

The Financial and Non-Financial Effects of Corporate Takeovers

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1 Introduction

The standard view of a takeover involves one corporation acquiring control over the net assets of another through the purchase of voting equity shares. Invariably, the acquiring management team believe that they can do a superior job of managing the target's resources than the incumbent management. That is, the acquiring management believe that the target is currently undervalued relative to its potential value. Consequently, the acquirer is willing to offer a price above the current market value which is required as an inducement to target shareholders to sell. Moreover, the acquirer can afford this control premium because of its belief in the creation of additional value once it has control of the target's resources. The perceived increase in value is generally argued to arise from synergies between the companies such as economies of scale, cost reductions, enhanced efficiencies, more effective use of free cash flows and complimentary resources.

The general welfare theory of takeovers argues that everyone benefits from a takeover. First, target shareholders receive a selling price for their shares in excess of market value due to the inclusion of a control premium in the offer price. Second, acquiring shareholders receive an increase in net wealth because of the synergies that flow to the enlarged entity as a result of the acquisition. Third, investors in general benefit from an efficient market for corporate control. Finally, the economy receives the benefits of a more efficient use of scarce resources. Takeovers are seen as an effective disciplinary tool and the threat of a takeover forces incumbent management teams to operate to maximum efficiency (Jensen and Ruback 1983).

However, market failures are perceived to exist which reduce the effectiveness of takeovers in the managerial labour market. In some circumstances, takeovers are undertaken which represent value-reducing transactions. Examples of such circumstances include management hubris (Roll 1986), discretionary perquisites (Jensen and Meckling 1976), agency problems (Fama 1980), management entrenchment (Shleifer and Vishny 1989), over-investment (Shleifer and Vishny 1989) and ineffectual corporate governance and political interference (Haigh 1987).

Empirical evidence on the benefits of takeovers is mixed. Differences in methodologies, samples and markets have yielded inconsistent results, especially concerning the returns to acquiring companies. The majority of research has concentrated on measuring performance by movements in (adjusted) stock prices. In this study, we re-examine the issue in the Australian market focusing on other measures derived from the database. Hence, the first contribution of the study is provide Australian evidence on the performance of acquiring companies following a takeover. The second contribution of the study is to examine the relationship between financial performance and various financial and non-financial measures

which proxy for possible sources of change in firm performance. There is little evidence of the impact of takeovers on non-financial measures in the literature. Hence, our analysis offers some insight into the driving forces and motivation behind corporate acquisitions.

2 Takeover Theory

2.1 Welfare Arguments

The traditional welfare theory of takeovers focuses on the concept of synergy. That is, two companies combined through a corporate acquisition are worth more than the sum of the independent parts. Reasons advanced for the creation of synergies include economies of scale, economies of vertical integration, complementary resources, tax shields, effective use of free cash flows and improved efficiencies (see Brealey and Myers, 1991 Ch.33). The market for corporate control is argued to be efficient and incentives exist for managers to seek control of poorly performing firms. Jensen and Ruback (1983) argue that takeovers act as an external control mechanism that limits managerial actions from departing from value-maximisation of shareholder wealth. Thus, the constant threat of a takeover stimulates an efficient use of corporate resources. This theory accords well with a free market policy.

An alternative view is that of market failure. There are supposedly many instances of market failure which reduce the effectiveness of the market for corporate control. Asymmetric information between the market and management means that the market is not always in a position to judge managerial effort and performance. The related issue of agency costs creates circumstances in which projects that enhance shareholder wealth are not always optimal (Fama 1980). Roll (1986) argues that management can be subject to hubris and over-estimate their ability which causes wealth reducing transactions to be approved by the market in situations of asymmetric information. Jensen's (1986) free cash flow theory alludes to instances of market failure in which sub-optimal investments may be made by firms with an excess of free cash flow. Jensen and Meckling (1976) mount arguments consistent with empire building by management to consume pecuniary and non-pecuniary perquisites. Managerial entrenchment created through managerial ownership, other ownership structures and board composition act as an impediment to the efficient functioning of the market (Fama and Jensen 1983, Morck et al 1988, Shleifer and Vishny 1989). Corporate charters and defensive mechanisms also reduce the effectiveness of the market for corporate control (Linn and McConnell 1983).

The division in academic debate on this issue is also prevalent among practitioners and policy-makers. As evidence of the controversy, consider the legislation concerning takeovers. Chapter 6 of the Corporations Law in Australia is devoted to the acquisition of shares. This legislation prohibits further acquisitions once an acquirer has a 20% relevant interest in the capital of a company. Acquisitions over this threshold can only proceed under one of the

three regulated mechanisms.¹ If market forces are effective, then the legislation imposes unnecessary costs. For instance, Schipper and Thompson (1983) demonstrate a loss in market value of bidders in the USA following regulatory changes that restrict takeover activity. However, proponents of the legislation point to cases of market failure (Bosch 1987, Patterson 1987). Certainly, the so-called ‘excesses of the 1980s’ and the associated activity of corporate raiders has provided fuel for the debate. In Australia, the names of Bond, Brieley, Holmes á Court, Parry, Skase and Spalvins became well-known for acquisition activity. Perhaps the culmination of this activity was the unsuccessful attempt by Holmes á Court to acquire control of BHP in 1986 from which there are still repercussions in the Courts today. Against this background, the empirical evidence shows that the presence of a well-known raider in a takeover bid results in greater benefits to both target and acquiring shareholders than bids by non-raiders (Holderness and Sheehan 1985, Casey, Dodd and Dolan 1987).

