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Merger Activity and Executive Pay

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Abstract

This paper examines the impact of mergers and acquisitions on the remuneration of the CEOs in a large unbalanced panel of UK firms, over the period 1981-1996. We find significant and substantial executive pay increases in excess of those generated by the growth in firm size consequent upon the merger. This is consistent with the view that mergers reveal information about the quality of management that is useful to the firm's remuneration committee. However, executive pay is nine times more sensitive to internal growth than to growth as a result of acquisition. Furthermore, there is some evidence that hostile transactions generate smaller pay effects than friendly deals, probably because they are followed, at some remove, by size-reducing divestments. When mergers are distinguished by their impact on shareholder wealth we find that CEOs engaging in 'bad' (ie wealth-reducing) acquisitions experience significantly lower remuneration than their counterparts whose deals meet with market approval. This result suggests that shareholder-principals have at least some success in penalising managers for unwarranted empire-building mergers.

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Non-Technical Summary

A common suggestion in the business and economics press is that mergers and acquisitions are often motivated less by consideration of shareholder value and more by the desire of a company's CEO to increase the size of the firm. The reason for this desire is obvious: managers of larger firms get paid more. Although clearly controversial, this view appears to be supported by empirical evidence which suggests that the relationship between executive pay and firm size dominates any that exists between executive pay and firm performance. Also merger activity appears, on average, to be detrimental to the shareholder wealth of the acquiring firm. Growth by merger therefore appears to be a simple strategy whereby senior executives can advance their own wellbeing, even if it is at the cost of their own shareholders.

Girma, Thompson and Wright seek to examine this proposition for the United Kingdom by examining data for the period 1981-1996. They find some evidence to support this view. Mergers do indeed lead to increases in remuneration, with mergers resulting in a *doubling* of the mean compensation of the CEOs concerned.

However, contrary to the view espoused above, the quality of the merger also appears to be an important factor. It is clear from the data that remuneration committees are rewarding some managers for take-overs over and above that which would be expected purely from the increase in firm size. This additional pay amounts to an additional 9% increase in salary.

This view that shareholders make judgements about the quality of mergers is confirmed when mergers are distinguished according to their impact on shareholder wealth. CEOs engaging in 'bad' (ie wealth-reducing) acquisitions experience significantly lower remuneration than their counterparts whose deals meet with market approval. This result suggests that shareholders have at least some success in penalising managers for unwarranted empire-building, and CEOs are not completely unfettered in this regard.

1. Introduction

There is a widely held proposition in the economics literature that some, and perhaps most, mergers and acquisitions are motivated less by consideration of shareholder value and more by managerial desires for firm increased size [Mueller (1969), Jensen (1986) inter alia]. This view is supported by empirical evidence that merger activity is, on average, detrimental to the acquirer's profitability [e.g. Dickerson et al. (1997)] and that gains typically accrue to the shareholders of the *target* firm [see Hughes (1993)]. Furthermore, among the several managerial benefits associated with firm size, the most tangible is the increased remuneration that it brings. Since the executive pay-size relationship appears to dominate any pay-firm performance effect, it has been widely conjectured that growth by merger is a simple strategy by which senior executives can advance their own wellbeing, perhaps at a cost to their shareholders. This is in contrast to the principal-agent literature that suggests that the managerial remuneration package should function to align shareholder and manager interests. Therefore, if mergers are detrimental to the shareholders' interests, it might be expected that growth by merger would be rewarded less generously than organic or purely internal growth. Furthermore, the act of completing an acquisition may provide a signal - either of managerial competence or intent – whose impact on the pay determination process appears ambiguous *ex ante.*

This paper explores the impact of mergers and acquisitions on the remuneration of the CEO of the acquiring firm and separates the impact of the acquisition itself from the associated increase in the size occasioned by the deal. The paper assembles a large unbalanced panel of 286 acquiring firms, generating 367 friendly and 68 hostile acquisitions in the UK over the period 1981-1996 inclusive. It then employs a dynamic remuneration model to investigate the determinants of chief executive office (CEO) pay and to isolate the pay shock associated with the completion of an acquisition. The panel design employed allows us to circumvent some of the usual difficulties of isolating shocks contemporaneous with mergers. In particular, we are able to control for firm specific fixed effects, the possible endogeneity of mergers and the association of acquisition activity with (lagged) divestment. In addition, the paper uses the stock market announcement effect to classify the merger as 'good' or 'bad' from the

shareholders point of view, and then explores the extent to which CEOs making 'bad' acquisitions are punished by their remuneration committees.

