

**An empirical examination of White Knight Corporate Takeovers:  
Performances and Motivations**

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## **ABSTRACT**

### **An empirical examination of White Knight Corporate Takeovers: Performances and Motivations**

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While many studies research on the bidding contest, several studies have assessed the impact of the white knight's bid on common stock returns. However, these studies focus on the reaction of the market to a single decision. In this paper, we are interested in both the short-run effect of management's decision to make a white-knight bid and the long-term cumulative effect made by management. As the first paper to research on the motivation of the white knight and on the factors that affect its market reaction, we place the white knight's decision to enter the control contest in a broad context. Our hypothesis is that poor governance mechanisms and ownership structure may lead to both poor management and thus a decision to join the bidding contest with an overpaid price. We employ a unique hand-collected dataset on firm characteristics, governance mechanisms and ownership structure for the bidding pairs with white knights. Our results show that board size, tenure average, the ownership held by directors and executives as a group and institutional ownership have an important effect on abnormal returns. However, we find no significant effect of financial strength and ownership structure on the likelihood of a white knight takeover attempt. Instead, we find that striving for the market power in its industry is an important motivation for a white knight attempt.

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## **1. Introduction**

A white knight refers to an individual or firm that comes to the aid of another firm to help prevent an unwelcome takeover. It is a friendly bidding firm that actively sought by a target which is resisting acquisition by a hostile bidding firm. In September 2011, Canadian specialty chipmaker Zarlink Semiconductor appealed in public for a white knight to best a hostile \$561 million takeover offer from U.S. rival Microsemi, and was in talks with at least 15 potential buyers. But unfortunately, there was no white knight showing up and Zarlink Semiconductor was finally acquired by Microsemi in the end of year 2011; Allergan Inc., a global specialty pharmaceutical firm, is still struggling to contact lots of companies including Sanofi and Johnson & Johnson to see if either would be interested in acquiring the Botox maker after receiving an unsolicited \$45.7 billion bid from Valeant Pharmaceuticals Inc since the April, 2014.

In the targets' eyes, even though not all takeovers are hostile, they will consider that some firms may not be ideal to move the company in a direction where they don't want to go for or the management of the targets may feel that they'll get replaced or threatened by the hostile bidders in the near future. However, in view of the white knights, existing research shows that participation in an acquisition generally does not confer substantial benefits on bidding shareholders (Banerjee and Owers, 1992; Niden, 1993; Bradley, Desai, and Kim 1988). In fact, they usually have to overpay even more greatly for the market price while attempting to outbid the hostile rival. So, we cannot help asking this question: what is the motivation for the white knights?

Several studies have assessed the impact of the white knight's bid on common stock returns. However, these studies focus on the reaction of the market to a single decision. Acquisitions are among the largest and most readily observable forms of corporate investment, which should be considered as a prudent decision of the management. In this paper, we are interested in both the short-run effect of management's decision to make a white-knight bid and the long-term cumulative effect made by management. As the first paper to research into the motivation of the white knight, we place the white knight's decision to enter the control contest in a broad context.

This study contributes to the current literature on corporate governance and the decision making process by exploring various elements in the M&A process. Basing on the firm and M&A deal characteristics, board characteristics and ownership structure are found to significantly contribute to the abnormal returns. However, we find no significant effect of financial strength, and ownership structure on the likelihood of a white knight takeover attempt. Instead, our empirical results provide evidence that firm size, Tobin's q as well as the directors' age and tenure is what contributes most to the white knight decision and additionally, we find that striving for the market power in its industry is an important motivation for a white knight takeover attempt.

This paper is organized as follows. Section 2 summarizes the findings on market returns and motivations for the acquirers or bidders as well as literature that offer direct insights into the white knights. Section 3 describes the data, the sample selection and the related variables definitions. In Section 4, we introduce the methods that we use to examine firm performance and describe our models. The empirical results are reported and interpreted in section 5. Section 6 provides concluding remarks and discusses possible extensions of our study. Finally, section 7 addresses the limitations and offers direction for further research.

## **2. Literature Review**

### **2.1 Research on returns for the bidders**

On the one hand, a few prior studies suggest that acquirers realize positive returns (Jensen & Ruback, 1983; Chatterjee & Lubatkin, 1990; Healy, Palepu, & Ruback, 1992), or at least don't perform poorly than their targets (Franks, Harris & Titman 1991). Hansen and Lott (1996) make it further by examining the returns to bidders acquiring private and public targets and found out that the bidders experience a higher return when purchasing a private firm.

On the other hand, other studies suggest that the intended benefits of acquisitions are often not realized and shareholders of the acquirers often face experience negative average returns (Roll, 1986; Varaiya and Ferris, 1987; Bradley, Desai & Kim, 1988; Asquith, Bruner, & Mullins, 1990).

Meanwhile, there are also research compares the market returns on multiple bidders. Schipper and Thompson (1983) examine bidder returns for 55 firms from 1952 to 1968 and found positive abnormal returns of 13 percent in the 12 months up to and including the announcement of the acquisition program but found no significant stock price change to subsequent acquisition announcements. Asquith, Bruner, & Mullins (1983) show that most bidding firms make multiple bids throughout the 17- year sample period of their study and bidding firms gain significantly during the twenty-one days leading to the announcement of each of their first four merger bids. Fuller, Netter, and Stegemoller (2002) study shareholder returns for firms that acquired five or more firms within a short time period and found out that bidder shareholders gain when buying a private firm or subsidiary but lose when purchasing a public firm. And bidders' return is greater the larger the target and in stock deal.

## **2.2 Evidence on motivation for bidders**

The results that bids are often made over the market price raise an important question: if bidder returns are not positive, then why do firms make acquisitions? Previous research tried to explore the motive, other than value maximization, behind the mergers:

First view is debt-and –taxes hypothesis. Asquith and Mullins (1983) analyze the effect of personal taxes on the allocation decisions of the firm and show that dividends and stock repurchases are tax-inefficient uses of financial slack, while internal investment and acquisitions create value by "sheltering income from personal taxation". Majd and Myers (1987) argue that conglomerate firms pay less in taxes than their segments would pay separately due to the tax code's asymmetric treatment of gains and losses and "slack-rich" bidder pair with "slack-poor" targets to create value. Bruner (1998) shows evidence to support the hypothesis that capital structure change provides bidders and targets a motive for merger. More related financial motive theory contends that there is a gain to shareholders in mergers from the use of excess cash or unused debt capacity, but none of the theories specifies whether the financial slack is in the bidding firm, the target, or both.

Second view is related with agency theory or inefficient management that managers of bidding firms pursue personal objectives. Marris (1963) argues that managers try to maximize the growth

rate of their firm but they are constrained from totally ignoring shareholder interests due to the threat of takeover and the possibility of termination of their employment. Shleifer and Vishny (1988) examine the acquisition process from the managerial perspective and they contend that “pressure brought by hostile takeovers effectively restricted non- value-maximizing conduct by manager” and targets of hostile bids need for external discipline. Amihud, Lev & Travlos (1990) show that negative returns of bidders are caused by low managerial ownership of bidders’ stock. Their findings are strengthened by by Morck, Shleifer and Vishy (1990) who contend that managers of bidding firms consider both their personal benefits from the investment and the consequences for the market value of the firm. Thus, according to them, bad acquisitions are a manifestation of agency problems in the firm.

Synergy hypothesis has also been postulated as one of the motives of mergers. According to this hypothesis, the purpose of the mergers is benefit from synergy resulting from economies of scale, improved production techniques, complementary resources, increased market power, and other value-creating mechanisms. Bradley, Desai and Kim (1983) present evidence that the permanent positive revaluation of the unsuccessful target shares is largely due to “the anticipation of another bid that would ultimately result in the transfer of control of the target resources” and concluded that the synergy hypothesis is a better explanation for the nature of tender offers. Hubbard and Pahlia (1999) examine the 1960s conglomerate wave and find strong support for the synergy hypothesis but no evidence consistent with the debt-and-taxes hypothesis. In addition, they report that acquiring firms that make multiple bids do not experience higher level of free cash flows. Montgomery (1994) discusses the motivation of firms’ diversification by comparing the market-power view, resource view and agency view and concluded that acquisitions often do not lead to increases in corporate wealth forbidding firms.

Hubris hypothesis is put forward by Roll (1986), who analyzes the steps in a takeover and argues that hubris on the part of individual decision makers should be one of the possible reasons to explain the takeover phenomenon. It is later complemented by Malmendier and Tate (2008) who analyze the impact of CEO overconfidence on merger decisions by using the decisions of CEOs in large companies to measure biased managerial beliefs and using the press to measure outsiders’ perceptions of the CEOs, from which they illustrate how overconfidence of CEO affect their overpay for target companies and undertake value-destroying mergers.

To provide a rationale for high-premium initial bids , Fishman (1988) builds a two-bidder model to study the takeover bidding process within the context of asymmetric as well as costly information and demonstrated that a bidder could make a high-premium initial offer to deter a second bidder from competing, in which the information conveyed by the bid pre-empts a second bidder. In this information-based background, he noticed that there are difference between single- bidder contests and multiple-bidder contests and it's important to distinguish between first and later bidders when studying the returns to bidders in multiple-bidder contests.

