

A comparative analysis of strategic alliances and acquisition activity: A test of the substitution hypothesis

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Abstract

We provide a comprehensive comparison of strategic alliances and acquisitions, tackling the question of whether these transactions are substitutes or complements. We find evidence that the decision to enter a strategic alliance rather than an acquisition is determined by firm specific characteristics representing risk, CEO remuneration and external corporate governance mechanisms. Strategic alliances also generate significantly different market returns around the announcement date and, again, we find firm and governance characteristics determine these returns. The findings in this paper demonstrate that these transactions are not perfect substitutes.

Keywords: Strategic alliances, acquirers, substitution hypothesis

JEL classification: G32, G34

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1. Introduction

During the past few decades, strategic alliances have become increasingly popular methods of corporate restructuring allowing companies to pursue market power, enter new markets and increase their operational and technological capabilities. The Security Data Corporation's (SDC) Strategic Alliance database indicates that 6,217 strategic alliances involving publicly listed U.S. firms have been formed during the past decade. This markedly exceeds the 2,703 mergers and acquisitions that were completed during the same period, indicating that strategic alliance transactions are too important to ignore, yet the level of empirical research in this field has been minimal compared to the M&A literature.

The paper is based on the theory that strategic alliances are substitutes for acquisitions and several reasons have been offered for this conjecture. For example, a number of authors suggest that strategic alliances are substitutes for acquisition activity when a firm cannot afford to acquire ((Hagedoorn & Duysters 2002); Sawler (2005); Shanley and Yin (2008)). Further, whilst acquisitions can be very effective restructuring option for maintaining competitive advantage, sometimes the window of opportunity is so narrow that it becomes impossible to complete acquisition negotiations in the available time. In this case, a strategic alliance, which can be quickly formed, can be used as a substitute. Strategic alliances can also allow firms to enter into "trial marriages" before making the more substantial commitment of resources required for an acquisition. These arguments suggest that strategic alliances are substitutes for acquisitions. The following analysis supports the theory that strategic alliances are a substitute for acquisitions when compared to non-involved firms, but also notes that there are significant differences between the two when compared directly.

While the substitution effect has been discussed in some of the previous literature, to the best of our knowledge, there is no systematic empirical research testing the validity of the theory. In this paper we provide a comprehensive analysis of the decision to enter a strategic alliance as compared

to an acquisition, and thus provide evidence on the degree of substitution between these two methods of restructuring.

Strategic alliances and acquisitions have been evaluated from very different theoretical and empirical settings in the existing literature. Our approach is to examine how firm characteristics, CEO compensation and corporate governance arrangements in these two groups of firms help us to draw conclusions on the validity of the substitution hypothesis. We also examine how the market reaction to the announcement of these events helps address this question.

Firstly we provide an innovative comparison of firms entering strategic alliances and acquisitions against non-involved firms to form a clear base-case scenario. We then conduct a direct comparison of strategic alliances and acquiring firms giving a detailed empirical analysis of the characteristics of firms entering each of these types of transactions.¹ We find that firms initiating both strategic alliances and acquisitions are large companies with limited options for internal growth, yet facing considerable pressure from outside forces to perform well. Lacking the means to respond to these pressures alone, these firms look to other companies to assist them in rejuvenating themselves, offering some support for the substitution theory. However, when compared directly, we find there are distinct differences between firms that select a strategic alliance as opposed to those making a takeover bid. We find that alliance firms have no incentive to face the risks involved in a takeover as they are in less competitive industries and have more stable share price performance. Further, their CEOs have more equity in their remuneration packages and smaller bonuses giving them a clear disincentive to risk shareholder wealth on higher risk activities such as acquisitions. This is particularly true following the introduction of the Sarbanes-Oxley Act which can be costly for firms undertaking major restructuring of the type that often follows an acquisition.

¹ We limit our analysis to the firms that initiate the alliance transaction and the acquisition bidders to ensure we have a clear comparison between the firms that elect to enter into these cooperative agreements. We use data on the alliance partner and the acquisition target only in our investigation of the announcement returns.

Existing research has also examined the market reaction to the announcement of a strategic alliance, but without comparison to other forms of investment. Both Chan *et al.* (1997) and McConnell and Nantell (1985) observe significant positive abnormal returns from the announcement of strategic alliances which are very different to the negative market reactions for acquisition bidders which have been reported in the previous literature (Asquith (1983); Dodd (1980); Langetieg (1978)). We analyze the market reaction to the transaction announcements using a standard event study analysis of the cumulative abnormal returns (CARs) and find very different levels of abnormal returns between the different types of transactions. For example, the 5 day cumulative abnormal return for the announcement of strategic alliances is 0.75 percent whilst acquisitions generate negative return of 1.76 percent suggesting, once again, that it is overly simplistic to assume that these strategies are substitutes. We then analyze the factors that determine the CARs of strategic alliances and acquisitions and extend the existing literature by including data on the financial characteristics of the other involved firm. Existing papers have typically chosen to analyze the characteristics of one firm in isolation, yet it seems intuitive that the choice of the partner should impact on the magnitude of the cumulative abnormal returns and to reflect this we include the partner, or target, firm in our analysis. We find that CARs around the announcement of strategic alliances are driven by the potential to cooperate with a large partner and strong external governance pressures while acquisition CARs are determined by the cost of the takeover and the ease with which the necessary funds can be accessed. Again, we find little support for the substitution hypothesis in a direct analysis.

The remainder of paper is structured as follows: Section 2 discusses the sample selection criteria and variable construction. Section 3 examines the factors which impact the decision for a firm to enter a strategic alliance or make an acquisition, with the analysis conducted through a series of trinomial and binomial logit models. Section 4 presents the results for the shareholder reaction to the transaction announcement and a series of regressions to analyze the determinants of these returns. Section 5 concludes the paper.

2. Data

2.1. Sample Selection

Our sample is drawn from the Security Data Corporation's (SDC) U.S. Mergers and Acquisitions and U.S. Strategic Alliances databases between January 1, 2000 and December 31, 2010. To be included in the sample, transactions must satisfy the following criteria: (1) the transaction has been completed; (2) the acquiring company and the target company are both publicly listed (for acquisitions); (3) both partner firms are publicly listed (for strategic alliances); (4) neither firm operates in the financial (SIC codes 6000-6999) or utilities (SIC codes 4900-4999) industries; (5) firms involved participate in just one transaction type during the sample period²; (6) stock price data for involved firms is available from the University of Chicago's Centre for Research in Security Prices (CRSP); (7) governance provision data for involved firms is available from the Investor Responsibility Research Centre (RiskMetrics); and (8) blockholder data for involved firms is available from the Wharton Research Data Services (WRDS) Corporate Library Database.

