

**Title:**

**The Magnitude and Determinants of Target Shareholder Returns from International and Domestic Takeover Announcements in the 1990s- some UK evidence**

**Abstract**

Synergy is frequently cited as the motive behind much of the global merger and acquisition activity. A large volume of empirical evidence suggests target shareholders gain substantially with acquirers experiencing small losses or at best a break-even position. Most of the studies focus primarily on domestic transactions and on bid characteristics in an attempt to explain potential value changes. Whilst recent research, largely in the US context, has started to take place on the implications of international acquisitions, there is a scarcity of evidence in the UK. The aim of this paper is to address this shortcoming and to examine the magnitude and determinants of value changes to shareholders of target firms. This study uses a specially constructed data set covering 299 takeover announcements for publicly quoted UK target firms by both domestic and international firms over the period 1990 to 1998. The volume of transactions is considerably higher in the 1995-98 period in contrast to 1990-94 era. Average bid value does not differ across country of acquirer. It is found that target firms are characterised by high levels of institutional ownership. The results suggest engagement in the merger process appears to improve the welfare of target shareholders while the determinants of value changes indicate that corporate governance proxies, relative firm performance and bid features do help explain potential returns. It is concluded that mergers and acquisitions continue to play an important role in restructuring the corporate landscape in the UK with total value of bids in our sample amounting to £160 billion.

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## **Introduction**

Mergers and acquisitions continue to serve as a popular form of corporate restructuring. The terms merger and acquisition are used interchangeably to describe changes in the boundary of firms. Target shareholders have been shown to extract most of the takeover gains with small/insignificant losses reported for acquirers.

The paper contributes to the debate by bringing new evidence to bear on UK takeover bids from domestic and international bidding firms, some of which end in failure. The announcement effects of takeovers for target shareholders are captured over an eleven day window followed by an analysis of the determinants of merger gains to investigate the significance of target ownership, bidder nationality, relative financial performance of firms to the bid and bid features in the distribution of gains/losses. Sources of merger gains have been largely neglected in the literature, (Jensen & Ruback, 1983, Limmack 2000). A greater number of foreign bids along with first time exposure of deregulated industries to mergers are hallmarks of the UK takeover phenomena in the 1990s. Hence it is important to assess the more recent effects of this form of restructuring in updating our empirical knowledge of this process.

As one of the most predominant forms of corporate restructuring, mergers and acquisition activity tends to occur in waves. Each merger movement has somewhat distinctive characteristics reflecting the dominant economic and technological factors operating during that particular period, (Weston et al, 1998).

The wave of the 1990s represents the largest one based on the number of deals each year and the size of such transactions, (Hitt et al, 1998). Acquisitions appear as the common solution in this era to forces driving global competition and industry consolidation. A sharp drop in the volume and value of UK bids occurred between 1991 and 1994, a gradual rise in 1995 followed by a merger boom in 1997-98. Mulherin & Boone (2000) observe a similar pattern in the US.

Takeovers arise due to changes in how firms redefine and renew themselves at a time of huge change across industries globally. Mergers represent a response to changes in economic and business conditions brought about by technological advances,

developments in transportation and communication, changes in industry regulation, interest rates and changes in stock prices, (Weston et al., 1998).

The purpose of this study is to evaluate the wealth effects of takeover bid announcements and to assess the variables that prove significant in the division of gains process using a large sample over the period 1990-1998. This period is chosen to capture takeover activity of the 1990s. An econometric analysis of the determinants of the division of gains process is conducted. In so doing, the intention is to try and identify the factors most likely to play a role in the apportionment of gains. The rest of the paper is organized as follows. Section 2 provides an overview of the relevant literature while section 3 documents the research questions posed. Next are sections 4 and 5 which outline the methodology and the sampling frame respectively. Sections 6 and 7 document the descriptives, findings and discussion. The final section concludes the paper.

## **2. Literature review**

The theories can be partitioned into two competing schools of thought; value creation and managerialism. Synergy fits into the value creation school while hubris and agency, assuming zero gains/losses belong to the managerialism school. International mergers and acquisitions represent a specific form of direct foreign investment (DFI). Unlike other modes of DFI (exporting, licensing, joint ventures) the acquiring company takes control over their investment. Driving forces behind foreign takeovers are imperfections in factor and product markets, (Kindleberger, 1969, Caves, 1971 & Hymer, 1976); imperfections and asymmetries in capital markets, (Froot & Stein, 1991), differences in tax codes, (Scholes & Wolfson, 1990) and incumbent management that acts in its own interest to the detriment of shareholders, (Jensen, 1986). A firm's decision to invest overseas is based on the theory that they can take advantage of mis-priced factors of production and at the same time overcome trade barriers. International takeovers serve as a mechanism of international portfolio diversification to their shareholders also. The theory of DFI is based on the assumption that a firm must have firm-specific resources not available to local competitors. The sources of such special advantage are intangible assets, technology and management skills with the assumption that product markets are not perfectly competitive.

Reasons cited for international mergers and acquisitions by Weston et al, (1998) are as follows: market growth, technology exploitation, product differentiation, government policy circumvention, exchange rate risk reduction, political and economic stability, differential labour costs, to follow clients, business diversification and the search of resources.

