

RUNUP OF ACQUIRER STOCK IN PUBLIC AND PRIVATE ACQUISITIONS

Abstract

Acquisition announcements generate predictable movements in acquirer stock. For example, post-announcement returns are typically negative for high Tobin's q acquirers, stock transactions, and foreign targets, but positive for venture capital-backed private targets. Pre-announcement trading of acquirer stock is more likely to be attributable to insider trading when the pre-announcement price changes match the expected post-announcement acquirer returns. Based on a sample of Canadian acquirers and public and private acquisition targets from Canada, the U.S. and 31 other countries over the years 1991-2008, we find evidence consistent with insider trading of acquirer stock. This evidence, however, is limited to specific situations and is far from generalizable to all types of acquisition announcements. The evidence thereby has policy implications for the allocation of surveillance efforts for initiating insider trading investigations.

Keywords: Acquisitions, Insider Trading

JEL Codes: G34, K22

1. Introduction

Abnormal returns prior to the announcement of an acquisition do not by themselves imply the existence of insider trading. Detecting insider trading prior to an acquisition is a difficult task, rendering surveillance of insider trading and enforcement of insider trading laws problematic. In fact, empirical evidence has shown that insider trading laws by themselves without effect surveillance or enforcement can have perverse effects of increasing the acquisition costs and making the market reaction to acquisition announcements stronger, thereby increasing the profits to, and hence prevalence of, insider trading (Bris, 2005; Bhattacharya and Daouk, 2009). Empirical studies have shown that even some developed countries such as Canada appear to be among the worst in the world for the prevalence of insider trading (Bris, 2005; King, 2009).

In light of the difficult task of detecting and enforcing insider trading, it is worthwhile examining situations when price movements prior to the announcement of an acquisition are consistent with insider trading and warrant further investigation. The price response to the announcement of an acquisition generates predictable movements in acquirer stock depending on the characteristics of the acquisition. For instance, post-announcement returns are typically smaller or even negative for acquirers of foreign firms due to risks, information asymmetries and transaction costs (Eckbo and Thorburn, 2000). Post-announcement returns are typically negative when the acquirer pays in shares and has a high Tobin's q because the market inference is that the acquirer's equity is overvalued (Myers and Majluf, 1984). By contrast, announcement returns are positive for acquirers that purchase venture capital (VC)-backed private companies due to the governance and value-added provided by the VC (Masulis and Nahata, 2009). Taken together, this body of evidence shows the announcement effects of acquisitions on acquirer stock are predictable.

Pre-takeover announcement of acquirer stock is more likely associated with insider trading in cases where the pre-announcement runup matches expected post-announcement acquirer returns. In this paper we consider pre-announcement stock price and transaction dynamics of Canadian acquirers that acquire private and public domestic and international targets. To the best of our knowledge, prior work has not explored the pre-announcement runup of the acquirer in response to public versus private acquisitions. In this paper, we make use of detailed data that enables the analysis of pre-announcement runup in relation to predictable post-announcement returns.

Canada offers an interesting institutional setting to study insider trading of acquirer stock for a number of reasons. First, targets are not just public companies; a significant number of acquisitions also involve private firms. Second, a significant number of targets are not based in Canada, but rather, they are based in the U.S. and many other countries around the world. This type of heterogeneity in the data enables assessment of different types of target firms and associated pre-bid announcement of the dynamics of prices and transactions. Third, while Canadian legal systems are similar to the U.S., there appears to be a comparative dearth of enforcement in Canada relative to the U.S., thereby leading prior international empirical studies of insider trading to rank Canada as the most prevalent insider trading nation in the world (Bris, 2005; King, 2009).

We consider a sample of 770 Canadian acquisition announcements of public and private targets based in Canada, the U.S. and 31 other countries over the years 1991-2008. The data consistently indicate pre-bid announcement runup in cumulative abnormal returns (hereafter “runup CARs”) varies in predictable ways. It is noteworthy that this runup is not visually apparent in aggregate; rather, one must investigate the specific characteristics of the acquisition and compare announcement returns for acquisitions with similar characteristics, and then compare the expected announcement effect with the CARs over the runup period.

Specifically, the data indicate runup CARs are lower for acquisitions when the bidder has a higher Tobin’s q and exhibits greater information asymmetry as proxied by the standard deviation of the market model. Runup CARs are lower for foreign targets but higher for VC-backed private targets. These findings are consistent with studies of announcement effects of foreign acquisitions in Eckbo and Thorburn (2000) and announcement of VC-backed acquisitions. For non-VC-backed acquisitions, runup CARs are on average negative, but there is significant heterogeneity across quintiles. Finally, runup CARs are lower for share payments, consistent with theory in Myers and Majluf (1984) showing negative performance associated with signals from insiders that their equity is overvalued. These findings are both statistically and economically significant and robust to a number of robustness checks, such as 2-step treatment regressions for the non-random choice to target a private firm, alternative explanatory variables, different event window lengths, and subsets of the data. Further, we analyze different market benchmarks for generating CARs, and examine cumulative abnormal volume, transactions and turnover.

Our findings have policy implications for guiding surveillance authorities in terms of optimizing insider trading investigations. The data and findings enable regulators to examine

announcement of different types of acquisition transaction more efficiently. That is, the data and empirics provide as to where insider trading is more likely to be observed, and as such, where surveillance and enforcement could be more efficiently directed.

This paper is organized as follows. Section 2 reviews the prior literature and summarizes stylized facts for the post-announcement returns. Section 3 introduces the data and provides summary statistics. Multivariate regression analyses are presented in section 4. Concluding remarks follow in section 5.

2. Related Literature and Stylized Facts

Empirical studies show that stock price performance of an acquirer depends on the deal and firm characteristics including target public status, method of payment, relative size (Myers and Majluf, 1984; Chang, 1998; Fuller et al, 2002; Moeller, 2004). Consistent with this extant evidence, our prior is to expect a relationship between those features and the runup CARs. Moreover, if the runup CARs are actually due to insider trading, the magnitude of the price movement should be affected by the leakage of private information, or information asymmetry. Considering our international setting, we expect that the pre-announcement will differ between domestic, U.S., and other foreign acquisitions. At a broad level, we expect the runup CARs to match expected post-announcement returns if there is an insider trading action worth investigating. To this end, in this section we review related literature that has established stylized facts regarding the extent to which announcement returns are predictable.

2.1. Related Literature

Our paper is related to the literature that studies price runup before takeover announcements. This literature focuses on the price dynamics of target firms and not the acquirer. These studies find that, in general, target firms experience significant price increases prior to the public announcement of the takeover event.¹ For example, Keown and Pinkerton (1981) examine a sample of 194 firms involved in takeover bids and find that approximately half of the market reaction occurs before the first public announcement date. The substantial price increase in target shares are interpreted as preliminary evidence of insider trading on non-public material

¹ See, e.g., Dodd (1980), Keown and Pinkerton (1981), Asquith (1983), Asquith, Bruner, and Mullins (1983), Dennis and McConnell (1986).

information, and thereby followed up with an examination of the trading activities of corporate insiders. Using a unique database of prosecuted SEC insider trading cases from 1980 to 1989, Meulbroek (1992) confirms that CAR on insider trading days is half as large as CAR on information announcement days, and 43% of the price runup occurs on insider trading days. Jabbour, Jalilvand and Switzer (2000) find that abnormal stock price performance at an early stage before the acquisition announcement is due to actual trading by corporate insiders using a sample of 128 Canadian acquisitions from 1985 through 1995. Related evidence shows unusual trading activity before takeover public announcements (Keown and Pinkerton, 1981; Meulbroek, 1992; King, 2009).

Comparatively fewer studies examine price and trading activities of the acquirer firm prior to the announcement of a takeover. One important exception is Seyhun (1990a), who analyzes the trading patterns of top corporate managers in bidder firms around the announcement of takeover attempts using a sample of 393 U.S. mergers and tender offers from January 1975 to March 1986. Seyhun finds that bidder executives tend to trade heavily prior to the announcement of a takeover bid, and there is a significant relationship between the nature of the insiders' trades and the market reaction of the acquisition announcement. Specifically, in takeover bids with positive (negative) excess returns, bidder insiders tend to be purchasers (sellers) of their own firm's shares in the months leading up to the announcement.