The paper is structured as follows: Section II considers the previous theoretical literature that has examined the relationship between firm size, mergers and executive remuneration. Section III surveys the existing empirical evidence of the merger impact. Section IV examines a number of methodological issues relating to measuring the impact of acquisitions on executive pay. The data is described in section V with section VI presenting the results. A brief conclusion follows.

2. Company Size, Mergers and the Determination of Executive Pay

Company Size

The extensive recent empirical literature on the determinants of executive compensation has established two stylized facts: First, there exists a strong, positive and statistically robust relationship between executive compensation and firm size, with an elasticity – usually estimated with respect to sales or employment – typically in the 0.20-0.35 range[1]. Second, the statistical relationship, between executive compensation and firm performance is generally much smaller, less robust and appears to be highly sensitive to functional form and to the particular compensation and performance measures used[2]. The more controversial task has been to reconcile these findings on size and performance with the existing theories of corporate pay determination.

Most researchers have explicitly or implicitly employed a principal-agent approach. Here the (risk neutral) shareholder-principals are thought of as having to devise a payments mechanism to motivate the (risk averse) executive's pursuit of shareholder value, in an environment of

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[1] Rosen (1992 p. 206) has drawn attention to the 'remarkably uniform' nature of pay-size elasticities across different countries and time periods. Although some more recent studies [reviewed in Murphy (1999)] have shown lower estimates.

[2] Murphy (1999) provide a comprehensive summary of the US and UK empirical literature up to 1998. Most US studies report substantially larger elasticities for accounting rates of return than for stock market performance variables [see Rosen (1992)], although UK empirical work in the 1990s generally reports a weak [Conyon and Gregg (1994), Conyon and Leech (1994)] or even disappearing [Gregg et al (1993)] pay-performance relationship.

incomplete monitoring. The efficient use of high-powered (i.e. performance-related) incentives is constrained by the need to ensure the executive's continued participation, itself partially determined by the degree of executive risk aversion. In such a framework, the apparent domination of performance by size effects has caused some surprise. Whilst allowing that it is reasonable to expect some degree of risk aversion from executives, the CEOs of large quoted firms – the subjects for most compensation research – might be considered to be sufficiently wealthy to display lower risk aversion than other employees. Therefore a number of subsidiary arguments have been offered to explain the relative importance of the size effect.

The *rents capture hypothesis* suggests that executives are able to exploit weak internal and external corporate governance arrangements to derive a pay-setting process which operates in their own interests and largely independently of shareholder welfare. In the words of Oliver Williamson (1985, p. 313) managers: 'apparently write their own contract with one hand and sign it with the other.' Wolfran (1998) offers support for this view from her study of increasing CEO pay in the newly-privatised UK electricity companies. She notes that while the observed substantial increases in remuneration did not appear to be related to labour demand shifts or changing human capital, they correlated strongly with the company's freedom to raise prices under the regulatory price-cap.

Second, Rosen (1982) has developed a neoclassical rationale for the importance of size, based upon a model with the standard marginal productivity considerations but with heterogeneous talent. In his model, the impact of managerial decision-making is multiplicatively enhanced by the height of the firm's hierarchy implying, *ceteris paribus,* that larger firms should pay more to attract better managers.

Third, a pay-size relationship is also consistent with tournament theory [Rosen (1992)]. In a tournament model the 'prize' enjoyed by the person at the peak of the hierarchy importantly includes a sizeable increase on that enjoyed by those at the penultimate level- an increment necessary to maintain incentives as the probability of further promotion declines to zero. Even assuming that lower level positions in different hierarchies are filled at a similar wage, reflecting some external opportunity wage rate, the differential necessary to sustain incentives

will require that CEO pay increases with the height of the hierarchy and thus generally with firm size. This effect may be enhanced if, in general, pay rises with firm size, as much empirical evidence indicates [Brown and Medoff (1989), Idson and Oi (1999)].

Finally, an institutional explanation for the uniformity of the CEO pay–firm size relationship lies in 'copycat behaviour' [Rosen (1992)]. That is, the use of size as a comparator in executive pay determination. It has been argued that this effect has been strengthened with the recent corporate governance reforms in the UK and the USA, which have seen the widespread adoption of remuneration committees. The latter are expected to proceed with some transparency and at arms length from the CEO, and for the independent remuneration consultants who are increasingly used [Conyon (1997)] firm size represents an obvious, unambiguous and easily available yardstick.