In summary, international mergers and acquisitions act as vehicles to bridge imperfections in factor, product and capital markets. The takeover market is also imperfect which may benefit foreign buyers, (Fatemi & Furtado, 1988). Foreign exposure entails benefits and drawbacks in the form of different economic rents and risks, (Adler & Dumas, 1983 & Fatemi, 1984). The theory suggests acquiring firms are buying a 'real' option as to where to locate production. Value creation will ensue for acquirers from gaining access to a new market and to a different stream of cash flows. Target shareholders are alleged to gain from overseas bids assuming foreign acquirers pay more than domestic firms to secure market entry. This is the theory subscribed to when the presence of a positive 'cross-border effect' is established. Domestic evidence to support the synergy hypothesis suggests target shareholders benefit significantly from takeover bid announcements while bidding companies experience zero/small gains. Bradley et al (1988) report positive wealth changes in 75% of US bids. Target firms benefit over time while bidders lose; reflecting the impact of takeover legislation. Competition in the bidding process and the Williams Amendment Act 1969 are found to explain value changes. Franks & Harris (1989) signal the significance of company size in assessing UK takeover gains. Positive value changes are reported in 74% of combinations. Support is shown for increasing target gains over time; consistent with Bradley et al (1988) and for the role of competing bids in explaining merger gains. More recently, Sudarsanam et al (1996) allege support for managerial and financial synergy as sources of gains in UK takeovers. They also observe changes in the wealth patterns over time with increasing gains to targets and the inverse alleged for shareholders of acquiring firms. In addition, firm size proves a significant determinant of value changes.

In sum, the authors suggest takeover bid announcements are synergistic; target shareholders extract most of the value gains and significantly more the smaller they are and in the presence of competing bids. Whilst a large volume of evidence is documented

on the economic implications of domestic takeovers few studies extend to include international takeovers. UK evidence by Danbolt (1995) supports the synergy hypotheses with small gains registered for acquirers; substantial gains to UK targets and small gains overall. Overseas bids, cash offers and target size proves significant in explaining targets wealth. In a similar vein, Eun et al (1996) suggest international takeovers create value. Gains varied substantially however, across country of acquirer. Significant determinants of estimated returns are R&D/Sales ratio of target firms, operating synergy and the number of bids.

Finally, Eckbo & Thornburn (2000) document support for the synergy hypothesis in their study of US and Canadian takeovers. Domestic bids are suggested to create more value overall with no explanatory power found for operating synergy, payment form or target size in determining estimated wealth effects.

Target and acquiring firms enter into merger negotiations under the expectation of value gains for each of their respective shareholders. Empirical evidence investigating the precise nature of this apportionment process is relatively sparse. Halpern (1973) suggests merger gains are equally divided between the two sets of shareholders. Furthermore, he alleges that larger buyers derive more of the potential value more than smaller acquirers. Bradley et al (1988) assert significant determinants of target gains are the number of bidders and time of bid launch. Acquiring firm gains are allegedly driven by takeover legislation (Williams Amendment Act 1969) and time of the bid.

Further US evidence by Jarrell & Poulsen (1989) asserts target gains are positively related to the presence of competing bids with the inverse applying for acquirers. Bidders gain more the larger the target with the inverse holding for targets. Gains to targets increase from 1960s into the 1970s and 1980s with the opposite established for acquirers, consistent with Bradley et al (1988).

UK evidence by Franks & Harris (1989) establishes an even division of gains over the five month period surrounding bid announcement. However, in the month of the bid all gains accrue to target firms. The presence of multiple bids and bids post 1968 are deemed to have a significant positive association with target gains. Stulz et al's (1990) evidence is of a positive association between target gains and the presence of managerial ownership. Larger targets are asserted to gain more and the greater the number of

competing bids. Institutional ownership of target firms and prior stake holdings by acquirers serve to lower target returns significantly.

In sum, the evidence presented to date suggests important determinants of the apportionment of merger gains are target size, number of competing bids, payment form and changes in the takeover market over time. These studies are limited in that all the evidence reported is based on domestic samples.

The apportionment of gains process in international takeovers remains largely unexplored. The predominant emphasis is on the factors influencing target gains.

Harris & Ravenscraft's (1991) evidence asserts that foreign bids, competition in the bidding process and the R&D/Sales ratio of the target's industry prove significant determinants of target gains. Returns to US target shareholders are positively associated with the distribution of their ownership and the presence of competing bids. Managerial and institutional investor ownership in target firms is suggested to help extract higher gains. Foreign bids prove a superior source of value only if a majority interest is purchased. US evidence by Swenson (1993) suggests superior target gains from foreign bids and those in the manufacturing sector. Cash offers and competition in the bidding process are positively linked to such value changes. Dollar weakness is alleged to result in greater target returns. In sum, the apportionment of gains between shareholders 'depends on information, relative learning costs, and the competitive environment for particular targets', (Swenson 1993, p. 275).

UK evidence on the distribution of gains alleges higher returns to targets from overseas bids, (Danbolt 1995). Smaller firms benefit more with cash offers and competing bids having a significant positive effect also.

In sum, the evidence suggests very similar results to that portrayed for domestic bids with the common themes of payment form and competition in the bidding process shown to explain targets gains. In addition, targets appear to benefit from overseas bids although Dewenter (1995) and Eckbo & Thorburn (2000) find no support for this hypothesis.

### **3. Research Questions**

Following the review of the literature and the continuing growth of mergers and acquisitions, we attempt to investigate the following research questions in the context of UK takeover announcements:

- 1) Which industries are involved in UK takeovers in the 1990s?
- 2) What are the wealth effects from the announcement of UK takeover bids for target shareholders?
- 3) What factors determine the division of gains to target shareholders?

Our first question is addressed with a full description of the industry sectors of target and bidding firms provided. This facilitates comparison with the evidence of Ryngaert (2000). Our second and third questions are addressed via an event study and regression analyses respectively. The determinants of changes in target shareholders wealth include measures of ownership structure, bidder nationality, the relative financial performance of the merging firms and features of the bid. We test first for the significance of target institutional and managerial ownership along with a pre-bid stake of the acquirer.

