Do Acquirers Really Learn from Their Acquisition Experience? The UK Evidence

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Abstract

The prevalent finding on acquirer performance is a pattern of declining announcement returns over successive deals, which contradicts the claim of practitioners and the management literature that acquirers learn from their acquisition experience. We study a sample of 6,906 UK acquisitions completed between 1985 and 2004 and control for previous deals similarities, which other studies ignore. We find that returns for frequent acquirers decrease constantly but they remain positive through high order deals. Controlling for deal characteristics, we still do not detect an improving pattern of returns but, at best, a stable one when the deal is settled for cash. Our logistic regressions show that learning is possible only if prior mistakes are observed in designing the method of payment and estimating synergies, among other variables. We find evidence of learning for acquirers with unsuccessful first acquisition, while successful first time bidders are more likely to exhibit hubris behavior as they are more likely to lose in the second acquisition after first time success.

JEL Classification: G34

Keywords: Takeovers; frequent acquirers; learning; hubris.

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1. Introduction

The recent Mergers and Acquisitions (M&A) literature documents significant positive gains to acquirers engaging in the takeover of non-public targets, nevertheless the main prevalent finding is a pattern of declining announcement returns over successive deals (Fuller et al. 2002; Conn et al., 2004; Billet and Quian, 2005; Croci, 2005; Ahern, 2007; Aktas et al., 2007b and Ismail, 2008). This empirical evidence stands in sharp contrast with the claim of practitioners that acquirers learn from their acquisition experience (Rovit et al. 2003) and with the management literature, which contends that acquirers have a great potential to learn from past experience (Hayward, 2002; and Harding and Rovit, 2004). Therefore, the Organizational Learning Hypothesis predicts that returns from subsequent acquisitions should be increasing with the number and order of acquisitions since the acquisitions learning curve and the experience building potential by multiple acquirers would enhance shareholders' value over time. Besides, more experienced acquirers are more successful than less experienced ones. However, the hypothesis also suggests that learning and the improved performance may depend on the type of the previous acquisitions, i.e. their similarity with the current acquisition (related or unrelated industries) (Haleblian and Finkelstein, 1999 and Hayward, 2002), the performance of the prior deal and the time period between successive deals (Hayward, 2002) and whether the management appropriately responds to the new acquisition by drawing the correct inferences from prior acquisitions (Haleblian and Finkelstein, 1999) .

The M&A studies in the finance literature concentrated only on the patterns of returns in subsequent acquisitions, and ignored all other factors as suggested by the Organizational Learning theory[1]. In this study, we try to correct for this shortcoming and examine the behavior of acquirer returns resulting from successive deals after controlling for previous deals and firm characteristics. We study a sample of 6,906 UK acquisitions that were completed between Jan. 1985 and April 2004. We record a positive and significant returns for acquiring firm shareholders of 0.66% in the (-2,+2) window, but, contrary to Conn et al (2004), we do not find that single acquirers outperform multiple acquirers after controlling for various deal characteristics except in the acquisitions of subsidiary target firms where single acquirers lead by about 1.45%.

We find that although returns for frequent acquirers decrease constantly, they remain positive through high order deals (higher than fifth) refuting the capitalization hypothesis which predicts that no returns should be observed on later acquisitions in a program. After controlling for further deal characteristics and similarity, we still find that the returns do not exhibit an improving pattern but, at best, a stable one when the deal is settled for cash. Hence the univariate analyses do not present evidence of learning. On the other hand, in most cases we detect deteriorating returns in subsequent acquisitions.

Our logistic regressions show that observing prior mistakes in pricing, synergy estimation or restructuring could provide ample opportunity for learning as evidenced by the significant coefficients of the previous deal CAR dummy, the method of payment, the

[1] Ahern (2007) examined the likelihood of acquiring target with the same public status as in previous deals and the likelihood of using the same method of payment as in a previous deal.

prior deal value and the target public status in the two subsequent deals. Consequently, we find strong evidence supporting the learning hypothesis for acquirers who destroyed value in their first acquisition, while successful first time bidders show signs of hubris behavior in subsequent acquisitions as they are more likely to lose in the second acquisition after first time success. These results remain robust after using the hubris-infected dummy as suggested by Aktas et al. (2007b).

The rest of the paper is organized as follows: in section two we review the relevant literature. We present the methodology and data set in section three. We discuss the findings in section four and we conclude in section five.

2. Literature Review

2.1 Organizational Learning and Acquisition Experience

Prior research on learning through M&A decisions has focused on identifying whether added experience in the acquisition business through multiple acquisitions leads to improved performance. The conclusions drawn from those empirical papers show mixed results (e.g. Lubatkin, 1982; Hitt et al, 1993; Haleblian and Finkelstein, 1999; Hayward, 2002; and Conn *et al.*, 2004 and Aktas *et al.* 2007b)

In essence, according to Levitt and March (1988), organizational learning is an "*iterative dynamic process in which firms engage in experiences, draw inferences and store the inferred material for future experience*". Hayward (2002) argued that experience allows firms to learn how to become more efficient at clearly defined problems (see for example

Argote, Beckman and Epple, 1990 for learning in a manufacturing setting) on the other hand Huber (1991) argued that learning can become forgotten or trapped while firms can draw the wrong inferences or misapply them as Haleblian and Finkelstein (1999) postulated. On the other hand, researchers (e.g. Haleblian and Finkelstein, 1999; and Hayward, 2002) argued that the effects of organizational experience for strategic decisions such as acquisitions may be more difficult to predict for various reasons, perhaps the most important of which is that acquisitions are heterogeneous. Haleblian and Finkelstein (1999) argued that "*for acquisitions, the outcomes of organizational experience may depend on the similarity between past acquisitions and the present acquisition, which in turn, could determine the appropriateness of applying or disregarding past acquisition experience in managing a new acquisition. Hence, experience with a dissimilar acquisition may not be relevant*".

