13,868	210	2,919	1,068	14,804	86	417	3.37
Totals	84,305		16,324		95,662		903	
Industry Aggregates \$'000/ Enterprise		194		1,135		87		1.05

Source: ABARE

Notes •

1. Including Capital Appreciation

The comparative importance of the five industry categories is illustrated in Diagrams 3.1 and 3.2. Cropping is the largest revenue group and beef farmers have the highest population. The specialised livestock sectors of sheep and beef, when combined with the more diversified beef/sheep sector, accounted for 48.4 per cent of all broadacre activity by population but contributed only 27.9 per cent of total revenue generated.

Cropping, which represented only 13.8 per cent of the population and 15.6 per cent of the capital employed, makes a significantly higher contribution to total revenue, on an average per farm basis as well as in aggregate, than the other activities. It accounted for some 32.5 per cent of total industry revenue amounting to \$5.3 billion. The average turnover per farm for cropping producers was \$456,000 per annum. This is more than 200 per cent greater than the average turnover for dairy farms and nearly 300 per cent greater than other livestock enterprises.

Diagram 3.1
Comparative Enterprise and Revenue Distribution 1996



The distribution of assets by sectoral groupings (illustrated below in Diagram 3.2) shows that the beef sector is a capital intensive activity. Some distortion can be assumed to occur when the impact of the smallest beef producers is taken into consideration. As will be noted later in the analysis, small producers have very low capital efficiency ratios.

Diagram 3.2
Asset Utilisation /Sector 1996 - \$95.7 Billion



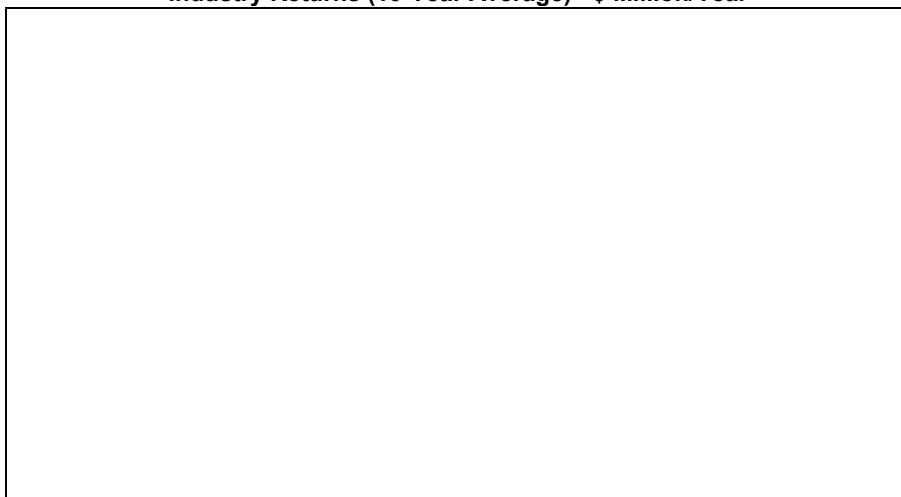
The financial and commercial importance of these sectors, however, is unrelated to their popularity as measured by the number of participants.

From a financial point of view, the most important performance indicator is the 10-year average returns for each category (Diagram 3.3). This highlights the apparent attractiveness of cropping and dairy sectors, which is in marked contrast to returns generated from mixed, (i.e. cropping and livestock), sheep, sheep/beef.

The individual sector performances are examined in more depth in the following sections. The factors influencing these results include:

- commodity prices
- imperfect markets (e.g. the regulated wool markets)
- capital efficiency and
- costs of funds.

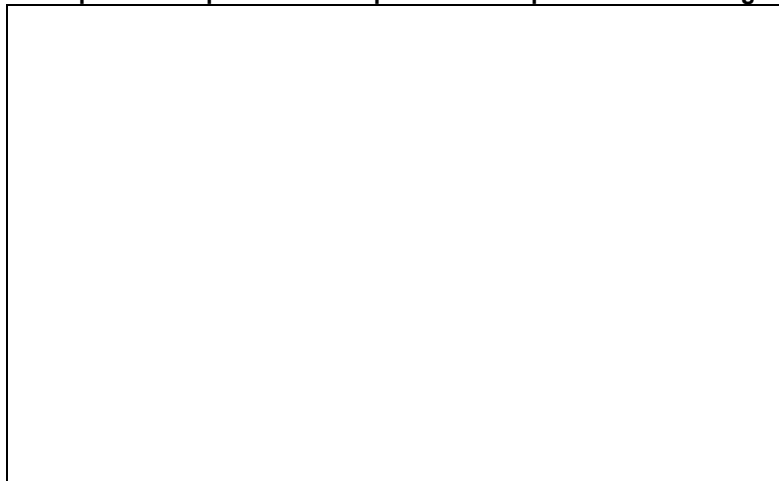
Diagram 3.3
Industry Returns (10-Year Average) - \$ Million/Year



The most powerful observation about broadacre agriculture is dramatically illustrated in Diagram 3.4. On a population basis, 80 per cent of Broadacre enterprises generate 48.2 per cent of agricultural output as measured by revenue and reduced the aggregate profitability of the industry by nearly 48.8 per cent. The smallest 50% of farmers by revenue generate only 19% of the revenue and reduce the profitability of the industry by 56.7%.

On the other hand the top 20 per cent of broadacre enterprises generated 51.8 per cent of output and contributed an estimated \$1344 million/annum or 148.8 per cent of the profits earned in the industry.

Diagram 3.4
Comparative Importance of Population Groups - 10-Year Average



Derived: AAS Pty Ltd

3.2 TREND ANALYSIS - COMPARING 1993 AND 1996

Population :

During the period of 1993 to 1996 the population of the industry reduced by 6051 farmers. However due to the EVAO cut off criteria of \$22,500 we cannot ascertain whether these farmers have left the industry or dropped out of the survey. Given the history of slow migration from agriculture, it is plausible that few of these farmers have exited the industry despite poor returns. The population of beef farmers has increased by 7% over the period in spite of the lower profitability for the sector. The population of sheep farmers has fallen by 53%. However, it is plausible that a number of them have been accounted

for in other sectors due to the statistical drawbacks of the data. These statistical limitations have been discussed in chapter 1. The population of cropping has risen by 80%, undoubtedly a reflection of its better profitability. The population of mixed farmers has fallen by 17% despite improved profitability.

Revenue:

The revenue generated by cropping has risen by 162% over the period. Again this data should be treated with caution due to the inter industry shifts. Its average farm revenue has risen by 45%. Better commodity prices and a good rainfall have contributed to this rise. The sheep revenue has fallen which is consistent with the fall in population.

Assets and Equity:

Despite lower returns and a higher population, the average assets of a beef farm rose by 8.8%. Average assets per farm rose for all sectors over the period but the fastest increase was accounted for by mixed farming followed by cropping. The average assets of mixed farmers rose by 29.8% while that of cropping rose by 28.3%. The contribution from equity in this industry did not change significantly over the period.

Returns:

The 10 year average returns for the industry have improved significantly from that in 1993. All sectors except beef and sheep have shown improvement. The low prices in international markets has affected the beef sector and the problems of the sheep sector have pushed it into deeper losses.

Group performance:

While an average group 2 farm has come out of the red, an average group 1 farm went deeper into losses.

3.3 BROADACRE AGRICULTURE - AN INDUSTRY-BY-INDUSTRY ANALYSIS

The performance differences between the five broadacre industries quickly begin to emerge, even at the most basic level of analysis. The five industries differ markedly in the following respects:

- capital requirements
- farm size
- labour utilisation
- revenues
- profitability
- capital appreciation

Following is a brief examination of each of the five industries and the five population groups within each industry.

3.3.1 THE BEEF INDUSTRY

The beef industry had total cash revenue of about \$2.5 billion and accounted for the largest number of enterprises (nearly 25%) of the agriculture industry in 1996. Key performance indicators are illustrated in Table 3.2. The table highlights the huge performance gap that exists between the groups. The largest population group are the smallest producers, representing 50 per cent of the population and generating only 11.5 per cent of the gross revenue.

Table 3.2
Beef Industry
Key Operating & Financial Indicators

	1996						10 Year Averages			
	Population	Gross Income Operation (\$)	Total Group Income (\$'000)	Assets Av. / Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	Return on Investment (%)	Volatility of Returns (%)	Capital Efficiency (\$/ DSE)
Group 1	10481	27,276	285,881	771	8,085,561	95.8	(112)	-1.71	4.80	264
Group 2	6131	90,437	554,485	1,185	7,264,505	91.3	4	0.11	6.09	194
Group 3	2279	164,412	374,694	1,742	3,970,098	93.4	70	2.19	4.53	143
Group 4	1072	289,757	310,706	2,717	2,913,386	79.9	65	1.93	7.01	121
Group 5	1051	918,476	965,134	4,712	4,951,352	68.6	133	3.94	5.42	79
Total Population			21,015	Total Assets (\$ Mill)		\$27,185	Total Return (\$ Mill)			\$160
Gross Revenue (\$Mill)			\$2,491	Ave. Assets/Farm			Av. Net Return			0.76%
Av. Income/Farm (\$'000)			\$119	(\$'000)		\$1,294				
				Av. Equity		88%				

1. Including Capital Appreciation

Size Distribution

Diagram 3.5
Distribution of Beef Enterprises by Revenue 1996



Capital Efficiency

Capital efficiency, that is, the amount of capital required to sustain a productive unit or to generate revenue, is a prime determinant of good financial performance. In beef enterprises, three indicators can usefully be employed to illustrate the key differences between the largest and the smallest groups. In Diagrams 3.6 and 3.7 the capital efficiency ratios and selected operating efficiency indicators highlight a number of important characteristics.

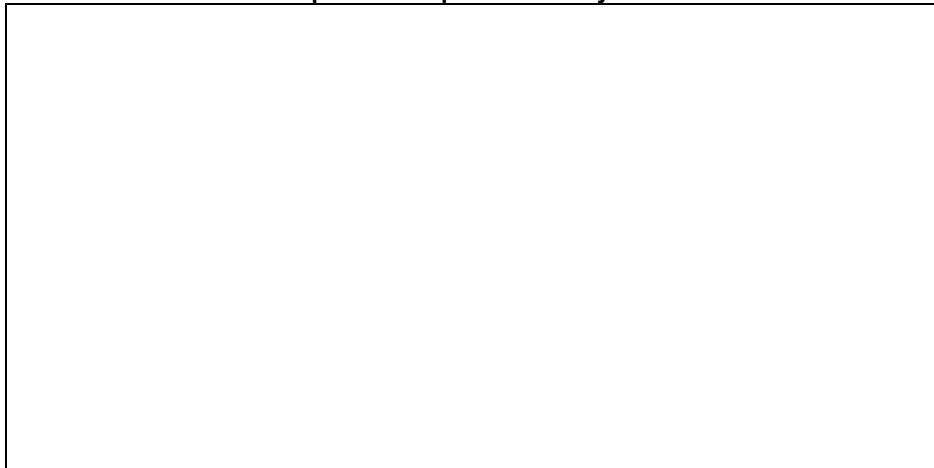
The smallest enterprises in the beef industry:

- used more capital to achieve each dollar of revenue than the larger enterprises;
- achieved low capital efficiency per productive unit (i.e. DSE); and
- had high capitalisation rates per unit of land area.

In contrast, the largest 5 per cent of producers employed only :

- 20 per cent of the capital required by the smallest to generate each dollar of revenue;
- 30 per cent of the capital of smaller farms to sustain each productive unit.

Diagram 3.6
Beef Industry
Comparative Capital Efficiency Ratios



The reasons behind these differences are relatively simple to identify. There is a minimum level of equipment required to run any enterprise. While it follows that as an enterprise increases in size it needs additional equipment, there is a high fixed costs component to any farm, notably tractors, yards, sheds and fences. At the smaller end of the industry the enterprises are clearly unable to achieve full utilisation of the infrastructure. They are overcapitalised relative to their productive potential.

Furthermore, smaller enterprises traditionally have a more expensive land component that does not necessarily translate directly into higher productivity potential. This is due to several factors, as follows:

- The relatively low amount of capital required to purchase small parcels of land means the land can be sold at a premium on a per hectare basis.
- The proximity of the land to regional and capital centers means that non agricultural uses can have an effect on values.

Operating Efficiency

The ratio of operating-cost-to-gross-farm-income shows that some economies of scale are achievable when the size of operations are increased. However this does not hold true for some larger enterprises. In the beef industry, for example, some economies of scale are lost through servicing the large areas of land held by the big producers.

Diagram 3.7
Beef Industry Efficiency Indicators



Capital Investment

The points discussed above can be put into a comparative perspective of size and capitalisation. The capital utilised by the average of the largest 5 per cent of beef producers is to the order of six (6) times the capital utilised by the average of the smallest 50 per cent of producers (Diagram 3.8).

Diagram 3.8
Comparative Asset Utilisation
10-Year Average; \$'000/Enterprise

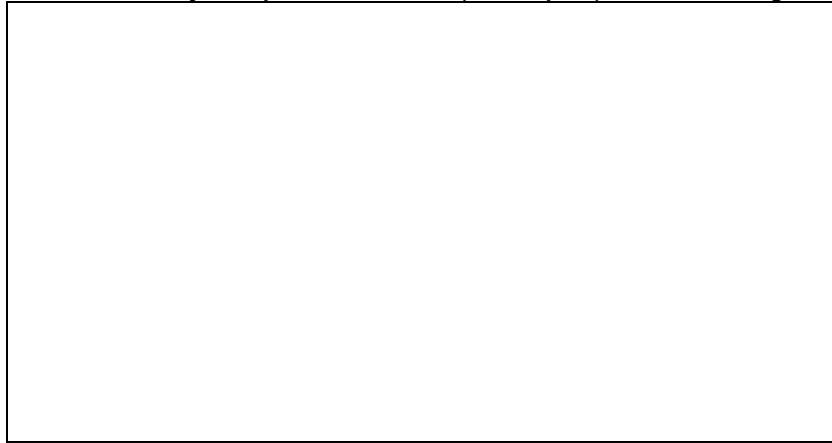


Profitability

Beef has been an above average performer in the rural sector. The profitability of the beef sector has suffered markedly after the record earnings of 1993-94 due to extraneous market conditions. It has blemished the record of beef as a venture with attractive returns.

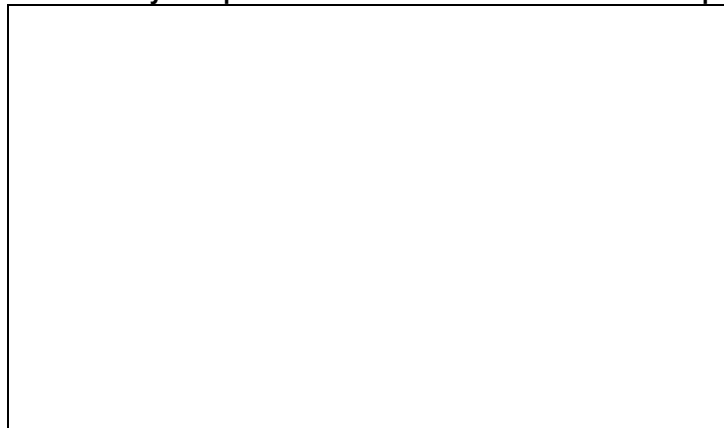
The smaller enterprises, for all the reasons noted above, are marginal and struggle to achieve profitability. In comparison, the largest 5 per cent of beef producers have averaged about 4 per cent / annum return on assets (ROA).

Diagram 3.9
Beef Industry Comparative Returns (Inc. Capital) 10-Year Average



In Chapter 4, more in depth examination of the financial and investment characteristics of the top 5 per cent in this sector is carried out. Diagram 3.10 below identifies the distribution of performance and the relative importance and relevance of each population group to profitability and revenue in the sector.

Diagram 3.10
Beef Industry Comparative Performance - Relevance of Groups



3.3.2 MIXED LIVESTOCK AND CROPPING

The mixed livestock and cropping sector generated an estimated turnover of about \$3.6 billion in 1996, losing its position as the biggest broadacre category in terms of revenue to cropping and in terms of the number of enterprises in the broadacre category to beef. Table 3.3 illustrates the key characteristics of the sector.

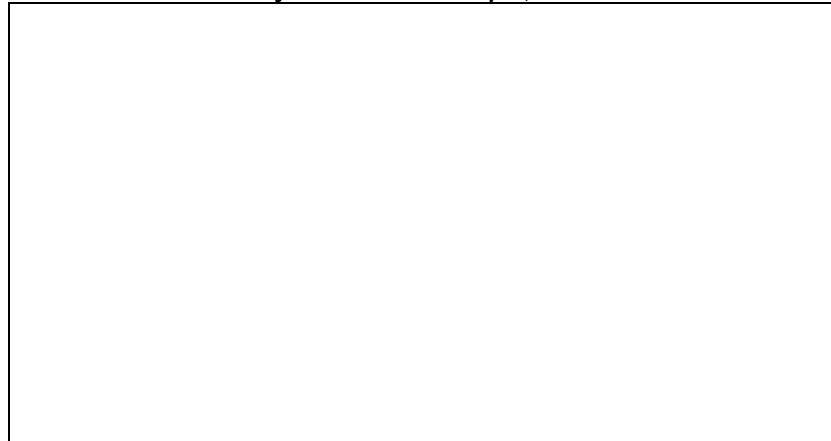
Table 3.3
Mixed Livestock and Crops
Key Operating & Financial Indicators

	1996						10 Year Averages			
	Population	Total Cash Receipts/ farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10 Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd.)
Group 1	8,964	67,521	605,260	572	5,128,854	90.9	(157)	-3.12	8.58	766
Group 2	5,343	191,867	1,025,166	1,123	6,000,404	86.9	(31)	-0.87	11.03	617
Group 3	1,815	339,585	616,449	1,486	2,697,574	79.7	52	1.31	11.47	546
Group 4	920	476,147	438,055	2,233	2,054,729	89.9	56	2.69	11.32	552
Group 5	909	949,901	863,175	3,623	3,292,189	76.8	122	3.78	11.60	540
Total Pop.			17,951	Total Group Assets		\$19,174 (\$M)	Total Return (\$ Mill)			\$42
Gross Revenue (\$'mill)			\$3,548	Av. Assets/farm		\$1,068,110	Av. Net Return			0.23%
Av. Income/Farm (\$'000)			\$198	Av. Equity		86%				

Size Distribution

In the past three years an average Group 5 farm has grown by 16% in terms of revenue while the growth of an average Group 1 farm has barely been 1%. The average revenue of a Group 5 farm is 14 times that of an average Group 1 farm.

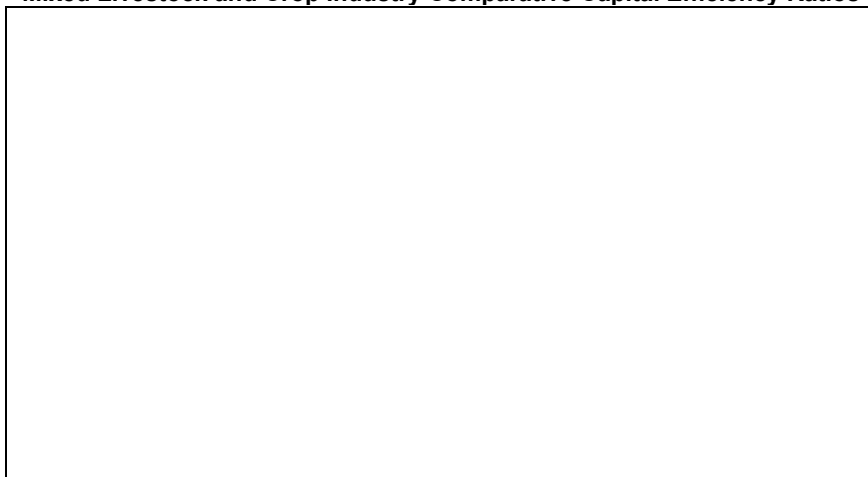
Diagram 3.11
Distribution of Mixed Livestock and Crops Enterprises
by Total Cash Receipts, 1996



Capital Efficiency

There is a marked difference in the capital efficiency, as measured by the asset to turnover ratio, between the largest and smallest mixed enterprises (Diagram 3.12).

Diagram 3.12
Mixed Livestock and Crop Industry Comparative Capital Efficiency Ratios

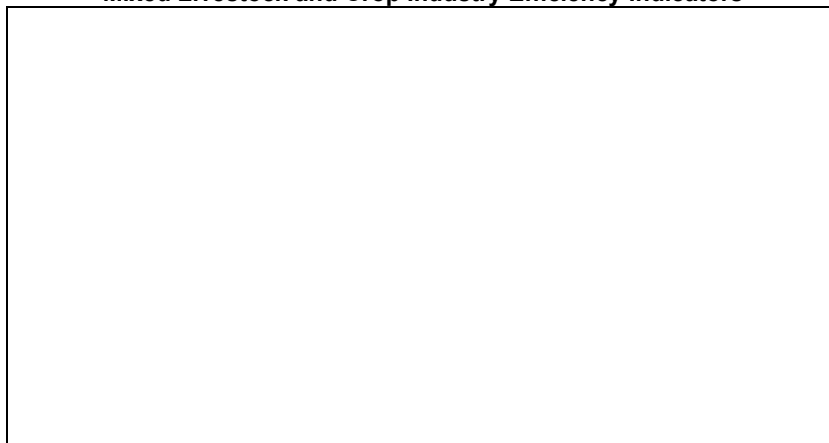


Unlike some of the other broadacre sectors, the top 5 per cent of enterprises in the mixed livestock and crops industry are not outstanding for their capital efficiency. In fact, the capital efficiency performance of the top three groups (i.e. the top 20 per cent of farms in terms of total cash receipts) is very similar. Because of the nature of mixed livestock and cropping farms, multiple activities are being carried out. Many of the major items of capital equipment are single purpose or unique to one enterprise activity (e.g. wool sheds, cropping equipment or cattle yards). It follows, therefore, that capital efficiency is more difficult to achieve within the normal farm size. The largest 5 per cent of mixed farms will require more capital to generate each dollar of income than will a comparable size farm specialising in one activity.

Operating Efficiency

The operating efficiency ratio also provides an insight into the characteristics of performance as the enterprise increases its size. Notably there are still economies being achieved as the enterprise increases in size, even within the largest 20% of the population. Minor percentage gains are of course significant where high turnovers are involved.

Diagram 3.13
Mixed Livestock and Crop Industry Efficiency Indicators



Capital Investment

The relative size of average enterprises in each group is illustrated below. The largest farm enterprises have, on average, six times the capital invested relative to the smallest farms. The average Group 1 farm has grown by 14% in assets in the past 3 years while an average Group 5 farm has grown by 30% in the same period. The larger farms are growing faster in utilisation of capital than the smaller farms.

Diagram 3.14
Mixed Farms Comparative Asset Utilisation



Profitability

The overall profitability in the mixed enterprises as measured by total return on assets for the past 10 years is very poor. The average net return achieved by farms in the mixed livestock and crop industry over the past 10 years has been only 0.23 per cent, with an annual return over the same period of \$42 million.

On average nearly 80 per cent of enterprises showed a negative return per annum over the past 10 years. Although all the groups have had similar numbers of positive and negative years in terms of rates of return, the smaller farms have been unable to achieve sufficient profit in the positive years to overcome their losses. Only the larger farms have been able to compensate in the positive years. This is illustrated in Diagram 3.15 below.

Diagram 3.15
Mixed Livestock and Crop Enterprises
Comparative Returns (inc. capital) 10 Year Average



However, there has been a significant reversal in the profitability of this sector in the past three years with the top 20% of farms starting to generate healthy profitability. No doubt that some of this reversal is due to the smaller farms exiting from this sector.

Diagram 3.16 highlights the relative contribution of the relevance of each population group within the industry to the overall performance of the categories.

Diagram 3.16

Mixed Livestock Cropping



Clearly, this broadacre category has some profitability problems. A misconception that exists in the minds of many observers and advisors is that enterprise diversification is a wise strategic move as it supposedly protects the farm against the volatile income streams. While the argument for income protection might be sustainable, it does not take into account the higher requirement for capital and the costs of servicing that capital. Cropping and livestock enterprises are not likely to be profitable, unless each farm activity attains sufficient economies of scale. The smaller farms are specially unable to generate these economies.

3.3.3 THE SHEEP SECTOR

Broadacre sheep farms generated an estimated total cash receipts of about \$721 million in 1996, representing 4.4 per cent of total industry turnover. The distribution of this income between enterprise size grouping is shown below in Table 3.4.

Table 3.4
Sheep Industry
Key Operating & Financial Indicators

Key Operating & Financial Indicators										
	1996						10-Year Averages			
	Population	Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10-Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd.)
Group 1	4078	24,158	98,524	608	2,481,098	85.7	(166)	-3.71	12.02	297
Group 2	2492	83,042	206,942	1000	2,491,777	92.0	(36)	-0.49	10.93	212
Group 3	817	166,802	136,311	1225	1,000,681	87.2	21	0.91	13.42	184
Group 4	415	264,303	109,712	1427	592,316	83.0	60	2.22	13.60	177
Group 5	411	412,681	169,694	2433	1,000,540	83.6	63	2.35	12.79	178
Total Population			8,214	Total Sector Assets		\$7,566,413	Total Return (\$Mill)			(\$58)
Gross Revenue (\$'mill)			\$721	Av. Assets/Farm		\$921,183	Av. Net Return			-0.37%
Av. Income/Farm (\$'000)			\$88	Av. Equity		87%				

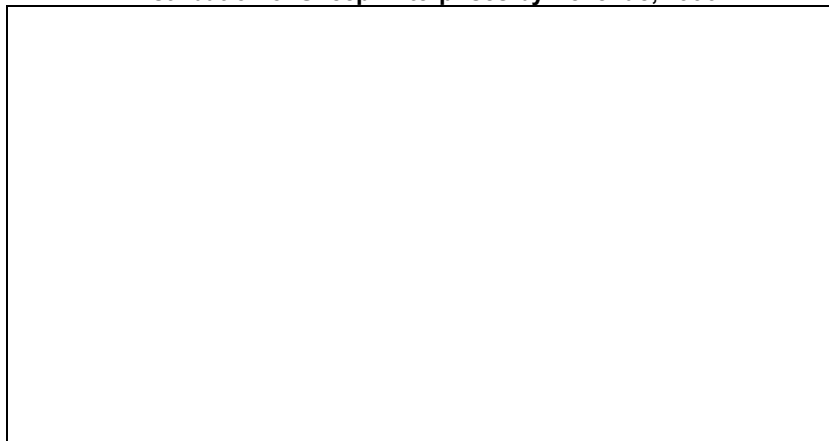
Several important characteristics emerge.

- Eighty per cent of enterprises turned over less than \$100,000 last year (1996).
- The largest producers, representing 5 per cent of the enterprises, averaged less than \$500,000 per annum cash revenue.
- Average assets per enterprise was slightly above \$920,000.
- The biggest producers had assets of more than 2.6 times the average and consistently generated low levels of profits (about 2 per cent).
- The average assets per farm have risen by 12% in the period from 1993 to 1996 while the average revenue per farm has fallen by 4%.

Size Distribution

Compared to other broadacre industries, the largest sheep farms averaged significantly lower income per enterprise, as illustrated in Diagram 3.17. The average income has fallen for the group 5 farms from 1993. This suggests the exit of big farms from this sector.

Diagram 3.17
Distribution of Sheep Enterprises by Revenue, 1996



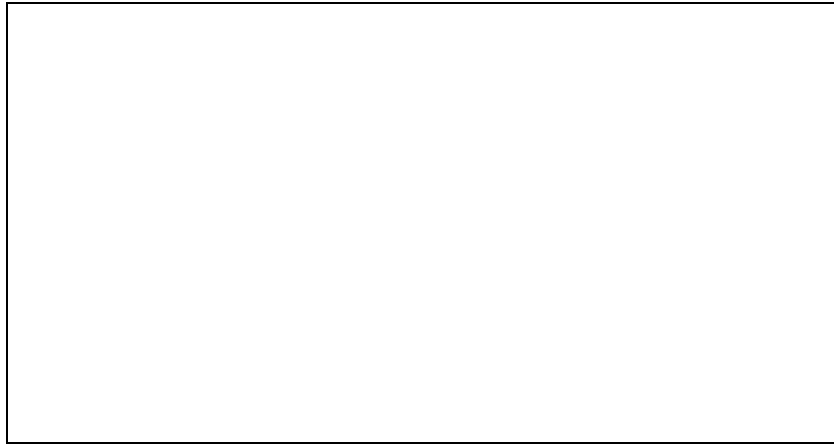
Capital Efficiency

As shown in Diagram 3.18 and 3.19 significant gains of capital efficiency occurs between the top 50 per cent and the bottom 50 per cent of enterprises. The operating efficiencies also are significant at this level. The largest 5 per cent of producers on a revenue basis do not demonstrate superior capital efficiency gains over the next two size groupings.

This suggests the following:

- That the largest farmers are not attaining sufficient size to capture additional economies of scale. The largest sheep farmers have annual turnovers that are the lowest of all broadacre categories (e.g. only 45 per cent and 29 per cent of the turnover of the top beef and cropping enterprises respectively).
- That there are incremental growth steps involved in achieving economies in sheep farming. The jump from one efficiency band to another may involve orders of expansion that are greater than the industry has been able to achieve to date.
- That impediments exist in the sheep industry at an enterprise level which prevent farmers from making quantum steps (i.e. two to three times) in their economies of scale.
- In the sheep sector the main gains in efficiency are made by enterprises moving from a Groups 1 size to a Group 2 size.
- Over the past three years, only the top three groups have recorded any gains in efficiency.

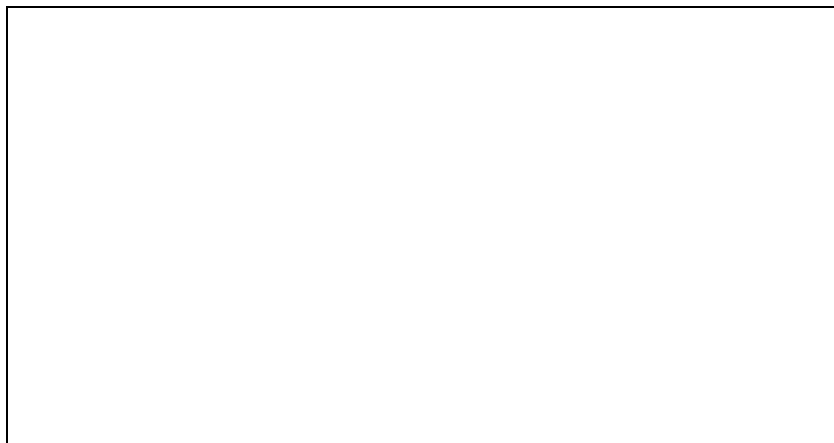
Diagram 3.18
Sheep Industry Comparative Capital Efficiency Ratios



Operating Efficiency

The apparent increase in the operating costs for the largest 5 per cent of sheep enterprises can be expected to relate to the shift in labour usage from families to employees. The total cost line shows that the economies of size are at least maintained.

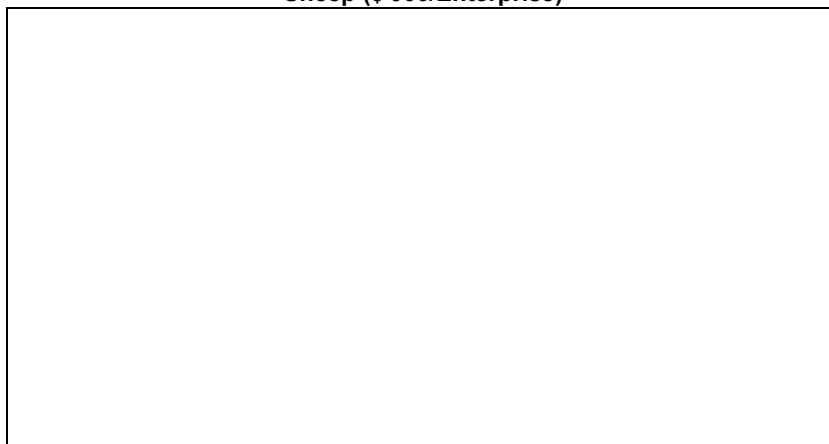
Diagram 3.19
Sheep Industry Efficiency Indicators



Capital Investment

The average capital investment at enterprise level in the sheep sector is \$920,000. The largest enterprises have more than four times as much capital invested as the smallest farms.

Diagram 3.20
Comparative Asset Utilisation 10-Year Average
Sheep (\$'000/Enterprise)



Profitability

Over the past 10 years, sheep enterprises have certainly enjoyed some good years in terms of production and commodity prices. However, the sector has produced poor results on average relative to the average of the broadacre industry. Average net returns over the past 10 years has been negative at -0.37 per cent, with an estimated aggregate loss for the broadacre category of \$58 million.

As shown in Diagram 3.21 below, the bulk of the losses in this sector were incurred by the approximately 6,500 farms that make up the bottom 80 per cent.

Diagram 3.21
Sheep Industry Comparative Returns (Inc. Capital) 10-Year Average

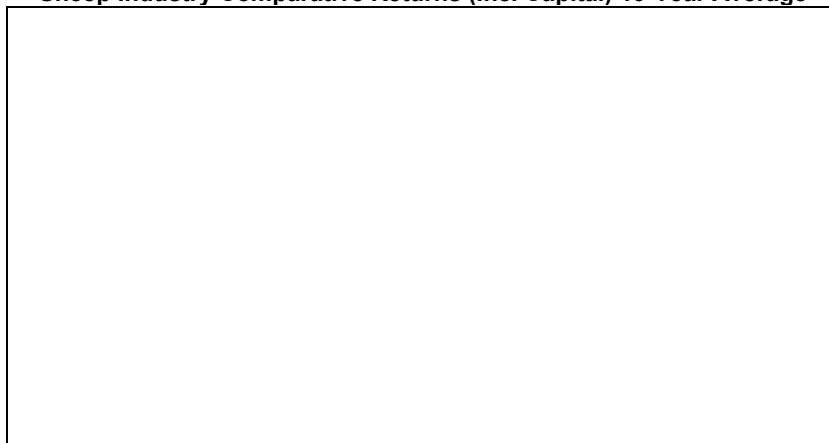
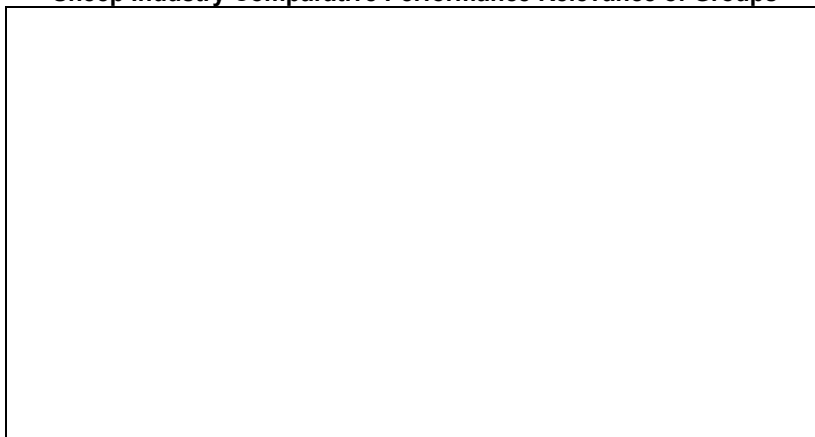


Diagram 3.22 below illustrates the relative performance and value of each of the five groups to the profitability of the sheep industry.

