GAINS AND PAYMENTS OF MERGERS AND ACQUISITIONS: FURTHER EVIDENCE FROM THE UK

Mohamed Sherif*

Abstract

Using UK data and the standard Event Study methodology framework, the wealth effects of target and acquiring companies involved in merger and acquisition activities over the period from 2000 to 2010 is investigated. Further, we extend our analysis to examine the financing payments of M&A transactions using various test models, namely the size-deciles (SD) control model, Hoare-Govett small companies model, index model (IM), market model (MM) and the capital asset pricing model (CAPM). The results in general indicate that target companies obtain significantly positive and higher abnormal returns than those obtained by the UK acquirers. The results are positively associated with cash offers used in financing the merger and acquisition transactions. Consistent with previous studies we found no clear pattern of abnormal returns around the announcement period for the UK acquirers. Interestingly, the five different test models are generally found to produce similar levels of abnormal returns**.

Keywords: Mergers and Acquisition, Announcement Effect, Abnormal Stock Return, Market and Index Models

JEL Classification: G34, G32

*School of Management and Languages, Heriot-Watt University, Edinburgh, EH14 4AS
Tel: 44 (0) 131 451 3681
Fax: 44 (0) 131 451 3079
Email: m.sherif@hw.ac.uk
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1 Introduction

Financial scholars, investors and corporations have paid considerable attention during the last few years to the finance events that have emerged around the world. This increasing interest has undoubtedly been supported by the large, and in some cases extraordinary, returns offered by companies to compensate shareholders. Mergers and acquisitions are considered as one of those important events for both a firm and the economy (Fuller et al., 2002). Accordingly, researchers have been interested in understanding the driving forces of this important phenomenon as well as assessing how it affects functioning of corporations and markets. Yet, the most appropriate empirical approach to achieve such an assessment has been an open and debated issue.

One important aspect of mergers and acquisitions, which has a significant number of debated issues and research papers, is the returns to shareholders from successful mergers and acquisitions. The vast majority of evidence finds that, on average, the combined return to mergers and acquisitions is positive (Weston et al., 2005). The reason for positive returns is largely due to the fact that target shareholder returns are significantly high.

The acquiring company shareholders on the other hand tend to experience either normal returns or significant losses at the announcement date of a merger or acquisition (Alexandridis et al., 2010). Fama (1998) and Mitchell and Stafford (2000) believe that the reason for acquiring firm shareholders unsatisfied level of returns is due to the absence of a perfect capital asset pricing model. Other studies suggest alternative explanations related to the existence of certain market imperfections, such as the agency problem and information asymmetries, see inter alia (Jensen and Meckling, 1967; Mueller, 1980; Myers and Majluf, 1984; Jensen and Ruback, 1986; Travlos, 1989; Shleifer and Vishny, 2003).

Another strand of research focuses on the method of finance associated with the M&A transactions. It is well known that when a company decides to participate in a merger or acquisition activity, the acquiring firm must decide upon a payment method, which could be all cash, all equity, or a mixture of both cash and equity. This is a difficult choice for the firm, as there are differing 'ramifications for the shareholders of both acquiring and acquired companies' depending on method of financing (Rappaport and Sirower, 1999).

Recently, a number of studies (Asquith et al., 1990; Andrade et al., 2001; Fuller et al., 2002; Chevalier and Redor, 2008; Alshwer and Sibilkov, 2010; Boone et al., 2010; Ismail and Krause, 2010) have re-visited the relationship between stock returns associated with merger and acquisition activities and methods of payments. These studies indicate that the target company shareholders are the winners in mergers and acquisitions and they receive the best returns when a cash offer is made. However, stock offers have become increasingly popular over the last 20 years. There are many reasons for this, including the bidding firm not having sufficient cash reserves, no tax implications on stock and no debt to repay with stock.

Compared to previous studies, this paper differs in at least two important ways. First, I analyse the effects of the announcement of merger and acquisition on different stock returns of target and acquiring companies using various test models, as the choice of model may influence the results obtained. Studies such as Kennedy and Limmack (1996), Gregory (1997) and Higson and Elliott (1998) suggest that controlling for the commonly observed size effect in the return generating process may be of particular importance in studies of mergers and acquisitions, as target companies tend to be small. In this study, two such size-adjusted benchmarks are applied in addition to three more conventional models. Second, I analyse the ability of merger and acquisition financing methods to describe the stock returns and assess whether payment methods for mergers and acquisitions have an impact on shareholder wealth effects. In contrast to the previous studies, see, inter alia Asquith et al. (1990); Conn et al. (2005); Chatterjee and Aw (2004); Gorton et al. (2009), I conduct this paper on the payment methods adopted to finance the UK companies that have merged or acquired other UK companies, not cross border acquisitions. Also, a vast number of previous studies have focused on acquirer returns and ignoring how this compares to the returns of the target shareholders.

The remainder of the paper is set out as follows. Section 2 is a brief literature review on stock market reactions of takeover announcements and method of payments and then hypotheses are developed. Section 3 provides details of the methodology and models. Section 4 presents the data and empirical results and section 5 concludes.

2 Literature Review

A merger or acquisition can be financed by one of three ways: all cash; all-equity or a mixture of both cash and equity. Weston et al. (2005) state with a cash offer, the stockholders in the target firm receive cash in exchange for their shares, after which time the shares carry no value, at the closing of the offer. In a stock merger, the merging companies negotiate a fixed number of acquirer shares that will be exchanged for each target share.

Andrade et al. (2001) examine more than 4000 mergers completed during the period 1973-1998. They find that the use of stock as a method of payment has increased considerably in the 1990's. In fact, 70% of all deals in the 1990s involved stock compensation, with 58% entirely stock financed. This is approximately double the number of stock deals than those in the 1980s. However, since the 1990's cash has become more popular as a means of payment once again. Bertoncelj and Kovac (2007) investigate the motives behind mergers in different countries using the questionnaire and interview approach, they show that 82% of US deals out of 8,473 in 2002 are cash transactions; 10% are stock only and 8% are a combination of both cash and stock.

The choice between using stock or equity can be a difficult one for the bidder company. In this vein Rappaport and Sirower (1999) indicate that there are differing 'ramifications for the shareholders of both acquiring and acquired companies' depending on method of financing. They continue to explain these consequences further by stating that in a cash deal, the transfer of ownership is obvious as it is simply a case of exchanging money for shares. However, in a stock exchange deal, it is not as clear-cut. In this instance, the bidder shares both the value and risks of the transaction with the shareholders of the acquired firm. This can often result in the acquired company shareholders owning the majority of bidder shares.