A large proportion of existing literature has typically focused on alliances between two companies (Elmuti and Kathawala (2001)), which is the most common transaction structure (Qiu (2010)). Similarly, we limit acquisitions to one firm acquiring another to conduct a direct comparison between the two transaction types. The selection criteria result in a sample of 951 strategic alliances and 513 acquisitions, with the sample distributions described in Table 1. Table 1 shows that the largest proportion of the strategic alliance sample was completed in 2000, with 22% of the transactions formed during that year whilst only a relatively small proportion of strategic alliances were completed during 2009 and 2010, representing approximately 2% of the sample. We find that the size of the firms involved in strategic alliances are similar, with averages of \$16,009 million and

² We exclude companies involved in both types of transaction to maintain a clean dataset. For example, a company previously engaged in a strategic alliance during the sample period will be removed from subsequent analysis if it engages in an acquisition. We also exclude partial acquisitions due to the lack of data on this type of transaction.

\$17,121 million for partner 1 and partner 2 respectively, and the alliances are also shared equally between the two partners, with an average ownership of 50% observed over the sample period.

In Table 1, we also observe that the distribution of acquisitions is relatively evenly spread over the sample period. Compared to strategic alliances, we observe that bidders have far fewer total assets but, nonetheless, are considerably larger than target firms, with averages of \$9,687 million and \$2,534 million respectively, which is not unsurprising given the nature of these transactions. The acquirers purchase a mean (median) shareholding of 99% (100%) indicating that there is little or no toehold sought by the acquiring firm prior to the bid.

[Insert Table 1 Here]

In order to create a benchmark against which our sample firms can be analyzed, we use portfolio matching (Berger and Ofek (1999)) to identify a set of control firms who choose not to become involved in either strategic alliances or acquisitions. The portfolio is constructed from the WRDS Compustat database between January 1, 2000 and December 31, 2010 and to be included in the control sample, the firms must meet the following criteria: (1) the firm is publicly listed; (2) the firm has not been involved in either a strategic alliance or an acquisition during the sample period; (3) the firm does not operate in the financial (SIC codes 6000-6999) or utilities (SIC codes 4900-4999) industries; (4) stock price data for each firm is available from the University of Chicago's Centre for Research in Security Prices (CRSP); (5) governance provision data for each firm is available from the Investor Responsibility Research Centre (RiskMetrics); and (6) blockholder data for each firm is available from the Wharton Research Data Services (WRDS) Corporate Library Database. The selection criteria results in a total portfolio of 1,531 non-involved firms over the sample period.

2.2. Variable Construction

In order to analyze the characteristics of firms that engage in strategic alliances or acquisitions, we use a set of variables which are categorized under the following four headings: firm characteristics, Chief Executive Officer (CEO) remuneration, corporate governance and previous experience. These represent our base set of variables which are used consistently throughout the paper.

2.2.1. Firm Characteristics

Following Miller and Bromiley (1990), Robinson (2008) and Ushijima (2009), we include a measure of research and development intensity. The impact of high R&D can be viewed in two ways – firstly, high levels of R&D expenditure are likely to impose a capital constraint on the company which may leave insufficient funds for other capital intensive projects, making strategic alliances more appealing than acquisitions. Secondly, the level of R&D expenditure is also a measure of risk as R&D intensive activities involve high degrees of uncertainty and strategic alliances are an avenue through which these risks can be shared (Obleros and MacDonald (1988)). We calculate R&D intensity (R&D) as a firm's research and development expense divided by the total assets of the firm. We follow Miller and Bromiley (1990) a second time and include the volatility of a company's share price (STD), measured as the standard deviation of the share price over the year prior to the event, as a proxy for risk. A volatile share price may be suggestive of a firm that engages in relatively risky investments and this could indicate a preference for acquisitions rather than strategic alliances.

A firm's level of capital expenditure (CAPEX) may also be indicative of financial constraints if the company has a large proportion of its resources committed to existing projects. Alternatively, this can be viewed as a proxy for the availability of internal growth opportunities within the company, which may be perceived as an alternative to an acquisition. High levels of CAPEX are more likely to be associated with strategic alliances than acquisitions and we calculate the CAPEX variable as reported capital expenditure divided by total assets.

The ability of a firm to attempt an expensive transaction such as an acquisition depends on the state of its balance sheet. We follow Richards and Manfredo (2003) and include the firm's financial liquidity (LIQUID) as a proxy for its financial position. We calculate this variable as cash and short term investments divided by total assets.

Almeida and Murillo (2007) suggest that asset tangibility improves a firm's ability to obtain external financing by increasing the value that can be retrieved by creditors in default. A firm with a higher level of available financing is therefore more likely to be able to afford an acquisition and not be restricted to a strategic alliance. We include asset tangibility (TANG), which we calculate as net plant, property and equipment divided by total assets, to incorporate this aspect of external financing.

We also include a number of control variables drawn from the strategic alliance and acquisition literatures. We follow Masulis *et al.* (2007) and include firm size (SIZE), calculated as the log of the firm's total assets, which is indicative of the financial security of a firm and can also be viewed as a proxy for the ability of a company to invest a significant amount of capital. Similar to Jensen (1986), we use financial leverage (LEV) as a measure of the financial capabilities of the company and calculate this as the firm's book value of short and long term debt divided by total assets. Jensen (1986) also argues the need to account for the free cash flow (FCF) of participant firms. We calculate the FCF variable as net income after adjustments for depreciation, capital expenditure and changes in working capital divided by total assets. Finally, we control for the overall performance of the company using return on assets (ROA), calculated as operating income (pre depreciation) divided by total assets and sales growth (SALESG), calculated as the percentage change in sales.

These variables are all constructed from the WRDS Compustat database and are measured at the fiscal year-end prior to the transaction announcement for sample firms, or the corresponding year for control firms.

2.2.2. CEO Remuneration

We obtain the CEO remuneration data for our sample and control firms from the WRDS Execucomp database. The remuneration variables are the base salary, bonus payments, options, restricted stock grants and equity based compensation.³ We believe that capturing these variables individually is important as the distinct payoff structures are likely to produce largely different impacts on management. All variables in this section are represented in thousands of dollars and are measured at the fiscal year-end prior to the transaction announcement for sample firms, or the corresponding year for control firms.

Salary represents the fixed component of CEO remuneration, with risk-averse individuals naturally preferring an increase in base salary rather than in variable compensation. Due to the level of risk associated with acquisitions, and to a lesser extent strategic alliances, a higher level of base salary may be indicative of a more risk-averse executive who is less likely to participate in a risky transaction. We include base salary (SALARY) to account for this finding.

Previous U.S. and U.K. literature, including Gristein and Hribar (2004) and Coakley and Iliopoulou (2006), show that acquiring firms typically make bonus payments to their CEOs upon the successful completion of an acquisition providing a clear incentive for acquisition activity. We incorporate a bonus (BONUS) variable to account for this possibility.