Although Seyhun (1990a) confirms the existence of insider trading in bidder's stocks, it is not without limitation due to the exclusion of insider trading by both non-executive insider and non-corporate insiders.² First, not all insiders are directors or managers. Szockyj and Geis (2002) show that, among all civil and criminal charges in the U.S. between 1980 and 1989, only 26% of the defendants of insider trading cases are actually officers and directors. Meulbroek (1992) reports 24% for employees using cases prosecuted by SEC for the same period. Second, corporate insiders might intentionally choose not to disclose illegal trading through other means if they are illegal, which would underestimate the extent of the problem. Therefore, results relying on legal filing data might fail to provide a complete picture of the actual insider trading practices. Moreover, Seyhun's analysis is based on the data between 1975 and 1986. The market conditions, regulation and enforcement have experienced a lot of changes over the years, making it worthwhile to revisit this issue. With that in mind, a general study using recent data, which is aimed to

² A non-corporate insider is anyone who has material private information of one issuer and has no legal obligation to report his trading in that stock, such as analysts, lawyers, friends or relatives of insiders.

systematically examine the stock performance and trading activities, is able to provide a better understanding of the overall insider trading activities in the stocks of takeover bidders.

2.2. Stylized Facts on Announcement Returns of Acquirer Stock

To understand the ways in which acquirer share prices might move in advance of a takeover announcement, in this section we review stylized facts from the literature on announcement return associated with acquirer stock. This literature shows that merger and acquisition generate predictable movements in acquirer stock price depending on the characteristics of the target, the acquirer and the nature of the acquisition. The Appendix of this paper concisely summarizes this literature in Tabular form.

2.2.1. Private Acquisitions

Whether the target firm is private or public potentially has a significant impact on acquirer announcement returns. Empirical studies of merger and acquisition usually focus on very short-run market reaction to news announcement,³ with the underlying assumption that stock markets are informationally efficient and the market reacts correctly to the news. In general, these studies show that firms acquiring private targets outperform those taking over public firm over the short period around announcement. One explanation for this phenomenon is that private firms are harder to value and face an illiquidity discount, so the acquirer pays less and the announcement return is often positive for a private acquisition (Fuller et al., 2002; Faccio et al, 2007; Officer, 2008). Capron and Shen (2007) confirm the finding using a unique survey data and a two-stage model to control for the endogeneity of choice of target.

There are other studies, however, that suggest underperformance associated with private acquisitions. From information asymmetry perspective, there is substantially more information asymmetry about the takeover itself and the private target's value compared to public-target acquisition, because privately held companies are more opaque than publicly traded companies. Private firms do not have to publish their financial statements and have scant analyst following and disclose requirements, which makes it difficult for the retail investors to acquire any information about a private target. Acquisitions of private firms are often carried out with the view towards

³ Most papers consider 2 to 5 days CARs (Chang, 1998; Kohers and Ang, 2000; Conn, Cosh, Guest, and Hughes, 2001; Fuller et al, 2002; Masulis and Nahata, 2009)

avoiding disclosure requirements with an IPO (Carpentier et al., 2008). Agrawal et al. (1992) find a negative and significant relation between the market reaction to the announcement and the subsequent performance of the firm. However, they find that this relation is not persistent over their entire sample period. Loughran and Vijh (1997) examine the post-announcement returns and argue that markets systematically overestimate or underestimate the efficiency gains from acquisitions. André, Kooli, and L'Her (2004) find that Canadian acquirers significantly underperform over the three-year post-event period, and perform particularly worse for equity financed deals and cross-border deals. Further, they note that the long-term negative abnormal returns may be explained by a slow adjustment to the acquisition announcement.

The long term underperformance is consistent with recent findings in Maksimovic et al. (2009), who examine productivity differences between private and public acquisitions. They show better firms select to become public and participate more in productivity increasing mergers. This evidence of lower productivity of privately held firms implies underperformance of the acquirer post announcement for the typical private acquisition.

In short, there is literature showing both positive and negative returns to acquirers post announcement of private acquisitions. This implies that it is worth examining potential heterogeneity within the class of private acquisitions in our empirical analysis below.

2.2.2. Transaction Risks

Transaction risks are potentially exacerbated for diversifying acquisitions, where there is greater leverage, and when the acquirer's equity is overvalued. An acquisition of a firm in a dissimilar industry ('a diversifying transaction') will have exacerbated risks if the acquirer's managers are outside of their scope of expertise and ability to accurately value the target and target's industry.

A large literature has considered whether diversifying acquisitions are associated with bidder agency problems. The agency theory of diversification suggests lower true value improvements, and especially lower bidder returns, in cross-industry transactions than in same-industry transactions. Prior evidence is consistent with the view that diversifying transactions are associated with lower bidder returns. Focusing on 260 pure stock-for-stock mergers from 1963 to 1996, Maqueira et al. (1998) provide evidence that conglomerate bidding-firm stockholders lose but all other security

holders at least break even. Moeller (2004) examines the takeover announcement using a list of 12,023 acquisitions by U.S. public firms from 1980 to 2001. Among other things, Moeller finds that the market reacts negatively to an acquirer bidding for a target in the different industry, which is robust to a number of models. Similar findings are presented by Bhagat et al (2005), who analyze a comprehensive sample of U.S. tender offers during 1962–2001 and find that bidders earn positive CARs when acquiring a target of the same industry.

Transaction risks are also more pronounced among more highly leveraged acquirers. It is difficult to assess the effect of leverage, as it is potentially non-linear. Leverage may have positive value in some contexts or for certain ranges. For instance, Maloney et al. (1993) find that bidders with higher leverage are able to make better acquisitions; but excessive leverage may bring about agency problems and increase the risk of liquidation.

2.2.3. Cross-Border Acquisitions

Compared to domestic acquisition, cross-border takeover bids are more complex since it usually involves the handling of a significant number of legal entities, listed or not, and which are often governed by local rules (company law, market regulations, self regulations), which might translate into legal incompatibilities. As an example, Sarbanes Oxley legislation after June 2002 exacerbates the costs of acquiring U.S. companies (Falis and Eaton, 2004). As well, after an acquisition is completed, there may be impediments to effective integration while being exposed to disproportionate transaction costs, thereby reducing the synergistic gain.

Prior work shows bidder returns differ across domestic versus international targets. Black, Carnes, and Jandik (2001) find significant negative returns to US bidders during the three and five years following cross-border mergers. Gugler, Mueller, Yurtoglu, and Zulehner (2003) confirm the post-acquisition underperformance for cross-border acquisitions using international data, though Conn, Cosh, Guest, and Hughes (2001) do not find any evidence of post-acquisition negative returns for cross-border acquisitions in U.K acquisition context. Fumagalli and Vasconcelos (2009) find that cross-border mergers are significantly influenced by regulatory costs. Though they focus on post-M&A performance, André, Kooli, and L'Her (2004) investigate a list of Canadian takeover during the 1980-2002 period and find that compared to domestic mergers, cross-board deals perform poorly in the long term. Finally, Differences in gains from domestic and cross-border takeovers are presented in Eckbo and Thorburn (2000). Eckbo and Thorburn compare the performance of U.S.

and Canadian bidders which successfully acquired Canadian targets during the 1964-1983 periods. They find that domestic acquisition is associated with positive gains, while U.S. bidder's return is indistinguishable from zero.

In short, prior work consistently shows announcement CARs to be lower for foreign targets. Runup CARs that are significantly negative therefore are suggestive of insider trading and would warrant further investigation.

2.2.4. Payment Method

A large numbers of literature discuss the impact of choice of method of payment on acquisition announcement returns. Myers and Majluf (1984) model stock payment and demonstrate that firms believe their equity is overvalued when they pay by stock. Knowing that, target shareholders tend not to accept stock. Therefore, signaling theory suggests that higher-valued bidders will use cash or higher proportion of cash to signal their value to the market (Fishman, 1989; Berkovitch and Narayanan, 1990; Eckbo et al, 1990).

Hansen (1998) and Eckbo and Thorburn (2000) address the choice of method of payment in the target valuation uncertainty context. They suggest that bidders make stock offers when they are uncertain about targets' value due to the risk sharing by target shareholders.

Empirical evidence provides supports to the overvaluation theory as takeovers financed by cash have greater announcement CAR than do those paid by stock (Travlos, 1987; Fishman, 1989; Martin 1996; Loughran and Vijh, 1997; Fuller et al. 2002). Martin (1996) shows that, in the case of bidder uncertainty, shares are more likely to be chosen as method of payment. Chang (1998) and Fuller et al. (2002) provide evidence that stock offers outperform cash offers in the acquisition of private firms.

In sum, the literature consistently shows announcement CARs are lower for share payment. Runup CARs that are significantly negative for share acquisitions are in effect highly suggestive of insider trading and warrant further investigation.