2.2 The Evidence

Early empirical evidence generally supports the notion of the creation of synergies. The evidence shows that target shareholders receive a control premium somewhere around 15-30% (USA: Dodd and Ruback 1977, Bradley, Desai and Kim 1983; Australia: Walter 1984, Bishop, Dodd and Officer 1987). The evidence in relation to bidders is more mixed. While there is some support for an upward revision in the stock price of acquiring firms, the increase is typically small (Asquith, Bruner and Mullins 1983, Jarrell and Poulsen 1988). Nevertheless, in total, net gains from takeover activity have been shown to be positive. For example, in Australia, the net gains from takeover activity between 1972 and 1985 have been estimated at \$7.2 billion (Bishop, Dodd and Officer 1987). In the USA, Black and Grundfest (1988) estimate that an additional \$162 billion was generated through activity in the market for corporate control between 1981 and 1986.

More specifically, Halpern (1973), Mandelker (1974) and Ellert (1976) in the USA provide early evidence on the performance of acquiring companies. These studies find evidence of small and insignificant abnormal returns for acquirers at the date of takeover announcement. Dodd and Ruback (1977) find no evidence of significant abnormal returns for bidders at the time of announcement, although bidders earned positive abnormal returns in the period prior to the takeover. Using a refined methodology, Dodd (1980) reports the anomalous finding of negative abnormal bidder returns indicating a downward revision in the value of stock in bidding firms. The lack of support for positive bidder abnormal returns has now been confirmed (see Bradley, Desai and Kim 1988, You et al 1986). Similarly in Australia, although the evidence is more limited, there is a consistent lack of support for large positive

¹ At the time of writing, the Corporate Law Economic Reform Program (CLERP) had a brief to streamline the takeover provisions in the Corporations Law which involves relaxation of the 20% threshold under conditions.

returns to bidders (see Bellamy and Lewin 1992, Casey, Dodd and Dolan 1987, Walter 1984).

Various hypotheses have been offered for these results. First, Schipper and Thompson (1983) argue that some bidders are well-known for their acquisition activity and embark on a series of acquisitions. The market incorporates the expectation of future profitable takeovers in share prices at an early stage of the acquisitions program so that subsequent takeovers merely confirm prior expectations. Hence, in a large sample, the relative impact of the few cases of significant positive abnormal returns is diluted.

Second, as bidders are typically much larger than their targets, an equal split of any dollar gain will realise relatively small abnormal returns to bidders. In an aggregated sample, the effect on bidder share prices will be minimal. Asquith, Bruner and Mullins (1983) find that the size of the target firm is positively related to the abnormal return of the bidder such that a large target induces a large bidder abnormal return, thereby supporting this hypothesis.

Third, in general, the level of bidder abnormal returns has declined over time (Jarrell and Poulsen 1989). This may be due to increased competition in the market for corporate control but it does not explain why negative abnormal returns are sometimes observed.

Studies that have traced bidder performance after the takeover (up to five years) have found consistent negative long-run post-acquisition performance, including samples of only successful bidders. Various explanations including capital structure effects, relative size of the target and shifts in risk have generally proven incapable of fully explaining this finding (Franks, Harris and Titman 1991, Loderer and Martin 1992). Rau and Vermaelen (1996) find that the post-acquisition performance of bidders depends on the bid process and the type of firm. Glamour firms which are characterised by low book-to-market ratios under-perform while value firms which are characterised by high book-to-market ratios over-perform.

An exception to the evidence of poor bidder performance is Brown and da Silva Rosa (1995) who argue that previous studies are flawed because of their failure to adjust for survivorship bias, the influence of firm size and skewed return distributions. Brown and da Silva Rosa use a refined methodology and report an adjusted abnormal return for successful bidders of 1.6% over a control group in the two-month window surrounding a sample of Australian takeovers. The respective abnormal return for target companies from 6 months prior to the takeover through to one month following the announcement is a little over 9%. Similarly, da Silva Rosa (1996) argues that survivorship bias and outliers distort benchmark measures of return creating a bias to small capitalised firms, which may be particularly evident in target firms. Hence, he infers that returns to target firms relative to bidder firms are over-stated.

However in general, the evidence from the capital market fails to consistently show the presence of positive abnormal returns to bidding companies. Although various explanations have been offered with varying degrees of success, it is difficult to sustain a persuasive argument of clear synergies, particularly in light of recent studies that have sought to decompose the sample of bidders to disentangle the effects of acquisitions. For instance, Berkovitch and Narayanan (1993) find that only 49% of acquiring firms experience positive share price gains at announcement. Similarly, Bishop, Dodd and Officer (1987) report that 40% of all bidders, and 36% of successful bidders in Australia, suffer negative abnormal returns in the six months surrounding the takeover announcement. These bidder firms are claimed to be embarking on a bad acquisition where small or zero synergistic benefits are expected. Explanations for such acquisitions include managerial motives that are typically inconsistent with shareholder wealth maximisation.

