

Impact of Domestic Acquisition on Acquirer Shareholders' Equity: An Empirical Study on the US Market

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Abstract

This study investigated the short-term impact of domestic acquisitions on the acquirer shareholders' equity in the US market. Average abnormal returns and cumulative average abnormal return were calculated to evaluate the acquirer's return for a sample of 90 US domestic acquisitions based on US NASDAQ market during the period 2012-2014. The method of payment for the acquisitions, the size of the deal, and the industry relatedness were considered to assess the impact on the domestic acquirer shareholders' equity. Event study methodology was applied to analyze the shareholders' equity of US domestic acquirers in the short-term. The announcement date of the acquisition was considered as the event day and the impact of the acquirer return was observed for four event windows: pre-announcement, in - announcement, post-announcement, and the entire short term around the announcement. The results of the study revealed that domestic acquisition significantly increased the acquirer shareholders' equity during the pre and in-announcement periods in the US market, but it brought the acquirer shareholders a negative return post acquisition announcement. The method of payment, deal size and industry relatedness had no significant impact on the acquirer shareholders' equity. The paper must have abstract not exceeding 200 words.

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1 Introduction

An acquisition is considered to be a combination of two or more businesses where one firm dominates the other, managerially and financially (Arnold [1]). In recent years, the acquisition of another business has become a common economic phenomenon and an integral part of the modern economy. The acquisition of another business can be motivated by many factors and has attracted the attention of both scholars and policy makers. The strategy of mergers and acquisitions is used to improve financial performance and /or improve managerial performance. For example, from the perspective of improving financial performance, if the acquirer takes over a major competitor, it can increase its market share and exercise greater power in setting prices to increase its revenue. In addition, the acquirer can integrate and streamline similar services to reduce operating costs and improve operational efficiency. Moreover, a profitable acquirer can buy a loss making target and use the target's negative performance to its advantage to reduce tax liability (Mergers and Acquisitions Lawsuit Centre [2]). From the perspective of improving managerial performance, if the current owners of the target company cannot find proper successors to succeed them, acquisition can be a good way of solving this problem. Sometimes, a target company has to give up its identity to survive a financial crisis (Mergers and Acquisitions Lawsuit Centre [2]). All of the above factors contribute to making an acquisition happen, with a resulting impact on a shareholder's equity - a "successful" acquisition will result in greater market value for the shareholders. However, even before the long term success of an acquisition can be determined, there will be perceptions as to its likely success which will have an immediate effect on market value. The aim of the current study, therefore, is to investigate the short-term/immediate impact of domestic acquisitions on acquirer shareholders' equity in the US market and whether this impact is influenced by certain conditions.

2 Theory and Hypotheses

2.1 Motives for Acquisition

The primary objective of financial management is to maximize the market value of the firm for its owners, that is, the maximization of shareholders' wealth (Manne [3], Cho [4], Peterson and Fabozzi [5], Cooper et al. [6], Dayananda et al. [7]). With mergers and acquisitions, the shareholder wealth maximization criterion is satisfied from the acquirer's standpoint when the added value through the acquisition of a target company exceeds the cost of acquisition i.e. the transaction costs and the acquisition premium (Manne [3]). Many researchers suggest that the acquirer shareholders' equity increases around the time of the announcement of an acquisition (e.g., Datta et al. [9], Rani et al. [10], Rani et al. [11], Mandelker [12] Langeteig [13], Dodd and Ruback [14], Jarrell and Poulsen [15], Brunner [16], Mulherin and Boone [17]) in anticipation of future increase in wealth as a result of the acquisition. This is because one of the main motives for acquiring another business is to obtain synergy, which occurs when the value of the combined firms is greater than the sum of the acquirer and target as individual firms. Financial synergy can arise by realizing a lower cost of capital through organization portfolio diversification or by reducing systematic risk of the business (Holl and Kyriazis [18]). Operational synergy benefits may include cost reductions through the elimination or streamlining of processes, access to a

new market by avoiding trade barriers, or having more accessible resources and employing skilled workers (Arnold [1]). Some authors have suggested that acquisition is always associated with a positive wealth effect for acquirers (e.g. Bradley et al. [19] and Dennis and McConnell [20]).

Hankir et al. [21], however, have argued that, although theoretically synergy might be anticipated for value creation, the empirical evidence proposes that this might not always be the case due to capital markets not believing in synergy realization as a rationale for acquisition. Moreover, if the acquisition is motivated by the acquirer's 'top management's' hubris about the valuation of the acquisition resulting in a misjudgment on the premium that should be spent on acquiring the target business, this will result in destroying the acquirer shareholder's wealth (Berkovitch and Narayanan [22]). Shleifer and Vishney [23] also suggest that managers may have their own self-interested motives in attempting an acquisition, for example, making investments that increase managerial value, such as welfare and prestige, at the expense of sacrificing the acquirer shareholders' wealth.

