Executive Remuneration, Board Structure, Corporate Strategy and Firm Performance: A Taste of the Literature*

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Abstract

The focus of this paper is the relationship between executive remuneration, board structure, institutional shareholders and the performance of Australian companies. The paper presents a preliminary survey of the economic literature related to these areas, and then outlines a plan for a research project. The project will investigate the effect on the performance of Australian firms of the nature and generosity of firms' executive remuneration schemes, the structure of firms' board of directors and the influence of substantial institutional shareholders. The project is part of a broader research agenda at the Melbourne Institute that concerns the factors that determine Australia's economic performance. As a stimulus to research into corporate strategy and firm performance, the paper includes an extended research bibliography.

1. Introduction

The focus of this paper is the relationship between a suite of corporate strategies and structures and companies' performance. These strategies and structures relate specifically to executive remuneration, board structure and institutional shareholders. The paper is the first part of a research project being undertaken at the Melbourne Institute that will investigate the effect on the performance of Australian firms of the nature and "generosity" of firms' executive remuneration schemes, the structure of firms' board of directors—including the representation of dominant shareholders, the representation of investment fund shareholders, the presence of non-executive directors, the number of directors sitting on the boards and the frequency of turnover in firms' boards—and the influence of substantial institutional shareholders.

The aim of this paper is twofold: first, to provide an introduction to the economic literature relating to corporate strategy and performance; and, second, to outline a plan for research into the effect of some specific corporate strategies on firm performance. The planned project is motivated by an interest in the relationships between board design, financing arrangements, executive remuneration and firm performance. The data variables to be gathered in the proposed project are described in Section 3.

The paper is organised as follows. Section 2 reviews the recent economic literature—both theoretical and applied—relating to board structure, substantial shareholders, executive remuneration and other strategies relating to financing, diversification and innovation. The literature survey is far from exhaustive: readers whose interest is not sated by the literature survey are referred to the Research Bibliography that follows Section 3.

Section 3 outlines a proposed research plan to be undertaken by the Melbourne Institute. The

planned project will investigate the effect on the performance of Australian firms of the nature and generosity of firms' executive remuneration schemes, the structure of firms' board of directors and the influence of substantial institutional shareholders. After the Research Bibliography, Appendix 1 provides a short introduction to the IBIS enterprise database, which will be employed in the planned research project.

2. Preliminary literature survey

2.1. Introduction

This Section provides a short introduction to the recent economic literature—both theoretical and applied—relating to board structure, substantial shareholders, executive remuneration and other corporate strategies relating to financing, diversification and innovation. We reiterate that the survey is by no means exhaustive, and that a broader selection of studies is included in the Research Bibliography.

2.2. Corporate strategy and board structure

At present there is considerable worldwide interest in the effect on firm performance of companies' ownership and control structures. In a recent European study, Moerland (1995) compared various structures of corporate ownership and control, and found that firm performance was sensitive to the ownership and control structure adopted. An issue at the core of the literature on ownership and control is the design of companies' boards of directors. Issues of interest here include the total number of directors, the number of non-executive directors, whether the company has a finance director as well as a managing director on the board, whether the board contains representatives of investment funds, family shareholders or employees, and whether it contains so-called "farmer directors" (eg. representatives of growers on the board of a vegetable canner). Also of interest is the frequency of turnover in firms' boards, which is hypothesised to signal the extent of firms' financial distress or buoyancy.

2.3. Board structure: empirical evidence

There are a number of interesting issues surrounding how board structure and board turnover

influence firm performance. The key characteristics are the total board size, the ratio of inside to outside directors and also the rate of turnover of directors. Taking the last first, board turnover occurs as a result of retirement, resignation, death or dismissal. All of these may reveal information about the firm's past, current and future performance or strategy and this has led to a substantial empirical literature. Many of these studies are reviewed in Furtado and Karan (1990) who conclude that there is little evidence about the relationship between board turnover and subsequent firm performance. There has been more work on the immediate share price reaction to board turnover and, as might be expected, this has found that the particular circumstances surrounding the board changes are critical to the subsequent share price movements.