Morck, Shleifer and Vishny (1990) find that poor bidder returns are related to bids in which the target firm is unrelated and has experienced recent growth. They argue that these bids are made by poorly performed companies in an attempt to improve profitability, partly through diversification. Lang, Stulz and Walkling (1989) find that negative returns are earned by the bidder when there is a mis-match on Tobin's q-ratio. The largest negative returns are observed when a bidder with a low q ratio makes a bid for a target with a high q ratio. Mitchell and Lehn (1990) and Smith and Kim (1994) present evidence consistent with the hypothesis that some bidding firms pay too much for targets. Simon et al (1996) conduct a case study of the advertising industry in the USA and conclude that mergers result in a net wealth loss. Similarly, Srinivasan and Wall (1992) find that levels of expenses are unchanged in the US banking industry following mergers indicating that cost reductions are not realised.

In summary, this evidence casts doubt on the general claim that takeovers are beneficial to bidding firms. Further, there appears to be numerous instances where net wealth losses are incurred (Berkovitch and Narayanan 1993).

2.3 Market Failure

The presence of wealth losses has generally been attributed to market failure. Either managerial hubris (Roll 1986) or agency problems in which management undertakes shareholder wealth decreasing transactions in order to gain personal benefits are generally singled out as causes for wealth losses. The managerial theory of the firm argues that the interests of management are best achieved through growth and that acquisitions offer a speedy and cost-effective route to growth (Baumol 1967, Williamson 1970). However, growth for the sake of growth can be a wealth reducing strategy. Evidence shows that expansion into non-core activities can be wealth reducing (Comment and Jarrell 1995, John and Ofek 1995). Moreover, firms that have large amounts of discretionary free cash flow tend to undertake wealth reducing projects (Blanchard et al 1994, Jensen 1986, Lehn and Poulsen 1989).

Shleifer and Vishny (1989) argue that management entrenchment can occur through over-investment in manager-specific projects. Managers generally have an opportunity to invest in projects that have a value higher under themselves than under other managers, even when the projects are not necessarily ex-ante value maximising from the shareholders' perspective. As a result of undertaking these projects it becomes costly for the firm to replace the incumbent management who can also obtain greater compensation because of the value-specificity of the projects. As examples of management entrenchment activity, Shleifer and Vishny point to instances of excessive expansion in the one line of business arising from horizontal takeovers and conglomerate takeovers where diversified activities are acquired when the company has been a relatively poor performer in its industry.

Another argument mounted against many takeovers is that their true cost cannot be assessed purely on financial grounds. For example, takeovers potentially stifle competition and create markets where the consumer ultimately faces a monopoly. While this argument has been tested by examining wealth effects on rival firms of the bidder, the results generally show no loss in wealth to rivals and thereby no support for the monopoly argument (eg Eckbo 1983). Moreover, regulatory forces exist to prevent the creation of monopolies through acquisition. For example, in Australia, the ACCC has been recently outspoken in relation to bank mergers. However, there is debate over whether the ACCC (and the former body TPC) can effectively prevent long-term shifts in market share, particularly in the face of industry rationalisations.

Trade unions sometimes enter the takeover debate claiming that the human cost is rarely considered (see Brown and Medoff 1988, Feros and Lewis 1989, Post 1994). Anecdotal evidence can be seen in the interventionist actions of unions in relation to the bid for BHP in 1986. The argument is based on the observation that some form of organisational

restructuring almost always follows successful takeovers. Staff are typically transferred, redeployed or retrenched as staff reductions are often seen as a major source of cost savings. These actions create spillover and social costs which are not fully borne by the companies involved in the acquisition.

2.4 Performance Measures

Studies that examine the impact of takeovers generally fall into two categories. The first category of studies deals with an examination of the effects of takeovers on share prices. The standard test involves the application of event study methodology which compares the risk-adjusted abnormal returns on ordinary equity shares before and after the takeover event. The second category of studies focus on changes in reported accounting numbers following a takeover. Generally, profitability ratios are analysed. Chatterjee and Meeks (1996) provide a review of the two groups of studies.

Arguments for the use of share prices stem from an underlying assumption about market efficiency. In a competitive market, prices should reflect an unbiased consensus about the value of information. Moreover, reliance on accounting numbers has been criticised for a number of reasons. Stanton (1987) argues that accounting rates of return are biased measures because of distortions that can arise from the application of different accounting policies. Examples include the treatment of goodwill, depreciation and the treatment of intra-group transactions (see criticism of accounting standards by Clarke et al 1997). Bishop et al (1987) claim that accounting measures reveal performance in different years thereby masking any effect in an aggregated sample. Indeed, some of these problems appear to be manifest in the study by McDougall and Round (1986). This study, commissioned by the Australian Institute of Management, examined 88 takeovers between 1970 and 1981 in Australia and concluded that firms involved in takeovers experienced a decline in performance compared to firms not involved in takeover contests.

However, recently share price studies have also come under criticism. First, reliance on share prices for the purpose of establishing performance implicitly relies on the assumption of an efficient market. However, the assumption of stock market efficiency has been subject to much scrutiny and question (eg. Haugen 1995). Second, the focus on share valuation effects implicitly assumes that the market is able to forecast changes in market share (eg. Limmack and McGregor 1995). Third, as previously discussed, there are many effects associated with a takeover which may not be immediately apparent to the market nor reveal themselves in ex-ante share prices. Fourth, the capital markets literature has combated criticism concerning the usefulness of accounting numbers. There is now evidence of a strong relationship between accounting earnings and stock prices, particularly over long windows (Easton et al 1992). In Peasnell's (1996) review, he mounts a strong argument in support of accounting data as

measures of performance. Bernard (1993) also argues strongly for the relevance of financial statement data.