2.2 Other Considerations

A number of empirical studies suggest that due to asymmetric information between insiders and outsiders, agency problems between the acquirer's management and shareholders, and the high cost of bidding wars among potential acquirers, the acquirer might suffer an insignificant negative market return (Jensen and Ruback [24], Roll [25], Morck and Yeung [26], Subeniotis et al. [27]). Roll [25] pointed out that normally acquisition needs free cash flow to capitalize the transaction, although the risk to the organization is reduced through portfolio diversification, while on the other hand, this might generate negative NPV, which reflects on the acquirer's share price. Previous research findings have also suggested that the return to the acquiring shareholders depends on various characteristics (Datta et al. [9]). Additionally, according to Limmack [28], whether an acquisition increases the acquirer shareholders' equity depends on the period included in the analysis and the control model used. This study is concerned with the immediate period around the announcement date of an acquisition and the impact of payment method, industry relatedness and transaction size on the market value of the acquirer's shareholder wealth.

2.3 Effect on Acquirer's Shareholder Equity of Firm and Transaction Characteristics

2.3.1 Method of payment

In a market acquisition, the acquirer can pay for the acquisition either using cash only or by paying with a combination of cash and own stock. Most empirical studies agree that the payment mode plays an important role in determining the acquiring firm's stock return (e.g. Asquith et al. [29], Datta et al. [9], Huang and Walkling [30], Travlos [31], Fuller et al. [32], Yook [33], Heron and Lie [34]). Rani et al. [10] found that domestic acquisition financed by a combination of cash and stock generates negative returns for the acquirer's shareholders around the acquisition announcement, whereas domestic acquisition financed by cash generates a zero or a slightly positive return for the acquirer's shareholders. Jensen and Ruback [24] and Myer and Majluf [35] have stated that an acquisition paid by cash reduces the agency cost because the bidding firm does not need to request Securities and Exchange Commission for approval and it conveys a positive signal to the market. In

contrast, if the acquisition is paid by stock, it conveys a negative signal to the market that the acquirer is not confident about the valuation of the target company. However, Franks et al. [36] argued that a cash transaction might impose an immediate tax liability on the target shareholders, which might cause the target firm to seek compensation in the form of a higher premium, making an acquisition paid by cash more costly than if paid by stock. Rappaport and Sirower [37] and Martin [38] also proposed that firms with excellent futures should not pay in cash for acquisitions. There is an argument that it is beneficial to pay in stock, especially in the case of high-risk transactions, because the target business will have more incentive to make the takeover a success. Therefore, it can be seen in the literature there are arguments both for and against both forms of payment for acquisition and further research may clarify whether this has an impact on immediate shareholder wealth.

2.3.2 Industry relatedness

Some of the literature has focused attention on industry relatedness i.e. whether the acquired business is trading within the same industry as the acquirer, and whether this might impact on acquirer shareholders' equity. According to Campa and Hernanado [39], Jensen and Ruback [24], Bradley et al. [40] and Walker [41], industry related acquisition tends to bring more cumulative average abnormal returns than unrelated industry acquisition. This research result was also testified by Sudarsanam et al. [42], Harris and Ravenscraft [43] and King et al. [44], who state that operational synergy gains in an industry-related acquisition such as corporate control efficiency and economy of scale can drive and realize higher abnormal returns than in an acquisition of a business in an unrelated industry. Moreover, Comment and Jarrell [45], and Lang and Stulz [46] have both found a negative relation between unrelated diversification and acquirer shareholders' abnormal return. In other words, unrelated diversification through cross-industry acquisition may not produce wealth and may even cause greater agency costs and operating inefficiencies, which will have a negative impact on the performance of the acquirer and destroy the acquirer shareholders' wealth.

However, Delong [47] totally contradicts this result, stating that an industry-unrelated acquisition can create positive abnormal returns for the acquirer's shareholders, because it can still offer administrative and financial synergies along with organizational portfolio diversification. This result was confirmed by Jensen and Ruback [24], Bradley et al. [40], Campa and Kedia [48], and Matsusaka [49]. Therefore, while there appears to be agreement that industry related acquisitions will increase shareholder wealth in the long term, there is disagreement as to whether industry unrelated acquisitions can be beneficial or negative to shareholder wealth. Whether this impacts on market perceptions and acquirer's shareholder wealth at the time of the announcement needs further study.