Mergers and Acquisitions

Among the several motives that have been identified for merger activity [see Caves (1989) for a review] managerial empire building remains an enduring hypothesis. This provides non-pecuniary rewards such as status and perquisites [Williamson (1963)] as well as a reduced probability of their own company being acquired[3] [Singh (1975)]. However, the most tangible benefit associated with corporate size is increased remuneration. Therefore it is frequently hypothesized that self-serving managers pursue growth via merger strategies, especially where limited opportunities exist for profitable expansion in their core businesses. This has led Mueller (1969) to predict that conglomerate mergers would be undertaken by successful firms experiencing the mature phase of their product life-cycle and, equivalently, Jensen (1986) has predicted that the managers of such firms would prefer to dissipate free cash flow on acquisitions rather than increasing shareholder dividends.

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[3] With a corresponding reduction in the probability of the executive's dismissal.

3. Existing Empirical Evidence on Merger Impacts

Existing empirical evidence on the merger-executive remuneration relationship is surprisingly sparse and exhibits considerable heterogeneity in its separation of the sales revenue and performance effects from pure merger consequences. Lambert and Larcker (1987) examined 37 large US acquisitions and reported small post-acquisition salary gains that were offset for the executives concerned by the negative wealth effects of a fall in the average stock price. This result is largely replicated by Avery *et al* (1998). A contrary finding occurs in Khorma and Zenner (1998), who analyse executive pay changes in 54 large US corporations in the early 1980s. Having controlled for performance they report that acquiring firms exhibit a robust, positive, significant change in the pay sales relationship *before* their acquisition while non-acquirers do not. The act of acquisition raises cash compensation by approximately 10.5%. However, post-acquisition the pay-sales relationship is negative and this reduces the overall merger impact across the two years subsequent to the transaction to about 8%. The impact on total remuneration (i.e. cash plus stock-based) is much smaller, since a high proportion of mergers exhibit negative announcement effects that feed through as negative stock-based payments to the executives concerned. Bliss and Rosen (2001) examine major mergers in the US banking industry from 1986-95 and report that acquisitions increased CEO compensation, largely through the impact on size.

UK evidence is particularly limited. Firth (1991) examined the acquirer shareholder wealth effects of 171 UK take-overs. He then calculated the immediate post-takeover remuneration changes for the highest paid director in each acquirer. He concluded that the while the salary gains in the successful acquisitions were greater than those in the unsuccessful, in each category the executives concerned enjoyed net benefits after adjusting for any wealth changes. However, Firth's comparisons strictly involve the raw remuneration data. They are not conditioned upon other firm circumstances. Conyon and Gregg (1994) include merger variables in a study of the determination of the remuneration of the highest paid director in 169 UK companies, using a pooled sample for the years 1985-90. Merger dummy variables suggested that CEOs of companies making three or more acquisitions over the previous three years enjoyed a significant pay premium of approximately 6.5%. Those making two acquisitions showed a smaller premium (approximately 2.5%), which bordered on statistical

significance. These results were robust to the inclusion of a relative sales growth measure. This study did not directly adjust for the size of acquisitions. However, it did allow for the separate treatment of acquisition-led and organic growth by interacting the change in sales variable with separate dummies for post-acquisition firms and non-post-acquisition firms. This suggested that the sales elasticity for acquirers was much greater than that for the non-acquirers.

The level of sales achieved immediately *subsequent* to the acquisition may be above the acquiring firm's current optimal level. Work elsewhere [e.g. Conyon et al (2001a), Haynes et al (2001)] suggests that acquisition is typically followed by divestment, as a firm disposes of unwanted parts of diversified targets. This may be to pay off debts associated with the acquisition itself. Therefore any full increase in executive pay in line with the new sales level would require a subsequent downward adjustment as divestment occurred. Similarly, merger activity may impact on the expected future values of other determinants of executive pay. There exists a body of empirical literature [see Hughes (1993), Dickerson et al (1997)] which suggests that acquiring firms experience declines in profitability. If so, this might again imply that executive pay be adjusted immediately post-merger to reflect this, rather than wait until lower profits feed through into observed performance.

Finally, the successful completion of an acquisition, particularly a hostile takeover, may function as a positive quality signal about the abilities of the executives involved. Not least, because such deals tend to attract substantial publicity in the business media. If so, the company's remuneration committee may respond with additional pay in reflection of the executives' perceived higher value. However, the converse is also possible if the executives are deemed to have mishandled the deal, perhaps by over-bidding, such that in addition to any anticipated loss of profitability, as described above, the market's confidence in the executives is reduced.

4. Modelling Acquisition and Managerial Remuneration

In order to estimate the impact of mergers on executive compensation we adopt a differences-in-differences methodology[4]. This proceeds by comparing the average level of executive pay before the acquisition with the average pay post-acquisition for the companies involved in mergers. The resulting quantity ($\Delta^a y$) would however be a biased estimator of the impact of the ownership change on wages since it would also be affected by changes in other factors that are contemporaneous with the acquisition.