### **2.3 Research on white knight**

Other studies look specifically at White Knights, which is defined as a subsequent and friendly bid following a hostile bid in a corporate control contest. Jennings & Mazzeo (1993) and Schwert (2000) show that after uninvited hostile takeover bids, in order to improve the terms of this initial offer, target firms are inclined to try to attract a friendly competing bid by a “white knight”. This maximizes the value of the target company’s shares at the cost of the acquirer. Banerjee and Owers (1992) and Niden (1993), find that white-knight bidders experience significant negative abnormal returns while hostile bidders have significant positive abnormal returns, which supports the findings of Bradley, Desai, and Kim (1988). They find out that subsequent bidders, including White Knights, experience significant, negative abnormal returns. By contrast, Smiley and Stewart (1985) compare the return of successful White Knight and unsuccessful White Knight and find that the successful White Knights appear to experience significant positive excess return whereas the unsuccessful White Knights experience significant negative abnormal returns.

In addition to the ones that look at the impact of the White Knight's bid on common stock returns and the reaction of the market, there are other studies that focus on management of White Knight. Banerjee and Owers (1993) showed that White Knights' compensation packages have a lower percentage of options and stock appreciation rights than do those of hostile bidders, which implies that White-knight management might not be strongly motivated to act in the shareholders' interest. Carroll, Griffith and Rudolph (1999) found out that it is a part of pattern

that White Knight managers make less efficient decisions than do hostile bidders and their acquisition of the target is yet another negative NPV investment. Meanwhile, they also showed that shareholders of these firms do not replace inefficient managers.

Shleifer and Vishny (1986) postulate the maximum synergy hypothesis which looks at the combined target and bidding firms' shareholders wealth. According to their model, the combined wealth of target and bidding firms' shareholders is expected to be greater in white knight acquisitions than in non-white knight acquisitions because of the optimal synergistic combination of target and bidding firm assets. Recently, Eichler and Maltritz (2010) presented an options-based approach to determine the unobservable takeover price that market expects for a new prospective offer to estimate the probability by calculating the probability that a higher offer will be placed in the future. They argue that the expected takeover price can reveal the appropriate amount for the next bid and, thus, avoid overpricing.

### **3. Data**

#### **3.1 Data sources and sample description**

To be classified as a white knight, the bidder must meet the following three criteria: (1) It is a subsequent bid; (2) It is a friendly bid; (3) It follows a hostile bid. Our sample of M&A transactions comes from the Securities Data Company's (SDC) US Mergers and Acquisitions database. Hostility is usually perceived when an offer is made public that is aggressively rejected by the target firm. Since perception of hostility are closely linked with takeover negotiations that are far from completion, several definitions of hostility exist. (Schwert, 2000). The SDC definition for the hostile bidders includes that the bidder initiates the takeover and the target board is initially unprepared or not willing to enter into merger negotiations.

Considering the data availability of other related data bases, we select all mergers and acquisitions announced between January 1992 and December 2012 where both acquirer and target firms are listed as public firms in primary stock exchange, the New York Stock Exchange (NYSE), the NASDAQ, and the American Stock Exchange (AMEX). Initially, we obtain 5531 deals. Then, we filter the M&A transactions by fixing the target and thus gain 345 groups of

multiple bids. Then, according to the attitude of the deal, we sorted out the M&A deal where the first bidder is friendly and the most subsequent bidder after the first bidder is hostile, thus leading to a sample of 49 groups. By restricting the M&A transaction to a two year period and the target having two bidders, we get our final sample of two M&A groups. The first group is the pair of 41 target firms and 41 hostile bidders while the second group is consist of the target firms and its 41 friendly bidding firms, namely the white knight. Additionally, from SDC, we also identify the deal characteristics such as the method of payment (cash versus stock) and the transaction value.

To get the daily stock return data, we merge the M&A sample with the Center for Research in Security Prices (CRSP) data and Compustat for annual financial statement information. Then, we turn to the Securities and Exchange Commission (SEC) that mandated all registrants to file their documents online using the EDGAR system starting from 1996, which is also one of the reasons for us to choose our M&A transactions sample period. The EDGAR database has over 600 different types of forms, and for the purpose of our study, we gather all available proxy statements (Form DEF 14-A), which provide detailed information for each director, ownership structure and executives information. We also supplement our director data using the Risk-Metrics Directors database. In short, we make sure that we can either have access to proxy statements from EDGAR for the acquirer and the target or available director information from Risk-Metrics in the year prior to the deal announcement.

Table 1 describes sample frequencies for all the bidders, including both white knight and hostile bidders, for their common target firms. In our sample, M&A are most frequently in year 1994, year 1995 and year 1998. Table 2 reports sample frequencies of industries for the white knight. In our sample, white knights are most frequently in year 1995 and year 1998. Table 3 reports sample frequencies of industries for the white knights in these M&A contests with the criteria of the Fama French 49 industry classification. The sample consists of 41 white knights who make the announcement between January 1992 and December 2012. In our sample, the white knight appears most frequently in banking, business services and medical equipment industry. Table 4 reports the summary statistics for the white knights and their targets. We describe the variables construction in more detail in Appendix A. The first panel presents the white knight firm characteristics and the second panel are the firm's characteristics for the hostile bidders. The

mean values of the white knights firm size, Tobin's q, ROA and FCF are very close to the hostile bidders, which suggests a very similar firm characteristics for white knights and hostile bidders.

Table 5 provides Pearson correlation coefficients correlations between our variables. Stock deal is positively correlated with deal value and leverage while it's negatively related with director age, director tenure, D&E ownership, ROA and FCF. But, all the absolute value of correlation efficient is less than 0.5.

Firm size is positively correlated with deal value, board size and directors, ROA and FCF. Directors' average age is positively related with director's average tenure while it's negatively related with D&E ownership and Tobin's q, D&E ownership is positively related with Blockholders' ownership and negatively related with the percentage of Outside-director. Other variables are not highly correlated. In ours study, multicollinearity among control variables is not significant since no values had any correlations greater than 0.6.

### **3.2 Variable definitions**

#### **3.21 firm and deal characteristics**

The bidder metrics that we control for are firm size, Tobin's q, leverage, ROA, and free cash flow (FCF), all of which are measured at the fiscal year end prior to the acquisition announcement. Pre-announcement stock price run-up is measured over the 200-day window from event day -210 to event day -11.

Moeller, Schlingemann, and Stulz (2004) find strong evidence that bidder size is negatively related with the acquirer's announcement period CAR. But they haven't investigated how the size effect relates to managerial incentives and firm governance. In our test, we include firm size, which is the log transformation of the acquirer's total assets, as an important control variable to explore the effect on the Cumulative abnormal return. Additionally, in our logit model to investigate the motivation of the white knight, we also introduce the relative firm size, which is calculated as the target firm size scaled by the firm size of the white knight.

Tobin's q, according to previous studies, has an ambiguous effect on CAR. Lang, Stulz, and Walking (1991) and Servaes (1991) show a positive relation for tender offer acquisitions and public firm acquisitions while Moeller, Schlingemann, and Stulz (2004) find a negative relation in a comprehensive sample of acquisitions. We define Tobin's q as the ratio of a bidder's market value of assets over its book value of assets, where the market value of assets is computed as the book value of assets minus the book value of common equity plus the market value of common equity.

Based on Jensen's (1986) free cash flow hypothesis, we also control for the acquirer's financial leverage, ROA and FCF. Leverage is an important governance mechanism because higher debt levels help reduce future free cash flows and limit managerial discretion (Stulz, 1990). Ghosh and Jain (2000) find that financial leverage of combined firms increases significantly following mergers by showing that the change in financial leverage around mergers is significantly positively correlated with the announcement period market-adjusted returns. Also, Garvey and Hanka (1999) provide evidence that leverage is related to a firm's takeover protection. Lang, Stulz and Walking (1991) further test Jensen's free cash flow theory by using Tobin's q to identify firms beset by agency problems and expected to invest free cash flow in negative NPV projects. Basing on all these former research, we include leverage, which is calculated as book value of debt scaled by book value of assets and FCF, which is equal to operating income before depreciation minus interest expense minus income taxes minus capital expenditures scaled by book value of total assets in our test. Return on assets (ROA) is calculated as the operating income before depreciation, scaled by book value of assets.

The deal characteristics that we control for include method of payment and relative deal size. Previous research show that payment of method in M&A transaction has a great impact to the CARs. On the one hand, when it comes to common stock, Hansen's (1987) model includes it due to its "contingency pricing effect." Stock financing forces target shareholders to share the risk that the acquirer may have overpaid. Also, Chang (1998) and Fuller, Netter, and Stegemoller (2002) report that the stock price impact of stock-financed deals is less negative or even positive when the target is privately held. On the other hand, Cash not only signals a high value for the target, but also preempts other firms from bidding (Fishman, 1989). We create a dummy denoted by stock deal, where stock deal equals one for acquisitions financed either partially or fully with

stock and zero otherwise; According to Asquith, Bruner, and Mullins (1983) and Moeller, Schlingemann, and Stulz (2004), bidder announcement returns increase in relative deal size. In our test, we also include relatively deal size, which is constructed with deal value divided by acquirers' market value of equity.

To ensure that our results are not driven by outliers, we winsorize all variables at the 10 and 90 percentiles before the regression.

### **3.22 Corporate governance and board characteristics**

Corporate governance mechanisms have a significant effect on the quality of a firm's acquisitions. Acquirers with a higher value of the GIM index (Gompers, Ishii, and Metrick, 2003) obtain significantly lower abnormal returns around acquisition announcement date (Masulis, Wang, and Xie, 2007).