Diagram 3.22
Sheep Industry Comparative Performance Relevance of Groups



Once again, the high contribution of the top 20 per cent of farms to income and, more particularly, to the positive net return is highlighted.

3.3.4 SHEEP - BEEF ENTERPRISES

The sheep - beef sector broadacre farms represented 8.2 per cent of total broadacre revenue (\$1.3 billion) in 1996. The key characteristics of this industry segment are as follows:

- Turnover of the largest producers was less than \$520,00 in 1996 and is significantly below that of 1993.
- The largest producers had total assets that were 3.2 times that of the average and six times that of the smallest 50 per cent of enterprises.
- Average annual returns on assets for 10 years was less than 0.15 per cent and only 3 per cent for the largest producers.
- The larger enterprises sustain lower equity ratios.
- Over the past three years, the profitability of these enterprises has declined alarmingly due to the adverse conditions in both the markets.

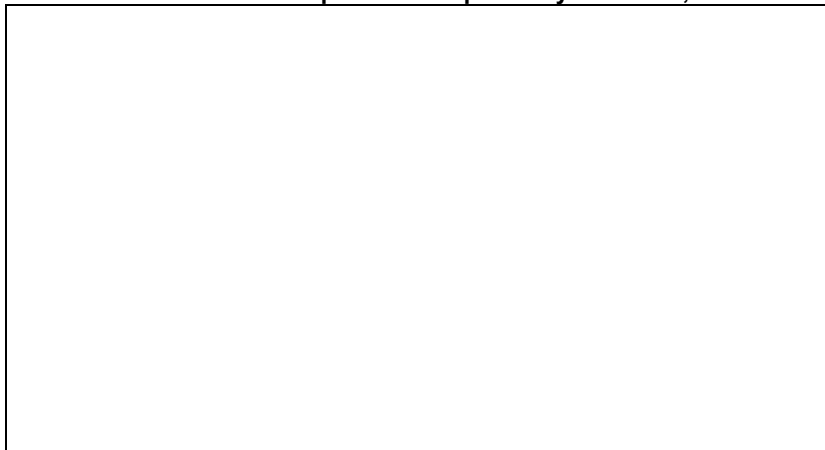
Table 3.5
Sheep - Beef Key Operating & Financial Indicators

	1996						10-Year Averages			
	Population	Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Ave Farm (\$'000)	Total Assets/ Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10-Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd).
Group 1	5762	42,373	244,132	592	3,411,756	95.0	(66)	-2.61	8.14	250
Group 2	3494	106,498	372,124	1077	3,762,531	93.2	(28)	-0.76	9.43	201
Group 3	1182	201,225	237,848	1,462	1,727,578	88.7	19	1.81	8.31	167
Group 4	569	304,128	172,988	1,976	1,124,207	82.1	32	2.17	12.60	169
Group 5	595	515,656	306,919	3,355	1,997,034	81.4	58	3.02	2.37	161
Total Population			11,602	Total Sector Assets			\$12,023,106	Total Return (\$Mill)		\$15
Gross Revenue (\$'mill)			\$1,334	Av. Assets /Farm			\$1,036,323	Av. Net Return		0.15%
Av. Income/Farm (\$'000)			\$115	Av. Equity			90%			

Size Distribution

As for all the broadacre industries, the distribution of farm size for sheep-beef enterprises consists of many small operators and only a few larger operators. Revenue for the top 5 per cent is 12 times that of the bottom 50 per cent.

Diagram 3.23
Distribution of Sheep-Beef Enterprises by Revenue, 1996



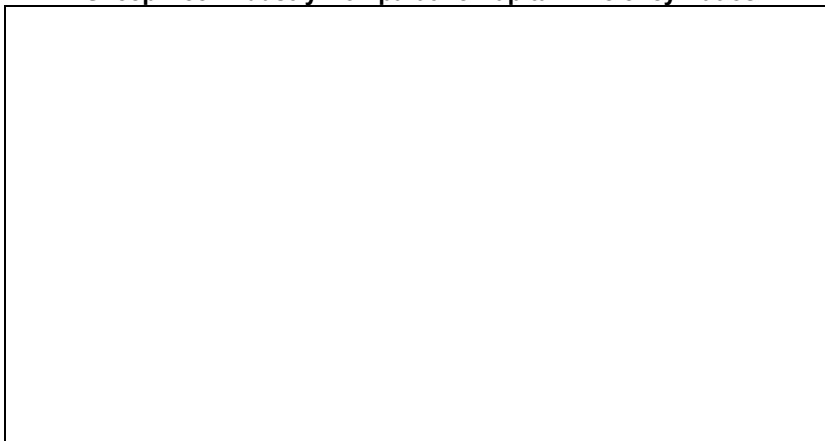
The different enterprise size groupings demonstrate very different levels of capital and operating efficiency and capital utilisation.

Capital Efficiency

Diagrams 3.24 and 3.25 below report the key indicator efficiency ratios. The larger sheep-beef enterprises (the top 20 per cent of operators) obtained better capital utilisation per productive unit (\$/DSE). There is a size advantage for the largest 5 per cent of sheep-beef enterprises compared to the next two size groupings. This observation applies particularly with respect to revenue generation per unit of capital.

The larger farms achieved better utilisation of their assets. The smaller farms on the other hand required similar fixed assets to those necessary on larger farms, but could not extract the full value from them. This is a common problem in a small business, especially where there is little opportunity to use smaller, light weight or more economical equipment and structures to reflect size.

Diagram 3.24
Sheep-Beef Industry Comparative Capital Efficiency Ratios

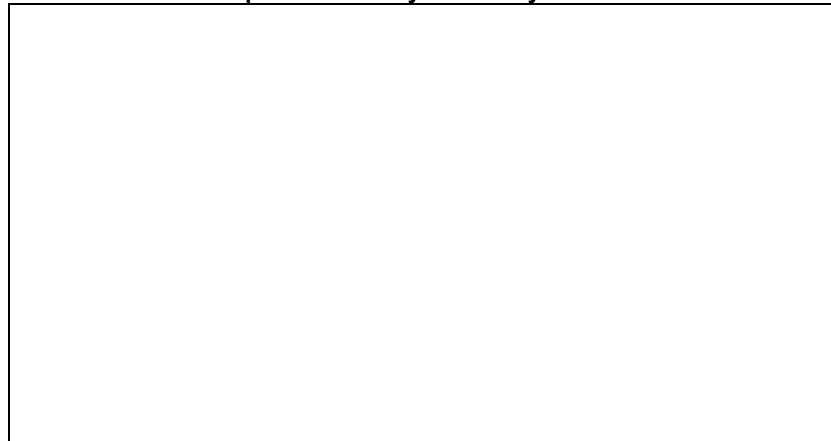


Operating Efficiency

There are in fact only small operating efficiency gains to be achieved through expansion between the largest farms and the next two groups. The costs of production are therefore less dependent on the size of the farm and less likely to strongly benefit from economies of scale.

The great proportion of operating costs are direct costs, which are dependent on through-put rather than size.

Diagram 3.25
Sheep-Beef Industry Efficiency Indicators



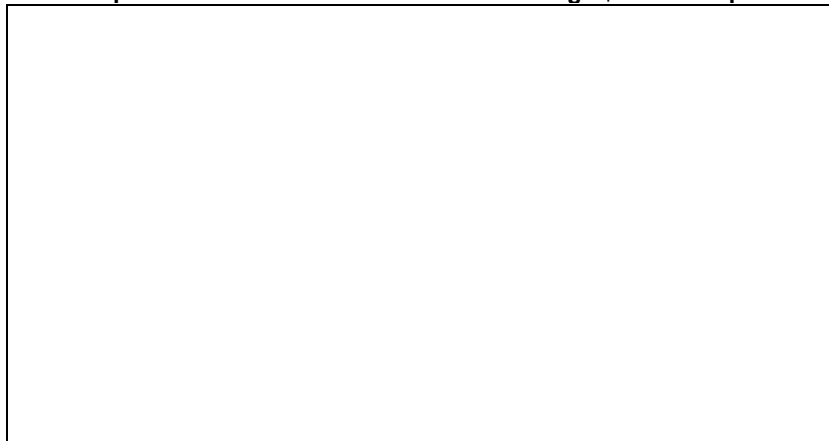
Key observations are:

- Increasing farm size in this category results in improved capital efficiency.
- The larger the enterprise the higher the income per dollar of capital invested.
- Cost of productive capacity declines with size.
- Operating efficiency improves dramatically with size as the smaller enterprises expand.
- Opportunities to achieve improved operating economies diminish rapidly in the very large groups.

Capital Investment

The average amount of capital invested in farms in the five groups of the sheep-beef industry are shown in diagram 3.26 below. The largest farm has on average 5.7 times the assets of the smallest 50 per cent of sheep-beef farms. Over the past three years the largest 5% of farms have on average reduced their assets by 9% while the smallest 50% of farms have on average increased assets by 20%. This has resulted in erosion of the profitability of the smaller farms at a faster rate than that of the larger farms, as discussed ahead.

Diagram 3.26
Comparative Asset Utilisation 10-Year Average \$'000/Enterprise



Profitability

The increased capital intensity of the smaller farms, reduced revenues and no improvements in capital efficiency over the past three years have made the sheep-beef industry one of the worst performers of the broadacre industry, second only to the sheep industry. The net return of the smallest group 80% have in aggregate doubled in losses from that in 1993. The largest producers have achieved average total returns to assets that are in the region of 3 per cent/annum over the past 10 years. The recent problems in the beef market and the continuing factors of the sheep industry are no doubt reflected in these figures.

Diagram 3.27
Sheep-Beef Industry
Comparative Returns (Inc. Capital) 10-Year Average



Over the past 10 years the whole category has averaged annual profits of only \$15 million. The larger producers (top 20 per cent of farms) have been the major contributors. In particular the top 10 per cent of farms (Groups 4 & 5), although only very small in terms of population, accounted for the bulk of the positive returns (Diagram 3.27).

The impact of these characteristics at an industry level is further illustrated in Diagram 3.28.

Diagram 3.28
Sheep-Beef Industry
Comparative Performance Relevance of Groups



3.3.5 CROPPING ENTERPRISES

Estimated turnover in all cropping enterprises in 1993 was \$5.3 billion, or 32.5 per cent of all broadacre revenue. It was the largest contributor of revenue in the broadacre industry.

Table 3.6
Wheat and Other Crops - Key Operating & Financial Indicators

	Pop	1996					10-Year Averages			
		Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10 Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd.)
Group 1	5762	192,788	1,110,882	714	4,111,744	87.5	(51)	-2.29	7.41	854
Group 2	3531	490,118	1,730,510	1419	5,009,837	84.5	122	3.49	8.45	661
Group 3	1173	856,414	1,004,402	2030	2,380,379	83.6	90	5.58	9.39	558
Group 4	561	1,015,271	569,872	2838	1,592,896	78.8	56	6.38	6.92	506
Group 5	629	1,422,170	894,687	2885	1,814,654	75.9	110	9.35	9.02	632
Total Population			11,656	Total Sector Assets		\$14,909,509	Total Return (\$Mill)			\$327
Gross Revenue (\$Mill)			\$5,310	Av. Assets/Farm			Av. Net Return			3.93%
Av. Income/Farm (\$'000)			\$456	Av. Equity		\$1,279,105 84%				

Size Distribution

Diagram 3.29
Distribution of Cropping Enterprises by Revenue, 1996



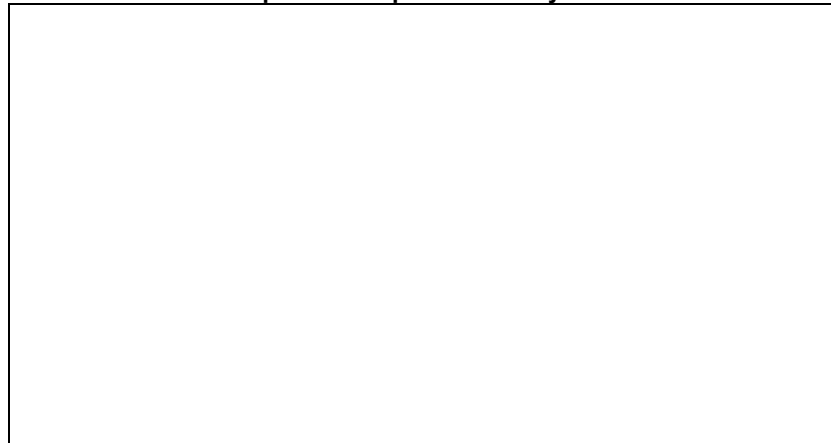
The distribution of the population of the cropping industry is in line with all other broadacre industries, with a high proportion of small producers and fewer large producers. The population of this sector has increased by an extraordinary 81% in the

past three years due its sustained profitability over the period, relative to that of the other sectors.

Capital Efficiency

The most meaningful indicator of capital efficiency in the cropping industry is the ratio that measures the total assets per hectare of land held by the enterprise. The larger cropping farms (20 per cent) clearly achieve a significant gain in capital efficiency over the smaller enterprises (50 per cent).

Diagram 3.30
Comparative Capital Efficiency Ratios

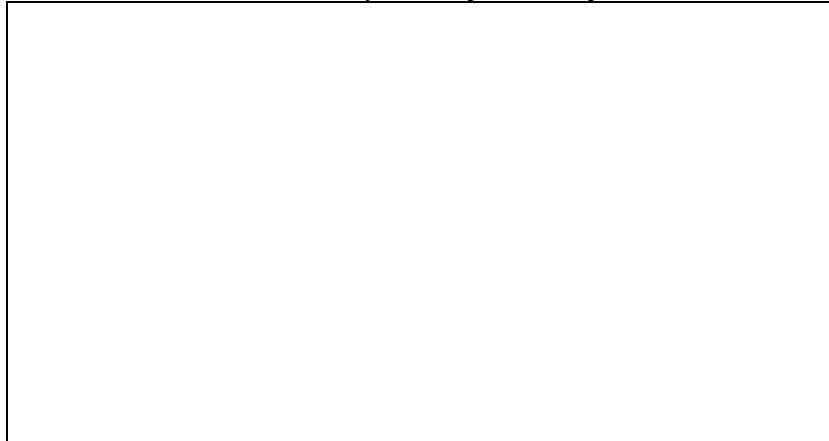


Similar behaviour is evident in the income-to-capital indicator. Larger farms are able to generate more revenue per unit of capital invested than their smaller counterparts with the largest 5% doing demonstrably better than the rest. While the assets used per hectare operated has not changed significantly in the past three years, the asset/revenue has certainly reduced.

Operating Efficiencies

The operating efficiency indicators show that larger farms continue to realise efficiency gains over smaller enterprises as they expand. The apparent anomaly in operating costs between the largest Group 5 (the largest producers) and Group 4 (the next largest) is largely explained by a shift in family labour to contract labour. In the ABARE treatment and AAS Pty Ltd adjustment, this shows a shift where the labour is charged.

Diagram 3.31
Wheat and Other Crop Industry Efficiency Indicators

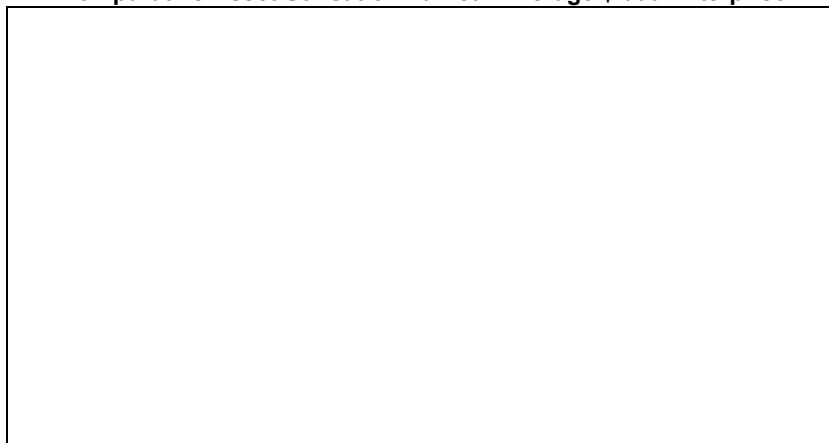


Capital Investment

The cropping industry is second only to the beef sector in the average value of assets per farm in each size category. Modern cropping practices require specialised machinery and equipment, some of which is crop specific and all of which requires a significant investment.

Notably, the largest cropping farms are some four times bigger on an assets basis than the smallest farms. This is not a more significantly different distribution than is observed in other sectors. It is interesting to note that while all other groups in this sector have increased their average assets in the past three years (some quite dramatically), an average Group 5 farm has reduced them by 17%. This may be due to a larger population leading to the inclusion of smaller farms in this category. The average assets per farm in Group 5 and Group 4 is not very different but there is a big gap in the average revenues that they earn. This has important consequences as is elaborated later.

Diagram 3.32
Comparative Asset Utilisation 10-Year Average \$'000/Enterprise



Profitability

As with all other broadacre sectors, the cropping industry demonstrates highest profitability in the larger enterprises. The distribution of profitable enterprises in the cropping industry extends to 50 per cent of the population on an average basis. However, the smallest 50 per cent of the enterprises have averaged very significant losses over the past 10 years.

Factors which influence these losses are as follows:

- high plant and equipment costs associated with cropping
- inability to achieve sufficient scale to cover finance costs
- inability to achieve minimum size for capital efficiency benefits
- the need to finance capital costs before crop can be planted

Diagram 3.33
Wheat and Other Crops Industry
Comparative Returns (inc. Capital) 10-Year Average



A 10-year comparison of the operating profit (PBIT) performance of each size group within the cropping industry demonstrates a radical difference between the top 5 per cent and the bottom 50 per cent.

Diagram 3.34
Wheat and Other Crop Industry
Comparative Performance Relevance of Groups

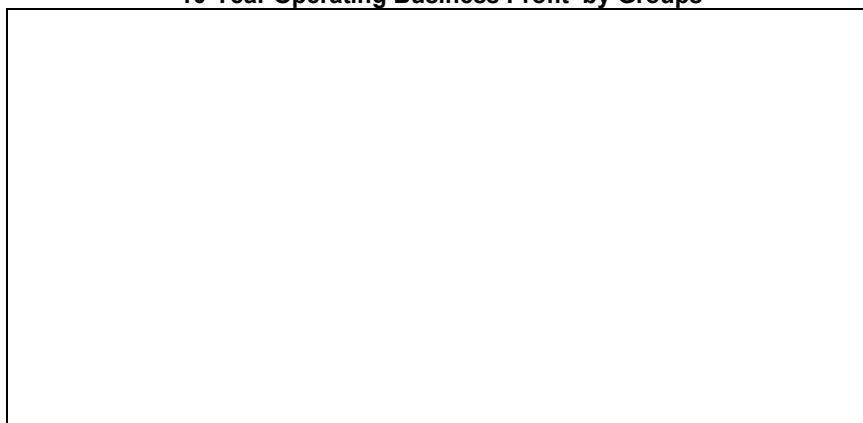


The largest 5 per cent have experienced relatively significant profits during the past 10-years. The smallest enterprises (Group 1) have generated negative operating profits for eight of the past 10 years. The difference between the top 5 per cent and the next 5 per cent (Group 4) is also notable. In fact, although Group 4 has also had positive profits for the past 10 years, these have been noticeably lower in seven of those years. Average capital per farm is very similar in the case of Group 4 and Group 5 farms and is not very different from the Group 3 farms. In the past two years Group 4 farms have even operated larger areas than Group 5 farms on an average. Yet the profitability of the of the largest group is markedly greater. This suggests that either

the largest group uses capital more efficiently or that geographical and natural factors are responsible for the difference in their performance.

The operating profits being measured are before interest is paid. Given that the average farm is carrying some level of debt, those enterprises with consecutive years of negative returns are unable to meet their borrowing costs. The volatility of the cropping sector is evident in the graph below and highlights the vulnerability of smaller enterprises, which are essentially overcapitalised for the relative productive capacity of their enterprise.

Diagram 3.35
Cropping Sector
10-Year Operating Business Profit by Groups



3.3.6 DAIRY ENTERPRISES

In 1996, Dairy enterprises generated a revenue of \$ 2.9 billion equivalent to 18 per cent of the revenue of broadacre farming. After cropping, it was the most profitable of all industries and generated the highest net return (46%, \$417 million) in the agriculture sector. It was the only industry where the smallest 50% of the farmers were profitable as a group during 1996 (but this figure will be evaluated later). The volatility of its returns were also very low. An important aspect of the industry is that it is profitable despite the average farm income being less than half that of the cropping sector.

Table 3.7
Dairy Industry
Key Operating & Financial Indicators

	1996						10-Year Averages			
	Population	Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10 Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Milk (\$/Lt.)
Group 1	6881	106,543	733,070	642	4,414,375	89.7	39	1.30	4.19	2.12
Group 2	4206	214,992	904,191	1122	4,719,650	85.2	39	1.28	12.66	1.73
Group 3	1363	325,062	443,091	1614	2,200,418	85.5	106	6.35	4.05	1.66
Group 4	701	448,046	313,946	2086	1,461,462	87.8	69	6.73	3.23	1.66
Group 5	718	730,911	524,794	2797	2,008,246	76.1	163	8.53	5.74	1.76
Total Population			13,868	Total Sector Assets		\$14,804,152	Total Return (\$Mill)			\$417
Gross Revenue (\$'mill)			\$2,919	Av. Assets/Farm		\$1,067,504	Av. Net Return			3.37%
Av. Income/Farm (\$'000)			\$210	Av. Equity		86%				

Size Distribution

The distribution of the population of the cropping industry is in line with all other broadacre industries, with a high proportion of small producers and fewer large producers.

Diagram 3.36
Distribution of Dairy Enterprises by Revenue, 1996



Capital Efficiency

The indicator of capital efficiency used for the dairy industry is the ratio of total assets per litre of milk produced by the enterprise and the asset to turnover ratio. As indicated in the diagram below, there is no significant difference between the ratios among the largest 50% of the farms. Yet the difference in their profitability is significant suggesting that fixed costs are a major component in the industry.

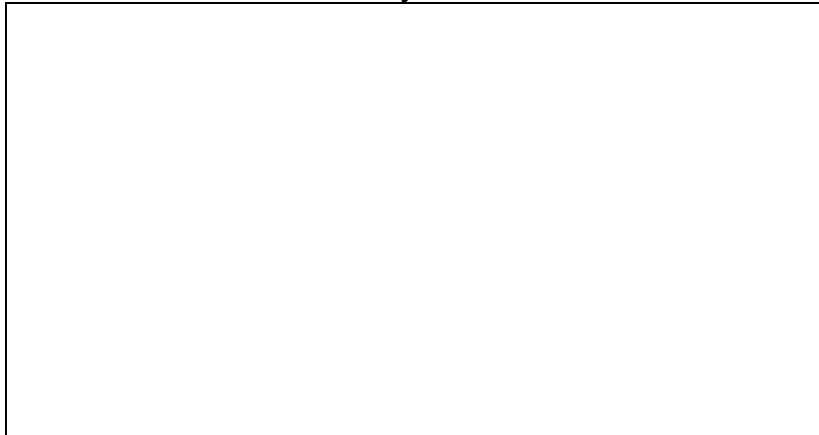
Diagram 3.37
Comparative Capital Efficiency Ratios



Operating Efficiencies

Diagram 3.38 demonstrates that economies of scale are widely prevalent in the dairy enterprises. The total costs as a ratio of revenue fall as we progress through from the smaller operators to the larger groups. The operating costs do not change as in this industry, the family labour component is a significant cost in the smaller enterprises. The largest gain is from Group 1 to Group 2 farms. The trends are similar to that of the other sectors in the broadacre industry.

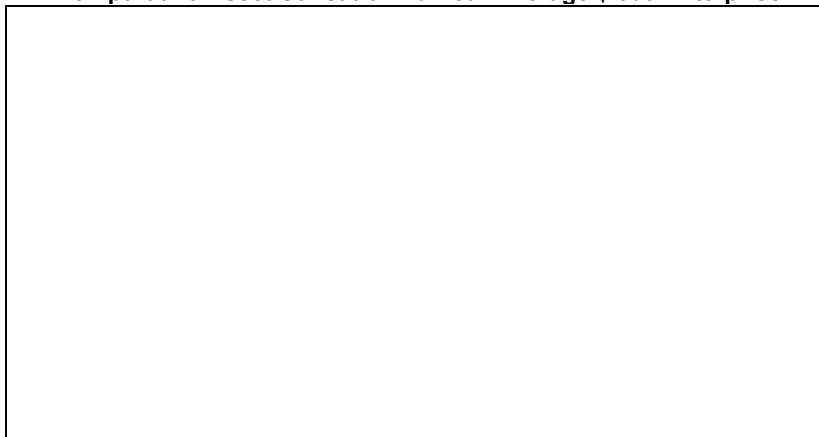
Diagram 3.38
Dairy Industry
Efficiency Indicators



Capital Investment

The dairy industry is highly capital intensive depicted by the large capital to revenue ratios. However, they do not possess more capital when compared with the farms in the other broadacre categories. The largest dairy farms are 4.4 times the size of the smallest in terms of assets. On average, 86% of the assets in dairy are financed through equity. While the asset to turnover ratio did not change substantially among the top 4 groups, a higher usage of capital by the larger groups means that they generate much larger incomes. The comparison of the different groups is shown in Diagram 3.39 below.

Diagram 3.39
Comparative Asset Utilisation 10-Year Average \$'000/Enterprise

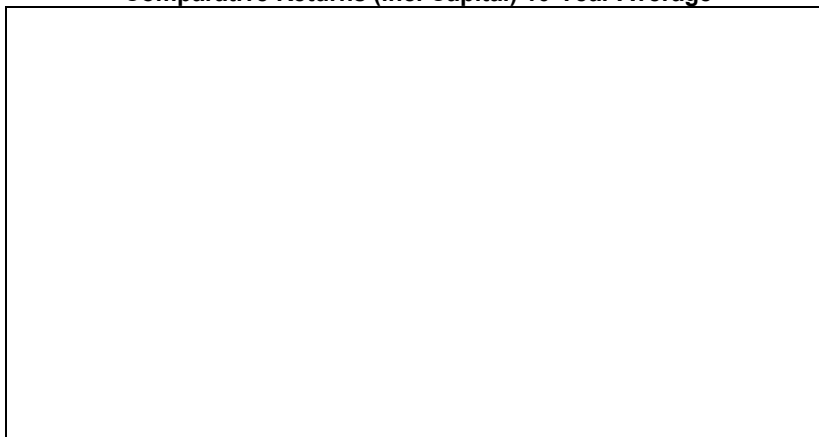


Profitability

While the ten year averages do show that Group 1 farms in dairy industry are profitable, they have generated profits in only four of the past ten years. They have a negative profit margin in all these years. In the seven years since 1990, they have been profitable in only one year as a result of substantial capital appreciation. The seemingly low profitability of Group 2 farms is not justified as the average has suffered due to an abnormally large reduction in the value of its capital in 1990. This group has generated positive operating margins in seven of the past ten years. If the performance of 1990 is discounted, it generates a return on investment of nearly 5%.

- Group 1 farms are not economical when compared with the other groups in dairy industry. They suffer from low capital efficiency and can achieve significant economies of scale by progressing in size. Moreover, the large capital requirements and the associated high finance costs also affect the financial viability of this group.
- The profitability of this sector is second only to the cropping industry. In fact the return on investment for Groups 2, 3 and 4 are larger than that in cropping. The larger return for Group 5 farmers in cropping pull up its average.

Diagram 3.40
Dairy Industry
Comparative Returns (inc. Capital) 10-Year Average



The relevance of each group in terms of population, income and net return is depicted in Diagram 3.41 below.

Diagram 3.41
Dairy Industry
Comparative Performance Relevance of Groups



3.4 CONCLUSION

Broadacre agriculture has a highly skewed performance distribution. Gross returns on average are very low. The smallest 50 per cent of producers, on average, are unprofitable. Sustainability in this group is dependant on off-farm income. The largest producers demonstrate significantly better profitability.

The dairy and cropping industries are the most consistent profit generators over a 10-year period. The population of the cropping enterprises has risen by 81% from that in

1993. While beef industry has been the most popular in 1996, its profitability has suffered over the past two years.

Profitability in broadacre agriculture is dependant on achieving efficient use of capital. Smaller enterprises have low capital efficiency.

The sheep industry is yet to become profitable despite the reduction of its population by 53%. Diversified agriculture and sheep-beef farming also suffer from profitability problems. The high cost of capital and the enterprise-specific nature of the capital mitigates against achieving economies of scope and results in overcapitalisation.

4.0 BENCHMARKING THE BEST FINANCIAL PERFORMANCE IN AGRICULTURE

4.1 PERFORMANCE GROUPS AND SECTORS

In Chapter 3 the characteristics of all broadacre industries were described in broad terms. The objective of this chapter is to identify the enterprise groups that deliver the best financial performance in broadacre agriculture industries. The best performers will be used to benchmark the performance of agriculture against alternative investments.

4.1.1 IS LARGEST GENERALLY BEST ?

Implicit with the initial distribution sought from ABARE Farm Surveys data was an assumption that larger farms would, in general, be more profitable. The analysis in the previous chapter confirmed the validity of this assumption. By way of perspective, Diagrams 4.1 and 4.2 highlight the comparative sizes of the respective population groups between enterprise categories.

Diagram 4.1
Average Annual Turnover - Largest 20% of Broadacre Farms



Diagram 4.1 clearly indicates that all Group 5 (top 5 percent) enterprises have higher turnover than the Group 4 producers in all industry categories. This observation is also true for operating profits (Diagram 4.2). Thus, examining the comparative financial performance of the largest 5 percent of producers for analysis is an appropriate and inclusive indicator of best average performance.

Table 4.2
Average Operating Profit - Largest 20% of Broadacre Farms

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In broadacre agriculture the largest enterprises based on (sales) revenue are also the best financial performers.

4.2 KEY INDICATORS OF FINANCIAL PERFORMANCE

Four key indicators of financial performance can be reasonably applied. They are as follows:

- Size, measured by :
 - average annual revenue as an indicator of comparative business size
 - average gross assets as an additional indicator of comparative business size
- Profitability, measured by:
 - average profit before tax (PBT)
 - average annual return on equity as a percentage
- Operating efficiency, measured by:
 - average total return including capital appreciation
 - volatility of the return on equity
- Financial structure, measured by:
 - debt to equity reported as equity percentage

All indicators are based on 10-year averages.

Table 4.1
Comparative Average Performance (10 Yr) - Top 5% Broadacre Producers

Sector	Av. Annual Revenue \$'000/ann	Av. Return PBT \$'000/ann	Av. Return Cap. App \$'000/ann ¹	Av. Gross Assets \$'000	Equity (%)	Return ¹ on Equity (%)	Volatility of Return (%)
Beef	1,274.2	150.8	196.2	4,801.9	69.7	6.1	8.0
Beef/Sheep	681.3	90.6	127.0	3,779.8	80.6	3.6	12.3
Sheep	569.8	52.9	81.1	3,044.1	82.3	2.8	15.5
Mixed	849.4	101.3	132.0	3,045.2	78.6	4.9	14.5
Cropping	1,000.5	168.2	257.5	2,574.4	70.5	14.2	14.8
Dairy	518.9	67.5	220.5	2,552.6	80.5	10.7	7.4

Source: ABARE: AAS Derived

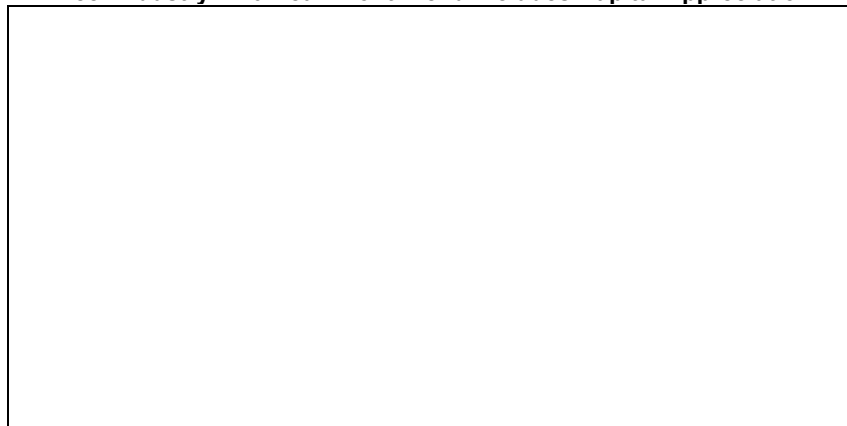
1 Includes capital appreciation

Table 4.1 establishes a clear picture of the average size and performance of the best producers in each of the broadacre industries. These enterprises make up the top 5 percent of their respective industry. However, each sector has enterprises that are fundamentally different in terms of capital structure, size and returns. The average return on the investment ranges from as low as 2.8 percent/annum in sheep farms to a more healthy 14.2 percent in the cropping industry. Notably, these two extremes of the spectrum come from farms with very similar gross assets.

4.2.1 BEEF

The returns achieved in the beef industry by the top 5 percent of operators over the past 10 years are illustrated in Diagram 4.3.

Diagram 4.3
Beef Industry - 10-Year Profit Trend Includes Capital Appreciation

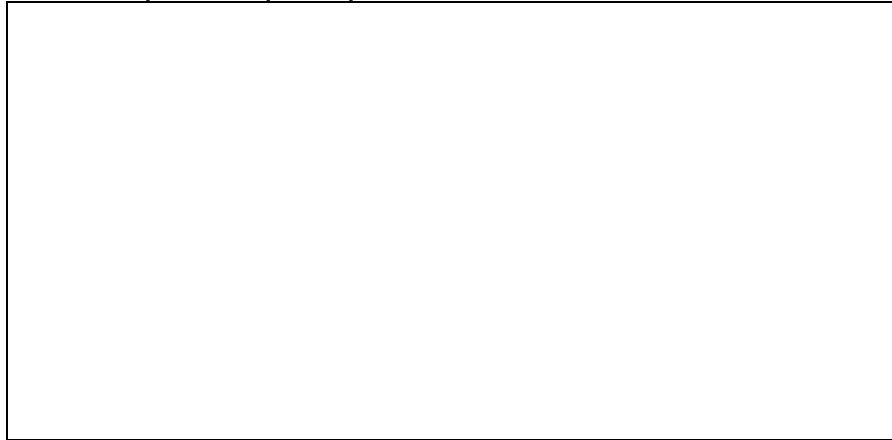


In seven of the past 10 years, a positive return on assets was achieved by the largest beef producers. The volatility of returns (at 8 percent) was only second to the dairy industry. In the best years, returns as high as 10.7 percent were achieved.

4.2.2 SHEEP AND WOOL

During the period of analysis the sheep and wool sector was a less than attractive investment. The top 5 percent of enterprises were relatively small businesses with average turnovers nearly 50 percent less than the average in the beef sector. The average return on assets was a low 2.35 percent with three of the 10 years producing negative returns. The volatility of returns in the sheep and wool sector was comparatively high at 15.5 percent. The performance of the top 5 percent of sheep and wool broadacre producers over 10 years is illustrated in Diagram 4.4.