A randomly selected control group of firms is therefore also included and the changes in wages for the control group firms corresponding to the pre and post acquisitions periods ($\Delta^c y$) are calculated. If it is assumed that shocks that are contemporaneous with the acquisitions affect the acquiring and control firms in similar fashions, then the differences-in-differences estimator $\delta = \Delta^a y - \Delta^c y$, would purge the effects of common shocks and provide and unbiased estimator of the impact of ownership change.

The above methodology can be implemented within a regression framework by estimating the following equation, pooling observations on acquiring and control companies:

$$y_{it} = \alpha + \delta A_{it} + \varepsilon_{it} \tag{1}$$

where the estimator for δ can be shown to yield the compensation differential that can be attributed to the change in ownership. In equation (1) i and t index companies and time periods respectively; y represents the logarithm of real executive compensation and A denotes a vector of acquisition dummies.

We further control for observable changes that are correlated with executive pay by the introduction of a vector of variables X. This consists of company size[5] (proxied by real sales),

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[4] For a detail discussion of this approach see Meyer (1994), and for a recent application involving takeover legislation and executive pay see Bertrand and Mullainathan (1998).

5 A variety of size measures are employed in the executive pay literature and, in cross sectional studies in particular, a strong correlation between alternatives such as sales, employment, assets etc. means that the choice of

three-digit industry sales and two alternative measures of performance: operating profit per employee and return on capital. One novelty of this paper is that we are able to decompose the sales of the company into sales of the acquired and acquiring companies. This helps capture the differential impacts, if any, of acquisition-induced and organic growth on executive remuneration.

If the pay determination procedure allows for an immediate adjustment then the full impact of the merger should be observable immediately, or at least in the first full post-merger year pay data. However, this is unlikely to be the case. There is considerable evidence to suggest that executive pay in general is subject to some adjustment process [Main et al. (1996) etc.] and hence that any observed short run increase will be magnified through a dynamic pay equation to generate an appropriate long-run equilibrium value. Furthermore, some deliberate smoothing of executive pay increases may occur if companies fear the adverse publicity associated with top pay increase announcements[6]. For example, deregulation appears to raise executive pay, perhaps commensurately with the increased risk, but the observed effects are typically gradual [Kole and Lehn (1999)]. We therefore extend our compensation equation to allow for adjustment dynamics.

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size indicator is generally unimportant. However, the immediate impact of an acquisition on firm size does depend upon both the size measure chosen and the means of payment. Acquisition of any going concern will lead to a ceteris paribus rise in sales and employment. However, other measures are sensitive to the form and amount of payment. For example, an acquirer's total assets would be unaffected by an all-cash acquisition, whilst its total market valuation would depend upon the stock market's assessment of the deal.

[6] In the UK some CEO pay increases attract substantial hostility in the tabloid press. Privatised utility executives were attacked strongly in the 1990s and Cedric Brown, CEO of British Gas, was depicted by one newspaper as a pig.

Finally, time dummies (f_t) are employed to account for economy-wide shocks, and company-specific fixed effects (f_i) are used control for permanent differences in companies' pay structures. The final version of our regression equation can then be written:

$$y_{it} = \alpha y_{it-1} + \beta X_{it} + \delta_1 H_{it} + \delta_2 F_{it} + f_i + f_t + \varepsilon_{it}. \qquad (2)$$

In this specification we make a distinction between hostile (H_{it}) and friendly (F_{it}) acquisitions, since previous literature has suggested that such a separation may be important when considering the consequences of mergers [Conyon et al (2001b)].

The estimation problems of such dynamic models from short panels is well documented in the econometric literature (see Baltagi (1995) and references therein). The basic difficulty lies in the fact that the presence of fixed effects renders the lagged dependent variable correlated with the equation disturbance term. A popular way of circumventing this problem is to the remove the fixed effects via first-differencing and then applying an instrumental variable estimation technique. In this paper lagged CEO pay, sales and performance indicators are used as instruments in the first-differenced (i.e. pay growth) equation, in the spirit of Anderson and Hsiao (1981) and Arellano and Bond (1991).