In the majority of cases, as Bertoncelj and Kovac (2007) discuss, acquiring companies display a pecking order to their funding options for trans-actions. Thus, retentions of profits are preferred in the first instance, then bank debt, and finally through new stock issues. This allows the firm to avoid debt or reducing share prices unless it is absolutely necessary. This would then suggest that cash would always be the first choice of financing a merger or acquisition activities for an acquirer, and stock would be the last choice. However, research shows that this is not the case as large numbers of acquisitions are in fact financed fully with stock.

This then raises the question of why some managers choose stock as a method of financing for acquisitions when there is significant evidence that they should expect a negative return (Emery and Switzer, 1999). Angelo et al. (1984) argues that the payment method in the merger transaction is a signal of the true value of the bidding firm. In the same line Myers and Majluf (1984) developed a model, which elaborates on this point. Their model is based on the issue-invest decision when management knows more about the firm value than potential investors. Thus, they suggest that in the case of imperfect information, the method of financing an acquisition will signal information to shareholders about the motives of the merger or acquisition. This theory is supported in Travlos (1989) who investigates the role of the

method of payment in explaining common stock returns of bidding firms at the announcement of takeover bids. He suggests that 'if the bidding firms' managers possess information about the intrinsic value of their firm, which is not fully reflected in the pre-acquisition stock price, they will finance the acquisition in the most profitable way for the existing stockholders'. This finding was based on a sample of 167 bidding firms involved in successful takeovers in the period 1972 through 1981. This relates to the signaling hypothesis, which predicts that managers will prefer cash offers if they believe that the firm is undervalued and a common stock exchange offer if the firm is overvalued. Market participants then interpret a cash offer as good news and a common stock exchange offer as bad news relating to the bidding firm's true value.

Alternatively, Stulz (1988) investigates how managerial control and voting rights affect firm value and financing policies. He suggests that acquiring firm managers who value control prefer to pay cash for acquisitions to avoid ownership dilution and the possible loss of control. This way, management retains their shares in the firm and gains the target firm without losing any of their control in the acquiring firm. In contrast to target firms, evidence shows a positive relationship between the acquirers' managerial ownership and the method of cash payments for acquisitions. This has been supported by Ghosh and Ruland (1998) who investigates managerial ownership's relationship with the method of payment for acquisitions. The data is based on 212 acquisitions over a 7 year period. They found that the target firms' mean managerial ownership is significantly higher when acquirers pay with stock (19.36%) rather than cash (7.17%). In contrast, acquirers' managerial ownership is high when cash (14.07%) is paid for acquisitions rather than stock (6.55%).

Many authors have established arguments which highlight reasons why acquiring companies and target companies may prefer to use stock transactions rather than cash payments even though results tend to show that cash generates the best returns for shareholders. Here, Hansen (1987) concludes that the target will prefer equity as a form of payment if the firm is undervalued so that it may share in the forthcoming gains.

In the same line Ramaswamy and Waegelein (2003) examine the financial performance of the combined target and acquired firms over a 5 year post-merger period. They find that firms prefer to use common stock as a method of M&A payment because cash payments tend to create large debts, which need to be paid following the acquisition. These debt payments could have a negative impact on the company performance post merger.

Further, Travlos (1989) indicates that cash offers and exchange offers have different tax implications. In cash offers, there is a tax obligation generated for the target firms' stockholders but acquiring firms are able to raise the depreciation basis of acquired assets to their market value. Alternatively, common stock exchange offers are tax-free acquisitions. Accordingly, any capital gains realised by the target firms' stockholders are deferred until the stock is sold, but the depreciation basis of acquired assets remains the same due to this tax implication. In the same vein Wan et al. (1983) investigate differences in returns after controlling for both payment method and merger type. They found that the cash offer in the bidding firm pay a higher acquisition price to offset the tax burden of the selling stockholders. For this reason, many bidding firms may prefer to finance an acquisition by stock rather than cash, as the former is cheaper than the latter.

Turning our attention to the relationship between the method of payments and common stock returns, Travlos (1989) examines the method of payment in explaining common stock returns of bidding firms at the announcement of takeover bids and finds significant differences in the abnormal returns between common stock exchanges and cash offers. He found that bidding firm returns associated with cash offers are higher than those associated with common stock offers. Andrade et al. (2001) found that the acquiring firms using stock to finance merger and acquisition activities have negative average abnormal returns of - 1.5%, while acquirers that only use cash financing have average abnormal returns of 0.4%. Target firms also perform better when there is no equity involved. The three-day average abnormal return for target firms is 13% for stock-financed mergers and 20.8% for cash offers. The combined average abnormal returns over this event-window are reliably positive for cash offers at 3.6% but zero for stock-financed mergers, suggesting that this subset of mergers does not create overall shareholder value. Heron and Lie (2002) find similar results when investigating the relationship between the method of payment in acquisitions, earnings management and operating performance for a large sample of firms that conducted acquisitions between 1985 and 1997. Boone et al. (2010) investigate the differences in returns associated with different method of payments. They found that mixed payments are more common in large acquisitions, as there are unavailable cash resources to make a full cash payment. They conclude that the mixed payment deals are more similar to stock deals than to cash deals.

In agreement with Travlos (1989), Bruner (2001) found that 60 to 70% of all merger and acquisition transactions are associated with financial performance that at least compensates investors for the opportunity cost. This suggests that due to the differing tax obligations and lower debt considerations, acquirers which opt for stock payments perform better financially immediately after the merger/acquisition has been completed.

Equipped with the above analysis, we have developed a number of hypotheses to be tested in this paper: H1 - the target shareholders of the UK firms involved in mergers and acquisitions activities will earn positive abnormal returns in the short term, H2 - the acquirer shareholders of the UK firms engaged in mergers and acquisitions will earn negative abnormal returns in the short term, H3 - in the short-run, cash acquisitions will create more value compared to non-cash acquisitions for both the target company and the acquiring company.

3 The Methodology and Models

In the following section, the research methodology is set up to estimate the abnormal returns for target and acquirer shareholders. Following Uddin and Boateng (2009) we adopt Event Study methodology to calculate abnormal returns.

3.1 Event Study Methodology

In order to estimate the stock price reactions to merger and acquisition announcements we use the standard Event-Study methodology. This methodology was introduced by Fama et al. (1969) and further developed by (Brown and Warner, 1985). It is based on the fundamental idea that stock prices represent the discounted value of firms' future stream of profits.

Hence, when observing a stock market reaction to the announcement of a merger or acquisition, the change in the equity value of firms affected by this event can then be taken as a measure of the (discounted) additional profits that they are expected to accrue as a consequence of the event (Duso et al., 2007). This can then be taken as stockholders perception of the announcement.