UK institutional investors are deemed more active than their US counterparts where they account for two thirds of the level of UK ownership, (Black, 1990, Roe, 1991, Black & Coffee, 1994). Some evidence exists to suggest UK institutions engage in monitoring in a private way, (Short & Keasy, 1999). We test the role of this disclosed outside blockholder of equity in the determination of gains. Target wealth changes are deemed inversely related to the presence of their institutional owners, Stulz et al, (1990), Sudarsanam et al, (1996) which is in contrast to the international evidence by Kang (1993).

Two competing views pertain on the role of target management and gains accruing to their shareholders. A positive and significant relationship is established between managerial shareholdings and target gains in successful contested bids, (Song and Walkling, 1993) and in the international merger study of Kang (1993). Evidence of the opposite effect is found by Billet & Ryngaert (1997).

Controversial evidence exists on the wealth effects of a prior stake holding by bidders in target firms. This stake may act as a signal of the bidder's assessment of target value post-bid, (Choudhny & Jegadeesh, 1994)

Empirical analysis to date of international acquisitions is primarily US based with superior target gains suggested from overseas bids compared to domestic ones. Studies by Harris & Ravenscraft (1991), Swenson (1993) and Cheng & Chan (1995) support the 'cross border' hypothesis. In contrast, studies by Servaes & Zenner (1990), Dewenter

(1995) and Eckbo & Thornburn (2000) show no support for these phenomena. Little UK evidence exists on international takeovers except for Conn & Connell (1990) and Danbolt (1995). The rationale for this 'cross border effect' remains an unresolved issue, Danbolt (1995).

Little has been done to capture the impact of financial performance on the apportionment of gains process. The synergy hypothesis presumes differences in the efficiency level between bidder and target. Managerial synergy emerges when a more efficient bidder acquires an under-performing target. Servaes (1991) and Lang et al (1991) establish an inverse and significant association between a target's Q ratio and its share of merger gains. Defined as the market value of equity to the current replacement cost of net assets, firms with a low Tobin's Q are deemed inefficient or undervalued. Firms with low market to book ratios are deemed 'cheap' buys, (Palepu, 1986). An inverse and significant association between this ratio and target gains is hypothesized in this study.

Van Hulle & Sercu (1991) assert in their theoretical paper that the financial strength of the bidder and target may play a role in determining the apportionment of takeover gains. They suggest bidding firms with liquidity problems will have less bargaining power, as cash availability is paramount to deal completion. Barnes (1998) hypothesised that better performing bidders (relative to their target) would extract more of the takeover gains. We capture measures of growth, profitability, leverage, liquidity and future financial performance using the relative sales growth ratio, relative return on equity, relative debt, relative cash and relative Price Earnings (PE) ratios. Similar ratios are used in the takeover prediction study of Palepu (1986) and the variables are defined in the same manner as Palepu (1986). Results of the correlations suggest no multicollinearity problems between the ratios.

Our test for the presence of bargaining power is conducted via the following four ratios.

1. Relative sales growth rate of bidder to target over the three years prior to the bid.
2. Relative pre-tax profits to Shareholders Funds of bidder to target.
3. Relative total borrowings to Capital Employed of target to bidder.
4. Relative cash to total assets of bidder to target.
5. Relative Price- Earnings ratio of bidder to target 3 months prior to the bid.



Used as a proxy of efficiency of the bidding firm, we hypothesise a negative association between (a) the relative sales growth rates, (b) the relative return on shareholders equity (c) the relative debt ratio (d) the relative liquidity ratios and (e) the relative PE ratios. Under bargaining power bidders are alleged to extract a greater share of expected gains from a more indebted and cash constrained targets.

In addition to the independent variables, we capture the impact of the variables alleged as significant in the cross sectional regression framework of other merger studies. Bid features or characteristics primarily fit into this category. In summary, the main control variables are the reaction of target management to a bid announcement, bid outcome, relative firm size and the presence of competing bids and form of payment employed.

We hypothesise that target shareholders gain more the greater the number of bidders, from cash only offers, the smaller targets are in relation to bidders with no direction specified on bid outcome and reaction to merger bid.

#### **4. Methodology**

Given the discussion on the factors that influence the division of gains process, our model to test this division is specified below.

Proportionate synergy to target shareholders = %GAINS<sub>TGT</sub>  
= f (%TGT INST INV + % MGT INV + PRIOR + COUNTRY+ MKT TO BK > 1 + REL SLSG + REL PROFITS + REL DEBT + REL CASH + REL PE+ REACT +OUTCOM + LN REL SIZE + NUMBER + PAYMENT)

%GAINS<sub>TGT</sub> is that calculated under the event study

Our model tests for the significance of target ownership, bidder nationality, undervaluation and bargaining power in the distribution of gains process. These variables are combined in a cross sectional regression model will help establish the significance of bidder nationality, relative firm performance and the control variables in the apportionment of value changes.

An event study is employed to assess share price reaction around the time of a takeover bid. Applied as a measure of investor expectations, it captures the market's short term reaction to merger bids. Event studies have been extensively employed to analyse domestic and international acquisitions, (Servaes & Zenner, 1994, Limmack, 1991,

Eckbo & Thornburn, 2000). The market model is the most popular approach adopted to compare the actual returns on a security against that expected if there had been no bid. The differences or abnormal returns are viewed as residuals, reflecting the effect of an event specific to a company. Returns comprise of share price appreciation plus dividends.

Under the assumption of multivariate normality, abnormal returns (prediction error) to security  $j$  on day  $t$  can be written as

$$AR_{jt} = R_{jt} - (\alpha + \beta_j R_{mt})$$

Where  $AR_{jt}$  = abnormal return to firm  $j$  on day  $t$

$R_{jt}$  = actual or realised return to security  $j$  on event day  $t$

$\alpha + \beta_j R_{mt}$  = expected returns to security  $j$  on event day  $t$

$\alpha$  = alpha and  $\beta$  = beta, the market model parameter estimates and

$R_{mt}$  = market return on event day  $t$ .