DeFusco *et al.* (1990) find that stock price volatility increases with the approval of executive stock options whilst Hirshleifer and Suh (1992) suggest that the limited downside payoff of options may encourage managers to take on risky projects that they might otherwise have avoided. Following this logic, we anticipate that firms with higher levels of stock option remuneration will prefer acquisitions. To account for this impact we include a stock options (OPTIONS) variable in our analysis.

³ Care has been taken to ensure that these variables do not overlap so the variables can be used together. For example, equity based compensation is calculated in this paper as excluding both restricted stock grants and options to prevent multicollinearity issues.

Equity based compensation may help mitigate agency conflicts between shareholders and managers by aligning their interests (Guay (1999)). This is achieved by offering managers a stake in the company, directly aligning the remuneration of the CEO to the share price performance of the company. One result of this is a potential reduction in the number of risky projects adopted by the firm, as the CEO is now more exposed to the potential losses of the company. We represent this relation through the construction of two variables, equity compensation (EQUITY) and restricted stock grants (SGRANTS) representing the CEOs exposure to short and long-term performance respectively.

2.2.3. Corporate Governance

A range of corporate governance provisions are sourced from the WRDS RiskMetrics database which published six volumes over the sample period. As the data is not available for every year, we follow Gompers *et al.* (2003) and assume that governance provisions remain unchanged between publication years. For years where a publication is not available, we use the previous one to determine the level of corporate governance. Two well-known measures are used to represent corporate governance here. Firstly, we use the entrenchment index proposed by Bebchuk *et al.* (2009) (BCF) which consists of six key provisions making it more difficult to remove underperforming managers⁴. Secondly, following Bebchuk and Cohen (2005) we include a dummy variable taking the value 1 for firms with a staggered board (STGBRD) and zero otherwise.⁵ As a result of the relation between these governance measures and management protection, we expect to find that weaker shareholder rights are more likely to be associated with acquisitions.

⁴ The six governance provisions in the BCF index include the presence of a staggered board, limits to shareholder bylaw amendments, supermajority requirements for mergers, supermajority requirements for charter amendments, poison pills and golden parachutes. The index is created by adding one point for every provision, so a higher BCF score is associated with weaker shareholder rights.

⁵The index constructed by Gompers *et al.* (2003) is excluded from this analysis as RiskMetrics altered its methodology for data collection in 2007 and no longer reports all the variables needed to create this metric. As a result, we do not include the GIM index despite its prevalence in earlier works.

Both Cremers and Nair (2005) and Masulis *et al.* (2007) find that monitoring by blockholders plays an important role in managerial decision making. We include a binary variable (BLKHLDER) which takes the value 1 in the presence of a shareholder owning in excess of 5% of the firm's common stock and 0 otherwise. The existence of a blockholder is identified from the WRDS Corporate Library Database.

We also incorporate external governance mechanisms in our analysis to complement the internal measures. Product market competition imposes external pressures on management in an attempt to eliminate inefficient behavior and keep the firm competitive. Similar to Titman and Wessels (1988) and Masulis *et al.* (2007), we calculate two measures of product market competition: (1) a Herfindahl Index (HINDEX), calculated as the sum of squared sales divided by the squared sum of sales of the industry, is used to proxy the competitiveness within a firm's primary industry⁶; (2) uniqueness (UNIQUE), calculated as the industry's median ratio of selling expenses divided by sales, which follows the intuition that firms with a more unique product may be required to spend additional resources on marketing and promoting their product than other firms. Alternatively, a unique product may also indicate a safe revenue stream for the firm. These product market competition variables are constructed from COMPUSTAT accounting data for the year prior to the announcement of the transaction or the matching year for the non-involved firms.

If a firm operates in a market in which there are is significant acquisition activity, then this may mitigate agency problems by imposing external pressure on the managers to perform well (Cremers and Nair (2005); Easterbook and Fishel (1991); Tian and Twite (2011)). We include the level of activity in the market for corporate control (CORPCON), calculated as the total number of completed M&A transactions in the industry (at the two-digit SIC level) during the previous year, to account for the impact of a takeover threat. The number of corporate takeovers is drawn from the Security Data Corporation's (SDC) U.S. Mergers and Acquisitions database.

⁶ A lower HINDEX indicates a more competitive product market.

The Sarbanes-Oxley Act (2002), and particularly Section 404, has received a great deal of attention in the existing literature, with some viewing its introduction as a deterrent for corporate risk taking. Under Section 404, firms are required to conduct an internal corporate governance assessment, which must then be reviewed by an auditor resulting in significant auditor fees. However, once the review is complete, it does not need to be repeated until the firm makes a substantial alteration to its structure. Both Barger *et al.* (2010) and Dey (2010) find that the Sarbanes-Oxley Act has decreased corporate risk taking for U.S. firms and, as a result, it is reasonable to anticipate that the decision for a firm to choose an acquisition as opposed to a strategic alliance will be impacted by the legislation, as acquisitions result in the imposition of re-compliance costs. As a result, we include a dummy variable taking the value of 1 if the transaction is completed after the introduction of the Sarbanes-Oxley Act and 0 otherwise.

2.2.4. Previous Experience

The existing literature on strategic alliances supports the important role that previous experience plays in the formation and success of these transactions. Barkema *et al.* (1997) and Simonin (1997) both find that prior experience is positively linked to success in strategic alliances whilst Hitt *et al.* (2000) find previous experience to be a significant factor in new alliance creation. A firm is therefore more likely to be involved in a strategic alliance if previously involved in strategic alliances. To account for the importance of previous experience, we include a dummy variable to represent firms who have previous transaction experience^{7, 8}.

⁷ Transaction experience refers to the type of transaction the company is currently involved in (for example a firm with previous strategic alliance experience undertaking a new strategic alliance).

⁸ By definition the non-involved firms in our sample do not have any previous experience and so this variable is only included in the direct comparison between strategic alliance firms and takeover bidders.

2.3. Summary Statistics

Summary statistics are reported in Table 2 and we find a number of significant differences in the means. The differences in R&D and LIQUID are positive and significant suggesting that firms engaged in strategic alliances have higher average R&D expenditure and liquidity. A higher level of R&D is consistent with existing literature, given the risk sharing nature of strategic alliances (Obleros and MacDonald (1988)) whilst higher LIQUID suggests that alliance firms may not be financially constrained. Strategic alliance firms have lower share price volatility (STD) and the ROA variable indicates that firms involved in strategic alliances have higher levels of operating performance.

Strategic alliance firms have higher SALARY and EQUITY and lower OPTIONS. The difference in SALARY is consistent with the theory that higher levels of base salary are preferred by risk averse managers (Murphy (1999)) and the significant difference in EQUITY is consistent with Guay (1999) who argues that equity remuneration reduces agency conflicts and reduces the likelihood of management adopting a risky investment strategy. The significant difference for options is consistent with Hirshleifer and Suh (1992) who suggest that options encourage managers to adopt risky projects such as acquisitions.