The Event Study methodology analyses the normalised share prices of the bidder and the target around the time of the announcement (Frederikslust et al., 2005). An increase in the share price at the announcement date will indicate a positive market reaction to the news of a merger. The reason to use the Event Study methodology is because 'the Efficient Capital Market Hypothesis states that share prices fully and instantaneously reflects all new information' (Franks et al., 1977). Thus it is possible to analyse a short term period making results more reliable, as it is less likely that other events have impacted the share price. However, many economists are skeptical about the presumptions of efficient markets and the financial markets' ability to correctly anticipate mergers' competitive effects (Duso et al., 2007).

The majority of studies on wealth effects of mergers and acquisitions use stock data and Event Study methodology. This method assumes that the stock market is efficient and changes in share prices of both the acquiring and target firms represent the value of the economic impact of the merger or acquisition (Dickerson et al., 1997). However, Ball (2009) indicates that the Efficient Market Hypothesis (EMH) since the recent global financial crisis has been severely scrutinized and blamed for not predetermining this event. Therefore, many believe that the market is actually inefficient and stock markets cannot be relied on for calculating effects of investments. Nevertheless, event studies are still widely popular and remain to be the method of choice for most academics.

3.2 Event Window and Estimation Period

The first step in the Event Study methodology is to define the event of interest and identify the period over which the security prices of the firms involved in the event will be examined, i.e. the event window (MacKinlay (1997)). In this line McWilliams and Siegel (1997) state that the most crucial research design issue is the length of the event window used in an event study. To isolate the specific impact of the occurrence (i.e. the merger or acquisition), the event window should be narrow (Lo et al., 2004). It is typical, however, to set the event window to be larger than one day in order to facilitate the analysis of abnormal returns surrounding the event day (Mei and Sun, 2008). Following Uddin and Boateng (2009) and Gleason et al. (2002) two event windows are adopted: (i) 2 days before to 2 days after (-2, 2) the announcement date (t = 0). This makes the event window to be a total of 5 days; and (ii) which is a relatively longer window ranging from 10 days before the announcement to 10 days after the announcement (total of 21 days).

When using the Event Study methodology it is necessary to determine an estimation period which is used to predict normal returns and incorporates data relating to the preceding period of the event date. Here, MacKinlay (1997) recommend an estimation period of 120 days prior to the event. Thus we have chosen an estimation period of -130 days prior to the announcement of a merger or acquisition to -10 days of the announcement date. Additionally, we have ensured that, during the estimation period, no other corporate event such as a stock split or earnings announcement has taken place which could affect abnormal returns. The event date itself is not included in the estimation period to avoid the event itself influencing the parameters of the normal performance model. Following Halpern (1983), the event date is considered as the first public announcement of the merger or acquisition, which is the most appropriate event date to measure an event's impact.

3.3 Test Models

While the market model is the most widely used event study model, prior research by Connell and Conn (1993) and Gregory (1997) suggests the assumptions of stationary *a* and *β (3* values are questionable. The

normal returns or predicted returns are the expected returns under the consideration that the event (i.e. the merger/acquisition) had not taken place MacKinlay (1997). The market model is then specified as follows:

$$R_i = a_i + \beta_i (R_m) + \varepsilon_i, \qquad (1)$$

where R_i refers to the return on the share to the company being analysed;

R_m the return on the Financial Times Actuaries index for the UK market;

a_i and β_i are regression coefficients;

S_i is the error term (the estimated abnormal return during the analysis period).

Due to the difficulties in establishing the appropriate benchmark, this and other researchers advocate the application of various test models in the analysis of mergers and acquisitions, as the choice of model may influence the results obtained. In addition, studies such as Kennedy and Limmack (1996), Gregory (1997) and Higson and Elliott (1998) suggest that controlling for the commonly observed size effect in the return generating process may be of particular importance in studies of mergers and acquisitions, as target companies tend to be small. In this study, two such size-adjusted benchmarks are applied in addition to three more conventional models. The size-deciles (SD) control model compares the return on the share to a benchmark derived from a portfolio of companies with similar market capitalisation to the company in question. The size deciles are constructed using daily log return data for all UK companies available from Datastream during each period, with annual rebalancing of the decile constituents. Target companies are matched with the appropriate size decile returns based on the pre-bid market value of the target. The size-deciles (SD) control model is then specified as follows:

$$R_i = R_{SD} + \varepsilon_i, \qquad (2)$$

where R_{SD} the equally weighted return on the deciles portfolio of companies with similar market values to the company being analysed.

The Hoare-Govett small companies model is a variant of the capital asset pricing model including both the overallmarket index and a stockmarket index for small capitalisation companies in the benchmark. This model is specified as follows:

$$R_i = R_f + \beta_{1i} (R_m - R_f) + \beta_{2i} (R_{HG} - R_m) + \varepsilon_i, \qquad (3)$$

where R_f refers to the risk-free interest rate;

R_m the return on the UK market;

β_{1i} and β_{2i} are regression coefficients;

R_{HG} the return on the Hoare Govett small companies index[10].

Capital Asset Pricing Model (CAPM) was introduced by Sharpe (1964), Lintner (1965), Fama (1998) and Mossin (1966) independently. The model is based on Markowitz's work on diversification and portfolio theory and specified as follows:

$$R_i = R_f + \beta_i (R_m - R_f) + \varepsilon_i. \qquad (4)$$

While the index model is specified as follows:

$$R_i = R_m + \varepsilon_i. \qquad (5)$$

The market model parameters (as well as those for the CAPM and HGSC) are obtained using 120 days of daily returns running from day -130 to day -10 before the acquisition announcement date. In order to estimate the parameters, a_i and β_i, the Ordinary Least Squares (OLS) methodology is adopted. These models produce a prediction of a firm's normal or expected returns given the market return and the firm's historical relationship to the market (Uddin and Boateng , 2009). It is based on the assumption that capital markets are efficient and so all information relating to a merger announcement is conveyed directly and instantly in the share price of the firm.

Once the normal returns are estimated, it is then necessary to calculate abnormal returns. Abnormal returns are defined as the difference between the actual returns of a particular share and the predicted (normal) returns surrounding a corporate event. Abnormal returns often occur preceding the event date due to information leakages or even market anticipation (Keown and Pinkerton, 1981). This is why two event windows have been chosen within this study, as this will make it apparent if any information leakages have occurred before the announcement date.

For firm i and event at day t, daily abnormal returns (AR_{it}) are calculated as follows:

$$AR_{it} = R_{it} - (a_i - \beta_i R_{mt}), \qquad (6)$$

where AR_{it} is the abnormal return for stock i on day t;

R_{it} is the actual return for stock i on day t;

a_i is the estimated period intercept of firm i;

β_i equals the OLS estimates of firm $i's$ market parameters;

R_{mt} is the return on the UK market.