Haleblian and Finkelstein (1999) used a sample of 449 large completed majority acquisitions that occurred between 1980 and 1992 within the manufacturing sector and examined the influence of prior organizational acquisition experience on the performance of acquisitions. Drawing on work from behavioral learning theory in psychology which examines both the conditions preceding organization events (e.g. the similarity between firms' acquisitions) and organizational responses, the authors predicted that experience effects may range from positive to negative. In other words, only when acquirers take over two similar targets (same industry), past acquisition experience becomes relevant to the present acquisition so that the generalization of this experience ensues in improved

performance[2]. The authors documented an overall U-shaped relationship between prior organizational acquisition experience and acquisition performance. Their results suggested that those firms that make multiple acquisitions within the same industry benefit by generalizing past acquisition knowledge, and that relatively inexperienced acquirers, after making their first acquisition, inappropriately generalize acquisition experience to subsequent dissimilar acquisitions, while more experienced acquirers appropriately discriminate between their acquisitions. In a similar vein, Leshchinskii and Zollo (2004) concentrated on the US banking industry to study the post acquisition performance of 579 non-diversifying mergers and acquisitions conducted between 1964 and 1996. They focused on investigating the effect of post-acquisition decisions including the degree of integration of all the target's structure and operations within the acquirer and the degree of change in the original structure of the target. The authors hypothesized and found that the performance (post-acquisition operating and long-run stock price) improves when the acquirer builds on his previous acquisition knowledge to develop a capability for implementing integration by choosing the optimal integration approach, extracting the valuable experiences and improving the management of the integration. The results suggested that acquirers benefit from codifying the acquisition knowledge in manuals and systems. In addition, the authors found a negative impact of the change or replacement in the target's top management on the post-acquisition performance.

On the other hand, Hayward (2002) predicted and found evidence of an inverted U-shaped relationship between the similarity of the businesses of prior acquisition and the

[2] The experience in this context include all the knowledge obtained and applied during the integration process, the procedures, rules, changes in the operations etc… which is supposed to deem the merger beneficial or not for the shareholders of the acquiring firm and the combined firm.

performance of the focal acquisition. That is, when prior acquisitions are highly similar to one another, acquirers lack the generalist skills to appreciate a range of takeover opportunities, whereas when prior acquisitions are highly dissimilar to one another, acquirers lack the specialist skills to extract gains from any one type of acquisition. Using a sample of 100 acquisitions occurring between 1985 and 1995, the author found significant evidence that the announcement period returns improve when the previous acquisitions are neither very similar nor very different. As for the performance of prior acquisitions, Hayward (2002) argued that learning occurs only in the case of small previous losses and not in the cases of complete failures or successes. The results showed a significantly positive relation between the performance of the acquisition (measured by the announcement returns and analysts' ratings) and the number of previous acquisitions with small losses[3]. In addition, the author hypothesized that firms don't learn from prior acquisitions if the time interval between them is too short or too lengthy. He proved this for the whole sample when the dependent variable was the announcement returns not the analysts' ratings. However, the hypothesis was rejected for the very large deals; the performance improves when the interval increases.

In a different vein, Ahern (2007) tested whether prior performance affects current acquirer decisions of three key choices: target public status, method of payment, and bidder-target relatedness. The author used a sample of US acquisitions between 1980 and 2004 and found that the likelihood of acquiring a public target increases with the average (CAR) and adjusted prior performance of public target acquisitions, but this is unrelated to the status of the prior target. In contrast, the choice of a private target was not found to

[3] A small loss is a negative CAR of -3%, -2% or -1%.

be related to prior performance measures. In the choice of the method of payment (cash vs. equity) Ahern (2007) found that firms are sensitive to prior performance and payment method. On the other hand, the results on the decision to acquire a target in the same industry class as the acquirer provided evidence contrary to the hypothesis of learning.

Aktas et al. (2007a) contended that learning improves Chief Executive Officers' (CEOs) forecasting ability, thus leading to lower uncertainty in synergy estimation. As a result, this increases the certainty about the deal's true value, which in turn leads to an increase in the optimal premium (implying a higher apportionment of the synergies to the target firm), a higher probability of deal success, and lower ex-post bidder abnormal return. Hence, according to Aktas et al. (2007a), when, for multiple acquirers, a decreasing pattern of abnormal returns is observed, this should still be consistent with learning. In another paper (Aktas et al., 2007b) the authors subjected the predictions of Aktas et al. (2007a) to empirical tests and tracked successive deals done by a given CEO for a sample of 2,589 individual CEOs, across the period of 1992-2002. Their findings confirmed the existence of a declining trend in acquirers' returns. However, they found a positive CAR trend for CEOs likely to be infected by hubris which was significantly different from the negative trend found for CEOs who are more likely to be rational. The authors also explored the time between successive deals. Although the univariate analysis contradicted the multivariate one, the authors pointed out that many CEOs learn as the time between deals decreases for rational CEOs but, contrary to the prediction of Aktas et al. (2007a), it increases for hubris-infected CEOs.

Among the recent studies that documented a pattern of declining announcement returns for successive deals (e.g. Fuller et al. 2002; Conn et al., 2004; Billet and Quian, 2005; Croci, 2005; Ahern, 2007; Aktas et al., 2007b and Ismail, 2008), Conn et al. (2004) was the only paper focusing on the UK market. The authors examined a sample of acquisitions by U.K. public companies between 1984 and 1998 and showed that the cumulative short run abnormal returns were positive for multiple acquirers and decreased gradually as the number of acquisitions increases. In contrast, the long run CARs (for a maximum period of 36-month post-acquisition) were insignificant. Although the statistics showed declining returns for multiple acquirers associated with the increasing number of acquisitions, the number of acquisitions was not a significant factor in the regression analysis. The order of the acquisition was significant.

The major shortcoming of Conn et al.'s paper and other similar papers is that they failed to control for the characteristics of prior acquisitions, that is, they used the number of prior acquisitions as evidence of experience without paying attention to the similarity or dissimilarity of those previous deals. According to the Organizational Learning theory, as further explained by Haleblian and Finkelstein (1999) and Hayward (2002), this does not constitute a robust test of learning from previous experience. We aim to overcome such shortcoming in our paper.