We find a positive and significant difference for HINDEX indicating that firms involved in acquisitions are in more competitive industries and the SARB variable is also positive and significant indicating that strategic alliances are preferred after the introduction of the Act which is consistent with its deterrent impact on risky transactions. A positive PREV variable suggests that firms engaged in alliances are likely to have previous experience which is consistent with Hitt *et al.* (2000).

[Insert Table 2 here]

3. Determinants of Transaction Type

In this section, we report both multinomial and binomial logit models examining the firm, remuneration and governance characteristics that are important in the decision to enter into a strategic alliance or an acquisition.⁹

In the multinomial models the dependent variable takes the value of 0 for non-involved firms, 1 for strategic alliances, and 2 for acquisitions, whereas it takes the value of 1 for strategic alliances and 0 for acquisitions in the binary models. After estimating pairwise correlations coefficients for the independent variables we observe a significant relation between the BCF index and the STGBRD binary variable. To avoid this problem, we run each model twice; firstly, with the BCF index and secondly with the STGBRD binary variable. For reasons of brevity, we do not report the correlation table.

Table 3 presents the multinomial results. We find that research and development intensity is positively significant for strategic alliances but insignificant for acquiring firms. This is consistent with Obleros and MacDonald (1988) who all describe the need to share high R&D expenses as a motive for alliance formation. In addition, both strategic alliance and acquiring firms have significantly higher levels of capital expenditure (CAPEX) than non-involved firms.

We find that asset tangibility (TANG) is negative and significant for both types of restructuring firms which may suggest that these firms are limited in their ability to raise finance as creditors are less likely to provide funding to firms with a few available assets to use as security (Almeida and Murillo (2007)). Strategic alliance firms have lower share price volatility than non-involved firms whilst the STD coefficient for acquirers is insignificant, suggesting that strategic alliance firms have a more

⁹ A appealing alternative to the multinomial logit model is a nested logit model, as used by Huang and Ritter (2008) in their examination of external financing decisions. The essential difference between a multinomial model and a nested logit model is that a multinomial model assumes that any decision is independent of all the other alternatives, while a nested logit only assumes that the choice within a particular group of alternatives is independent. We consider running a nested logit at this point but this approach implicitly assumes that strategic alliances and acquisitions are substitutes after the initial decision to become involved which is the very conjecture we are trying to examine.

stable share price than other companies. The firms that form both strategic alliances and acquisitions are significantly larger than other companies (SIZE) but both also exhibit significantly lower sales growth (SALESG).

CEO salaries are significantly lower for firms involved in strategic alliances and acquisitions than for non-involved firms whilst the CEOs of acquiring firms have significantly lower levels of equity in their remuneration packages than in other firms. The low level of equity may be indicative of a greater agency problem in these firms (Guay (1999)) which permits them to attempt risky investments such as a takeover.

The presence of blockholders (BLKHLDER) is negatively related to strategic alliances but insignificant with respect to acquiring firms. The pressure exerted on management by blockholders appears to encourage management to remain non-involved rather than to participate in a strategic alliance but has no impact on acquiring companies. Product market competition (HINDEX) is negatively related to the probability of an acquisition suggesting that acquiring firms are in highly competitive industries whilst the variable representing product uniqueness (UNIQUE) is positive and significant for strategic alliance firms. Both strategic alliance and acquiring firms are in primary industries with high levels of takeover activity alliance which applies external pressure on management to perform well (Cremers and Nair (2005); Easterbook and Fishel (1991); Tian and Twite (2011)).

Finally, we note that the introduction of the Sarbanes-Oxley Act has a negative impact on acquiring firms compared to non-involved firms which is consistent with our argument that the Act will reduce acquisition activity due to the costs of re-compliance.

Overall, these results suggest that, compared to non-involved firms, firms entering into strategic alliances and acquisitions are large companies with high capital expenditures but low growth and poor funding opportunities. At the same time, these firms are under external pressure to perform well and the combination makes some form of restructuring a necessity. To this extent, the two

transactions appear to be substitutes but these results also suggest there are some differences which we now analyze with a direct comparison of the involved firms.

Table 4 reports the binary logit models. The R&D variable is insignificant indicating that, whilst strategic alliance firms are significantly different from the non-involved firms in Table 3, the difference is not sufficiently large to distinguish them from acquiring companies. The CAPEX and TANG variables are both insignificant, again supporting the findings in Table 3. The STD variable is negatively significant, suggesting that firms engaged in strategic alliances have a more stable share price than acquiring companies which may be indicative of the level of risk the firms are willing to accept. Less risky firms would prefer the greater flexibility and lower commitment of a strategic alliance as opposed to an acquisition (Miller and Bromiley (1990)).

In Table 3, we reported that both the strategic alliance firms and the acquiring firms were larger than the non-involved companies with significantly lower sales growth and here we find further support for these results as both these variables are insignificant in the binomial model.

The salary variable is also insignificant whilst the BONUS variable is negatively significant and the EQUITY variable is positively significant, all of which are consistent with Table 3. The insignificant salary term demonstrates that, whilst strategic alliance firms and acquisition bidders are significantly different from non-involved companies, their CEO salaries are comparable. In Table 3, the bonus variables were insignificant with a negative coefficient for strategic alliance firms and a positive coefficient for acquiring firms. Here the difference is negative and significant suggesting that the CEOs of strategic alliance firms have far lower bonuses than those of acquiring companies. This is consistent with Gristein and Hribar (2004) and Coakley and Iliopoulou (2006) who note that acquiring firms typically make bonus payments to CEOs upon the completion of an acquisition providing a clear incentive for acquisition activity. We find that the CEOs of strategic alliance firms have significantly higher levels of equity in their remuneration compared to acquiring firms. As Guay (1999) notes, equity based compensation can mitigate the agency conflicts between managers and

shareholders by encouraging CEOs to avoid risky investments, such as acquisitions, which might reduce shareholder wealth and to select more conservative alternative, such as a strategic alliance.

We find a positive and significant coefficient for HINDEX, which suggests that firms involved in strategic alliances operate in less competitive industries which, again, is consistent with Table 3. We find an insignificant coefficient for the variable representing the level of corporate control activity which represents for form of external pressure on managements to perform or risk becoming a target themselves (Cremers and Nair (2005); Tian and Twite (2011)). This variable was positively significant for both strategic alliance and acquiring firms in Table 3 and, consistent with that finding, it is insignificant in the direct comparison results here.

We also observe a positive relation between the SARB variable and the likelihood of a firm engaging in a strategic alliance indicating that firms are more likely to engage in a strategic alliance than a full acquisition following the introduction of the Act. This is both consistent with Table 3 and the existing literature as the introduction of this legislation has increased the costs of participating in transactions that significantly alter the corporate structure of the firm, such as acquisitions, and reduced the general level of corporate risk taking (Bargeron *et al.* (2010)). Finally, the PREV variable is also positively related to the likelihood of a firm entering a strategic alliance which is consistent with the finding of Hitt *et al.* (2000) that previous experience is important in strategic alliance formation.