The daily abnormal returns are calculated for the window running from day -10 to day +10 surrounding the announcement date for each individual security.

Daily average abnormal returns are then calculated for each sample in the study over the event window for each day t as follows:

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[10] The HGSC model is discussed further in Gregory (1997).

$$AR_{it} = \frac{\sum_{t=1}^{N} AR_{it}}{N}, \qquad (7)$$

where N denotes the sample of securities.

The Cumulative Abnormal Returns *(CAR_i)* for each security is calculated as the sum of all average abnormal returns over the event period (-10, 10). The calculation is given as:

$$CAR_{it} = KL \sum_{T=K}^{N} AR_{it}, \qquad (8)$$

where CAR_{it} is the Cumulative Abnormal Returns;
    K and L is for the period from $t=$ day K until $t=$ day L.

Then the Cumulative Average Abnormal Returns *(CAAR_i)* over the event period from day K to day L are calculated as:

$$CAAR, K, L = \frac{1}{N} \sum_{i=1}^{N} CAR_{it}, K, L, \qquad (9)$$

where $CAAR$ is the Cumulative Average Abnormal Returns;
    N is the sample of securities.

The level of statistical significance of the equally weighted cumulative abnormal returns is tested using the cross-sectional t-test (Strong, 1992) and Z- test. The differences in abnormal returns in target and acqiuring companies is tested using a two sample difference in mean   t-test (Weiss and Hassett, 1986).

4 Data and Empirical Results

The data adopted in this study is daily data from the period 2000 to 2010. The data has been obtained from various sources. Initial data of merger and acquisition activity was obtained from Thomson One Banker. Thomson One Banker deal database (formerly Platinum SDC) provides information regarding the initial announcement date; method of payment; deal value; names of companies; public status; and the industry of the target and acqiuring companies. Datastream database was used to collect daily stock prices of each target and acquiring firm for the event period.

A selection of successful acquisitions from the beginning of 2000 to the end of 2010 for which there are daily stock returns available from Datastream are collated. 21,730 mergers and acquisitions are announced between the beginning of 2000 and the end of 2010. Of this, 19,509 are flagged as being completed. Numerous filters are applied to the data thus resulting in a final sample of 80 merger and acquisition transactions (80 target companies and 80

acquirer companies) being used for this study. The final data collected only includes firms which are publicly traded and have undergone mergers or acquisitions within the UK. The reason for excluding private firms is because less firm specific information on share prices is available. Also, shareholders are unable to speculate directly by buying shares of a private firm at the announcement of a merger or acquisition. Thus, private firm share prices do not reflect the market value, (Zegers, 2009). Non-UK firms have been removed from the sample as differing results will occur in different countries. This was observed by Alexandridis et al. (2010) in his study, which showed the 'Rest of the world' to experience significantly different results in terms of shareholder returns and methods of payment to the UK and US. Further, financial firms and government agencies are also excluded as these are subject to regulatory requirements and use accounting methods, which are difficult to analyse and compare with other companies. Firms which have been selected have a minimum deal value of one million pounds and the acquirer must own more than 50% of the target company after the acquisition[11]. Finally, spin-offs, recapitalizations, self tender, repurchases, and exchange offers are all eliminated from the sample. When these filters are applied only 1 acquisition out of the remaining sample is classified as hostile and therefore this was also eliminated to avoid this 'polluting' the final results. The sample of firms adopted are categorised based on the method of payment. This can be cash financing, which includes combinations of cash, debt and liabilities. Alternatively, stock financing can be used, which includes financing with common stock or a mix of common stock and options or warrants. Finally, mixed financing may be adopted. This comprises of common stock, cash, debt, preferred stock, and convertible securities. Table 1 shows summary statistics of the distribution of the payment types by year and value of transaction. It can be seen from this table that the peak year of acquisition activity within the UK with respect to the average deal value is in year 2003 with a deal value of 264.24m. The record year with respect to the number of transactions is the year 2001 with a total of 15 merger/acquisition transactions taking place. Out of the 80 bids 33 (41.25%) are financed by stock, 35 (43.75%) by cash and 12 (15%) are mixed payments. Thus for the UK companies involved in merger or acquisition activities between the period 2001 to 2010, cash is the preferred choice of payment method, closely followed by stock. This distribution of payment methods differs to that found in other UK studies. For example, Sudarsanam and Salami (2001), in their sample of 1,100 acquisitions over the period 1975-1984, find that 63% of merger and acquisition

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[11] Very small acquisitions were excluded (below lm) to be consistent with recent acquisition studies in the finance literature employing abnormal returns methodology.

transactions use mixed payments; 24% are cash transactions and 18% depend on equity. Similarly, Sudarsanam and Mahate (2001) find, based on a sample of 519 takeovers between 1984 to 1995, that 61.5% use mixed financing; 18.7% and 19.8% use cash and equity respectively. As our sample of firms'

looks at a more recent period in time, this difference may suggest a change in companies' preferences over the years in relation to financing methods or maybe even the result of economic activity.

Table 1. Summary Statistics

|	Frequency of transactions	Average Deal Value (m)	Stock	Cash	Mixed
2001	15	131,26	8	5	2
2002	9	42,81	4	5	0
2003	3	264,24	1	2	0
2004	7	75,69	3	2	2
2005	3	101,12	1	2	0
2006	11	106,35	6	3	2
2007	11	101,07	3	6	2
2008	10	67,4	2	5	3
2009	3	232,88	1	1	1
2010	8	22,35	4	4	0
	80		33	35	12

We begin our analysis by reporting the abnormal returns estimated by the market model for the event windows of (-2, +2) and (-10, +10) for both the target company and the acquirer. We first discuss the share price effects for both types of companies when the method of financing is not considered. Next, the acquirer and target shareholder wealth effects will be presented for both the short and longer event windows when the payment methods are adopted. As before, to test the robustness of the results we re-estimate the abnormal returns using a number of test models.

Starting with the share price effects without the method of payments, Figure 1 shows the average abnormal returns for both target and acquirer companies over the 5 day event window. As can be

seen the target companies obtain higher abnormal returns around the announcement period than those associated with acquirer companies. It is clear that there is a significant difference between announcement day returns of the target company (9.3%) and acquirer company (-2.3%) with acquirer returns being significant at 1% level of significance. In fact, on day 0, the announcement day, target companies receive 127.3% higher returns than acquirer shareholders. These results are in line with previous studies and suggest that in the majority of cases target companies perform significantly better in terms of shareholder returns than acquiring companies.