In light of the inability of share price studies to find consistent evidence of abnormal returns to bidders, it appears irrational for the market not to consistently penalise bidding companies. Alternatively, it may be that the reliance on share prices does not provide reliable evidence due to the above issues or problems in aggregation. Hence, recent studies have focussed on other measures of performance but have been careful to avoid accounting biases. Simon et al (1996) study mergers in the advertising industry in the USA using revenues as the primary variable of interest. They use a matched-pairs design of merged and non-merged firms and report an implied loss in firm value of around 16% for the merged firm sample.

Healy, Palepu and Ruback (1992) examine the post-acquisition performance of the largest 50 mergers in the USA during the 1980s. They focus on accounting data (with cash flow relevance) using industry ratios as benchmarks. The performance measure is pre-tax operating cash flow scaled by total assets. The use of a cash flow measure overcomes many of the problems associated with accounting earnings such as depreciation, goodwill and the accounting method. Healy et al compare the performance of the post-merged firm to the sum of the bidder plus the target individual pre-merger performance (after adjusting for the industry average). The results support a significant post-merger increase in the performance measure with 70% of firms demonstrating above-average performance. They also document a significant relationship between stock returns and realised cash flow returns.

Kim and Singal (1993) and Singal (1996) examine changes in the product market following airline mergers in the USA. Both studies report both increased market power and more efficient operations following the merger activity. Moreover, abnormal stock returns are associated with the change in profitability which supports the view that the stock market anticipates profit changes.

In this study, we build upon this recent approach and analyse the performance of bidders in the Australian market following corporate acquisitions. The study focuses on cash flow from operations as the primary performance measure. We examine the association of performance with a range of both traditional financial measures and non-financial measures. In particular, we are concerned with three non-financial aspects being employment, diversification and market share. The last variable implicitly captures a measure of industry competition.

This evidence provides an insight as to the possible sources of gains (or losses) following a takeover. Such evidence provides practical direction for management. Further, this evidence

provides information to the policy-makers on whether and where takeover gains might or might not arise which has implications for setting future policy.

3 Research Findings

3.1 Data

The data on takeovers comprise three sources. First, the Australian Stock Exchange (ASX) maintains an annual summary of takeover bids made on the ASX. Second, data on takeovers from 1974 to mid-1985 have been compiled by the Centre of Independent Studies (CIS) and used by Bishop, Dodd and Officer (1987). Finally, we also access Corporate Adviser which is a commercial organisation which maintains a database on takeover activity in Australia.² The combination of these three sources was used to construct a takeover database for the purposes of this project. The period 1981 to 1992 is selected for analysis to provide the largest possible sample given the requirement to match firms on the two takeover databases with firms on the IBIS database.

As the study aims to examine the impact on bidding firms of a takeover, only successful takeovers are examined. A successful takeover is defined as one in which at least 50% of the voting shares in the target are acquired, unless otherwise specified. Over the sample period, there are 904 successful takeover bids which are initially identified. Table 1 provides a breakdown of the takeovers by the year in which they were successful.³

Table 1 Successful Takeover Bids 1981-1992

Year	No. of Successful Bids
1981	50
1982	67
1983	52
1984	75
1985	32
1986	76
1987	57
1988	116
1989	170
1990	99
1991	71
1992	39
Total	904

For each takeover, the record is matched against the IBIS database using company names. Takeovers are eliminated if neither the bidder nor target result in a match. This process reduces the sample to 385 bidder matches and 394 target matches. We then focus on bidder firms and hence the initial sample is 385. From this sample, 17 firms are subsequently excluded due to the lack of associated financial data.

² Corporate Adviser is now controlled by the Securities Data Corporation.

³ If a takeover bid commenced in one calendar year but was finalised in the subsequent year, the bid is recorded as belonging to the subsequent year.

3.2 Research Method

The study seeks to examine the association between real changes in economic performance following a takeover and both financial and non-financial measures which proxy for reasons for changes in performance.

In the spirit of previous work (see Healy, Palepu and Ruback 1992, Jain and Kini 1994, John and Ofek 1995, Kaplan 1989, Loughran and Ritter 1995), the performance measure is defined as annual cash flow from operations (CFO). The IBIS database provides a cash flow variable but this is a crude construct. Instead, we use our own cash flow measure constructed as net profit before tax, interest and depreciation and scaled by total assets. The scaling procedure neutralises the effect of size and provides a measure of return. This measure is free from the influence of a major accrual and is measured before financing costs which allows us to examine changes in operating performance independent of changes in capital structure. It is well documented that substantial changes in a firm's capital structure can follow a takeover (Travlos 1987).

We next construct a series of explanatory variables that are designed to capture underlying motives and consequent reasons for changes in firm performance. It is impossible to construct an exhaustive list of explanatory variables. Rather, we focus on six variables designed to capture specific characteristics.⁴

First, we examine market share (MKTSHARE). This variable is constructed as the ratio of a firm's revenue to the total revenue of its industry.⁵ The variable provides some indication of changes in industry competition and the firm's potential for price-setting. We examine annual percentage change in market share. The most common type of takeover is a horizontal transaction whereby one firm acquires control over its competitors with a view to enhancing market share. A substantial market share allows a firm to extract monopoly-type pricing margins. The ASIC industry codes are used for the purposes of industry classification.⁶

Second, we examine revenue (REV). The variable is scaled by total assets at year end to obtain a comparative size-adjusted measure. Profitability is driven by either increases in

⁴ We initially included a seventh explanatory variable of the annual change in relative research and development expenditure (R&D). This variable was intended to be size-adjusted and proxy for a change in investment policy. However, the R&D item was only available for around 20% of sample firm-years, precluding any meaningful analysis.