Estimates for  $\alpha$  and  $\beta$  are calculated over the estimation period using OLS. Values of  $\alpha$  and  $\beta$  are estimated by regressing  $R_{jt}$  on  $R_{mt}$ . The assumption is that the intercept and slope terms,  $\alpha$  and  $\beta$ , are constant over the time period during which the model is fitted to the available data.

These coefficients represent the intercept and slope respectively of the market model regression. This is run over a 200 day estimation period, from 250 trading days to 50 trading days prior to the initial event date  $t$ , the first date of the official bid announcement. Mikkelson & Partch (1988) and Mc Williams et al, (1999) adopt a similar estimation period. Estimated parameters from the regression and the realised return on the market are used to forecast the firm's expected return. This is compared with actual returns achieved and the difference is classed as abnormal returns.

The mean Cumulative Abnormal Return (CAR) serve a measure of the total wealth effects of a takeover bid for each participating firm. We derive CARs based on a short window of (-5,+5) days, similar to Bradley, Desai & Kim (1988), Eun et al (1995) & Kang (1993).

Tests of the statistical significance of abnormal returns for time  $t$  (for each day within the event period) are carried out with a Z statistic. We derive a Z statistic following a similar procedure to Patell (1976) and Dodd (1980). Measures of  $CAR_t$  are independent,

identically distributed and normal. Adjustment for heteroskedasticity has been conducted here using the appropriate technique, consistent with White's (1980) test for heteroskedasticity.

### **5. Sample and Sampling frame**

The sampling frame consists of bids by domestic and foreign firms for UK companies between 1st January 1990 and 31st December 1998. The source for the sampling frame is *Acquisitions Monthly/AMDATA*. Bidding and target firms are publicly quoted companies. A total of 771 bids is launched consisting of 476 domestic (62%) and 295 (38%) foreign takeover announcements. Between 1992 and the end of 1994 a marked decline in takeover activity occurred coinciding with the global recession. A gradual recovery emerged in 1995 with a surge of bids arising in 1997. Results reported exclude takeover announcements involving financial firms due to their unique asset and trading structure. This final sample consists of 236 takeover announcements. All of the financial data, number and type of shares along with share price information and daily returns data have been extracted from *Primark Datastream* and the *Stock Exchange Annual*.

### **6. DESCRIPTIVES**

In this sample even though foreign bids come from 32 different countries, 88% of the volume and 92% of the value of all bids emerge from 12 countries. Included in these are the US, Canada, France, Germany, Denmark, Switzerland, Sweden, Norway, the Netherlands, Ireland, Japan and Australia.

#### **Insert Table A**

Of the 13 countries featured in the sample these can be grouped into the following blocks: domestic (61%), US and Canada, (24%), European (12.5%) and Australian/Japan (2.5%). The analysis involves 10 different currency zones and 13 different stock market indices. Approximately three quarters of all bids are agreed and are successful upon first announcement. Bid revision increases the success rate significantly and the total number of abandoned bids is 9% of the sample. Bidding contests for target occur in 17% of cases on average. Cash only offers arise in 58% of bids. A significant difference is suggested between foreign and domestic deals in respect of cash offers. The mean institutional ownership in target firms is 33.12% while the average managerial ownership is 11.04%. The average market to-book ratio of bidder to target is 1.81; suggesting that bidding firms

have substantially higher valuations than their targets. Bidders are asserted to have a higher sales growth rates also. Relative profitability is low but again considerable variation is suggested with the large standard deviation. Targets are alleged to have significantly more debt in contrast to bidding firms. In a similar vein, bidding firms are suggested to have greater liquidity and higher PE ratios than targets.

Targets are approximately 47% of bidder's size compared to 37% reported by Duggal & Millar (1999).

## **7. Findings**

Our first research question seeks to establish the distribution of UK industries subject to takeover bids. Bids are classified according to the industry sector under the FTSE classification process. Manufacturing companies are very significant in the sample, similar to the evidence of Harris & Ravenscraft (1991) and Swenson (1993). Deregulation of utilities in the UK appears to have opened up a new sector to acquisition activity in the 1990s. Accounting for 8% of bids in this sample, firms in the utility sector are especially popular among foreign acquirers. Mitchell & Mulherin (1996) observe significant patterns in US acquisitions across industries in the 1980s.

### **Industry analysis of bidding and target firms**

Takeover bids emerge from 70 different industrial sectors with the most prominent in the following areas:

- 1) Engineering (7.6%)
- 2) Building and construction (5.6%)
- 3) Publishing, Newspapers and Print (4.4%)
- 4) Diversified (4.4%)
- 5) Business support services (3.6%)
- 6) Electrical equipment manufacturers (3.6%).
- 7) Electricity (3.6%).

### **Insert Table B**

No overwhelming evidence exists to suggest clustering around particular sectors.

The more merger active sectors are in the more mature industries, i.e general industrials, basic industries, cyclical services and utilities.

Partitioning bidding firms into foreign and domestic reveals overseas bidders come from fewer sectors, 42 in all, and are more prevalent in the following areas:

- (1) Diversified (10.64%)
- (2) Electronic equipment manufacturers (8.5%)
- (3) Building and construction (5.3%)
- (4) Electricity (5.3%)
- (5) Business support services (4.26%)

Domestic bidders come from 57 sectors; a much broader range of industries than the foreign category. The most popular domestic bidders are from the following:

- (a) Engineering (10.26%)
- (b) Building and construction (5.77%)
- (c) Publishing, newspapers and printers (5.13%)
- (d) Food processors and wholesalers (4.49%).