Overall, we find some important differences between firms entering into strategic alliances compared to acquisitions. Strategic alliance firms have less volatile share prices, operate in less competitive industries and their CEOs have smaller bonuses coupled with a greater proportion of equity in their remuneration, indicating a stable firm with few incentives to attempt a risky transaction such as an acquisition. Further, these firms have previous experience of alliances allowing them to learn the best way to structure and apply these transactions. Finally, the excessive

costs of complying with the Sarbanes-Oxley Act provide further incentives for firms to select less disruptive forms of restructuring such as strategic alliances.

[Insert Table 3 here]

[Insert Table 4 here]

4. Market Reaction

We now analyze the reaction of shareholders to the announcement of a strategic alliance or an acquisition and investigate the determinants of that reaction. We estimate the cumulative abnormal returns around the announcement date using standard event study methodologies. We report results estimated using an equally weighted market model and report four different event windows, the announcement day itself (0, 0); (-1, +1), (-2, +2) and (-5, +5), before analyzing the determinants of these CARS.

Table 5 reports the cumulative abnormal returns for the two transaction types. For strategic alliances, we find the mean and median returns over the four reporting periods are positive and significantly different from zero, which is consistent with the findings of McConnell and Nantell (1985). For acquisition firms, we find a negative and significant abnormal return over the four reporting periods, which suggests that shareholders react less favorably towards acquisition announcements which may be the result of the company overpaying for control of the company or overestimating the synergies that will be obtained from the transaction (Roll (1986)). The difference in means is statistically significant for all event windows demonstrating that shareholders respond very different to these announcements and clearly do not view these transactions as substitutes.

[Insert Table 5 here]

4.1. The Heckman Model

Our final analysis examines the determinants of the cumulative abnormal returns, and, for reasons of brevity, we report only the results for the window (-2, +2). We choose this window to capture possible leaks of information prior to the event, as well as the dissemination of information post the event whilst minimizing the possibility of drawing false inferences that can occur in longer event windows (McWilliams and Siegel (1997)). We use Heckman models to take into account the possibility of a self-selection issue in our sample but do not report the first stage results as these are consistent with the logit models reported in the previous section. Li and Prabhala (2006) note that corporate decisions are rarely random and, as a result, a firm's decision to enter into a strategic alliance or an acquisition may be influenced by management's expectations for the market reaction to the announcement. Using the process devised by Heckman (1979) allows us to control for these potential issues and is consistent with existing work by Faccio and Masulis (2005), Gaspar *et al.* (2005) and Martynova and Renneboog (2008). As before, we estimate two regression models for each transaction type using the BCF and STGBRD variables respectively.

In addition to the variables used in the earlier models, we follow Ahn and Walker (2007) and include a diversification dummy variable (SINDUST) which takes the value of 1 if the two firms in the strategic alliance / acquisition are in the same industry, at the 3 digit SIC level, and 0 otherwise. Morck *et al.* (1990) find that acquiring a target in a different primary industry is typically associated with reduced shareholder wealth for bidders but Campa and Kedia (2002) find that such acquisitions are associated with higher firm value.

Kang and Kim (2008) examine block acquisitions and find that acquirers close to the target have informational advantages from geographic proximity. Since our analysis is taking place in the

domestic setting, we include a same state variable (SSTATE) which takes the value of 1 if the partner and target firm operate in the same state and 0 otherwise.¹⁰

Existing papers typically analyze the impacts of one firm in isolation. However, it appears intuitive that the choice of partner/target will have an impact on cumulative abnormal returns by influencing the market's opinion of the transaction. We extend the existing literature by including the characteristics of partner firms in strategic alliances and the target firm in an acquisition to control for this extra information.¹¹

Table 6 reports our Heckman models. We discover that R&D intensity is negative and significant for strategic alliances firms but insignificant for acquiring companies. The market may be opposed to the company sharing expensive R&D knowledge with the partner firm in a transaction that has a finite life span and would prefer that this information be protected, causing the negative relation with strategic alliance CAR. However, we also find a positive relation between CAPEX and the CARs for strategic alliance firms suggesting that sharing costs with another firm is viewed positively.

The liquidity variable is positive and significant for acquiring companies but insignificant for strategic alliance firms. This variable is often associated with the ease with which an acquisition can be funded so this result is as we would expect it to be. The value of the tangible assets owned by the strategic alliance firm is negatively related to the CARs suggesting that the market prefers firms with few tangible assets to enter into cost-sharing transactions rather than acquisitions. The acquiring firm's operating performance (ROA) is positively related to the cumulative abnormal returns and may reflect the quality of the firm's management. This variable, along with the liquidity term, reflects the ability of a company to fund an acquisition and both results are consistent with our expectations.

¹⁰ We acknowledge that the existing literature on both strategic alliances and acquisitions provides a very extensive set of transaction specific variables that may be used as determinants of announcement CARs. However, since our aim in this paper is a direct comparison of these two transaction types, we include only those variables that can be applied to both strategic alliances and acquisitions.

¹¹ We are unable to include remuneration or corporate governance variables for partners/targets due to data limitations.

In terms of CEO remuneration, we find no significant terms for the strategic alliance firms whilst acquiring companies have a significantly negative coefficient for OPTIONS and positive coefficient for equity based compensation (EQUITY). The OPTIONS variable is consistent with existing research which proposes that options provide an incentive for CEO's to take on additional risk (Hirshleifer and Suh (1992)). As a result, if a CEO with a high proportion of options decides to engage in an acquisition, it may produce a negative signal to the market that the CEO is engaging in unnecessary risk taking in order to take advantage of the option contracts.

For strategic alliances the term BLKHLDER is negative, which indicates that an increase in monitoring also has a negative impact on share price performance around the announcement of the transaction. We observe a positive relation between UNIQUE and the share price performance of a strategic alliance firm and the negative coefficient for acquiring firms. Unique products are expensive to market and strategic alliances provide an opportunity to share these marketing costs whereas acquisitions do not. The coefficient for CORPCON is positive for strategic alliances and negative for acquiring firms suggesting that alliances are positively viewed in industries with an active market for corporate control but acquisitions are not.

Considering the characteristics of the second firm involved in these transactions we find a positive coefficient on the size variable for strategic alliances and a negative sign for acquisitions. This suggests that a strategic alliance with a larger, financially secure, partner firm is viewed positively by market participants, whilst a small, and, therefore relatively cheap, target firm is preferred in the case of an acquisition. In the acquisitions sample, we also find a negative coefficient on the free cash flow of the target which market participants may view as an opportunity for managerial empire building.

Finally, we note the inverse Mills ratio is insignificant in all of these models suggesting that the decision to enter into one of these transactions is not influenced by the potential market reaction.