The board of directors is viewed as an important internal corporate governance mechanism. Yermack (1996) suggest that smaller boards are more effective. Similarly, Rosenstein and Wyatt (1990) and Weisbach (1988) and suggest that firms with greater portion of independent directors perform better. However, Coles, Daniel, and Naveen (2008) find that both small and large boards can be favorable, which actually involves firm characteristics. They show that firm value increases with board size for complex, large, and diversified firms and with the percentage of inside directors for R&D intensive firms. Linck, Netter, and Yang (2008) find out that optimal board size and structure is determined as a trade-off between the costs and benefits of monitoring and advising. They show that R&D intensive firms with significant growth opportunities have smaller and less independent boards while larger firms are more likely to have larger and more independent boards. In our test, considering the potential link between the firm size and the board size, we create two dummies, firms' size and board' size. The firms with the board size greater than median take value one and board size less than the median take value 1.

All studies show that poor firm performance increases the likelihood of a change in the top management team. However, Weisbach (1988) documents that this result is present only for firms that have a board dominated by outside directors, and attributes this to successful monitoring by outside directors. The effects of outsider directors are, nevertheless, ambiguous.

Some research argue that reputational concerns and fear of lawsuits can motivate outside directors to represent shareholders' interest (Fama & Jensen, 1983; Bhagat, Brickley, and Coles, 1987) while others assert that outside directors are more likely to be aligned with top management than shareholders as top management has great influence over who sits on the board and generally, non-management directors only hold a tiny portion of the stock of the firm (Jensen 1993; Patton and Baker, 1987). A direct paper related with our research is that Brickley, Coles and Terry ( 1994), who find out that significant, positive relation between the stock-market reaction to the adoption of poison pills and the fraction of outside directors on the board. Here, we observe the percentage of outside directors and we try to explore the possible rationale that can explain firms' corporate control behaviors and market reactions.

Similarly, extended tenure enhances organizational commitment and willingness to expend effort toward company goals (Buchanan, 1974). Vafeas (2003) finds out that increases in board tenure are associated with greater committee participation and more board directorships early on, and with declining committee participation and fewer directorships thereafter. We also include directors' average age and average tenure in our test.

As active investors provide benefits with their incentive to undertake costly monitoring (Jensen, 1991), blockholders or institutional shareholders are considered to be potentially active investors. Shleifer and Vishny (1986) demonstrate how the presence of a blockholder unaffiliated with management contributes to relieving the free-rider problem. According to them, "large shareholders can facilitate third-party takeovers by splitting the large gains on their own shares with the bidder", which implies that the probability of a takeover attempt is related to ownership by pre-existing blockholders. Black (1992) argues that institutional shareholders can take actions that more properly align managers' interests. In our test, we measure the intuitional investors influence by the percentage ownership of institutional shareholders, which is at least 5 percent prior to the acquisition announcement date.

As a matter of fact, ownership structure, executive compensation structure, and board composition are determined by each other (Jensen and Meckling, 1976) Loderer and Rosenfeld (1985) find that managerial welfare affects merger decisions and substantial amounts of own-company share ownership help align the interests of stockholders and management. In our test, the number of executive and directors as a group as well as their ownership are examined.

The potential agency and information costs associated with separate titles are important determinants of leadership structure. By separating the chairman-CEO positions, it will reduce agency costs and improve firm performance. (Rechner & Dalton, 1991; Brickley, Coles & Jarrell 1997) So, whether the chairman also serves as the CEO of the firm is one of important variables to measure how the leadership structure may affect the investment and corporate control policy of a firm. We set the dummy Chairman-CEO to be equal to one if the chairman serves as the CEO of the firm and zero otherwise.

## 4. Methodology

### 4.1 Short term impact

To measure the effect of an acquisition on the value of an acquirer and a target, we obtain cumulative abnormal using the standard event study method. The model we use to predict expected returns is the market model:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

Where  $R_{it}$  is the continuously compounded rate of return for firm i on day t,  $R_{mt}$  is the continuously compounded rate of return for CRSP value-weighted market index on day t and  $\varepsilon_{it}$  is the market model prediction error term. For each firm i, the abnormal return is calculated as the difference between the actual return and the expected return on day t:

$$AR_{it} = Return_{it} - R_{it}$$

Since some of the abnormal returns behavior show up in the pre-event period and post-event returns provides information on market efficiency (Kothari and Warner, 2006), we are very interested in the time series effect of abnormal return. We sum daily prediction errors for each firm in the window. The following equation indicates the CAR for firm i from event day  $t_1$  to the event day  $t_2$ :

$$CAR_i = \sum_{t=t_1}^{t_2} \varepsilon_{it}$$

We also calculate the average CARs across firms to obtain average CAR for the window in each group with the equation below.

$$\overline{CAR} = \frac{1}{n} \sum_{i=1}^n CAR_i$$

Where n is the number of the firms in each of the group.

## 4.2 Long term impact

To examine the long-term abnormal stock performance, we use the buy-and hold abnormal returns (BHARs), which are defined as the differences between the long-run returns of sample firms and those of benchmark firms selected to capture expected return. Actually, the CAR is a biased predictor of BHAR due to differences in compounding. BHAR measures well the long-run investor experience, and they can capture the investor's experience from buying and holding securities for 3 to 5 years (Barber and Lyon, 1997).

Specifically, we calculate BHAR using equally weighted market return, value weighted market return, and return of matching sample as the benchmark return, respectively. The BHAR for firm i from time period  $a$  to time period b is calculated as follows:

$$BHAR_i = \prod_{t=a}^b (1 + R_{i,t}) - \prod_{t=a}^b (1 + R_{benchmark,t})$$

Where  $R_{i,t}$  refers to the monthly return of firm I on month t, and  $R_{benchmark}$  is the return on benchmark in month t. We examine return during the event month and for a one year period afterwards. The average buy- and-hold abnormal return is calculated as the equally weighted average of the individual BHARs:

$$\overline{BHAR}_i = \frac{1}{n} \sum_{i=1}^n BHAR_i$$

Where n is the number of sample firms.

### 4.3 Multivariate regression model

In order to examine how the finance situation, management and board structure affect the white knight returns, we use a multivariate regression model by controlling for factors which have been shown to affect announcement returns by earlier work in the M&A literature. The full models is specified as follows:

$$CAR_i = \beta_0 + \beta_1 stockdeal_{it} + \beta_2 dealvalue_{it} + \beta_3 FCF_{it} + \beta_4 FCF_{it} + \beta_5 outdirectors_{it} + \beta_6 ROA_{it} \\ + \beta_7 tobinsq_{it} + \beta_8 age_{it} + \beta_9 boardsizes_{it} + \beta_{10} chairmanCEO_{it} + \beta_{11} degroup_{it} \\ + \beta_{12} firmsize_{it} + \beta_{13} blockownership_{it} + \beta_{14} leverage_{it} + \beta_{15} tenure_{it}$$

### 4.4 Logit model

Trying to explore to what extent the firm characteristic, management and board structure makes affects a firm's corporate control policy, we use the logit model.

$$E((y|x_1, x_k)) = \pi_i = \frac{\exp(\beta_0 + \beta_1 X_1 + \dots + \beta_k)}{1 + \exp(\beta_0 + \beta_1 X_1 + \dots + \beta_k)}$$

$$\log\left(\frac{\pi}{1 - \pi}\right) = \pi' = \beta_0 + \beta_1 X_1 + \dots + \beta_k$$

$H_0$ : There is a relation between the variables and the probability of a firm turning into a white knight. The full model is as follows:

$$odds(y|x_1, x_k) = \beta_0 + \beta_1 stockdeal_{it} + \beta_2 dealvalue_{it} + \beta_3 FCF_{it} + \beta_4 FCF_{it} + \beta_5 outdirectors_{it} \\ + \beta_6 ROA_{it} + \beta_7 tobinsq_{it} + \beta_8 age_{it} + \beta_9 boardsizes_{it} + \beta_{10} chairmanCEO_{it} \\ + \beta_{11} degroup_{it} + \beta_{12} firmsize_{it} + \beta_{13} blockownership_{it} + \beta_{14} leverage_{it} \\ + \beta_{15} tenure_{it} + \beta_{16} Industry_{it}$$

## **5. Empirical Results**

Section 5.1 reports descriptive statistics for the sample firms. 5.2 discusses the univariate analysis and multivariate analysis of white knight acquisition likelihood and the interpretation of these, which provides evidence through short term window and long term window. Also, several specification checks are conducted to control for other factors that could be important in determining white knights.

### **5.1 Univariate CAR comparisons**

Table 6 presents the mean and median white knights announcement returns (WK\_CAR), target announcement returns (T\_CAR), and the combined portfolio announcement returns of hostile bidders and the targets (PCAR1) as well as combined portfolio announcement returns of white knights and the targets (PCAR2) over each event window around the deal announcement date for two groups of bidding with 164 samples (targets and acquirers both included) between 1992 and 2012.

Panel A shows the mean and median CARs over the three day [-1, +1] event window around the deal announcement date. We find that, for the acquirers including both the white knight and the hostile bidder, the mean three-day abnormal return is negative and significant from 1% level. Specifically, the mean CARs for white knights is -1.88% and the mean CARs for the hostile bidder is -1.42%. This is in line with the former studies that acquires usually experience negative abnormal return and M&A transactions usually destroy value for acquirer shareholders when they involve acquisitions of public firms (Bradley, Desai, and Kim, 1988; Masulis, Wang, and Xie, 2007; Fuller, Netter, and Stegemoller, 2002).

The targets, by contrast, experience a significantly high positive announcement return. Specifically, the target gains a mean three day abnormal return of 26.69% when it receives the first bid from the hostile bidders and the target has a mean abnormal returns of 19.3% when the white knight make the bid. This confirms to the former studies that wealth transfer to the targets.