3. Data and Methodology

We constructed the sample for the present study by searching the Thomson Financial SDC Database for all the M&A deals announced by UK public acquirers between

January 1, 1985 and April 22, 2004[4]. We excluded all financial institutions and utilities firms and selected deals with a disclosed dollar value of at least $1 million. Another criterion was that the deal had to be completed and result in a transfer of control where the acquirer's ownership increased to above 50% as a result of the acquisition. The sample also comprises deals where the target firm is public, private or a subsidiary of a public entity. To be included, the acquirer must have share price data available on Datastream. Similar to Fuller et al. (2002), clustered acquisitions where the bidder acquired more than one firm within five days, were excluded. The refinement procedures yielded a final sample of 6,906 completed deals of which 6,503 acquisitions where completed by frequent acquirers.

Insert Table 1 Here

In table 1 summary statistics for the whole sample and for single and multiple acquirers are presented. The sample of 6,906 deals is divided according to the public status of the target (private, public or subsidiary), the payment method (cash, equity or mixed), the geographic scope (national or cross-border) and the industry scope (related or unrelated based on the two-digit SIC code). Under each sub-category, the number of deals, the deal value and the acquirer size is reported. By size we mean the market value of equity, which is taken as the price per share two months prior to the acquisition announcement date multiplied by the number of common shares outstanding as reported in Datastream.

Most of the deals are completed by multiple acquirers (6,503 deals). Those have, on average, larger size ($830.43 million vs. $135.14 million) and they take over larger target

[4] April 22 represented the last date on which the data was available when the sample was collected.

firms as well with mean deal values being $148 million and $31.85 million, respectively. The larger acquirer size and deal value in the multiple acquirer sub-sample persist irrespective of deal characteristics. The table also shows that private and subsidiary firms represent the largest portion of the sample (nearly 90.6%), but public targets are the largest in value with mean deal values of $1,004 million.

As for the method of payment the table reveals that cash is more frequently used than any other settlement means but it is accompanied by relatively small deal values ($70.61 million). Equity financing, on the other hand, is used for larger acquisitions with mean deal value being $1,259.86 million. As for the industry scope, the sample is almost equally divided between related and unrelated acquisitions. But the targets operating in related industries are larger (in deal values) than the ones operating in unrelated industries.

We use a standard event study methodology to estimate abnormal returns as in Brown and Warner (1985) in order to evaluate the performance of these merger deals. We estimate abnormal returns over a five-day window (-2, +2)[5] following two procedures. Firstly, we use the market model and estimate its parameters over a (-210,-21) interval using the Datastream value-weighted index returns for the UK as the benchmark. We test the statistical significance of the returns using the Patell (1976) test corrected for time-

[5] Fuller et al (2002) used a 5-day window after checking the accuracy of the SDC announcement date. They find that for about 92.6% of a random sample of 500 acquisitions, the date was accurate but for the remaining deals it was off by two days at most. However, we conducted the tests using other windows, and the results were robust. Results and tables are available upon request.

series and cross-sectional variation of abnormal returns (see Moeller et al., 2004). Fuller et al. (2002) argued that for multiple acquirers, there is a high probability that previous takeover attempts would be included in the estimation period, therefore making beta estimations (the slope of the market model) less meaningful. For the aforementioned reason, we make another estimation of the abnormal return by subtracting the value-weighted market return from the firm's return using the following model:

$$AR_i = r_i - r_m$$

r_i is the firms' return and r_m is the value-weighted market return. We find that the conclusions are not altered, and therefore we only report the results of the market model[6].

4. Empirical Results

4.1 Announcement period abnormal returns

In table (2) we report the five-day cumulative abnormal returns for the three samples: the whole sample, multiple acquirers and single acquirers sub-samples. For the full sample the (-2, +2) CAR is 0.66% significant at the 1% level. We also find that both acquirers, single and multiple, significantly gain 0.88% and 0.64%, respectively (the levels of significance of the CARs being 1% and 5%, respectively) with the difference of 0.24% being insignificantly different from zero. This study's findings contradict those reported by Conn et al. (2004) for a sample of UK takeovers, as they showed that single acquirers significantly outperform multiple acquirers in the (-1,+1)[7].

[6] The results using the market-adjusted return model are all available upon request.

[7] Conn et al (2004) report an abnormal return of 0.88% for single acquirers vs. 0.48% for multiple acquirers. When we use the same window as in Conn et al. (2004), we find that CARs for single and

Insert Table (2) Here

Additionally, we examine whether different deal characteristics affect the results. We find that single acquirers do not outperform multiple acquirers in most of the sub-samples reported in table 2 except in the acquisitions of subsidiary target firms as the returns are 2.40% and 0.95% respectively and the difference being significant at the 10% level. Multiple acquirers significantly lose in the acquisition of public targets (-1.17%), but they gain in most of the other acquisitions regardless of the target public status, the payment method, the industry relatedness or the geographic scope of the deal. Those acquirers do not significantly lose when the acquisition is settled for stocks.

Insert Table (3) Here

4.2 The performance of multiple acquirers in subsequent acquisitions

4.2.1 Univariate Analysis:

We report the analysis of subsequent acquisitions in table 3 after controlling for the method of payment. The decreasing trend in the CARs is evident and confirms prior research findings (Fuller et al. 2002; Conn et al., 2004; Billet and Quian, 2005; Croci, 2005; Ahern, 2007 and Ismail, 2008). For the whole sample, the CARs decrease from a positive and significant 0.83% in the first deal to 0.51% in the deals higher than the fifth. As the CARs are significantly positive for all the deals in the acquisition series, these findings refute the capitalization hypothesis which predicts insignificant returns in subsequent acquisition as the announcement of the first deal incorporates information about the whole acquisition program. Thus, the market still perceives important and new

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multiple acquirers are 1.22% and 0.54% and the P-Value of the mean difference CARs is 10.67%. It is also worth noting that their sample spans over the period 1984 to 1998 while ours spans over 1985 to 2004.

information in later acquisitions. In addition, since the returns exhibit a decreasing pattern, the results do not lend support to the organizational learning hypothesis. These returns are consistent with the diminishing returns hypothesis that postulates that decreasing returns are due to the fact that better opportunities are seized first.