An analysis of target firms suggests takeovers bids occur in 64 industrial sectors, the most popular in the sample being:

- (1) Electronic equipment manufacturers (6.4%)
- (2) Engineering (6%)
- (3) Publishing, Newspapers & Printers (4.4%)
- (4) Food processors & wholesalers (4%)
- (5) Electrical equipment (4%)
- (6) Broadcasting contractors (4%)

#### **Insert Table C**

A more specific analysis of target firms suggests 5 sectors account for 26% of all bids.

Domestic targets are primarily engaged in the following industries:

- I. Broadcasting contractors (5.8%)
- II. Electronic equipment (5.2%)
- III. Engineering companies (5.2%)
- IV. Food processors and wholesalers (5.2%)
- V. Electrical equipment (4.5%)

Bids by foreign companies are most popular in the following sectors:

- a) Electronic equipment (8.5%)
- b) Engineering companies (7.5%)
- c) Electricity (5.3%)
- d) Media Agencies (Advertising, Marketing, PR) (5.3%)
- e) Publishing, Newspapers & Printers (5.3%)
- f) Rail, Road and Transport (5.3%).

In sum, firms engaged in the manufacturing of electronic equipment and more general engineering companies are the two most common targets by all bidders in the sample.

Our second research question concerns the estimated wealth effects in terms of the cumulative abnormal returns accruing to target shareholders. Shareholders are demonstrated to experience positive wealth changes. Mean gains reported for the main sample (first and non-financial bids) are 23.7% in the (-5,+5) day period. These are significantly different from zero at the 0.01 level with wealth changes demonstrated in over 80% of cases. Support of the positive ‘cross-border effect’ emerges. Foreign bids are alleged to be statistically more synergistic than domestic ones. In addition, gains are substantially higher in the merger active period than in the early 1990s when insignificant losses are reported. Finally, larger targets yield statistically more than smaller firms. Considerable variations in value changes are reported over time as demonstrated by the minimum and maximum percentage figures.

#### **Insert Table D**

Overseas announcements, those in the 1995-98 period and bids for smaller targets are suggested to yield greater returns. Our results are consistent with Swenson (1993), Eun et al (1996), and Kang (1993); the latter suggesting evidence of superior gains for US targets during more merger active years, 1986-1988, the latter part of their main sample 1975-88.

We next present evidence of the inter- relationship between expected wealth changes and the distribution of target ownership, relative firm performance and control variables. This is conducted in order to establish the important determinants of target shareholders wealth. Table E provides cross sectional regression results over the 11 days (on average)

around takeover announcement. The first two equations are specific to the main sample with the final two capturing changes in takeover intensity over time. Equation 1 is replicated for the two sub-samples that express differences in the volume of bids over the nine-year period. Considerable explanatory power is provided by the equations with equation 2 offering slightly more explanation than equation 1.

### **Insert Table E**

Our results suggest no major explanatory role is suggested for the overall distribution of target ownership in determining abnormal returns. The exception is in the equation 2 when the non-linear form of institutional ownership is suggested to be positive and significantly associated with target returns. Both managerial and prior ownership stakes are depicted to be negative but insignificantly associated with target returns. Foreign bids are deemed more synergistic but insignificantly so, thereby lending no support for the positive ‘cross-border’ hypothesis for target shareholders.

Proxies for relative firm performance offer most of the explanatory power in the analyses. Target shareholders are suggested to gain significantly the greater the relative sales growth of their buyers, opposite to that hypothesised under bargaining power. Yet their wealth changes are inversely and significantly related to bidders relative profitability ratio. This relationship is in even more significant in equation 2 than in equation 1. In a similar vein, sellers allegedly do better the less indebted they are and the coefficient on relative debt is significant at the five per cent level over both equations. Limited support is thus demonstrated for the presence of bargaining power.

Equation 2 is robust to the findings in equation 1 except for the significance of target institutional ownership denoted in equation 2. All other coefficients depict similar signs across the models. Hostile and multiple bids and mixed payments are positively associated with target shareholder abnormal returns. However none of these control variables prove significantly different from zero.

Changes in the takeover market over time are depicted in the final two equations. Substantially greater explanatory power is suggested for the 1990/94 period than for the 1995/98 era. Post 1995, the period of greater takeover intensity, the explanatory power provided is weak and insignificant. Four independent variables prove significant determinants of target shareholder returns. Consistent with the main sample and

significant at the five per cent level target institutional investors, the relative sales growth rate and relative profitability ratio are suggested to help explain target wealth changes. In addition and specific to this sub-sample failed bids are also suggested to yield greater gains.

Results for the 1990-94 period, the merger inactive era, denote three significant coefficients, Target shareholders gain more the lower their relative debt ratio to their buyers, the higher bidders relative PE ratio is and the smaller their own relative size. The result for relative debt is consistent with the main sample. The significance of the relative PE ratio is consistent with the earlier evidence in respect of the relative sales growth ratio. Finally, smaller targets gain more, consistent with Jarrell & Poulsen (1989), Franks & Harris (1989) and Houston & Ryngaert (1994). The assertion again is that better performing sellers benefit more and smaller firms present fewer integration difficulties.

Three key variables are suggested to determine target returns for the main sample. These include relative sales growth, relative profitability and relative debt ratios. The significance and direction on the latter two coefficients are as hypothesised under bargaining power.

Over the 1995/98 period the coefficients and significance of relative sales growth and relative profitability remain important determinants of returns as reported for the main sample. Some role is also suggested for target institutional owners. In addition, bid outcome plays a significant role in the apportionment of sellers returns. Specific to the 1990/94 period are the significance of relative firm size and relative PE ratio, the latter consistent with the assertion alluded to for the relative sales growth ratio in the other samples.