Research has also focussed on the optimal size of firm boards. Too few directors on the board may imply a lack of knowledge to solve decisions, while too many directors may imply coordination problems. Monks and Minow (1995) provide a general discussion of the various issues involved. Empirical research on board size is relatively uncommon. A recent empirical paper by Yermack (1996) references only two previous studies, both of which found inconclusive results. Yermack uses a sample of 452 US firms across eight years (1984-1991) to investigate the issue of board size. The average board size among these companies was 12.25 over this period. Using Tobin's Q as a dependent variable, Yermack finds that higher board size is associated with a lower Q value. A range of other variables are controlled for in his regressions including individual firm effects (by using a fixed effect panel data estimator). The magnitude of the effect is quite large: for example, expanding a board of eight directors by one reduces Q by 0.04 – about a US$100 million reduction in market value for the median firm. The paper also finds that CEO performance incentives (compensation and threat of dismissal) operate less strongly as board size rises. A paper by Huther (1997) investigates the

relationship between board size and variable costs for a sample of US rural electricity distributors. This paper finds that larger board sizes are associated with higher costs (a Cobb-Douglas type production function is estimated with various control variables in addition to board size).

The composition of boards has also been the subject of empirical work. This follows from theoretical work that suggests that a balanced board, with approximately the same number of insiders and outsiders, may be optimal. Rosenstein and Wyatt (1997) provide a recent example of such empirical work. They study the share price response to announcements of changes in board structure and can find no evidence that board composition has a significant effect. Kaplan and Reishus (1990) modelled the relationship between firm performance and the service by firms' senior executives on the boards of other companies. In a similar study, Kim (1996) related executive turnover to firm performance over a ten year period. Although these last two studies focus on the effect of poor performance on the career prospects of directors, outside directorships and executive turnover also affect the flow of information into the firm, and signal directorial quality to the market.

2.4. Substantial shareholders

Substantial shareholders, whether corporate, institutional or managerial (insider) may have important effects on firm performance. The issue of the presence of major shareholders of various kinds of course overlaps considerably with the issue of board composition, with substantial share ownership normally leading to some degree of board representation. The existing literature has tended to distinguish between large external shareholders (normally institutions) and managerial or insider shareholdings.[1]

[1] Institutional shareholders may have legal restrictions on the degree to which they can influence corporate

There is a large body of empirical work on level of institutional shareholdings and firm financial, productive or innovative performance. For example, Graves (1998) investigates whether institutional shareholders affect the level of R&D expenditure per employee in 22 computer companies over the 1976 to 1985 period. The underlying hypothesis is that institutional investors may have a 'myopic viewpoint' that would reduce R&D effort (which is assumed to be a long run investment). Graves finds support for this hypothesis. Baysinger, Kosnik and Turk (1991) undertake a similar analysis with a sample of 176 Fortune 500 companies, finding that high institutional ownership concentration led to increased R&D expenditure per employee—contradicting Graves' results. Interestingly, the latter study finds no such positive effects from high individual ownership concentration. An empirical study by Hansen and Hill (1991) also finds a positive relationship between institutional shareholding and R&D intensity. A more recent study on this issue by Kochhar and Parthiban (1996) uses a new approach. As an indicator of innovativeness they use the number of new product releases (the sample is 135 US firms in 1989). In addition, they distinguish between 'pressure-resistant' institutions (defined as public pension funds, mutual funds and endowments and foundations) and 'pressure-sensitive' institutions (banks, insurance companies). They find that only pressure-resistant institutions have a positive effect on innovation. This study, in common with the other studies, includes other potential factors that may affect innovation by adding additional explanatory variables such as firm size, financial ratios, diversification indicators, industry dummies and alike.