When we sub-divide the sample according to the method of payment we find that the positive and significant returns are mainly driven by the acquisitions financed with cash. In fact, a closer look at cash acquisitions reveals that the declining trend, previously recorded for the whole sample, almost disappears and instead the CARs follow a stable trend. The returns on mixed payment deals, though appeared significantly positive for this sub-sample in table 2 above, are only significant for the second deal in the series. On the other hand, the insignificant CARs of the equity payment acquisitions also follow a declining trend in successive deals.

Insert Table (4) Here

a) Similarity in target public status

In table (3) we notice that for the whole sample, all the CARs are positive and significant irrespective of the deal order. Therefore, in table (4) we distribute the deals further on the basis of the target' public status. We find that acquiring public firms results in significantly negative or insignificant returns irrespective of the method of payment and the deal order. On the other hand, acquirers of non-public targets generate positive and significant returns. This is sometimes attributed to the fact that those targets are acquired at a discount due to their illiquid nature (Officer, 2007). The private deals have mostly positive and significant returns when cash and mixed financing is used. The decreasing

trend disappears for mixed payment acquisitions. However, when equity is used, the only significant return is found in the first deal (at the 10% level). In addition, the returns decrease from the second deal onward. For subsidiaries, only cash payments generate positive and significant returns regardless of the deal order; the mixed and equity payments have significantly positive returns, 1.17% and 3.68% respectively (at the 10% level) only for the deals higher than the fifth.

Insert Table (5) Here

b) Similarity in industry relatedness of subsequent deals

We further control for industry relatedness and report the results in table 5. Similar to previous results, the positive and significant returns of the whole sample are generally driven by the cash payment especially that this type of financing is the most adopted. Most of the returns are found to be insignificant when the deals are financed with equity or mixed payments despite the industry relatedness of the acquisition. In addition, for the related industries acquisitions, there is no evidence that the acquirers learn from previous deals; the cumulative abnormal returns decrease from 1.01% in the first deal to 0.43% in the deals beyond the fifth. However, the returns generated from acquisitions of targets operating in unrelated industries increase from the first to the fourth deal (0.67% to 0.77%) and decrease to 0.58% in the ones higher than the fifth. In sum, the trend in these returns does not support the learning hypothesis at all.

Insert Table (6) Here

c) Similarity in geographic scope of subsequent deals

The subdivision of the sample according to the geographic scope of the deal may also shed some light on the returns behavior in subsequent acquisitions. Table 6 reveals that

when multiple acquirers take over national firms, they earn significant positive returns in the first four deals; whereas, when they acquire cross-border targets they achieve the significant and highest CARs in the fifth and later deals in the acquisition series (1.08% and 0.64% significant at 5% and 1%, respectively). These patterns are observed in the whole sample as well as in the cash payment sub-sample with one exception, that is, national acquisitions beyond the fifth deal have significant positive returns at the 1% level. In addition the returns in national acquisitions, when settled for cash, fluctuate around 1% for the first four acquisitions in the series before they drop to 0.59% beyond the fifth deal. These results, although do not show evidence of learning; they obviously imply that cash is a better means of payment regardless of the deal order.

Almost all the deals don't lead to significant returns when they are settled with mixed or equity financing.

Insert Table (7) Here

d) Similarity in relative size of target firms

The relative size of the target to acquirer has been found to affect the announcement returns (see e.g. Moeller et al. 2004, Fuller et al., 2002). In table 7 we report the results after subdividing the sample according to various relative size groups. The table shows that for the smallest relative size group (<= 5%) acquirer returns remain positive and significant for deals beyond the fifth acquisition, however; significant returns are, in general, rare. For larger deals (5 %< relative size <=15%), most (all) of the deals result in positive and significant returns for the whole (cash payment) sample. In addition, the returns in the aforementioned samples exhibit an increasing pattern up until the fifth acquisition. On the other hand, returns for equity and mixed payment deals are not

significant in most of the cases. Furthermore, the positive returns for cash payment acquisitions persist for the higher than fifth deals irrespective of the relative size. These results imply that the method of payment and the relative size combination have valuation effect for acquirers as the former determines the premium actually paid while the latter affects the anticipated and realized synergy from the combination of the two companies.

Insert Table (8) Here

4.2.2 Mutlivariate Analysis.

a) What are the determinants of learning?

In order to get a better conclusion on learning from acquisition, we employ a logistic regression that tends to search for the determinants of learning, that is, the likelihood of generating higher abnormal returns in the second deal compared to the first deal. The results appear in table (8) where the dependent variable is a dummy that takes the value of 1 if the second deal in the sequence has a higher CAR than the first deal, 0 otherwise. The independent variables include dummies that take the value of 1 if the two subsequent targets are acquired with the same payment method, if both targets have the same public status, the same geographic scope, and the same two-digit SIC code. Furthermore, because market responses to prior deal announcements might provide lessons for acquirers, we add another dummy variable set equal to 1 if the abnormal return on the prior deal is positive. Other independent variables include the natural logarithm of the previous deal value, the natural logarithm of the second deal value, the natural logarithm of the acquirer market value of equity, the relative size (target to acquirer) of the prior

acquisition, and the size difference between both deals which is the natural logarithm of the absolute difference in the deals values.

Model (1) shows that four variables determine the likelihood of earning higher returns in the second acquisition, these being the payment method, the previous deal value, the geographic scope and the acquirer size. The negative coefficient of the same payment method dummy implies that if the acquirer makes two subsequent acquisitions using dissimilar payment methods, he is more likely to learn. The result signifies that the acquirer might have erroneously priced the first target firm using a given settlement method (say equity exchange offer) and therefore he correctly priced the second acquisition and ended up paying with a different means compared to the first acquisition (cash or a combination of other means). The positive coefficient of the previous deal value implies that the larger the previous deal the higher the likelihood of learning in the subsequent acquisition. This result is quite logical as only large deals are expected to have a significant influence on the performance of the acquiring firm, and therefore such deals provide ample opportunity to uncover mistakes in pricing, integration, restructuring etc… Moreover, it is worth noting that these two variables remain significant in other models. The negative coefficient of the acquirer size variable in all models is consistent with the size effect evidence documented recently in Moeller et al. (2004) as small acquirers are found to generate higher returns than large ones. Models (2 and 3) reveal that the coefficients of the first deal CAR are negative and significant (-1.9852 and -1.9966 respectively, both are significant at the 1% level) which implies that when multiple acquirers earn negative returns in the first deal it is more likely that they would