Overall, we find that market participants do not view strategic alliances and acquisitions as substitutes. Not only does the market respond very differently to these announcements but the determinants are different as well. For strategic alliances we see the important factors are to do with sharing costs and corporate governance whilst the reaction to an acquisition announcement is driven by factors connected to the costs of the purchase and the ease with which these costs can be met, which is consistent with the findings of Roll (1986).

[Insert Table 6 here]

5. Conclusion

We find some support for the hypothesis that strategic alliances and acquisitions are substitutes as the firms in both cases have some characteristics in common which are not shared by uninvolved firms. Specifically, we find that large firms with relatively few tangible assets and low sales growth undertake these transactions. Further these firms are under pressure from external forces to succeed and their CEOs have relatively low base salaries compared to other companies.

However, a direct comparison of strategic alliance firms and acquisition bidders demonstrates some significant differences which are in contrast to the substitution hypothesis. Strategic alliance firms are in less competitive industries and their CEOs remuneration packages do not provide any incentive for the firm to enter into risky transactions such as acquisitions. Further, the introduction of the Sarbanes-Oxley Act has encouraged firms to turn to less disruptive forms of restructuring to avoid the costs of re-compliance.

We find that the cumulative abnormal returns are positive and significantly higher for strategic alliances than for acquisitions again indicating that these transactions are viewed as very different activities. This is echoed in the Heckman models which clearly show that the market reaction to the announcement of a strategic alliance is driven by issues of cost sharing whilst the reaction to an acquisition is determined by concerns about financing and the cost of the purchase.

The key implication of these findings is that, despite the existing literature suggesting strategic alliances and acquisitions are substitutes, such conclusions are overly simplistic and are not supported by empirical evidence. There is some support for the substitution hypothesis when the results are considered in broad terms but a closer examination clearly shows that firms engaging in these transactions are distinctly different from each other.

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Table 1.
Sample distribution

Strategic Alliances						Acquisitions				
Year	Transactions	% of Sample	Partner (1) Mean (Median) Total Assets (\$Millions)	Partner (2) Mean (Median) Total Assets (\$Millions)	Mean (Median) Ownership (%)	Transactions	% of Sample	Acquirer Mean (Median) Total Assets (\$Millions)	Target Mean (Median) Total Assets (\$Millions)	Mean (Median) Percentage Acquired (%)
2000	207	21.77	22,762 (2,791)	28,166 (11,030)	49.96 (50.00)	38	7.41	2,755 (1,090)	1,895 (687)	99.45 (100.00)
2001	96	10.09	13,909 (3,164)	23,010 (4,074)	42.05 (50.00)	53	10.33	6,344 (3,374)	1,568 (297)	98.93 (100.00)
2002	98	10.30	19,443 (4,874)	10,735 (1,990)	52.59 (50.00)	28	5.46	6,610 (1,701)	857 (604)	97.89 (100.00)
2003	82	8.62	15,649 (2,335)	7,619 (95)	50.00 (50.00)	30	5.85	7,414 (1,514)	747 (136)	97.77 (100.00)
2004	71	7.47	21,876 (4,204)	239 (207)	52.50 (50.00)	37	7.21	2,907 (1,968)	548 (165)	97.76 (100.0%)
2005	74	7.78	7,947 (2,131)	16,061 (411)	52.50 (50.00)	40	7.80	10,533 (3,299)	1,220 (371)	98.93 (100.00)
2006	105	11.04	11,373 (3,658)	18,185 (4,408)	52.14 (50.00)	51	9.94	6,085 (2,852)	3,866 (579)	99.26 (100.00)
2007	109	11.46	13,148 (3,237)	15,601 (3,237)	50.00 (50.00)	52	10.14	7,142 (3,582)	1,888 (1,112)	98.88 (100.00)
2008	87	9.15	12,724 (2,479)	18,925 (3,322)	50.00 (50.00)	61	11.89	8,431 (1,772)	1,707 (445)	99.10 (100.00)
2009	17	1.79	3,841	5,623	55.00	55	20.72	21,579	5,755	97.39

			(1,250)	(5,623)	(55.00)			(4,270)	(944)	(100.00)
2010	5	0.53	9,630	1,756	41.65	68	13.26	17,787	4,606	100.00
			(8,837)	(1,756)	(41.65)			(4,092)	(482)	(100.00)
Total	951	100.00	16,009	17,121	50.12	513	100.00	9,687	2,534	98.78
			(3,181)	(4,344)	(50.05)			(2,867)	(551)	(100.00)

The strategic alliance sample consists of 951 transactions drawn from the SDC U.S. database between 2000 and 2010. To be included in the sample, the company must have been involved in a completed strategic alliance during the relevant year, publicly listed, not primarily involved in the financial or utilities sectors and only involved in one transaction type during the sample period. Mean ownership describes the percentage owned by Partner (1). The acquisition sample consists of 513 acquisitions drawn from the SDC U.S. database between 2000 and 2010. To be included in the sample, the company must have been involved in a completed acquisition during the relevant year, publicly listed, not primarily involved in the financial or utilities sectors and only involved in one transaction type during the sample period.

Table 2.
Summary Statistics

	<u>Strategic Alliances</u>	<u>Acquisitions</u>	<u>Differences in Means</u>	
	Mean	Mean	Difference	P-value
<i>Firm Characteristics:</i>				
R&D	0.023	-0.007	0.029***	0.000
CAPEX	0.015	0.011	0.004	0.239
LIQUID	0.098	0.065	0.034***	0.004
TANG	0.048	0.047	0.001	0.915
STDEV	4.061	4.932	-0.871***	0.001
SIZE	1.351	1.340	0.011	0.924
LEV	0.170	0.169	0.000	0.983
FCF	0.836	0.903	-0.068	0.908
ROA	-0.013	-0.046	0.033**	0.044
SALESG	0.244	0.244	0.000	0.115
<i>CEO Remuneration:</i>				
SALARY	0.795	0.639	0.156***	0.000
BONUS	0.624	0.696	-0.072	0.321
OPTIONS	0.160	0.214	-0.054**	0.017
SGRANTS	0.353	0.376	-0.023	0.790
EQUITY	1.554	1.094	0.459**	0.043
<i>Corporate Governance:</i>				
BLKHLDER	0.661	0.626	0.035	0.404
HINDEX	146.501	40.858	105.643***	0.000
UNIQUE	2.596	1.381	1.215	0.140
CORPCON	51.340	54.210	-2.870	0.134
BCF	2.430	2.358	0.072	0.532
STGBRD	0.564	0.514	0.049	0.221
<i>Sarbanes-Oxley:</i>				
SARB	0.755	0.607	0.148***	0.000
<i>Previous Engagements:</i>				
PREV	0.481	0.133	0.148***	0.000

The sample consists of 2 categories of firms drawn from the SDC U.S. database between 2000 and 2010. To be included in the sample, the company must have been involved in a completed strategic alliance or acquisition during the relevant year, publicly listed, not primarily involved in the financial or utilities sectors and only involved in one transaction type during the sample period. ***, **, * denote statistical significance at the 1%, 5% and 10% level of significance respectively, using a two tailed test.