Wahal (1996) challenged the idea in the literature on pension fund representation that pension fund activism can substitute for an active market for corporate control. Wahal looks at the performance of firms actively targeted by pension funds in the 1987 to 1993 period, finding

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decisions. Insider shareholdings are obviously linked to principal-agent issues (see Section 2.5).

that the subsequent performance of firms show no improvement. The Wahal study, like most of the previous work, is based on US firms. An exception to this US focus is Craswell et al. (1997) which uses a sample of 349 Australian firms in 1986 and 1989. The dependent variable in this study is a proxy of Tobin's Q.[2] They find no significant relationship between size of institutional shareholding and the proxy Tobin's Q. They note that this result is in keeping with the more anecdotal evidence that Australia institutions were largely 'passive' in their role (often not voting and also being subject to various legal requirements that may prevent active involvement). The authors note that this situation may have changed since the late 1980's.

The Craswell et al. (1997) paper also investigates the role of insider shareholdings (this is also investigated in a number of the other papers mentioned above, however the important issues are well covered in Craswell et al. and we will discuss only that paper here). At a basic level, increasing insider shareholdings (ie. shareholdings of those on the board) is likely to raise incentives by reducing potential principal-agent problems (this is also called the 'convergence of interests' hypothesis). However, it is also recognised that if such shareholdings reach high levels they may result in the necessary voting power to retain (directors' own) jobs and set compensation levels. There is also the fact that the threat of takeover is reduced as shareholdings rise. These observations imply that the effect of insider shareholdings may be non-linear: at low levels exerting a positive influence on firm performance, at high levels exerting a negative influence. Craswell et al (1997) investigate this issue by using a quadratic term for insider shareholding. They find, using a sample of large firms in 1986, that this non-linear relationship holds. However, the relationship does not hold in the 1989 sample of large firms or for any of the samples of small firms (all firms in

[2] Tobin's Q is defined as ratio of market value of the firm to book value. Since there is no active market for corporate debt in Australia, the authors simply use the ratio of equity value to book value.

the sample are listed firms, so 'small' refers to firms with market values of up to A$65 million). These varying results, and the fact that they are for the late 1980's, imply a need for more up-to-date research.

2.5. Executive remuneration

Another key area of activity in the corporate strategy literature is the issue of executive remuneration. A particular focus of recent research into this area has been executive share and option plans, through which shares and options are issued to senior executives as part of their compensation packages. The motivation behind executive share and option plans is to link executive rewards to the firm's share price rather than to profits, which are often an unsatisfactory measure of firm performance (eg. if current profits fall because managers make a profitable investment; see Lewellen, 1968, Grossman and Hart, 1980, Tirole, 1992). Unlike accounting profits, stock prices reflect the market's valuation of the company, and are sensitive to the *future* profitability of the company, something which, in the absence of executive share and option plans, might not enter into the thinking of current senior executives.

Many writers have explicitly nested the problem of executive remuneration in the theoretical context of the well known principal-agent problem (for example, Garen, 1994, Haubrich, 1994, Firth, 1996, Tevlin, 1996). The issue is how to structure executive pay so that senior executives' interests mirror those of their shareholders. For a general treatment of the principal-agent problem and incentive design issues, see Tirole (1992).

Copeland and Weston (1992) list six objectives that they believe should enter into the design of executive compensation plans:

1. The plan should be easy to monitor because it is based on objective criteria, easily

observed by all concerned parties, and incapable of being manipulated.

2. The plan should prevent excessive perquisites to management and should minimise shirking.

3. The plan should have a long horizon to match the perspective of shareholders.

4. The plan should attempt to match managers' risk to that of shareholders but should recognize that shareholders can diversify away the idiosyncratic risk of the firm more easily than managers who have their human capital tied to the firm's future.

5. Management compensation should be tied to changes in shareholder wealth—and if possible, to management's specific contribution to changes in shareholders' wealth. For example, it is conceivable that a firm can underperform relative to its competition but still experience an increase in share price simply because the market went up.

6. The tax efficiency of plans should be compared. If two plans are alike in most regards, but one is better designed to minimize the tax liabilities of the firm and its management, then its tax efficiency may become the decisive factor (Copeland and Weston, 1992, pages 665-66).