In this paper we also make explicit allowance for the fact that mergers might be endogenous to the CEO pay determination equation. This is a real possibility in view of the fact that acquirers are generally large and executive compensation is known to vary systematically with the size of the company. Here the instruments are generated as the predicted probabilities from a probit regression[7] with company and industry sales, the ratio of cash to current liabilities, and time dummies as covariates. Vella and Verbeek (1999) have shown this easy-to-implement method of dealing with dummy endogenous variables yields instruments equivalent the 'control function' approach of Heckman (1978). Our hope is that this instrumentation procedure will help isolate the effects that are solely due mergers.

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[7] We also experimented with the use of lagged merger dummies as instruments. Comparable results were obtained, which are available from the authors on request.

5. Data: Sample Composition and Characteristics

The London Business School *London Share Price Database* was used to identify all acquisitions within the set of quoted UK companies over the period 1981 to 1996. Since sales revenue was to be the principal size measure, mergers involving predominantly service sector firms, such as banks, were excluded. Inclusion further required the availability of data on CEO compensation and firm characteristics for at least two years following the year of acquisition. To avoid conflating the effects of multiple transactions, it was also required that each included acquirer made no further takeovers in the year of the acquisition concerned, or for two years following it. Thereafter further acquisitions were allowed, such that multiple acquirers were not excluded from the sample. Since it was conjectured that hostile and friendly acquisitions would impact differently on the pay-determination process, it was also necessary that included acquisitions could be classified as hostile or friendly, according to the target board's reception of the initial bid from the acquirer, using the data compiled by *Acquisitions Monthly.*

The final sample consisted of 435 acquisitions over the 1981-96 period. Of these, 367 were friendly and 68 hostile. The distribution of the merger sample over the period is shown in Table 1, which illustrates the high frequency of included transactions during the merger boom of the mid-1980s. While the numbers of hostile transactions remain small by comparison with friendly, the sample does reflect the widespread view that hostile acquisitions increased in importance from the early 1980s. The acquisitions identified were undertaken by 286 acquiring firms. To these were added an industry-stratified random control sample of 706 firms that made no acquisition over the corresponding period. The end result was a panel of 992 acquiring and non-acquiring firms, whose balance is shown in Table 2.

Executive compensation data were obtained from Hemmington-Scott Corporate Registers. This study follows much other UK empirical work on executive pay in defining CEO compensation as the reported pay, including bonuses, of the highest paid director. While the latter individual is not always identifiable as the CEO, the universal availability of this information, as a reporting requirement for UK companies, makes its coverage far superior to other sources. We have not attempted to adjust the remuneration figures to allow for stock options or long-term incentive plans, if any. The primary purpose of the paper is to examine the pay impact of

mergers and not the pay-performance relation where option rewards would appear to be crucial. Furthermore, the valuation of options raises substantial difficulties outside a trading context[8] and, in a study of this kind, it is by no means clear whether option grants, or potential or realized gains, if any, would represent the appropriate yearly increment to income. All performance and balance sheet data were obtained from *Datastream*.

A preliminary scrutiny of the data is provided in Table 3. This shows, as might be expected, that acquiring firms were considerably larger on average than the non-acquiring controls. Further, they enjoyed higher relative profitability *before* they made their defining acquisition. A crude comparison of the acquiring firms' CEO compensation and sales over the periods *before* and *after* acquisition is suggestive of the latter having a substantial impact on both. Mean compensation more than doubles, whilst sales increase by approximately 64%. However, since such a comparison is likely to be strongly affected by general macroeconomic factors and pay trends, Table 3 additionally reports the same numbers but relative to the three-digit industry mean. This confirms the rapid growth of CEO compensation and sales after the merger. However, it suggests that the observed decline in the acquirer's relative profitability was probably due to industry factors, without which it would have shown a moderate advance. Finally, when the rates of growth in sales and CEO pay are compared, it is apparent that the identified acquirers experienced much higher growth than did the control firms. The annual growth rate in sales for the acquirers is more than twice that of the control across the entire period. The growth rate in CEO pay is 50% higher for the acquirer *before* its defining acquisition and almost twice as great thereafter.

6. Empirical Results

Columns 1 and 2 in Table 4 present the results from the basic first-differenced compensation equation, prior to any explicit control for the possible endogeneity of mergers[9]. The global

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[8] See Murphy (1999) for a critique of applying Black-Scholes valuation methods for non-tradeable executive options.