The mean three-day combined portfolio announcement return of white knight and target is denoted by PCAR1, which is 8.83% and the combine abnormal return of hostile bidder and target is denoted by PCAR2, which equals to 11.79%. This is consistent with the positive combined returns shown by Andrade, Mitchell, and Stafford (2001), Moeller, Schlingemann, and Stulz (2004), and Wang and Xie (2009). In addition, for the period close to the announcement date, the results are also robust if we use the alternative three day [-2, -2], [-3, -3] window around the announcement date. Also, median CARs show a similar pattern as the means.

Panel B shows the mean and median CARs over the 61 days [-30, 30] event window around the deal announcement date. Again, in this event window, the targets show very significantly positive abnormal return, with mean CARs of 33.59% around the hostile bid announcement and with a mean CARs of 12.52% around the white knight bid announcement. Besides, the positive CARs remain significant for the combined portfolio of white knight and target and that of hostile and bidders, reaching at a high mean value of 10.18% and 7.05% separately. However, we notice that, the mean 61-day abnormal return of white knights turns to be positive and significant at 1% level, with a mean cumulative abnormal return of 1.59%.

Moreover, we also find that, for BHAR1, which denotes the short term Buy-and-hold abnormal return during the 200 trading days ending two months before the announcement date with CRSP value-weighted return as the market index , its pattern of trend is similar with the [-30, 30] window.

Figures 1 to 3 capture the trends in cumulative abnormal returns (CARs) around bidding announcement date by using equally weighted market index returns. Figure 1 depicts trends of cumulative abnormal returns (CARs) around the hostile bidders' announcement by using equally weighted market index returns in the 61 days window [-30, 30]. As is shown, despite some small falls and downs, the hostile bidders obviously experience a fast growing tend before the M&A announcement date and especially, when it closes to the announcement date, the CARs of hostile bidders reach its peak. However, after the announcement date, they begin to drop down gradually.

Figure 2 shows the market reaction with the 61 days event window [-30, 30] around the announcement date. The market reaction for the white knight is more complicated than hostile

bidders. Firstly, the CARs of white knights show an increasing trend around one month before its announcement date. However, around 20 days before the announcement, there is a sudden drop. After that turning point, they tend to recover and go up despite some small fluctuations until they reach the peak close to the announcement date, after which they keep declining until the arrival of the announcement date. Reaching a bottom at the announcement date, they generally keep this decreasing trend in spite of some small ups and downs in that month.

Through Figure 3 and Figure 4, we compared the trend pattern of the two groups and we compare the trend pattern of the white knight and the hostile bidders in Figure 6. Figure 3 shows the market reaction with the 61 days event window [-30, 30] around the announcement date of the targets when they were bid by the white knights. The targets have a rise-up trend when it closes to the announcement date and then at around the announcement, they experience a sharp increase. Moreover, they still keep a steady trend for a certain period after the announcement date. Figure 4 depicts the cumulative abnormal returns (CARs) for the targets and the hostile bidders in the short term (thirty days before through thirty days after the bidding announcement date) using equally weighted market index returns as a benchmark. Series 1 depicts the trend of CARs for the hostile bidders 30 days before and after the announcement date while series 2 represents the CARs for the targets. Their pattern is generally similar except the fact that the target experience more high CARs when they receive the hostile bid. Additionally, the white knight shares some common acquirer traits in bidding contests and they experience trends similar with hostile bidders.

## **5.2 White Knight**

### **5.21. Univrariate Analysis**

As discussed in the part of univariate CARs comparisons, we find that market reaction process for white knight differs before and after the announcement date. To observe this difference further, we break down the (-30, 30) days window into three windows (-30,-2), (-2,-2) and (2, 30). From table 7, it is observed that actually, the stock returns experience a positive increase until two days before the announcement date suggesting that with some release of information of being a bidder, the market reacts positively in advance. However, the market reacts negatively

towards the white knight around two days of the bidding announcement. This negative stock reaction remains within a month of the bidding announcement.

## **5.22 Multivariate analysis**

In this section, we test series of factors that may contribute to the market reaction to the stock returns to conduct multivariate analysis of white knight acquisition likelihood by setting some control variables on deal characteristics. In controlling for all known determinants of bidder returns, it is important to note that some bidder, deal or governance characteristics could be endogenously determined. The presence of such variables in the regressions could potentially bias the coefficient estimates of our governance indices. Therefore, we first estimate a set of separate regressions by using three models. In table 8, Model (1) and model (2) is conducted to test the firm characteristics, board characteristics and ownership structure separately while Model (3) is the full model. In addition, we also check this with long term observations by setting the dependent variable as lagged two-year and three-year BHARs, which are reported from table 9 and table 10.

### **A. Abnormal returns, firm characteristics and deal characteristics.**

Firstly, we are interested to see how the firm finance situation influences acquirer returns in a multivariate setting by controlling for factors which have been shown to affect announcement returns by earlier work in the M&A literature. Specifically, we include deal characteristics such as stock deal and deal value. We focus on the short term analysis, as is shown in table 8, where the dependent variable in these regressions is the three-day cumulative abnormal returns of the white knight (WK\_CAR). The results show that the dummy stock deal is negatively but slightly related to abnormal stock returns at significant level of 0.01 in the full model. This finding that stock-financed deals have lower CARs is consistent with Travlos (1987), Harris and Raviv (1988), Amihud, Lev, and Travlos (1990) and Martin (1996). According to these previous researches, corporate insiders who value control will prefer financing investments by cash or debt rather than by issuing new stock which dilutes their holdings and increases the risk of losing

control. Besides, our regression results suggest the variable deal value is not significantly related to abnormal stock returns.

For other control variables on firm characteristics, both the magnitude and statistical significance of the parameter estimates are relatively stable across the three model specifications shown in Table 8. Above all, the variable firm size is positively related with CARs of white knights. This is inconsistent with the general research on acquirers that bidder size has a significantly negative effect on bidder returns (Moeller, Schlingemann, and Stulz, 2004), suggesting that white knights, as a special type of acquirer, with larger firm size generally pay less premiums and invite more markets positive reactions than those with small.

Secondly, we find that Tobin's q is insignificant to the cumulative abnormal returns. In fact, prior studies find that an acquirer's Tobin's q has an ambiguous effect on CAR. Ghosh & Jain (2000) and Moeller, Schlingemann, & Stulz (2004) find that Tobin's q is negatively related to the cumulative abnormal returns while Lang, Stulz, and Walkling (1991) and Servaes (1991) document a positive relation for tender offer acquisitions and public firm acquisitions, respectively. To measure firm's performance, we also use return on assets ROA. Under model (1), the impact of ROA is not quite significant but we can observe its strong positive relation with the CARs with a high t value of 3.32 at a significant level 0.001 under the advanced model (3).

Based on Jensen's (1986) free cash flow hypothesis, we also control for the acquirer's financial leverage and free cash flow (FCF). As shown in table 8, the financial leverage is positively related to the cumulative abnormal returns at a significance level of 0.1 in the full model (3). This is consistent with the result of Ghosh and Jain (2000) and Masulis, Wang, and Xie (2007), who also provide evidence that the change in financial leverage around mergers is significantly positively correlated with the announcement period market-adjusted returns.

Free cash flow (FCF) is negatively related to the CARs with a significant level of 0.001 in both the model (1) and model (3). This result confirms to the free cash flow hypothesis advanced by Jensen (1988), who states that managers endowed with free cash flow will invest it in negative net present value (NPV) projects rather than pay it out to shareholders. This is also consistent with the results of Lang, Stulz, and Walkling (1991), who also report supportive evidence to the

free cash flow hypothesis and argues that the effect of free cash flow on bidder returns explains a larger fraction of the cross-sectional variation in returns than the nature of the control contest. Considering that higher free cash flow means better recent firm performance, we assume that this could be correlated with higher quality managers, who tend to make better acquisition decisions. With these assumptions, in the following sections, we further take the managerial quality, corporate governance and board characteristics into consideration to test how these traits drive the cumulative abnormal returns of the white knights.

## B. Abnormal returns, board characteristics and ownership structure

Above all, board size is an important factor to examine the board structure. With the absence of firm size, board size is insignificant to the cumulative abnormal returns. However, after we introduce other firm characteristics like firm size into our regression, we observe that board size affects negatively to the CARs at a significance level of 0.05. This makes sense since better board structure can be related to the need of firm size and if the board size is over large, this will easily lead to inefficiency. That may suggest that, when the board is ineffective in performing its functions, agency costs and consequently the takeover cost for a bidder are high. Secondly, tenure is negatively related to the CARs at a significance level of 0.05 in the model (2) and tenure becomes more significant reaching at a 0.01 level in model (3). Moreover, we find that directors' age is not significantly related to the CARs. Finally, the dummy to measure whether a chairman also serves the CEO in a firm is found to be insignificant to the CARs. In view of the short term window [-1, 1], the percentage of outsider directors are not significantly related to the CARs. However, we notice that this variable turns to be very significant at 0.001 level in the long run according to the regression analysis of lagged one-year BHARs, two-year BHARs and three-year BHARs, suggesting that outside directors do have an impact on the market's reaction.

Besides, we examine the ownership held by directors and executives as a group (D&E Ownership). In the short window, we find that it's positively related to the CARs at a significance level of 0.01 in model (2) and at a significance level of 0.001 in the full model. We also notice that the ownership held by blockholders is negatively related to the CARs for both the short long window and long term window. In the full model, it reaches a high t value of -3.97 with significance level of 0.001.

### **C. Controlling for other factors**

Masulis, Wang, and Xie (2007) find that acquirers with greater stock price run-up prior to the acquisition announcement have lower CARs and argued that acquisitions might be motivated to a greater extent by the overvalued stock of the acquirer. We also checked BHAR during the 200 trading days ending two months before the announcement date with CRSP value-weighted return as the market index in our tests but find out that this independent variable is insignificant to the CARs in all models. Another factor that may affect the CARs is geographic proximity between the acquirer and the target, which is put forwarded by Kedia, Panchapagesan, and Uysal (2008), who find that acquirer announcement returns in local transactions are higher than those in non-local transactions. However, this local deal variable enters negatively but not significant at all in our test.