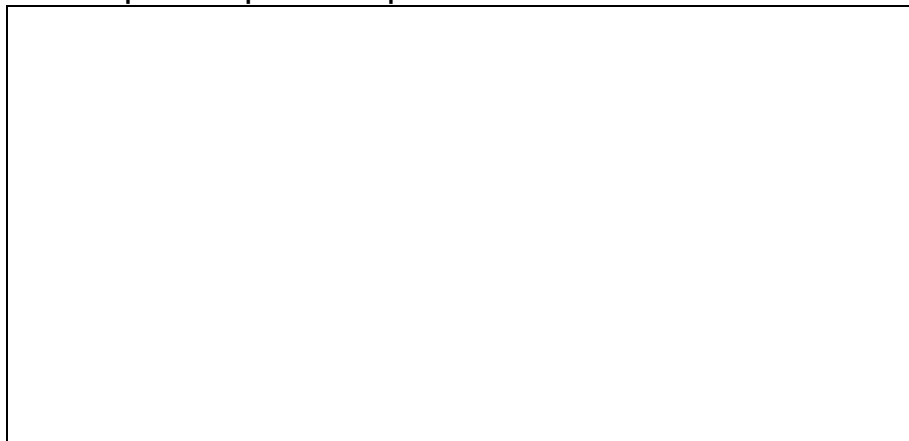
Diagram 4.4
Top 5% Sheep Enterprises - 10-Year Financial Performance



The factors influencing wool are well documented elsewhere. It is noteworthy that the regulated market that dominated this industry during the 1980s would have produced significant distortions in the financial performance of this sector. Thus, the true level of profitability is probably not easily determined through this analytical approach.

4.2.3 SHEEP-BEEF

Diagram 4.5
Top 5% Sheep-Beef Enterprises - 10-Year Financial Performance



The performance of the mixed livestock category of sheep-beef is illustrated in Diagram 4.5. As is to be expected, returns reflect similar patterns to the specialist enterprises of beef and sheep respectively.

The impact of “diversified” activities has been to produce average annual returns lower than that of beef and higher than that for sheep and wool.

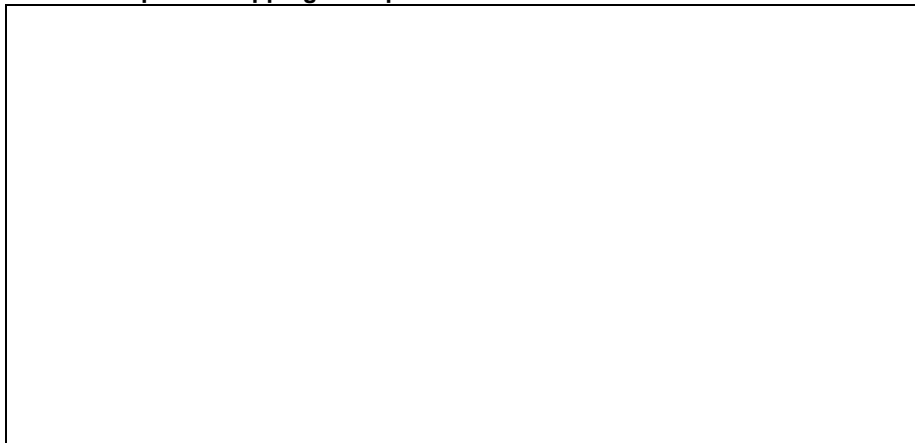
The rationale of this combination is financially questionable as there is no significant improvement in financial returns or risk management. The combined performance does not significantly reduce the enterprise risk (volatility at 12.3 percent). For sheep farmers it has provided a higher income and lower volatility to a small degree only. The sector suffers from low capital efficiency as sufficient scale of operations are not reached in either of the industries.

4.2.4 CROPPING

The top 5 percent of cropping industry producers deliver the best investment returns in broadacre agriculture. This sector produces profits in eight out of 10 years and has achieved returns to assets peaking at 24.9%. The average annual return over 10 years is 9.35 percent on assets and an attractive 14.2 percent on equity.

This sector, however, has a high volatility of return (14.8 percent) reflecting the dominant characteristics of this sector, which are a high dependence on seasonal conditions and variable commodity prices.

Diagram 4.6
Top 5% Cropping Enterprises 10-Year Financial Performance



4.2.5 MIXED BROADACRE FARMS

The performance of the top 5 percent of mixed farming enterprises is shown in Diagram 4.7. This sector has neither decreased the volatility of returns that are associated with a diversified enterprise nor have generated attractive returns. The trend suggests that the diversified sector is unable to achieve sufficient scale in its activities to gain operating efficiencies and that it is unable to capture economies of scope.

In three out of 10 years this sector achieved negative returns on assets. The average total return on assets over the past 10 years has been a 3.78 percent and return on equity is less than 5 percent with a volatility of returns a comparatively high 14.5 percent.

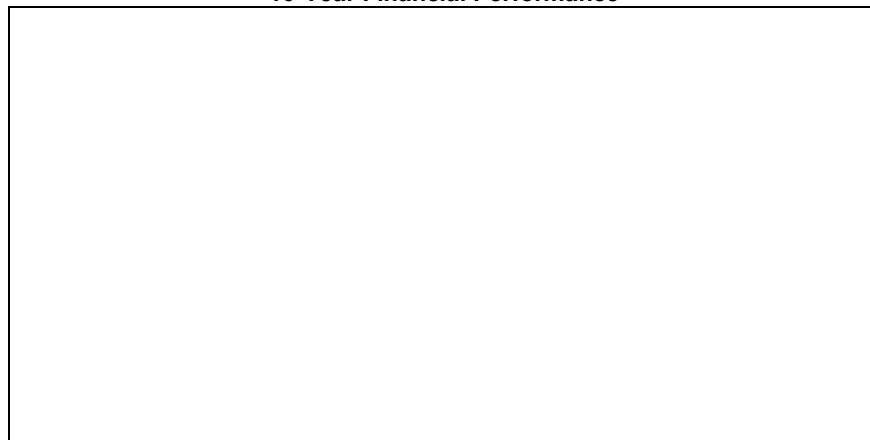
Diagram 4.7
Top 5% Mixed Livestock & Cropping Enterprises
10-Year Financial Performance



4.2.6 DAIRY FARMS

The performance of the top 5 percent of dairy farming enterprises is shown in Diagram 4.8. The dairy farms have consistently generated positive net returns in all of the last ten years. However, the returns have not been as high as cropping and beef farms in absolute terms. The profitability is second only to cropping but the volatility is significantly less than cropping. The average return on assets for the past ten years is a healthy 8.53% with a peak of up to 19%. The ten year average return on equity is 10.7% with a volatility of 7.4%.

Diagram 4.8
Top 5% Dairy Enterprises
10-Year Financial Performance



4.2.7 KEY CONCLUSIONS

The following key observations can be drawn about the comparison between broadacre agricultural industries:

- A significant range of financial performance exists between the major broadacre combinations.
- The best financial performance is achieved by specialisation.
- Managing a diversified farm enterprise results in reducing the financial performance of the more attractive specialised activities such as beef or cropping. Rather than create synergies and reduce volatility, diversification inhibits achieving sufficient scale to attain capital efficiency and does not provide economies of scope.
- Previous performance in the sheep and wool industries may not be a fair indicator of future performance. Opportunities for better results may emerge as new market conditions prevail.

It must also be noted that beef, cropping and mixed farming have generated positive operating profit before tax in all the past ten years. The negative returns in some years are due to negative capital appreciation rather than operational losses. The positive capital appreciation included in other years balance out the impact on average returns.

4.3 BENCHMARKING CORPORATE AGRICULTURE

4.3.1 OWNERSHIP STRUCTURE OF AUSTRALIAN AGRICULTURE²²

Australian agriculture is dominated by family owned farms. 99.6% of the farms are owned by families and only 0.4% are corporates. Partnership is the most common business structure and 82% of the farms have this structure. 12% are sole proprietorships and barely 2% are companies. 1.5% of the farms are managed farms where there is a distinction between ownership and management. of these, 1.1% are family owned and the rest or 0.4% have corporate structures.

Corporate owned farms produce 6.5% of the gross value of production and operate 26.3% of the land in the industry. This is due to the high involvement in beef with 19.3% of the beef turn off produced by the corporates. Their involvement in other sectors is relatively small.

4.3.2 DEFINING CORPORATE AGRICULTURE

Strictly speaking, corporate agriculture can be defined as farm enterprises where the management and ownership have been established with a corporate structure and with corporate principles. That is, where ownership and management are separate functions and the organisation's legal and management structures reflect this difference.

In Australia, there are limited examples of corporate farming and invariably they are on a large scale. Some of the large financial institutions and private investors have developed large agricultural enterprises that are managed as corporations.

²² ABARE Farm Survey, 1996 - figures for 1995

In this project we have elected to define corporate agriculture as any enterprise that owns large holdings which require a formalised arm's length management reporting structure. Our definition is also intended to include enterprises whose size and hence invested capital is generally equivalent to small and medium-sized public companies.

In some sectors of agriculture, corporate farming has played a significant and permanent role. This is particularly so in the beef industry and in those sectors that are able to sustain greater integration of functions and control, such as some horticultural activities and the intensive livestock sectors (poultry/pig). In Australia, however, there are only a few examples of successful corporate agriculture in other broadacre industries.

4.3.3 THE MAJOR CORPORATE BROADACRE FARMERS

The table below (Table 4.2 and 4.3) identifies the top 10 major institutional, corporate or private broadacre farms. The lists are indicative only and based on Australasian Agribusiness Services Pty Ltd internal data base²³. A more extended list is included in Volume II Appendix V.

Corporate Beef Producers

Table 4.2 identifies that the largest 10 corporate beef producers which account for nearly 1.8 million cattle. This is equivalent to about 10 percent of the national beef herd. They hold land areas of about 52.9 million hectares.

Table 4.2
Australian Corporate Beef Producers

Company	Ownership	Area	Properties	Cattle
Stanbroke Pastoral Co.	Public	10.1	27	350,000+
Aust. Agricultural Co	Public	6.4	16	350,000
Heytesbury	Public	5.6	20	250,000
Consolidated Pastoral	Public	4.5	14	191,000
Qld & NT Pastoral Co	Public	2.7	13	160,000
North Aust. Pastoral	Public	6.0	13	130,000
S. Kidman & Co	Public	11.7	19	120,000
Mc Donald Family	Private	3.1	9	110,000
Desa Cattle Co	Public	0.9	4	65,000
Tipperary	Public	1.9	8	65,000
Total		52.9	143	1,791,000+

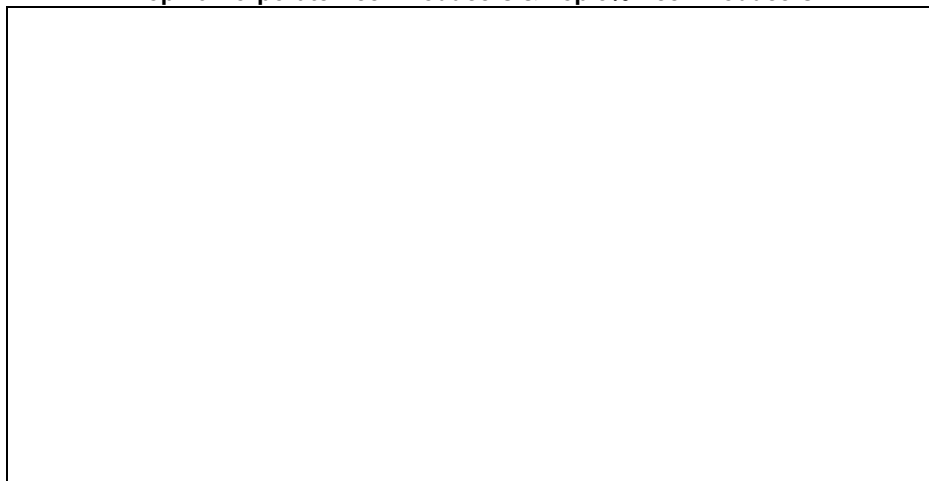
Source AAS Pty Ltd Derived

The relative size of these enterprises is illustrated in Diagram 4.9. This graph shows that the top two are about twice the size of the fourth largest. In comparison the largest corporate beef producers are 74 times bigger than the average Group 5 beef farmer (i.e.

²³ There is no formalised data source for this sector. Corporate farmers do not perform necessarily as a homogenous sector and tend to keep details of their enterprises confidential.

top 5 percent) defined earlier in this paper. The 10th largest corporate beef farm is nearly 14 times bigger than the average Group 5 beef producer.

Diagram 4.9
Comparative Size
Top 10 Corporate Beef Producers & Top 5% Beef Producers



Corporate Sheep and Wool Producers

A similar pattern of distribution occurs among corporate sheep producers. Notably, the top 10 producers are mutually exclusive of the top 10 beef producers. National Mutual, however, is a significant producer of beef and cotton in its own right, as is Commonwealth Funds Management (CFM).

Table 4.3
Australian Major & Corporate Sheep Producers

Company	Owner-ship	Area ('000) Ha	Properties	Cattle	Sheep	Cotton
National Mutual	Institution	583	18	42,000	360,000	20,000
McLachlan Family	Private	4,200	31		350,000	
Mc Bride	Private	900	13		225,000	
Brinkworth	Private		13	20,000	200,000	
Twynham	Corporate	366	29		200,000	5,000
News Corp	Corporate	144	9		170,000	
Conventry Sperry	Private	42	15		140,000	
Clyde	Corporate	508	10	5,000	90,000	
CFM (Canberra)	Institution	177	8	7,600	76,000	20,000
Totals		6,920	146	74,600	1,811,000	45,000

National Mutual and the McLachlan family are estimated to be the largest sheep farmers in Australia. These producers are both more than 1.5 times larger than the next largest and some 23 times bigger than the average of the Group 5 sheep producers.

The top 10 sheep producers account for an estimated 1.8 million flock or about 1.5 percent of the national stock.

Diagram 4.10
Comparative size
Top 10 Corporate Sheep Producers & Top 5% Sheep Producers



4.3.4 MEASURING THE PERFORMANCE OF CORPORATE AGRICULTURE

When this project was conceived, Australasian Agribusiness Services Pty Ltd had hoped to benchmark the performance of corporate agriculture against the performance achieved by the traditional family farm structure.

For a number of reasons, the data from these corporate enterprises is scarce. Major corporate farmers such as Heytesbury, National Mutual and AMP are remarkably shy about publishing the performance achieved in their rural investments. However, the *Australian Agricultural Company Ltd* is a public company, and was listed on the Australian Stock Exchange till 1995. It is also the equal largest beef producer in Australia²⁴ along with the AMP Society subsidiary *Stanbroke Pastoral Company*.

While the sample size is small and limited only to the beef industry, we have chosen to use *Australian Agricultural Company Ltd* and its publicly available information to benchmark the performance of this large corporate farming enterprise against that of the best performing enterprises in the non-corporate beef sector.

²⁴ Based on AAS Pty Ltd estimates of the cattle holdings of the properties. These holdings can vary from year to year and will reflect seasonal and management strategies from year to year.

4.4 THE AUSTRALIAN AGRICULTURAL COMPANY LTD

4.4.1 OVERVIEW OF THE COMPANY

Australian Agricultural Company Ltd (AAC) is one of the two (equally) largest beef producers in Australia. Incorporated in England in 1824, the company is probably the oldest surviving corporate agricultural enterprise.

Table 4.4
Key Statistics - Australian Agricultural Company Ltd
30th December 1994

Turnover \$'000	\$52,723
Operating Cost \$'000	\$38,132
PBT \$'000	\$14,591
Assets	
• Current \$'000	\$8,341
• Non-Current \$'000	\$147,201
Total Assets	\$155,542
Current Liabilities \$'000	\$20,130
Non-Current Liabilities \$'000	\$10,049
Total Liabilities \$'000	\$30,179
Shareholders Equity \$'000	\$125,363
Market Capitalisation	
Area	65,669 km ²
Cattle (stock)	335,745
Sheep	15,563
Sales	
• Cattle	82,119
• Sheep	4,247
• Wool (kg)	100,598

Source: AAC Annual Report 1994

AAC is principally involved in breeding, fattening and selling commercial beef cattle, breeding stud cattle and to a lesser extent growing sheep, wool and producing grain crops.

The company was listed on the Australian and London Stock Exchanges and has been acquired by Elders Australia Limited in 1995.

4.4.2 COMPARATIVE FINANCIAL PERFORMANCE OF AAC

Several key financial indicators are sourced in this case from AAC's company and annual reports²⁵, to establish comparable indicators of:

- capital efficiency
- operating efficiency
- profitability

Since the performance of AAC is published up to the year ending 31st December, 1994, the comparison has been done with the corresponding period for beef Group 5.

²⁵ In addition to the annual reports, the STATEX Report (Sydney Stock Exchange Research Reports) on Australian Agricultural Company (ASX Code AAG) has also been referenced along with recent broker research documents.

Capital Efficiencies

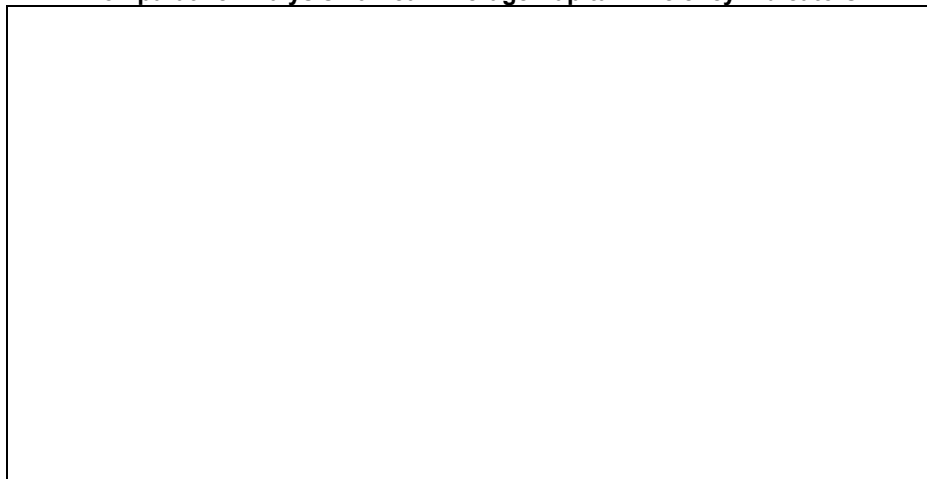
The two capital efficiency indicators, assets to income and assets to DSE both illustrate that significant capital efficiencies exist among the very large enterprises compared with the Group 5 producers.

AAC has an apparent 13 percent advantage over the top 5 percent (Group 5) of beef producer in income generating capacity for each dollar of capital invested.

Using the productivity indicator, assets/DSE, AAC is more than a third more capital efficient than the Group 5 beef producers. That is, for every dollar invested in a unit of production by a Group 5 producer, AAC achieves for the same dollar 1.5 times the effective production capacity.

This is a most critical advantage for the larger producer.

Diagram 4.11
Comparative Analysis 10-Year Average Capital Efficiency Indicators



Operating Efficiencies

The potential for achieving gains in operating efficiency has been identified earlier in this analysis. The opportunity, however, appears to be greatest for smaller producers, as differentials in efficiency decline dramatically as farms increase in size. That is, the opportunity for AAC to achieve additional operating efficiency improvement by increasing the scale of the enterprise is limited.

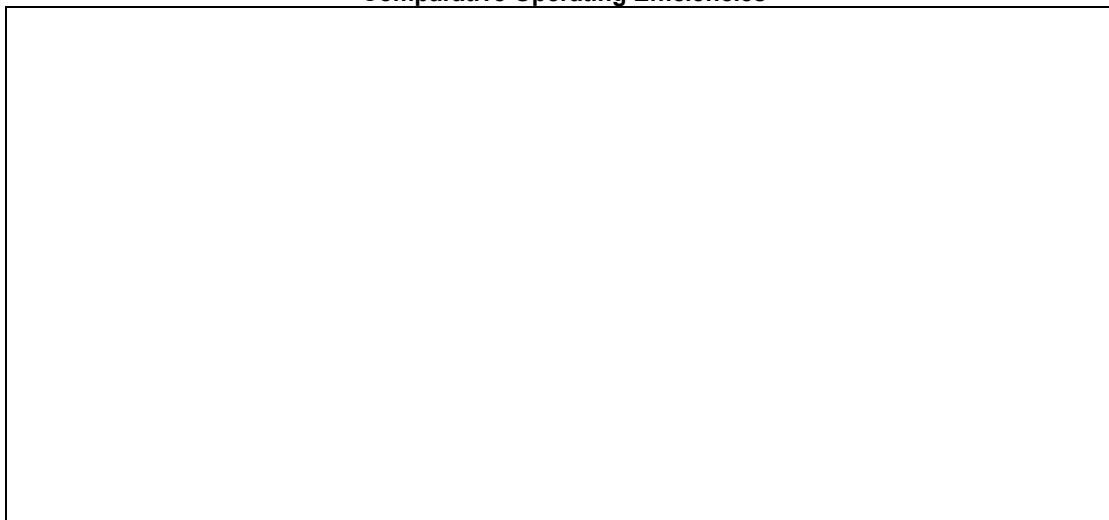
The two efficiency indicators, reported below (Diagram 4.12), are based on the total costs (i.e. direct, indirect and fixed before interest). They clearly indicate that continuing efficiency gains are achievable with scale.

AAC has on average lower total costs (operating margins) for each dollar of revenue generated than the Group 5 beef producer. The gains are apparently marginal when

considered against the comparative inefficiencies of smaller operators. However, these must be considered in the context of the impact on the much higher turnover and production that applies with larger enterprises.

AAC is achieving an operating margin of greater than 25 percent compared with the average of 12.3 percent of the Group 5 producers.

Diagram 4.12
Comparative Operating Efficiencies



Profitability

The average rates of return achieved by AAC compared to the rates achieved by the Group 5 beef farms are reported in Table 4.5. This gives an indication of the degree of success of corporate agriculture compared with the best “family farm” performers. It also highlights the impact of scale on the returns achievable.

Table 4.5
Comparative Rates of Return
of 10-Year Av.

	Return on Assets	Volatility	Return on Equity	Volatility
Australian Agricultural Company	8.1%	2.8%	9.9%	3.4%
Top 5% Beef Enterprises	4.5%	5.8%	7.0%	8.5%

AAC consistently outperforms the Group 5 producers with higher returns on assets and equity over a 10-year average. Also illustrated in Table 4.5 is how the volatility (i.e. risk) is reduced in the corporate enterprise as economies of scale reduce the impact of seasonal and commodity price fluctuations. AAC achieves much higher returns than those of the top 5 percent of producers on average.

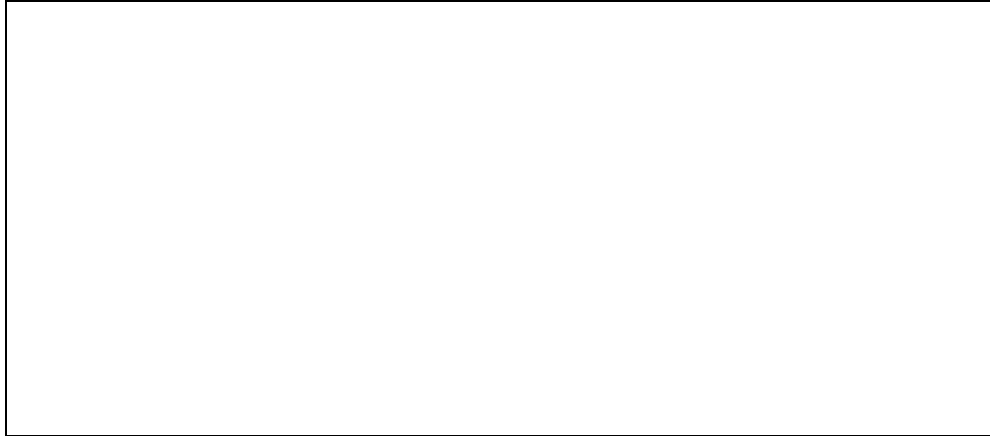
In four out of 10 years the Group 5 beef farmers achieved higher returns on equity than AAC. On the other hand, in three of the years they achieved negative returns on capital. While AAC reported lower profits in the same years, it achieved positive returns every year for the 10 years.

This difference in performance is due to a number of factors, including:

- management skills

- cost of capital
- capital efficiency
- market strength
- economies of scale
- ability to adopt technology

Diagram 4.13
Comparative Return on Equity: AAC
10 Years to 1994



Source: Annual Reports

4.5 KEY CONCLUSION - BEST FINANCIAL PERFORMANCE

The analysis in this chapter confirms the initial proposition in this review. Larger Australian agricultural enterprises can achieve significant economies in scale and capital efficiency. Without exception the top 5 percent by size of broadacre farms all produce comparatively better returns to equity than their smaller counterparts. This same trend applies as the scale moves from large family operations into corporate agriculture.

This analysis supports the case that in order to improve the rates of return on equity and assets, most farm enterprises need to be larger. A number of factors influence this phenomenon, however, capital usage is the most significant. Without exception, the larger enterprises are able to achieve a more efficient use of capital. That is, they require less capital to achieve their productive output. This characteristic is apparent in all of the enterprises in all broadacre categories.

Achieving efficient use of capital needs to be an important and fundamental objective for the industry in the future.

5.0 COMPARATIVE ANALYSIS OF AGRICULTURE WITH OTHER INVESTMENT CLASSES

The purpose of this chapter is:

- To introduce some of the key concepts of successful investment management.
- To identify the performance of the major investment classes.
- To compare the performance of major investment classes with agriculture.
- To identify the role, if any, that agricultural investment can be expected to play in managed portfolios.

5.1 INTRODUCTION: SOME KEY CONCEPTS IN INVESTMENT MANAGEMENT

Investment management is the overall process through which investors seek to achieve their investment objectives. The investor has a large range of investment choices. This variety caters to a wide range of investment criteria and performance expectations and produces a high level of competition for investors' funds.

5.1.1 INVESTOR TYPES

Investors fall into the following two categories:

- Non-professional
- Professional

The Non-Professional Investor

Non-professional investors are generally unskilled in most investment matters. They generally have a relatively small capital base from which to invest and do not apply objective methods to the assessment of investment options. As a group, non-professional investors are highly dispersed and do not exhibit consistent investment behaviour. This group may have an emotional interest in agriculture but would be expensive to access as potential investors and would be unstable and unpredictable in terms of decision making.

The Professional Investor

The professional investor includes a wide range of institutions such as:

- Banks
- Life Assurance Companies
- Merchant Banks
- General Insurance Companies
- Stockbrokers

- Unit Trust Managers
- Other finance industry participants
- Individuals (eg. Kerry Packer)

Professionals provide a wide range of investment services for both their own internal requirements and/or external services to their clients.

Professional investment managers who undertake the investment of funds are highly skilled in financial analysis and decision making on investment matters. They manage significant sums (up to several billion dollars) either on a retail basis (i.e. for individual retail clients) or a wholesale basis (e.g. for superannuation funds). These professional managers apply their skills to achieve an overall formulated investment policy.

5.1.2 INVESTMENT MANAGEMENT

The investment management process involves four basic steps:

1. Establishing measurable performance objectives for the investment funds.
2. Developing and implementing the investment strategy.
3. Managing the portfolio.
4. Monitoring and evaluating performance.

Investment Objectives

The fundamental building block of investment management is the performance objectives established for the funds available for investment. Factors influencing investment objectives include:

- time horizon of investment (ie. short or long term)
- legal and legislative constraints
- investor expectations, sophistication and risk profile
- liabilities profile (ie. calls on the funds)

Different professional investors are driven by varying objectives: a superannuation fund, whose liabilities are long term, will not make the same investment decisions as a general insurer, whose liabilities occur in the short term.

Investment Strategy

Investment strategy involves selecting the appropriate investment styles and hence the appropriate portfolio managers to achieve the desired objectives.

Investment styles describe the risk and return characteristics of the investment portfolios provided. Having selected the mix of appropriate investment styles, it is then necessary to select one or several portfolio managers to create those portfolios.

Portfolio Management

Portfolio management is the process of creating and managing an investment portfolio to reflect the investment objectives and strategy. It involves the organisation of a set of assets designed to provide investors with a set of performance characteristics consistent with a predefined investment style.

Asset Classes

Investment characteristics can vary widely, but it is possible to classify them into various homogeneous sectors. Most domestic investment opportunities available to an Australian investor can be classified under one of the categories listed below:

- Equities (shares listed on stock exchanges)
 - Australian
 - International
- Fixed Interest including:
 - Australian
 - * Commonwealth Government Bonds
 - * Semi-Government Bonds
 - * Corporate Fixed Interest
 - International
- Property
 - Direct investment
 - Listed and unlisted property trusts (or stocks)
- Cash or liquids (short term)

The performance of these respective investments is measured by special indices that are managed by various industry bodies or institutions, for example:

- Australian Stock Exchange (ASX)
- Banks
- Building Owners and Managers Association (BOMA)
- Major company research services (eg. Jones Lang Wootton)

The portfolio manager's task is to select the appropriate asset allocation (i.e. weighting of each asset class) that is appropriate to achieve the portfolio's objectives at a particular time.

Performance Monitoring

Monitoring the results achieved by the investment portfolio is critical. The key concepts involved in choosing between different assets for investment are based on the following performance criteria:

- Expected return
- Expected risk (i.e. volatility of returns)
- Time horizon

- Time value of money
- Liquidity (or marketability)
- Taxation

5.1.3 DRIVERS OF INVESTMENT DECISIONS - RISK AND RETURN

The portfolio manager must strike a balance between the level of return and the risk of the portfolio. The available trade-off between return and risk is not always of the same magnitude, nor necessarily even in the same direction.

In the main, the objectives of a portfolio are expressed in terms of either a desired rate of return and/or a desired level of risk. The precise level of returns and risks, however, are dependent upon the individual circumstances of the investor. An investment strategy can either:

- target a certain level of return, which the investment manager must achieve at the minimum possible level of risk; or
- specify an acceptable level of risk at which the manager must maximise returns.

Some investment strategies will also specify the kinds of investments that can be made and the minimum/maximum exposure to various classes of investment.

Returns

The returns are the rewards to investors from their investment management. Most investment returns can be divided between capital and income. The distinction is important from a taxation and cash flow point of view. Whereas in setting an investment strategy these matters need to be considered, in assessing the relative returns between investments, it is the aggregate of these components that is relevant.

Risks

While there is general agreement about what return is and how it should be measured, there are a wide range of opinions as to what constitutes “risk” for an investment portfolio.

In the medium term, the critical determinant of whether an investor is able to meet his obligations, and therefore remain solvent, is the level of returns achieved. Therefore the level of returns, as well as their variability, are components that need to be considered when measuring risk.

The standard deviation of portfolio returns is one commonly used measure of risk. Standard deviation (or volatility) measures the variability of portfolio returns relative to the average (mean) return. The lower the standard deviation, the lower is the degree of return volatility, and the more certain an investor can be of achieving the average return on an investment. An investment with a low standard deviation can therefore be said to have low risk.

This measure is useful but only considers one aspect of portfolio risk. For example, investors are usually much more concerned about large short-term declines in portfolio value than large increases. Standard deviation treats each as equally risky.

Correlation of Returns

While the performance of individual investments (that is, their return and risk levels) does influence the overall performance of a portfolio, so too does the interrelationship, or correlation, between each of the investments' returns. Obviously, if some investment returns are rising while other investment returns are falling, then the overall performance of the portfolio will be less volatile than if all of the returns tended to rise and fall together. Where the returns on two investment categories tend to move in opposite directions they are said to be negatively correlated.

Prudential Constraints

In addition to the level and behaviour of individual investment returns to be considered when setting investment objectives, there may be prudential reasons to limit the maximum and minimum levels of investment in a particular asset class.

For example, a portfolio may have a minimum exposure of 15 per cent to Australian equities or a maximum exposure of 50 per cent.

Liquidity

Another prudential consideration that might limit the extent of investment in a particular asset class is the liquidity of investments in that sector. Other things being equal, the more liquid a sector, the more flexible the constraints placed upon it. For example, property is highly illiquid and investors might wish to limit their exposure even if they were bullish, simply because it is so difficult to pull out of property after the investment cycle turns.

5.2 PERFORMANCE OF MAJOR ASSET CLASSES

The average returns for each major asset class is reported below in Table 5.1.

Table 5.1
Summary Table - Pre-Tax Returns and Risk

Investment Alternative	Ave. Returns 10 Years	Volatility %
Australian Equities (All Ords)	12.21%	16.55%
International Equities (FTSE100)	11.5%	15.5%
Listed Property	11.35%	12.47%
Sydney CBD Property (JLW)	5.21%	24.51%
Fixed Interest (Aus 10-yr Bonds)	10.9%	2.2%
Cash (90 Bills)	10.7%	4.5%

Source:

1 ASX²⁶ All Ordinaries Accumulation Index

2 FTSE²⁷ 100

- 3 ASX Listed Property Trust Accumulation Index
- 4 JLW Property Index
- 5 RBA Bulletin 10 year Bonds Yields
- 6 RBA Bulletin 90 Day Bank Bill Yields

The 10-year trend for each of these asset classes is illustrated in Diagram 5.1 below.

27 FTSE - Financial Times (London) Stock Exchange Index

Diagram 5.1
Investment Returns Alternative Investments
Ten Year Trend



5.2.1 EQUITY

The returns to investors in Australian equities (traded on the Australian Stock Exchange) can be measured by the All Ordinaries Accumulation Index. The table below shows the returns for the period 1987 to 1996.

Based on returns, equities are an attractive form of investment. However, the risk (that is, the standard deviation) associated with those returns must also be considered. Once the high volatility of returns for equities is taken into account, the attractiveness of this sector diminishes.

Table 5.2
Summary Performance - Australian Equities
10 years to 1996

Date	All Industrials Accum. Index	All Industrials Ann. Returns %	All Ordinaries Accum. Index	All Ordinaries Ann. Returns %	All Resources Accum. Index	All Resources Ann. Returns %
30-Jun-86	5525		3143		1532	
30-Jun-87	7860	42.26%	4841	54.01%	2754	79.82%
30-Jun-88	7799	-0.77%	4424	-8.61%	2154	-21.80%
30-Jun-89	8274	6.09%	4580	3.53%	2120	-1.57%
29-Jun-90	8406	1.59%	4767	4.09%	2320	9.44%
28-Jun-91	8734	3.91%	5047	5.86%	2540	9.52%
30-Jun-92	9950	13.93%	5720	13.35%	2854	12.33%
30-Jun-93	10997	10.51%	6287	9.91%	3109	8.96%
30-Jun-94	12501	13.68%	7448	18.46%	4009	28.93%
30-Jun-95	13595	8.75%	7873	5.71%	4015	0.15%
30-Jun-96	15849	16.58%	9119	15.83%	4592	14.37%
Ave Ann Return %		11.65%		12.21%		14.01%
Volatility %		12.14%		16.55%		26.54%
Compound Growth %	11.11%		11.24%		11.61%	

The performance of industrial shares is very much related to the domestic economy, interest rates, money supply, and profitability.

Resource shares on the other hand are highly dependent on the level and prices of exports of raw materials, which are in turn heavily influenced by the tone of the major economies, international commodity prices and currency factors. Resource securities tend to be more risky (i.e. more volatile) than industrial securities. Both dividend yields and earnings are low in relation to industrial stocks. Investors tend to rely primarily on capital gains to maximise return.

The dividend yields from equity investments is a function not only of the level of dividend actually paid but also the value of the security. As the capital value of the equity increases, so does the yield decline if there is no increase in the amount paid.