improve their returns in the second deal and vice versa. This result of improving returns for acquirers with an unsuccessful first deal is consistent with the learning hypothesis. Alternatively, the evidence of deteriorating return experienced by successful first time bidders supports the hubris and the diminishing return hypotheses. Conn et al. (2004) pointed out that first time success could promote hubris, which results in decreasing performance afterwards. Hence, it can be argued that over-confidence deriving from the success in the first acquisition, could cause managers to make subsequent takeovers without giving due care to the strategic fit with the other party. Additionally, over-confidence could lead managers to over-estimate synergy gains and, therefore, end up paying a high premium for the target firm. It is also worth noting the remarkably higher explanatory power of Models (2&3) compared to Model (1) which is due to the addition of the previous deal CAR dummy. Furthermore, the positive and significant coefficient of the target public status dummy implies that when the two targets have the same public status, the acquirer is more likely to learn and earn higher returns in the second deal. This result, we argue, could be related to the valuation and the premium paid for the target firm, as the merger literature suggests that, compared to public firms, private firms and subsidiaries are less liquid investments; hence this lack of liquidity should be reflected in their valuation once acquired. The empirical evidence shows that these firms are bought at 15% to 25% discount relative to comparable publicly-traded firms (Officer, 2007).

Insert Table (9) Here

b) The effect of Hubris attitude on learning

We further examine whether the attitude of the acquirer have valuation impact on its subsequent acquisitions. In other words, acquirers could be infected by hubris so it is

imperative to inspect possible repercussion of learning for hubris-infected acquirers as Aktas et al. (2007b) contend. In table 9, we substitute the previous deal CAR dummy with a proxy for whether the management is hubris-infected or not as used in Aktas et al. (2007b). According to Aktas et al. (2007b), a CEO is classified as hubris-infected if he actually destroyed value in his first deal (experienced a negative CAR) after controlling for the target public status of the first acquisition; hence the slight difference from our initial variable. Moreover, in order to create our hubris proxy we follow exactly the same procedures followed in Aktas et al. (2007b) however, there is a slight difference between our procedure and theirs, that is, we do not necessarily track the performance of a CEO per se, rather we track the performance of the acquiring firm, which, in fact, is the main theme of our paper. Moreover, since the first deal CAR is used to determine the hubris index and the hubris proxy, that CAR is excluded from the regressions when the hubris measure is included.

The results in table 9 confirm the earlier findings in table 8 so as the coefficients of the payment method, target public status and previous deal size are all significant. Most importantly, the coefficients of the hubris-infected dummy are positive and significant in both models and also confirm the results obtained in table 8 (models 2 and 3). These latter findings imply that hubris-infected acquirers (those that destroyed value in their first acquisition) are more likely to learn and exhibit a higher return in their second acquisition[8].

[8] We rerun the logistic regressions using other subsequent acquisitions such as third deal vs. the second and found that the CAR and the Hubris-infected dummies remain highly significant.

5. Conclusion

We have examined shareholder returns of frequent acquirers after controlling for various deal characteristics using a sample of 6,906 UK takeovers completed between 1985 and 2004.

We find that acquiring firm shareholders gain significantly (0.66%), but, unlike Conn et al (2004), we found that single acquirers do not necessarily outperform multiple acquirers, and this persists across various deal characteristics except in the acquisitions of subsidiary target firms where single acquirers lead by about 1.45%. We also find that returns for frequent acquirers decrease constantly but they remain positive through high order deals (higher than fifth), a finding that refutes the capitalization hypothesis. After controlling for various deal characteristics, the univariate analysis do not present a clear evidence of learning as no patterns of improving returns were detected. On the other hand, in most cases we detected deteriorating returns in subsequent acquisitions and, at best, stable returns when the deal is settled for cash. The logistic regressions point out that learning is possible after observing prior mistakes and value destruction in the first deal due to pricing, synergy estimation or restructuring as proxied by the performance of the first deal, the method of payment, the prior deal value and the target public status in the two subsequent deals. Most importantly, the logistic regressions showed strong evidence supporting the learning hypothesis for acquirers with unsuccessful first acquisition, while successful first time bidders show signs of hubris behavior in subsequent acquisition as they are more likely to lose in the second acquisition after first time success.

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Table 1: Comparative Sample Statistics for All, Single and Multiple Acquirers across Different Deal Characteristics

The table presents summary statistics for the whole sample and for single and multiple UK acquirers. Deals are completed between Jan 1985 and April 2004 as reported by SDC excluding all financial institutions deals; where the deal value is at least $ 1 million and the acquirer gains control of a public, private or a subsidiary target firm. The distribution is made across four levels. The target public status is private, public or subsidiary. The method of payment is pure cash, pure equity or mixed. The geographic scope of the deal is either national, for acquisitions of UK targets, or cross-border for acquisitions of non-UK targets. The industry scope of the deal is either related, if the target and acquirer share the same two-digit SIC code as reported by SDC, or unrelated if they do not. Deal Value is the average value paid per acquisition deal; and Acquirer Size is the mean acquirer market value of equity two months prior to the acquisition announcement. Dollar amounts are in millions.