2.2.5. Venture Capital backed firm

Venture capitalists extensively screen the companies in which they invest, facilitate professionalization of the firm, and certify the quality of the firm to the new owners. Empirical evidence confirms the fact that VC-backed acquisitions have significantly positive announcement returns (Masulis and Nahata, 2009). Regulators therefore have reason to suspect insider trading in cases where runup CARs are significantly positive for acquisitions of VC-backed targets.

2.3. Summary

This section reviewed literature that consistently shows announcement returns are relatively more predictable for private targets, VC-backed targets, foreign targets, riskier acquirers, and share payment acquisitions. The predictability of market reaction to takeover depending on the factors discussed above makes it possible for insider to profit from his material non-public information by purchasing or selling the acquirer's stock when expected market reaction is negative or positive, causing abnormal price increase or drop. Therefore, if insider trading has occurred, we will expect to observe a link between runup CARs and deal features. In the next section, we empirically test the proposition that runup CARs matches such expected post-announcement acquirer returns.

3. Data and Summary Statistics

3.1 Data and variables

We collected from the Securities Data Company's (SDC) Mergers and Acquisitions Database a list of mergers and takeover announcements, in which the acquirer is a public Canadian company listed on the Toronto Stock Exchange (TSX), with the announcement date between January 1991 and December 2008. Leveraged buyouts, spinoffs, recapitalizations, self-tenders, exchange offers, repurchases, minority stake purchases, and privatizations are excluded from our sample. We also manually check and adjust the announcement day of each transaction using the news from Lexis-Nexis.

In order to consider acquisitions with sufficient data, announcements of deals are included in the sample if the deal value is more than \$CAN 1 million, the acquiring firm is listed on the TSX-Canadian Financial Markets Research Centre (TSX-CFMRC) Summary Information Database, the acquiring firm is not financial or utility firm, the target is either a public firm or a private firm, the acquiring firm acquires (or attempts to acquire) at least 50% of the target firm

share, and the deal value is not smaller than 1% of the market value of the acquirer. If the acquirer made two takeover attempts in less than 90 days, the second attempt is excluded from our sample. Following the merger and acquisition literature, we also exclude financial and utility firms from our sample. Finally, following Chang (1998), Ang and Kohers (2001), and Bouwman et al. (2009), Following Chang (1998), Ang and Kohers (2001), Bouwman and Fuller and Nain (2009), we exclude acquisitions of subsidiaries from our sample. We note that while we did not select on successful versus unsuccessful deals, only 6 announced deals were unsuccessful in our dataset.

The definitions of the variables used in the analyses are provided in Table 1. The pre-announcement cumulative abnormal return for each acquirer is calculated over the window of -40 to -2 trading day prior to the takeover announcement. Daily abnormal return is computed using a market model. The estimation period is [-250, -70] trading days and the CFMRC equal-weighted index is used to proxy for market return.⁴ To estimate the market model, we require that there must be no less than 50 non-missing returns during the estimation period. Our sample screening procedure yields a final sample of 736 mergers and acquisitions, including 273 public targets and 497 private targets. Cumulative abnormal transactions are computed as the difference between the actual daily transactions and the average daily transactions over the estimation period.

-- Table 1 About Here --

Financial information needed to calculate acquirer characteristics such as leverage is obtained from COMPUSTAT, and Thomson DATASTREAM data are used if the acquirer is not covered by COMPUSTAT.

The institutional holding data is obtained from Thomson Reuters Investment Company Common Stock Holdings Databases (CDA/Spectrum S34) through Wharton Research Data Services. The institutional investors are defined as registered investment companies and professional money managers. There is a major difference in the institutional holding data between our sample and that in Ferreira et al (2009). Ferreira et al acquire the data from FactSet LionShares Global Ownership database, which has much wider coverage of global institutional investors. However Thomson Reuters CDA/Spectrum S34 concentrates on U.S. securities, with a limited set of non-U.S. securities. As a result, the number in our sample is likely to be downward biased. The

⁴ We also estimated CAR using CFMRC value-weighted and TSX Composite index and the results are similar. Likewise, we considered other variants of the market model. For conciseness, the results are not reported here but are available on request.

simple statistics shows that, in our sample, 78.99% of all institutional investors are from U.S. We consider three measures to capture institutional holding: (1) the number of institutional investors, (2) the percentage of shares outstanding held by institutional investors,⁵ and (3) a dummy variable equal to one if the bidder has at least one institutional investor from the same country as its target. Institutional investors have a non-arm's length relation with local firms, which transfers into information advantage in the cross-country acquisition setting. Institutional holdings especially matter for acquisitions of private targets since having the same physical location makes it easier for institutional investors to obtain more information through non public channels.

Institutional holding has been widely used as a proxy for information asymmetry.⁶ It is generally agreed that institutional investors are better informed because of their superior access to private information as well as their better resource and lower average costs to acquire information. Furthermore, institutions are more efficient in processing information and trade more efficiently compared to retail investors. Extant evidence has shown that institutional trading is positively associated with the information contained in earnings announcement (Seppi, 1992). Chakravarty (2001) argues that trades initiated by institutions are more informed and have a larger cumulative price impact. In the acquisition setting, greater Institutional holdings imply the information about the takeover is more likely to be known before the official announcement, and as such, there is a higher chance of information leakage and trading on private information.

In addition to institutional investor coverage, we use another proxy for information asymmetry suggested by Masulis and Korwar (1986) (see also Hudson et al, 1993), which is defined as defined as the standard deviation of market-model residuals measured over the [-250, -70] event window. Greater variation in estimates of the market model means there is more idiosyncratic risk associated with the firm. Idiosyncratic risk is associated with more pronounced information asymmetry, and as such, estimates of the standard deviation of the market model are expected to be associated with runup CARs. Of course, other factors might proxy for information asymmetry, including the size of the acquirer and the relative size of the target. These proxies and various other controls are considered in our empirical tests.

⁵ This second variable is highly correlated with the first, and as such, they were considered separately. The findings are robust to using either variable. Below, we briefly discuss the percentage of institutional holdings but focus the analysis on the number of holders. We note that 35% of the data for these variables were missing (although not for the other variables); we used Stata's procedure to infer missing values. The results in this paper are robust to various inference methods, and to excluding institutional holdings from the multivariate analysis altogether.

⁶ Jiambalvo et al (2002), O'Neill and Swisher(2003) test both the number of institutional holders and percentage institutional holdings. See also Ferreira, Massa and Matos (2009).

We include year dummy variables into our analysis to account for changing economic and institutional conditions over time.⁷ To account for the industry effects, we also create bidder industry dummies based on two-digit SIC code. Following Fuller et al. (2002), we introduce a diversifying dummy, which is set to 1 if both the acquirer and target firm have the same 3-digit SIC code.

Masulis and Nahata (2009) provide evidence that acquiring VC backing targets leads to significantly higher acquirer announcement returns, even after controlling for deal characteristics and endogeneity in venture. We introduce a dummy variable VC, which is set to one for target firms financed by VC funds, and zero otherwise. The VC financing information is taken from the SDC VentureXpert database, which identifies venture investments made by corporate divisions, subsidiaries and venture capital funds directly affiliated with corporations. Only 16 targets in our sample are VC backed, and as such other detailed variables for different VC characteristics were not possible to consider due to a lack of degrees of freedom.

3.2 Summary statistics and comparison tests

Table 2 Panel A provides summary statistics of both the dependent and independent variables used in our analysis. For all observations in the data, the runup CAR equal weighted over the window [-40, -2] is negatively significant, with an average of -1.52%, ranging from -51.0% to 44.71%, and the median is -0.56%. The CAR value weighted and CAR composite are not very different from the equal weighted CAR, with an average of -1.51% and -1.46%, respectively, both significant lower than zero. The CAR value weighted and CAR composite CAR medians are trivially different from that CAR equal weighted, with a value of 0.58% and 0.28%, respectively. The mean and median cumulative abnormal transactions are 1499 and 99, respectively, and both are significantly different from zero at the 1% level.

-- Table 2 About Here --

⁷ The passage of Sarbanes Oxley Act in June 2002 increased the costs associated with acquiring U.S. companies, particularly U.S. public companies, making it worthwhile to consider a specific dummy variable for Sarbanes Oxley for post June 2002, but that variable did not change any results. Note that we considered insider trading rules for the target firm country, such as those from Beny (2005) and Bris (2005), and surveillance data from Cumming and Johan (2008) and Cumming et al. (2009), but those factors were immaterial to our analysis. The insignificance of these rules likely reflects the fact that rules are most important for the acquirer country, and all acquirers in our data are based in Canada.