Between 1986 and 1996 Australian equities (as measured by the All Ordinaries Accumulation Index (AOAI)) have increased more than 2.9 times. This period includes the market boom and bust in the late 1980s.

Equities are quoted daily for purposes of valuation. The market is liquid, particularly the larger companies. Therefore, the purchase and sale of equities is fast even in times of poor market performance. Stamp duty is less than for property, as is brokerage on the purchase and sale of equities.

Diagram 5.2
Australian Equities
10-Year Performance Pattern



5.2.2 PROPERTY

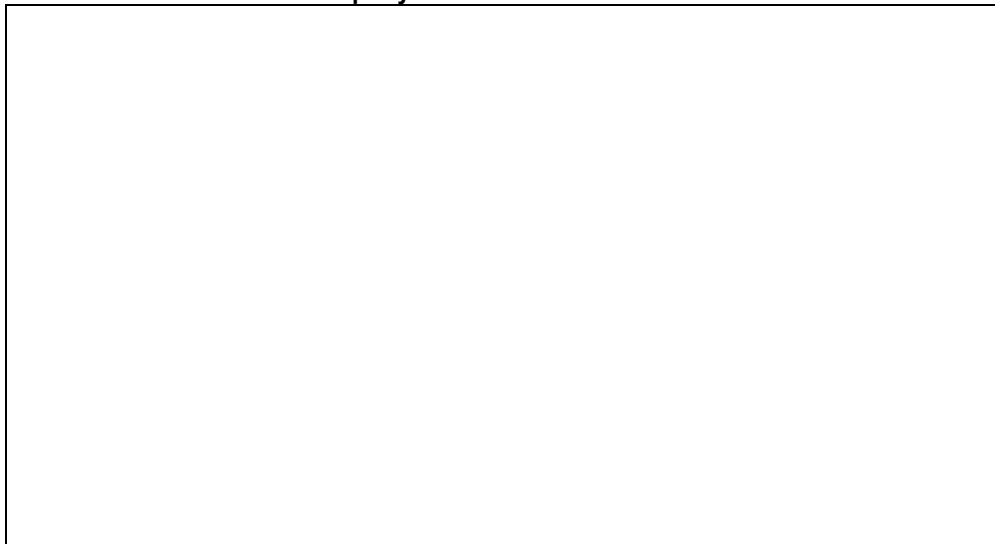
Property investments may be made either directly or through listed or unlisted property trusts.

Property trusts provide a vehicle for all types of investors to participate in property investment without the day-to-day management issues.

Unitholders in listed property trusts, are able to realise their investment more quickly than if their investment is in direct property or in unlisted trusts. The prices of listed property trusts are more volatile than direct property as the prices are likely to move in line with the general sharemarket. Thus, listed property trusts have many of the characteristics of listed equities.

Property investment is an important component of portfolio management. Generally over the long term, property is subject to both capital appreciation and income returns. The performance of property is enhanced by inflationary expectations and actual inflation. Conversely, property performance is adversely affected by economic retardation, unemployment and high interest rates. The value of property is affected by government intervention, by monetary policy, by fiscal policy and by actions of overseas investors.

Diagram 5.3
Property Investment Performance



Liquidity of direct property investment is poor relative to equities and fixed interest.

The types of property investment undertaken by professional investors are:

- Commercial (i.e. office property)
- Industrial
- Retail; particularly retail shopping centres

The professional investor does not tend to invest in residential property because the size of the investment is generally too small and because of potential tenancy problems.

The returns from property for the period 1984 to 1994 were as follows:

Table 5.3
Returns from Property

Date	Listed Property Trusts %/Ann	JLW SYD CBD Total	JLW MELB CBD
29-Jun-86		22.75%	11.11%
28-Jun-87	41.31%	29.62%	13.33%
30-Jun-88	-2.79%	32.86%	16.19%
30-Jun-89	-1.09%	21.51%	13.92%
30-Jun-90	15.24%	-7.09%	-5.57%
30-Jun-91	7.72%	-26.66%	-3.51%
29-Jun-92	14.73%	-23.39%	-39.03%
28-Jun-93	17.08%	-32.87%	-21.99%
30-Jun-94	9.81%	30.30%	0.00%
30-Jun-95	7.90%	6.98%	3.85%
31-May-96	3.62%	3.26%	-3.70%
Ave. Ann Return %	11.35%	5.21%	-1.40%
Volatility %	12.47%	24.51%	16.78%

1 ASX - Listed Property Trust Accumulation Index

2 JLW - Derived from various reports

5.2.3 FIXED INTEREST

Fixed interest securities have the following characteristics:

- An identifiable term or maturity date
- A fixed coupon, interest payment or cash flow as part of its overall return
- A fixed face value on maturity

The only variable for a fixed interest security is the market value at any time. The market value is dependent upon the prevailing interest rate.

Fixed interest is a low-risk investment with correspondingly low returns. All fixed interest investments are in the form of a loan to a specific body, interest being paid to the investor at specified intervals throughout the life of the bond at fixed rates.

There are a number of different types of fixed interest securities available. Bonds (loans to Government and semi-Government authorities), debentures (company loan securities) and convertible notes (registered unsecured notes that can be converted to shares upon maturity). Of the local fixed interest investment options, bonds are the most common. Another type of fixed interest investment are the numerous international bonds such as the Eurobond and the Euro-yen bond. Fixed interest investments vary in the time span they cover, with both short and long term available.

The lowest risk fixed interest investment are generally accepted as being Australian Government Bonds. The highest risk fixed interest investments are the corporate issues such as debentures. The main fixed interest securities are:

- Australian Government Bonds, e.g. Aussie Bonds
- Semi-Government Bonds, e.g. NSW Treasury Corporation
- Municipal Shire Bonds, e.g. Sydney County Council
- Government Authorities, e.g. Telecom Bonds
- Corporate Securities, e.g. BHP.

For this analysis we examine Australian Government Bonds.

Table 5.4
Australian Gilt 10 Year Bonds

Year Ended	10 Year Bonds
------------	---------------

1. 30 June 86	13.0
2. 30 June 87	12.8
3. 30 June 88	12.0
4. 30 June 89	13.5
5. 29 June 90	13.4
6. 29 June 91	11.2
7. 30 June 92	8.9
8. 30 June 93	7.4
9. 30 June 94	9.6
10. 30 June 95	9.2
11. 30 June 96	8.9
10 Year Ave. Yield	10.9%
Volatility	2.2%

The liquidity of fixed interest securities is good. In general, the Australian Government bonds are freely marketed. The liquidity of semi-government bonds has improved over recent years. Administrative costs are low for government securities and in many cases stamp duty does not apply.

5.2.4 CASH

Cash is a short-term investment and returns are fairly volatile. Cash investments can be through a Cash Management Trust, or directly in the money market. Small investors tend to pool their money with others in a trust, while large institutions on the other hand, generally invest directly.

The investment is short term through instruments such as bank bills or treasury notes. Because of the short-term nature of the investment, there is always a pool of cash available for investors to withdraw their money at short notice. This is a highly liquid investment.

The Australian short-term money market has grown rapidly over recent years. The terms available are from 11am call (i.e. 24 hours call) to almost any term required. Professional investors use the short-term money market for a number of reasons:

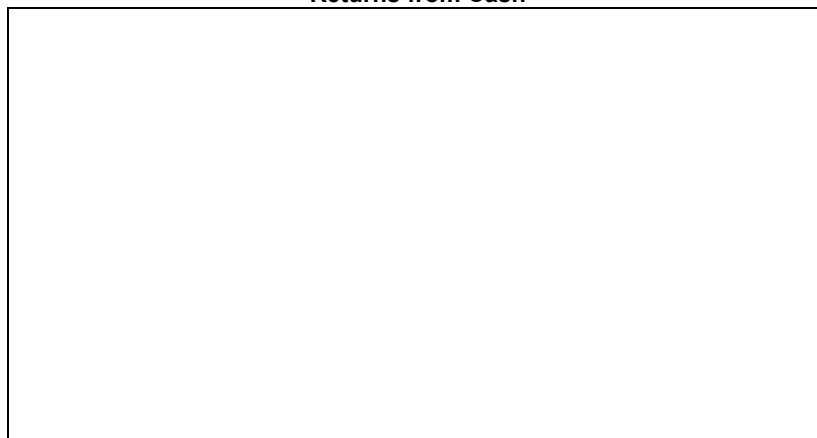
- To achieve a reasonable return on money that is required at short notice.
- To achieve a reasonable return on funds that are waiting to be invested in a longer-term situation.
- To have funds available to take advantage of unexpected investment opportunities.

Short-term rates are variable as illustrated in the table below.

Table 5.5
Returns from Cash

Date	Westpac	90-day Bills Res Bank	90-day T Notes 90 days
30-Jun-86	16.20%	16.40%	15.44%
30-Jun-87	13.24%	13.49%	12.79%
30-Jun-88	12.99%	12.91%	12.14%
30-Jun-89	17.68%	17.70%	16.80%
30-Jun-90	14.38%	14.40%	14.15%
30-Jun-91	10.07%	10.15%	9.96%
30-Jun-92	6.43%	6.45%	6.27%
30-Jun-93	5.12%	5.13%	4.99%
30-Jun-94	5.74%	5.74%	5.69%
30-Jun-95	7.55%	7.73%	7.63%
30-Jun-96	6.76%	7.31%	7.13%
Average	10.56%	10.71%	10.27%
Volatility	4.51%	4.49%	4.20%

Diagram 5.5
Returns from Cash



5.2.5 INTERNATIONAL INVESTMENT

With the relaxation of restrictions on overseas investment, there has been substantial growth in off-shore investment by professional investors. The majority of investment has been in equities and fixed interest.

The primary reason for off-shore investment is risk diversification. The risk diversification relates to:

- the performance of the Australian dollar vis-a-vis other currencies;
- the high orientation of Australian sharemarkets towards the resource sector;
- the availability on overseas markets of investments that are not available on the Australian market, such as high-technology stocks
- hedging of political risk (i.e. change in government in Australia).

Table 5.6
International Equities

Year	FTSE 100 Accumulation	Annual Yield %
1986	1,650	33.6
1987	2,284	38.0
1988	1,858	-18.7
1989	2,151	15.8
1990	2,375	10.4
1991	2,415	1.7
1992	2,521	4.4
1993	2,900	15.0
1994	2,919	0.7
1995	3,315	13.5
1996	3,711	12.0
10 Year Ave. Yield		11.49
Volatility		15.50

5.3 INVESTMENT PERFORMANCE OF COMPARATIVE AGRICULTURE

In this section we examine the comparative performance of agriculture and its implications to the investment community. A paper prepared by Webb²⁸ in 1990 on the attractiveness of agriculture as a portfolio investment is a useful reference.

The analysis reported here does not attempt the portfolio modelling undertaken in Webb's paper. The paper is acknowledged by this author as a watershed in the analysis of agriculture for professional investment. It is recognised as having an excellent methodology but is based on too limited a database. The agricultural data used in the analysis reported by Webb was based on a very narrow select rural portfolio of less than \$20 million value (at that time). Thus, it is inappropriate to generalise broadly from Webb's analysis.

5.3.1 COMPARATIVE RETURNS

The comparative returns of broadacre agriculture relative to other popular investment asset classes are summarised in Table 5.7 below. For the purposes of this examination we have used the Australian Agricultural Company as an indicator of corporate agriculture. The broadacre agricultural comparisons are restricted to the top 5 per cent of beef, sheep and cropping enterprises examined in previous chapters.

Table 5.7
10-Year Average Returns and Volatility

	Yield %	Volatility %
Beef	6.1	8.0
Sheep-Beef	3.6	12.3
Sheep	2.8	15.5
Cropping	14.2	14.8
Mixed	4.9	14.5
Dairy	10.7	7.4
Corporate Agriculture	9.9	3.4
Australian Equities (All ords)	12.2	16.6
International Equities (FTSE 100)	11.5	15.5
Listed Property Trusts	11.4	12.5
Sydney CBD Property (JLW)	5.2	24.5
Melbourne CBD Property (JLW)	-1.4	16.8
Fixed Interest (Aust Gilt 10-yr Bonds)	10.7	2.2
Cash (90-Day Bills)	10.7	4.5

Table 5.7 identifies on the basis of yield and return, that most sectors of agriculture perform well below other more popular and common asset classes. The very best performance in agriculture is achieved in the cropping sector.

5.3.2 VOLATILITY OF RETURNS

²⁸ K. Webb, 1990, "Comparison of Returns from Rural Property versus Other Forms of Investment" — paper presented to the Australian Rural Industries Conference

The volatility of returns is comparatively high in Australian and international equities. Compared to these two classes, agriculture has lower volatility. Clearly the economy of size achieved in cropping sector results in a reduction of income volatility.

Agriculture is generally considered to be highly volatile. However, this is not accurate. When the volatility of broadacre agriculture is compared with other popular asset classes, it can be seen to be significantly lower. This contradicts the popular belief of the volatile nature of agriculture.

5.3.3 CORRELATION

The correlation of returns between asset classes is reported in Table 5.8. The rural sector is negatively correlated, in some cases, with other key investment sectors, in particular Australian equities and offshore equities. This means that rural returns move in a desired pattern to offer the diversification benefit that is often sought by investors.

Table 5.8
Correlation of Returns
Alternative Investment & Top 5% of Agricultural Enterprises

	Beef	Sheep	Wheat	Dairy	A. A. Co.	Aust. Eq. (All Ord's)	Inter. Eq. (FTSE 100)	List. Prop.	Sydney CBD Prop. (JLW)	Fix. Int. (Aust 10yr Bonds)	Cash (90 Bills)
Beef	1.00										
Sheep	0.65	1.00									
Wheat	0.30	0.62	1.00								
Dairy	0.67	0.62	0.72	1.00							
Australian Agriculture Co.	0.76	0.97	0.58	0.65	1.00						
Australian Equities (All Ord's)	0.17	0.03	-0.23	-0.26	0.16	1.00					
International Equity (FTSE100)	0.30	-0.01	-0.06	-0.05	0.07	0.78	1.00				
Listed Property	0.23	-0.07	-0.54	-0.29	0.08	0.87	0.75	1.00			
Sydney CBD Property (JLW)	0.73	0.85	0.57	0.62	0.84	0.21	0.09	0.01	1.00		
Fixed Interest (Aus 10-yr Bonds)	0.61	0.30	0.09	0.45	0.24	0.05	0.11	0.06	0.65	1.00	
Cash (90-Day Bills)	0.61	0.35	0.27	0.61	0.27	-0.05	0.14	-0.05	0.70	0.95	1.00

The negative correlation, however, is not strong. A statistically significant correlation would require correlations approaching 1.0. In the matrix above (Table 5.8) the correlations are all 0.3 or less.

Thus, whilst the negative correlation of the rural assets to the popular equities asset class is a beneficial characteristic, it may be insufficiently strong to overcome the impact of low yield for the professional portfolio manager.

The asset allocation chosen by the investor is driven by the level of risk that the investor wishes to bear as well as by the liability profile of the investor. The incorrect or inappropriate asset allocation for the liability profile of the investor may cause major

dislocation, as illustrated by the problems encountered with unlisted property trusts in the late 1980s.

5.3.4 THE EFFICIENT PORTFOLIO

It is beyond the scope of this examination to be able to quantify the level of assets allocation that could be assigned to broadacre agriculture in a balanced portfolio.

We encourage further development of this approach in a structured way. We believe that as an important addition to this project such an examination should be applied and some measure placed on the entry level of broadacre pastoral into managed investment portfolios. The examination could be tackled in two ways:

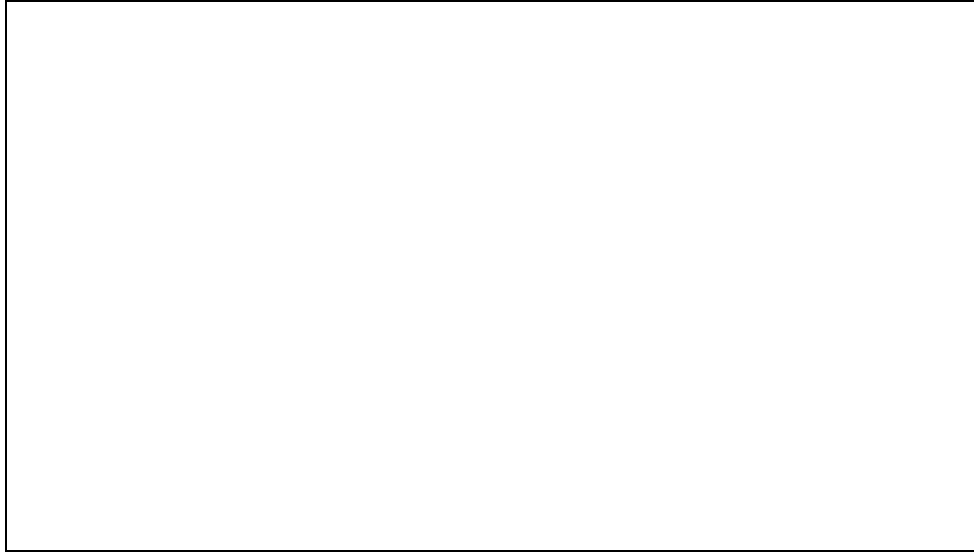
- To examine the existing level of performance, using current data and yield performance records to identify the desirable asset allocation to agriculture for a balanced portfolio.
- To identify the objective return volatility combination necessary to ensure agriculture was included as a key component of a balanced portfolio.

A prerequisite to attracting investment in agriculture is for the industry to be able to deliver returns to the investor commensurate at some level with other asset classes. Equally, the opportunity must also exist for the investor to enter or participate. It can be argued that at present because of the structure of the industry such opportunity is limited.

On the basis of the data reported above and the analysis to date, corporate agriculture cropping and dairy appear to equal the minimum expectations of investment performance.

Diagram 5.6, below, is a yield volatility diagram, which shows the agricultural cluster being well below the risk reward performance of all other classes.

Diagram 5.6
Returns Volatility Matrix



5.4 CONCLUSION

This analysis indicates that over the time period examined, broadacre agriculture underperformed all other major asset class investments. This is clearly a significant impediment to the attractiveness of broadacre agriculture as an investment for the capital markets. Unless agriculture can significantly improve its performance, the capital markets will continue to avoid systematically investing in it.

As has been identified previously in this report, one of the barriers to efficient restructuring of the industry is the limited availability of new and patient equity capital necessary to facilitate the efficiency gains that are fundamental to achieving improved returns to capital in this industry.

The large gap that would appear to exist between agricultural financial performance and the investment classes will only be overcome by agriculture improving its performance and efficiency with respect to capital usage.

Throughout the report we have discussed the complexity of achieving improved performance and efficiency in this industry. Barriers to efficient restructuring to the industry have been observed to include:

- Barriers to ready exit at an individual level
- Inappropriate assistance to farmers which encourages non-viable operations to remain on the farm
- The imposition of lifestyle costs onto asset values of farms; and
- Lack of management and business skills

to name but a few.

Clearly, however, lack of opportunities for the professional investor to invest in agriculture is a critical impediment. Professional investors will generally not wish to invest directly in agriculture but rather to invest in companies which have been established as vehicles which provide them with professional management infrastructure and skills, adequate investment liquidity (ie. the ability to sell the investment should they need to) and which can deliver demonstrable performance.

In addition, however, there is a need to change the investors' perception about investing in agriculture. Professional investors are in general averse to pursuing or examining agriculture in detail because of the generic perception that it is a poor and inappropriate investment for their portfolio mix. However, this analysis identifies that, with the appropriate structure, skills and financing, it can produce the appropriate risk-return proposition to attract systematic investment.

Rationalisation in the agricultural industry will require a degree of investment liquidity that is currently not available within the sector. Thus, the lack of opportunity for professional investors to invest in agriculture becomes a very significant impediment to facilitating rationalisation and asset consolidation.

6.0 THE GROWTH CONUNDRUM

6.1 OVERVIEW

The conundrum facing the most efficient Australian farmers is how do they finance the growth of their enterprise without risking its longterm financial viability.

The 1994 report²⁹ employed scenario analysis to illustrate the strategic management problem that confronts an agricultural enterprise wishing to expand in order to access the economies available to larger enterprises. The analysis illustrated graphically the impact that debt funding has on farm financial viability in contrast with an equity funded strategy.

The principle conclusions of the analysis still holds valid and do not warrant reproducing here. These are³⁰:

- Broadacre agriculture cannot sustain high debt levels
- To finance expansion farmers have a choice of debt and equity
- Debt finance is readily available but sustainable on only low gearing ratios
- Equity financed growth provides a more sustainable expansion strategy however equity finance is less readily available due to the lack of attractiveness of agriculture as an investment.

6.2 KEY ISSUES LIMITING GROWTH

The financial returns to an broadacre agriculture investment are so low that they are unable to generate sufficient income to exceed the Weighted Average Cost of Capital (WACC). As discussed in previous chapters, the factors for this are many and varied, including:

- overvaluation of productive assets
- the impact of non-financial returns on the valuation process.

Debt finance is readily available to the rural sector. Banks are in general, comfortable lending to rural producers reflecting the relatively low gearing that prevails within this sector.³¹ The gearing ratios that prevail in this sector, reflect the debt servicing ability of enterprises.

²⁹ AAS Pty Ltd, 1994, Chp. 6.

³⁰ It is noteworthy that in the context of the whole of Australian agriculture, the analysis examined only the top 10 per cent of farms, assuming they aim to improve their efficiency by expansion of size. Clearly, in the less efficient areas of agriculture, (i.e. the 75 per cent of the Australian farms which produce returns below the levels required for proper servicing of capital), expansion using a debt only strategy would be impossible. If doubling the size of an efficient top 10 per cent farmer using debt is not possible, then it follows that it is even less so for the less efficient and smaller enterprise that already has non-viable capital efficiency ratios.

³¹ The low gearing ratios and the prudential controls applied by banks is a risk-management method adopted to reflect their view of the overvaluation of rural production assets relative to other sectors to

Clearly, expansion using equity finance would appear a lower risk and more stable method. However, the limitation on equity financed expansion is that the rational investor is in general not prepared to accept the low level of returns that are available.

The fundamentally low returns associated with agriculture restrict the opportunity the professional investment manager to participate in this sector.

The use of equity for funding expansion will therefore be limited to that available from sources that are prepared to discount the cost of equity to lower level than the cost of debt³². In the agricultural sector (as with many small business enterprises) this will generally be restricted to the existing owner/operator who, as previously discussed, takes a non-financial return from their equity.

Clearly, the owner/operator that has surplus equity can therefore expand and achieve improved economies and better return to capital. However, this decision may not be a rational decision in the context of opportunity cost of capital from other investments.

6.3 CONCLUSION

The key problem, as identified by this discussion and supported in the previous chapters, is the need to restructure the industry so that it becomes more capital efficient. That is, restructure the industry so that it generates returns sufficient to justify capital investment and sufficient to attract new capital or equity into the sector.

Such an outcome will not occur, however, by investing in businesses that do not produce sufficient return. The structural adjustment implicit in achieving this is clearly beyond the individual enterprise manager. The conundrum facing the industry, is how to achieve more realistic valuation of the productive asset base of Australian agriculture and thereby, to achieve a more efficient use of capital.

The most strategic challenge confronting Australian agriculture is to facilitate improvements in the capital efficiency of the industry. To achieve this, the industry will need to develop mechanisms that encourage aggregation of enterprises and true valuation of capital assets relative to their income and profit generating capacity.

Such mechanisms would require a greater liquidity of agricultural capital assets. Such a liquidity would need to be brought about by an increase in the transferability of capital assets from one owner to another while keeping existing management intact. This, in essence, implies the separation of the function of management from the ownership of assets.

which the banking industry lends (ie. the banking community has rules of thumb for broadacre agriculture that allow gearing ratios not to exceed 20-25% depending on enterprise)

³² The basic principle at issue here is that equity capital should be more costly than debt since it is equity that bears the higher risk.

Improving the liquidity of the agricultural asset base will result in an approximation of a truer or more accurate reflection of its value as a profit producing investment.

3.0 AGRICULTURE - A FINANCIAL PERSPECTIVE

In the following chapter, the financial structure and characteristics of Australian broadacre agricultural industries, including the dairy sector, are examined to establish a framework for subsequent analysis.

The base data employed is obtained from ABARE Farm Surveys and is representative of more than 84,000 agricultural enterprises in Australia. The definitions and terminology adopted have been discussed in the Appendices.

3.1 OVERVIEW

In 1996, an estimated 84,305 broadacre farmers generated revenue of approximately \$16.3 billion. During the same period, average assets required to achieve this income was about \$1,135,000 per enterprise or about \$95.7 billion in total. Average owner equity in each farm was 87 per cent.

The aggregate annual return (including capital appreciation) from all broadacre agriculture for the past 10 years averaged \$903 million per annum. This represents only a 1.05 per cent return on the \$96 billion of assets committed to this industry.

Table 3.1
Overview
Australian Broad Acre Industries
Key Capital & Financial Indicators

	1996						10 Yr. Averages	
SECTOR	Population	Ave Income /Farm (\$'000)	Total Farm Revenue (\$ mill)	Average Assets/ Farm(\$'000)	Total Assets (\$ mill)	Equity (%)	Total Return ¹ (\$ mill)	Return on Assets (%)
Beef	21,015	119	2,491	1,294	27,185	88	160	0.76
Mixed	17,951	198	3,548	1,068	19,174	86	42	0.23
Sheep/Beef	11,602	115	1,334	1,036	12,023	90	15	0.15
Sheep	8,214	88	721	921	7,566	87	(58)	-0.37
Cropping	11,656	456	5,310	1,279	14,910	84	327	3.93
Dairy	13,868	210	2,919	1,068	14,804	86	417	3.37
Totals	84,305		16,324		95,662		903	
Industry Aggregates \$'000/ Enterprise		194		1,135		87		1.05

Source: ABARE

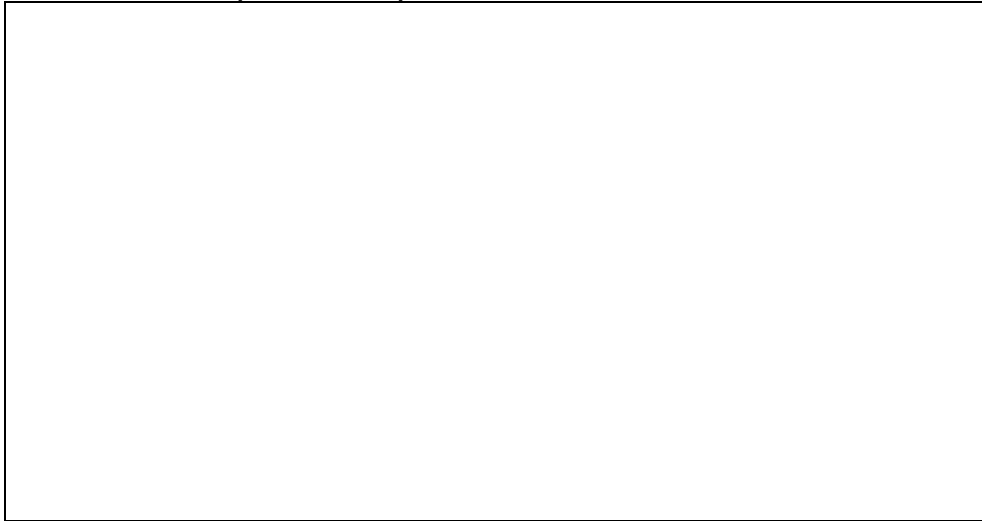
Notes •

1. Including Capital Appreciation

The comparative importance of the five industry categories is illustrated in Diagrams 3.1 and 3.2. Cropping is the largest revenue group and beef farmers have the highest population. The specialised livestock sectors of sheep and beef, when combined with the more diversified beef/sheep sector, accounted for 48.4 per cent of all broadacre activity by population but contributed only 27.9 per cent of total revenue generated.

Cropping, which represented only 13.8 per cent of the population and 15.6 per cent of the capital employed, makes a significantly higher contribution to total revenue, on an average per farm basis as well as in aggregate, than the other activities. It accounted for some 32.5 per cent of total industry revenue amounting to \$5.3 billion. The average turnover per farm for cropping producers was \$456,000 per annum. This is more than 200 per cent greater than the average turnover for dairy farms and nearly 300 per cent greater than other livestock enterprises.

Diagram 3.1
Comparative Enterprise and Revenue Distribution 1996



The distribution of assets by sectoral groupings (illustrated below in Diagram 3.2) shows that the beef sector is a capital intensive activity. Some distortion can be assumed to occur when the impact of the smallest beef producers is taken into consideration. As will be noted later in the analysis, small producers have very low capital efficiency ratios.

Diagram 3.2
Asset Utilisation /Sector 1996 - \$95.7 Billion



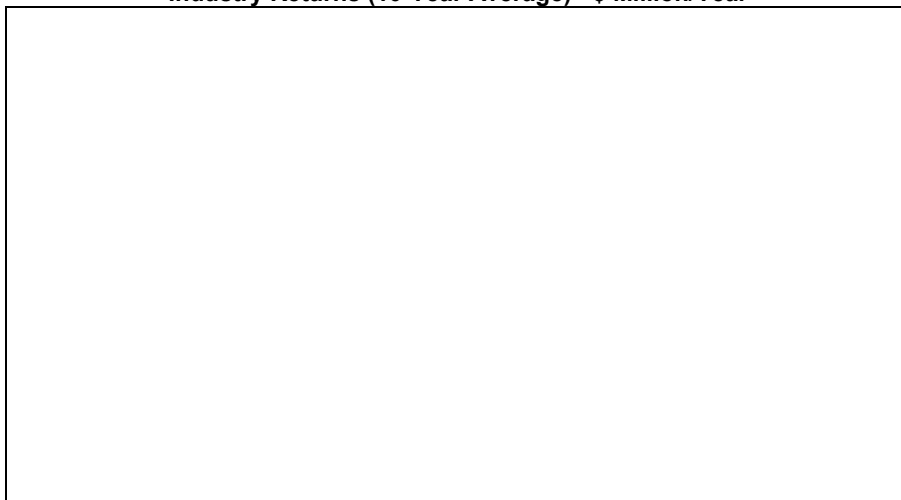
The financial and commercial importance of these sectors, however, is unrelated to their popularity as measured by the number of participants.

From a financial point of view, the most important performance indicator is the 10-year average returns for each category (Diagram 3.3). This highlights the apparent attractiveness of cropping and dairy sectors, which is in marked contrast to returns generated from mixed, (i.e. cropping and livestock), sheep, sheep/beef.

The individual sector performances are examined in more depth in the following sections. The factors influencing these results include:

- commodity prices
- imperfect markets (e.g. the regulated wool markets)
- capital efficiency and
- costs of funds.

Diagram 3.3
Industry Returns (10-Year Average) - \$ Million/Year



The most powerful observation about broadacre agriculture is dramatically illustrated in Diagram 3.4. On a population basis, 80 per cent of Broadacre enterprises generate 48.2 per cent of agricultural output as measured by revenue and reduced the aggregate profitability of the industry by nearly 48.8 per cent. The smallest 50% of farmers by revenue generate only 19% of the revenue and reduce the profitability of the industry by 56.7%.

On the other hand the top 20 per cent of broadacre enterprises generated 51.8 per cent of output and contributed an estimated \$1344 million/annum or 148.8 per cent of the profits earned in the industry.

Diagram 3.4
Comparative Importance of Population Groups - 10-Year Average



Derived: AAS Pty Ltd

3.2 TREND ANALYSIS - COMPARING 1993 AND 1996

Population :

During the period of 1993 to 1996 the population of the industry reduced by 6051 farmers. However due to the EVAO cut off criteria of \$22,500 we cannot ascertain whether these farmers have left the industry or dropped out of the survey. Given the history of slow migration from agriculture, it is plausible that few of these farmers have exited the industry despite poor returns. The population of beef farmers has increased by 7% over the period in spite of the lower profitability for the sector. The population of sheep farmers has fallen by 53%. However, it is plausible that a number of them have been accounted

for in other sectors due to the statistical drawbacks of the data. These statistical limitations have been discussed in chapter 1. The population of cropping has risen by 80%, undoubtedly a reflection of its better profitability. The population of mixed farmers has fallen by 17% despite improved profitability.

Revenue:

The revenue generated by cropping has risen by 162% over the period. Again this data should be treated with caution due to the inter industry shifts. Its average farm revenue has risen by 45%. Better commodity prices and a good rainfall have contributed to this rise. The sheep revenue has fallen which is consistent with the fall in population.

Assets and Equity:

Despite lower returns and a higher population, the average assets of a beef farm rose by 8.8%. Average assets per farm rose for all sectors over the period but the fastest increase was accounted for by mixed farming followed by cropping. The average assets of mixed farmers rose by 29.8% while that of cropping rose by 28.3%. The contribution from equity in this industry did not change significantly over the period.

Returns:

The 10 year average returns for the industry have improved significantly from that in 1993. All sectors except beef and sheep have shown improvement. The low prices in international markets has affected the beef sector and the problems of the sheep sector have pushed it into deeper losses.

Group performance:

While an average group 2 farm has come out of the red, an average group 1 farm went deeper into losses.

3.3 BROADACRE AGRICULTURE - AN INDUSTRY-BY-INDUSTRY ANALYSIS

The performance differences between the five broadacre industries quickly begin to emerge, even at the most basic level of analysis. The five industries differ markedly in the following respects:

- capital requirements
- farm size
- labour utilisation
- revenues
- profitability
- capital appreciation

Following is a brief examination of each of the five industries and the five population groups within each industry.

3.3.1 THE BEEF INDUSTRY

The beef industry had total cash revenue of about \$2.5 billion and accounted for the largest number of enterprises (nearly 25%) of the agriculture industry in 1996. Key performance indicators are illustrated in Table 3.2. The table highlights the huge performance gap that exists between the groups. The largest population group are the smallest producers, representing 50 per cent of the population and generating only 11.5 per cent of the gross revenue.

Table 3.2
Beef Industry
Key Operating & Financial Indicators

	1996						10 Year Averages			
	Population	Gross Income Operation (\$)	Total Group Income (\$'000)	Assets Av. / Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	Return on Investment (%)	Volatility of Returns (%)	Capital Efficiency (\$/ DSE)
Group 1	10481	27,276	285,881	771	8,085,561	95.8	(112)	-1.71	4.80	264
Group 2	6131	90,437	554,485	1,185	7,264,505	91.3	4	0.11	6.09	194
Group 3	2279	164,412	374,694	1,742	3,970,098	93.4	70	2.19	4.53	143
Group 4	1072	289,757	310,706	2,717	2,913,386	79.9	65	1.93	7.01	121
Group 5	1051	918,476	965,134	4,712	4,951,352	68.6	133	3.94	5.42	79
Total Population			21,015	Total Assets (\$ Mill)		\$27,185	Total Return (\$ Mill)			\$160
Gross Revenue (\$Mill)			\$2,491	Ave. Assets/Farm			Av. Net Return			0.76%
Av. Income/Farm (\$'000)			\$119	(\$'000)		\$1,294				
				Av. Equity		88%				

1. Including Capital Appreciation

Size Distribution

Diagram 3.5
Distribution of Beef Enterprises by Revenue 1996



Capital Efficiency

Capital efficiency, that is, the amount of capital required to sustain a productive unit or to generate revenue, is a prime determinant of good financial performance. In beef enterprises, three indicators can usefully be employed to illustrate the key differences between the largest and the smallest groups. In Diagrams 3.6 and 3.7 the capital efficiency ratios and selected operating efficiency indicators highlight a number of important characteristics.