	All			**Multiple Acquirers**			**Single Acquirers**		
	N#	**Deal Value ($M)**	**Acquirer Size ($M)**	**N#**	**Deal Value ($M)**	**Acquirer Size ($M)**	**N#**	**Deal Value ($M)**	**Acquirer Size ($M)**
Full Sample	6,906	142.69	794.93	6,503	148.65	830.43	403	31.87	135.14
By Deal Characteristics									
Target Public Status									
Private	3,851	23.03	477.12	3,610	23.48	498.29	241	15.17	108.30
Public	680	1,004.08	1,938.26	649	1,036.68	2,005.08	31	139.47	166.00
Subsidiary	2,375	84.54	973.92	2,244	86.98	1016.08	131	38.27	175.41
Payment Method									
Cash	4,618	70.61	930.27	4,393	72.37	962.41	225	30.14	191.27
Mixed	1,962	139.18	467.10	1,832	146.07	492.68	130	30.96	65.01
Equity	326	1,259.86	787.07	278	1,456.10	902.99	48	42.17	67.77
Geographic Scope									
National	4,316	62.53	426.10	4,023	64.64	446.10	293	29.85	115.91
Cross-border	2,590	272.30	1,391.34	2,480	280.99	1,435.87	110	37.40	187.91
Industry Scope:									
Unrelated	3,659	87.01	802.83	3,481	89.59	829.31	178	28.66	203.54
Related	3,247	206.93	785.83	3,022	218.17	831.75	225	34.43	80.49

Table 2: Cumulative Abnormal Return for All, Single and Multiple Acquirers, across Different Deal Characteristics

The table presents cumulative abnormal returns for all, single and multiple acquirers for deals completed by UK acquirers between Jan 1985 and April 2004 as reported by SDC excluding all financial institutions deals where the deal value is at least $ 1 million and the acquirer gains control of a public, private or a subsidiary target firm. The distribution is made across four levels. The target public status is private, public or subsidiary. The method of payment is pure cash, pure equity or mixed. The geographic scope of the deal is either national, for acquisitions of UK targets, or cross-border for acquisitions of non-UK targets. The industry scope of the deal is either related, if the target and acquirer share the same two-digit SIC code as reported by SDC, or unrelated if they do not.

CAR (-2, +2) is the 5-day cumulative abnormal returns estimated using the market model. The statistical significance of the returns is tested using the Patell (1976) test corrected for time-series and cross-sectional variation of abnormal returns. The mean difference tests between single and multiple acquirers are based on the t-tests for equality in means assuming unequal variances. We use the Cochrane-Cox method to approximate the t-statistic.

	All		**Multiple Acquirers**		**Single Acquirers**		**Single-Multiple**
	N#	**CAR (-2,+2) %**	**N#**	**CAR (-2,+2) %**	**N#**	**CAR (-2,+2) %**	**CAR (-2,+2) %**
Full Sample	6,906	0.66***	6,503	0.64***	403	0.88**	0.24
By Deal Characteristics							
Target Public Status:							
Private	3,851	0.77***	3,610	0.78***	241	0.62	-0.16
Public	680	-1.27***	649	-1.17***	31	-3.49	-2.32
Subsidiary	2,375	1.03***	2,244	0.95***	131	2.40**	1.45*
Payment Method							
Cash	4,618	0.74***	4,393	0.73***	225	0.86	0.13
Mixed	1,962	0.55***	1,832	0.58**	130	0.15**	-0.43
Equity	326	0.16	278	-0.32	48	2.97	3.29
Geographic Scope							
National Deals	4,316	0.66***	4,023	0.66***	293	0.55**	-0.11
Cross-border Deals	2,590	0.66***	2,480	0.61***	110	1.78	1.17
Industry Scope							
Unrelated	3,659	0.63***	3,481	0.63***	178	0.65*	0.02
Related	3,247	0.68***	3,022	0.65***	225	1.07*	0.42

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.

Table 3: Cumulative Abnormal Return for Multiple Acquirers by the Deal Order

The table presents cumulative abnormal returns for deals completed by UK acquirers between Jan 1985 and April 2004 as reported by SDC excluding all financial institutions deals where the deal value is at least $ 1 million and the acquirer gains control of a public, private or a subsidiary target firm. CAR (-2, +2) is the 5-day cumulative abnormal returns estimated using the market model. The statistical significance of the returns is tested using the Patell (1976) test corrected for time-series and cross-sectional variation of abnormal returns. We report the results based on the deal order, the performance is calculated for six sub-samples we present the performance for each of the first five deals then we present the results for all deals beyond the fifth deal after grouping them in one sub-sample labelled "Higher than fifth".

	All		Cash		Mixed		Equity	
Deal Order	**N#**	**CAR(-2,+2)%**	**N#**	**CAR(-2,+2)%**	**N#**	**CAR(-2,+2)%**	**N#**	**CAR(-2,+2)%**
First Deal	992	0.83***	593	0.77***	326	0.87	73	1.24
Second	1,007	0.79***	633	0.79***	330	0.73*	44	1.19
Third	778	0.74***	499	0.76**	244	0.95	35	-1.00
Fourth	619	0.61**	404	0.88***	184	0.64	31	-3.13
Fifth	495	0.55*	336	0.66**	138	0.56	21	-1.34
Higher than fifth	2,612	0.51***	1,928	0.67***	610	0.18	74	-0.96
ALL	6,503	0.64***	4,393	0.73***	1,832	0.58**	278	-0.32

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.

Table 4: Cumulative Abnormal Return for Multiple Acquirers by the Deal Order and Target public status

The table presents cumulative abnormal returns based on the target public status and method of payment of subsequent acquisitions for deals completed by UK acquirers between Jan 1985 and April 2004 as reported by SDC excluding all financial institutions deals where the deal value is at least $ 1 million and the acquirer gains control of a public, private or a subsidiary target firm. CAR (-2, +2) is the 5-day cumulative abnormal returns estimated using the market model. The statistical significance of the returns is tested using the Patell (1976) test corrected for time-series and cross-sectional variation of abnormal returns. We report the results based on the deal order, the performance is calculated for six sub-samples we present the performance for each of the first five deals then we present the results for all deals beyond the fifth deal after grouping them in one sub-sample labelled "Higher than fifth".