⁵ The definition of industry is limited to the IBIS database. Hence, total industry revenue is limited to those firms on the database and will probably understate true industry revenue. However, as we are interested in relative changes, there is unlikely to be any systematic bias.

⁶ There are 13 ASIC industry groups. Further breakdown into industry sub-groups is possible but the sample size becomes small such that a few companies dominate the grouping leading to extreme values of the variable 'market share'.

revenue, decreases in costs or a combination of both. The variable REV seeks to assess whether performance is related to the firm's relative revenue base. In essence, REV is an efficiency measure.

The third variable seeks to examine the margin on each dollar of revenue. That is, it measures relative cost efficiency. MARGIN is defined as cash flow from operations divided by revenue.⁷ The greater the value of MARGIN, the lower the operating costs per unit of revenue. In theory, the product REV and MARGIN is equivalent to the dependent variable.

Fourth, EMPLOY measures the annual percentage change in the number of employees. This variable provides an indication of cost reductions following a takeover through changes in the labour base and an indication as to changes in the product cost and input mix. Shleifer and Summers (1988) argue that firms have an opportunity to negotiate explicit and implicit labour contracts in a takeover and achieve lower unit costs. This analysis provides some evidence on the often cited claim that takeovers result in substantial redundancies and contribute to unemployment (Feros and Lewis 1989).

Fifth, TAX is defined as the effective tax rate and measured as tax expense over operating profit before tax.⁸ Various authors have proposed tax-based incentives for corporate acquisitions (eg. Brealey and Myers 1991). One example involves unused carry-forward tax losses in the target which the acquirer is able to utilise and offset against its taxable income.

Finally, we examine the level of firm diversification. Recent work appears to demonstrate that diversified firms are prone to poor performance and become targets themselves, (Comment and Jarrell 1995, John and Ofek 1995). Berger and Ofek (1995) compare the value of diversified firms with that computed as the sum of the stand-alone unit values. They report a loss in value of around 15% due to diversification. A similar conclusion is reached by Lang and Stulz (1992) who report a negative relation between Tobin's q and the degree of diversification. To examine whether performance is related to changes in the level of diversification, a variable is constructed which measures internal firm diversification (DIVERSE). The variable is based on the Herfindahl index which utilises information on segment revenue, viz:

$$DIVERSE = \Sigma[SR_i / \Sigma SR_i]^2$$

⁷ Ideally, sales revenue would be used. However, this variable was only available for 47% of the sample years. Hence, total revenue was employed. There is little impact of this change as the correlation between sales revenue and total revenue for those records for which data are available is 0.9913. Therefore, total revenue is a close proxy for sales revenue.

⁸ In cases where the effective tax rate is less than zero due to negative earnings, the value of TAX is set to zero.

The higher the value of DIVERSE, the lower the level of diversification such that a single segment firm would have a value of one.

Some variables will experience changes due to market and industry influences, thereby distorting time-series comparisons. To control for contemporaneous but unrelated events, we adjust the variables CFO, REV and MARGIN for their industry trend.⁹ For each variable in each year, the industry mean is subtracted from the variable to obtain an adjusted measure.

We select three years either side of the year in which the takeover occurs as the window for examination. Studies that have used a similar methodology have generally used either three or five years. For instance, Healy et al (1992) used five years but also find that their conclusions are insensitive to the use of three years. Three years may be judged as sufficiently long to allow for the effects of the takeover to materialise but short enough so not to be subject to other influences, recalling that industry effects have already been removed. The year of the takeover event is excluded because of potential distortions induced by accounting for the takeover. Moreover, once-off costs of the takeover are likely to be accounted for in the initial year.

3.3 Results

Table 2 provides descriptive statistics of the raw annual performance measure (cash flow from operations) from three years prior to three years post the date of takeover. The figures indicate that nearly all firms are in a profitable state both before and after the takeover with positive cash flows for almost 90% of firms in each year. However, there is a drop in both the mean and median CFO following the takeover.¹⁰ For instance the median CFO return in each of the three years prior to the takeover is 12.10% and falls to 11.75% in the three years following the takeover. Also note the post-takeover period is more volatile although a t-test rejects equality of means (t-stat: -2.37). A similar decline in CFO has been noted elsewhere (Healy et al 1992) but these numbers need to be further examined in light of industry movements.

Table 2
Annual Percentage CFO Return Pre- and Post-Takeover

	t-3	t-2	t-1	<i>Pre</i>	t+1	t+2	t+3	<i>Post</i>
No.	251	267	275	793	303	311	318	932
Median	12.70	12.60	12.00	12.10	11.80	12.10	11.05	11.75

⁹ It makes little sense to adjust the variable TAX for industry averages as large negative effective tax rates result which are difficult to place an economic interpretation on. Moreover, while some elements of the tax system are industry specific, the effective tax rate can be substantially influenced by company-specific circumstances.

¹⁰ While we report the mean values, we prefer to focus on the median values given the presence of substantial outliers in the data.