2.3.3 Deal size

Empirical studies suggest that the deal size might affect the acquirer shareholders' equity. Some of the findings suggest that a large acquisition destroys more value for the acquirer. Loderer and Martin [50] found that acquirers experience a greater loss when buying large targets because they tend to pay more to acquire the large target. Cole et al. [51] also noted that the cost of acquisition advice increases with the size of the deal, which can decrease the acquirer shareholder's return. This result was also confirmed by Ingham et al. [52], who states that acquiring smaller targets is less costly and might increase the acquirer shareholders' wealth. However, according to Firth [53], deal size implies the target's scale,

so a large target might benefit the acquirer by increased reputation and social recognition and it might finally bring abnormal returns to the acquirer, suggesting that although there may be increased costs for the acquisition itself, the long term increase will outweigh the temporary one-off costs.

Alexandridis et al. [54], however, testified that the target size and deal size are actually negatively associated with offer premium and that the overpayment potential in large deals appears to be low; in other words, the acquirer would earn an abnormal return from acquiring a less-costly large target. However, Bednarczyk et al.'s [55] finding cannot be ignored which, in contrast to other studies, suggests that the size of the deal does not significantly impact on the return of the acquirer shareholder.

Whether there is benefit or not from the size of the deal in the long term, if the market perceives there will be an effect, this could affect market value at the time of the acquisition announcement. Further research is needed to determine whether the market views deal size as important and whether this affects acquirer shareholder wealth at the time of the acquisition announcement.

2.4 Formulation of the Research Hypotheses

In the light of the research objective and on the basis of the literature, the following hypotheses were formulated to investigate the short-term impact of domestic acquisitions on the acquirer shareholder's equity in the US market:

H1: There is a significant positive impact of domestic acquisition on the acquirer shareholder's daily equity in the period around the acquisition announcement.

HII: There is a significant positive impact of domestic acquisition on the acquirer shareholder's equity in the short-term around the acquisition announcement.

HIII: Methods of payment for an acquisition have a significant impact on the acquirer shareholders' equity in the short-term around the acquisition announcement.

HIV: Acquirer and target industry relatedness have significant impact on acquirer shareholder's equity in a short term around acquisition announcement.

HV: Deal size has a significant impact on the acquirer shareholder's equity in the short term around the acquisition announcement.

3 Data and Method

3.1 Event Study

This research was undertaken using an event study approach. This has become a standard tool in finance research for evaluating stock price reactions to a specific event (McWilliams and Siegel [56]). An Event study is a statistical technique used to evaluate the impact of an event on the value of a firm. For example, the announcement of a domestic and cross border acquisition can be analyzed to see whether the investors believe that the acquisition will create or destroy value. In this study, event study methodology was applied to analyze the US acquirer shareholders' equity around the announcement of a US domestic acquisition. Most empirical studies choose the announcement day as the event day because this is when the acquirer's share price adjusts to incorporate the new information, assuming market efficiency of reflecting the probability of the success of the acquisition (Halpern [57]).

Hence, the event under investigation is the announcement of a US domestic acquisition and the event day, t_0 , is the day of the announcement.

3.2 Sample and its Characteristics

A sample of 90 US domestic acquisitions was randomly selected based on the US NASDAQ market during 2012-2014. The sample covered all sectors, including telecommunications, energy and power, healthcare, media and entertainment, real estate, consumer products and services, industries, transportation, retail except banks, insurance companies and other financial institutions. To ensure that the acquirer had 100% control of the target, only 100% takeover deals were included in the sample. The deal size varied from \$1.6 million to \$20.78 million.

Among the sample of acquisitions, 41 consisted of transactions of less than \$100 million and these were categorized as the 'smaller size sub-sample'. The remaining 49 acquisition deals of more than \$100 million were categorized as the 'larger size sub-sample'. The payment modes also varied. Among the sample, 44 acquirers paid by cash and were categorized as the 'cash only sub-sample', and 46 acquirers paying by a combination of cash and stock were categorized as the 'combination of cash and stock sub-sample'. According to industry relatedness, 73 acquirers were taking over targets in the same industry and were assigned to the 'same industry sub-sample'; with the other 17 acquirers taking over targets in different industries and assigned to the 'different industry sub-sample' category.

3.3 The Observation and Estimation Periods

Since the assumption is that the market is efficient, the market should be sensitive to new information. The chosen observation period should not be too long, because if it is too long the return result will not accurately reflect the market's reaction to the acquisition. In order to test both the immediate and short-term response of the market pre-acquisition and post-acquisition, the present study chose four event windows (the observation periods): 10 trading days before the acquisition announcement [-10, -1]; 1 trading day before and after the announcement [-1, 1]; 10 trading days after the announcement [1, 10]; and, 10 trading days before and after the acquisition announcement [-10, 10].