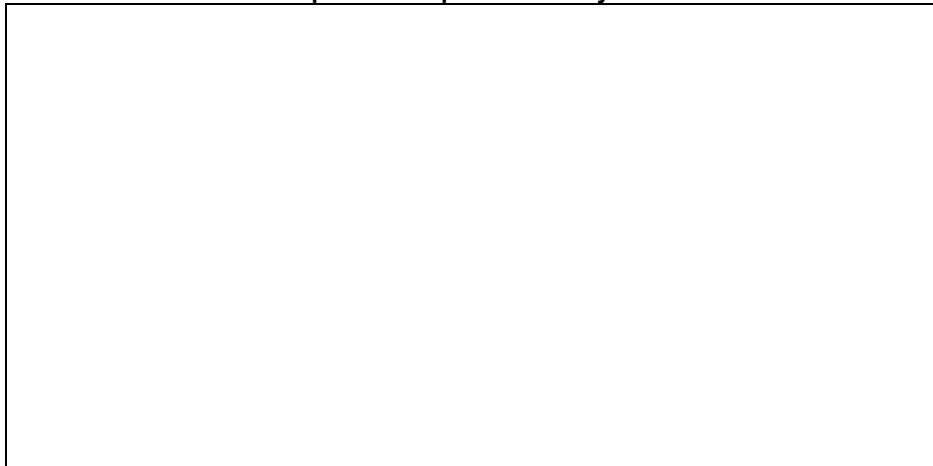
The smallest enterprises in the beef industry:

- used more capital to achieve each dollar of revenue than the larger enterprises;
- achieved low capital efficiency per productive unit (i.e. DSE); and
- had high capitalisation rates per unit of land area.

In contrast, the largest 5 per cent of producers employed only :

- 20 per cent of the capital required by the smallest to generate each dollar of revenue;
- 30 per cent of the capital of smaller farms to sustain each productive unit.

Diagram 3.6
Beef Industry
Comparative Capital Efficiency Ratios



The reasons behind these differences are relatively simple to identify. There is a minimum level of equipment required to run any enterprise. While it follows that as an enterprise increases in size it needs additional equipment, there is a high fixed costs component to any farm, notably tractors, yards, sheds and fences. At the smaller end of the industry the enterprises are clearly unable to achieve full utilisation of the infrastructure. They are overcapitalised relative to their productive potential.

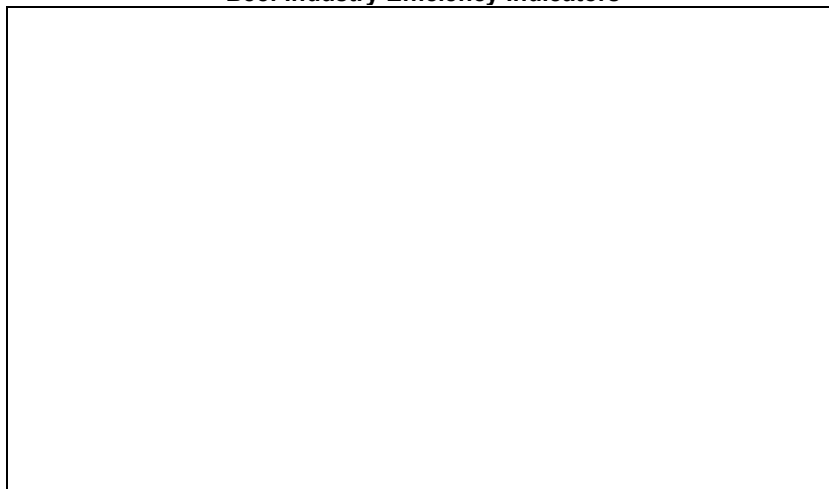
Furthermore, smaller enterprises traditionally have a more expensive land component that does not necessarily translate directly into higher productivity potential. This is due to several factors, as follows:

- The relatively low amount of capital required to purchase small parcels of land means the land can be sold at a premium on a per hectare basis.
- The proximity of the land to regional and capital centers means that non agricultural uses can have an effect on values.

Operating Efficiency

The ratio of operating-cost-to-gross-farm-income shows that some economies of scale are achievable when the size of operations are increased. However this does not hold true for some larger enterprises. In the beef industry, for example, some economies of scale are lost through servicing the large areas of land held by the big producers.

Diagram 3.7
Beef Industry Efficiency Indicators



Capital Investment

The points discussed above can be put into a comparative perspective of size and capitalisation. The capital utilised by the average of the largest 5 per cent of beef producers is to the order of six (6) times the capital utilised by the average of the smallest 50 per cent of producers (Diagram 3.8).

Diagram 3.8
Comparative Asset Utilisation
10-Year Average; \$'000/Enterprise

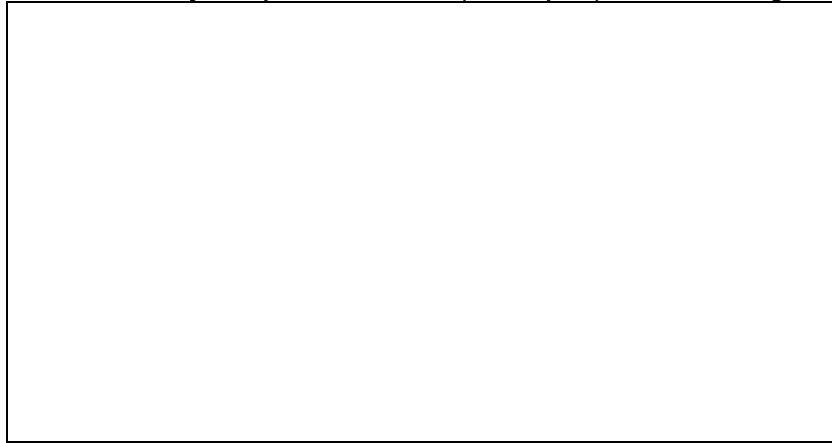


Profitability

Beef has been an above average performer in the rural sector. The profitability of the beef sector has suffered markedly after the record earnings of 1993-94 due to extraneous market conditions. It has blemished the record of beef as a venture with attractive returns.

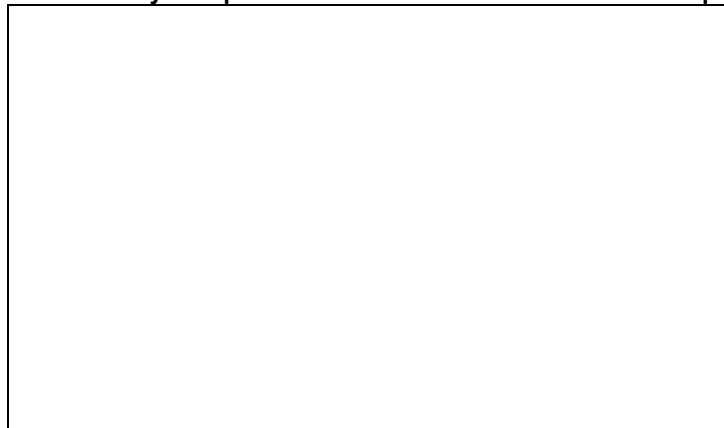
The smaller enterprises, for all the reasons noted above, are marginal and struggle to achieve profitability. In comparison, the largest 5 per cent of beef producers have averaged about 4 per cent / annum return on assets (ROA).

Diagram 3.9
Beef Industry Comparative Returns (Inc. Capital) 10-Year Average



In Chapter 4, more in depth examination of the financial and investment characteristics of the top 5 per cent in this sector is carried out. Diagram 3.10 below identifies the distribution of performance and the relative importance and relevance of each population group to profitability and revenue in the sector.

Diagram 3.10
Beef Industry Comparative Performance - Relevance of Groups



3.3.2 MIXED LIVESTOCK AND CROPPING

The mixed livestock and cropping sector generated an estimated turnover of about \$3.6 billion in 1996, losing its position as the biggest broadacre category in terms of revenue to cropping and in terms of the number of enterprises in the broadacre category to beef. Table 3.3 illustrates the key characteristics of the sector.

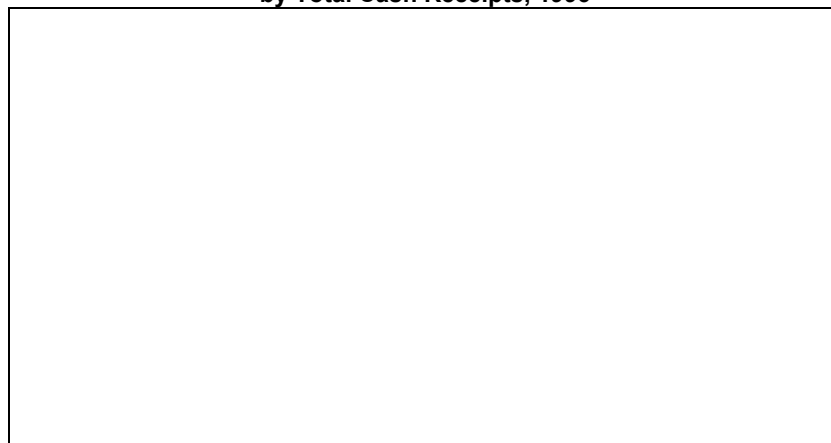
Table 3.3
Mixed Livestock and Crops
Key Operating & Financial Indicators

	1996						10 Year Averages			
	Population	Total Cash Receipts/ farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10 Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd.)
Group 1	8,964	67,521	605,260	572	5,128,854	90.9	(157)	-3.12	8.58	766
Group 2	5,343	191,867	1,025,166	1,123	6,000,404	86.9	(31)	-0.87	11.03	617
Group 3	1,815	339,585	616,449	1,486	2,697,574	79.7	52	1.31	11.47	546
Group 4	920	476,147	438,055	2,233	2,054,729	89.9	56	2.69	11.32	552
Group 5	909	949,901	863,175	3,623	3,292,189	76.8	122	3.78	11.60	540
Total Pop.			17,951	Total Group Assets		\$19,174 (\$M)	Total Return (\$ Mill)			\$42
Gross Revenue (\$'mill)			\$3,548	Av. Assets/farm		\$1,068,110	Av. Net Return			0.23%
Av. Income/Farm (\$'000)			\$198	Av. Equity		86%				

Size Distribution

In the past three years an average Group 5 farm has grown by 16% in terms of revenue while the growth of an average Group 1 farm has barely been 1%. The average revenue of a Group 5 farm is 14 times that of an average Group 1 farm.

Diagram 3.11
Distribution of Mixed Livestock and Crops Enterprises
by Total Cash Receipts, 1996



Capital Efficiency

There is a marked difference in the capital efficiency, as measured by the asset to turnover ratio, between the largest and smallest mixed enterprises (Diagram 3.12).

Diagram 3.12
Mixed Livestock and Crop Industry Comparative Capital Efficiency Ratios



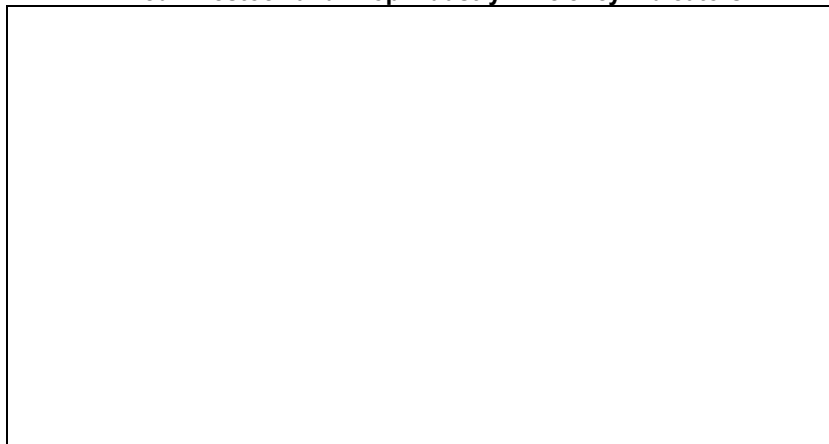
Unlike some of the other broadacre sectors, the top 5 per cent of enterprises in the mixed livestock and crops industry are not outstanding for their capital efficiency. In

fact, the capital efficiency performance of the top three groups (i.e. the top 20 per cent of farms in terms of total cash receipts) is very similar. Because of the nature of mixed livestock and cropping farms, multiple activities are being carried out. Many of the major items of capital equipment are single purpose or unique to one enterprise activity (e.g. wool sheds, cropping equipment or cattle yards). It follows, therefore, that capital efficiency is more difficult to achieve within the normal farm size. The largest 5 per cent of mixed farms will require more capital to generate each dollar of income than will a comparable size farm specialising in one activity.

Operating Efficiency

The operating efficiency ratio also provides an insight into the characteristics of performance as the enterprise increases its size. Notably there are still economies being achieved as the enterprise increases in size, even within the largest 20% of the population. Minor percentage gains are of course significant where high turnovers are involved.

Diagram 3.13
Mixed Livestock and Crop Industry Efficiency Indicators



Capital Investment

The relative size of average enterprises in each group is illustrated below. The largest farm enterprises have, on average, six times the capital invested relative to the smallest farms. The average Group 1 farm has grown by 14% in assets in the past 3 years while an average Group 5 farm has grown by 30% in the same period. The larger farms are growing faster in utilisation of capital than the smaller farms.

Diagram 3.14
Mixed Farms Comparative Asset Utilisation



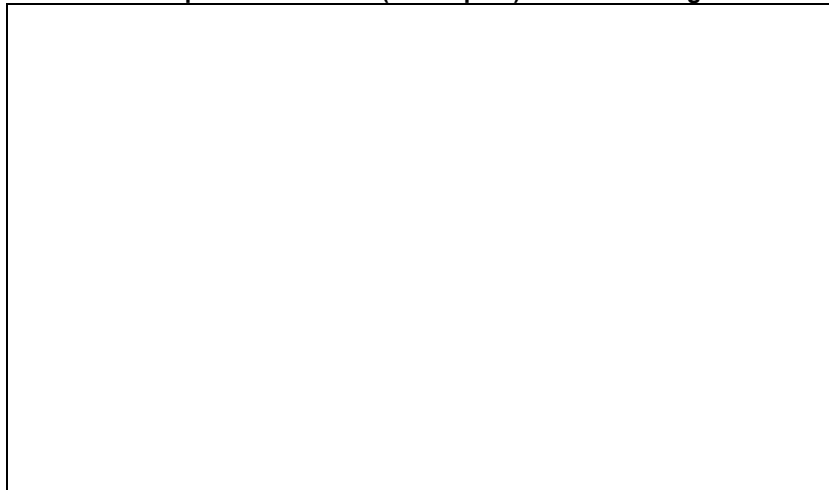
Profitability

The overall profitability in the mixed enterprises as measured by total return on assets for the past 10 years is very poor. The average net return achieved by farms in the

mixed livestock and crop industry over the past 10 years has been only 0.23 per cent, with an annual return over the same period of \$42 million.

On average nearly 80 per cent of enterprises showed a negative return per annum over the past 10 years. Although all the groups have had similar numbers of positive and negative years in terms of rates of return, the smaller farms have been unable to achieve sufficient profit in the positive years to overcome their losses. Only the larger farms have been able to compensate in the positive years. This is illustrated in Diagram 3.15 below.

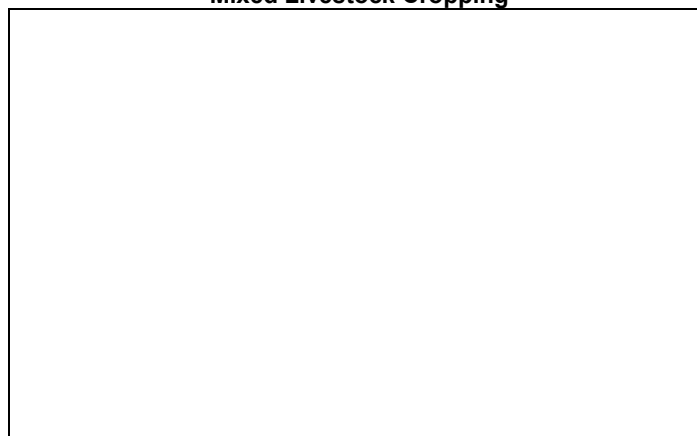
Diagram 3.15
Mixed Livestock and Crop Enterprises
Comparative Returns (inc. capital) 10 Year Average



However, there has been a significant reversal in the profitability of this sector in the past three years with the top 20% of farms starting to generate healthy profitability. No doubt that some of this reversal is due to the smaller farms exiting from this sector.

Diagram 3.16 highlights the relative contribution of the relevance of each population group within the industry to the overall performance of the categories.

Diagram 3.16
Mixed Livestock Cropping



Clearly, this broadacre category has some profitability problems. A misconception that exists in the minds of many observers and advisors is that enterprise diversification is a wise strategic move as it supposedly protects the farm against the volatile income streams. While the argument for income protection might be sustainable, it does not take into account the higher requirement for capital and the costs of servicing that capital. Cropping and livestock enterprises are not likely to be profitable, unless each farm activity attains sufficient economies of scale. The smaller farms are specially unable to generate these economies.

3.3.3 THE SHEEP SECTOR

Broadacre sheep farms generated an estimated total cash receipts of about \$721 million in 1996, representing 4.4 per cent of total industry turnover. The distribution of this income between enterprise size grouping is shown below in Table 3.4.

Table 3.4
Sheep Industry
Key Operating & Financial Indicators

Key Operating & Financial Indicators											
	1996						10-Year Averages				
	Population	Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10-Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd.)	
Group 1	4078	24,158	98,524	608	2,481,098	85.7	(166)	-3.71	12.02	297	
Group 2	2492	83,042	206,942	1000	2,491,777	92.0	(36)	-0.49	10.93	212	
Group 3	817	166,802	136,311	1225	1,000,681	87.2	21	0.91	13.42	184	
Group 4	415	264,303	109,712	1427	592,316	83.0	60	2.22	13.60	177	
Group 5	411	412,681	169,694	2433	1,000,540	83.6	63	2.35	12.79	178	
Total Population				8,214	Total Sector Assets		\$7,566,413	Total Return (\$Mill)			(\$58)
Gross Revenue (\$'mill)				\$721	Av. Assets/Farm		\$921,183	Av. Net Return			-0.37%
Av. Income/Farm (\$'000)				\$88	Av. Equity		87%				

Several important characteristics emerge.

- Eighty per cent of enterprises turned over less than \$100,000 last year (1996).
- The largest producers, representing 5 per cent of the enterprises, averaged less than \$500,000 per annum cash revenue.
- Average assets per enterprise was slightly above \$920,000.
- The biggest producers had assets of more than 2.6 times the average and consistently generated low levels of profits (about 2 per cent).

- The average assets per farm have risen by 12% in the period from 1993 to 1996 while the average revenue per farm has fallen by 4%.

Size Distribution

Compared to other broadacre industries, the largest sheep farms averaged significantly lower income per enterprise, as illustrated in Diagram 3.17. The average income has fallen for the group 5 farms from 1993. This suggests the exit of big farms from this sector.

Diagram 3.17
Distribution of Sheep Enterprises by Revenue, 1996



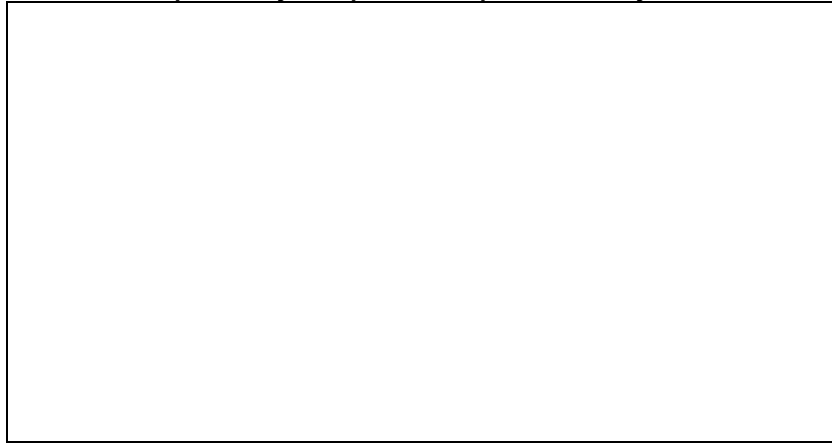
Capital Efficiency

As shown in Diagram 3.18 and 3.19 significant gains of capital efficiency occurs between the top 50 per cent and the bottom 50 per cent of enterprises. The operating efficiencies also are significant at this level. The largest 5 per cent of producers on a revenue basis do not demonstrate superior capital efficiency gains over the next two size groupings.

This suggests the following:

- That the largest farmers are not attaining sufficient size to capture additional economies of scale. The largest sheep farmers have annual turnovers that are the lowest of all broadacre categories (e.g. only 45 per cent and 29 per cent of the turnover of the top beef and cropping enterprises respectively).
- That there are incremental growth steps involved in achieving economies in sheep farming. The jump from one efficiency band to another may involve orders of expansion that are greater than the industry has been able to achieve to date.
- That impediments exist in the sheep industry at an enterprise level which prevent farmers from making quantum steps (i.e. two to three times) in their economies of scale.
- In the sheep sector the main gains in efficiency are made by enterprises moving from a Groups 1 size to a Group 2 size.
- Over the past three years, only the top three groups have recorded any gains in efficiency.

Diagram 3.18
Sheep Industry Comparative Capital Efficiency Ratios



Operating Efficiency

The apparent increase in the operating costs for the largest 5 per cent of sheep enterprises can be expected to relate to the shift in labour usage from families to employees. The total cost line shows that the economies of size are at least maintained.

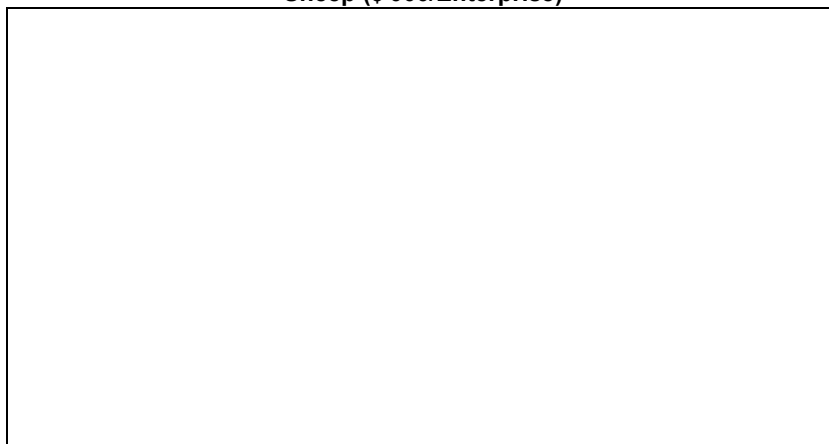
Diagram 3.19
Sheep Industry Efficiency Indicators



Capital Investment

The average capital investment at enterprise level in the sheep sector is \$920,000. The largest enterprises have more than four times as much capital invested as the smallest farms.

Diagram 3.20
Comparative Asset Utilisation 10-Year Average
Sheep (\$'000/Enterprise)



Profitability

Over the past 10 years, sheep enterprises have certainly enjoyed some good years in terms of production and commodity prices. However, the sector has produced poor results on average relative to the average of the broadacre industry. Average net returns over the past 10 years has been negative at -0.37 per cent, with an estimated aggregate loss for the broadacre category of \$58 million.

As shown in Diagram 3.21 below, the bulk of the losses in this sector were incurred by the approximately 6,500 farms that make up the bottom 80 per cent.

Diagram 3.21
Sheep Industry Comparative Returns (Inc. Capital) 10-Year Average

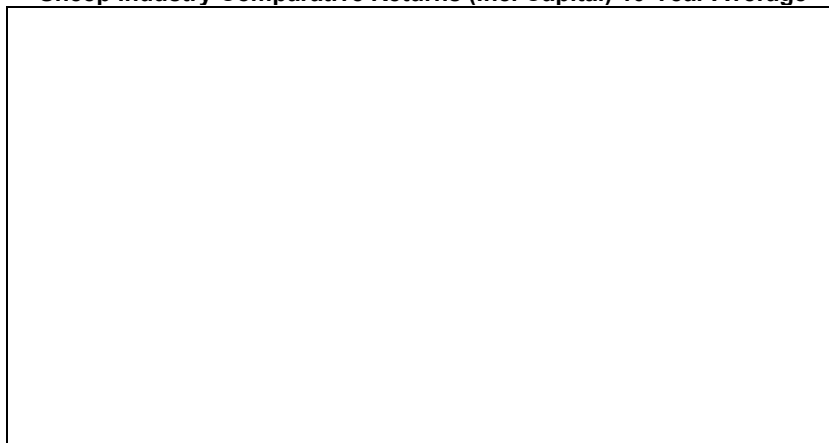
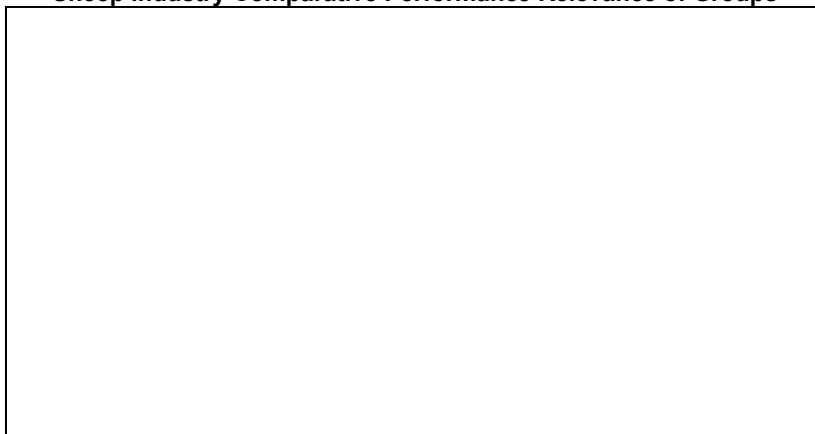


Diagram 3.22 below illustrates the relative performance and value of each of the five groups to the profitability of the sheep industry.

Diagram 3.22
Sheep Industry Comparative Performance Relevance of Groups



Once again, the high contribution of the top 20 per cent of farms to income and, more particularly, to the positive net return is highlighted.

3.3.4 SHEEP - BEEF ENTERPRISES

The sheep - beef sector broadacre farms represented 8.2 per cent of total broadacre revenue (\$1.3 billion) in 1996. The key characteristics of this industry segment are as follows:

- Turnover of the largest producers was less than \$520,00 in 1996 and is significantly below that of 1993.
- The largest producers had total assets that were 3.2 times that of the average and six times that of the smallest 50 per cent of enterprises.
- Average annual returns on assets for 10 years was less than 0.15 per cent and only 3 per cent for the largest producers.
- The larger enterprises sustain lower equity ratios.
- Over the past three years, the profitability of these enterprises has declined alarmingly due to the adverse conditions in both the markets.

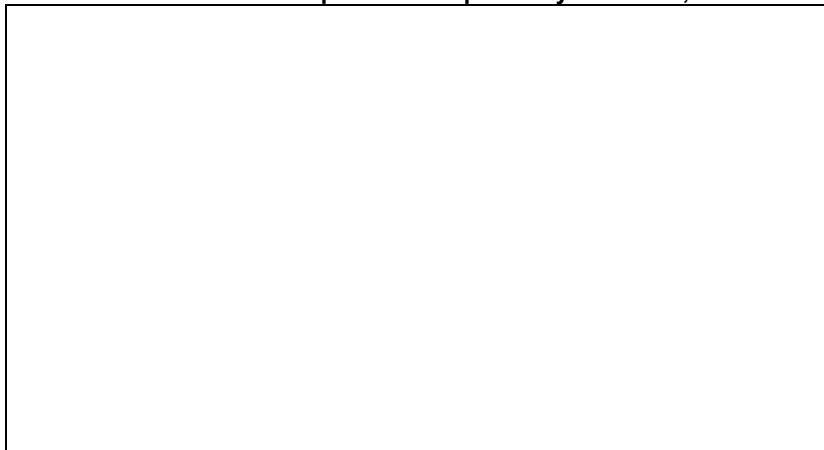
Table 3.5
Sheep - Beef Key Operating & Financial Indicators

	1996						10-Year Averages			
	Population	Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Ave Farm (\$'000)	Total Assets/ Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10-Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd).
Group 1	5762	42,373	244,132	592	3,411,756	95.0	(66)	-2.61	8.14	250
Group 2	3494	106,498	372,124	1077	3,762,531	93.2	(28)	-0.76	9.43	201
Group 3	1182	201,225	237,848	1,462	1,727,578	88.7	19	1.81	8.31	167
Group 4	569	304,128	172,988	1,976	1,124,207	82.1	32	2.17	12.60	169
Group 5	595	515,656	306,919	3,355	1,997,034	81.4	58	3.02	2.37	161
Total Population			11,602	Total Sector Assets			\$12,023,106	Total Return (\$Mill)		\$15
Gross Revenue (\$'mill)			\$1,334	Av. Assets /Farm			\$1,036,323	Av. Net Return		0.15%
Av. Income/Farm (\$'000)			\$115	Av. Equity			90%			

Size Distribution

As for all the broadacre industries, the distribution of farm size for sheep-beef enterprises consists of many small operators and only a few larger operators. Revenue for the top 5 per cent is 12 times that of the bottom 50 per cent.

Diagram 3.23
Distribution of Sheep-Beef Enterprises by Revenue, 1996



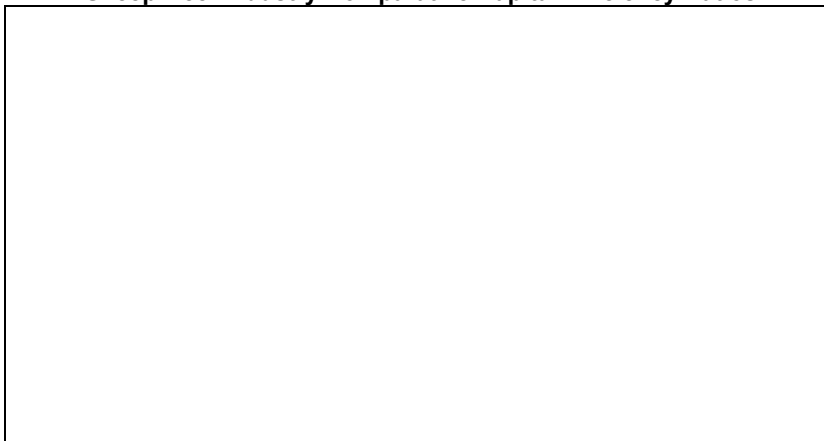
The different enterprise size groupings demonstrate very different levels of capital and operating efficiency and capital utilisation.

Capital Efficiency

Diagrams 3.24 and 3.25 below report the key indicator efficiency ratios. The larger sheep-beef enterprises (the top 20 per cent of operators) obtained better capital utilisation per productive unit (\$/DSE). There is a size advantage for the largest 5 per cent of sheep-beef enterprises compared to the next two size groupings. This observation applies particularly with respect to revenue generation per unit of capital.

The larger farms achieved better utilisation of their assets. The smaller farms on the other hand required similar fixed assets to those necessary on larger farms, but could not extract the full value from them. This is a common problem in a small business, especially where there is little opportunity to use smaller, light weight or more economical equipment and structures to reflect size.

Diagram 3.24
Sheep-Beef Industry Comparative Capital Efficiency Ratios

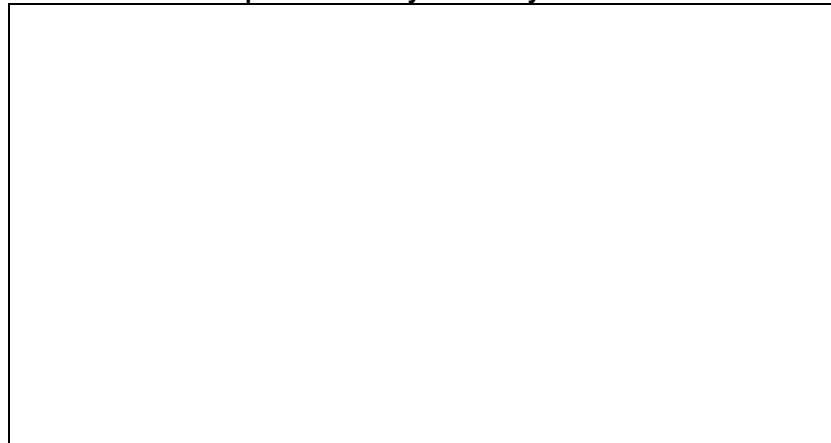


Operating Efficiency

There are in fact only small operating efficiency gains to be achieved through expansion between the largest farms and the next two groups. The costs of production are therefore less dependent on the size of the farm and less likely to strongly benefit from economies of scale.

The great proportion of operating costs are direct costs, which are dependent on through-put rather than size.

Diagram 3.25
Sheep-Beef Industry Efficiency Indicators



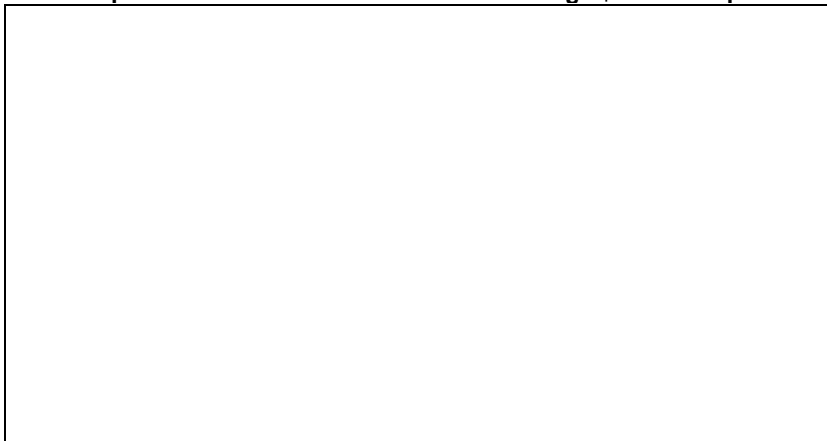
Key observations are:

- Increasing farm size in this category results in improved capital efficiency.
- The larger the enterprise the higher the income per dollar of capital invested.
- Cost of productive capacity declines with size.
- Operating efficiency improves dramatically with size as the smaller enterprises expand.
- Opportunities to achieve improved operating economies diminish rapidly in the very large groups.

Capital Investment

The average amount of capital invested in farms in the five groups of the sheep-beef industry are shown in diagram 3.26 below. The largest farm has on average 5.7 times the assets of the smallest 50 per cent of sheep-beef farms. Over the past three years the largest 5% of farms have on average reduced their assets by 9% while the smallest 50% of farms have on average increased assets by 20%. This has resulted in erosion of the profitability of the smaller farms at a faster rate than that of the larger farms, as discussed ahead.

Diagram 3.26
Comparative Asset Utilisation 10-Year Average \$'000/Enterprise



Profitability

The increased capital intensity of the smaller farms, reduced revenues and no improvements in capital efficiency over the past three years have made the sheep-beef industry one of the worst performers of the broadacre industry, second only to the sheep industry. The net return of the smallest group 80% have in aggregate doubled in losses from that in 1993. The largest producers have achieved average total returns to assets that are in the region of 3 per cent/annum over the past 10 years. The recent problems in the beef market and the continuing factors of the sheep industry are no doubt reflected in these figures.