Mean	12.38	11.41	11.08	<i>11.60</i>	9.90	11.13	8.96	9.99
Std Dev	13.01	13.94	13.04	<i>13.34</i>	14.04	12.33	17.46	<i>14.80</i>
% Positive	91.2	92.1	91.3	<i>91.7</i>	89.1	91.3	89.3	89.8

Notes: CFO is defined as operating profit before interest, tax and depreciation scaled by total assets.
The period “Pre” covers all three years prior to the takeover.
The period “Post” covers all three years following the takeover.

Table 3 presents the industry-adjusted CFO figures and univariate results for the change in CFO. Given the difficulty in obtaining industry averages for some industries, the sample size is reduced (from Table 2). On average, bidder firms perform worse than their industry average in all years surrounding the takeover. This difference is significant for all years except t-3. This result is somewhat surprising as it is often argued that bidder firms are superior performers prior to the takeover. Share price studies typically find evidence of positive abnormal returns leading up to the bid. Using CFO as the performance measure, we find no consistent evidence of superior performance. The industry-adjusted CFO figures show continued under-performance after the takeover. Moreover, the difference between the means of industry-adjusted CFO before and after the takeover is significant (t-stat: -2.28).

Table 3

Annual Percentage Industry-Adjusted CFO Return Pre- and Post-Takeover

	t-3	t-2	t-1	<i>Pre</i>	t+1	t+2	t+3	<i>Post</i>
No.	130	171	197	498	218	220	217	655
Median	-1.04	-0.08	-1.89	<i>-1.35</i>	-2.51	-1.47	-2.12	<i>-2.11</i>
Mean	-1.09	-2.44	-2.14	<i>-1.97</i>	-4.31	-2.65	-4.11	<i>-3.69</i>
Std Dev	9.06	11.75	12.81	<i>11.56</i>	12.62	12.24	16.66	<i>13.97</i>
% Positive	39.2	45.0	41.6	<i>42.2</i>	35.3	37.7	37.8	<i>36.9</i>
t-test	-1.37	-2.22*	-2.35*	<i>-3.80*</i>	<i>-5.16*</i>	<i>-3.20*</i>	<i>-3.63*</i>	<i>-6.76*</i>

Notes: Industry-adjusted CFO is CFO less the industry average CFO for each period t.
The period “Pre” covers all three years prior to the takeover.
The period “Post” covers all three years following the takeover.
t-test is difference from zero.
* indicates significance at 5%.

This evidence is generally consistent with the share price reaction studies which show few benefits from takeovers to bidders. Moreover, studies of long-run share price performance have generally shown bidders to under-perform over periods of 3-5 years post-takeover (Franks, Harris and Titman 1991, Loderer and Martin 1992). However, more recent evidence has suggested that aggregate test results ‘hide’ results and that bidder samples should be disaggregated (Berkovitch and Narayanan 1993, Lang, Stulz and Walkling 1989). Thus, we decompose the bidder sample by partitioning on the basis of pre-bid performance. Following the arguments of Lang et al (1989), the value of a takeover to a bidder is dependent on the

match between the bidder and target. Maximum gains are expected when a bidder with superior pre-bid performance obtains control of a target with inferior pre-bid performance and vice-versa. However in our sample, we are unable to examine the characteristics of target firms.¹¹ Thus we partition on the bidder's pre-bid performance.

We regress the median industry-adjusted CFO post-takeover for each firm (j) on the median industry-adjusted CFO pre-takeover and a binary dummy variable set to one if the median industry-adjusted CFO pre-takeover (ie. pre-bid performance) is positive and zero otherwise.¹² If the coefficient on the dummy variable is significant, it indicates a difference between the relationship between pre- and post-bid performance conditional upon the sign of pre-bid performance. Due to the requirement of multiple CFO observations per firm, the sample is reduced to 161 takeovers. The regression results are (t-statistics computed using White's heteroscedastic adjustment):

$$ACFO_{post,j} = -0.032 + 0.164 ACFO_{pre,j} - 0.152 D_j ACFO_{pre,j}$$

(-2.54) (1.06) (-0.64)

Note: $D_j = 1$ if $ACFO_{pre,j} > 0$ and $D_j = 0$ otherwise.

The intercept is negative and significant. Both slope coefficients are insignificant. However, the negative sign on the slope coefficient on the dummy variable is consistent with good pre-bid performers faring worse than bad pre-bid performers after the takeover. However, the model is insignificant overall (F-ratio: 0.62, prob-value: 0.54). In summary, there appears to be no significant difference in post-takeover performance between good and bad pre-takeover bidders.

We now turn to the explanatory variables. Median values for these variables are presented in Table 4.

Table 4
Median Values of Explanatory Variables Pre- and Post-Takeover

	t-3	t-2	t-1	<i>Pre</i>	t+1	t+2	t+3	<i>Post</i>	t-test
MKTSHARE %	-5.09	1.30	2.76	1.49	8.15	10.14	6.44	8.02	0.30
REV %	83.08	82.22	73.44	79.00	84.81	80.77	79.15	80.06	2.44*
MARGIN %	16.29	17.36	18.40	17.06	14.06	14.05	13.34	14.05	-4.85*
EMPLOY %	5.40	3.32	7.53	4.33	5.96	0.08	3.14	3.03	-1.06
TAX %	13.98	19.13	17.46	15.96	24.47	20.42	20.58	22.54	1.23

¹¹ For many of the target firms, data on operating performance are not available. The data limitations are inherent in the database containing many relatively small and/or non-listed firms. Of the companies on the database, 15% are listed.