Concerning the estimation period, MacKinlay [58] once suggested that this should be at least 120 days prior to the deal announcement and should not overlap the observation period. Rani et al. [10] adopted an estimation window of 240 trading day pre-observation period. Shah and Deo [59] also applied an estimation window of 240 trading day pre-observation period to test the acquisition effect on the acquirer shareholder's return. In line with these two studies, the current study also defined the estimation period as the 240 trading days before the observation period: [-250, -11].

The Figure below illustrates both the estimation period and the observation period.

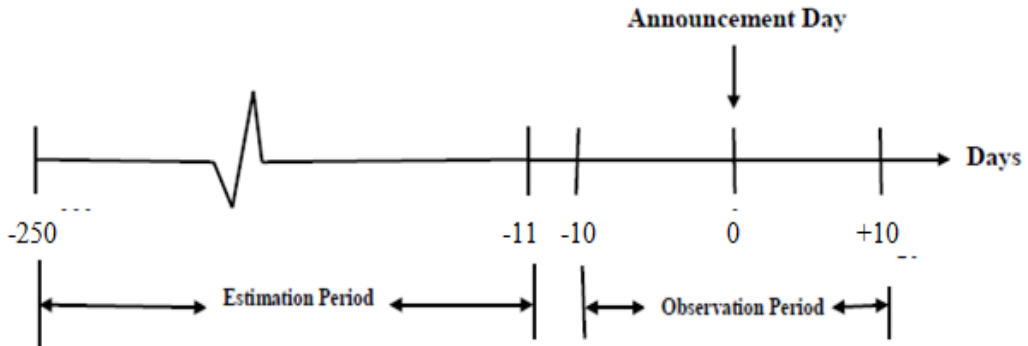


Figure 1: Event study timeline

3.4 Estimation of Abnormal Returns

The present study employed event study methodology in order to compute the average abnormal returns (AAR) and cumulative average abnormal returns (CAAR). The Market model is considered the most commonly used model in event study methodology. It associates security return with return of market portfolio (MacKinlay [58]); it provides residuals with better statistical properties and is less costly than CAPM (Brown and Warner [60]). Therefore, in the current study the market model was considered to be the most appropriate model for the calculation of the expected return.

$$AR_{it} = R_{it} - E(R_i) \tag{1}$$

$$E(R_{i,t}) = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \tag{2}$$

Where: α_i , β_i : Coefficient estimated by an ordinary least square regression of securities returns on the market return pre-observation periods.

$R_{m,t}$: Market index return (according to US NASDAQ CCMP index)

$$R_{mt} = \frac{M_{it} - M_{it-1}}{M_{it-1}} \tag{3}$$

$E(R_{i,t})$: Expected return of firm i on event day t .

R_{it} : Actual return of security i on event day t .

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \tag{4}$$

AR_{it} : Abnormal return of security i on event day t .

Average Abnormal Returns across N Firms were calculated using (Kothari and Warner [61])

$$AAR_t = \sum_{i=1}^N AR_{i,t} \tag{5}$$

And Cumulative Abnormal Return (CAR) and Cumulative Average Abnormal Return (CAAR) for N Firms over the Observation Period from t_1 to t_2 (MacKinlay [58]) were calculated using

$$CAR_{t_1 t_2} = \sum_{i=t_1}^{t_2} AR_t \quad (6)$$

$$CAAR = \frac{\sum_{i=1}^N CAR_{i,t}}{N} \quad (7)$$

3.5 Statistical Testing

Based on the assumption that the ARs/CARs are approximately normally distributed, a two-tailed T-test was applied to identify whether AAR/CAAR significantly deviates from 0 on the null hypothesis that there is no average abnormal return for the acquirer during the event windows. The t-statistic for the average abnormal return for security *i* on day *t* was calculated as below (Serra [62]):

$$SAR_{it} = \frac{AR_{it}}{S(AR_i)} \quad (8)$$

Where

$$S(AR_i) = \sqrt{\frac{1}{(T_1 - T_0 + 1)} \sum_{t=T_0}^{T_1} (AR_t - \bar{AR})^2} \quad (9)$$

(‘ $T_1 - T_0 + 1$ ’ is the length of the estimation period)

For a sample of *N* firms on day *t*, the T- statistic for AAR was calculated following two steps:

1st step: the standardized average abnormal return was calculated:

$$SAAR_t = \frac{1}{N} \sum_{i=1}^N SAR_{it} \quad (10)$$

2nd step: the T-statistic for AAR was:

$$T_{AR} = \sqrt{N} * (SAAR_t) \quad (11)$$

To test *N* firms over event window *L*, the T- statistic for CAAR was calculated following three steps:

1st step: the standardized cumulative abnormal return (SCAR) was calculated:

$$SCAR_i^L = \sum_{t=1}^L SAR_i^L \quad (12)$$

2nd step: the average SCAR was calculated:

$$\overline{SCAR}^L = \frac{1}{N} \sum_{i=1}^N \frac{SCAR_i^L}{\sqrt{L}} \quad (13)$$

3rd step: the T-statistic for CAAR was:

$$t_{CAR} = \sqrt{N} \overline{SCAR}^L \quad (14)$$

Finally, the t-test results for AAR and CAAR were then compared with the critical values at different significance levels, as shown below. According to Berenson et al. [63], if the T-statistic falls outside of -1.64, 1.64, the hypothesis is rejected at a significance level of 10%; if the T-statistic falls outside of (-1.96, 1.96), the hypothesis is rejected at a significance level of 5%; and if the T-statistic falls outside of (-2.58, 2.58), the hypothesis is rejected at a significance level of 1%, which implies that it is impossible for the value to take place under a null hypothesis. If the T-statistic falls inside the specific range of (-1.64, 1.64), (-1.96, 1.96), (-2.58, 2.58), the null hypothesis is not rejected at the corresponding significance level. In addition, the t-statistic of the difference between the two sub-samples CAARs. (e.g. by cash only versus by combined cash and stock) for each selected event window was also calculated for the purpose of testing the statistical significance of the differential CAAR. If the differential CAAR is statistically different from 0, this suggests that the impact of one sub-sample is stronger than the other on the acquirer shareholder's equity.

4 Empirical Results

Average abnormal returns on the announcement day and cumulative average abnormal returns (CAARs) for various event windows were analyzed for domestic acquisitions. In addition, the cumulative abnormal returns were compared for sub-samples segregated on the basis of method of payment (cash only / cash and stock), deal size (small and large) and industry relatedness (same industry and different industry).

4.1 Panel A: Acquirer's Daily Average Abnormal Returns (AARs) Around the Acquisition Announcement Day (t_0).

Daily average abnormal returns were calculated for the full sample of domestic acquisitions. A T-test was performed to see the significant means differences. All of the abnormal returns were expressed in percentages. The results of the T-test are presented in Table 1.

Table 1: Average abnormal return for acquirer shareholder's equity around the acquisition announcement day

<i>Event days relative to the announcement day</i>	<i>AAR</i>	<i>T-Statistic</i>
-10	0.03%	-0.34
-9	-0.20%	-1.50
-8	-0.08%	-1.02
-7	-0.78% **	-2.33
-6	0.07%	-0.50
-5	0.65%	0.72
-4	-0.53%	-0.99
-3	0.89% *	1.92
-2	0.99% ***	4.36
-1	1.45% ***	8.51
0	0.54% ***	3.91
1	-0.07%	-1.16
2	-0.58%	-0.13
3	-0.04%	0.04
4	0.15%	0.66
5	0.09%	1.07
6	-0.04%	-0.88
7	-0.03%	-1.01
8	-0.23%	-1.54
9	-0.23%	-0.58
10	0.04%	0.06

*, **, *** represents the significance at 10%, 5%, 1% respectively

Considering the long period of acquisition negotiation and the many staff in different functional departments, there is a possibility that acquisition information leakage to the market might occur (Datta et al. [9]). Based on this assumption, as is shown in the table above, the market seems not so interested in the domestic acquisition longer pre acquisition, e.g. on event days -9, -8, and -7 which have successive negative AARs of -0.2%, -0.08%, and -0.78% respectively. In particular, on event day -7, AAR is -0.78% with a significance level of 5% ($t = -2.33$). As time passes and it becomes closer to the acquisition announcement day, the market becomes more expectant and optimistic about the impact of the acquisition, which is testified by the successive positive AARs of 0.07%, 0.65%, 0.89%, and 1.45% at event days (-6), (-5), (-3), (-2), (-1). In particular, on event days (-2), (-1) the AARs are both significantly positive at the 1% level. When it comes to the acquisition announcement day, the AAR is slightly reduced but it remains positive; AAR is 0.54% at a significance level of 1% ($t = 3.91$). However, after the acquisition announcement, the market becomes sober and the passion cools, which can be inferred from the AARs of -0.07%, -0.58%, -0.04%, -0.04%, -0.03%, -0.23%, -0.23% on event days (1), (2), (3), (6), (7), (8), (9) respectively. This phenomenon is in accordance with Uddin and Boateng's [64] findings that positive returns for acquirers tend to be reached quite near the pre-announcement day

but the market has to re-adjust after the acquisition, which makes the return slightly less post-acquisition. On the basis of the results of the study, the first hypothesis (HI) was supported, i.e. that there is a significant positive impact of a domestic acquisition on the acquirer shareholder's daily equity during the period around the acquisition announcement. The findings of this study are consistent with the studies of Arnold [1], Bradley et al. [18], and Dennis and McConnell [19].