2.6. Executive remuneration: empirical evidence

There have been many empirical studies of executive remuneration strategies, particularly in the United Kingdom (eg. Conyon and Leech, 1994; Gregg et al., 1993) and the United States (eg. Murphy, 1985, 1994; Crystal, 1991; Cosh and Hughes, 1987). Lambert and Larcker (1985) provide a review of empirical studies up to the mid 'eighties and Conyon, Gregg and Machin (1995) provide a more recent review. Previous studies have measured firm performance by either market-based measures (shareholder wealth or returns) or accounting-

based measures (rates of return or earnings per share). Conyon et al (1995) state that the previous research suggests that there is a positive link between remuneration and performance, although the link to share market performance is weak and the magnitudes are small. They also suggest that the relationship has been weakening over time, at least in the UK. Many of the previous studies have used the change in remuneration as the dependent variable with, for example, the lagged value of change in shareholder value as an explanatory variable (other explanatory variables are also added). Thus, the implied causality is from performance to remuneration.

A more recent study of British companies by Main et al. (1996) develops a compound measure of executive compensation using both executive emoluments and executive options. They tested the relationship between pay and performance (using current share performance) and found that executive pay was quite sensitive to firm performance, leading them to question investors' opposition to executive option plans. Similarly, Joskow and Rose (1994) found for the US that both accounting and market performance measures influenced executive compensation and that total compensation had become more sensitive to firm performance over the past two decades. They found no evidence that boards failed to penalise chief executives for poor firm performance or rewarded them disproportionately for good firm performance. They did however find evidence suggesting that boards discounted extremely good and extremely poor outcomes in determining chief executives' compensation.

Larcker (1983), Warner (1985), Brickley, Bhagat and Lease (1985) and Lembgruber (1986) all looked at how the stock market reacted to the adoption of various managerial incentive plans. In general these studies found that, despite the presence of a degree of resistance to the plans among some shareholders, the market reacted favourably to the introduction of executive stock option plans. Copeland and Weston (1992) offer three hypotheses that are

consistent with the positive share price effect of the announcement of option plans:

- The *incentive hypothesis*. The benefits of the plan to the shareholders, in terms of improved managerial incentives, exceed the costs to shareholders.

- The *signalling hypothesis*. The fact that managers want to take options over the firm's stock indicates to the market that the firm is doing well.

- The *tax hypothesis*. After-tax payoffs of a salary and stock option plan are superior to those for a salary and bonus plan.

Of course, all three of these effects may operate in concert. Nevertheless, some attempts have been made to unravel these effects, and so to see which are foremost in the minds of managers introducing these plans. Lembgruber (1986) found that there were significant decreases in dividend payments following the inception of executive option plans, while Tehranian and Waegelein (1985) concluded that measured abnormal returns following the implementation of short-term compensation plans were not associated with improved "fundamental" performance, but rather were due to unexpected earnings. Copeland and Weston (1992) concluded from these studies and others that "stock option plans are adopted more for tax or signalling reasons than to reduce agency costs between owners and managers" (Copeland and Weston, 1992, page 671).

2.7. Share repurchase schemes

In addition to board structure and executive compensation programs, recent company strategy research has focussed on different financing and capital structure strategies. Share buy-backs are an example of such strategies, and have emerged as a popular tool in recent years among firms both in Australia and overseas. In share buy-back schemes, firms reduce their issued

capital by standing in the market and repurchasing their own shares. Although such buy-backs can be made for a number of reasons, according to Ikenberry et al. (1995) the signalling hypothesis is now thought to be the most relevant. Firms who consider their shares undervalued will buy back shares and signal to the market their undervaluation (firms are assumed to have inside knowledge about their future performance). Ikenberry et al. (1995) study the market response to 1239 open market share repurchases in the US between 1980 and 1990. As expected, they find that initially share prices rise (by an average of 3.5%), however, studying the longer term performance of the shares suggested that the initial market reaction was too low: the market appeared to be ignoring much of the information conveyed through such repurchase announcements.