Table 3.
Multinomial Logit Models for Transaction Choice

	Model 1 (BCF)				Model 2 (STGBRD)			
	SA	% Δ	Acq	%Δ	SA	% Δ	Acq	%Δ
<i>Firm Characteristics:</i>								
R&D	3.142* 0.079	0.237	-0.427 0.870	-0.070	3.261* 0.068	0.244	-0.369 0.887	-0.069
CAPEX	4.138* 0.055	0.216	5.387* 0.086	0.110	4.177* 0.053	0.219	5.322* 0.086	0.108
LIQUID	-0.609 0.280	-0.038	-0.659 0.431	-0.012	-0.587 0.297	-0.038	-0.624 0.457	-0.011
TANG	-1.630*** 0.008	-0.082	-2.157** 0.025	-0.045	-1.616*** 0.009	-0.082	-2.162** 0.024	-0.045
STDEV	-0.051** 0.033	-0.004	0.022 0.484	0.002	-0.051** 0.033	-0.004	0.022 0.483	0.002
SIZE	0.726*** 0.000	0.043	0.649*** 0.000	0.010	0.728*** 0.000	0.043	0.656*** 0.000	0.010
LEV	0.629 0.235	0.040	0.614 0.433	0.011	0.627 0.237	0.042	0.541 0.490	0.008
FCF	-0.001 0.593	0.000	0.000 0.944	0.000	-0.001 0.608	0.000	0.000 0.946	0.000
ROA	-0.028 0.974	0.067	-3.558*** 0.006	-0.119	-0.037 0.966	0.068	-3.619*** 0.005	-0.121
SALESG	-2.648*** 0.000	-0.161	-2.292*** 0.000	-0.032	-2.630*** 0.000	-0.160	-2.279*** 0.000	-0.032
<i>CEO Remuneration:</i>								
SALARY	-1.451*** 0.000	-0.081	-1.485*** 0.007	-0.025	-1.486*** 0.000	-0.082	-1.573*** 0.004	-0.027
BONUS	0.007 0.947	-0.003	0.240 0.115	0.010	0.008 0.941	-0.001	0.253* 0.096	0.009
OPTIONS	-0.229 0.545	-0.013	-0.054 0.909	0.002	-0.233 0.539	-0.014	-0.067 0.888	0.002
SGRANTS	-0.076 0.420	-0.005	0.022 0.860	0.023	-0.071 0.451	0.019	0.039 0.752	0.003
EQUITY	0.006 0.819	0.003	-0.084* 0.083	-0.003	0.010 0.699	0.004	-0.077* 0.099	-0.003
<i>Corporate Governance:</i>								
BLKHLDR	-0.438** 0.016	-0.029	-0.160 0.569	0.002	-0.464*** 0.010	-0.030	-0.220 0.429	0.001
HINDEX	0.000 0.416	0.000	-0.002** 0.042	0.000	0.000 0.361	0.000	-0.002** 0.044	0.000
UNIQUE	1.268** 0.031	0.150	-2.405 0.235	-0.090	1.282** 0.029	0.187	-2.350 0.237	-0.099
CORPCON	0.012** 0.013	0.001	0.019*** 0.010	0.000	0.013*** 0.008	0.001	0.018*** 0.010	0.000
GOVINDEX	-0.055 0.373	-0.002	-0.137 0.142	-0.004	0.022 0.891	0.009	-0.439* 0.061	-0.015
<i>Sarbanes-Oxley:</i>								
SARB	-0.024 0.937	-0.016	-0.666* 0.096	-0.025	-0.004 0.988	-0.017	-0.716* 0.086	-0.027

Intercept:

CON	-1.137** <i>0.016</i>	-1.815*** <i>0.009</i>	-1.311*** <i>0.005</i>	-1.812*** <i>0.007</i>
Obs		2,557		2,557
Chi2		2,551***		2,553***

The table reports the results for the multinomial logistic regression model used to estimate the likelihood of a firm engaging in a strategic alliance or an acquisition compared to remaining non-involved. The dependent variable takes the value of 0 for non-involved firms, 1 for firms engaged in strategic alliances and 2 for firms engaged in full acquisitions. Marginal effects are displayed under “%Δ”. Two-tailed p-values are displayed below the coefficient in italics. ***, **, * represent the 1%, 5% and 10% levels of significance respectively.

Table 4.
Binomial Logit Models for Strategic Alliances and Full Acquisitions

	Model (1) - BCF		Model (2) - STGBRD	
		%Δ		%Δ
<i>Firm Characteristics:</i>				
R&D	3.108 <i>0.125</i>	0.278	3.146 <i>0.120</i>	0.281
CAPEX	0.035 <i>0.989</i>	0.003	-0.016 <i>0.995</i>	-0.001
LIQUID	-0.726 <i>0.278</i>	-0.065	-0.709 <i>0.290</i>	-0.063
TANG	-0.061 <i>0.942</i>	-0.005	-0.016 <i>0.985</i>	-0.001
STDEV	-0.050** <i>0.049</i>	-0.004	-0.050** <i>0.047</i>	-0.004
SIZE	-0.023 <i>0.852</i>	-0.002	-0.032 <i>0.797</i>	-0.003
LEV	0.376 <i>0.552</i>	0.034	0.417 <i>0.511</i>	0.037
FCF	0.017 <i>0.376</i>	0.002	0.017 <i>0.379</i>	0.002
ROA	0.941 <i>0.357</i>	0.084	0.921 <i>0.366</i>	0.082
SALESG	-0.307 <i>0.345</i>	-0.027	-0.293 <i>0.364</i>	-0.026
<i>CEO Remuneration:</i>				
SALARY	-0.054 <i>0.904</i>	-0.005	-0.029 <i>0.948</i>	-0.003
BONUS	-0.234* <i>0.084</i>	-0.021	-0.240* <i>0.077</i>	-0.021
OPTIONS	-0.058 <i>0.881</i>	-0.005	-0.036 <i>0.926</i>	-0.003
SGRANTS	-0.018 <i>0.872</i>	-0.002	-0.022 <i>0.843</i>	-0.002
EQUITY	0.088** <i>0.025</i>	0.008	0.090** <i>0.021</i>	0.008
<i>Corporate Governance:</i>				
BLKHLDER	-0.448* <i>0.055</i>	-0.040	-0.443* <i>0.057</i>	-0.040
HINDEX	0.001*** <i>0.001</i>	0.000	0.001*** <i>0.001</i>	0.000
UNIQUE	2.300 <i>0.170</i>	0.206	2.216 <i>0.179</i>	0.198
CORPCON	-0.003 <i>0.611</i>	0.000	-0.002 <i>0.711</i>	0.000

GOVINDEX	-0.001 0.990	0.000	0.169 0.383	0.015
<i>Sarbanes-Oxley:</i>				
SARB	0.795** 0.022	0.071	0.824** 0.018	0.074
<i>Previous Engagements:</i>				
PREV	2.348*** 0.000	0.210	2.341*** 0.000	0.209
<i>Intercept:</i>				
CON	0.537 0.346		0.384 0.491	
Obs	1,274		1,274	
Chi ²	226***		227***	

The table reports the results for the binomial logistic regression model used to estimate the likelihood of a firm engaging in a strategic alliance or an acquisition. The dependent variable takes the value of 0 for firms involved in acquisitions and 1 for firms engaged in strategic alliances. Marginal effects are displayed under “%Δ “. Two-tailed p-values are displayed below the coefficient. ***, **, * represent the 1%, 5% and 10% levels of significance respectively.