In our sample, 63.3% of the targets are private firms. The majority of the targets are Canadian firms, consisting of 62.1% of the sample. U.S. targets comprise a significant portion of our sample, equal to 26.6% of the targets, while the other countries comprise 11.3%. Table 2 Panel B presents the details of target nationality.

Among all bidders covered by Thomson Reuters CDA/Spectrum S34, the average number of institutional investors is 22, ranging from a minimum of 1 to a maximum of 416. The median, 2, shows that the distribution of the number of institutional investors is highly skewed. The percentage institutional holding exhibits similar property, which averages at 10.4%, and ranges between 0 and 94.1%. Comparison of the nationality of target firm and that of its associated bidder's institutional investors shows that 23.8% of the target firms have at least one institutional investor from the same country.

There are 42.5% of targets which are not in the same industry as the acquirer. The average standard deviation of market-model residuals is 0.029. The average leverage of the acquirers is 1.487, with a minimum of 0.032 and a maximum of 24.186. On average, the target is about 20.4% of the acquirer in terms of size. The data show 51.6% of the acquisitions are paid by cash only, compared to 20.2% for stock payment only and 34.9% for mixed payment.

Although the runup CAR appears significantly negative for the overall sample, the partition of the sample by different measures including target type, country and method of payment reveals a different picture. Figure 1 presents the pre- announcement CAR over the window [-40, +30] for firm acquiring Canadian targets by method of payment from which we observe that the method of payment plays an important role in the determination of firms performance prior to and after the takeover announcement. Cash offer shows a positive price pre-runup before the formal announcement of the takeover deal, which is followed by a big increase during the announcement period ([-1, 1] day window) and then stabilizes over the following month. On the contrary, we do not see any abnormal price movement for stock offer prior to the announcement. For mixed offer, the price seems to follow random walk until about 10 days prior to the announcement, and since then it shows a sharp increase over the following the period. Further dividing the sample into public and private target groups demonstrates that the above patterns are mainly driven by the public target group. Similar patters emerge in Figure 2 for Canadian public targets groups. Compared to the whole Canadian target group, the Canadian Public target group shows even bigger increase in equity price prior to the announcement when cash is only method of payment,

while there is no big change in price during the 3-day announcement period as well as the following one month period. Similar to Figure 1, the stock offer does not present abnormal pattern before the announcement, which also exists for the mixed offer. Though not reported here, we plot the same chart for Canadian firms acquiring private targets, in which we do not see any significant pre-announcement price movement for either method of payment group. To summarize, for Canadian targets, the possible information leakage is likely to happen when acquirers use cash to purchase target firm, which is even more likely when the target is a listed firms.

The U.S. target sample experiences different patterns. Figure 3 presents the Canadian acquirers taking over U.S. targets by method of payment. Both cash and mixed offer see continuous abnormal price drop over the period from -40 to -2 days, which then increases around the announcement but quickly reverses and continues dropping from the 2nd day after the announcement and continues dropping until 30 days after the announcement. Overall, the acquirer stock lost value during the 70 day period. This might suggest that acquirers engaging in pure stock offer observe a lot of variation in its stock price, but in general, there is no significant price change during the pre-announcement period. The U.S. private target, however, shows a different picture (Figure 4). Stock offer experiences consistent price drop along the time, suggesting possible incidences of information leakage. On the contrary, cash and mixed offer see no obvious increase or drop before the takeover news becomes publicly available.

In subsection 2.2 above, we considered literature that suggested both positive and negative effects with private acquisitions. As such, in Figure 5 we report CARs for quintiles sorted by announcement return. The data in Figure 5 indicate that on average there is a positive announcement effect for private acquisitions, but the 30-day post-announcement return is significantly negative. There is massive heterogeneity in announcement returns for acquirers of private firms. On average, announcement returns are positive due to the performance of the top quintile, but the other quintiles show substantially lower and often negative announcement returns to private acquisitions.

Figure 6 illustrates the price performance for firms acquiring VC sponsored targets. Consistent with Masulis and Nahata (2009), we see the acquirers experience substantial price increase around the announcement. Furthermore, the acquirers also experience price runup starting about 23 days prior to the announcement day, suggesting the possibility that insiders act on their

private information about the pending acquisition and act on it to benefit themselves before the public is aware of the news.

-- Figures 1-6 About Here --

The phenomenon depicted in the graphs is confirmed by the statistics in Table 3. In the Canadian public target sample, the cash offer acquisition experiences an average of 4.02% cumulative abnormal returns before the takeover announcement, which is both economically and statistically significant. However, the announcement return for this group is as small as 0.10%, no different from zero. In contrast, on average, stock offer only sees an insignificant CAR of 0.69% prior to the announcement, followed by a significant abnormal price drop of -1.78% around announcement. For mixed offer, the pre-announcement averages 2.67%, not statistically different from zero. Consistent with the graph, for Canadian firms taking over the U.S. public target, stock offer leads to a very significant abnormal price underperformance of -12.29% over the -40 to -2 window. Some might argue that the result might not be reliable due to the small sample size. However, the median CAR Equal Weighted is also as substantial as -11.71%, significant at 10% level. Considering that the mean and median announcement CARs are only 1.84% and -0.90%, respectively, neither statistically nor economically significant, it is reasonable to say that the stocks offer is associated with price drop before announcement.

-- Table 3 About Here --

Table 4 presents the comparison study by target type. In the full sample, private targets experience an average runup CARs of -3.3%, which is both economically and statistically significant. In contrast, the public-target acquisition observes insignificant runup CARs equal to 1.5%. The results are similar if either CFMRC value-weighted and TSX Composite index is used as a proxy for market return. Furthermore, the mean and median comparison test confirm that takeover involving a private target has more negative pre- runup, both significant at 1% level, regardless of the choice of market return. The findings are consistent with the hypothesis that, comparing to acquiring a public target, insiders involved in private target acquisition deals possess more material non-public information, which translates into more significant price change in acquirers stock if they trade on it. The mean cumulative abnormal transaction is equal to 2441.91 for public-target acquisition, highly significant. Moreover, compared to private-targets, public-targets experience a much greater number of transactions before takeover announcement.

However, the median cumulative abnormal transaction of both private-target and public-target are indistinguishable. These statistics might suggest that the phenomenon is driven by highly liquid stocks. A possible explanation is that acquirers of public targets are usually larger than acquirers of private targets (Table 4 Panel B), and larger firm is usually more liquid and thus shows a greater number of transactions.

-- Table 4 About Here --

We carried out separate comparison tests pertinent to other variables related to information asymmetry. First, to examine whether the number of institutional investors matters for pre-announcement CARs, we divided the sample into two groups in terms of whether the number of institutional investors of the acquirer is larger or smaller than the sample median. However, there is no significant difference of CAR between the high and low groups. Second, we repeated this exercise for the standard deviation of the market model. There are differences in medians such that higher standard deviation is associated with significantly lower runup CARs, but differences in means are not significant. These comparison tests are available on request.

Empirical studies show a link between firm and deal characteristics and takeover announcement returns. We will observe the relationship between the characteristics and pre-announcement price change, if it is due to insider trading since insiders will be able to predict market reaction and act on it. Our comparison tests show that acquirers experience significantly larger pre-announcement price drop if they are engaged in a diversifying acquisition (not explicitly reported for reasons of conciseness).

Table 5 tests whether cross-border acquisitions are associated with pronounced negative runup CARs, considering that acquiring a foreign firm involves higher regulatory risks. Canadian acquirers experience abnormal price drop of about 3-5% before the takeover announcement when they are engaged in acquisition of a foreign target, regardless of its nationality. In contrast, acquiring a Canadian target is associated with about 1% runup CARs. The comparison test shows that there exists significant difference between domestic and foreign acquisitions, regardless of the measures used for equal weighted, value-weighted or composite CARs. Note, however, there are no significant differences in means or medians in terms of cumulative abnormal transactions for domestic versus foreign targets.

-- Table 5 About Here --

As discussed in subsection 2.4, studies show significant market reactions to takeover announcement that depends on the method of payment. In our full sample the data indicate that, on average, stock and mixed payment are associated with negative CARs Equal Weighted, which are -3.10% and -2.30%, respectively, and both significantly at 10% level. The runup CARs for cash offers is 2.70% (1.9%) less than that of stock offer (mixed offer), though indistinguishable from zero. Since the literature shows that acquirer performance is also affected by factors other than method of payment (Table 6 confirms the correlation between those factors), we repeat the test by further dividing the sample by target country and target type to explore whether the method of payment matters within the sample. For Canadian private-target acquisition, not only stock offer is associated with substantially negative runup CAR (-10.52%), but it is significant lower than those of cash and mixed payment. As for Canadian public-target takeover, consistent with Figure 2, cash offer experiences a significant abnormal price increase of 4.02% over the -40 to -2 day window. Likewise, U.S. public-target takeover when stock is used as method of payment sees a risk-adjusted cumulative return of 12.29% prior to the announcement (consistent with Figure 4).