¹² The regression was also performed using means of adjusted CFO and similar results were obtained.

DIVERSE	0.5854	0.5674	0.6354	0.5853	0.6270	0.6279	0.6536	0.6279	0.75
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Notes: t-test is for difference in sample means.

* indicates significance at 5%.

MKTSHARE is the annual change in the ratio of a firm's revenue to total revenue of the industry.

REV is revenue scaled by total assets.

MARGIN is cash flow from operations divided by revenue.

EMPLOY is the annual change in the number of employees.

TAX is the effective tax rate.

DIVERSE is a measure of the level of internal diversification.

The period "Pre" is each of the three years prior to the takeover.

The period "Post" is each of the three years following to the takeover.

MKTSHARE indicates that successful bidders increase their market share by around 8% per annum in the three years following a takeover, although the increase is not reflected by a significant difference in means pre- and post-takeover. This increase is consistent with a reduction in internal diversification. In general, firms appear to engage in horizontal takeovers where their share of the market for their core business is enhanced through the acquisition of competitors.

The t-test for equality of means reveals that REV has significantly increased post-takeover while MARGIN has significantly decreased post-takeover. The implication of these results is that bidding firms become more efficient in utilising their asset base to generate revenue but they are unable to translate this into enhanced cash flow from operations. Thus it appears that bidders experience an increase in costs in the post-takeover period.¹³

Employment growth is around 3-4% in each year and appears reasonably stable. This evidence is not consistent with the claim that bidders retrench large numbers of employees following takeovers. The effective tax rate increases post-takeover although again the change is not significant. DIVERSE indicates that firms have become less diversified following a takeover, although the difference in means is not significant. The small reduction in diversification is consistent with the arguments concerning corporate focus (Berger and Ofek 1995, Comment and Jarrell 1995, John and Ofek 1995). Firms attempt to enhance performance by returning to core activities and reducing the level of internal diversification.

To analyse the relationship between the performance measure and the hypothesised explanatory variables, the following regression is estimated for both the pre- and post-takeover periods using the median value of each variable. For the REV and MARGIN variables we control for industry-wide effects by subtracting the industry average of the relevant variable and call these AREV and AMARGIN ('A' for adjusted):

¹³ A direct test of this proposition is not possible due to the absence of cost figures in the database.

$$ACFO_{t,j} = \alpha + \beta_1 KTSHARE_{t,j} + \beta_2 AREV_{t,j} + \beta_3 AMARGIN_{t,j} + \beta_4 MPLOY_{t,j} + \beta_5 TAX_{t,j} + \beta_6 DIVERSE_{t,j} + \epsilon_{t,j}$$

The results are reported in Table 5. In cases where data for one variable were missing, that firm is excluded from the analysis which further reduces the sample size.¹⁴

The pre-takeover regression has higher explanatory power than the post-takeover regression. In the pre-takeover period, AMARGIN, TAX and DIVERSE are significant. The positive sign on AMARGIN indicates that positive changes in the level of cost efficiency are associated with performance. The positive sign on TAX is not surprising as higher performing firms are subject to greater political costs which is consistent with an increasing effective tax rate (Watts and Zimmerman 1986). While the diversification variable (DIVERSE) is significant, it needs careful interpretation. The negative sign indicates an increased level of diversification is associated with improved performance. This finding is contrary to previous literature and indicates something unique in the sample. A possible explanation is that the sample period covers 1981-1992 and includes the period of the early and mid-1980s when a deal of takeover activity was driven by well-known corporate raiders who typically embarked on conglomerate-type acquisitions. Indeed, the original sample includes around 10% of activity generated from 8 well-known raiders.

In the post-takeover period, only the significance and sign of DIVERSE remains. All other variables are now insignificant. Indeed, the model itself is no longer significant in the post-takeover period. This highlights a problem with empirical analysis of this nature. The motives behind a takeover are extremely complex and likely to be specific to the particular case at hand. In the regression analysis, we are employing rather crude measures which proxy for various explanations and hence we are generally biased against significant findings. The results also suggest caution in the interpretation of the univariate findings in Table 4 above.

Table 5
Regression Results of a Test of the Association Between Median Values of Industry-Adjusted CFO and Explanatory Variables Pre- and Post-Takeover

	Pre-Takeover	Post-Takeover
No. of observations	61	93
R ²	0.278	0.103
F-ratio	3.47*	1.64
(White-adjusted t-statistic)	0.004 (0.21)	-0.013 (-0.65)

¹⁴ The analysis was also run using unadjusted CFO, employing mean values of the dependent variable instead of median values and utilising unadjusted measures of REV and MARGIN. The results are generally robust to these alternative specifications.

1	-0.003 (-0.21)	-0.002 (-0.08)
2	0.004 (0.79)	0.008 (1.41)
3	0.084 (3.21)*	-0.008 (-0.19)
4	0.006 (0.83)	-0.017 (-0.63)
5	0.102 (2.88)*	0.121 (1.67)
6	-0.052 (-2.36)*	-0.065 (-2.02)*

* indicates significance at 5%

The results in Table 5 do not lead to direct comparison between the regression relationships between the pre- and post-takeover periods. Consequently we form a set of new variables which are defined as the difference between post- and pre-takeover period values. As an example, ACFODIFF is defined as $ACFO_{post} - ACFO_{pre}$. This test allows for a direct test of the association between changes in adjusted CFO and changes in the explanatory variables.