Table 5.
Summary Statistics for Cumulative Abnormal Returns

Panel A - CARs				
		Mean	Median	% Positive
Strategic Alliances				
AR	(0,0)	0.0069***	0.0017***	53.64%
CAR	(-1,+1)	0.0090***	0.0024***	52.53%
	(-2,+2)	0.0075***	0.0026***	52.10%
	(-5,+5)	0.0059**	0.0030*	51.31%
Acquisitions				
AR	(0,0)	-0.0125***	-0.0050***	42.02%
CAR	(-1,+1)	-0.0147***	-0.0100***	42.80%
	(-2,+2)	-0.0176***	-0.0100***	42.67%
	(-5,+5)	-0.0137***	-0.0110***	44.23%
Panel B – Differences in Means and Medians				
Strategic Alliances - Acquisitions				
AR	(0,0)	0.0194***	0.0067***	
CAR	(-1,+1)	0.0237***	0.0124***	
	(-2,+2)	0.0251***	0.0126***	
	(-5,+5)	0.0196***	0.0140***	

The summary statistics report the mean and median cumulative abnormal returns over each of the four time periods and firm types for the period 2000-2010. Panel A reports the mean and medians for each firm type while Panel B reports the difference of means and medians. The reported abnormal returns are calculated using an equally weighted market model (MMEW). ***, **, * represent the 1%, 5% and 10% levels of significance respectively.

Table 6
Heckman Regression Models

	Strategic Alliances		Acquisitions	
	Model	Model	Model (1)	Model (2)
	(1)	(2)	BCF	STGBRD
	BCF	STGBRD	BCF	STGBRD
<i>Firm Characteristics:</i>				
R&D	-0.193** 0.013	-0.195** 0.012	-0.189 0.153	-0.191 0.147
CAPEX	0.306*** 0.005	0.309*** 0.004	-0.163 0.394	-0.188 0.323
LIQUID	-0.021 0.429	-0.021 0.423	0.094** 0.014	0.096** 0.012
TANG	-0.060* 0.091	-0.060* 0.091	0.069 0.208	0.079 0.150
STDEV	-0.001 0.322	-0.001 0.327	-0.000 0.987	-0.000 0.979
SIZE	-0.004 0.446	-0.003 0.478	0.010 0.275	0.007 0.403
LEV	0.023 0.355	0.023 0.362	-0.029 0.416	-0.023 0.522
FCF	0.001 0.377	0.001 0.366	0.001 0.516	0.001 0.487
ROA	-0.037 0.364	-0.037 0.372	0.130** 0.016	0.132** 0.014
SALESG	0.012 0.421	0.012 0.435	0.015 0.377	0.017 0.293
<i>CEO Remuneration:</i>				
SALARY	0.020 0.154	0.020 0.149	-0.021 0.412	-0.017 0.488
BONUS	-0.004 0.283	-0.004 0.255	0.009 0.157	0.008 0.206
OPTIONS	-0.008 0.636	-0.008 0.612	-0.059*** 0.002	-0.056*** 0.004
SGRANTS	0.005 0.155	0.005 0.149	2.022 0.717	1.637 0.764
EQUITY	-0.002 0.116	-0.002 0.088	0.004* 0.054	0.004** 0.049
<i>Corporate Governance:</i>				
BLKHOLDER	-0.026*** 0.004	-0.026*** 0.003	0.014 0.307	0.014 0.292
HINDEX	-0.000 0.399	-0.000 0.346	-0.000 0.908	-0.000 0.940
UNIQUE	0.140*** 0.003	0.141*** 0.003	-0.179** 0.049	-0.185** 0.041
CORPCON	0.000* 0.000*	0.000* 0.000*	-0.001** -0.001**	-0.001** -0.001**

	0.067	0.068	0.020	0.024
GOVINDEX	0.001	-0.003	0.005	0.021*
	0.781	0.687	0.211	0.056
<i>Sarbanes-Oxley:</i>				
SARB	0.019	0.020	0.006	0.013
	0.329	0.314	0.789	0.565
<i>Previous Experience:</i>				
PREV	-0.011	-0.010	0.008	0.002
	0.445	0.474	0.730	0.929
<i>Transaction Controls:</i>				
SSTATE	-0.005	-0.006	0.010	0.012
	0.457	0.432	0.422	0.364
SINDUST	-0.016	-0.016	-0.005	-0.006
	0.123	0.116	0.625	0.581
<i>Partner / Target Characteristics:</i>				
R&D	0.056	0.057	0.073	0.080
	0.194	0.183	0.231	0.186
CAPEX	-0.089	-0.090	0.080	0.096
	0.471	0.463	0.531	0.445
LIQUID	-0.010	-0.011	-0.043	-0.042
	0.603	0.574	0.203	0.206
TANG	0.001	0.002	-0.032	-0.035
	0.974	0.948	0.505	0.461
STDEV	0.001	0.001	0.000	0.001
	0.214	0.213	0.790	0.694
SIZE	0.005**	0.005**	-0.011**	-0.011**
	0.018	0.017	0.013	0.013
LEV	-0.003	-0.002	0.006	0.011
	0.896	0.939	0.846	0.744
FCF	0.000	0.000	-0.005**	-0.005**
	0.374	0.357	0.018	0.018
ROA	0.003	0.003	-0.004	-0.003
	0.861	0.871	0.909	0.916
SALESG	-0.001	-0.001	-0.012	-0.014
	0.833	0.838	0.317	0.244
<i>Intercept:</i>				
CON	-0.017	-0.016	-0.015	-0.017
	0.629	0.659	0.778	0.757
<i>Mills Ratio:</i>				
LAMBDA	-0.005	-0.005	-0.008	-0.011
	0.605	0.636	0.702	0.587
Obs	1762	1762	1728	1728
Chi2	53.225	53.336	87.879	90.744

The table reports the results of the Heckman regression models using the (-2, +2) equally weighted market model cumulative abnormal return as the dependent variable. Two-tailed p-values are displayed below the coefficient. ***, **, * represents the 1%, 5% and 10% levels of significance respectively.