### **D. Testing the probability with the Logit model**

As discussed, we are very interested to know what drives the white knights into this bidding contest. We use a logit model to estimate the impact of board characteristics and ownership structure basing on the firm's and deal characteristics on white knights likelihood. Table 11 report the results from logit regression where the dependent variable is set to be one if the firm is a white knight and is set to be zero if the firm is a hostile or unsolicited bids. The coefficient on ownership held by directors and executives as a group, Block-holders' ownership and outside directors' ownerships are not significant. Among all the variables related with firm characteristics, we find that firm size and leverage are positively related to the likelihood of being a white knight at a significance of 0.05 level. According to Roll's hubris hypothesis, a possible interpretation for the variable firm size is that a firm with a larger size and meanwhile a good performance is more motivated for new investment opportunity like the corporate control. More specifically in this bidding contest, with the former bidder, the hostile, making a strong offer, a white knight has to be large enough to make a bid competitive to the hostile bidder. The significantly positive relation between leverage and the probability of being a white is consistent with the result of Masulis, Wang, and Xie (2007), suggesting that leverage does have some power in motivating managers from making bad acquisitions. In this case, it indicates that

leverage provides incentives for managers to improve firm performance through corporate control as they are threatened by the possibility to lose their jobs if their firms fall into financial distress. Finally, among all the corporate governance, management and ownership structure variables, we observe that director's tenure and directors age is positively related with the likelihood of being a white knight, suggesting that directors play an important role in deciding whether a firm is willing to become a white knight. Especially, we add the dummy Industry, which equals 1 under the case that the target and white knight belongs to the same industry or that the target and hostile belongs to the same industry, zero otherwise. As shown in the model (2) of table 11, we find that this Industry variable contributes to the probability of being a white knight at a significance level of 0.01, suggesting that to keep up the market power could be used as a market strategy by the white knight decision makers. To further explore the rationality of the white knight attempt, as shown in table 12, we examined the successful white knight and the unsuccessful white knight. However, the control variables are not significant to explain the probability of being a successful white knight.

## **6. Conclusions**

This paper focuses on a special participant in the bidding contest, the white knight. We carry out an empirical examination to observe the abnormal returns of the white knights and examine factors that could influence the white knight attempt. Above all, it is observed that the white knight experiences significantly negative abnormal returns around acquisition announcements, which is consistent with former research on the white knight (Banerjee and Owers, 1992; Niden, 1993; Bradley, Desai, and Kim 1988). Moreover, through the CARs break-down three windows around the bidding announcement, we find that the market reaction towards the white knight is positive while it turns to be negative after the white knight announcement.

To explain what factors affect the market reaction, we introduce a series of firm characteristics, corporate governance, management and ownership structure variables by controlling for some basic deal characteristics to do the regression analysis both in the short term and in the long run. In terms of the short term analysis, on the one hand, we find that leverage and Return on assets (ROA) are positively related to CARs while free cash flow (FCF) is negatively related to the

M&A announcement CARs, which is consistent with the existing related former research (Ghosh and Jain , 2000; Masulis, Wang, and Xie , 2007); We also find that Board size is negatively related to the CARs when we control other firm characteristics, which confirms to the conclusion of Coles, Daniel, and Naveen (2008), who show that both small and large boards can be favorable depending on the firm characteristics; On the other hand, our result also show that firm size and the ownership held by directors and executives as a group (D&E ownership) is positively related to the CARs while average directors' tenure and Blockholders ownership is negatively related to the CARs at a high significance level. In addition, we find that outside directors and the case chairman also serves as the CEO has no effect on the CARs. In terms of the long term window, the effect of the D&E turns to be still significantly but negatively related to the stock returns while Blockholders' ownership still be significantly and positively.

Then, focusing on corporate acquisition decisions, we further investigate the motivation for the white knight attempt under the logit model. We find no significant effect of financial strength, and ownership structure on the likelihood of a white knight takeover attempt. Instead, we find that firm size, leverage as well as the directors' age and tenure is what significantly contributes to the white knight decision. Importantly, we find that striving for the market power in its industry is an important motivation for a white knight takeover attempt. Finally, we take a closer look at the cases where the white knight withdraws from the bidding contest but we find that all the variables are powerless to explain their motivation.

Meanwhile, we also examine the characteristics of the white knight acquisitions in comparison with the hostile bidder and the target firm. Consistent with lots of former research on the returns of the acquirer and the target, our results show that target experience huge spike of cumulative abnormal return during both the bid and the hostile bidder experience negative CARs (Bradley, Desai & Kim, 1988, Banerjee and Owers, 1992; Niden, 1993; Moeller, Schilingemann, Stulz, 2005). We also test what affects the CARs for hostile but the result is not significant.

## **7. Limitations and future research**

In fact, the 1980s saw a large wave of takeover and restructuring activity and among them are lots of hostile bidders and white knights. Due to the missing data on corporate governance and management in the related database, our sample is relatively small restricting from year 1992 to year 2012. This will limit the scope of this study at some point. Future research could be done by further exploring the industry competition analysis and additionally by exploring possible social connections between board members, which could also be an interesting point that spurs the white knight attempt.

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## Appendix

**Table 1: Description of M&A years for the full sample.**

The sample consists of 82 bidders firms including 42 white knights and 42 hostile targets and 42 targets in the M&A occurred between January 1992 and December 2012.

Year	bidder Firms	% of sample
1992	3	3.61%
1993	1	1.20%
1994	11	13.25%
1995	17	20.48%
1996	9	10.84%
1997	8	9.64%
1998	10	12.05%
1999	4	4.82%
2000	5	6.02%
2001	1	1.20%
2002	0	0.00%
2003	0	0.00%
2004	2	2.41%
2005	2	2.41%
2006	3	3.61%
2007	0	0.00%
2008	1	1.20%
2009	1	1.20%
2010	2	2.41%
2011	1	1.20%
2012	1	1.20%

**Table 2: Description of M&A years for the white knight.**

This table report sample frequency for the white knights, which range from January 1992 to December 2012.

Year	white knight	percentage of sample
1992	1	2.44%
1994	3	7.32%
1995	8	19.51%
1996	3	7.32%
1997	4	9.76%
1998	8	19.51%
1999	2	4.88%
2000	3	7.32%
2001	1	2.44%
2004	1	2.44%
2005	1	2.44%
2006	2	4.88%
2008	1	2.44%
2010	1	2.44%
2011	1	2.44%
2012	1	2.44%

**Table 3: Description of corporate control industries**

This table reports sample frequencies of industries for the white knights in these M&A contests. The sample consists of 42 white knights who make the announcement between January 1992 and December 2012. Industries are classified using criteria of the Fama French 49 industry classification.

Industry	Numbers of firms	% of sample
Aircraft	1	2.44%
Banking	7	17.07%
Business Services	4	9.76%
Healthcare	2	4.88%
Insurance	1	2.44%
Machinery	2	4.88%
Measuring and Control		
Equip	4	9.76%
Medical Equipment	4	9.76%
Petroleum and Natural Gas	2	4.88%
Pharmaceutical Products	3	7.32%
Precious Metals	1	2.44%
Printing and Publishing	1	2.44%
Restaurants, Hotel, Motel	2	4.88%
Retail	1	2.44%
Shipbuilding, Railroad Eq	1	2.44%
Telecommunications	2	4.88%
Trading	1	2.44%
Utilities	1	2.44%
Wholesale	1	2.44%

**Table 4: Summary statistics of firm characteristics**

This table reports statistics for a sample of 41 white knights bidding firms and a sample of 41 hostile bidding firms that come before the white knights, each with the same target between January 1992 and December 2012. They are public firms with complete CRSP and Compustat information, and have proxy statements on EDGAR or have available director data in the RiskMetrics database in the year prior to the deal announcement.

					Std.	
		Mean	Minimum	Median	Maximum	Dev
<i>White Knight characteristics</i>						
Firm Size		4.90	7.64	7.70	10.29	1.79
Tobins' q		1.02	1.79	1.43	3.23	0.84
Leverage		0.08	0.25	0.24	0.46	0.14
ROA		0.02	0.12	0.14	0.21	0.07
FCF		-0.33	0.03	0.06	0.15	0.10
<i>Hostile characteristics</i>						
Firm Size		4.46	6.61	6.44	9.00	1.46
Tobins' q		1.02	1.59	1.48	2.42	0.51
Leverage		0.03	0.23	0.23	0.51	0.16
ROA		0.02	0.12	0.13	0.23	0.06
FCF		-0.03	0.05	0.05	0.12	0.05

**Table 5: Correlations between independent variables**

This table reports correlations between the independent variables. The variables include Buy-and-hold return during the 200 trading days ending two months before the announcement date with CRSP (BHAR1), Deal value, a dummy variable that equal to one if the M&A deal financed fully or partially with stock( Stock deal), log of book value of total assets (Firm size), market value of assets over book value of assets (Tobin's q), book value of debts over market value of total assets (Leverage), return on assets (ROA), Free cash flow (FCF), a dummy equals 1 if one if a firm's total number of directors is bigger than the median value of other firms' board directors( Board size), directors' average age (Director age), directors average tenure (Director tenure), the percentage of common stock ownership held by directors and executives as a group (D&E ownership), the percentage of common stock ownership of those who own beneficially more than five percent of any class of the company's voting securities (Blockholders), the percentage of outside directors (Outside-director), and the dummy variable that equals to one if the chairman also serves as the CEO in a firm (Chairman-CEO) .