Figure 1. Average Abnormal Returns of bidding firms and target firms involved in M&A activity (-2, 2)
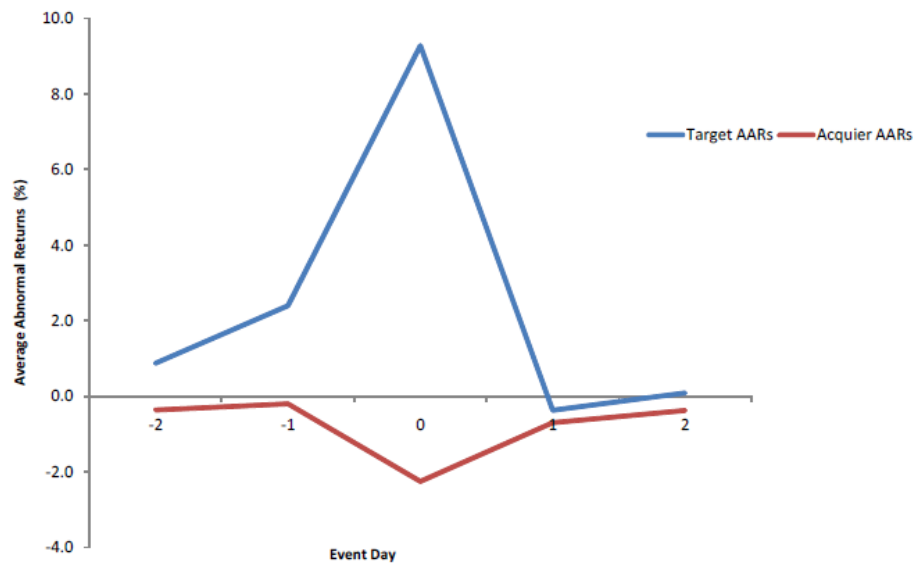
Figure 2. Average Abnormal Returns of bidding firms and target firms involved in M&A activity(-10, 10)
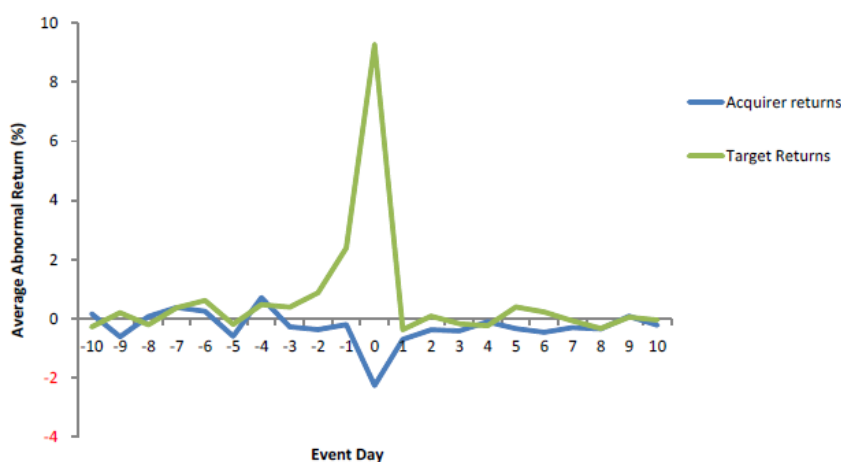
When the event window is expanded to include additional days before and after the announcement date of the merger or acquisition, it is worth noting the point at which the highest gains are obtained for both the acquirer and target companies. It is clear from Figure 2 that the majority of the returns are received around the announcement date i.e. during the short event window (-2, 2), which imply that there was very little, or no, information leakages before the announcement date as this would have resulted in greater share price increases/decreases prior to the announcement date. These results also suggest that the market is efficient (efficient market hypothesis is correct) as information relating to the merger announcement has been immediately reflected in the share prices.

Table 2. Estimations of Average Abnormal Returns

	Market Model		Size-Deciles (SD) Model	
	AAR-Acquirer	AAR-Target	AAR-Acquirer	AAR-Target
-10	0.163	-0.274	0.182	-0.314
-9	-0.608***	0.206	-0.364***	0.358
-8	0.073	-0.203	0.068	-0.394
-7	0.380	0.372	0.441	0.245
-6	0.255	0.616	0.105	0.535
-5	-0.590	-0.190*	-0.340	-0.090*
-4	0.712	0.477*	0.584	0.557*
-3	-0.276**	0.390	-0.133**	0.251
-2	-0.364***	0.877*	-0.583***	0.557*
-1	-0.199***	2.397***	-0.397***	2.702***
0	-2.255***	9.279	-1.810***	8.209
1	-0.698	-0.370***	-0.937	-0.302***
2	-0.376	0.088*	-0.583	0.057*
3	-0.408	-0.168	-0.233	-0.151
4	-0.107	-0.237*	-0.584	-0.157*
5	-0.334**	0.397*	-1.340**	0.490*
6	-0.458**	0.228	-0.105**	0.135
7	-0.301	-0.071	-0.841	-0.200
8	-0.345	-0.327	-0.268	-0.394
9	0.083	0.052	0.064	0.358
10	-0.215	-0.043	-0.483	-0.314

Moving on to the share price effects associated with long event windows, Table 2 shows the average abnormal returns (AAR) for the 80 UK Target and Acquiring firms involved in acquisition activities within the UK over the period from 2000-2010. These results show that acquiring companies obtain negative abnormal returns for five of the ten days preceding the announcement date, with days -1, -2, -3, and -9 being significant. This may suggest that acquirer firm shareholders are aware of the acquisition transaction before the announcement date and take it as a bad investment. This in turn will reflect on share prices to be reduced and eventually creating an overall loss in abnormal returns for stockholders. As these results are

significant at the 1% and 5% significance levels, one can conclude that this pattern will be true for most acquisitions that occur in the UK. Post announcement date returns are negative but not significant except for days 5 and 6, which provide negative and significant returns at 5% level of significance and day 9 which make positive but insignificant returns. Negative returns are also seen on the announcement date, which is significant at the 1% significance level.

In general, the results obtained for abnormal returns for acquirers over the event window -10 to +10 provide us with no clear pattern of returns for the UK acquiring companies involved in mergers or acquisitions activities. The observed abnormal returns seem to fluctuate randomly across the 21 days but as expected the lowest abnormal returns are obtained on the announcement date (-2.3%). Overall, this implies that acquirers obtain negative or zero returns over the event period. Even in times of positive returns to acquiring shareholders the returns are not significant and can not therefore be used as a measure of acquirer returns. Accordingly, one can conclude that the announcement of an acquisition by a UK firm does not generate any value for the shareholders of bidding firms. These results are quite similar to Uddin and Boateng (2009) results for the UK cross-border acquisitions. However, when looking at other studies which examine companies out with the UK, there are clear differences in acquirer abnormal returns. For example, Kyriazis and Diacogiannis (2008) investigate the wealth effects of Greek takeovers, they find that their whole sample of acquiring firms gain positive cumulative average abnormal returns, which are statistically significant.