2.8. Other corporate strategy research

Diversification and takeovers

The corporate strategy literature on firm diversification and takeovers is a substantial one. Numerous papers have focussed on the synergy benefits of diversification, as well as financial advantages to diversification (such as earnings smoothing and advantages arising from the relative efficiency of the internal capital market). It has been argued that diversified firms are more able to exploit latent debt capacity, and might have better access to capital markets, which may reduce the risk to lenders to diversified firms (Levy and Sarnat, 1970, page 801). A recent paper by Scott has argued that firms diversify in order to build up a portfolio of product areas that matches their competitors' (Scott, 1993). Scott has demonstrated that if two conglomerates are found to both operate one particular line of business, then there is a strong likelihood that the companies will have other lines of business in common. A similar result was shown for their research and development activities. According to Scott, this is part of a strategy of conglomerates to restrict competition both in a static and a dynamic sense.

In recent years a number of arguments have been used to disrupt some of the standard justifications for diversification. Galai and Masulis (1976) argue convincingly that the positive valuation effect of combining two firms with imperfectly correlated income flows, and so reducing default risk, is illusory and involves changing the relative positions of bond and equity holders: “the bondholders receive more protection since the stockholders of each firm have to back the claims of the bondholders of both companies” (Galai and Masulis, 1976, page 68). It is shown by these authors using option pricing arguments that the value of the company’s equity is consequently reduced.

Another argument against earnings smoothing has been framed in terms of shareholder preferences: why should firms merge to reduce the volatility of their returns when shareholders are well placed to do so via the stock market? More controversially, it has been suggested that diversification may destroy value by interfering with shareholders’ ability to diversify their portfolios (Levy, 1991). A conglomerate forces its shareholders to hold stock in its component businesses in a fixed proportion (equivalent to the value of the company’s equity attributable to each of its businesses) which may not be compatible with shareholders’ optimal portfolio decisions. Arguments of this type have been used to justify corporate demergers, such as the separation of ICI plc into ICI (chemicals) and Zeneca (pharmaceuticals).

An early study by Reid (1968) confirmed a widely held belief that much diversification was management-driven rather than financially justifiable. Reid found that conglomerate mergers satisfied the desires of managers for larger firms but did not increase earnings or market prices. Similarly, Jensen (1988) concluded that corporate diversification programs exemplify the theory that managers of firms with unused borrowing capacity and substantial free cash flows are more likely to undertake low-benefit or even value-destroying investments. Meyer,

Milgrom and Roberts (1992) found that failing businesses can have too ready access to cross subsidies when they are part of a diversified firm.

There is some evidence suggesting that conglomerate acquirers have an information advantage and are more able to accurately value target companies. Meilicher and Rush (1974) found that over the period 1960 to 1969, conglomerates acquired more profitable firms than non-conglomerate acquirers, and that conglomerate mergers increased the utilisation of latent debt capacity. Evidence counter to this suggested managerial advantage includes studies that have found that conglomerates perform no better than matched portfolios of undiversified companies. For example, Mason and Goudzwaard (1976) compared 22 conglomerates against randomly selected portfolios with similar asset structures for the years 1962 to 1967. They concluded that conglomerates performed statistically worse in terms of their return on assets and return on equity, compared with an un-managed portfolio of similar industry investments. Smith and Weston (1977) found the risk-adjusted performance of conglomerates to be significantly better than that of mutual funds. However, this study was subsequently criticised for its mis-specification of the risk adjustment its authors performed.

Chatterjee and Wernerfelt (1991) adopted a new approach to studying diversification, focusing on the use of surplus productive resources. They found that excess physical resources, most knowledge-based resources and external financial resources are associated with more related diversification, while internal financial resources are associated with more unrelated diversification. In a recent study, Comment and Jarrell (1995) concluded that in the 1980s there was a trend toward focus and specialisation and that this led to improved stock returns overall. Further, while financial economies of scope were available to diversified firms, diversified firms failed to exploit these economies. Also, Comment and Jarrell found that diversified firms exhibited lower firm specific (diversifiable) risk but not lower

systematic risk, supporting the argument that diversification at firm level (rather than diversification by shareholders of their share portfolios) was not value-enhancing.