	Deal value	Stock deal	BHAR1	Board size	Director age	Director tenure	D&E ownership	Blockholders	Chairman_CEO	Outside-director	Firm size	Tobins'q	Leverage	ROA	FCF
Deal value	1														
Stock deal	0.33214**	1													
BHAR1	0.185	0.133	1												
Board size	0.058	-0.029	-0.077	1											
Director age	-0.107	-0.299**	-0.324*	0.368**	1										
Director tenure	-0.169	-0.459**	-0.283*	0.307**	0.562**	1									
D&E ownership	-0.348**	-0.442***	0.082	-0.388**	-0.332**	0.217	1								
Blockholders	0.014	-0.101	0.017	-0.477***	-0.438**	-0.038	0.614**	1							
Chairman_CEO	0.252	0.256	0.092	0.106	0.035	-0.065	0.098	-0.037	1						
Outside-director	0.203	0.250	-0.364*	0.337**	0.443***	-0.040	-0.601**	-0.423***	-0.156	1					
Firm size	0.345**	-0.217	0.158**	0.448	0.181	0.266*	-0.036	0.039	-0.134	-0.039	1				
Tobins'q	-0.134	-0.120	0.303**	-0.317*	-0.287**	-0.282*	0.190	0.234	-0.113	-0.280*	0.198	1			
Leverage	0.356**	0.415**	-0.026	0.207	-0.192	-0.118	-0.192	0.062	0.193	0.296**	0.148	-0.532*	1		
ROA	-0.160	-0.384***	-0.154	-0.105	0.184	0.357**	0.195	0.145	-0.319**	-0.253	0.408**	0.369**	-0.186	1	
FCF	0.087	-0.402**	-0.102	0.249*	0.130	0.406**	0.207	0.156	-0.244*	-0.278	0.260**	0.076	-0.297**	0.348**	1

**Table 6: Univariate CAR comparisons.**

This table presents the mean and median white knights announcement returns (WK\_CAR), target announcement returns (T\_CAR), and combined portfolio announcement returns of the hostile bidders and the targets (PCAR1) as well as combined portfolio announcement returns of white knights and the targets (PCAR2) over each event window around the deal announcement date for two groups of bidding with 164 samples (targets and acquirers both included) between 1992 and 2012.

	(1)		(2)		PCAR1	PCAR2
	H_CAR	T_CAR1	WK_CAR	T_CAR2		
Panel A: [-1,1]						
Mean	-1.42%	26.69%	-1.88%	19.30%	11.79%	8.83%
Median	-0.47%	21.58%	-1.50%	13.82%	2.88%	3.10%
Panel B: [-30,30]						
Mean	0.20%	33.59%	1.59%	12.52%	10.18%	7.05%
Median	0.15%	29.00%	1.78%	20.58%	14.34%	2.10%

**Table 7: Univariate CAR and BHAR1 comparisons.**

This table presents the mean and median white knights announcement returns in different time windows. BHAR1 refers to Buy-and-hold return during the 200 trading days ending two months before the announcement date with CRSP value-weighted returns as the market index.

Panel A: CAR		
Event window (day)	Mean	Median
[-30,30]	1.59%	1.78%
[-30,-2]	3.04%	2.87%
[-2, 2]	-1.35%	-1.03%
[2, 30]	-2.81%	-2.70%

Panel B: BHAR		
BHAR1	1.99%	4.92%

**Table 8: Regression of CARs for white knight on explanatory variables**

This table reports the results of three regression models, in which the dependent variables are the equally weighted market index-adjusted abnormal return for white knights in window day [-1, 1]. The independent variables include Deal value, a dummy variable that equal to one if the M&A deal financed fully or partially with stock( Stock deal), log of book value of total assets (Firm size), market value of assets over book value of assets (Tobin's q), book value of debts over market value of total assets (Leverage), return on assets (ROA), Free cash flow (FCF), a dummy equals 1 if one if a firm's total number of directors is bigger than the median value of other firms' board directors( Board size), directors' average age (Director age), directors average tenure (Director tenure), the percentage of common stock ownership held by directors and executives as a group (D&E ownership), the percentage of common stock ownership of those who own beneficially more than five percent of any class of the company's voting securities (Blockholders), the percentage of outside directors (Outside-director), and the dummy variable that equals to one if the chairman also serves as the CEO in a firm (Chairman-CEO) .

	(1)		(2)		(3)	
	Coefficient	T-statistic	Coefficient	T-statistic	Coefficient	T-statistic
Intercept	-0.078	-1.320	0.141	-0.280	-0.580	-1.160
Deal value	0.000	-0.080	0.001	-0.500	0.001	-0.160
Stock deal	-0.041	-1.550	-0.007	-0.140	-0.065**	-2.370
Firm size	0.007	-1.130			0.035**	-2.770
Tobin's q	0.007	-0.460			-0.026	-0.580
Leverage	-0.027	-0.250			0.527*	-1.780
ROA	0.091	-0.500			2.150***	-3.32
FCF	-0.253***	-2.840			-1.449***	-3.580
Board size			0.100	-1.060	-0.181**	-2.070
Directors age			-0.005	-0.640	0.000	-0.020
Directors tenure			-0.003	-0.420	-0.015***	-2.950
D&E ownership			0.512**	-1.780	0.519***	-4.050
Blockholders			-0.260***	-2.180	-0.261***	-3.970
Outside director			0.355	-1.620	0.207	-1.160
Chairman - CEO			-0.023	-0.460	-0.022	-0.610
N	66		66		66	
Adjusted R^2	0.113		0.024		0.678	

\*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

**Table 9: Regression of two-year BHARs for white knight on explanatory variables**

This table reports the results of three regression models on control variables for white knights, in which the dependent variables are the two year lagged buy-and-hold abnormal return. The independent variables include Deal value, a dummy variable that equal to one if the M&A deal financed fully or partially with stock( Stock deal), log of book value of total assets (Firm size), market value of assets over book value of assets (Tobin's q), book value of debts over market value of total assets (Leverage), return on assets (ROA), Free cash flow (FCF), a dummy equals 1 if one if a firm's total number of directors is bigger than the median value of other firms' board directors( Board size), directors' average age (Director age), directors average tenure (Director tenure), the percentage of common stock ownership held by directors and executives as a group (D&E ownership), the percentage of common stock ownership of those who own beneficially more than five percent of any class of the company's voting securities (Blockholders), the percentage of outside directors (Outside-director), and the dummy variable that equals to one if the chairman also serves as the CEO in a firm (Chairman-CEO) .

	(1)		(2)		(3)	
	Coefficient	T-statistic	Coefficient	T-statistic	Coefficient	T-statistic
Intercept	-0.766	-1.600	-1.255	-1.040	-2.774	-1.300
Transaction	0.000	0.270	0.000	1.400	0.000	-0.050
Stock deal	-0.084	-0.420	-0.047	-0.300	-0.068	-0.350
Firm size	0.016	0.320	-0.008	-0.320	-0.018	-0.180
Tobin's Q	-0.094	-0.740	0.042	2.040	0.238	0.680
Leverage	0.986	1.180	0.022	1.410	2.167	1.150
ROA	3.911**	0.671			-1.866	-0.380
FCF	-0.539	-0.800			1.874	0.600
Board size			-0.008	-0.320	-0.049	-0.970
Directors age			0.042*	2.040	0.075	1.390
Directors tenure			0.022	1.410	0.011	0.570
D&E ownership			-3.035***	-3.150	-3.012**	-2.820
Blockholders			1.873***	5.820	1.412**	2.700
Outside			-2.282	-3.460	-2.978*	-1.960
Chairman &			-0.064	-0.390	-0.061	-0.210
N	65		65		65	
Adjusted R^2	0.154		0.612		0.601	

\*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

**Table 10: Regression of three-year BHARs for white knight on explanatory variables**

This table reports the results of three regression models, in which the dependent variables are the three year lagged buy-and-hold abnormal return. The independent variables include Deal value, a dummy variable that equal to one if the M&A deal financed fully or partially with stock( Stock deal), log of book value of total assets (Firm size), market value of assets over book value of assets (Tobin's q), book value of debts over market value of total assets (Leverage), return on assets (ROA), Free cash flow (FCF), a dummy equals 1 if one if a firm's total number of directors is bigger than the median value of other firms' board directors( Board size), directors' average age (Director age), directors average tenure (Director tenure), the percentage of common stock ownership held by directors and executives as a group (D&E ownership), the percentage of common stock ownership of those who own beneficially more than five percent of any class of the company's voting securities (Blockholders), the percentage of outside directors (Outside-director), and the dummy variable that equals to one if the chairman also serves as the CEO in a firm (Chairman-CEO).