Similarly, Wong et al. (2009) found that the sample of Asian bidding firms have created positive cumulative average abnormal returns. Reasons for this may be due to the fact that the UK has a more developed capital market and therefore works more efficiently. This then may indicate that stockholders are informed about merger and acquisition proposals immediately and their reactions are then conveyed through share prices. While in other countries, such as Greece and Asia, shareholder opinions may be delayed in being represented in share prices and therefore their true thoughts on the merger/acquisition are not portrayed in a short-run event study.

Moving our attention to the target companies, as can be seen from Table 2, the results obtained for target companies vary considerably from those seen for acquirer shareholders. Target company shareholders have gained positive and significant abnormal returns around the announcement of a merger or acquisition, with the announcement date, day 0, producing the highest return of 9.3%. However, this announcement date return is not significant.

Looking at the complete 21 day event period, we find that 3 out of the 10 days before the announcement date present insignificant negative returns implying little impact on the Average Abnormal returns (AAR) for this event window. What stands out is the negative returns which immediately follow the high positive returns of day 0, created 1 day after the announcement date (-0.37%), which is significant at 1% level of significance. This is then followed by slight positive and negative returns. Overall, one can conclude that targets have clearly achieved the best returns at the announcement date.

Next, we discuss the share price effects for both types of companies (target and acquirer) when the method of financing is considered. Table 3 presents the Average Abnormal Returns (AARs) and Cumulative Average Abnormal Returns (CAARs) associated with different methods of payments (cash, stock and mixed payments) over both the 5 day and 21 day event window. Starting with the acquirers, we can see from Table 3 that acquirers obtain lower negative cumulative average abnormal returns when cash is used (-0.242%) as a form of payment compared with stock (-8.048%) or mixed payments (-3.997). Further, cash payments are seen to provide insignificant positive returns on the announcement date and one day after the announcement. While stock payments provide high significant negative abnormal returns on the announcements date (-5.224%). Negative returns are similarly observed on the two days preceding the announcement date and the following two days after the announcement date when stock is used. The high abnormal losses occurred during the event period are mainly as a result of the losses incurred on the day of the announcement. Overall, 58.1% of the abnormal losses are derived from the announcement date losses for all acquiring companies. It can, therefore, be said that acquirers on average obtain negative or zero returns in the event period (-2, 2) of an acquisition. This implies that over the short run period aquirer shareholders will, on average, obtain negative returns.

Looking at acquirer's Cumulative Average Abnormal Returns (CAARs) for the 21 day event window (-10,10), we find that the pattern of the negative returns continues. When cash and stock are used to finance the acquisition activities, acquirer shareholder returns become more negative over the longer period. However, when a mixture of cash and equity is adopted, the CAARs is reduced slightly over the longer event window. This is due to the fact that acquirers receive positive returns for 3 of the 10 days post-announcement date. These results, yet, are insignificantly different from zero.

Moving onto target companies, the results are in contrast to acquirer shareholder returns, as higher and significant returns are gained by target shareholders compared to acquirer shareholders when the results are presented for the three different payment methods. As seen from Table 3, Cash acquisitions produce the highest returns for target shareholders (15.4% and 17.8% for the short and longer window respectively). With stock-financed acquisitions, shareholders

receive a 10.1% abnormal return over the 21 day period. The majority of this gain comes from the 5 day event window and in particular from the announcement date when 7.7% average abnormal returns are obtained. Finally, mixed payments provide shareholders with the lowest but still positive returns at 8.6% over 5 days and 10.2% over 21 days. Clearly, these results infer that targets are the winners in mergers and acquisitions in terms of abnormal returns. When cash is the financing method, returns to shareholders are substantial. It is worth noting that the majority of shareholder returns generated around an acquisition come from the announcement date itself.

Further, in the cash acquisitions case 78.9% of the cumulative abnormal returns over the 5 day event window came from the announcement date. These results suggest that target shareholders would prefer cash-financed acquisitions, as these will generate the best returns for shareholders. Consistent with previous studies, this indicates that target firm shareholders

will gain positive Abnormal Returns (AR) in the short term; and cash payments will generate the highest abnormal return for target shareholders. This, in turn, supports hypothesis 1 (H1) which states that target firm shareholders will gain positive abnormal returns in the short term; and also hypothesis 3 (H3) which claims that cash payments will provide the highest abnormal return for target shareholders. In terms of the optimal payment method for both the acquirer company and target company, one can conclude that cash seems to be the financing option, which gives the best returns to shareholders. This is perhaps why cash is the most popular method of financing a merger or acquisition activities within this sample of transactions. A possible reason for cash payments producing optimal results may relate to the signaling hypothesis which means market participants interpret cash offers as good news and stock offers as bad news.

Table 3. Abnormal Returns *(AARi)* and Cumulative Average Abnormal Returns *(CAARi)*

	Cash		Stock		Mixed	
	AAR (%)	Z – statistic	AAR (%)	Z – statistic	AAR (%)	Z – statistic
			Market Model			
			Acquirer			
-2	0.132	-0.710	-1.062	-2.512***	0.002	0.224
-1	-0.463	-2.632***	-0.019	-1.476*	0.139	0.085*
0	0.276	-5.497	-5.224	-3.581***	-2.195	0.064*
1	0.157	0.645	-1.204	0.060	-1.856	0.052*
2	-0.344	1.767**	-0.539	-1.351*	-0.087	0.290
5dayCAAR (%)	-0.242	-1.992	-8.049	-1.772	-3.997	0.143
21dayCAAR (%)	-1.661		-11.443		-3.384	
			Target			
-2	0.490	0.645	1.438	1.111	0.424	0.972
-1	2.666	2.390***	1.886	1.907**	2.786	0.599
0	12.139	-5.497	7.664	-3.581***	4.964	-1.518*
1	-0.098	2.390***	-1.289	1.907**	1.258	0.599
2	0.193	0.645	0.355	1.111	-0.877	0.972
5dayCAAR (%)	15.391	0.115***	10.053	0.491**	8.554	0.325**
21dayCAAR (%)	17.787		10.134		10.227	
			Size-Deciles (SD) Model			
			Acquirer			
-2	0.140	-0.620	-1.042	-2.311***	0.001	0.123
-1	-0.342	-2.431***	-0.012	-1.363*	0.124	0.057*
0	0.265	-4.466	-4.342	-2.565***	-1.164	0.044*
1	0.155	0.423	-1.113	0.041	-1.790	0.041*
2	-0.133	1.561**	-0.415	-1.240*	-0.043	0.141
5dayCAAR (%)	-0.312	-0.942	-6.049	-1.011	-4.042	0.131
21dayCAAR (%)	-0.954		-8.943		-2.850	
			Target			
-2	0.560	0.715	1.215	0.785	0.524	1.043
-1	3.021	1.978***	2.086	2.003**	3.984	0.456
0	10.026	-4.964	5.942	-4.863***	3.902	-2.014*
1	-0.103	2.162***	-1.310	2.004**	1.046	0.610
2	0.201	1.011	0.405	1.012	-1.045	1.030
5dayCAAR (%)	12.411	0.126***	7.94	0.501**	6.237	0.425**
21dayCAAR (%)	15.975		9.034		8.032	