Other areas

Other research into corporate strategies has focussed on debt financing strategies (for example the performance-oriented analyses of firm leverage by Brito and Mello, 1995, and Ofek, 1993), product diversification (for a discussion of the relationship between product diversification and multinational diversity, see Lee et al., 1996) and the relationship between corporate structure and firm innovation (for example see Love et al., 1996). For a survey of the relationship between innovation and performance, see Harris and Kells (1997); for a specific discussion of knowledge spillovers, see Geroski (1995), and Meagher and Rogers (1997). For a survey of the literature on management buy-outs, see Copeland and Weston (1992), pages 661-665.

Despite the quantity of research that has been undertaken into the effects of various corporate strategies, there is still much work to be done, particularly in relation to the interplay between performance and innovation (defined broadly to include innovative financing methods). Also, there is a relative paucity of applied studies outside the major centres of the UK and the US. With this in mind, the next Section describes a research plan for a project that will investigate the relationship between a number of corporate strategies and the performance of large Australian firms.

3. Research plan

3.1. Introduction

This Section outlines a research plan for a project that will investigate the relationships between board design, financing arrangements, executive remuneration and firm performance. Explicitly, the aims of the planned research project are as follows:

- to develop an understanding of the relationship between executive remuneration and the performance of large Australian firms;
- to analyse the impact of corporate strategies with respect to board design on the performance of large Australian firms; and
- to examine the relationship between major institutional investors and the performance of the firms of which they are shareholders.

Specific hypotheses to be tested include the following:

- The frequency of turnover in firms' boards is positively correlated with the extent of firms' financial distress.
- Smaller boards of directors are associated with superior performance.
- Firms with executive option plans perform better than firms that lack these plans.
- Share buy-backs are a predictor of future relative out-performance.

3.2. Research plan: The data

The research team will collect a range of data on executive remuneration, board structure,

financing methods, and shareholding structure, from the published accounts of the largest 200 Australian firms listed on the Australian Stock Exchange. The data collected will be used to undertake research into the effect on firm performance of the nature and generosity of firms' executive remuneration schemes, and the structure of firms' board of directors, including the representation of dominant shareholders, the representation of investment fund shareholders, the presence of non-executive directors, the number of directors sitting on the boards and the frequency of turnover in firms' boards. The data to be collected will be linked to a substantial existing database that brings together the IBIS enterprise database (firm-level financial data and industry-level data; the IBIS database is described in greater detail in Appendix 1), takeovers information, and innovation information (patents, trademarks and designs).

The data to be gathered fall into the following categories:

Information about shareholdings, executive remuneration and board composition

- Shareholding data. The identity of the firms' substantial shareholders: whether they are corporate, institutional or family shareholders.

- Executive remuneration data. The level and spread of senior executives' salaries; whether the firms operate executive share and option plans; the relative "generosity" of these plans.

- Board size and structure. The total number of directors; the number of non-executive directors; whether the company has a finance director as well as a managing director on the board; whether the board contains representatives of investment funds, family shareholders or employees; whether it contains so-called "farmer directors" (eg. representatives of growers on the board of a vegetable canner); the number of female directors on the board.

- Board turnover data. The number of additions and losses of directors from year to year.

This of course requires more than one year of data; the project will obtain two consecutive reports for the cohort of firms to be studied.

Innovation in corporate policy and financing

- Whether the company has a dividend reinvestment plan.

- Whether the company uses innovative financing methods such as warrants, converting preference shares, convertible notes; whether the company uses innovative risk-management tools such as futures and currency swaps.

- Whether the company has undertaken a share buy-back, and if so what was the duration of the buy-back.

Product and process innovation

- Breakdown of intangible assets on the balance sheet into goodwill, patents, licenses etc. The goodwill figures broken down in this way will be related to an existing database containing information on patents and trademarks.

Performance measures

- Cash payments in the course of operations (to enable the creation of a productivity measure).