4.2 Panel B: Acquirer's Cumulative Average Abnormal Returns (CAARs) Around the Acquisition Announcement Day (t0)

Cumulative average abnormal returns were calculated for the full sample of US domestic acquisitions for four event intervals (-10, -1), (-1, 1), (1, 10), (-10, 10) respectively for evaluation pre-announcement, in-announcement, post-announcement, and in the short term around the announcement. The significance of the findings was evaluated based on a t-test. All of the cumulative abnormal returns are expressed in percentages.

Table 2: Acquirer's cumulative average abnormal returns (CAARs) around the acquisition announcement day (t0)

<i>Event Windows</i>	<i>CAAR</i>	<i>T-statistic</i>
(-10,-1)	2.47%***	2.79
(-1,1)	1.92%***	6.51
(1,10)	-0.95%	-1.10
(-10,10)	2.06%**	2.02

*, **, *** represents the significance at 10%, 5%, 1% respectively

Table 2 also implies that, for pre-domestic acquisition, the market generally holds an optimistic and expectant attitude about the deal. This is based on the previous assumption that the market might receive some leaked information about the acquisition deal close to the announcement date, which can be testified by the CAAR for event window (-10, -1) which was 2.47% at a significant level of 1% ($t=2.79$). When it comes to the announcement day, the market remains confident and has positive expectations about the domestic acquisition, which is also proved by the CAAR of 1.92% at a significance level of 1% ($t=6.51$) in event window (-1, 1). However, post-domestic acquisition, the market again becomes sober, cools and readjusts itself, which results in the acquirer return becoming slightly less than those just recorded previously. The event window (1, 10) insignificant CAAR of -0.95% might explain this. In general, in the short term around a domestic acquisition announcement, the market remains positively expectant and sober about the acquisition, which causes the acquirer shareholders to gain in the takeovers, which can be testified by the significant CAAR of 2.06% in the event window (-10, 10) at a significance level of 5% ($t=2.02$). This finding from the study supports the second hypothesis (HII), i.e. that there is a significant positive impact of domestic acquisitions on the acquirer shareholder's equity in the short-term around an acquisition announcement.

4.3 Panel C: Acquirer Cumulative Average Abnormal Returns by Method of Payment

According to different payment modes in domestic acquisitions, the samples were categorized into two sub-samples. One sample consisted of the 44 acquirers paying by cash only; the other consisted of the 46 acquirers paying by a combination of cash and stock. Cumulative average abnormal returns (CAARs) were calculated for each sub-sample for four event windows (-10, -1), (-1, 1), (1, 10), (-10, 10) respectively for evaluation pre-announcement, in-announcement, post-announcement, and in the short-term around the announcement. T-statistics were calculated for each sub-sample CAAR in each window respectively together with their mean difference CAAR in each event window as well for assessment of the statistical significance of the results.

Table 3: CAARs by cash only versus by cash and stock

<i>Event Window</i>	<i>Cash Only CAAR (T-statistic) (N=44)</i>	<i>Cash and Stock CAAR (T-statistic)(N=46)</i>	<i>Difference CAAR (T-statistic)</i>
(-10,-1)	1.11% (0.85)	3.77%*** (3.07)	2.66% (1.14)
(-1,1)	2.57%*** (4.62)	1.28%*** (4.58)	-1.29% (-0.90)
(1,10)	-0.86% (-0.80)	-1.04% (-0.75)	-0.17% (-0.10)
(-10,10)	1.25% (0.76)	2.83%** (2.08)	1.57% (0.54)

*, **, *** represents the significance at 10%, 5%, 1% respectively

In this sample, there was a fairly equal split between the acquirer managers' choice of payment by cash and choice of payment by a combination of cash and stock. From the table above, statistically, in the pre-announcement period, the shareholders of an acquirer paying by a combination of cash and stock tend to gain more wealth than the shareholders of an acquirer paying by cash only. This was testified by a significant cash and stock CAAR of 3.77% ($t=3.07$) at a significance level of 1% in event window (-10, -1), although the mean difference in the CAAR of 2.66% was statistically insignificant. However, it is interesting to note that around the announcement day, the situation appears to reverse with the shareholders of the acquirer paying by cash only having higher gains than the shareholders of the acquirer paying by a combination of cash and stock. This can be seen from the significant cash only CAAR of 2.57% ($t=4.62$) compared with the cash and stock CAAR of 1.28% ($t=4.58$), both at a significance level of 1% in event window (-1, 1). In the post-announcement period, the shareholders of an acquirer paying by cash seems to have a smaller decrease in wealth than the shareholders of an acquirer paying by a combination of cash and stock, however, these findings are not significant with a mean difference CAAR of 0.17%.