From the above results, we can conclude that stock financing produces substantial negative returns for the acquiring shareholders and should be the least preferred method of financing an acquisition for the bidding firm. In this sample of acquirers, stock is actually a very popular method of financing (33 out of 80 acquirers), which seems unreasonable given the substantial abnormal losses created with this form of payment. Reasons for this may include the fact that some acquirers do not have the sufficient funds to pay by cash; or the acquirer was unsure of the targets value and so chose to pay with cash in order to share the risks associated with the target company rather than to face the risks alone. However, in terms of target returns, stock financing gives target shareholders a significant positive return and therefore may be a favorable method of payment for target companies. These results are in line with previous studies and can be explained by the existence of information asymmetries which lead the market to perceive the issuance of stock by bidders as an overvaluation signal of these companies.

It is worth noting, however, that not all acquirers have achieved negative returns over the 5 day and 21 day periods when stock was adopted as a method of financing. Out of the 33 bidding companies that opted for stock as their method of payment, 10 of them have achieved positive cumulative abnormal returns for both the 5 day and 21 day event periods. Most of these positive returns, however, are relatively small in comparison with the substantial loss incurred by the remaining sample. On the other hand, when looking at target cumulative abnormal returns, 27 of these companies have achieved positive returns over the 5 day period and 26 over the 21 day period. As a sort of robustness check, a parallel exercise is performed to discuss the summary statistics of abnormal returns associated with each individual financing method of merger or accusation activities.

Starting with Stock payment method, Panel A of Table 4 shows summary statistics for companies which have used stock as a financing method for acquisitions. As can be seen, the lowest negative abnormal return for acquirers is -47.2% for event

window (-2, 2) and -73.7% for event window (-10, 10). The highest positive abnormal return is approximately 20% for both event windows. Clearly, a significant difference between the two types of firms exists. The table also shows how the range of abnormal returns increases significantly as the event window is expanded. This is due to the fact that abnormal returns become more negative over the longer period of time examined. A considerable range in the highest (53.8% and 56.8% respectively) and lowest (-79.5% and -86.9% respectively) cumulative abnormal returns for both event windows exists for target companies. However, this is associated with one target company, which receive significant lower returns than all other companies. Figure 3 plots the Cumulative Abnormal Returns (CAR) received by each individual bidder and target companies for stock financed transactions over the 5 day event window and 21 day event window. It can be seen that the majority of the 33 acquirers using stock financing achieved abnormal losses with only a small number of them receiving positive returns. When positive returns are gained it is usually over the 21 day event window implying that the positive returns are not gained closely around the announcement date.

For Cash payment, Panel B of Table 4 presents summary statistics for companies adopted cash as a financing method for acquisitions activities. As can be seen from the Table, there is a smaller range between the highest and lowest Abnormal Returns (AR) over the 5 day event window when cash is used as a form of financing rather than stock. This is due to the fact that cash financing performs better than stock financing and therefore more positive abnormal returns and lower negative returns achieved by both companies. Figure 4 shows that only 3 of the 35 acquiring companies made significant abnormal gains using cash as a form of financing. The figure also shows that target company shareholders achieve superior returns, with the majority of firms obtaining healthy and significant returns over both event windows. Only a small number of firms received negative returns, which are not statistically different from zero.
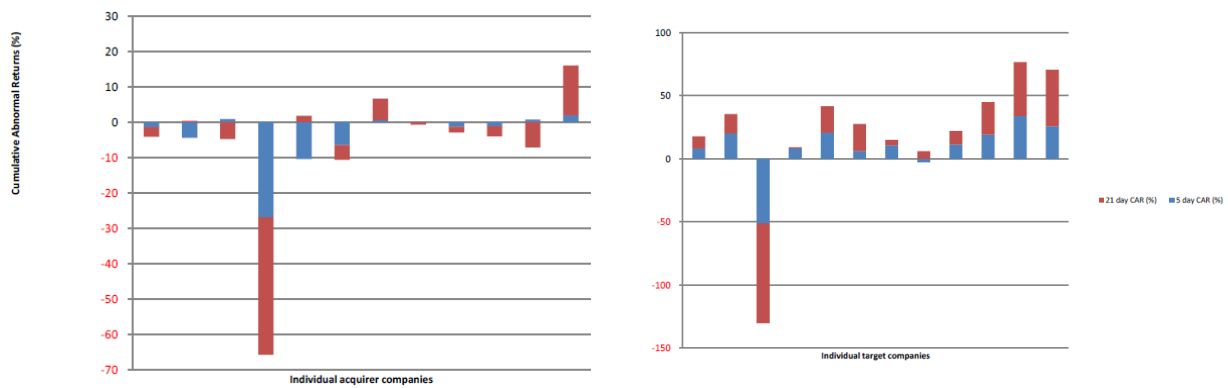
Figure 3. Acquirer and Target Cumulative Abnormal Returns for Individual firms financed with stock
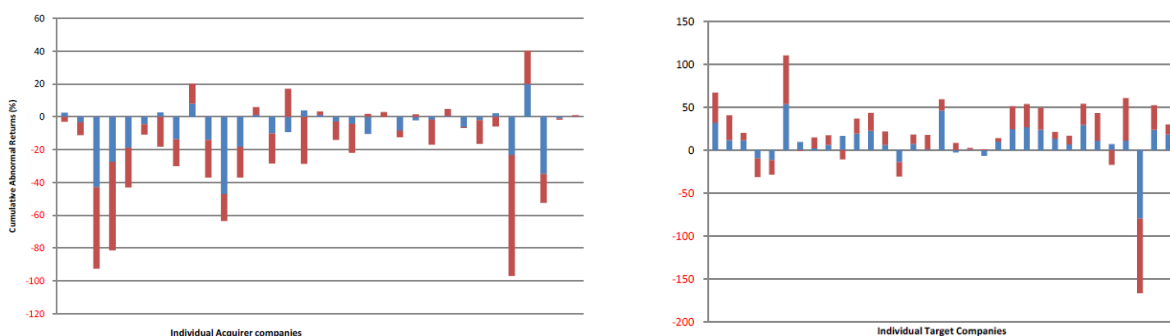
Figure 4. Acquirer and Target Cumulative Abnormal Returns for individual firms financed by cash
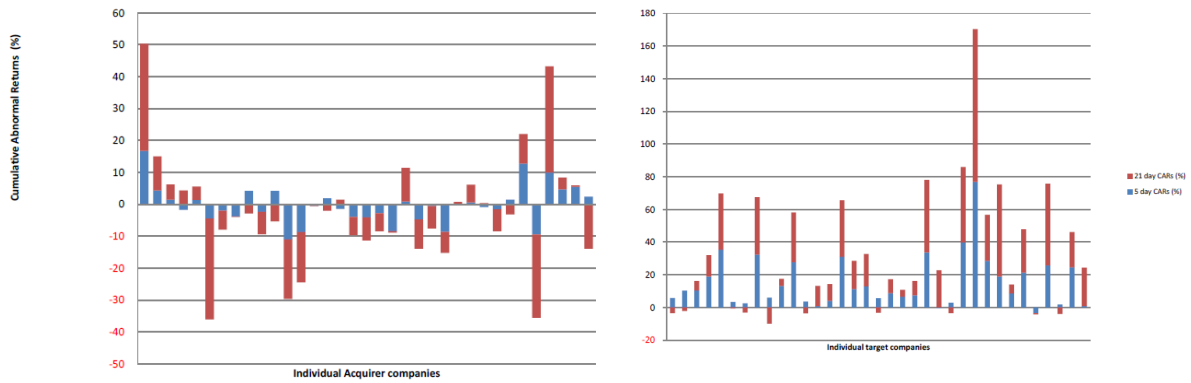
Figure 5. Acquirer and Target Cumulative Abnormal Returns for individual firms financed by mixed