Diagram 3.27
Sheep-Beef Industry
Comparative Returns (Inc. Capital) 10-Year Average



Over the past 10 years the whole category has averaged annual profits of only \$15 million. The larger producers (top 20 per cent of farms) have been the major contributors. In particular the top 10 per cent of farms (Groups 4 & 5), although only very small in terms of population, accounted for the bulk of the positive returns (Diagram 3.27).

The impact of these characteristics at an industry level is further illustrated in Diagram 3.28.

Diagram 3.28
Sheep-Beef Industry
Comparative Performance Relevance of Groups



3.3.5 CROPPING ENTERPRISES

Estimated turnover in all cropping enterprises in 1993 was \$5.3 billion, or 32.5 per cent of all broadacre revenue. It was the largest contributor of revenue in the broadacre industry.

Table 3.6
Wheat and Other Crops - Key Operating & Financial Indicators

	Pop	1996					10-Year Averages			
		Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10 Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Head (\$/Hd.)
Group 1	5762	192,788	1,110,882	714	4,111,744	87.5	(51)	-2.29	7.41	854
Group 2	3531	490,118	1,730,510	1419	5,009,837	84.5	122	3.49	8.45	661
Group 3	1173	856,414	1,004,402	2030	2,380,379	83.6	90	5.58	9.39	558
Group 4	561	1,015,271	569,872	2838	1,592,896	78.8	56	6.38	6.92	506
Group 5	629	1,422,170	894,687	2885	1,814,654	75.9	110	9.35	9.02	632
Total Population			11,656	Total Sector Assets		\$14,909,509	Total Return (\$Mill)			\$327
Gross Revenue (\$Mill)			\$5,310	Av. Assets/Farm			Av. Net Return			3.93%
Av. Income/Farm (\$'000)			\$456	Av. Equity		\$1,279,105 84%				

Size Distribution

Diagram 3.29
Distribution of Cropping Enterprises by Revenue, 1996



The distribution of the population of the cropping industry is in line with all other broadacre industries, with a high proportion of small producers and fewer large producers. The population of this sector has increased by an extraordinary 81% in the

past three years due its sustained profitability over the period, relative to that of the other sectors.

Capital Efficiency

The most meaningful indicator of capital efficiency in the cropping industry is the ratio that measures the total assets per hectare of land held by the enterprise. The larger cropping farms (20 per cent) clearly achieve a significant gain in capital efficiency over the smaller enterprises (50 per cent).

Diagram 3.30
Comparative Capital Efficiency Ratios



Similar behaviour is evident in the income-to-capital indicator. Larger farms are able to generate more revenue per unit of capital invested than their smaller counterparts with the largest 5% doing demonstrably better than the rest. While the assets used per hectare operated has not changed significantly in the past three years, the asset/revenue has certainly reduced.

Operating Efficiencies

The operating efficiency indicators show that larger farms continue to realise efficiency gains over smaller enterprises as they expand. The apparent anomaly in operating costs between the largest Group 5 (the largest producers) and Group 4 (the next largest) is largely explained by a shift in family labour to contract labour. In the ABARE treatment and AAS Pty Ltd adjustment, this shows a shift where the labour is charged.

Diagram 3.31
Wheat and Other Crop Industry Efficiency Indicators



Capital Investment

The cropping industry is second only to the beef sector in the average value of assets per farm in each size category. Modern cropping practices require specialised machinery and equipment, some of which is crop specific and all of which requires a significant investment.

Notably, the largest cropping farms are some four times bigger on an assets basis than the smallest farms. This is not a more significantly different distribution than is observed in other sectors. It is interesting to note that while all other groups in this sector have increased their average assets in the past three years (some quite dramatically), an average Group 5 farm has reduced them by 17%. This may be due to a larger population leading to the inclusion of smaller farms in this category. The average assets per farm in Group 5 and Group 4 is not very different but there is a big gap in the average revenues that they earn. This has important consequences as is elaborated later.

Diagram 3.32
Comparative Asset Utilisation 10-Year Average \$'000/Enterprise



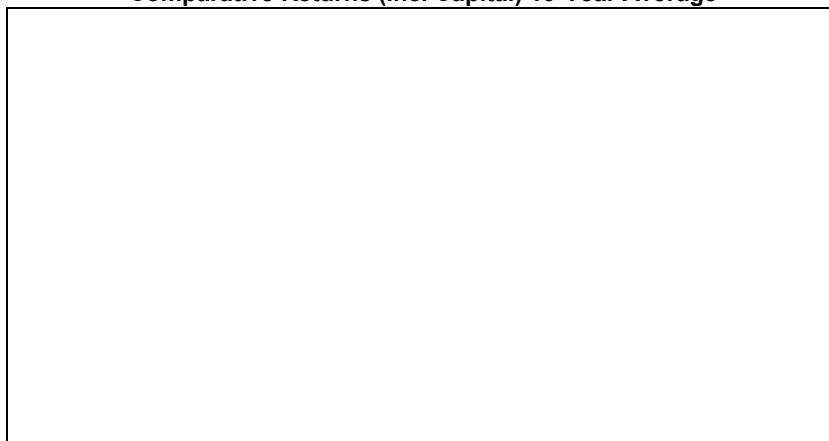
Profitability

As with all other broadacre sectors, the cropping industry demonstrates highest profitability in the larger enterprises. The distribution of profitable enterprises in the cropping industry extend to 50 per cent of the population on an average basis. However, the smallest 50 per cent of the enterprises have averaged very significant losses over the past 10 years.

Factors which influence these losses are as follows:

- high plant and equipment costs associated with cropping
- inability to achieve sufficient scale to cover finance costs
- inability to achieve minimum size for capital efficiency benefits
- the need to finance capital costs before crop can be planted

Diagram 3.33
Wheat and Other Crops Industry
Comparative Returns (inc. Capital) 10-Year Average



A 10-year comparison of the operating profit (PBIT) performance of each size group within the cropping industry demonstrates a radical difference between the top 5 per cent and the bottom 50 per cent.

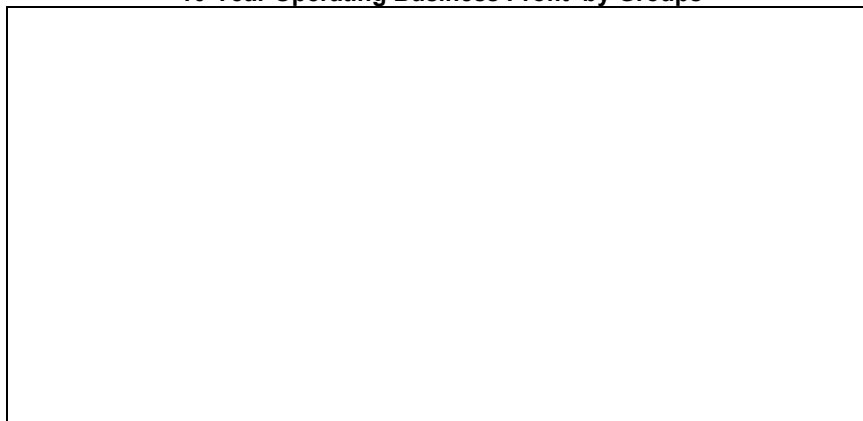
Diagram 3.34
Wheat and Other Crop Industry
Comparative Performance Relevance of Groups



The largest 5 per cent have experienced relatively significant profits during the past 10-years. The smallest enterprises (Group 1) have generated negative operating profits for eight of the past 10 years. The difference between the top 5 per cent and the next 5 per cent (Group 4) is also notable. In fact, although Group 4 has also had positive profits for the past 10 years, these have been noticeably lower in seven of those years. Average capital per farm is very similar in the case of Group 4 and Group 5 farms and is not very different from the Group 3 farms. In the past two years Group 4 farms have even operated larger areas than Group 5 farms on an average. Yet the profitability of the of the largest group is markedly greater. This suggests that either the largest group uses capital more efficiently or that geographical and natural factors are responsible for the difference in their performance.

The operating profits being measured are before interest is paid. Given that the average farm is carrying some level of debt, those enterprises with consecutive years of negative returns are unable to meet their borrowing costs. The volatility of the cropping sector is evident in the graph below and highlights the vulnerability of smaller enterprises, which are essentially overcapitalised for the relative productive capacity of their enterprise.

Diagram 3.35
Cropping Sector
10-Year Operating Business Profit by Groups



3.3.6 DAIRY ENTERPRISES

In 1996, Dairy enterprises generated a revenue of \$ 2.9 billion equivalent to 18 per cent of the revenue of broadacre farming. After cropping, it was the most profitable of all industries and generated the highest net return (46%, \$417 million) in the agriculture sector. It was the only industry where the smallest 50% of the farmers were profitable as a group during 1996 (but this figure will be evaluated later). The volatility of its returns were also very low. An important aspect of the industry is that it is profitable despite the average farm income being less than half that of the cropping sector.

Table 3.7
Dairy Industry
Key Operating & Financial Indicators

	1996						10-Year Averages			
	Population	Total Cash Receipts/ Farm (\$)	Total Group TCR (\$'000)	Assets/ Av. Farm (\$'000)	Total Assets per Group (\$'000)	Equity (%)	Net Return ¹ (\$ Mill)	10 Yr. Return on Investment (%)	Volatility (%)	Efficiency Assets/ Milk (\$/Lt.)
Group 1	6881	106,543	733,070	642	4,414,375	89.7	39	1.30	4.19	2.12
Group 2	4206	214,992	904,191	1122	4,719,650	85.2	39	1.28	12.66	1.73
Group 3	1363	325,062	443,091	1614	2,200,418	85.5	106	6.35	4.05	1.66
Group 4	701	448,046	313,946	2086	1,461,462	87.8	69	6.73	3.23	1.66
Group 5	718	730,911	524,794	2797	2,008,246	76.1	163	8.53	5.74	1.76
Total Population			13,868	Total Sector Assets		\$14,804,152	Total Return (\$Mill)			\$417
Gross Revenue (\$'mill)			\$2,919	Av. Assets/Farm		\$1,067,504	Av. Net Return			3.37%
Av. Income/Farm (\$'000)			\$210	Av. Equity		86%				

Size Distribution

The distribution of the population of the cropping industry is in line with all other broadacre industries, with a high proportion of small producers and fewer large producers.

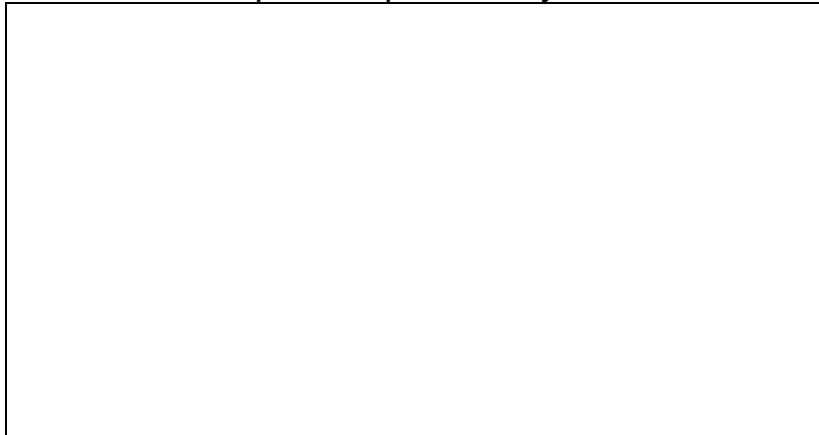
Diagram 3.36
Distribution of Dairy Enterprises by Revenue, 1996



Capital Efficiency

The indicator of capital efficiency used for the dairy industry is the ratio of total assets per litre of milk produced by the enterprise and the asset to turnover ratio. As indicated in the diagram below, there is no significant difference between the ratios among the largest 50% of the farms. Yet the difference in their profitability is significant suggesting that fixed costs are a major component in the industry.

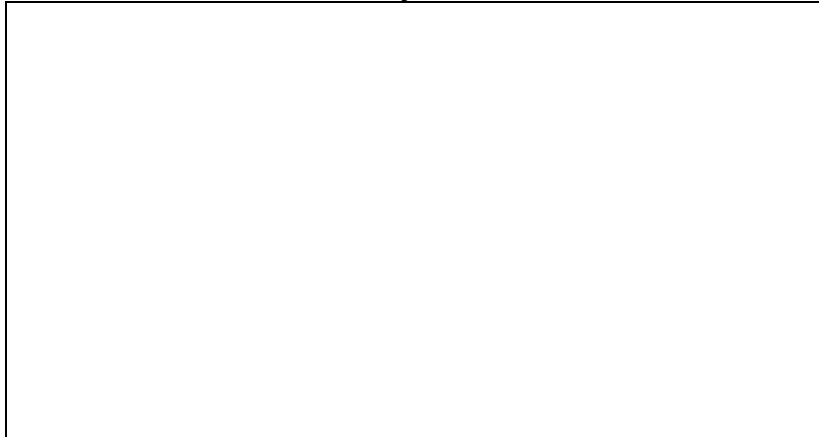
Diagram 3.37
Comparative Capital Efficiency Ratios



Operating Efficiencies

Diagram 3.38 demonstrates that economies of scale are widely prevalent in the dairy enterprises. The total costs as a ratio of revenue fall as we progress through from the smaller operators to the larger groups. The operating costs do not change as in this industry, the family labour component is a significant cost in the smaller enterprises. The largest gain is from Group 1 to Group 2 farms. The trends are similar to that of the other sectors in the broadacre industry.

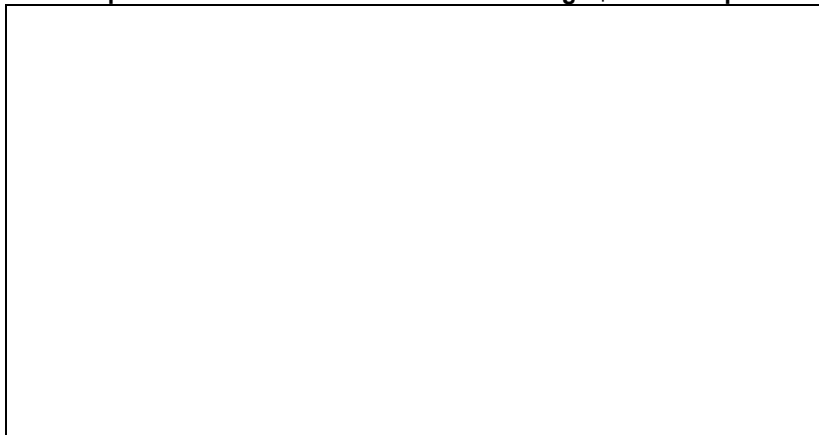
Diagram 3.38
Dairy Industry
Efficiency Indicators



Capital Investment

The dairy industry is highly capital intensive depicted by the large capital to revenue ratios. However, they do not possess more capital when compared with the farms in the other broadacre categories. The largest dairy farms are 4.4 times the size of the smallest in terms of assets. On average, 86% of the assets in dairy are financed through equity. While the asset to turnover ratio did not change substantially among the top 4 groups, a higher usage of capital by the larger groups means that they generate much larger incomes. The comparison of the different groups is shown in Diagram 3.39 below.

Diagram 3.39
Comparative Asset Utilisation 10-Year Average \$'000/Enterprise



Profitability

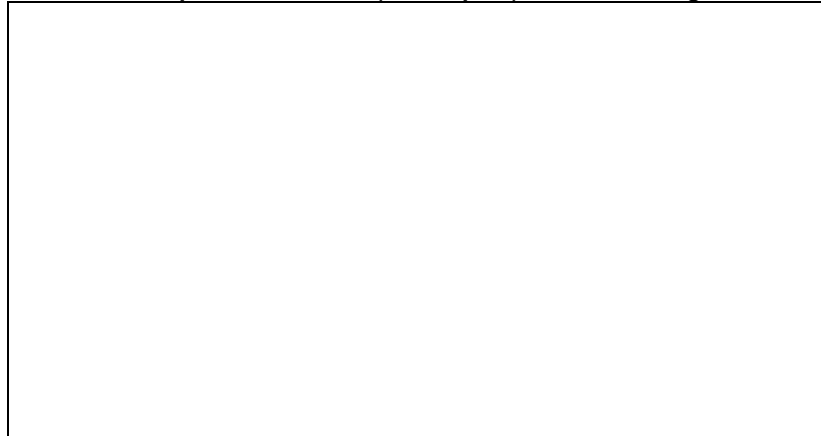
While the ten year averages do show that Group 1 farms in dairy industry are profitable, they have generated profits in only four of the past ten years. They have a negative profit margin in all these years. In the seven years since 1990, they have been profitable in only one year as a result of substantial capital appreciation. The seemingly low profitability of Group 2 farms is not justified as the average has suffered due to an abnormally large reduction in the value of its capital in 1990. This group has generated positive operating margins in seven of the past ten years. If the performance of 1990 is discounted, it generates a return on investment of nearly 5%.

- Group 1 farms are not economical when compared with the other groups in dairy industry. They suffer from low capital efficiency and can achieve

significant economies of scale by progressing in size. Moreover, the large capital requirements and the associated high finance costs also affect the financial viability of this group.

- The profitability of this sector is second only to the cropping industry. In fact the return on investment for Groups 2, 3 and 4 are larger than that in cropping. The larger return for Group 5 farmers in cropping pull up its average.

Diagram 3.40
Dairy Industry
Comparative Returns (inc. Capital) 10-Year Average



The relevance of each group in terms of population, income and net return is depicted in Diagram 3.41 below.

Diagram 3.41
Dairy Industry
Comparative Performance Relevance of Groups



3.4 CONCLUSION

Broadacre agriculture has a highly skewed performance distribution. Gross returns on average are very low. The smallest 50 per cent of producers, on average, are unprofitable. Sustainability in this group is dependant on off-farm income. The largest producers demonstrate significantly better profitability.

The dairy and cropping industries are the most consistent profit generators over a 10-year period. The population of the cropping enterprises has risen by 81% from that in 1993. While beef industry has been the most popular in 1996, its profitability has suffered over the past two years.

Profitability in broadacre agriculture is dependant on achieving efficient use of capital. Smaller enterprises have low capital efficiency.

The sheep industry is yet to become profitable despite the reduction of its population by 53%. Diversified agriculture and sheep-beef farming also suffer from profitability problems. The high cost of capital and the enterprise-specific nature of the capital mitigates against achieving economies of scope and results in overcapitalisation.

4.0 BENCHMARKING THE BEST FINANCIAL PERFORMANCE IN AGRICULTURE

4.1 PERFORMANCE GROUPS AND SECTORS

In Chapter 3 the characteristics of all broadacre industries were described in broad terms. The objective of this chapter is to identify the enterprise groups that deliver the best financial performance in broadacre agriculture industries. The best performers will be used to benchmark the performance of agriculture against alternative investments.

4.1.1 IS LARGEST GENERALLY BEST ?

Implicit with the initial distribution sought from ABARE Farm Surveys data was an assumption that larger farms would, in general, be more profitable. The analysis in the previous chapter confirmed the validity of this assumption. By way of perspective, Diagrams 4.1 and 4.2 highlight the comparative sizes of the respective population groups between enterprise categories.

Diagram 4.1
Average Annual Turnover - Largest 20% of Broadacre Farms

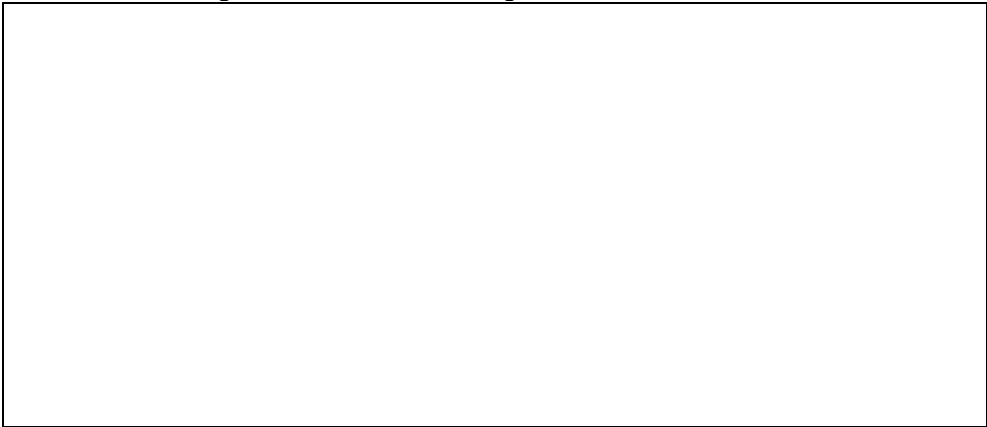


Diagram 4.1 clearly indicates that all Group 5 (top 5 percent) enterprises have higher turnover than the Group 4 producers in all industry categories. This observation is also true for operating profits (Diagram 4.2). Thus, examining the comparative financial performance of the largest 5 percent of producers for analysis is an appropriate and inclusive indicator of best average performance.

Table 4.2
Average Operating Profit - Largest 20% of Broadacre Farms

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In broadacre agriculture the largest enterprises based on (sales) revenue are also the best financial performers.

4.2 KEY INDICATORS OF FINANCIAL PERFORMANCE

Four key indicators of financial performance can be reasonably applied. They are as follows:

- Size, measured by :
 - average annual revenue as an indicator of comparative business size
 - average gross assets as an additional indicator of comparative business size
- Profitability, measured by:
 - average profit before tax (PBT)
 - average annual return on equity as a percentage
- Operating efficiency, measured by:
 - average total return including capital appreciation
 - volatility of the return on equity
- Financial structure, measured by:
 - debt to equity reported as equity percentage

All indicators are based on 10-year averages.

Table 4.1
Comparative Average Performance (10 Yr) - Top 5% Broadacre Producers

Sector	Av. Annual Revenue \$'000/ann	Av. Return PBT \$'000/ann	Av. Return Cap. App \$'000/ann ¹	Av. Gross Assets \$'000	Equity (%)	Return ¹ on Equity (%)	Volatility of Return (%)
Beef	1,274.2	150.8	196.2	4,801.9	69.7	6.1	8.0
Beef/Sheep	681.3	90.6	127.0	3,779.8	80.6	3.6	12.3
Sheep	569.8	52.9	81.1	3,044.1	82.3	2.8	15.5
Mixed	849.4	101.3	132.0	3,045.2	78.6	4.9	14.5
Cropping	1,000.5	168.2	257.5	2,574.4	70.5	14.2	14.8
Dairy	518.9	67.5	220.5	2,552.6	80.5	10.7	7.4

Source: ABARE: AAS Derived

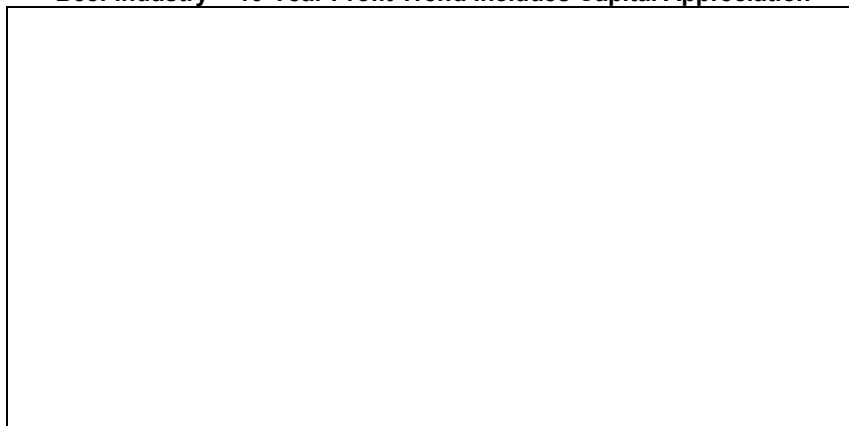
¹ Includes capital appreciation

Table 4.1 establishes a clear picture of the average size and performance of the best producers in each of the broadacre industries. These enterprises make up the top 5 percent of their respective industry. However, each sector has enterprises that are fundamentally different in terms of capital structure, size and returns. The average return on the investment ranges from as low as 2.8 percent/annum in sheep farms to a more healthy 14.2 percent in the cropping industry. Notably, these two extremes of the spectrum come from farms with very similar gross assets.

4.2.1 BEEF

The returns achieved in the beef industry by the top 5 percent of operators over the past 10 years are illustrated in Diagram 4.3.

Diagram 4.3
Beef Industry - 10-Year Profit Trend Includes Capital Appreciation

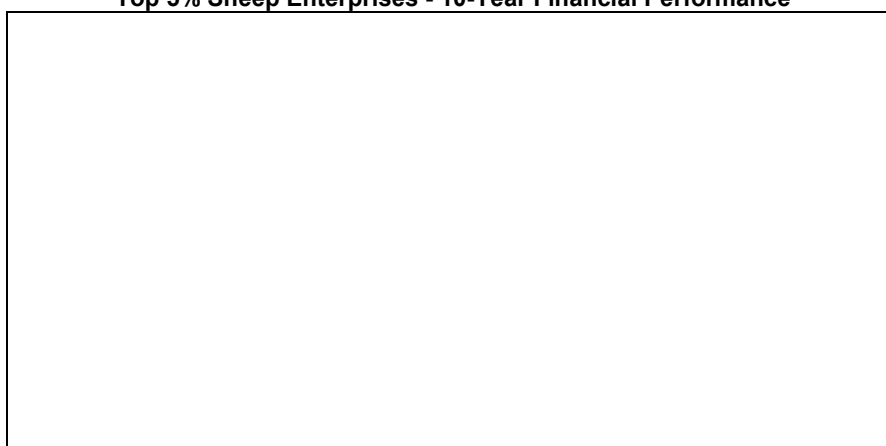


In seven of the past 10 years, a positive return on assets was achieved by the largest beef producers. The volatility of returns (at 8 percent) was only second to the dairy industry. In the best years, returns as high as 10.7 percent were achieved.

4.2.2 SHEEP AND WOOL

During the period of analysis the sheep and wool sector was a less than attractive investment. The top 5 percent of enterprises were relatively small businesses with average turnovers nearly 50 percent less than the average in the beef sector. The average return on assets was a low 2.35 percent with three of the 10 years producing negative returns. The volatility of returns in the sheep and wool sector was comparatively high at 15.5 percent. The performance of the top 5 percent of sheep and wool broadacre producers over 10 years is illustrated in Diagram 4.4.

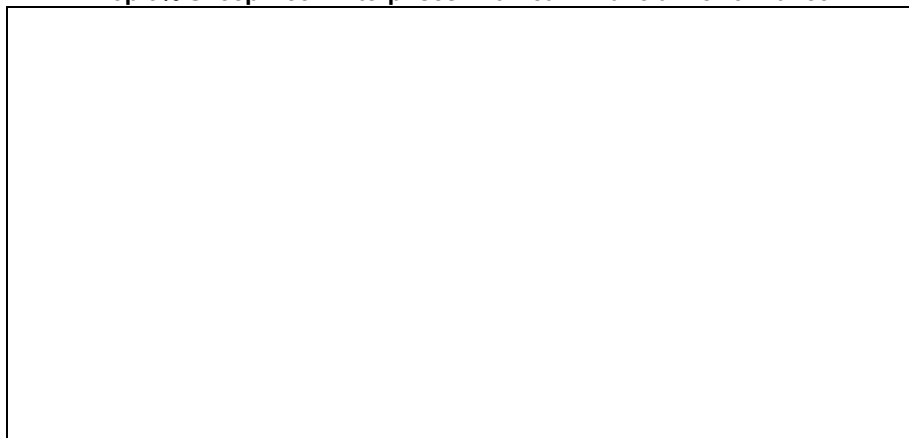
Diagram 4.4
Top 5% Sheep Enterprises - 10-Year Financial Performance



The factors influencing wool are well documented elsewhere. It is noteworthy that the regulated market that dominated this industry during the 1980s would have produced significant distortions in the financial performance of this sector. Thus, the true level of profitability is probably not easily determined through this analytical approach.

4.2.3 SHEEP-BEEF

Diagram 4.5
Top 5% Sheep-Beef Enterprises - 10-Year Financial Performance



The performance of the mixed livestock category of sheep-beef is illustrated in Diagram 4.5. As is to be expected, returns reflect similar patterns to the specialist enterprises of beef and sheep respectively.

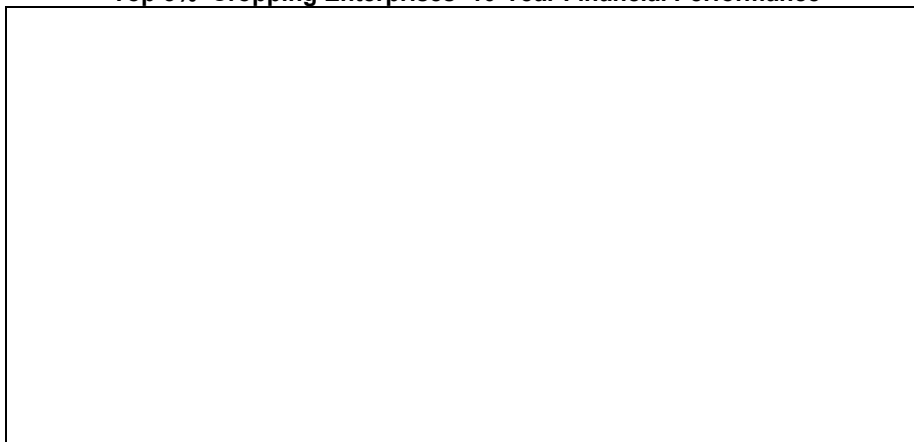
The impact of “diversified” activities has been to produce average annual returns lower than that of beef and higher than that for sheep and wool.

The rationale of this combination is financially questionable as there is no significant improvement in financial returns or risk management. The combined performance does not significantly reduce the enterprise risk (volatility at 12.3 percent). For sheep farmers it has provided a higher income and lower volatility to a small degree only. The sector suffers from low capital efficiency as sufficient scale of operations are not reached in either of the industries.

4.2.4 CROPPING

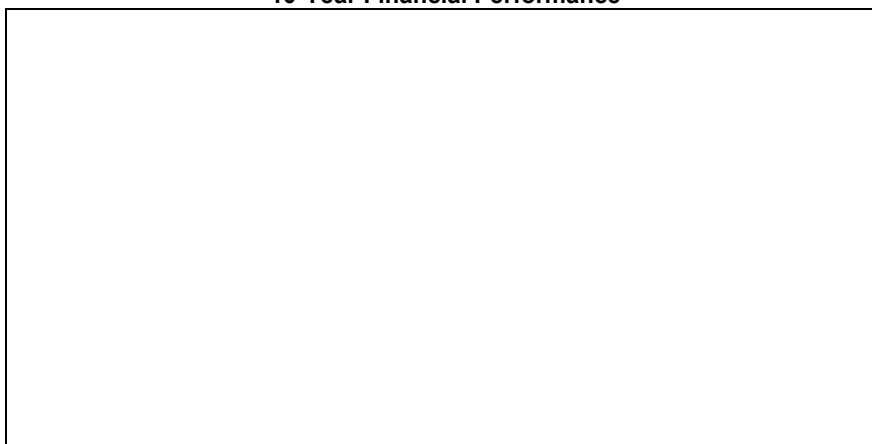
The top 5 percent of cropping industry producers deliver the best investment returns in broadacre agriculture. This sector produces profits in eight out of 10 years and has achieved returns to assets peaking at 24.9%. The average annual return over 10 years is 9.35 percent on assets and an attractive 14.2 percent on equity.

This sector, however, has a high volatility of return (14.8 percent) reflecting the dominant characteristics of this sector, which are a high dependence on seasonal conditions and variable commodity prices.

Diagram 4.6**Top 5% Cropping Enterprises 10-Year Financial Performance****4.2.5 MIXED BROADACRE FARMS**

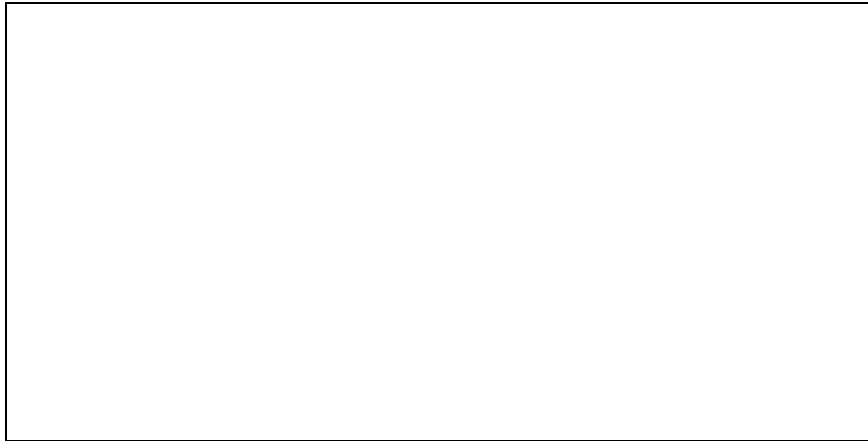
The performance of the top 5 percent of mixed farming enterprises is shown in Diagram 4.7. This sector has neither decreased the volatility of returns that are associated with a diversified enterprise nor have generated attractive returns. The trend suggests that the diversified sector is unable to achieve sufficient scale in its activities to gain operating efficiencies and that it is unable to capture economies of scope.

In three out of 10 years this sector achieved negative returns on assets. The average total return on assets over the past 10 years has been a 3.78 percent and return on equity is less than 5 percent with a volatility of returns a comparatively high 14.5 percent.

Diagram 4.7**Top 5% Mixed Livestock & Cropping Enterprises
10-Year Financial Performance****4.2.6 DAIRY FARMS**

The performance of the top 5 percent of dairy farming enterprises is shown in Diagram 4.8. The dairy farms have consistently generated positive net returns in all of the last ten years. However, the returns have not been as high as cropping and beef farms in absolute terms. The profitability is second only to cropping but the volatility is significantly less than cropping. The average return on assets for the past ten years is a healthy 8.53% with a peak of up to 19%. The ten year average return on equity is 10.7% with a volatility of 7.4%.

Diagram 4.8
Top 5% Dairy Enterprises
10-Year Financial Performance



4.2.7 KEY CONCLUSIONS

The following key observations can be drawn about the comparison between broadacre agricultural industries:

- A significant range of financial performance exists between the major broadacre combinations.
- The best financial performance is achieved by specialisation.
- Managing a diversified farm enterprise results in reducing the financial performance of the more attractive specialised activities such as beef or cropping. Rather than create synergies and reduce volatility, diversification inhibits achieving sufficient scale to attain capital efficiency and does not provide economies of scope.
- Previous performance in the sheep and wool industries may not be a fair indicator of future performance. Opportunities for better results may emerge as new market conditions prevail.

It must also be noted that beef, cropping and mixed farming have generated positive operating profit before tax in all the past ten years. The negative returns in some years are due to negative capital appreciation rather than operational losses. The positive capital appreciation included in other years balance out the impact on average returns.

4.3 BENCHMARKING CORPORATE AGRICULTURE

4.3.1 OWNERSHIP STRUCTURE OF AUSTRALIAN AGRICULTURE³³

Australian agriculture is dominated by family owned farms. 99.6% of the farms are owned by families and only 0.4% are corporates. Partnership is the most common business structure and 82% of the farms have this structure. 12% are sole proprietorships and barely 2% are companies. 1.5% of the farms are managed farms where there is a distinction between ownership and management. of these, 1.1% are family owned and the rest or 0.4% have corporate structures.