Table 6 presents a correlation matrix for the main variables used in the multivariate tests provided in the next section. The correlations are consistent with the discussion in section 2 and the comparison tests discussed above. Note as well the data indicate collinearity issues for some of the explanatory variables. For example, U.S.-targets are highly correlated to dummy variable Institutional investors Same Country, which can be explained by the high concentration of institutional investor in the U.S. Log Asset is highly negatively correlated to standard deviation of market model, which makes sense since there is less information asymmetry about larger firms due to more prevalent media and analyst coverage. In the multivariate analyses immediately below, we exclude variables in the same regressions with these types of collinearity problems.

-- Table 6 About Here --

4. Regression Analyses

This section presents multivariate tests of our hypotheses controlling for various economic and institutional determinants of the pre-announcement return. For each regression, we control for both year and industry effects using dummy variables. We two-way cluster standard errors by both

year and bidder (Petersen, 2009). Table 7 presents our main regressions of CAR Equal Weighted (relative to equal weighted index), in which we explore the relation between various information asymmetry, risk and regulatory measures and pre-announcement. We also repeat the exercise on CAR Value Weighted and CAR Composite as robustness checks, and provide complementary evidence on Cumulative Abnormal Transactions (each defined in Table 1).

-- Table 7 About Here --

Thirteen models are presented in Table 7 to show robustness to alternative specifications. Models 1 and 2 in Table 7 use the full sample and consider alternative explanatory variables. Model 3 also uses the full sample of all acquisitions. Model 3 differs from Models 1 and 2 by treating the decision to acquire a public versus a private firm as a decision variable with a treatment regression. The first-step equation is a probit regression where the dependent variable is equal to 1 for US private targets paid with stock (that is, treating each as a joint choice variable) and 0 otherwise. This first step decision is a function of the standard deviation of the market model, Tobin's Q, and assets, as well as industry and year dummy variables.⁸ In the second step, we employ variables similar to those reported in Model 1. Models 4 and 5 are single step models which consider the subsample for public targets and private targets separately. Models 6, 7 and 8 consider the subsamples for Canadian targets, Canadian public targets, and Canadian private targets, respectively. Models 9 and 10 consider the subsamples of U.S. targets and non-Canadian and non-U.S. targets. Models 11, 12 and 13 consider the subsamples of shares, mixed and cash only payments.

The coefficient for private targets in Model 1 is negative and significant at 1% level, indicating that within the 40 days prior to takeover announcement, the bidder price drops by 4.5% for private targets relative to public targets. This evidence is consistent with the negative post-announcement returns for private acquisitions depicted in Figure 4. Figure 5 highlights the fact that post announcement returns for private acquisitions are highly heterogeneous. We ran separate regressions for runup CARs (not reported in Table 7 but available on request) for quintiles ranked by announcement day return. These regressions indicate the same negative and statistically significant effect of private acquisitions and very similar economic significance for all quintiles,

⁸ We also estimated Step 1 of Model 3 by including the U.S. and Other Country dummies in the first stage regression. Those coefficients were positive and significant, and the Inverse Mills Ratio becomes significant. But regardless, the inclusion or exclusion of these and other variables does not affect the other reported results for either Step 1 or Step 2 of Model 3. Alternative specifications are available on request.

with the sole exception of the top quintile which yielded a statistically insignificant coefficient for private targets, consistent with Figure 5.

While private targets exhibit significantly negative runup CARs, VC-backed private acquisitions experience positive and significant pre-run-up CARs. In Model 1 the effect is significant at the 10% level, and the economic significance is such that CARs of VC-backed targets are 10% larger than non-VC-backed targets. This finding is consistent with the post announcement return depicted in Figure 6, and likewise consistent with prior evidence (Masulis and Nahata, 2009).

There is some evidence of the importance of information asymmetry from the standard deviation of the market model in Model 1. The effect is negative and significant, as expected, and the economic significance is such that a 1-standard deviation increase in the standard deviation reduces runup CARs by 2% (although this effect is insignificant in Model 2). The number of institutional holders of the acquirer similarly has the expected sign, but the effect is statistically insignificant. We further investigated whether percentage holdings by institutional investors explained the variation of runup CARs, but that variable is likewise insignificant and therefore not reported. In Models 1 and 2, firm specific risk factors such as diversifying or leverage have the expected sign but are statistically insignificant.⁹

Tobin's Q is significantly negatively associated with runup CARs in Models 1 and 2. A negative sign for Tobin's q may reflect insiders' belief that their equity is overvalued, and as such lower the runup CARs. It is similarly possible that agency problems of overvalued equity lead insiders make less than value-maximizing acquisitions (Jensen, 2005). The economic significance of the effect is such that a 1-standard deviation increase in Tobin's q reduces runup CARs by 3%.

Since cross-border mergers are significantly influenced by regulatory costs, we expect negative coefficients for the U.S. and other countries dummy variables. Both the U.S. and other country dummies are negative, as expected, but only the U.S. country dummy variable is significant (and at the 5% level). In Model 1, relative to a domestic takeover, a Canadian acquirer will see its stock price underperform by 3.7% pre-announcement of the takeover when it is engaged in acquiring a U.S. target.

⁹ We did not uncover nonlinear specifications for leverage that were arguably superior to the specifications reported.

Model 1 shows share and mixed payments are associated with significantly lower runup CARs (at the 1% and 10% levels, respectively). Share payments are associated with lower runup CARs by 4.9%, while mixed payments are associated with 2.3% lower CARs. These findings are consistent with Myers and Majluf (1984).

Model 2 includes interaction terms for private targets with target country as well as private targets with method of payment. Consistent with expectations, we see foreign private acquisitions exhibit stronger and statistically significant price declines. CARs for U.S. private targets decline by 4.4%, and this effect is significant at the 1% level. CARs for other country private targets decline by 4.9%, and this effect is significant at the 10% level. Further, Model 2 includes terms that interacts private targets with share payments and mixed payments. The evidence shows shares * private is negative and significant at the 5% level, with the economic significance at a reduction of 7% in CARs.

To summarize, Models 1 and 2 provide strong support for the proposition that predictable movements in acquirer returns post announcement are associated with runup CARs the move in the same direction and a statistically and economically significant way. This is suggestive evidence that insider trading is more likely for private targets, for firms with greater information asymmetry (proxied by the standard deviation of the market model), higher Tobin's q, foreign acquisitions, and share payments.

Model 3 employs a two-step treatment regression (using the treatreg function in Stata) to assess the possibility that selection or endogeneity vis-à-vis the decision to target a private company, a foreign company, or the mode of payment. The first step model shows the standard error of the market model is the strongest determinant of acquisition of U.S. private targets with shares. Various alternative control variables were considered, and all pointed to the significance of the standard error of the market model. The second step of Model 3 shows runup CARs are 21.9% lower for share purchases of U.S. private targets even after controlling for the decision to target a private U.S. company and pay with shares.

Many of the other variables in the second step of Model 3 are consistent with Model 1. VC-backed targets have higher runup CARs, while the standard error of the market model and Tobin's q are both negative and significant at magnitudes similar to that in Models 1 and 2. Also,

note in Model 3 that the leverage of the acquirer is negative and significant at the 10% level, and shows that a 1-standard deviation in leverage reduces runup CARs by 7.7%.

Models 4-13 in Table 7 consider a number of different subsets of the sample to assess robustness. Models 4 and 5 are separate regressions for public and private targets, respectively. VC-backed targets have a positive and significant impact on runup CARs in Models 4 and 5. The dummy variable for the U.S. is negative and significant at the 5% level in both Models 4 and 5. The dummy variable for Other Country is insignificant in Models 4 and 5. The economic significance of these effects is comparable to that reported above for Model 1. Overall, the findings are quite consistent regardless if the target is public or private.