Finally, Panel C of Table 4 presents the summary statistics for individual acquirers and targets involved in mixed payment transactions. As can be seen, the highest Cumulative Abnormal Returns(CAE) received by acquirers is 14.1% and 44.7% for targets and the lowest was -38.8% and -79.2% for acquirer and target respectively. Acquirers on average do not receive high Cumulative Abnormal Returns (CAR) and this is perhaps why acquirer companies opt not to use this method of financing. However, when low abnormal returns are received, mixed financing method performs better than stock financing. Hence, this method of payment is popular with risk-aversion firms, as they will not lose as much as they would in returns if stock financing is used.

Figure 5 shows the individual companies involved in mixed payment transactions and their Cumulative Abnormal Returns (CAR). As can be clearly seen from Figure 5, one of the 12 acquirers and one of the 12 targets firms have received negative results when this method of payment is adopted. Therefore, these results fail to show a clear pattern in the returns to acquirers when using mixed financing. The same pattern of results applies when the Size-Deciles(SD) model is adopted. Further, our findings also mirrors those of Boone et al. (2010), who find supportive evidence for cash financing method of merger and acquisition activities and the returns are not as substantial as would be expected with a stock payment for both the target and acquirer shareholders. However, there is very little previous studies available on mixed financing and so it is difficult to compare our findings with other related empirical work.

Table 4. M&A Methods of Payment

	Market Model			
	Acquirer		Target	
	CAR (%) (-2, 2)	CAR (%) (-10, 10)	CAR (%) (-2, 2)	CAR (%) (-10, 10)
Panel A: Transactions financed with stock				
Total	-265.603	-377.630	331.753	334.428
LowestCAR(%)value	-47.194	-73.712	-79.494	-86.946
HighestCAR(%)value	19.950	20.263	53.824	56.765
Range	67.144	93.975	133.32	143.71
Average(mean)	-8.05	-11.443	10.053	10.134
Panel B: Transactions financed with Cash				
Total	-8.486	-58.124	538.668	622.555
LowestCAR(%)value	-11.036	-31.615	-3.524	-9.945
HighestCAR(%)value	16.775	33.497	76.845	93.508
Range	27.811	65.112	80.369	103.453
Average(mean)	-0.242	-1.661	15.391	17.787
Panel C: Transactions financed with mixed payment				
Total	-47.968	-40.604	111.206	122.724
LowestCAR(%)value	-26.964	-38.836	-51.191	-79.180
HighestCAR(%)value	1.932	14.099	34.069	44.692
Range	28.896	52.935	85.26	123.872
Average(mean)	-3.997	-3.384	9.267	10.227
	Size-Deciles (SD) Model			
Panel A: Transactions financed with stock				
Total	-185.350	-402.142	168.213	154.016
LowestCAR(%)value	-51.201	-51.325	-81.501	-91.103
HighestCAR(%)value	23.702	17.140	62.502	64.652
Range	72.023	73.802	098.11	160.93
Average(mean)	-6.92	-9.811	7.803	8.943
Panel B: Transactions financed with Cash				
Total	-5.911	-67.037	447.348	544.012
LowestCAR(%)value	-10.850	-21.415	-4.021	-10.054
HighestCAR(%)value	13.054	23.507	80.734	53.004
Range	30.722	54.001	48.023	176.083
Average(mean)	-0.336	-1.570	12.400	14.409
Panel C: Transactions financed with mixed payment				
Total	-51.405	-29.063	098.724	101.523
LowestCAR(%)value	-30.630	-41.006	-47.201	-81.203
HighestCAR(%)value	2.043	10.120	21.1093	21.721
Range	31.761	40.123	76.31	101.902
Average(mean)	-4.026	-2.701	8.805	8.790

5 Conclusion

This paper has tested the shareholder wealth effects of UK acquiring and target companies over the period 2000 to 2010 using the standard Event Study methodology and a number of test models in the analysis of mergers and acquisitions. Further, the methods of payment for acquiring and merger activities are assessed using the tests of Uddin and Boateng (2009). The paper aimed to answer three questions. First, what is the share price performance of UK acquiring firms involved in UK mergers and acquisitions?. Second, what is the price performance of UK target firms involved in UK mergers and acquisitions?. Finally, what is the impact of merger/acquisition financing methods on acquirer and target shareholder wealth effects.

We find evidence supportive of the target companies returns, as those firms have achieved, on average, significant positive gains in mergers and acquisitions activities over both the short (-2, 2) and long (-10, 10) event windows. There is a highly supportive evidence for the performance of the target companies, particularly the specification that allows for using cash as a method of financing. Consistent with previous studies we found no clear pattern of abnormal returns around the announcement period for the UK acquirers. Our findings also mirrors those of Boone et al. (2010), who find supportive evidence for cash financing method of merger and acquisition activities and the returns are not as substantial as would be expected with a stock payment for both the target and acquirer shareholders.

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