Corporate owned farms produce 6.5% of the gross value of production and operate 26.3% of the land in the industry. This is due to the high involvement in beef with 19.3% of the beef turn off produced by the corporates. Their involvement in other sectors is relatively small.

³³ ABARE Farm Survey, 1996 - figures for 1995

4.3.2 DEFINING CORPORATE AGRICULTURE

Strictly speaking, corporate agriculture can be defined as farm enterprises where the management and ownership have been established with a corporate structure and with corporate principles. That is, where ownership and management are separate functions and the organisation's legal and management structures reflect this difference.

In Australia, there are limited examples of corporate farming and invariably they are on a large scale. Some of the large financial institutions and private investors have developed large agricultural enterprises that are managed as corporations.

In this project we have elected to define corporate agriculture as any enterprise that owns large holdings which require a formalised arm's length management reporting structure. Our definition is also intended to include enterprises whose size and hence invested capital is generally equivalent to small and medium-sized public companies.

In some sectors of agriculture, corporate farming has played a significant and permanent role. This is particularly so in the beef industry and in those sectors that are able to sustain greater integration of functions and control, such as some horticultural activities and the intensive livestock sectors (poultry/pig). In Australia, however, there are only a few examples of successful corporate agriculture in other broadacre industries.

4.3.3 THE MAJOR CORPORATE BROADACRE FARMERS

The table below (Table 4.2 and 4.3) identifies the top 10 major institutional, corporate or private broadacre farms. The lists are indicative only and based on Australasian Agribusiness Services Pty Ltd internal data base³⁴. A more extended list is included in Volume II Appendix V.

Corporate Beef Producers

Table 4.2 identifies that the largest 10 corporate beef producers which account for nearly 1.8 million cattle. This is equivalent to about 10 percent of the national beef herd. They hold land areas of about 52.9 million hectares.

Table 4.2
Australian Corporate Beef Producers

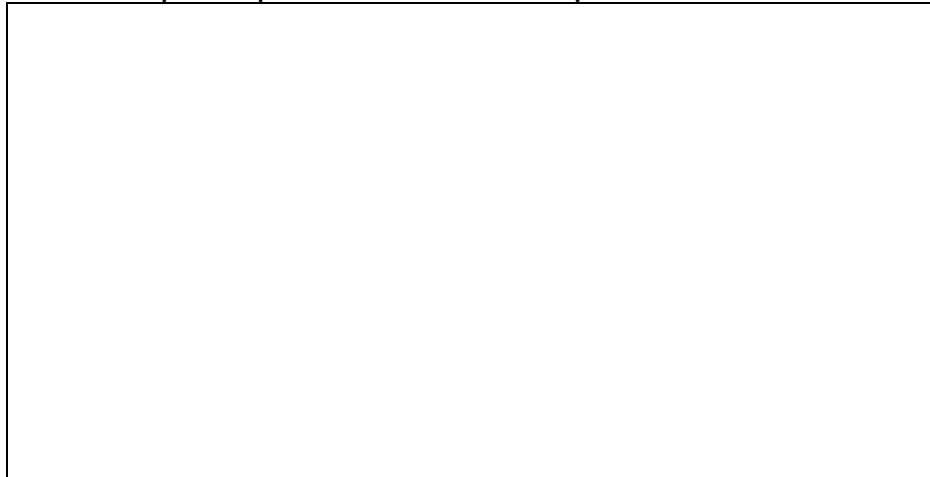
Company	Ownership	Area	Properties	Cattle
Stanbroke Pastoral Co.	Public	10.1	27	350,000+
Aust. Agricultural Co	Public	6.4	16	350,000
Heytesbury	Public	5.6	20	250,000
Consolidated Pastoral	Public	4.5	14	191,000
Qld & NT Pastoral Co	Public	2.7	13	160,000
North Aust. Pastoral	Public	6.0	13	130,000
S. Kidman & Co	Public	11.7	19	120,000
Mc Donald Family	Private	3.1	9	110,000
Desa Cattle Co	Public	0.9	4	65,000
Tipperary	Public	1.9	8	65,000
Total		52.9	143	1,791,000+

Source AAS Pty Ltd Derived

³⁴ There is no formalised data source for this sector. Corporate farmers do not perform necessarily as a homogenous sector and tend to keep details of their enterprises confidential.

The relative size of these enterprises is illustrated in Diagram 4.9. This graph shows that the top two are about twice the size of the fourth largest. In comparison the largest corporate beef producers are 74 times bigger than the average Group 5 beef farmer (i.e. top 5 percent) defined earlier in this paper. The 10th largest corporate beef farm is nearly 14 times bigger than the average Group 5 beef producer.

Diagram 4.9
Comparative Size
Top 10 Corporate Beef Producers & Top 5% Beef Producers



Corporate Sheep and Wool Producers

A similar pattern of distribution occurs among corporate sheep producers. Notably, the top 10 producers are mutually exclusive of the top 10 beef producers. National Mutual, however, is a significant producer of beef and cotton in its own right, as is Commonwealth Funds Management (CFM).

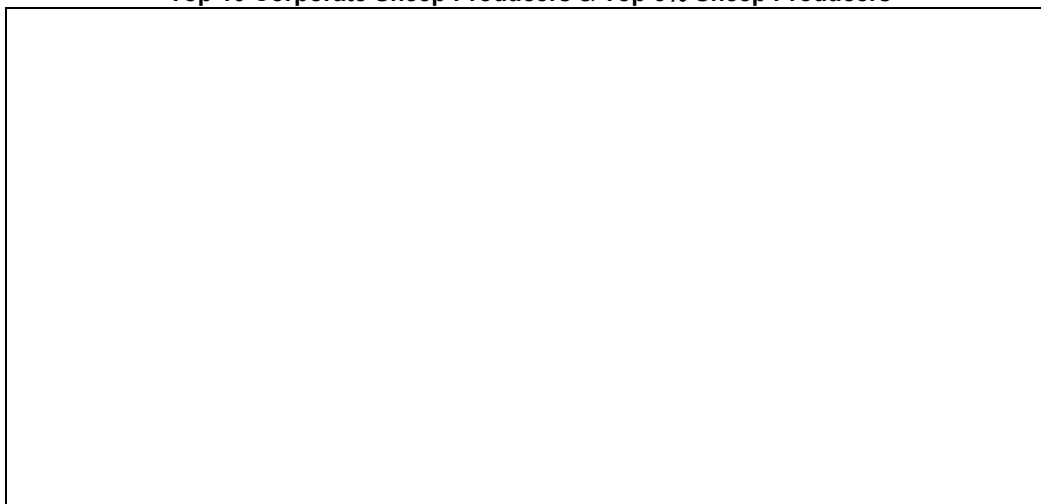
Table 4.3
Australian Major & Corporate Sheep Producers

Company	Owner-ship	Area ('000) Ha	Properties	Cattle	Sheep	Cotton
National Mutual	Institution	583	18	42,000	360,000	20,000
McLachlan Family	Private	4,200	31		350,000	
Mc Bride	Private	900	13		225,000	
Brinkworth	Private		13	20,000	200,000	
Twynham	Corporate	366	29		200,000	5,000
News Corp	Corporate	144	9		170,000	
Conventry Sperry	Private	42	15		140,000	
Clyde	Corporate	508	10	5,000	90,000	
CFM (Canberra)	Institution	177	8	7,600	76,000	20,000
Totals		6,920	146	74,600	1,811,000	45,000

National Mutual and the McLachlan family are estimated to be the largest sheep farmers in Australia. These producers are both more than 1.5 times larger than the next largest and some 23 times bigger than the average of the Group 5 sheep producers.

The top 10 sheep producers account for an estimated 1.8 million flock or about 1.5 percent of the national stock.

Diagram 4.10
Comparative size
Top 10 Corporate Sheep Producers & Top 5% Sheep Producers



4.3.4 MEASURING THE PERFORMANCE OF CORPORATE AGRICULTURE

When this project was conceived, Australasian Agribusiness Services Pty Ltd had hoped to benchmark the performance of corporate agriculture against the performance achieved by the traditional family farm structure.

For a number of reasons, the data from these corporate enterprises is scarce. Major corporate farmers such as Heytesbury, National Mutual and AMP are remarkably shy about publishing the performance achieved in their rural investments. However, the *Australian Agricultural Company Ltd* is a public company, and was listed on the Australian Stock Exchange till 1995. It is also the equal largest beef producer in Australia³⁵ along with the AMP Society subsidiary *Stanbroke Pastoral Company*.

While the sample size is small and limited only to the beef industry, we have chosen to use *Australian Agricultural Company Ltd* and its publicly available information to benchmark the performance of this large corporate farming enterprise against that of the best performing enterprises in the non-corporate beef sector.

³⁵ Based on AAS Pty Ltd estimates of the cattle holdings of the properties. These holdings can vary from year to year and will reflect seasonal and management strategies from year to year.

4.4 THE AUSTRALIAN AGRICULTURAL COMPANY LTD

4.4.1 OVERVIEW OF THE COMPANY

Australian Agricultural Company Ltd (AAC) is one of the two (equally) largest beef producers in Australia. Incorporated in England in 1824, the company is probably the oldest surviving corporate agricultural enterprise.

Table 4.4
Key Statistics - Australian Agricultural Company Ltd
30th December 1994

Turnover \$'000	\$52,723
Operating Cost \$'000	\$38,132
PBT \$'000	\$14,591
Assets	
• Current \$'000	\$8,341
• Non-Current \$'000	\$147,201
Total Assets	\$155,542
Current Liabilities \$'000	\$20,130
Non-Current Liabilities \$'000	\$10,049
Total Liabilities \$'000	\$30,179
Shareholders Equity \$'000	\$125,363
Market Capitalisation	
Area	65,669 km ²
Cattle (stock)	335,745
Sheep	15,563
Sales	
• Cattle	82,119
• Sheep	4,247
• Wool (kg)	100,598

Source: AAC Annual Report 1994

AAC is principally involved in breeding, fattening and selling commercial beef cattle, breeding stud cattle and to a lesser extent growing sheep, wool and producing grain crops.

The company was listed on the Australian and London Stock Exchanges and has been acquired by Elders Australia Limited in 1995.

4.4.2 COMPARATIVE FINANCIAL PERFORMANCE OF AAC

Several key financial indicators are sourced in this case from AAC's company and annual reports³⁶, to establish comparable indicators of:

- capital efficiency
- operating efficiency
- profitability

Since the performance of AAC is published up to the year ending 31st December, 1994, the comparison has been done with the corresponding period for beef Group 5.

Capital Efficiencies

The two capital efficiency indicators, assets to income and assets to DSE both illustrate that significant capital efficiencies exist among the very large enterprises compared with the Group 5 producers.

³⁶ In addition to the annual reports, the STATEX Report (Sydney Stock Exchange Research Reports) on Australian Agricultural Company (ASX Code AAG) has also been referenced along with recent broker research documents.

AAC has an apparent 13 percent advantage over the top 5 percent (Group 5) of beef producer in income generating capacity for each dollar of capital invested.

Using the productivity indicator, assets/DSE, AAC is more than a third more capital efficient than the Group 5 beef producers. That is, for every dollar invested in a unit of production by a Group 5 producer, AAC achieves for the same dollar 1.5 times the effective production capacity.

This is a most critical advantage for the larger producer.

Diagram 4.11
Comparative Analysis 10-Year Average Capital Efficiency Indicators



Operating Efficiencies

The potential for achieving gains in operating efficiency has been identified earlier in this analysis. The opportunity, however, appears to be greatest for smaller producers, as differentials in efficiency decline dramatically as farms increase in size. That is, the opportunity for AAC to achieve additional operating efficiency improvement by increasing the scale of the enterprise is limited.

The two efficiency indicators, reported below (Diagram 4.12), are based on the total costs (i.e. direct, indirect and fixed before interest). They clearly indicate that continuing efficiency gains are achievable with scale.

AAC has on average lower total costs (operating margins) for each dollar of revenue generated than the Group 5 beef producer. The gains are apparently marginal when considered against the comparative inefficiencies of smaller operators. However, these must be considered in the context of the impact on the much higher turnover and production that applies with larger enterprises.

AAC is achieving an operating margin of greater than 25 percent compared with the average of 12.3 percent of the Group 5 producers.

Diagram 4.12
Comparative Operating Efficiencies



Profitability

The average rates of return achieved by AAC compared to the rates achieved by the Group 5 beef farms are reported in Table 4.5. This gives an indication of the degree of success of corporate agriculture compared with the best “family farm” performers. It also highlights the impact of scale on the returns achievable.

Table 4.5
Comparative Rates of Return
of 10-Year Av.

	Return on Assets	Volatility	Return on Equity	Volatility
Australian Agricultural Company	8.1%	2.8%	9.9%	3.4%
Top 5% Beef Enterprises	4.5%	5.8%	7.0%	8.5%

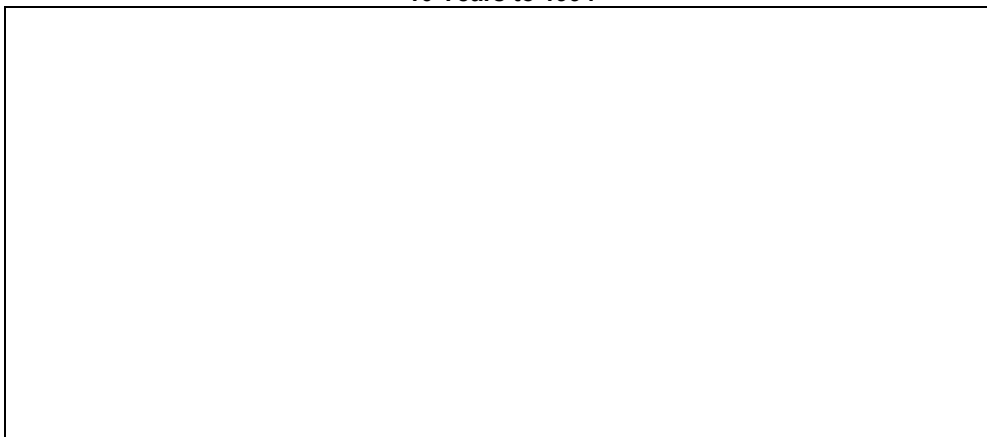
AAC consistently outperforms the Group 5 producers with higher returns on assets and equity over a 10-year average. Also illustrated in Table 4.5 is how the volatility (i.e. risk) is reduced in the corporate enterprise as economies of scale reduce the impact of seasonal and commodity price fluctuations. AAC achieves much higher returns than those of the top 5 percent of producers on average.

In four out of 10 years the Group 5 beef farmers achieved higher returns on equity than AAC. On the other hand, in three of the years they achieved negative returns on capital. While AAC reported lower profits in the same years, it achieved positive returns every year for the 10 years.

This difference in performance is due to a number of factors, including:

- management skills
- cost of capital
- capital efficiency
- market strength
- economies of scale
- ability to adopt technology

Diagram 4.13
Comparative Return on Equity: AAC
10 Years to 1994



Source: Annual Reports

4.5 KEY CONCLUSION - BEST FINANCIAL PERFORMANCE

The analysis in this chapter confirms the initial proposition in this review. Larger Australian agricultural enterprises can achieve significant economies in scale and capital efficiency. Without exception the top 5 percent by size of broadacre farms all produce comparatively better returns to equity than their smaller counterparts. This same trend applies as the scale moves from large family operations into corporate agriculture.

This analysis supports the case that in order to improve the rates of return on equity and assets, most farm enterprises need to be larger. A number of factors influence this phenomenon, however, capital usage is the most significant. Without exception, the larger enterprises are able to achieve a more efficient use of capital. That is, they require less capital to achieve their productive output. This characteristic is apparent in all of the enterprises in all broadacre categories.

Achieving efficient use of capital needs to be an important and fundamental objective for the industry in the future.

5.0 COMPARATIVE ANALYSIS OF AGRICULTURE WITH OTHER INVESTMENT CLASSES

The purpose of this chapter is:

- To introduce some of the key concepts of successful investment management.
- To identify the performance of the major investment classes.
- To compare the performance of major investment classes with agriculture.
- To identify the role, if any, that agricultural investment can be expected to play in managed portfolios.

5.1 INTRODUCTION: SOME KEY CONCEPTS IN INVESTMENT MANAGEMENT

Investment management is the overall process through which investors seek to achieve their investment objectives. The investor has a large range of investment choices. This variety caters to a wide range of investment criteria and performance expectations and produces a high level of competition for investors' funds.

5.1.1 INVESTOR TYPES

Investors fall into the following two categories:

- Non-professional
- Professional

The Non-Professional Investor

Non-professional investors are generally unskilled in most investment matters. They generally have a relatively small capital base from which to invest and do not apply objective methods to the assessment of investment options. As a group, non-professional investors are highly dispersed and do not exhibit consistent investment behaviour. This group may have an emotional interest in agriculture but would be expensive to access as potential investors and would be unstable and unpredictable in terms of decision making.

The Professional Investor

The professional investor includes a wide range of institutions such as:

- Banks
- Life Assurance Companies
- Merchant Banks
- General Insurance Companies
- Stockbrokers
- Unit Trust Managers
- Other finance industry participants
- Individuals (eg. Kerry Packer)

Professionals provide a wide range of investment services for both their own internal requirements and/or external services to their clients.

Professional investment managers who undertake the investment of funds are highly skilled in financial analysis and decision making on investment matters. They manage significant sums (up to several billion dollars) either on a retail basis (i.e. for individual retail clients) or a wholesale basis (e.g. for superannuation funds). These professional managers apply their skills to achieve an overall formulated investment policy.

5.1.2 INVESTMENT MANAGEMENT

The investment management process involves four basic steps:

1. Establishing measurable performance objectives for the investment funds.
2. Developing and implementing the investment strategy.
3. Managing the portfolio.
4. Monitoring and evaluating performance.

Investment Objectives

The fundamental building block of investment management is the performance objectives established for the funds available for investment. Factors influencing investment objectives include:

- time horizon of investment (ie. short or long term)
- legal and legislative constraints
- investor expectations, sophistication and risk profile
- liabilities profile (ie. calls on the funds)

Different professional investors are driven by varying objectives: a superannuation fund, whose liabilities are long term, will not make the same investment decisions as a general insurer, whose liabilities occur in the short term.

Investment Strategy

Investment strategy involves selecting the appropriate investment styles and hence the appropriate portfolio managers to achieve the desired objectives.

Investment styles describe the risk and return characteristics of the investment portfolios provided. Having selected the mix of appropriate investment styles, it is then necessary to select one or several portfolio managers to create those portfolios.

Portfolio Management

Portfolio management is the process of creating and managing an investment portfolio to reflect the investment objectives and strategy. It involves the organisation of a set of assets designed to provide investors with a set of performance characteristics consistent with a predefined investment style.

Asset Classes

Investment characteristics can vary widely, but it is possible to classify them into various homogeneous sectors. Most domestic investment opportunities available to an Australian investor can be classified under one of the categories listed below:

- Equities (shares listed on stock exchanges)
 - Australian
 - International
- Fixed Interest including:
 - Australian
 - * Commonwealth Government Bonds
 - * Semi-Government Bonds
 - * Corporate Fixed Interest
 - International
- Property
 - Direct investment
 - Listed and unlisted property trusts (or stocks)
- Cash or liquids (short term)

The performance of these respective investments is measured by special indices that are managed by various industry bodies or institutions, for example:

- Australian Stock Exchange (ASX)
- Banks
- Building Owners and Managers Association (BOMA)
- Major company research services (eg. Jones Lang Wootton)

The portfolio manager's task is to select the appropriate asset allocation (i.e. weighting of each asset class) that is appropriate to achieve the portfolio's objectives at a particular time.

Performance Monitoring

Monitoring the results achieved by the investment portfolio is critical. The key concepts involved in choosing between different assets for investment are based on the following performance criteria:

- Expected return
- Expected risk (i.e. volatility of returns)
- Time horizon
- Time value of money
- Liquidity (or marketability)
- Taxation

5.1.3 DRIVERS OF INVESTMENT DECISIONS - RISK AND RETURN

The portfolio manager must strike a balance between the level of return and the risk of the portfolio. The available trade-off between return and risk is not always of the same magnitude, nor necessarily even in the same direction.

In the main, the objectives of a portfolio are expressed in terms of either a desired rate of return and/or a desired level of risk. The precise level of returns and risks, however, are dependent upon the individual circumstances of the investor. An investment strategy can either:

- target a certain level of return, which the investment manager must achieve at the minimum possible level of risk; or
- specify an acceptable level of risk at which the manager must maximise returns.

Some investment strategies will also specify the kinds of investments that can be made and the minimum/maximum exposure to various classes of investment.

Returns

The returns are the rewards to investors from their investment management. Most investment returns can be divided between capital and income. The distinction is important from a taxation and cash flow point of view. Whereas in setting an investment strategy these matters need to be considered, in assessing the relative returns between investments, it is the aggregate of these components that is relevant.

Risks

While there is general agreement about what return is and how it should be measured, there are a wide range of opinions as to what constitutes “risk” for an investment portfolio.

In the medium term, the critical determinant of whether an investor is able to meet his obligations, and therefore remain solvent, is the level of returns achieved. Therefore the level of returns, as well as their variability, are components that need to be considered when measuring risk.

The standard deviation of portfolio returns is one commonly used measure of risk. Standard deviation (or volatility) measures the variability of portfolio returns relative to the average (mean) return. The lower the standard deviation, the lower is the degree of return volatility, and the more certain an investor can be of achieving the average return on an investment. An investment with a low standard deviation can therefore be said to have low risk.

This measure is useful but only considers one aspect of portfolio risk. For example, investors are usually much more concerned about large short-term declines in portfolio value than large increases. Standard deviation treats each as equally risky.

Correlation of Returns

While the performance of individual investments (that is, their return and risk levels) does influence the overall performance of a portfolio, so too does the interrelationship, or correlation, between each of the investments’ returns. Obviously, if some investment returns are rising while other investment returns are falling, then the overall performance of the portfolio will be less volatile than if all of the returns

tended to rise and fall together. Where the returns on two investment categories tend to move in opposite directions they are said to be negatively correlated.

Prudential Constraints

In addition to the level and behaviour of individual investment returns to be considered when setting investment objectives, there maybe prudential reasons to limit the maximum and minimum levels of investment in a particular asset class.

For example, a portfolio may have a minimum exposure of 15 per cent to Australian equities or a maximum exposure of 50 per cent.

Liquidity

Another prudential consideration that might limit the extent of investment in a particular asset class is the liquidity of investments in that sector. Other things being equal, the more liquid a sector, the more flexible the constraints placed upon it. For example, property is highly illiquid and investors might wish to limit their exposure even if they were bullish, simply because it is so difficult to pull out of property after the investment cycle turns.

5.2 PERFORMANCE OF MAJOR ASSET CLASSES

The average returns for each major asset class is reported below in Table 5.1.

Table 5.1
Summary Table - Pre-Tax Returns and Risk

Investment Alternative	Ave. Returns 10 Years	Volatility %
Australian Equities (All Ords)	12.21%	16.55%
International Equities (FTSE100)	11.5%	15.5%
Listed Property	11.35%	12.47%
Sydney CBD Property (JLW)	5.21%	24.51%
Fixed Interest (Aus 10-yr Bonds)	10.9%	2.2%
Cash (90 Bills)	10.7%	4.5%

Source:

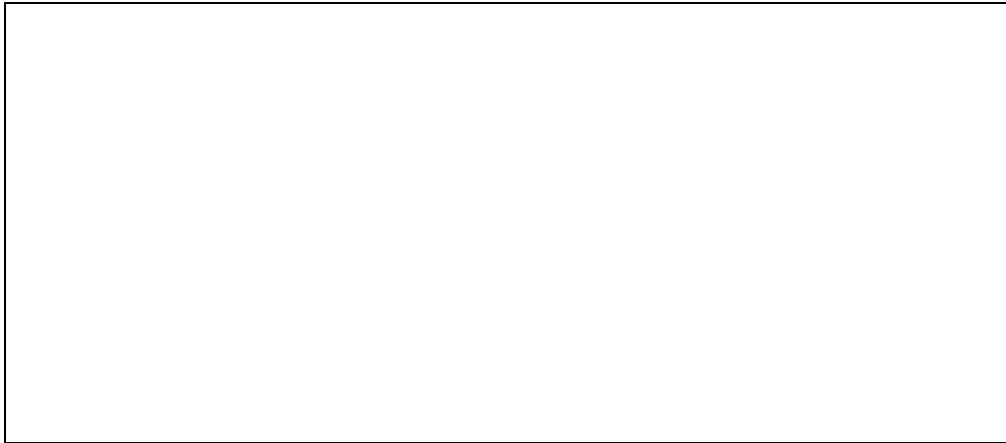
- 1 ASX³⁷ All Ordinaries Accumulation Index
- 2 FTSE³⁸ 100
- 3 ASX Listed Property Trust Accumulation Index
- 4 JLW Property Index
- 5 RBA Bulletin 10 year Bonds Yields
- 6 RBA Bulletin 90 Day Bank Bill Yields

The 10-year trend for each of these asset classes is illustrated in Diagram 5.1 below.

Diagram 5.1
Investment Returns Alternative Investments
Ten Year Trend

³⁷ ASX - Australian Stock Exchange

³⁸ FTSE - Financial Times (London) Stock Exchange Index



5.2.1 EQUITY

The returns to investors in Australian equities (traded on the Australian Stock Exchange) can be measured by the All Ordinaries Accumulation Index. The table below shows the returns for the period 1987 to 1996.

Based on returns, equities are an attractive form of investment. However, the risk (that is, the standard deviation) associated with those returns must also be considered. Once the high volatility of returns for equities is taken into account, the attractiveness of this sector diminishes.

Table 5.2
Summary Performance - Australian Equities
10 years to 1996

Date	All Industrials Accum. Index	All Industrials Ann. Returns %	All Ordinaries Accum. Index	All Ordinaries Ann. Returns %	All Resources Accum. Index	All Resources Ann. Returns %
30-Jun-86	5525		3143		1532	
30-Jun-87	7860	42.26%	4841	54.01%	2754	79.82%
30-Jun-88	7799	-0.77%	4424	-8.61%	2154	-21.80%
30-Jun-89	8274	6.09%	4580	3.53%	2120	-1.57%
29-Jun-90	8406	1.59%	4767	4.09%	2320	9.44%
28-Jun-91	8734	3.91%	5047	5.86%	2540	9.52%
30-Jun-92	9950	13.93%	5720	13.35%	2854	12.33%
30-Jun-93	10997	10.51%	6287	9.91%	3109	8.96%
30-Jun-94	12501	13.68%	7448	18.46%	4009	28.93%
30-Jun-95	13595	8.75%	7873	5.71%	4015	0.15%
30-Jun-96	15849	16.58%	9119	15.83%	4592	14.37%
Ave Ann Return %		11.65%		12.21%		14.01%
Volatility %		12.14%		16.55%		26.54%
Compound Growth %	11.11%		11.24%		11.61%	

The performance of industrial shares is very much related to the domestic economy, interest rates, money supply, and profitability.

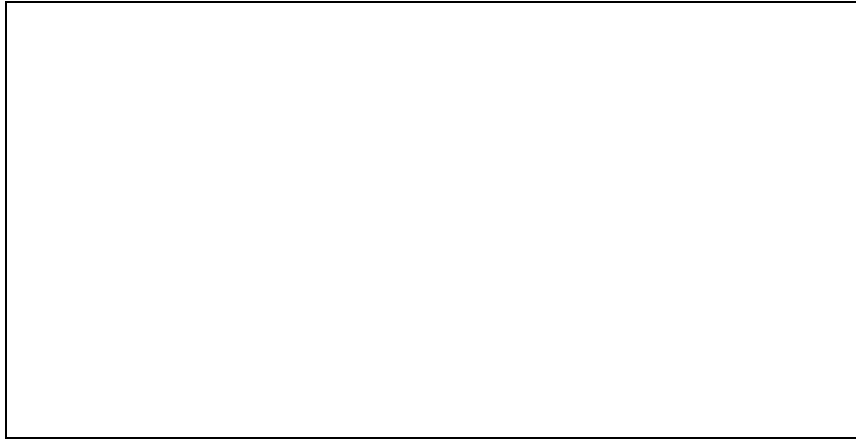
Resource shares on the other hand are highly dependent on the level and prices of exports of raw materials, which are in turn heavily influenced by the tone of the major economies, international commodity prices and currency factors. Resource securities tend to be more risky (i.e. more volatile) than industrial securities. Both dividend yields and earnings are low in relation to industrial stocks. Investors tend to rely primarily on capital gains to maximise return.

The dividend yields from equity investments is a function not only of the level of dividend actually paid but also the value of the security. As the capital value of the equity increases, so does the yield decline if there is no increase in the amount paid.

Between 1986 and 1996 Australian equities (as measured by the All Ordinaries Accumulation Index (AOAI)) have increased more than 2.9 times. This period includes the market boom and bust in the late 1980s.

Equities are quoted daily for purposes of valuation. The market is liquid, particularly the larger companies. Therefore, the purchase and sale of equities is fast even in times of poor market performance. Stamp duty is less than for property, as is brokerage on the purchase and sale of equities.

Diagram 5.2
Australian Equities
10-Year Performance Pattern



5.2.2 **PROPERTY**

Property investments may be made either directly or through listed or unlisted property trusts.

Property trusts provide a vehicle for all types of investors to participate in property investment without the day-to-day management issues.

Unitholders in listed property trusts, are able to realise their investment more quickly than if their investment is in direct property or in unlisted trusts. The prices of listed property trusts are more volatile than direct property as the prices are likely to move in line with the general sharemarket. Thus, listed property trusts have many of the characteristics of listed equities.

Property investment is an important component of portfolio management. Generally over the long term, property is subject to both capital appreciation and income returns. The performance of property is enhanced by inflationary expectations and actual inflation. Conversely, property performance is adversely affected by economic retardation, unemployment and high interest rates. The value of property is affected by government intervention, by monetary policy, by fiscal policy and by actions of overseas investors.

Diagram 5.3
Property Investment Performance



Liquidity of direct property investment is poor relative to equities and fixed interest.

The types of property investment undertaken by professional investors are:

- Commercial (i.e. office property)
- Industrial
- Retail; particularly retail shopping centres

The professional investor does not tend to invest in residential property because the size of the investment is generally too small and because of potential tenancy problems.

The returns from property for the period 1984 to 1994 were as follows:

Table 5.3
Returns from Property

Date	Listed Property Trusts %/Ann	JLW SYD CBD Total	JLW MELB CBD
29-Jun-86		22.75%	11.11%
28-Jun-87	41.31%	29.62%	13.33%
30-Jun-88	-2.79%	32.86%	16.19%
30-Jun-89	-1.09%	21.51%	13.92%
30-Jun-90	15.24%	-7.09%	-5.57%
30-Jun-91	7.72%	-26.66%	-3.51%
29-Jun-92	14.73%	-23.39%	-39.03%
28-Jun-93	17.08%	-32.87%	-21.99%
30-Jun-94	9.81%	30.30%	0.00%
30-Jun-95	7.90%	6.98%	3.85%
31-May-96	3.62%	3.26%	-3.70%
Ave. Ann Return %	11.35%	5.21%	-1.40%
Volatility %	12.47%	24.51%	16.78%

1 ASX - Listed Property Trust Accumulation Index

2 JLW - Derived from various reports

5.2.3 FIXED INTEREST

Fixed interest securities have the following characteristics:

- An identifiable term or maturity date
- A fixed coupon, interest payment or cash flow as part of its overall return
- A fixed face value on maturity

The only variable for a fixed interest security is the market value at any time. The market value is dependent upon the prevailing interest rate.

Fixed interest is a low-risk investment with correspondingly low returns. All fixed interest investments are in the form of a loan to a specific body, interest being paid to the investor at specified intervals throughout the life of the bond at fixed rates.

There are a number of different types of fixed interest securities available. Bonds (loans to Government and semi-Government authorities), debentures (company loan securities) and convertible notes (registered unsecured notes that can be converted to shares upon maturity). Of the local fixed interest investment options, bonds are the most common. Another type of fixed interest investment are the numerous international bonds such as the Eurobond and the Euro-yen bond. Fixed interest investments vary in the time span they cover, with both short and long term available.

The lowest risk fixed interest investment are generally accepted as being Australian Government Bonds. The highest risk fixed interest investments are the corporate issues such as debentures. The main fixed interest securities are:

- Australian Government Bonds, e.g. Aussie Bonds
- Semi-Government Bonds, e.g. NSW Treasury Corporation
- Municipal Shire Bonds, e.g. Sydney County Council
- Government Authorities, e.g. Telecom Bonds
- Corporate Securities, e.g. BHP.

For this analysis we examine Australian Government Bonds.

Table 5.4
Australian Gilt 10 Year Bonds

Year Ended	10 Year Bonds
1. 30 June 86	13.0
2. 30 June 87	12.8
3. 30 June 88	12.0
4. 30 June 89	13.5
5. 29 June 90	13.4
6. 29 June 91	11.2
7. 30 June 92	8.9
8. 30 June 93	7.4
9. 30 June 94	9.6
10. 30 June 95	9.2
11. 30 June 96	8.9
10 Year Ave. Yield	10.9%
Volatility	2.2%

The liquidity of fixed interest securities is good. In general, the Australian Government bonds are freely marketed. The liquidity of semi-government bonds has improved over recent years. Administrative costs are low for government securities and in many cases stamp duty does not apply.

5.2.4 CASH

Cash is a short-term investment and returns are fairly volatile. Cash investments can be through a Cash Management Trust, or directly in the money market. Small investors tend to pool their money with others in a trust, while large institutions on the other hand, generally invest directly.

The investment is short term through instruments such as bank bills or treasury notes. Because of the short-term nature of the investment, there is always a pool of cash available for investors to withdraw their money at short notice. This is a highly liquid investment.

The Australian short-term money market has grown rapidly over recent years. The terms available are from 11am call (i.e. 24 hours call) to almost any term required. Professional investors use the short-term money market for a number of reasons:

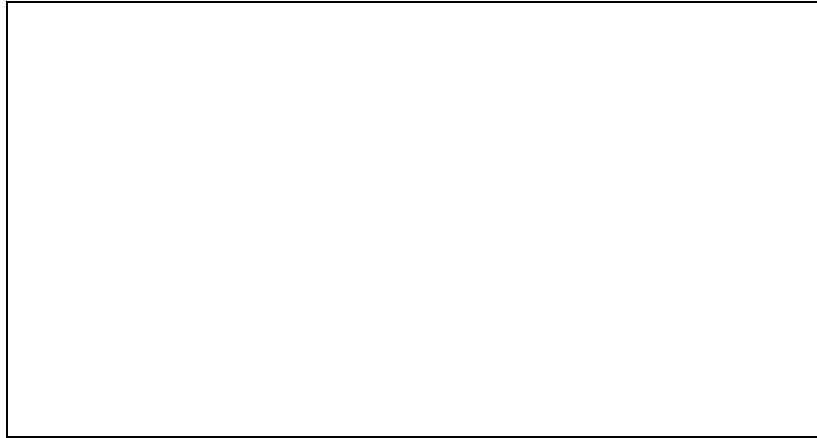
- To achieve a reasonable return on money that is required at short notice.
- To achieve a reasonable return on funds that are waiting to be invested in a longer-term situation.
- To have funds available to take advantage of unexpected investment opportunities.

Short-term rates are variable as illustrated in the table below.