[9] But to the extent that lagged merger dummies are powerful instruments, the problem of endogeneity will be mitigated in this specification.

validity of the instruments we employed in the GMM estimation is confirmed (at 5% to 10% levels) by the Sargan tests reported in the table. This is further reinforced by the absence of a second-order serial correlation in the alternative specifications considered. CEO salary exhibits persistence over time, as evidenced by the positive coefficient on the lagged dependent variable. However, note that both measures of company performance prove to be insignificant determinants of pay. This insensitivity of the highest paid director's remuneration to company performance is in line with previous studies based on U.K. data. Industry-wide growth is also found to be insignificant. In sharp contrast, size has a notable effect. Both acquirer and acquired companies' sales attract positive and significant coefficients. It is interesting to note that the pay-size elasticity estimates imply that executive compensation is nine times more sensitive to internal growth compared to growth coming from acquired companies. Thus, what seems to matter most to CEO pay is organic rather than acquisition-led growth.

The contemporaneous effect of mergers on executive remuneration is statistically negligible. The initial impact of acquisitions appears to be fully captured by the change in the sales variable. One year later, however, the salary of CEOs of the companies involved in merger activity increases by almost 5% after controlling for change in sales. These average effects do not vary by type of acquisitions, as the dummies capturing the *additional* effects from hostile mergers are insignificant. However, systematic variations in the merger impacts begin to emerge after two years. Executive pay continues to grow by about 6% as a result of friendly acquisitions, whereas CEOs involved in successful hostile bids experience pay decrease of between one to two percent[10]. This negative impact may be partly explained by the high level of post-merger divestment that distinguishes hostile transactions[11].

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[10] This is obtained by adding the average merger effects to the *additiona*l effects from hostile bids.

[11] As reported in Conyon et al (2001b), and as additional evidence presented in the working paper version of this article (available from the authors) indicates, the post-hostile dummy coefficients are highly significant in the divestment equations.

Table 4 columns 3 and 4 reports results from the specification which relaxes the assumption of exogeneity of mergers, and instruments the merger dummies by the propensities to acquire as explained in Section IV. The point estimates are remarkably similar to the ones reported in columns 1 and 2, except in one interesting respect- we fail to establish the robustness of our earlier finding that CEO of hostile bidders appear to fare worse than those involved in friendly transactions after controlling for differential sales growth.

Are 'Good' and 'Bad' Acquisitions Rewarded Equally?

The foregoing results do suggest that the completion of an acquisition impacts positively on the remuneration of the acquiring firm's CEO, even after controlling for sales and other performance changes. However, if the act of acquisition provides information relevant to the compensation determination process, it does not necessarily follow that all acquisitions, or even all acquisitions of a particular type, operate in the same way. The success or otherwise of the acquisition, as perceived by the stock market, may act as a signal about executive ability resulting in different pay-merger relationships. It was noted earlier that a small sample study by Khorana and Zenner (1998) reported that 'good' acquisitions alone impact positively on US CEO compensation.

To determine whether UK CEOs were rewarded for acquisitions meeting stock market approval and/or punished for those generating disapproval, a subset of mergers were classified according to their impact on shareholder wealth. A total of 195 mergers completed during the years 1985-1996 were chosen. Selection was based on the availability of a precise announcement date for the final accepted bid, using a database supplied by *Acquisitions Monthly* and the availability of share price data for the period surrounding the announcement. Acquisitions were evaluated on the basis of the stock market's response over a 30 day interval (-10 to +20) surrounding the successful bid announcement. Adjusted daily share price were obtained from the *FT Price* database. The *FTSE 100* was used as a proxy for the market index. Following Cosh and Guest (2001) the abnormal return was computed by comparing the return on the acquiring firm, when following a buy-and-hold strategy, with the corresponding return on the market index. In this context a buy-and-hold return comparison appeared more appropriate than the usual event study approach, which involves daily portfolio re-balancing.

The underlying intention was to capture the impact of the agent's action on the wellbeing of a set of principals who would subsequently exercise a direct or indirect effect on the agent's remuneration. Therefore it appeared appropriate to assume the principals have a constant on-going relationship with the firm.

Of the 195 acquisitions examined 79 (41%) exhibited positive market-adjusted returns and 116 (59%) had negative market-adjusted returns. Approximating the binomial distribution by the standard normal distribution, as for the large sample case, provided support for rejecting the null hypothesis of $p = 0.5$ for negative returns ($Z = 2.680$). This finding of a majority of negative acquirer announcement effects is also consistent with much of the merger literature. Following Khorana and Zenner (1998) we classify the negative cases as 'bad' mergers and the positive cases as 'good' ones. The own compensation models were then re-estimated with dummy variables to capture the contemporaneous and lagged additional effects, if any, of 'bad' mergers on CEO pay and an endogeneity correction. The results are given in Table 4, columns 5 and 6.