In summary, cross sectional event study evidence reported here suggests the variables significant in determining target shareholder returns are primarily the relative debt ratio and relative sales growth rate of bidder to target. Shareholders benefit the lower their debt relative to bidders and the greater the relative sales growth ratio. This indirectly supports the undervaluation hypothesis. Limited support is shown in support of the presence of bargaining power.

Changes in the market for corporate control over time are controlled for in the same way as Bradley et al (1988), Franks & Harris (1989), Kang (1993), Sudarsanam et al (1996)



and Becher (2000). Significant determinants of target returns in the 1995-98 period are suggested as target institutional owners, relative sales growth rate of bidder to target and bid outcome. The prominence of institutional ownership post 1995 is consistent with Black & Coffee's (1994) evidence of UK institutional ownership activism. However, the explanatory power provided for the 1995-98 era is very low hence limiting our interpretation.

Revised bids (not reported) are depicted to have a positive but insignificant impact on target returns across all event windows. It serves 'as a natural part of the bargaining process rather than an anticipation of other potential bidders,' (Franks & Harris 1989 p.240). Finally, in the merger inactive period sellers gain the less indebted they are, the greater the PE ratio of their buyers and the smaller they are. Partial support is demonstrated for the importance of relative sales growth and bid outcome.

### **Discussion:**

Consistent with the merger literature, takeover announcements are deemed to yield substantial returns for selling shareholders. Target returns are suggested to be registered relatively quickly around bid announcement, the 'event' per se.

We explore the determinants of target returns using a broad mix of variables. No support is demonstrated for our hypotheses in respect of the other two ownership variables. Bidder nationality is not deemed to play a significant role with no evidence of a positive 'cross border effect'. Evidence to support the role of bargaining power in the determination of target returns is presented for three of our proxies. Just as hypothesized, targets are deemed to gain less the more indebted they are relative to buyers and the more profitable their buyers. We test the sensitivity of the market to book ratio and relative debt ratio by excluding them from the main sample and the 1990/94 sub-sample respectively (not reported).

The coefficient on bid outcome is in the direction expected. Failed bids are depicted to generate higher target returns consistent with Bradley et al (1983) and Limmack (1991). Some evidence is presented for the role of relative firm size. Smaller targets are suggested to gain more, as hypothesised and consistent with Jarrell & Poulsen (1989) and Houston & Ryngaert (1994). Finally, agreed bids and mixed payment forms rather than

hostile and all cash offers are allegedly more value creating. The opposite to that hypothesised, none of these variables prove significantly different from zero.

In sum, our analysis suggests positive wealth changes for target shareholders. Exploring the determinants of target returns suggest some evidence for the role of bargaining power.

## **8. Conclusion**

Although an extensive literature exists on assessing the wealth effects of mergers for target shareholders most of it is based on domestic studies. In order to address the shortcomings in previous research, this paper provides an investigation of the magnitude and determinants of target shareholders gains around bid announcement.

Consistent with previous studies, target shareholders are deemed to experience substantial returns.

Some statistical support is demonstrated for the role of bargaining power in determining selling shareholder returns. Partitioning the sample to reflect differences in merger intensity over the nine year period presents some differences in the explanatory power of some of the independent variables. The market response appears more favourable towards combinations of stronger firms measured in terms of debt, sales growth and profitability. Value changes are extracted from a number of sources. The most unexpected finding is the failure to find any significant association between country of bidder and target returns, for the main sample of bids across both methodologies.

We explore the distribution of industries subject to takeovers in the 1990s. Most firms are engaged in manufacturing and no major difference appears in industries targeted across country of acquirer. Deregulation of the utility sector in the UK did see participation by electricity companies in particular in takeovers.

There are a number of limitations to the work presented here. First, the sample of target and bidding firms selected are publicly listed and as such the analyses concentrates on takeovers in this sector and not the entire population of firms engaged in takeovers.

Second, there are a number of data limitations. Our study is restricted to a limited number of international regions. Data on firm specific variables are at best only surrogates for the measure of relative bargaining power between bidding and target firms. Despite adjustments to reflect differences in international accounting procedures, there may still be unobservable differences due to the cultural, institutional and political

environments. Ratios are used as measures of financial performance and as proxies for bargaining power. The properties of these measures have been found to be non-normal in the literature, (Barnes 1982). Third, our methodology fails to capture the longer term effects of the takeovers. Merger gains reported are expected gains and may not reflect the real sources of value to be derived.

Fourth, we explicitly test for expected synergies in the quest for control over UK targets. However, gains can arise from other sources apart from operational, management or financial sources such as the break-up of the target or due to the release of new information about the companies involved, (Bradley et al.1983). This study is specific to an analysis of portfolio restructuring and not organizational restructuring

Finally, what exactly determines the negotiation/bargaining process between target and bidding firms remains an unresolved issue. The role of prior acquisition experience, strategy of investment banks/advisers to the parties or prior negotiations with target management may play a role but which are not documented here. Whilst this research goes some way to explaining the type of firms engaged in takeover, there are still a number of questions un-addressed.

Investigation into why bids fail and the role of prior acquisition experience in the UK could provide a clearer indication of motives for takeovers. In a similar vein, an analysis of the number of lines of business engaged in by target and bidding companies may shed light on the role of acquisitions in company strategy formulation. Extending the analysis to a more industrial focus may help capture the implications of takeovers on patterns of industry consolidation in the UK. Furthermore, the technological capacity of parties involved in mergers may reveal interesting information on the exploitation of firm specific advantages.

Finally, an interesting extension would be to apply the context to a comparative analysis of US target firms in the 1990s. In sum, an extension of the analysis, the data set and comparison across regions remains a rich but relatively unexplored avenue of research.