	All		Cash		Mixed		Equity	
Deal Order	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**
Private								
First Deal	554	1.06***	297	0.77***	214	1.09***	43	2.93*
Second	559	1.15***	321	0.58	218	1.45***	20	6.98
Third	416	0.97**	229	0.51	167	1.87***	20	-1.27
Fourth	366	0.74*	218	1.10**	136	0.71	12	-5.50
Fifth	263	0.74**	155	0.32	102	1.30**	6	2.32
Higher than fifth	1,452	0.49***	1,002	0.55***	411	0.44	39	-0.80
Public								
First Deal	106	-1.49***	38	-0.91*	48	-1.41	20	-2.80
Second	107	-2.05**	34	0.47	58	-2.47***	15	-6.16
Third	77	-1.09	30	0.32	37	-1.30	10	-4.56
Fourth	54	-0.87	12	0.06	29	-0.46	13	-2.66
Fifth	44	-2.62**	19	-0.89	14	-4.38**	11	-3.39
Higher than fifth	261	-0.51**	131	0.97	106	-1.70**	24	-3.36
Subsidiary								
First Deal	332	1.20***	258	1.01***	64	1.84	10	2.01
Second	341	1.08***	278	1.06***	54	1.29	9	0.56
Third	285	0.91**	240	1.06***	40	-0.82	5	7.20
Fourth	199	0.77**	174	0.66**	19	1.82	6	0.57
Fifth	188	1.01**	162	1.16**	22	0.26	4	-1.19
Higher than fifth	899	0.85***	795	0.77***	93	1.17*	11	3.68*

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.

Table 5: Cumulative Abnormal Return for Multiple Acquirers by the Deal Order and Industry Scope

The table presents cumulative abnormal returns based on the industry relatedness of subsequent targets and method of payment of subsequent acquisitions for deals completed by UK acquirers between Jan 1985 and April 2004 as reported by SDC excluding all financial institutions deals where the deal value is at least $ 1 million and the acquirer gains control of a public, private or a subsidiary target firm. CAR (-2, +2) is the 5-day cumulative abnormal returns estimated using the market model. The statistical significance of the returns is tested using the Patell (1976) test corrected for time-series and cross-sectional variation of abnormal returns. We report the results based on the deal order, the performance is calculated for six sub-samples we present the performance for each of the first five deals then we present the results for all deals beyond the fifth deal after grouping them in one sub-sample labelled "Higher than fifth".

	All		Cash		Mixed		Equity	
Deal Order	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**
Related industry								
First Deal	469	1.01***	278	1.26**	156	0.06	35	1.92
Second	497	0.89***	307	0.98***	167	1.06	23	-1.82
Third	362	0.88**	228	0.27*	117	0.69	17	0.59
Fourth	286	0.42	183	0.47	90	1.11	13	-3.63
Fifth	226	0.50	149	0.58*	68	0.11	9	-0.59
Higher than fifth	1,182	0.43***	864	0.70***	281	1.88	37	0.00
Unrelated Industry								
First Deal	523	0.67***	315	0.34**	170	1.42	38	0.39
Second	510	0.68**	326	0.57	163	0.85**	21	-0.23
Third	416	0.62	271	1.38	127	0.59	18	-5.82
Fourth	333	0.77**	221	0.81***	94	0.02	18	0.38*
Fifth	269	0.59	187	0.75	70	0.24	12	-1.33
Higher than fifth	1,430	0.58***	1,064	1.05***	329	1.05	37	0.53

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.

Table 6: Cumulative Abnormal Return for Multiple Acquirers by the Deal Order and Geographic Scope

The table presents cumulative abnormal returns based on the geographic scope and method of payment of subsequent acquisitions for deals completed by UK acquirers between Jan 1985 and April 2004 as reported by SDC excluding all financial institutions deals where the deal value is at least $ 1 million and the acquirer gains control of a public, private or a subsidiary target firm. CAR (-2, +2) is the 5-day cumulative abnormal returns estimated using the market model. The statistical significance of the returns is tested using the Patell (1976) test corrected for time-series and cross-sectional variation of abnormal returns. We report the results based on the deal order, the performance is calculated for six sub-samples we present the performance for each of the first five deals then we present the results for all deals beyond the fifth deal after grouping them in one sub-sample labelled "Higher than fifth".

	All		Cash		Mixed		Equity	
Deal Order	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**
National								
First Deal	743	0.97***	393	1.13***	288	0.91	62	0.20
Second	706	0.85***	400	1.01***	273	0.62	33	0.70
Third	509	0.90***	288	1.10***	190	0.88	31	-0.77
Fourth	387	0.75**	221	0.97***	145	1.16*	21	-4.35
Fifth	300	0.20	180	0.49	106	0.28	14	-4.12
Higher than fifth	1,378	0.40	869	0.59***	462	0.17	47	-1.03
Cross-border								
First Deal	249	0.45	200	0.06	38	0.57	11	7.05
Second	301	0.65*	233	0.40	57	1.26	11	2.65
Third	269	0.44	211	0.30	54	1.19	4	-2.76
Fourth	232	0.37	183	0.77	39	-1.29	10	-0.57
Fifth	195	1.08**	156	0.85**	32	1.49	7	4.23
Higher than fifth	1,234	0.64***	1,059	0.74***	148	0.20	27	-0.85

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.

Table 7: Cumulative Abnormal Return for Multiple Acquirers by the Deal Order and Relative Size

The table presents cumulative abnormal returns based on the relative size (target to acquirer) and the method of payment of subsequent acquisitions for deals completed by UK acquirers between Jan 1985 and April 2004 as reported by SDC excluding all financial institutions deals where the deal value is at least $ 1 million and the acquirer gains control of a public, private or a subsidiary target firm. CAR (-2, +2) is the 5-day cumulative abnormal returns estimated using the market model. The statistical significance of the returns is tested using the Patell (1976) test corrected for time-series and cross-sectional variation of abnormal returns. We report the results based on the deal order, the performance is calculated for six sub-samples we present the performance for each of the first five deals then we present the results for all deals beyond the fifth deal after grouping them in one sub-sample labelled "Higher than fifth".