It can be seen that 'bad' mergers do indeed appear to reduce executive pay *ceteris paribus* one and two years after their completion. The magnitude of the coefficients is such as to completely eliminate the overall pure merger effect. This result is supportive of a principal – agent interpretation in which the remuneration committee is responsive, at least to some degree, to the shareholder interests. Furthermore, it is suggestive of an important limitation in the ability of managers to use empire-building deals to boost their own pay. The results also suggest, however, that any pay sanctions are restricted to the medium term: the coefficient for three years and beyond is insignificant and dominated by a still significant average merger effect.

Table 6 investigates this further by looking at the sources of CEO growth around the period of acquisition. Sales of the acquired company are used to breakdown firm sales into 'internal' and 'external' sources of growth. Using the significant coefficients from Table 4 the 'pure merger' effects are also derived for the 'good' and 'bad' acquisition cases. Hence the increase in executive remuneration is broken down into its contributory factors. Executives undertaking

'good' acquisitions experience a predicted initial wage growth of 14.8%. This consists of an 8.5% increase due to internal growth and a 6.3% increase due to the increase in firm size as a result of the acquisition. That the market has adjudged the merger to be 'good' contributes additionally in subsequent years, increasing from 4.4% in year 1 to 7.2% in year 3 and beyond. In contrast, although CEOs undertaking 'bad' acquisitions benefit similarly from internal and external growth effects, the negative impact that the 'bad' acquisition has on their remuneration reduces means that they receive no additional 'merger' effect in the two years following the initial shock.

These results would indicate that acquisitions are unambiguously beneficial to those managers whose mergers meet with stock market approval. The situation with bad acquisitions is more complex. After an initial reward for the sales acquired, the managers involved appear to receive no additional gain for one and two years after the merger, but their subsequent remuneration is comparable to those making good acquisitions. However, the very large coefficient on organic sales growth suggests that internal expansion, if feasible, may be preferable to making unwelcome acquisitions from the remuneration interest of the CEO.

7. Conclusions

This paper has examined the impact of mergers and acquisitions on the remuneration of the CEOs of a large unbalanced panel of UK firms, over the period 1981-1996. It has set out to separate the impact of the acquisition itself from that associated with the increase in the size of the acquiring firm. The panel design has allowed us to control for firm specific fixed effects and the possible endogeneity of mergers to the compensation function.

We find, in common with much of the extant literature, that company performance has an insignificant impact on executive remuneration. The increases in wages associated with increased firm size do however have a significant impact. This is, therefore, an important incentive to growth via merger. This effect should not be overstated however- executive pay is nine time more sensitive to internal growth than to growth as a result of acquisition. There was some evidence to suggest that CEOs completing a hostile acquisition experienced *ceteris*

paribus negative pay effects two and more years after the deal. This would be consistent with sales reductions via divestment, a phenomenon which did appear to be associated with hostile transactions.

Aside from the initial impact on executive pay resulting from size changes, acquisitions also have an additional positive impact of 9% in the years following the merger event. This is consistent with the view that mergers reveal information about the quality of management, and, if it is better managers that successfully complete take-overs, that this is recognised by remuneration committees of CEOs in acquiring firms. To explore this further, we investigated whether managers were rewarded differentially for 'good' (as measured by the impact on shareholder wealth) as opposed to 'bad' mergers. The evidence strongly suggested that they were, at least in the medium term.

Table 1
Frequency of sample mergers
by type and year

Year	Friendly	Hostile	Total
1981	5	0	5
1982	7	2	9
1983	14	4	18
1984	16	8	24
1985	27	6	33
1986	46	16	62
1987	54	5	59
1988	44	1	45
1989	27	5	32
1990	28	2	30
1991	18	7	25
1992	19	4	23
1993	18	2	20
1994	16	2	18
1995	26	2	28
1996	2	2	4
Total	367	68	435

Table 2
Balance of the panel

Number of time observations	Acquirers	Controls
3	2	37
4	9	26
5	13	36
6	21	52
7	21	61
8	16	69
9	21	87
10	20	112
11	16	162
12	12	56
13	46	1
14	24	5
15	54	2
16	11	0
Total	286	706

Table 3
Descriptive statistics

Variables	Period before mergers		Period after mergers		Control companies	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Real values in £'000						
CEO compensation	53	50077	111	104415	60	53253
Sales	441192	2212649	724288	1958111	115746	495280
Profit /employee	4.73	16.94	3.45	6.59	3.62	11.54
Values relative to three-digit industry median						
CEO compensation	1.20	1.00	2.02	2.16	1.10	0.78
Sales	1.48	2.22	2.37	2.92	0.67	1.33
Profit/employee	1.21	6.87	1.29	5.29	1.27	4.77
Annual growth rates						
CEO compensation	0.09	0.28	0.11	0.28	0.06	0.26
Sales	0.11	0.34	0.11	0.32	0.05	0.33
# of observations	1077		2060		6156	