## Appendices

**Table A:** Country of acquirer

Acquirer's Country	No of bids (% total)	Mean value £m	Stock Exchange listing	Currency	Market Index
UK	183(61%)	541.8	London	£stg	FT All Share
US	67 (22%)	640.3	New York	US\$	S&P
Canada	5 (2%)	580.7	Toronto	Canadian \$	Toronto RI
France	12 (4%)	420	Paris	Euro	CAC 40
Germany	15 (5%)	306	Berlin	Euro	DAX
Denmark	2 (0.7%)	18.6	Copenhagen	Danish Kroner	Copenhagen SE
Switzerland	2 (0.7%)	714.3	Zurich	Swiss franc	Swiss Perf
Netherlands	2 (0.7%)	941.6	Amsterdam	Euro	Amsterdam AEX
Ireland	2 (0.7%)	177.3	Dublin	Euro	Irish ISEQ
Norway	2 (0.7%)	150.1	Oslo	Norweigen Kroner	Oslo SE Index
Sweden	1 (0.35%)	89.43	Stockholm	Swedish Kroner	Stockholm Gen
Australia	2 (0.7%)	34	Sydney	Australian \$	Australian Ord
Japan	4 (2%)	313.6	Tokyo	Yen	Nikkei 225

**Table B** Bidding firms industries in order of importance across country of acquirer

Bidders Industry	Domestic	Bidders Industry	Foreign
Engineering companies	10.26%	Diversified Industries	10.64%
Building and construction materials	5.77%	Electronic Equipment	8.51%
Publishing, newspapers, printers	5.13%	Building and construction materials	5.32%
Food processors & wholesalers	4.49%	Electricity- generators/distrib	5.32%
Business support services	3.21%	Business support services	4.26%
Miscellaneous	3.2%	Miscellaneous	4.26%
Aerospace	2.56%	Banks	3.19%
Banks	2.56%	Chemicals, speciality	3.19%
Broadcasting	2.56%	Electrical equip- manufacturers	3.19%
Electricity- generators/distributors	2.56%	Engineering companies	3.19%
Electrical equip- manufacturers	2.56%	Leisure equipment manuf	3.19%
Food & Drug retailers	2.56%	Media agencies	3.19%
Retailers- hardlines, single class of goods	2.56%	Publishing, newspapers, printers	3.19%
Other Construction	2.56%	Chemicals, commodity	2.13%
Restaurants, pubs, breweries	2.56%	Distillers & Vinters	2.13%
Real Estate	2.56%	Distributors	2.13%
Clothing & Footwear manufacturers	2.56%	Engineering fabricators	2.13%
Builders merchants	1.92%	Food processors & wholesalers	2.13%
Chemicals, speciality	1.92%	Pharmaceuticals	2.13%
Vehicle distribution	1.92%	Rail, Road and Freight	2.13%
Home Entertainment	1.92%	Software manufacturers	2.13%
Security and alarm services	1.925	Telecommunication equip manuf	2.13%
Software providers	1.92%	Automobile manuf & assemblers	1.06%
Computer service procedures	1.92%	Auto part manufacturers	1.06%
Water companies	1.92%	Broadcasting contractors	1.06%
Auto-part manufacturers	1.28%	Chemicals, Advanced materials	1.06%

Distillers & Vinters	1.28%	Distributors of industrial components & equipment	1.06%
Leisure facility providers	1.28%	Engineering fabricators	1.06%
Retailers- multi dept	1.28%	Gaming & casino facilities	1.06%
Oil and gas exploration	1.28%	Insurance brokers	1.06%
Packaging manufacturers	1.28%	Insurance -general	1.06%
Pharmaceuticals	1.28%	Leisure faculty providers	1.06%
Shipping & Ports	1.28%	Retailers- multi dept	1.06%
Asset managers	0.64%	Oil and gas exploration	1.06%
Breweries	0.64%	Oil, integrated companies	1.06%
Cable and satellite	0.64%	Oil Services- drilling	1.06%
Chemicals, advanced materials	0.64%	Other Insurance	1.06%
Clothing and footwear manufacturers	0.64%	Packaging manufacturers	1.06%
Commercial Vehicle and Truck manuf	0.64%	Security and alarm services	1.06%
Diversified	0.64%	Shipping and ports	1.06%
Distributors of industrial components	0.64%	Clothing and footwear manufacturers	1.06%
Electrical equip manufacturers	0.64%		
Gaming & casino facilities	0.64%		
Hosp mgt & long term care	0.64%		
House builders	0.64%		
Insurance brokers	0.64%		
Insurance- non-life	0.64%		
Medical equip manufacturers	0.64%		
Photographic equip manufacturers	0.64%		
Rail, road, transport	0.64%		
Telecomm equip manufacturers	0.64%		
Fixed line telecommunications	0.64%		
Waste mg/disposal services	0.64%		
Total	100%		100%

**Table C** Target firms industries in order of importance across country of acquirer

<b>Targets Industry</b>	<b>Foreign</b>	<b>Targets Industry</b>	<b>Domestic</b>
Electronic Equipment	8.51%	Broadcasting contractors	5.77%
Engineering companies- general	7.45%	Miscellaneous	5.77%
Electricity –generators & distributors	5.32%	Engineering companies- general	5.13%
Media Agencies (Advertising, PR)	5.32%	Food processors & wholesalers	5.13%
Publishing, Newspapers and Printers	5.32%	Electronic Equipment	5.13%
Rail, road and transport	5.32%	Electrical equipment, manuf of comp	4.49%
Miscellaneous	4.25%	Publishing, newspapers & printers	3.85%
Building and construction materials	3.19%	Building and construction materials	3.21%
Business Support Services	3.19%	Retailers- Hardlines.	3.21%
Chemicals, speciality	3.19%	Leisure facility providers	3.21%
Distributors -other	3.19%	Packaging manufacturers	3.21%
Electrical equipment, manufacturers	3.19%	Water companies	3.21%
of components and equipment			
Retailers- Hardlines.	3.19%	Food & drug retailers	2.56%
Medical Equipment and Suppliers ,	3.19%	Biotechnology and drugs	2.56%
manuf			
Asset management	2.13%	Restaurants, pubs & breweries	2.56%
Distibutors	2.13%	Real Estate	2.56%
Education, Business Training &	2.13%	Aerospace	1.925
Employ			
Food processors & wholesalers	2.13%	Auto parts manufactures	1.92%