Table 7 reports the results of regressions for different target country sub-samples for Canada in Models 6-8, the U.S. in Model 9 and other countries in Model 10. We consider Canadian public and private targets separately as there are a larger number of Canadian transactions to examine these subsamples. Private targets have a negative and significant effect at the 1% level on runup CARs in Model 6, such that CARs are 4.3% lower. This effect is similarly negative in Models 9 and 10, albeit statistically insignificant. The standard error of the market model is negative and significant in Model 6, but not Models 7-10. Tobin's q is negative and significant in Models 6, 8 and 10. Share payments are negative and statistically significant in Models 6-9, but insignificant in Model 10. One explanation for this latter result is that share payments better ensure the transacting parties keep a vested interest in the success of the transaction. It is possible that for international acquisitions, the need to mitigate this type of agency problem is more pronounced, thereby leading insiders to favor share payments. By contrast, VC-backed targets are positive and significant in Model 10, but not Models 6, 8 and 9, which suggests that VC's play a more pronounced certification role in non-North American targets. Further, diversifying transactions have a negative and significant coefficient in Model 10 for other country targets, where CARs are reduced by 13.6%, suggesting that insiders fear more targets that are not in the area of interest when such targets are not based in North America.

Models 11-13 investigate whether the impact of our variables of interest for samples constructed by method of payments. The results in Models 11-13 show the importance of country effects, at least for the US in Models 11 and for share payments and Model 12 for mixed payments. We note that the presence of institutional investors improves CARs for cash-only transactions in Model 13, which is consistent with their role in mitigating information asymmetries, but the effect

is small (a 1-standard deviation change impacts CARs by 1.6%). As well for the subsample of cash payments in Model 13, the data highlight the importance of private targets, VC-backed targets, and Tobin's Q. In Model 13, runup CARs are 4.4% lower for private acquisitions, 11.9% higher for VC-backed targets, and a 1-standard deviation increase in Tobin's Q reduces CARs by 3.2%. The data suggest that cash payments are relatively riskier transactions, thereby exacerbating the effect of deal-specific factors.

Table 8 presents robustness checks for different dependent variables. We do not repeat all of the specifications in Table 7, but rather present a few models to highlight the most important effects. Models 14 and 15 use the value-weighted CARs and composite CARs as dependent variables, respectively, while Model 16 uses cumulative abnormal transactions.¹⁰

-- Table 8 About Here --

Models 14 and 15 both highlight significantly negative runup CARs for private targets, and for acquirers with a greater standard deviation of the market model and greater Tobin's q. This evidence is highly consistent with the evidence in Table 7 for equal-weighted CARs in terms of both economic and statistical significance.

The cumulative transactions in Model 16 are significantly negatively influenced by private acquisitions, and significantly positively influenced by Tobin's Q, and asset size of the acquirer. A one-standard deviation increase in the size of the acquirer from the average size increases cumulative abnormal transactions only by 10. By comparison, private acquisitions are associated with 758 fewer abnormal transactions, which is roughly 13% of one standard deviation of the cumulative abnormal transactions (Table 2). This result suggests that on average private acquisitions are less likely to be known than public acquisitions. A one-standard deviation increase in Tobin's Q increases cumulative abnormal transactions by 1247, consistent with the idea that insiders are likely to trade pre-announcement where risks are more pronounced. Finally, a one-standard deviation increase in log assets increases cumulative abnormal transactions by 1707, which is intuitive as larger acquirers have less information asymmetry and attract additional attention from institutional and other investors.

¹⁰ We considered other statistics such as turnover (volume per shares outstanding), and inferences drawn were not materially different. Those tests are available on request.

5. Conclusions

This paper examined for the first time the pre-announcement share price and transaction dynamics of acquirers in response to public versus private acquisitions. The central hypothesis tested in this paper is that insider trading potentially exists where pre-announcement CARs significantly move in the same direction as expected post-announcement CARs. We reviewed related literature that has established stylized facts regarding the extent to which takeover announcement returns are predictable.

We examined 770 Canadian acquirers of targets in Canada, the U.S. and 31 other countries around the world over the years 1990-2008. The Canadian setting is a useful forum by virtue of its legal similarity to the U.S., and the propensity of acquirers to acquire both private and public companies in Canada and abroad. The data examined show systematic evidence of insider trading actions worthy of investigation depending on the characteristics of the acquirer (including Tobin's q and proxies for information asymmetry), characteristics of the target (including private versus public, as well as VC-backing), and method of payment (shares versus cash versus mixed). In the course of our analyses, we showed these findings to be statistically significant and economically large, and robust to 2-step treatment regressions for the non-random choice to target a private firm, alternative explanatory variables, different event window lengths, different benchmarks to generate CARs, and subsets of the data.

Our findings are consistent with other studies of insider trading and add to the body of knowledge by providing unique evidence of insider trading of acquirer stock. The results have policy implications for surveillance authorities. Insider trading investigations on trades of acquirer stock for both public and private targets can be targeted towards announcement transactions that generate predictable movements in acquirer share prices. The findings herein show where insider trading is more likely to be observed, and as such, where surveillance and enforcement could be more efficiently directed.

Appendix

This Appendix presents a review of the literature on post-announcement performance of acquisitions. Papers, datasets and findings are summarized in Table A-1.

Table A-1. Summary of Research on Announcement Returns to Acquirer

Source	Key Variable(s) Examined	Announcement Return	Paper Type	Sample Years	Sample Countries	Description
Myers and Majluf (1984 JFE)	Share transactions	Negative	Theoretical			This paper develops a model to show that firms' financing decision for the purpose of supporting investment projects in the information asymmetry context. In the M&A context, it predicts that cash offer conveys better information about the bidders and deal than stock offer.
Travlos (1987 JF)	Public + stock	Negative	Empirical	1972-1981	U.S.	This paper studies the bidder return related to method of payment. It finds out that bidding firms suffer significantly losses in pure stock exchange acquisitions, but experiences 'normal' returns in cash offers. The finding is in dependent of mode of payment.
Lang, Stulz and Walkling (1991 JFE)	High Tobin's q + public target	Higher	Empirical	1968-1980	U.S.	This paper provides support to Jensen's free cash flow theory in a takeover context. It shows that more cash flow and low Tobin' Q. which proxies for investment opportunity, are associated with lower bidder return.
Servaes (1991JF)	High Tobin's q + public target	Higher	Empirical	1972-1987	U.S.	This paper analyzes the relation between takeover gains and Tobin's q. Both bidder and target gain more in the case of higher bidder ratios and lower target q ratios, providing support to Lang (1991)

Table A-1 (Continued)

Source	Key Variable(s) Examined	Announcement Return	Paper Type	Sample Years	Sample Countries	Description
Maloney, McCormick and Mitchell (1993 JB)	Higher leverage	Higher	Empirical	1962-1990	U.S.	This article investigates leverage influence on project selection using merger and acquisition data. It finds that higher the leverage increases acquirer's announcement-period returns, supporting the hypothesis that debt improves managerial decision making.
Bradley, Desai and Kim (1998 JFE)	Single/multiple bidder tender offer	Positive/insignificant	Empirical	1963-1984	U.S.	This paper considers tender offer only. It shows that competition between bidders reduce bidder gains in general. Single bidder gains but the following bidders engaging in a multiple bidder's acquisition lose.
Chang (1998 JF)	Private target + cash	Insignificant	Empirical	1981-1992	U.S.	Bidder who acquires a private firm experiences a positive (no abnormal) return in stock (cash) offer. The author suggests that it is related to the monitoring effect by stockholders.
	Private target + stock	Positive				
Eckbo and Thorburn (2000 JFQA)	Domestic/U.S bidders	Positive/insignificant	Empirical	1945-1983	U.S., Canada	This paper studies U.S. and Canadian firms bidding for Canadian targets. Domestic takeover outperforms cross-board takeover in terms of pre- and post- announcement return. For domestic bidders, stock offer perform better.
	Domestic bidder + stock	Higher return				
Kohers and Ang (2000 JB)	Takeover during high-valuation market	Higher	Empirical	1984-1996	U.S.	This paper compares quoted and unquoted firms and finds out that acquirer shareholders benefit for acquiring a private target. But the market's reaction depends on the premium paid to the target.
Fuller, Netter and Stegemoller (2002 JF)	Public/non-public	Negative / positive	Empirical	1990-2000	U.S.	This paper studies firms making five or more acquisitions within a short time period. It provides evidence that bidders benefit from private/subsidiary acquisitions. Acquiring private targets with stock performs better than others.
	Public + cash or mix	Insignificant				
	Public + stock	Negative				
	(Non-public + stock) - (non-public + cash)	Positive				These results are consistent with a liquidity discount, and tax and control effects in the market

Table A-1 (Continued)