- Liquidity ratios and debt-servicing ratios ("days debtors," "times covered," "stocks to sales" etc.). These standard accounting ratios will supplement the existing performance measures that are available from the IBIS database (return on assets, return on equity, earnings margin, gearing).

3.3. Research plan: Analysing the data

Once the data have been gathered, the research team will then use the data to produce three discussion papers concerning the role of executive remuneration, board structure and institutional investors. The three discussion papers will each have similar structures. Each discussion paper will include both a background theoretical discussion and an econometric analysis. The econometric analyses will test for relationships between performance and the target variables, controlling for firm size, differences in structure and ownership (whether Australian owned, level of gearing, dispersion of shareholder base etc.) and firm age. The data samples to be collected will be sufficiently large to permit robust econometric analysis.

Beyond these three studies, the company financing data to be collected will ultimately be used in an econometric analysis of the relationship between financing methods and performance. Further, the innovation variables extracted will feed the Melbourne Institute's research into the relationship between innovation and performance. Also, more detailed information such as from the cash flow statement will enable the development of superior measures of productivity and profitability.

4. Conclusion

The purpose of this paper has been twofold: first, to provide an introduction to the economic literature concerning a suite of modern corporate strategies; and, second, to propose a research project that will investigate the relationship between certain of those strategies and the performance of large Australian firms.

The next step will be to commence the research project that has been outlined. The completion of this project is part of a wider research agenda at the Melbourne Institute investigating factors determining the performance of Australian firms and, ultimately, the Australian economy.

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Appendix 1: The IBIS enterprise database

The IBIS enterprise database is a longitudinal database of financial information about Australian firms. The database is compiled by IBIS Business Information Pty Ltd and has been updated annually since 1979. In 1996 the database contained financial information for about 3,500 firms. The firms on the database are predominantly medium to large firms. Around 20 per cent of the firms on the database are listed on the Australian Stock Exchange. The information on the database is gathered from a range of publicly available and non-public sources, including company surveys, Australian Securities Commission company returns and information from accountants regarding their clients. Table 1 lists some of the fields that are available for firms on the IBIS database.

Table 1: Selected variables available from the IBIS database

Accounting profit and loss items	Sales revenue
	Other revenue
	Audit fees
	Interest paid
	Interest received
	Net profit before tax
	Income tax
	Minority interests
	Net profit after tax
	Abnormal items
	Extraordinary items
Balance sheet items	Total assets
	Shareholders' funds
	Current liabilities
	Current assets—cash
	Current assets—trade debtors

	Current assets—inventories
	Other current assets
	Total current assets
	Non-current liabilities
	Intangible assets
	Tangible assets
	Trade creditors
Cashflow items	Depreciation
	R&D expenditure
	Dividends paid to associated companies
Other accounting information	Results balance date
	Accounting period
Employment information	Number of employees
Major shareholder details	Names of major shareholders
	“As at” date of holding
	Percentage held
	Country of incorporation
Subsidiaries information	Parent name
	Subsidiary name
	Subsidiary type
	Percentage owned
	Contribution to parent’s profit
	Country of incorporation
	Date purchased and/or sold
Industry information	ASIC code, ANZSIC code
	Segments’ ASIC codes
Company identifiers	Full company name
	Abridged company name
	Company type
	Head office address
	Telephone, fax, telex
	ASX code if applicable
	ACN number

	State of incorporation
	Date of incorporation
	Name change if applicable
Takeover information	Date of action
	Offeror
	Offeree
Segment information	Segment revenue
	Segment profit
	Segment assets

A number of studies have used the IBIS database to examine the performance of Australian firms. Bosworth and Kells (1997) use the IBIS database to develop a number of measures of financial performance. Using some of these measures, Bosworth et al. (forthcoming) use the IBIS database to test the relationship between corporate diversification and the performance of large Australian firms, measured by return on assets, return on equity and EBIT margin. They find tentative evidence of a positive relationship between corporate focus and superior performance. McDonald (1997) used the IBIS database to examine the determinants of firm profitability in Australian manufacturing. The proposed project will go further than these studies by using the IBIS database along with additional data that are yet to be gathered.