In general, across the entire short acquisition announcement period, the shareholders of an acquirer that pays with a combination of cash and stock have a greater increase in wealth than the shareholders of an acquirer paying by cash only. However, these findings are insignificant, with a mean difference CAAR of 1.57% in event window (-10,10). Overall,

therefore, as the mean difference in the CAARs for all event windows was not statistically significant, these results do not support the third hypothesis (HIII), i.e. the method of payment does not have a significant impact on the acquirer shareholder's equity in the short term around an acquisition announcement. This can be explained because, according to previous findings and experiences, both methods of payment have their own distinctive advantages and disadvantages. Paying by cash reduces the agency cost caused by requesting Security Exchange Commission for the stock settlement, but causes a higher premium from the target companies due to the immediate tax liability imposed on the targets. Paying by cash and stock can be more secure for a successful acquisition especially in a risky environment but it conveys a negative signal to the market that the acquirer might not conduct an accurate valuation of the acquisitions. This would also explain why there was no clear preference by acquirer managers as to which payment method was used.

4.4 Panel D: Acquirer Cumulative Average Abnormal Returns by Industry Relatedness

According to the industry relatedness of the acquirer and the target, the sample was categorized into two sub-groups. One group consisted of 73 acquirers taking over targets in the same industry; and the other group consisted of 17 acquirers taking over targets in different industries. Cumulative average abnormal returns (CAARs) were calculated for each sub-sample for four event windows (-10, -1), (-1, 1), (1, 10), (-10, 10) respectively for evaluation pre-announcement, in-announcement, post-announcement, and in the short term around the announcement. T-statistics were also calculated for each sub-sample CAAR in each window.

Table 4: Acquirer cumulative average abnormal returns by industry relatedness

<i>Event Window</i>	<i>Same Industry CAAR (T-statistic) (N=73)</i>	<i>Different Industry CAAR (T-statistic) (N=17)</i>	<i>Difference CAAR (T-statistic)</i>
(-10,-1)	2.90% ***	0.64%	2.26%
	3.35	-0.51	-1.41
(-1,1)	2.36% ***	0.04%	2.32%
	7.52	-0.61	-1.44
(1,10)	-1.88%	3.03%	-4.91%
	-1.48	0.54	1.37
(-10,10)	1.70% **	3.61%	-1.91%
	2.27	-0.05	0.42

*, **, *** represents the significance at 10%, 5%, 1% respectively

According to the sub-sample data above regarding 73 acquisitions in same industry and 17 acquisitions in different industries, there appears to be a clear preference for acquirer managers to take over targets in the same industry, which can bring the acquirers more operation synergy, rather than taking over targets in different industries, where the focus is on financial synergy through organizational portfolio diversification.

Statistically, as shown in table 4, in the pre-announcement period, the shareholders of an acquirer taking over targets in the same industry do gain more than the shareholders of

businesses which acquire target in different industries. This is shown by the 2.9% same industry CAAR at a significance level of 1% ($t=3.35$) in event window (-10, -1), compared with the different industry CAAR of 0.64%. There are then further gains to be made for the same group around the announcement day, as shown in the event window (-1, 1), where the acquirer taking over same industry targets gained a statistically significant 2.36% ($t=7.52$) CAAR, which was more than the acquirer taking over different industry targets, with a CAAR of only 0.04%.

However, in the post-announcement period, the situation was reversed. As shown in event window (1, 10), businesses taking over targets in different industries had shareholder wealth increases with a mean difference CAAR of 4.91% more than acquirer taking over same industry targets. Indeed, observing the whole short acquisition announcement period as a whole, event window (-10,10), businesses taking over targets in different industries increased shareholder wealth by a mean difference CAAR of 1.91% more than acquirer taking over same industry targets. This might suggest that, overall, the market expects operational synergy in terms of corporate control efficiency and economy of scale through acquiring same industry targets but that these may take a longer time, whereas the benefits of financial synergy through organizational portfolio diversification by acquiring different industry targets are expected to be experienced earlier and are, therefore, reflected more quickly in the market share price. However, across the period as a whole, the mean difference between the CAARs was not statistically significant and therefore, the fourth hypothesis (HIV) was not supported, i.e. that there is no significant impact on overall shareholder wealth in the short term around an acquisition announcement as to whether the acquisition.