The regression becomes:

$$ACFODIFF_j = \beta_0 + \beta_1 MKTSHAREDIFF_j + \beta_2 AREVDIFF_j + \beta_3 AMARGINDIFF_j + \beta_4 MPLOYDIFF_j + \beta_5 TAXDIFF_j + \beta_6 DIVERSEDIFF_j + \epsilon_j$$

The results are presented in Table 6.¹⁵ As can be seen from the table, no coefficients are significant. This indicates that differences in our measure of performance are not capable of being explained by the variables we have proposed. While this result may appear to offer little insight, it contains information through the lack of significance. For instance, while the univariate results indicate an increase in revenue and a decline in operating margin, these changes are not associated with changes in performance. As another example, the widely held view in the financial press that changes in performance are associated with decreased labour costs is not supported. As discussed above, it is likely that each takeover situation is somewhat unique and the search for a common set of explanatory factors for changes in performance is unlikely to yield satisfactory answers.

Table 6
Regression Results of a Test of the Association Between Changes in Median Values of Industry-Adjusted CFO and Explanatory Variables Pre- and Post-Takeover

No. of observations	35
R ²	0.107

¹⁵ Due to the requirements to match each variable pre- and post-takeover, in some instances a variable is not available in both periods and hence the sample size is further reduced.

F-ratio	0.563
(White-adjusted t-statistic)	-0.019 (-1.15)
1	0.015 (0.42)
2	0.016 (0.92)
3	0.101 (0.81)
4	-0.002 (-0.08)
5	-0.013 (-0.19)
6	0.026 (1.00)

4 Conclusions

This paper sought to examine the performance of bidding companies in the Australian market for corporate control over the period 1981 to 1992. Prior literature has almost exclusively focussed on share market returns as the performance measure. These studies have failed to document consistent evidence supporting the notion of synergies accruing to bidding firms. There are two schools of thought to explain these results. First, there concerns about market failure which lead to non-value maximising behaviour by corporate managers. Second, there is concern over whether ex-ante share prices are the most appropriate performance measure. Recent studies have suggested that realised returns based on financial data may provide alternative measures. However, financial data is subject to the nuances of the accounting system. In this paper, we provide Australian evidence on this issue using cash flow from operations as the performance measure. This variable overcomes some (but not all) of the problems associated with the use of accounting data.

The results indicate that bidder firms are profitable in the sense of positive cash flow returns both before and after takeovers. However, the post-takeover performance indicates a decline in performance. When the cash flow measure is adjusted for industry effects, we find evidence of under-performance both before and after takeovers. The post-takeover industry-adjusted performance is worse than pre-takeover performance although the two variables are not significantly related. Various explanatory variables proposed in the literature were examined for any systematic relationship with the cash flow performance measure. We find a significant increase in bidder revenue following a takeover but also a decline in operating margin suggesting that costs following a takeover increase. In the pre-takeover period we find that operating margin, tax rates and the level of diversification are associated with performance. In the post-takeover period, we find an association only between performance

and the level of diversification. However, none of the variables are significant explainers of the change in performance between the pre- and post-takeover periods.

We have a number of caveats to these results. First, we have some concern over the accuracy of the data. We found a number of instances where calculated numbers simply did not make sense. In these cases, we excluded the data. However, this is an ad-hoc procedure to data verification and potentially invalid data remain in the analysis. Further, the sample size varied considerably across variables making comparisons difficult. Second, the presence of outliers creates mixed signals as there are instances where mean and median values provide opposite interpretations. We have used parametric statistical tests and we have some concern over their appropriateness. Third, the measure of cash flow is a relatively crude measure and still includes some accruals and hence is subject to distortions induced by accounting policies. Fourth, the data are subject to survivorship bias, although intuitively this would appear to mitigate against our findings. Fifth, the adjustments for industry effects rely upon correct industry classification and are subject in some industries to outlier influence when there are few data available within the industry. Moreover, the research method implicitly assumes that the industry average is the appropriate benchmark for performance. Finally, we suspect that the sample period is somewhat unique mainly covering the 1980s in Australia when the takeover market comprised some high-profile conglomerate raiders. We suspect that this in part explains the result on the diversification variable.

We offer several lines for further research. Future studies on the database should initially conduct a thorough examination of the data to check its accuracy. Four extensions are then possible. First, additional data could be gathered to enlarge the sample and account for missing data. Second, additional variables such as R&D expenditure and capital expenditure would provide further insight. Third, it would be interesting to examine the share market reaction at the time of takeover announcement. The analysis could involve a correlation between the ex-ante share price reaction and the ex-post realised performance. This would confirm whether our results are sample specific, or alternatively whether the market over-estimates the potential benefits to bidding companies. Fourth, a decomposition of the sample into well-known raiders and other bidders may reveal interesting differences between the groups. Unfortunately, the data gained initially were not reliable nor the sample size sufficiently large to conduct this experiment.

We also encourage the conduct of case-style research in this area. As discussed in the text, each takeover situation is likely to have unique features and the problems of data gathering, variable measurement and aggregation mask valuable information that may be gleaned from case studies.

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