Oil integrated co -exploration, production, refining & distrib	2.13%	Clothing & footwear	1.92%
Other construction	2.13%	Electricity generators/distributors	1.92%
Producers of comp software	2.13%	House building	1.92%
Water companies	2.13%	Other business units	1.92%
Auto parts manufacturers	1.06%	Builders merchants	1.28%
Broadcasting contractors	1.06%	Chemicals, speciality	1.28%
Chemicals, commodity	1.06%	Chemicals, advanced materials	1.28%
Clothing & footwear manufacturers	1.06%	Vehicle distributors	1.28%
Distillers & Vinters	1.06%	Engineering fabricators	1.28%
Diversified	1.06%	Hotel	1.28%
Engineering fabricators	1.06%	Medical equipment and supplies manuf	1.28%
Food & Drug retailers	1.06%	Producers of computer software	1.28%
Insurance brokers	1.06%	Textiles	1.28%
Insurance- Non-Life	1.06%	Asset management	0.64%
Leisure Facility Providers	1.06%	Banks	0.64%
Oil and Gas- Exploration & Producer	1.06%	Business support services	0.64%
Oil Services, drilling for oil and gas	1.06%	Cable and satellite	0.64%
Other business services	1.06%	Chemicals, commodity	0.64%
Packaging, manufacturers	1.06%	Distillers & Vitners	0.64%
Biotechnology and Drugs	1.06%	Diversified	0.64%
Telecommunication equipment manufacturers	1.06%	Distributors- other	0.64%
Waste management and disposal services	1.06%	Education and business training	0.64%
		Engineering companies- general manuf	0.64%
		Gaming & casino	0.64%
		Insurance -general	0.64%
		Insurance -non-life	0.64%
		Insurance brokers	0.64%
		Leisure Equipment manufacturers	0.64%
		Media Agencies	0.64%
		Retailers- multi dept	0.64%
		Non ferrous metal manufacturers	0.64%
		Oil & Gas Exploration & Producer	0.64%
		Oil Integrated companies	0.64%
		Other construction	0.64%
		Rail, road, transport	0.64%
		Security and alarm services	0.64%
		Shipping & Ports	0.64%
Total	100%	Total	100%

**Table D** Descriptive Statistics of target gains, % terms over (-5,5) days

CAR of target (-5, +5) days	Mean %	Median	Minimum	Max	% positive and sig	Number
Main sample	23.7	25.2	-54.3	138.9	88.8%	226
Foreign bids	27.6	27.2	-6.14	138.9	88.1%	87
Domestic	21.9	24.2	-54.3	112.6	87.1%	139
1995-98 bids	25.5	23.7	-5.04	138.9	90.4%	153
1990-94 bids	20.6	26.5	-54.3	95.1	85.6%	73

Target < 30% bidder size	24.4	27.8	-54.3	138.9	89.9%	150
Target > 100% bidder size	19.5	13.04	.413	51.2	83%	21

**Table E** Determinants of Target Shareholder Abnormal Returns over (-5,+5) trading days. Standardised CAR (-5, +5) trading days. (t-statistics in parentheses) \*\*\* Significant at 0.001, \*\* at 0.05 level, \* at 0.10 level.

Regression equation	1	2	1995-98	1990-94
Intercept	23.213** (2.193)	19.768* (1.876)	10.991 (1.815)	7.350 (.524)
% institutional ownership in target	.1233 (1.024)		.2824** (2.302)	.1969 (1.001)
Sq root of target institutional ownership		1.589* (1.805)		
% Management ownership in target	-.2332 (-1.011)		.0380 (.179)	-.3329 (-1.446)
Sq root of target managerial ownership		-.9206 (-.637)		
Prior ownership stake by bidder	-.1567 (-.544)	-.1317 (-.453)	-.3443 (-.937)	-.1543 (-.346)
Country	2.695 (.563)		2.157 (.428)	4.515 (.494)
Mkt to Bk > 1	3.838 (.712)	4.609 (.885)	1.095 (.192)	14.027 (1.535)
Relative sales growth rate of firms	.0477** (2.399)	.0439** (2.149)	.0419** (2.039)	.6954 (.890)
Relative profits to Shareholder	-.2713** (-2.447)	-.2804*** (-3.394)	-1.107** (-2.808)	-.1278 (-1.178)
Funds of firms	-1.194** (-2.060)	-1.202** (-2.081)	.1002 (1.338)	-1.792*** (-31.564)
Relative debt to Capital				
Employed of firms	-.0112 (-.738)	-.0145 (-.861)	-.0076 (-.371)	.0222 (.317)
Relative Cash to Total Assets of firms	.2506 (.360)	.2905 (.403)	.5592 (.879)	5.186* (1.707)
Relative PE ratios of firms	-1.330 (-1.330)	-1.629 (-1.629)	-.8170 (-.8170)	-5.963** (-5.963**)
LN(Relative Size of firms)				
React		2.793 (.433)		
Number of bids		10.451 (1.387)		
Outcom	3.735 (.612)		18.42** (2.999)	-10.122 (-1.045)
Payment		-3.816 (-.774)		
N	224	224	152	72
Adjusted R <sup>2</sup>	.415	.413	.026	.821
F	14.19***	13.08***	1.34	28.26***

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