	All		Cash		Mixed		Equity	
Deal Order	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**	**N#**	**CAR %**
Relative Size <=5%								
First Deal	402	-0.06%	279	0.72%**	97	-1.69%	26	-2.42%
Second	392	0.13%	296	0.31%	87	-0.52%	9	0.76%
Third	353	0.00%	255	0.12%	83	-0.06%	15	-1.80%
Fourth	308	0.51%**	242	0.42%*	61	1.00%**	5	-1.62%
Fifth	265	-0.38%	200	-0.19%	58	-0.99%	7	-0.81%
Higher than fifth	1,760	0.39%***	1,395	0.50%***	325	0.00%	40	-0.45%
Relative Size 5% - 15%								
First Deal	376	0.99%***	246	0.76%**	110	1.23%	20	2.49%*
Second	270	0.97%**	170	1.08%*	88	1.06%	12	-1.28%
Third	224	1.40%***	146	0.97%*	75	2.29%***	3	0.10%
Fourth	161	0.73%	90	1.23%*	63	0.16%	8	-0.38%
Fifth	137	1.76%***	84	2.06%**	50	2.35%**	3	-16.83%*
Higher than fifth	500	0.57%*	353	0.72%*	135	0.30%	12	-1.08%
Relative Size 15% - 25%								
First Deal	198	0.94%**	108	0.37%	75	1.85%**	15	0.48%
Second	126	1.14%*	63	1.60%*	58	0.70%	5	0.44%
Third	66	1.36%	35	1.81%	29	0.65%	2	3.86%
Fourth	50	1.44%*	27	1.98%	20	0.65%	3	1.91%
Fifth	26	1.35%	19	1.21%	6	2.67%	1	-4.02%
Higher than fifth	136	1.15%**	86	1.82%***	49	-0.03%	1	0.39%
Relative Size >25%								
First Deal	419	1.56%***	185	1.19%	174	1.12%*	60	3.98%*
Second	219	1.52%**	104	1.18%	97	1.58%*	18	3.25%
Third	135	1.29%	63	2.30%**	57	0.79%	15	-1.07%
Fourth	100	0.30%	45	1.96%	40	0.84%	15	-6.11%
Fifth	67	1.44%	33	1.91%	24	0.06%	10	3.21%
Higher than fifth	216	1.00%	94	1.98%**	101	0.69%	21	-1.93%

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.

Table 8: Determinants of the Probability of Learning

The table presents logit regression to estimate the factors that determine the probability of learning. We take pairs of deals, that is the first and the second deal for multiple acquirers. The dependent variable is a dummy which is set equal to 1 if the second deal in the sequence has a higher CAR than the first deal, 0 otherwise. The independent variables are Dummy variables taking the value of 1 if the same payment method is used in both deals, if the two deals involve targets with the same target public status, if the two deals involve targets with the same geographic scope, if the two targets in both deals have the same 2-digit SIC code, if the CAR in the previous deal is positive, 0 otherwise. Other Independent variables include the relative size (target to acquirer) of the previous deal (Relative Size-Pre), the log (deal value) of the previous deal (Ln(Deal value)Pre) and the current deal (Ln(Deal value)Cu), the log (acquirer size), and the target size difference.

	Model 1		**Model 2**		**Model 3**	
Variables	**Parameter Estimate**	**Standard Error**	**Parameter Estimate**	**Standard Error**	**Parameter Estimate**	**Standard Error**
Intercept	0.3696	0.2616	1.6513***	0.3122	1.7788***	0.3188
First Deal CAR			-2.0175***	0.1463	-2.0185***	0.1465
PMT Method	-0.2154*	0.1304	-0.263*	0.1468	-0.2722*	0.147
Tar. Public Status	0.2093	0.131	0.2931**	0.1477	0.2953**	0.1474
Geographic Scope	-0.274*	0.15	-0.2907*	0.1686	-0.2717	0.1692
Targets' SIC	-0.0555	0.1661	-0.0916	0.1877	-0.0809	0.187
Ln(Deal value)Pre	0.1475**	0.0578	0.1706***	0.0652	0.1829***	0.062
Ln (Deal Value)Cu	0.0043	0.058	0.0358	0.0653	0.0141	0.0573
LnAcqMV	-0.0907*	0.0513	-0.1479**	0.0579	-0.1788***	0.0612
Relative Size-Pre					-0.2032	0.1431
Target size difference	-0.0166	0.0494	-0.0417	0.0557		
Obs with Dep=1	502		502		501	
Obs with Dep=0	494		494		494	
Nobs	996		996		995	
R-squared	0.0163		0.209		0.2097	
Max-rescaled R-Sqd	0.0217		0.2787		0.2796	

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.

Table 9: Determinants of the Probability of Learning- The effect of Hubris attitude.

The table presents logit regression to estimate the factors that determine the probability of learning. We take pairs of deals, that is the first and the second deal for multiple acquirers. The dependent variable is a dummy which is set equal to 1 if the second deal in the sequence has a higher CAR than the first deal, 0 otherwise. The independent variables are Dummy variables taking the value of 1 if the same payment method is used in both deals, if the two deals involve targets with the same target public status, if the two deals involve targets with the same geographic scope, if the two targets in both deals have the same 2-digit SIC code, if the acquirer is infected by Hubris behaviour, 0 otherwise. The Hubris proxy is calculated as suggested in Aktas et. al. (2007). Other Independent variables include the relative size (target to acquirer) of the previous deal (Relative Size-Pre), the log (deal value) of the previous deal (Ln(Deal value)Pre) and the current deal (Ln(Deal value)Cu), the log (acquirer size), and the target size difference.

	Model 1		**Model 2**	
Variables	**Parameter Estimate**	**Standard Error**	**Parameter Estimate**	**Standard Error**
Intercept	-0.1437	0.2797	-0.051	0.2838
Hubris Infected	1.3194***	0.136	1.3159***	0.136
PMT Method	-0.2636*	0.1375	-0.2701**	0.1376
Tar. Public Status	0.2789**	0.1384	0.2787**	0.138
Geographic Scope	-0.2893*	0.1582	-0.2762*	0.1588
Targets' SIC	-0.0707	0.1755	-0.0622	0.1747
Ln(Deal value)Pre	0.1537**	0.0609	0.1631***	0.0576
Ln (Deal Value)Cu	0.0178	0.0612	0.00283	0.0538
LnAcqMV	-0.1164**	0.0541	-0.1383**	0.057
Relative Size-Pre			-0.1471	0.1314
Target size difference	-0.0286	0.0521		
Obs with Dep=1	502		501	
Obs with Dep=0	494		494	
Nobs	996		995	
R-squared	0.1101		0.1104	
Max-rescaled R-Sqd	0.1467		0.1472	

***, **, * Denotes significance at the 1%, 5% and 10 level respectively.