	(1)		(2)		(3)	
	Coefficient	T-statistics	Coefficient	T-statistic	Coefficient	T-statistic
Intercept	-0.957	-1.790	-1.002	-0.670	0.375	0.140
Deal value	0.000	-0.070	0.000	0.810	0.000	-0.370
Stock deal	-0.347	-1.550	-0.106	-0.550	-0.005	-0.020
Firm size	0.017	0.310			0.136	1.100
Tobin's Q	0.030	0.210			-0.348	-0.790
Leverage	1.598*	1.720			-0.595	-0.250
ROA	3.517**	2.250			4.819	0.780
FCF	-0.434	-0.580			-2.445	-0.620
Board size			0.046	1.480	0.024	0.370
Directors age			0.029	1.130	-0.019	-0.280
Directors tenure			0.007	0.380	-0.003	-0.130
D&E ownership			-2.482**	-2.09	-2.417	-1.790
Blockholders			2.430**	6.120	2.340	3.540
Outside directors			-2.403**	-2.950	-1.431	-0.740
Chairman -CEO			-0.154	-0.770	0.094	0.260
N	66		66		66	
Adjusted R^2	0.162		0.584		0.560	

\*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

**Table 11: Probit estimates of the dependence of white knight attempt probability**

This table presents probit estimates of the dependence of white knight attempt probability on control variables. The dependent value is 1 if the bidder is a white knight and the dependent value is zero if the bidder is a hostile. The independent variables include Deal value, a dummy variable that equal to one if the M&A deal financed fully or partially with stock( Stock deal), log of book value of total assets (Firm size), market value of assets over book value of assets (Tobin's q), book value of debts over market value of total assets (Leverage), return on assets (ROA), Free cash flow (FCF), a dummy equals 1 if one if a firm's total number of directors is bigger than the median value of other firms' board directors( Board size), directors' average age (Director age), directors average tenure (Director tenure), the percentage of common stock ownership held by directors and executives as a group (D&E ownership), the percentage of common stock ownership of those who own beneficially more than five percent of any class of the company's voting securities (Blockholders), the percentage of outside directors (Outside-director), and the dummy variable that equals to one if the chairman also serves as the CEO in a firm (Chairman-CEO).

	(1)		(2)	
	Coefficient	Standard errors	Coefficient	Standard errors
Intercept	7.959	0.400	9.171	0.341
Deal value	0.000	0.363	0.000	0.518
Stock deal	1.129	0.177	1.007	0.206
Firm size	0.661**	0.037	0.783**	0.031
Tobin's Q	0.763	0.129	0.781	0.297
Leverage	4.538	0.212	5.845*	0.117
ROA	-10.305	0.385	-10.512	0.335
FCF	4.549	0.790	0.688	0.946
Board size	-0.099	0.650	-0.115	0.559
Directors age	-0.296	0.074	-0.263*	0.110
Directors tenure	0.208**	0.099	0.319**	0.040
D&E ownership	0.109	0.449	-7.209	0.117
Blockholders	-0.225	0.863	-1.094	0.492
Outside directors	1.008	0.814	0.104	0.980
Industry			2.345**	1.139
Chairman- CEO	0.249	0.800	0.267	0.799
N	82		82	
Model Chi square	27.240		27.559	

\*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

**Table 12: Probit estimates of the dependence of white knight success**

Probit estimates of the dependence of white knight attempt probability on control variables. The dependent variable is 1 if the white knight completes the deal and 0 if the white knight withdraw. The independent variables include Deal value, a dummy variable that equal to one if the M&A deal financed fully or partially with stock( Stock deal), log of book value of total assets (Firm size), market value of assets over book value of assets (Tobin's q), book value of debts over market value of total assets (Leverage), return on assets (ROA), Free cash flow (FCF), a dummy equals 1 if one if a firm's total number of directors is bigger than the median value of other firms' board directors( Board size), directors' average age (Director age), directors average tenure (Director tenure), the percentage of common stock ownership held by directors and executives as a group (D&E ownership), the percentage of common stock ownership of those who own beneficially more than five percent of any class of the company's voting securities (Blockholders), the percentage of outside directors (Outside-director), and the dummy variable that equals to one if the chairman also serves as the CEO in a firm (Chairman-CEO).

	Probit	Wald Chi-square	Probit	Wald Chi-square
Intercept	43.828	1678.100	3.146	1231.600
CAR1	27.769	474.300		
CAR2			22.717	465.600
Relatively deal	-2.968	48.847	-1.663	45.846
Relatively firm	3.327	95.711	3.879	92.164
Stock deal	0.878	112.700	-0.930	83.264
Board size	-2.910	13.423	-3.301	14.702
Directors age	1.097	33.648	2.439	22.806
Directors tenure	1.780	17.067	1.953	15.110
D&E ownership	-68.598	899.700	-76.945	805.400
Blockholders	-15.885	526.200	-13.656	444.900
Chairman-CEO	-21.255	195.400	-28.432	133.000
Outside directors	-89.548	798.400	-122.500	570.400
Tobin's q	9.784	156.300	12.955	114.700
Leverage	83.664	1391.600	100.900	1074.600
ROA	-212.700	2097.100	-318.400	2646.700
FCF	98.862	1108.400	132.100	1574.700
N	66		66	
Model Chi	0.321		0.385	

\*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

**Table 13: Regression of CARS for hostile bidders on explanatory variables**

This table reports the results of three regression models for hostile bidders in three day [-1, 1] window. The dependent variables are the three year lagged buy-and-hold abnormal return. The independent variables include Deal value, a dummy variable that equal to one if the M&A deal financed fully or partially with stock( Stock deal), log of book value of total assets (Firm size), market value of assets over book value of assets (Tobin's q), book value of debts over market value of total assets (Leverage), return on assets (ROA), Free cash flow (FCF), a dummy equals 1 if one if a firm's total number of directors is bigger than the median value of other firms' board directors( Board size), directors' average age (Director age), directors average tenure (Director tenure), the percentage of common stock ownership held by directors and executives as a group (D&E ownership), the percentage of common stock ownership of those who own beneficially more than five percent of any class of the company's voting securities (Blockholders), the percentage of outside directors (Outside-director), and the dummy variable that equals to one if the chairman also serves as the CEO in a firm (Chairman-CEO).

	(1)		(2)		(3)	
	Coefficient	Standard errors	Coefficient	Standard errors	Coefficient	Standard errors
Intercept	-0.040	-0.420	0.153	-0.680	0.147	-0.570
Transaction value	0.000	-0.580	0.000*	-1.770	0.000	-1.040
Stock deal	-0.023	-0.830	-0.009	-0.310	-0.018	-0.500
Firm size	-0.002	-0.110			-0.011	-0.540
Tobin's q	0.010	-0.290			0.014	-0.270
Leverage	0.042	-0.400			0.046	-0.220
ROA	0.188	-0.570			0.131	-0.260
FCF	-0.218	-0.530			-0.051	-0.080
Board size			-0.018**	-2.530	-0.019	-1.980
Directors age			-0.002	-0.620	-0.002	-0.440
Directors tenure			-0.001	-0.240	-0.001	-0.120
D&E ownership			-0.046	-0.710	-0.065	-0.580
Blockholders			-0.026	-0.700	-0.027	-0.480
Outside directors			0.031	-1.230	0.049	-0.300
Chairman- CEO			0.040	-0.310	0.022	-0.510
N	44.000		44.000		44.000	
Adjusted R <sup>2</sup>	-0.178		-0.030		-0.265	

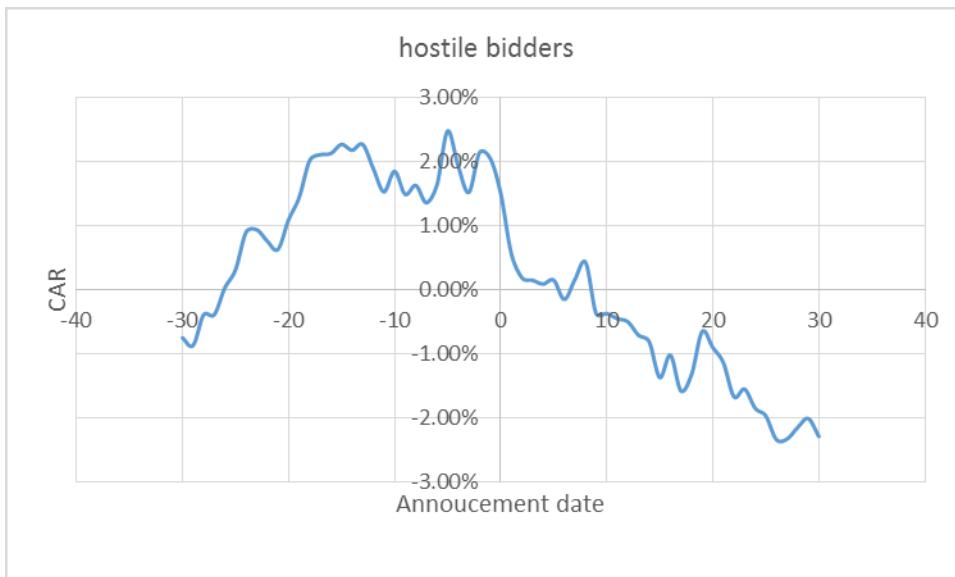
\*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.1 level, respectively

**Table 14: Variable Definitions**

Variables	Definitions	Data sources
CAR	Cumulative abnormal return (in percentage points) calculated using the market model. For short term Buy-and-hold abnormal return (BHAR), that's during the 200 trading days ending two months before the announcement date with CRSP value-weighted return as the market index. In the long run, BHAR of 1 year, 2 year and 3 year are used.	CRSP/Eventus
Stock price run-up	Panel B: Firm and deal characteristics	CRSP
Firm Size	Log of book value of total assets	Compustat
Tobin's Q	Market value of assets over book value of assets	Compustat
Leverage	Book value of debts over market value of total assets	Compustat
ROA	Operating income before depreciation, scaled by book value of assets	Compustat
FCF	Operating income before depreciation - interest expenses - income taxes - capital expenditures , scaled by book value of total assets	Compustat
Stock deal	Indicator variable: one for deals financed partially or fully with stock, zero otherwise	SDC
Deal size	Log of Acquirer deal value	SDC
Relative deal value	Deal value divided by acquirer's market value of equity	SDC&Compustat SEC/Risk
Director age	Average age of board of directors	metrics
Director tenure	Average number of years a director has been appointed to the board	SEC/Risk metrics
Board size	Indicate variable: one if the total number of directors is bigger than the median value of other board directors, zero otherwise.	SEC/Risk metrics
DE ownership	the portion of ownership owned by directors and executives as a group	SEC/Risk metrics
Chairman-CEO	indicator variable: one if the chairman also serves as the CEO, zero otherwise	SEC/Risk metrics
Outsider directors	the percentage of people who only serve as the directors	SEC/Risk metrics
Blockholders	Fraction of bidder's common stock held by the largest institutional blockholders (at least 5%).	SEC