Source	Key Variable(s) Examined	Announcement Return	Paper Type	Sample Years	Sample Countries	Description
Moeller, Schlingemann and Stulz (2004 JFE)	Larger/smaller acquirer	Insignificant/positive	Empirical	1980-2001	U.S.	This paper discovers the size effect in acquisition announcement returns. Overall, small acquirers outperform larger acquirers by about 2%. The paper examines the announcement as well as post-acquisition. In general, cross-board public acquisitions overperform domestic public acquisition. Private acquisition performs better than public acquisition regardless of the location of the target.
Conn, Cosh, Guest and Hughes (2005 JBFA)	Domestic public target	Negative				
	Cross-board public target	Insignificant	Empirical	1984-1998	UK	This paper confirms the existence of listing effect in European acquisition, that is, private acquisition earn a significant CARs after controlling for other factors. It focuses on manufacturing industries. Private acquisition performs better even after controlling for endogeneity bias using a two-stage model. And acquirers of public (private) firms perform better than if they has acquired a private (private) firm.
	Private target	Positive				
Faccio McConnell and Stolin (2006 JFQA)	Private/public	Positive/insignificant	Empirical	1996-2001	17 Western European countries	This paper examines takeovers happening different periods, and finds out that acquiring buying during high-valuation markets have significantly higher announcement returns and lower long-run performance than those buying during low-valuation markets, which are due to managerial herding. This paper analyzes the effects of VC backing on profitability of private firm acquisitions. It finds VC backing leads to significantly higher acquirer announcement returns, averaging 3%, after controlling for other facts, which is due to VCs' conflicts of interest with entrepreneurs and other investors.
Capron and Shen (2007 SMJ)	Private target	Positive	Empirical	1988-1992	Multinational sample bidders from U.S., U.K., and France representing 77% of bidders.	
Bouwman, Fuller and Rain (2009 NFS)	Synergy gain		Empirical	1979-2002	U.S.	
Masulis and Nahata (2009 JFQA)	Venture capital backed private target	Positive	Empirical	1991-2006	U.S.	

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Table 1. Definition of Variables

Variable Name	Definition
<u>Dependent Variables</u>	
CAR Equal Weighted	Cumulative abnormal return over the window [-40, -2] before takeover announcement. The abnormal return is estimated using market model with TSX-CFMRC daily equal weighted index as a proxy of market return. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
CAR Value Weighted	Cumulative abnormal return over the window [-40, -2] before takeover announcement. The abnormal return is estimated using market model with TSX-CFMRC daily value weighted index as a proxy of market return. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
CAR Composite	Cumulative abnormal return over the window [-40, -2] before takeover announcement. The abnormal return is estimated using market model with TSX Composite Total Return index as a proxy of market return. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
Cumulative Abnormal Transaction	Cumulative abnormal number of transactions over the window [-40, -2] before takeover announcement. The abnormal return is estimated using market model. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
<u>Independent Variables</u>	
<u>Firm Characteristics</u>	
Public	Dummy variable equal to 1 if the target firm is a public company, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
Private	Dummy variable equal to 1 if the target firm is a private company, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
Leverage of acquirer	Acquirer's liabilities divided by shareholder equity. Data source: SDC Platinum Mergers & Acquisitions.
Diversifying	Dummy variable equal to 1 if the 2-digit SIC code of the acquirer and target are different. Data source: SDC Platinum Mergers & Acquisitions.
Standard Error of Equal Weighted Market Model	The standard deviation of error term of the market model, in which TSX-CFMRC daily equal weighted index is used as a proxy of market return. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
Standard Error of Value Weighted Market Model	The standard deviation of error term of the market model, in which TSX-CFMRC daily value weighted index is used as a proxy of market return. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC). Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
Standard Error of Composite Market Model	The standard deviation of error term of the market model, in which TSX Composite Total Return index is used as a proxy of market return. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
Tobin's Q	Acquirer's Tobin's q, which is equal to (market value of shareholder equity + book value of liability)/book value of total asset. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC), DATASTREAM, COMPUSTAT.
Number of Holders	Number of institutional investors in the acquirer firm. Data source: CDA/Spectrum S34.
Percent of Holders	The total percentage of holding by institutional investor in the acquirer firms, Data Source: CDA/Spectrum S34.
Institutional Investors in the Same Country	A dummy variable equal to 1 if the institutional investor is in the same country as the target company. . Data source: COMPUSTAT.
Log Assets	Log of the book value of the assets of the acquirer. Data source: DATASTREAM, COMPUSTAT.
Relative size	Deal value scaled by the acquirer market value. Data source: TSX-Canadian Financial Markets Research Centre (TSX-CFMRC).
VC	A dummy variable equal to 1 if the target firm is financed by a venture capital. Data source: SDC VentureXpert.
<u>Country Effects</u>	
Canada	Dummy variable equal to 1 if the target firm is a Canadian company, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
US	Dummy variable equal to 1 if the target firm is a U.S. company, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
Other Country	Dummy variable equal to 1 if the target firm is neither a U.S. nor a Canadian company, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
<u>Payment Method</u>	
Stock	Dummy variable equal to 1 if the method of payment is pure stock, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
Mixed	Dummy variable equal to 1 if the method of payment is a mixture of cash and stock, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
Cash	Dummy variable equal to 1 if the method of payment is pure cash, zero for others. Data source: SDC Platinum Mergers & Acquisitions.
<u>Market / Industry Conditions</u>	
Year dummies	Dummy variable for announcement years. Data source: SDC Platinum Mergers & Acquisitions.
Industry dummies	Dummy variables for acquirer industries (10 in total). Data source: SDC Platinum Mergers & Acquisitions.

Table 2 : Summary Statistics

Panel A provides summary statistics for the main variables in the dataset. Panel B summarizes the 31 nationalities of the target company; all acquirers are based in Canada. The sample spans the years 1991-2008.

Panel A. Summary Statistics for Dependent and Independent Variables

Variable	N	Mean	Median	Std Dev	Minimum	Maximum
<u>Dependent Variables</u>						
CAR Equal Weighted	736	-1.52%	-0.56%	17.21%	-51.90%	44.71%
CAR Value Weighted	736	-1.51%	-0.58%	16.56%	-48.69%	45.20%
CAR Composite	736	-1.46%	-0.57%	16.63%	-48.58%	46.84%
Cumulative Abnormal Transactions	736	1499	99	5874	-10286	38292
<u>Independent Variables</u>						
<u>Firm Characteristics</u>						
Private	736	0.633	1.000	0.482	0.000	1.000
Public	736	0.367	0.000	0.482	0.000	1.000
Leverage of acquirer	689	1.487	0.698	3.301	0.032	24.186
Diversifying	736	0.425	0.000	0.495	0.000	1.000
Standard Error of Market Model	736	0.029	0.024	0.016	0.008	0.088
Tobin's Q	689	2.233	1.586	1.876	0.559	11.682
Number of Holders	467	22	2	45	1	416
Percent of Holders	463	10.73%	1.44%	17.64%	0.00%	94.10%
Institutional Investors in the Same Country	736	0.238	0.000	0.426	0.000	1.000
Log Assets	691	5.707	5.508	1.846	2.051	11.850
Relative size	736	0.204	0.102	0.280	0.011	1.626
VC	736	0.022	0.000	0.146	0.000	1.000
<u>Country Effects</u>						
Canada	736	0.621	1.000	0.485	0.000	1.000
US	736	0.266	0.000	0.442	0.000	1.000
Other Country	736	0.113	0.000	0.317	0.000	1.000
<u>Payment Method</u>						
Stock	736	0.202	0.000	0.402	0.000	1.000
Mixed	736	0.281	0.000	0.450	0.000	1.000
Cash	736	0.516	1.000	0.500	0.000	1.000

Table 2 (Continued)**Panel B. Summary statistics of the nationalities of the target companies.**

Target Nationality	Frequency	Percent
Australia	9	1.22%
Austria	1	0.14%
Bahamas	1	0.14%
Belgium	2	0.27%
Bermuda	1	0.14%
Canada	457	62.09%
Chile	3	0.41%
China	1	0.14%
Finland	1	0.14%
France	5	0.68%
Germany	7	0.95%
Gibraltar	1	0.14%
Guyana	1	0.14%
Italy	2	0.27%
Mexico	1	0.14%
Netherlands	2	0.27%
New Zealand	1	0.14%
Nicaragua	1	0.14%
Norway	1	0.14%
Papua N Guinea	1	0.14%
Peru	5	0.68%
Puerto Rico	1	0.14%
Russian Fed	1	0.14%
Singapore	1	0.14%
South Africa	2	0.27%
Spain	1	0.14%
Sweden	1	0.14%
Switzerland	2	0.27%
Trinidad & Tobago	1	0.14%
United Kingdom	25	3.40%
United States	196	26.63%
Venezuela	1	0.14%

Table 3. Mean and Median Acquirer Pre-announcement and Announcement CARs for Public Canadian and U.S. Targets

This table provides the means and medians for CARs Equal Weighted and announcement CARs for firms acquiring U.S. and Canadian targets by method of payment. *, **, *** Significant at the 10%, 5% and 1% levels, respectively.