4.5 Panel E: Cumulative Average Abnormal Returns by Deal Size

Finally, the sample was categorized into two sub-samples according to the deal size of the domestic acquisitions. One sub-group consisted of 41 acquisitions for which the deal size was smaller than \$100million; and the other sub-group consisted of 49 acquisitions for which the deals were larger than \$100 million. Cumulative average abnormal returns (CAARs) were calculated for each sub-sample for four event windows (-10,-1), (-1, 1), (1, 10), (-10, 10) respectively for evaluation pre-announcement, in-announcement, post-announcement, and in the short period around the announcement. T-statistics were also calculated for each sub-sample CAAR in each window respectively as well as their mean difference CAAR in each event window.

Table 5: Cumulative average abnormal returns by deal size

<i>Event Window</i>	<i>Smaller Size CAAR (T-statistic) (N=41)</i>	<i>Larger Size CAAR (T-statistic)(N=49)</i>	<i>Difference CAAR (T-statistic)</i>
(-10,-1)	1.90% 0.32	2.95%*** 3.49	1.04% 0.43
(-1,1)	1.47%*** 3.58	2.29%*** 5.54	0.83% 0.56
(1,10)	-2.14%* -1.74	0.04% 0.10	2.18% 1.12
(-10,10)	-0.25% -0.64	3.99%*** 3.33	4.24% 1.39

*, **, *** represents the significance at 10%, 5%, 1% respectively

As shown in table 5 above, larger size acquisitions overwhelmingly outperformed smaller size acquisitions for increasing acquirer shareholders' equity in all event windows. In the pre-announcement period of (-10,-1), the larger acquisitions' CAAR is 2.95% at a significance level of 1% ($t=3.49$), which is 1.04% more than the CAAR for the smaller acquisitions. During the acquisition announcement period of (-1, 1), the larger transaction acquisitions had a CAAR of 2.29% at a significance level of 1% ($t=5.54$), which is 0.83% more than the smaller transaction CAAR. In the post-announcement period of (1, 10), again the CAAR for the larger acquisitions was more than that of the smaller acquisitions (2.18% more). Taking the whole short announcement period into consideration, according to the event window (-10, 10), the total CAAR over the whole period is 3.99% at a significance level of 1% ($t=3.33$) for the larger acquisitions, which is 4.24% more than the CAAR for the smaller sized acquisitions. This finding is in line with Firth's [53] findings that taking over large targets tends to bring a high reputation and social recognition for acquirers, which is immediately reflected in the market share price. However, despite all periods showing more favorable results for the larger acquisitions, none of the differences in the CAARs for any of the event windows was statistically significant, and therefore, hypothesis V was not supported, i.e. statistically the deal size does not have significant impact on the acquirer shareholder's equity in the short period around an acquisition announcement.

5 Conclusion

This event study has shown some interesting results for the sample of 90 US domestic acquisition deals undertaken between 2012 and 2014. As expected, it was found that, generally, the acquirer shareholders' equity significantly increased in the short term around a domestic acquisition announcement. This was shown by: statistically large positive returns for acquirers quite near the pre-acquisition announcement caused by the market's passion for the synergy effect, followed by a slightly negative return caused by the market's self-readjustment post announcement. When taking into consideration the three factors (payment mode / industry relatedness / deal size), due to the fact that the mean difference in the CAARs for these in all of the event windows was not statistically significant, this suggests that payment mode, industry relatedness, and deal size have no significant impact on the acquirer shareholders' wealth over the period as a whole, causing us to reject the hypotheses that these factors might have a statistically significant impact on shareholder wealth over the announcement period.

Although sufficient data from Bloomberg was obtained for the analysis undertaken and discussed in this article, the research was limited by the data that was available. Originally there were plans to also study the impact of acquiring listed versus unlisted firms, but due to the insufficient data for unlisted firms in Bloomberg, the analysis for this factor was omitted. Another factor which would have been useful to investigate was the impact of whether an acquisition was 'friendly' or 'hostile'. Again, however, this was not possible due to insufficient documents and information explicitly showing the deal attitude. Also omitted from the present research were acquisitions by multiple acquirers' which were excluded for simplicity of analysis, given the complex of distribution of returns among multiple acquirers. Given the lack of statistical significance for the three factors of payment method, industry relatedness and deal size, the intended regression analysis to analyze the percentage/proportion that each factor might contribute to the acquirer's return became unnecessary. Further research could be conducted to include the above three factors that

are not discussed in this study (targeting unlisted firms / acquisition attitude / multiple acquirers) by accessing more sources and, if appropriate, regression analysis could be applied as well to conclude the proportion/percentage that each factor might contribute to the acquirer's shareholder return.

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