Table 4
The dynamic impacts of mergers on executive compensation

	1	2	3	4	5	6
Lagged compensation	0.459	0.459	0.459	0.459	0.551	0.568
	(11.73)**	(11.76)**	(11.95)**	(11.96)**	(17.32)**	(18.02)**
Acquirer sales	0.036	0.034	0.031	0.028	0.039	0.031
	(2.06)*	(1.88)	(1.78)	(1.59)	(2.51)*	(1.93)
Acquired sales	0.004	0.004	0.004	0.004	0.007	0.005
	(2.47)*	(2.42)*	(2.49)*	(2.41)*	(3.47)**	(3.05)**
Industry sales	0.025	0.027	0.023	0.027	0.022	0.024
	(1.31)	(1.42)	(1.24)	(1.40)	(1.06)	(1.17)
Operating profits	0.000		0.000		0.000	
	(0.63)		(0.69)		(0.48)	
Return on capital		-0.000		-0.000		0.000
		(0.74)		(0.89)		(0.54)
Merger effects						
Contemporaneous	0.022	0.027	0.038	0.043	0.038	0.041
	(1.57)	(1.84)	(2.86)**	(3.12)**	(1.81)	(1.95)
After one year	0.048	0.049	0.051	0.052	0.044	0.046
	(3.14)**	(3.13)**	(3.37)**	(3.38)**	(2.37)*	(2.41)*
After two years	0.064	0.066	0.070	0.072	0.054	0.053
	(4.07)**	(4.12)**	(4.50)**	(4.52)**	(3.49)**	(3.23)**
Three years and beyond	0.061	0.060	0.074	0.073	0.082	0.09
	(2.59)**	(2.56)*	(3.25)**	(3.17)**	(3.87)**	(3.61)**
Hostile mergers additional effects						
Contemporaneous	-0.001	-0.010	0.011	0.003		
	(0.04)	(0.26)	(0.34)	(0.09)		
After one year	-0.036	-0.037	-0.015	-0.015		
	(1.01)	(1.03)	(0.46)	(0.43)		
After two years	-0.074	-0.077	-0.063	-0.064		
	(2.03)*	(2.02)*	(1.78)	(1.74)		
Three years and beyond	-0.083	-0.084	-0.072	-0.071		
	(2.04)*	(1.96)*	(1.80)	(1.70)		
Bad mergers additional effects						
Contemporaneous					-0.033	-0.036
					(1.35)	(1.41)
After one year					-0.064	-0.066
					(2.95)**	(2.93)**
After two years					-0.053	-0.048
					(2.13)*	(1.87)
Three years and beyond					-0.052	-0.040
					(1.48)	(1.17)
Year dummies	YES	YES	YES	YES	YES	YES
Sargan p-value	0.10	.06	.05	.06	.05	.05
AR(2) test p-value	.93	.15	.66	.96	.491	.229
Observations	5792	5756	5792	5756	4850	4821
Number of companies	918	916	918	916	783	782

Notes
1. Absolute value of t-statistics in parentheses. * significant at 5%; ** significant at 1%
2. Columns 3-6 are endogeneity corrected, with the propensity to acquire used as an instrument.

Table 5

Average CEO Pay effects by major sources of growth

	Internal growth	External growth	Pure Merger Effect	Total Effect (actual)
'Good Acquisitions'				
In merger year	8.5%	6.3%	0%	14.8% (17.7%)
After one year	6.8%	0%	4.4%	11.2% (15.3%)
After two years	2.3%	0%	5.9%	8.2% (10.9%)
Three years and beyond	1.2%	0%	7.2%	8.4% (8.5%)
'Bad Acquisitions'				
In merger year	9.2%	5.4%	0%	14.6% (19.4%)
After one year	7.1%	0%	-0.9%	6.2% (12.6%)
After two years	2%	0%	0.1%	2.1% (10.5%)
Three years and beyond	1.2%	0%	7.2%	8.4% (8.8%)

Notes:
(i)   Internal growth refers to 'organic' growth by the acquiring firms
(ii)   External growth refers to growth resulting from acquired firms.
(iii)   The 'pure' merger effects are taken from Table 4 column 5 (significant coefficients only).
(iv)   The coefficients on the acquirers and acquired sales variables are used to contribute the contributions of internal and external growth respectively.(CEO effects computed at mean values)
(v)   The actual values are average CEO pay growth in the post acquisition period for the restricted sample of acquirers

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