Table 5.5
Returns from Cash

Date	Westpac	90-day Bills Res Bank	90-day T Notes 90 days
30-Jun-86	16.20%	16.40%	15.44%
30-Jun-87	13.24%	13.49%	12.79%
30-Jun-88	12.99%	12.91%	12.14%
30-Jun-89	17.68%	17.70%	16.80%
30-Jun-90	14.38%	14.40%	14.15%
30-Jun-91	10.07%	10.15%	9.96%
30-Jun-92	6.43%	6.45%	6.27%
30-Jun-93	5.12%	5.13%	4.99%
30-Jun-94	5.74%	5.74%	5.69%
30-Jun-95	7.55%	7.73%	7.63%
30-Jun-96	6.76%	7.31%	7.13%
Average	10.56%	10.71%	10.27%
Volatility	4.51%	4.49%	4.20%

Diagram 5.5
Returns from Cash



5.2.5 INTERNATIONAL INVESTMENT

With the relaxation of restrictions on overseas investment, there has been substantial growth in off-shore investment by professional investors. The majority of investment has been in equities and fixed interest.

The primary reason for off-shore investment is risk diversification. The risk diversification relates to:

- the performance of the Australian dollar vis-a-vis other currencies;
- the high orientation of Australian sharemarkets towards the resource sector;
- the availability on overseas markets of investments that are not available on the Australian market, such as high-technology stocks
- hedging of political risk (i.e. change in government in Australia).

Table 5.6
International Equities

Year	FTSE 100 Accumulation	Annual Yield %
1986	1,650	33.6
1987	2,284	38.0
1988	1,858	-18.7
1989	2,151	15.8
1990	2,375	10.4
1991	2,415	1.7
1992	2,521	4.4
1993	2,900	15.0
1994	2,919	0.7
1995	3,315	13.5
1996	3,711	12.0
10 Year Ave. Yield		11.49
Volatility		15.50

5.3 INVESTMENT PERFORMANCE OF COMPARATIVE AGRICULTURE

In this section we examine the comparative performance of agriculture and its implications to the investment community. A paper prepared by Webb³⁹ in 1990 on the attractiveness of agriculture as a portfolio investment is a useful reference.

The analysis reported here does not attempt the portfolio modelling undertaken in Webb's paper. The paper is acknowledged by this author as a watershed in the analysis of agriculture for professional investment. It is recognised as having an excellent methodology but is based on too limited a database. The agricultural data used in the analysis reported by Webb was based on a very narrow select rural portfolio of less than \$20 million value (at that time). Thus, it is inappropriate to generalise broadly from Webb's analysis.

5.3.1 COMPARATIVE RETURNS

The comparative returns of broadacre agriculture relative to other popular investment asset classes are summarised in Table 5.7 below. For the purposes of this examination we have used the Australian Agricultural Company as an indicator of corporate agriculture. The broadacre agricultural comparisons are restricted to the top 5 per cent of beef, sheep and cropping enterprises examined in previous chapters.

Table 5.7
10-Year Average Returns and Volatility

	Yield %	Volatility %
Beef	6.1	8.0
Sheep-Beef	3.6	12.3
Sheep	2.8	15.5
Cropping	14.2	14.8
Mixed	4.9	14.5
Dairy	10.7	7.4
Corporate Agriculture	9.9	3.4
Australian Equities (All ords)	12.2	16.6
International Equities (FTSE 100)	11.5	15.5
Listed Property Trusts	11.4	12.5
Sydney CBD Property (JLW)	5.2	24.5
Melbourne CBD Property (JLW)	-1.4	16.8
Fixed Interest (Aust Gilt 10-yr Bonds)	10.7	2.2
Cash (90-Day Bills)	10.7	4.5

Table 5.7 identifies on the basis of yield and return, that most sectors of agriculture perform well below other more popular and common asset classes. The very best performance in agriculture is achieved in the cropping sector.

³⁹ K. Webb, 1990, "Comparison of Returns from Rural Property versus Other Forms of Investment" — paper presented to the Australian Rural Industries Conference

5.3.2 VOLATILITY OF RETURNS

The volatility of returns is comparatively high in Australian and international equities. Compared to these two classes, agriculture has lower volatility. Clearly the economy of size achieved in cropping sector results in a reduction of income volatility.

Agriculture is generally considered to be highly volatile. However, this is not accurate. When the volatility of broadacre agriculture is compared with other popular asset classes, it can be seen to be significantly lower. This contradicts the popular belief of the volatile nature of agriculture.

5.3.3 CORRELATION

The correlation of returns between asset classes is reported in Table 5.8. The rural sector is negatively correlated, in some cases, with other key investment sectors, in particular Australian equities and offshore equities. This means that rural returns move in a desired pattern to offer the diversification benefit that is often sought by investors.

Table 5.8
Correlation of Returns
Alternative Investment & Top 5% of Agricultural Enterprises

	Beef	Sheep	Wheat	Dairy	A. A. Co.	Aust. Eq. (All Ord's)	Inter. Eq. (FTSE 100)	List. Prop.	Sydney CBD Prop. (JLW)	Fix. Int. (Aust 10yr Bonds)	Cash (90 Bills)
Beef	1.00										
Sheep	0.65	1.00									
Wheat	0.30	0.62	1.00								
Dairy	0.67	0.62	0.72	1.00							
Australian Agriculture Co.	0.76	0.97	0.58	0.65	1.00						
Australian Equities (All Ord's)	0.17	0.03	-0.23	-0.26	0.16	1.00					
International Equity (FTSE100)	0.30	-0.01	-0.06	-0.05	0.07	0.78	1.00				
Listed Property	0.23	-0.07	-0.54	-0.29	0.08	0.87	0.75	1.00			
Sydney CBD Property (JLW)	0.73	0.85	0.57	0.62	0.84	0.21	0.09	0.01	1.00		
Fixed Interest (Aus 10-yr Bonds)	0.61	0.30	0.09	0.45	0.24	0.05	0.11	0.06	0.65	1.00	
Cash (90-Day Bills)	0.61	0.35	0.27	0.61	0.27	-0.05	0.14	-0.05	0.70	0.95	1.00

The negative correlation, however, is not strong. A statistically significant correlation would require correlations approaching 1.0. In the matrix above (Table 5.8) the correlations are all 0.3 or less.

Thus, whilst the negative correlation of the rural assets to the popular equities asset class is a beneficial characteristic, it may be insufficiently strong to overcome the impact of low yield for the professional portfolio manager.

The asset allocation chosen by the investor is driven by the level of risk that the investor wishes to bear as well as by the liability profile of the investor. The incorrect or inappropriate asset allocation for the liability profile of the investor may cause major dislocation, as illustrated by the problems encountered with unlisted property trusts in the late 1980s.

5.3.4 THE EFFICIENT PORTFOLIO

It is beyond the scope of this examination to be able to quantify the level of assets allocation that could be assigned to broadacre agriculture in a balanced portfolio.

We encourage further development of this approach in a structured way. We believe that as an important addition to this project such an examination should be applied and some measure placed on the entry level of broadacre pastoral into managed investment portfolios. The examination could be tackled in two ways:

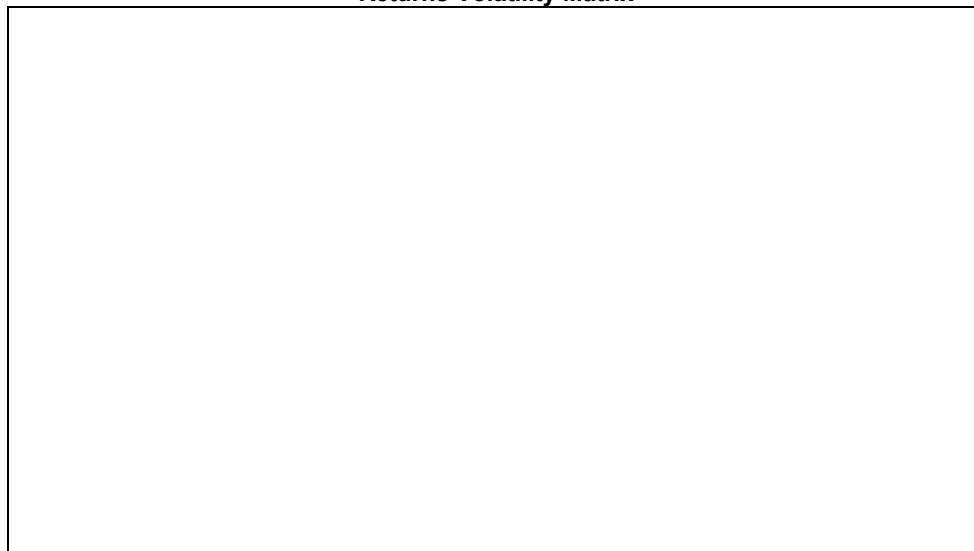
- To examine the existing level of performance, using current data and yield performance records to identify the desirable asset allocation to agriculture for a balanced portfolio.
- To identify the objective return volatility combination necessary to ensure agriculture was included as a key component of a balanced portfolio.

A prerequisite to attracting investment in agriculture is for the industry to be able to deliver returns to the investor commensurate at some level with other asset classes. Equally, the opportunity must also exist for the investor to enter or participate. It can be argued that at present because of the structure of the industry such opportunity is limited.

On the basis of the data reported above and the analysis to date, corporate agriculture cropping and dairy appear to equal the minimum expectations of investment performance.

Diagram 5.6, below, is a yield volatility diagram, which shows the agricultural cluster being well below the risk reward performance of all other classes.

Diagram 5.6
Returns Volatility Matrix



5.4 CONCLUSION

This analysis indicates that over the time period examined, broadacre agriculture under-performed all other major asset class investments. This is clearly a significant impediment to the attractiveness of broadacre agriculture as an investment for the capital markets. Unless agriculture can significantly improve its performance, the capital markets will continue to avoid systematically investing in it.

As has been identified previously in this report, one of the barriers to efficient restructuring of the industry is the limited availability of new and patient equity capital necessary to facilitate the efficiency gains that are fundamental to achieving improved returns to capital in this industry.

The large gap that would appear to exist between agricultural financial performance and the investment classes will only be overcome by agriculture improving its performance and efficiency with respect to capital usage.

Throughout the report we have discussed the complexity of achieving improved performance and efficiency in this industry. Barriers to efficient restructuring to the industry have been observed to include:

- Barriers to ready exit at an individual level
- Inappropriate assistance to farmers which encourages non-viable operations to remain on the farm
- The imposition of lifestyle costs onto asset values of farms; and
- Lack of management and business skills

to name but a few.

Clearly, however, lack of opportunities for the professional investor to invest in agriculture is a critical impediment. Professional investors will generally not wish to invest directly in agriculture but rather to invest in companies which have been established as vehicles which provide them with professional management infrastructure and skills, adequate investment liquidity (ie. the ability to sell the investment should they need to) and which can deliver demonstrable performance.

In addition, however, there is a need to change the investors' perception about investing in agriculture. Professional investors are in general averse to pursuing or examining agriculture in detail because of the generic perception that it is a poor and inappropriate investment for their portfolio mix. However, this analysis identifies that, with the appropriate structure, skills and financing, it can produce the appropriate risk-return proposition to attract systematic investment.

Rationalisation in the agricultural industry will require a degree of investment liquidity that is currently not available within the sector. Thus, the lack of opportunity for professional investors to invest in agriculture becomes a very significant impediment to facilitating rationalisation and asset consolidation.

6.0 THE GROWTH CONUNDRUM

6.1 OVERVIEW

The conundrum facing the most efficient Australian farmers is how do they finance the growth of their enterprise without risking its longterm financial viability.

The 1994 report⁴⁰ employed scenario analysis to illustrate the strategic management problem that confronts an agricultural enterprise wishing to expand in order to access the economies available to larger enterprises. The analysis illustrated graphically the impact that debt funding has on farm financial viability in contrast with an equity funded strategy.

The principle conclusions of the analysis still holds valid and do not warrant reproducing here. These are⁴¹:

- Broadacre agriculture cannot sustain high debt levels
- To finance expansion farmers have a choice of debt and equity
- Debt finance is readily available but sustainable on only low gearing ratios
- Equity financed growth provides a more sustainable expansion strategy however equity finance is less readily available due to the lack of attractiveness of agriculture as an investment.

6.2 KEY ISSUES LIMITING GROWTH

The financial returns to an broadacre agriculture investment are so low that they are unable to generate sufficient income to exceed the Weighted Average Cost of Capital (WACC). As discussed in previous chapters, the factors for this are many and varied, including:

- overvaluation of productive assets
- the impact of non-financial returns on the valuation process.

Debt finance is readily available to the rural sector. Banks are in general, comfortable lending to rural producers reflecting the relatively low gearing that prevails within this

⁴⁰ AAS Pty Ltd, 1994, Chp. 6.

⁴¹ It is noteworthy that in the context of the whole of Australian agriculture, the analysis examined only the top 10 per cent of farms, assuming they aim to improve their efficiency by expansion of size. Clearly, in the less efficient areas of agriculture, (i.e. the 75 per cent of the Australian farms which produce returns below the levels required for proper servicing of capital), expansion using a debt only strategy would be impossible. If doubling the size of an efficient top 10 per cent farmer using debt is not possible, then it follows that it is even less so for the less efficient and smaller enterprise that already has non-viable capital efficiency ratios.

sector.⁴² The gearing ratios that prevail in this sector, reflect the debt servicing ability of enterprises.

Clearly, expansion using equity finance would appear a lower risk and more stable method. However, the limitation on equity financed expansion is that the rational investor is in general not prepared to accept the low level of returns that are available.

The fundamentally low returns associated with agriculture restrict the opportunity the professional investment manager to participate in this sector.

⁴² The low gearing ratios and the prudential controls applied by banks is a risk-management method adopted to reflect their view of the overvaluation of rural production assets relative to other sectors to which the banking industry lends (ie. the banking community has rules of thumb for broadacre agriculture that allow gearing ratios not to exceed 20-25% depending on enterprise)

The use of equity for funding expansion will therefore be limited to that available from sources that are prepared to discount the cost of equity to lower level than the cost of debt⁴³. In the agricultural sector (as with many small business enterprises) this will generally be restricted to the existing owner/operator who, as previously discussed, takes a non-financial return from their equity.

Clearly, the owner/operator that has surplus equity can therefore expand and achieve improved economies and better return to capital. However, this decision may not be a rational decision in the context of opportunity cost of capital from other investments.

6.3 CONCLUSION

The key problem, as identified by this discussion and supported in the previous chapters, is the need to restructure the industry so that it becomes more capital efficient. That is, restructure the industry so that it generates returns sufficient to justify capital investment and sufficient to attract new capital or equity into the sector.

Such an outcome will not occur, however, by investing in businesses that do not produce sufficient return. The structural adjustment implicit in achieving this is clearly beyond the individual enterprise manager. The conundrum facing the industry, is how to achieve more realistic valuation of the productive asset base of Australian agriculture and thereby, to achieve a more efficient use of capital.

The most strategic challenge confronting Australian agriculture is to facilitate improvements in the capital efficiency of the industry. To achieve this, the industry will need to develop mechanisms that encourage aggregation of enterprises and true valuation of capital assets relative to their income and profit generating capacity.

Such mechanisms would require a greater liquidity of agricultural capital assets. Such a liquidity would need to be brought about by an increase in the transferability of capital assets from one owner to another while keeping existing management intact. This, in essence, implies the separation of the function of management from the ownership of assets.

Improving the liquidity of the agricultural asset base will result in an approximation of a truer or more accurate reflection of its value as a profit producing investment.

⁴³ The basic principle at issue here is that equity capital should be more costly than debt since it is equity that bears the higher risk.

7.0 IMPEDIMENTS TO FREE FLOW OF CAPITAL INTO AGRICULTURAL INDUSTRIES

An objective of this review was to identify the barriers to the free flow of equity and capital into the agricultural sector or improving the liquidity of agricultural assets.

This chapter discusses some of the apparent reasons that prevent a more active involvement by professional investment managers in agriculture. The following factors are regarded as the major obstacles to systematic investment in agriculture by fund managers and the capital markets:

- Lack of separation between management and ownership, thereby limiting opportunities to invest
- Farming's cash economy
- Lack of transparency in management performance
- Poor investment performance
- Critical investment mass
- Prudential control over investment
- Structural
 - Nonfinancial returns
 - Overpriced assets
- Illiquidity of the investment

7.1 THE LACK OF SEPARATION BETWEEN MANAGEMENT AND OWNERSHIP

The traditional owner-operator structure of Australian agriculture does not facilitate a separation of management and ownership. Ownership and management have very different functions to perform, and in most enterprises need to be separated and measured independently.

The managers of any business are responsible for delivering performance in accordance with the objectives of the enterprise, as well for using whatever resources are available in any given business and capital environment.

Ownership of capital, on the other hand, involves the more strategic role of determining where capital, assets or resources should be placed. Owners of capital have the prerogative to establish the objectives for that capital. It is management's role to deliver and perform to those objectives.

The owner of capital may make a number of discretionary choices about expectations and have the right to make any number of (rational or irrational) choices in relation to that capital. Given that owners are explicit in stating their objectives and vision for their capital, which are supported by measurable benchmarks, no particular criticism can be levelled.

But when ownership and management coincide and no explicit objectives exist, then the manager's role becomes less clear and compromises occur in management decision making.

The integration of management and ownership is a common characteristic of Australian farms. It is particularly evident among smaller producers. The financial performance of this group is more likely to be influenced and compromised by the lifestyle choices made by the owners. These owners are willing to sustain investments

in what are essentially not self-sustaining financial enterprises. On the basis of the analysis in this report, it could be argued that this situation applies in at least 50 percent of all Australian farms.

A significant opportunity exists for Australian agriculture to more actively identify and separate the functions of management from ownership. Doing so will reward good management and encourage a greater transparency of management performance. It is important for managers to receive appropriate rewards for the use of their skills to derive benefits for employers or owners of capital.

And it is equally important for owners of capital assets to receive appropriate rewards, or dividends, for their investments.

The benefit of the separation of ownership from management is most explicit in large, publicly-listed companies where professional managers are charged with the responsibility of achieving:

- corporate growth objectives
- corporate financial objectives
- social and community objectives

Take BHP or any other large public company as an example and you find that ownership control is highly dispersed, but management is concentrated in the hands of only a few (the respective boards of directors). This is a successful and attractive model for arm's length investment.

The challenge for agriculture is to achieve a greater concentration of management in order to ensure that the industry can reap the benefits of:

- focused management performance
- skills development
- transparent financial performance measurements (see below)
- efficient use of labour resources
- accurate identification of management costs

Coupled with this challenge is the need to increase the options for ownership so that a wider spread of capital is achievable in the industry.

7.2 FARMING'S CASH ECONOMY

The agricultural industry is not unique in its propensity to cash account⁴⁴. Cash-based accounting is a common feature of most small or private enterprises and owner-operated businesses. The socioeconomic unit of the family farm is able to survive because of its willingness to take cash-based benefits. The costs of a normal household include the requirement to pay cash from after tax income for normal household needs, including rent, mortgage, food, petrol and other items. For the average family farm, many of these costs are not recorded as cash costs to the household; they are costed as expenses to the business.

⁴⁴ Cash accounting refers to the propensity to measure financial performance simply on the basis of identifiable cash costs without due regard to other non-cash costs.

We have referred earlier in this report to the need to service capital. Depreciation charges reflect a component of this need. Many small business live off their capital by not properly accounting for depreciation. No cash provision and no capital investment equivalent to the amount of depreciation needs to be made. Thus, cash flow may appear to be strong and the cash surplus in the farm enterprise may be adequate for survival, but the true costs of the enterprise are not being reflected accurately. The adoption of a cash accounting method does not allow for a true reflection of all the cost elements of the farm.

The failure to properly identify all costs means the real performance of the enterprise can be overestimated. Cash surpluses often delude owner-operators into thinking they have had a good year. In fact, if their business were properly accounted the books could quite likely show they made significantly less than the breakeven costs for servicing capital.

The manager can receive benefits from the enterprise, which are regarded as part of the assumed management pay scale. The ability of the owner-operator to take noncash based benefits (e.g. food, petrol) obscures the direct cash costs to the enterprise. These costs are recognised by the astute professional investor as being an indirect benefit flowing to management that should flow to the owner.

In the case of owner-operators, they have the discretion to take the benefit in whatever manner they wish. The professional investor and capital markets are reticent to invest in enterprises where management rewards are not transparent. After all, the benefits do not accrue to the owner of capital.

7.3 LACK OF TRANSPARENCY IN MANAGEMENT PERFORMANCE

The absence of clear distinctions between management and ownerships leads to a lack of transparency in management performance. The predominantly private ownership of Australian agriculture tends to obscure the true financial performance of most enterprises. The potential performance of agricultural enterprises is generally reduced by the impact of other nonfinancial objectives (relating to lifestyle, family and social issues), which conflict directly with the financial objectives of the enterprise.

If management performance is not transparent it creates uncertainty and is an unquantifiable risk for the professional and objective investor. The capital markets need to be able to benchmark performance with a high degree of objectivity.

The financial and management information available in all other major industries results in a highly transparent measure of management performance. As a consequence, the objective investor can make informed decisions about the management, the company and the industry. Clearly, an investment in BHP can be measured objectively against an investment in any other listed stock. It can also be measured against the returns achievable in property or other asset classes.

Agriculture is unable to deliver such transparency of management performance. At the farm enterprise level simple financial performance benchmarks are not readily available. Those that are available do not provide transparent measures with other comparable industries and investment alternatives. In the absence of such measures,

professional investors have no incentive to systematically direct funds into the industry.

The majority of publicly available agricultural information is biased by the impact of the use of averages, which include poor performing farms. The reporting of agricultural returns as industry averages is generally based on aggregating and averaging all performance data. This method introduces a bias toward the smaller inefficient enterprises that dominate the industry. The poor performances of these producers presents a picture to the capital markets of an irrational and underperforming sector.

7.4 MORAL HAZARD AND ADVERSE SELECTION

Moral hazard is defined as postcontractual opportunism. In the case of an investor and farmer entering into a contract, the lack of transparency in measuring performance gives the farmer an opportunity to make unreasonable demands on the investor. As a result, the investor will be wary of contractual obligations and will avoid entering into contracts.

Adverse Selection is defined as precontractual opportunism. There is ample public information that agriculture provides low returns. Sometimes disseminated by the agriculture community, this information acts to the sector's detriment. Investors become wary of agriculture, with the sector's lack of performance transparency making it difficult to distinguish between good and bad investment opportunities. Hence investors are likely to avoid equity investments in agriculture altogether. The only investments are made when investors can control both ownership and management.

7.5 FINANCIAL RETURNS

The failure of agriculture to consistently deliver acceptable and comparable returns to capital is probably the single most significant impediment to investment. As identified in earlier chapters, the best performers in agriculture can achieve positive returns to capital with a degree of consistency relative to other asset classes. However, agriculture has only limited appeal as a component in an investment portfolio because of the often volatile and comparatively low rates of return.

Given the limited attractiveness of investment in this industry, individual or institutional investors are unlikely to invest in agriculture. Potential exists to achieve improved returns on equity through improving economies of scale. Unless agriculture can satisfactorily deliver higher returns and a more efficient use of its capital there will remain a fundamental impediment to ready movement of new capital into this sector.

7.6 CRITICAL MASS FOR INVESTMENT

On average, Australian agriculture comprises a large number of small enterprises, with the notable exception of a handful of corporate farming enterprises.

The critical mass problem is reflected by the fact that the capital investment of the average farm is less than a million dollars. The weighted average capital value of the top 20 per cent of farms is estimated to be \$1.8 million. For the top 5 per cent, depending on industry sector, it may be as high as \$5 million. For the institutional and professional investor, this creates a management efficiency problem. It is more economical for the professional investor to invest \$100 million in one major CBD property, which can offer provable returns and transparent management performance, than it is to invest in 20 individual businesses of \$5 million, which may not perform.

This impediment to attracting capital has been recognised for some time. In the past, a number of parties have attempted to overcome the problem by creating vehicles that aggregate rural enterprises to achieve a critical investment mass and reduce the overheads associated with management. Notably, the largest institutional investors

such as National Mutual and AMP have overcome this problem by purchasing rural investments of sufficient critical mass to justify establishing their own management infrastructure.

Other alternatives have also been explored, including the use of investment trusts such as the Rural Property Trust in the late 1980s. These trusts are seen by the investment community as being niche property investments. Notwithstanding some major management problems that occurred in some of these trusts, this approach allows the smaller investor, who represents a more dispersed capital base, to invest in agriculture. These investment trusts also overcome the problem of critical mass and achieve a concentration of management. This contrasts with the model adopted by AMP or National Mutual, which concentrates a source of capital (that is, their own funds) and focuses it into a special area of investment.

To date, the rural property trust has failed to gain and sustain any satisfactory support by the professional investment community. Indeed speculative influences and excessive fees charged by the promoter/managers have resulted in poor performance by these investments.

This issue could be the subject of a much broader examination, but suffice to say these problems could relate more to internal management of the trusts than the effectiveness of such an investment vehicle as an instrument to overcome the critical mass impediment.

Some conceptual problems, however, may exist. The rural property trusts and related vehicles that emerged in the 1980s adopted regional diversification across enterprises and across regions. While as a strategy this appears to satisfy the demands of good risk management, in agriculture it may not necessarily be logical. The analysis in preceding chapters has identified that structural problems and enterprise characteristics of agriculture prevent economies of scale being achieved satisfactorily in this form.

7.7 PRUDENTIAL CONTROL OVER INVESTMENT

An important requirement for capital markets is to ensure that their investment is prudently managed. The traditional relationship between management and ownership in agriculture prevents the satisfactory arm's length control over the investment that is required by a professional investor.

The common characteristics of all successful and perpetual investments is ensuring the owners' interests are protected and productively managed. The issue of prudential responsibility has been highly developed in all major investment streams and is increasingly enshrined in legislation. Agriculture, however, has no satisfactory mechanism that could meet this need for prudential control over funds invested in the industry by the public.

7.8 THE OWNERSHIP STRUCTURE OF FARMS

The predominant ownership structure of broadacre agriculture is the (family) partnership or family trusts. In more recent times some family enterprises have adopted a corporate entity in the ownership structure.

The traditional structure of the family farming enterprise has evolved largely from a desire or need to achieve tax efficiency with respect to income earned, rather than

focusing on flexibility or efficiency with respect to equity raising or transfers. The ownership structure has been income driven not capital driven.

Creative thinking about the traditional financial and corporate structure of farms could facilitate more proactive interest in farming by the capital markets and investors. For example, an intelligent alternative to the primary producing asset -- land -- and to establish a management company that could manage the farm enterprise and lease the land.

It allows ownership of the land base to be more mobile without necessarily threatening the management of the enterprise. Other variations exist and are discussed briefly in Chapter 8.

The current approach to farm ownership structures is driven by accountants aiming to deliver tax efficiency and intergenerational transfer, as distinct from achieving optimised capital efficiency and returns.

7.9 CONCLUSION

This discussion identifies a number of impediments to the entry of new capital into broadacre agriculture. These impediments are not considered by the author to be insurmountable, however, a range of avenues does need to be further explored to find meaningful alternatives to overcoming these barriers.

The initiative is best driven from within the agricultural sector. Managers who understand the operating needs and opportunities of the pastoral sector are well placed to address those issues. More important, however, is the fact that the removal of impediments is most likely to benefit the industry first and the investor second.

Professional investors are increasingly in search of quality diversified assets in which to invest. However, they need to have their own expectations of returns on performance met. The responsibility lays with the managers of assets to persuade investors that their capital will be prudently and profitably managed.

Delivering improved financial performance in agriculture can only be achieved by accessing the economies of scale that are available to larger enterprises. Economies of scale can only be achieved by increasing the size of the enterprise and by concentrating high-quality skilled management over a larger more efficiently utilised asset base.

Increasing the size of agricultural enterprises needs to be adopted by the agricultural industry as a goal. It is certainly a prerequisite for the industry to gain access to stable and patient funds for expansion.

8.0 THE NEXT STEPS

8.1 STRUCTURAL CHANGE AN IMPERATIVE

The broadacre agricultural industry in Australia has created significant wealth within the economy over many generations.

The industry is characterised, however, by large disparities in financial performance. A welfare problem exists at one end of the scale, while at the other extreme is a small group of highly efficient producers whose output accounts for a disproportionate level of profitable production.

Agriculture has been subject to numerous external influences and a significant amount of government interference. Some of this interference has had a long-term and lasting impact on the direction and evolution of the industry, as in the case of the compulsory acquisition of land for soldier settlement after the First and Second World Wars. These programs may have been seen as worthy social and economic programs at a time when sustainable agricultural enterprises were possible from smaller economic units. It can be argued, however, that this program dramatically changed the dynamics of Australia's agricultural industry. One consequence of these economic programs was the duplication of fixed assets on numerous small farms, which is now a major impediment to capital and economic efficiency.

Increasing international productivity in agricultural industries, a range of noncompetitive trading barriers and significantly different cost structures between our major trading partners has resulted in big declines in the terms of trade to farmers and a consequent shift in the profitability of most rural enterprises.

The government programs that were in place in the 1920s and 1950s to redistribute agricultural capital have not been matched with alternative programs to reverse the impact and encourage a more capital efficient industry. Instead, rural policymakers and the community as a whole have enshrined the family farm as a socially and economically desirable objective. A range of structural adjustment programs directed at rural communities have evolved to preserve the social and economic unit known as the family farm. Such programs do not ensure economic and financial efficiency as an outcome.

The propensity to preserve family ownership has in itself resulted in the continuing disaggregation of capital that makes the industry unattractive to the capital markets. It is important for the industry to focus future programs on structural adjustment for capital efficiency.

8.2 AGRICULTURE SLOWER TO ADJUST

In the late 1980s, as the Australian economy entered a period of what was to be prolonged recession, the primary production sector was also facing a period of significant adjustment. One of the major differences between the problems confronting the whole economy and the crisis confronting agriculture was the time frame that led to the prevailing circumstances.

The Australian economy could generally be described as healthy and vigorous, although financial deregulation did lead to some overexuberance by the business

community in its new found freedoms. Economic expansion was matched with progressive adjustments in society, employment and industry and finance. There was sufficient depth of skills, capital, cash flow and opportunity to sustain and promote the healthy economic adjustments.

A broad shift in the focus of economic activity was one outcome of the period. A healthy service sector evolved, which to some extent substituted industrial activity and manufacturing. High-tech developments reshaped the workforce and skills base.

While this ongoing adjustment was not without its traumas and periods of overreaction and correction, the depth and range of resources available to participants was sufficient to facilitate a relatively positive and healthy adjustment process.

The agricultural industry was also experiencing change over a prolonged period. But while the Australian economy responded rapidly to pressures for change, the response of agriculture was slower.

- Lower operating margins, a common characteristic of all mature industries, should lead to:
- increased productivity
- greater economies of scale
- rationalisation
- departure of capital
- aggregation of capital

While it can be argued that all these factors have been occurring in the agricultural industry, the rate at which they have occurred has been slower than in the rest of the Australian economy. While more than 50 per cent of farms have left the industry since the 1950s, in terms of comparative capital efficiency, this analysis suggests that a further 50 per cent of farmers should not be farming at all as they are not achieving adequate returns to their capital or labour.

Yet, these farms continue to survive and their survival is contingent on the following factors:

- supplementing farm income with off-farm income
- low-cost labour and incorrect labour costing
- adoption of cash-based accounting processes
- low living standards
- low capital investment
- unsustainable management practices

At an industry level these are not sustainable practices over time. Each rural crisis simply reinforces this observation.

8.3 INCREASE THE SPEED OF STRUCTURAL ADJUSTMENT

The analysis developed throughout this review suggests a need for a more rapid rate of structural adjustment in the Agricultural sector. Programs that focus on facilitating improved financial performance need to be developed. Such programs should encourage the following:

- revaluation and aggregation of agricultural capital
- concentration of management
- improvement in capital efficiency
- achievement of economies of scale

Existing structural adjustment programs do not address any of the impediments that limit to the free flow of capital into or out of the agricultural sector, that were identified in this report (Chapter 7).

It is important for agriculture that the capital markets be prepared and willing to play an active role in the industry, more particularly the opportunity for them to invest must exist. Thus, the industry must focus on removing obstacles and encouraging:

- facilitation of competitive returns to capital
- greater liquidity of agricultural assets
- introduction of transparent management performance and improved information on performance
- aggregation to achieve an attractive and manageable investment size;
- ownership structures to meet the potential needs of investment and to facilitate relatively easy transfer
- separation of management and ownership

8.4 CAPITAL FUNDAMENTAL TO IMPROVED EFFICIENCY

The report identifies that without access to equity, agriculture will remain slow to adjust and management will not be able to affect the efficiency gains necessary to deliver appropriate and competitive returns to capital.

8.4.1 CREATING EQUITY INSTRUMENTS

This report has illustrated the importance of creating equity instruments for the agriculture industry. It is an idea that must gain sufficient momentum, and the government, along with industry associations, can initiate the process. Farms accessing the markets for this type of finance should be rated on their worth and credit and their performance should be monitored. Securitising this market can bring large benefits to both farmers and investors.

8.4.2 REVISITING OLD & NEW IDEAS FARMING

A wide range of potential associations and relationships exist between owners of capital and business managers. The farming industry has experimented with many of these and must continue to do so. Syndicate farming, co-operative farming, sharefarming and equity/management partnerships are a few of the many alternatives that should be re-examined for their relevance to today's agriculture.

The failure in the past of syndicate farming had more to do with attitudes than with any failing of the system itself. Unless a syndicate structure is accompanied by trust among partners, it is not possible to make it successful. The structure should be given a new lease of life and may provide benefits to farmers in desperate situations.

The concept of partnership farming is an exciting option to be explored further. With the high inflow of patient investment funds into the superannuation sector the opportunity to form agricultural partnerships between funds managers and farm managers should be high. Creating some common measures of credit worthiness, management competency, business potential and profitability are pre-requisites. However the managers of funds may be able to provide the best farm managers with the opportunity to expand the size and reach of their management skills. In doing so deliver attractive rewards to capital and management alike.

8.4.3 A CHANGE IN ATTITUDES

It is imperative that farmers change their attitude towards farming and to treat it as an independent business. Only an attitudinal change such as this can lead to farm self-sufficiency and financial efficiency. The process may take a long time but must be initiated now. Many farmers have begun thinking along these lines and it is hoped the process is encouraged through government policy and education.

8.5 THE NEXT STEP

This report has benchmarked the attractiveness of agriculture as an investment. It has identified the factors that impede competitive performance as an investment criterion and the free flow of capital. The conundrum that faces the medium-sized and large agricultural enterprises working to achieve capital efficiency has also been discussed.

It is beyond the scope of this project to suggest the possible alternative financial instruments that would result in improved liquidity and better availability of equity to this sector. These options, we believe, should be analysed further.

During the course of this examination, a number of discussions were held with various parties including:

- agricultural policy bodies
- financial institutions
- investors

The capital markets and the professional investor are dispassionate about agriculture. They are passionate, however, about performance and they are passionate about finding quality assets for future investment. Passion for agriculture exists solely

within the agricultural community and its stakeholders and thus, any drive for change must come from within the sector.

8.6 CONCLUSION

This analysis provides the first stage for future examination and development of innovative ideas on how to overcome the problems of capital and equity in agriculture. The Rural Industries Research and Development Corporation is encouraged to support and promote further research and development in this area and to use this report as a basis for focused, creative and innovative discussions on the problems of financing Australian agriculture.