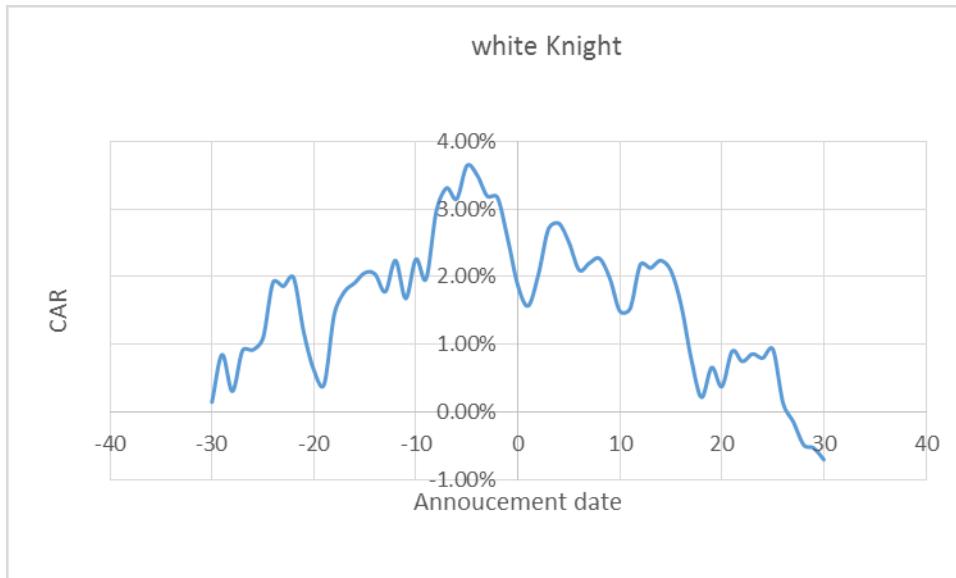
**Figure 1: Cumulative abnormal returns (CARs) for the hostile bidders**

The sample period of short-term stock returns is thirty days before through thirty days after the turnover announcement date with the 61 days window [-30, 30], using equally weighted market index returns as a benchmark.



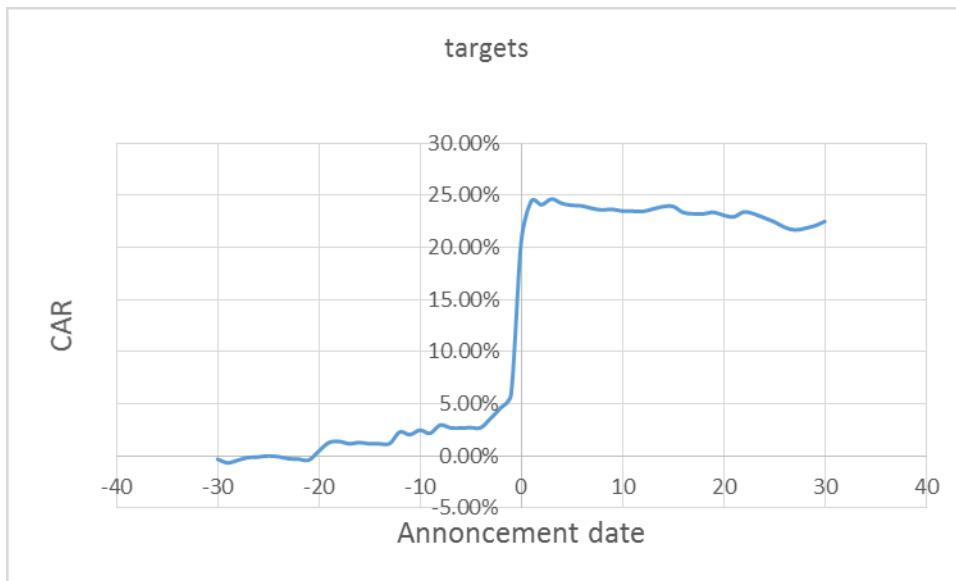
**Figure 2: Cumulative abnormal returns (CARs) for white knight**

The sample period of short-term stock returns is thirty days before through thirty days after the turnover announcement date with the 61 days window [-30, 30], using equally weighted market index returns as a benchmark.



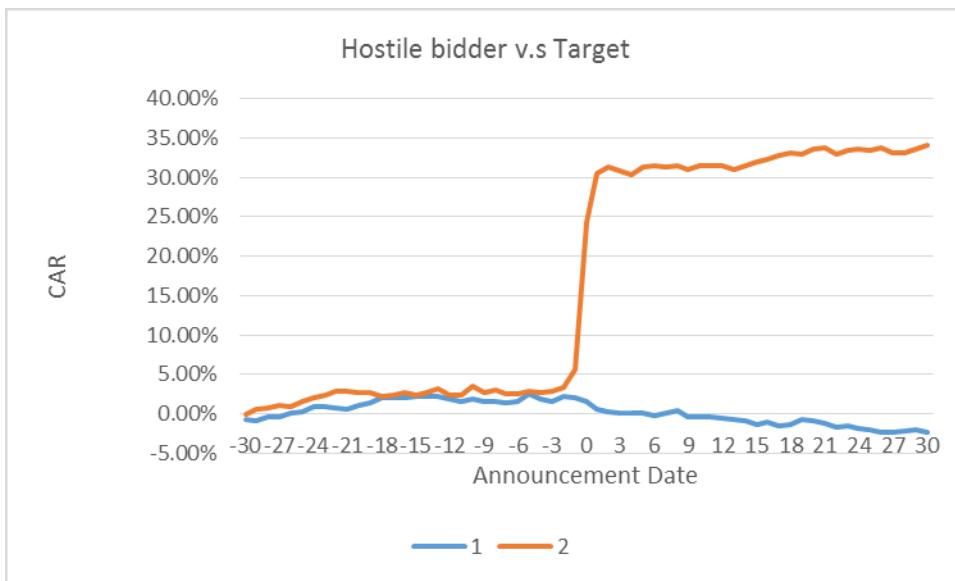
**Figure 3: Cumulative abnormal returns (CARs) for Targets**

The sample period of short-term stock returns is thirty days before through thirty days after the turnover announcement date with the 61 days window [-30, 30], using equally weighted market index returns as a benchmark.



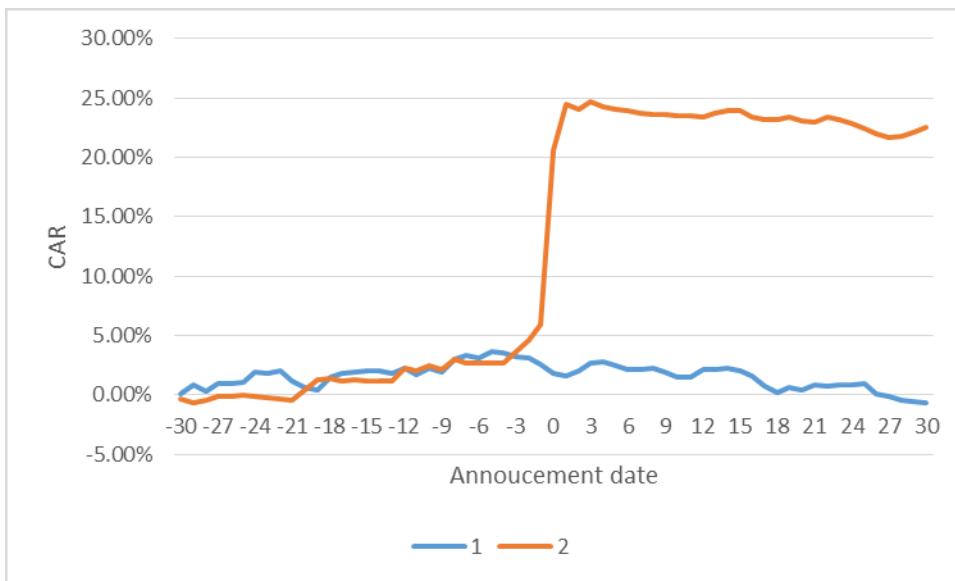
**Figure 4: Cumulative abnormal returns (CARs) for the targets and the hostile bidders**

The sample period of short-term stock returns is thirty days before through thirty days after the bidding announcement date, using equally weighted market index returns as a benchmark. Series 1 depicts the trend of CARs for the hostile bidders 30 days before and after the announcement date while series 2 is the CARs for the targets.



**Figure 5: Cumulative abnormal returns (CARs) for the targets and white knight**

The sample period of short-term stock returns is thirty days before through thirty days after the bidding announcement date, using equally weighted market index returns as a benchmark. Series 1 depicts the trend of CARs for white knight 30 days before and after the announcement date while series 2 is for the targets.



**Figure 6: Cumulative abnormal returns (CARs) for the hostile bidders and white knight**

The sample period of short-term stock returns is thirty days before through thirty days after the bidding announcement date, using equally weighted market index returns as a benchmark. Series 1 depicts the trend of CARs for white knight 30 days before and after the announcement date while series 2 is for the hostile bidders.