	Variable	Cash Offer		Stock Offer		Mixed Offer	
		CAR Equal Weighted	Announcement CARs	CAR Equal Weighted	Announcement CARs	CAR Equal Weighted	Announcement CARs
Canadian Public Target	N	61	61	95	95	61	61
	Mean	4.02%**	0.10%	0.69%	-1.78%*	2.67%	-1.35%*
	Median	1.49%	-0.55%	0.19%	-2.14%	-0.15%	-1.03%
	Std Dev	0.157	0.073	0.173	0.082	0.147	0.056
	t-value	2.00	0.11	0.39	-2.12	1.42	-1.88
U.S. Public Target	N	24	24	11	11	4	4
	Mean	2.37%	0.49%	-12.29%**	1.84%	1.19%	-2.07%
	Median	6.57%	-0.06%	-11.71%*	-0.90%	0.60%	0.04%
	Std Dev	0.118	0.050	0.206	0.121	0.083	0.070
	t-value	0.99	0.49	-1.98	0.51	0.29	-0.59

Table 4. Comparisons of Mean and Median Acquirer CARs for Public and Private Targets

Panel A provides comparison of means and medians for each of the different dependent variables over the -40 to -2 day window for the acquirers as defined in Table 1 and summarized in Table 2 for public versus private targets. Panel B summarizes various explanatory variables depending on the public versus private status of the target. *, **, *** Significant at the 10%, 5% and 1% levels, respectively.

Panel A. Characteristics of Dependent variables depending on public status of target

Variable	Statistic	Public Targets	Private Targets	Differences
CAR Equal Weighted Return	N	270	466	
	Mean	1.50%	-0.33%	-3.7***
	Median	0.70%	-0.14%	p= 0***
	Standard Deviation	0.16	0.176	
CAR Value Weighted Return	N	270	466	
	Mean	1.00%	-2.90%	-3.21***
	Median	0.50%	-1.80%	p= 0.01***
	Standard Deviation	0.152	0.171	
CAR composite Return	N	270	466	
	Mean	1.00%	-2.90%	-3.19***
	Median	0.60%	-1.30%	p= 0.01***
	Standard Deviation	0.152	0.172	
Cumulative Abnormal Transaction	N	270	466	
	Mean	2441.91	952.26	-2.91***
	Median	101.01	96.44	p= 0.26
	Standard Deviation	7713.28	4394.13	

Panel B. Characteristics of explanatory variables depending on public status of target

This table summarizes the main variables in the data depending on whether the target was private or publicly held.

Variable	Private Target		Public Target		Difference Tests P-Values	
	Mean	Median	Mean	Median	Mean	Median
Standard Error of Equal Weighted Market Model	0.030	0.025	0.026	0.023	3.25***	p= 0.03**
Canada	52%	100%	80%	100%	-8.61***	p= 0***
U.S.	34%	0%	14%	0%	6.28***	p= 0***
Other Country	15%	0%	5%	0%	4.52***	p= 0***
Number of Holders	16.69	2.00	29.83	4.00	-3.04***	p= 0***
Relative size	0.15	0.06	0.31	0.18	-6.96***	p= 0***
Log Asset	5.36	5.27	6.32	6.09	-6.47***	p= 0***
leverage	1.20	0.68	1.99	0.73	-2.62***	p= 0.04**
Cash	62.02%	100.00%	33.70%	0.00%	7.69***	p= 0***
Shares	8.37%	0.00%	40.74%	0.00%	-9.93***	p= 0***
Mixed	29.61%	0.00%	25.56%	0.00%	1.18	p= 0.24
Tobin q	2.30	1.59	2.12	1.59	1.23	p= 0.73
Diversifying	0.49	0.00	0.31	0.00	4.84***	p= 0***

Table 5. Comparison of Mean and Median Acquirer Cumulative Abnormal Return and Cumulative Abnormal Transaction by Target Country

This table provides comparison of means and medians for each of the acquirer CARs defined in Table 1 and summarized in Table 2 for targets from Canada, US and other countries. *, **, *** Significant at the 10%, 5%, and 1% levels, respectively.

Variable	Statistic	Canada	U.S.	Other Country	CANADA- U.S.	CANADA- Others	Others - U.S.
CAR Equal Weighted Return	N	457	196	83			
	Mean	1.00%	-5.00%	-5.00%	3.75***	2.82***	0.12
	Median Standard Deviation	1.00% 0.16	-4.00% 0.19	-5.00% 0.17	p= 0***	p= 0.01***	p= 0.96
CAR Value Weighted Return	N	457	196	83			
	Mean	0.00%	-5.00%	-4.00%	3.47***	2.42**	0.28
	Median Standard Deviation	1.00% 0.16	-3.00% 0.18	-4.00% 0.16	p= 0***	p= 0.02**	p= 0.79
CAR Composite Return	N	457	196	83			
	Mean	0.00%	-5.00%	-4.00%	3.27***	2.33**	0.22
	Median Standard Deviation	1.00% 0.16	-3.00% 0.18	-4.00% 0.16	p= 0***	p= 0.02**	p= 0.84
Cumulative Abnormal Transactions	N	457	196	83			
	Mean	1386	1451	2231	-0.14	-0.95	0.81
	Median Standard Deviation	70 5405.08	83 5990.18	202 7802.42	p= 0.83	p= 0.29	p= 0.29

Table 6. Correlation Matrix

This table presents Pearson correlation coefficients for selected variables as defined in Table 1. Correlations greater than 0.06, 0.07 and 0.10 in absolute value are significant at the 10%, 5% and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Equal-Weighted CARs	1.00																
(2) Value-Weighted CARs	0.93	1.00															
(3) CARs from Composite Index	0.92	1.00	1.00														
(4) Cumulative Abnormal Transactions	0.08	0.09	0.09	1.00													
(5) Private	-0.13	-0.11	-0.11	-0.14	1.00												
(6) VC-Backed Target	0.04	0.05	0.05	0.05	0.09	1.00											
(7) Leverage	0.00	0.01	0.01	0.13	-0.11	0.01	1.00										
(8) Diversifying	-0.09	-0.08	-0.09	-0.05	0.17	-0.01	0.09	1.00									
(9) Standard Error Market Model	-0.15	-0.14	-0.13	-0.14	0.10	0.06	-0.17	0.00	1.00								
(10) Tobin's q	-0.19	-0.20	-0.19	0.14	0.04	0.13	-0.16	-0.09	0.23	1.00							
(11) Number of Institutional Holders	-0.03	-0.02	-0.02	0.06	-0.06	0.00	-0.01	-0.01	-0.09	-0.04	1.00						
(12) Institutional Holders Same Country	0.05	0.06	0.06	0.20	-0.01	0.07	0.04	-0.02	0.01	0.08	0.02	1.00					
(13) Log Assets	0.10	0.11	0.10	0.24	-0.25	0.00	0.53	0.03	-0.57	-0.33	0.05	0.29	1.00				
(14) US	-0.13	-0.12	-0.11	-0.01	0.20	0.18	0.04	0.03	0.12	0.11	-0.03	0.39	0.03	1.00			
(15) Other Country	-0.07	-0.05	-0.05	0.04	0.14	-0.02	0.00	0.00	0.00	0.07	-0.05	-0.20	-0.03	-0.23	1.00		
(16) Pay Stock	-0.06	-0.03	-0.02	0.04	-0.38	-0.02	0.03	-0.05	0.20	0.12	-0.01	0.05	-0.07	-0.10	-0.10	1.00	
(17) Pay Mixed	-0.03	-0.02	-0.02	0.00	0.04	-0.05	-0.06	0.01	0.06	0.00	0.01	0.00	-0.09	-0.04	0.07	-0.31	1.00

Table 7. Regression Analyses of Runup CARs

This table presents OLS regression analyses of equal weighted CARs of the acquirer firm for -40 days to -2 days prior to acquisition announcement. Explanatory variables are as defined in Table 1. Models 1 and 2 consider the full sample. Model 3 is a treatment effects model considering the non-random selection of a US private public company with a stock payment. Models 4 and 5 separately consider the subsample of private and public companies. Models 6-8 use the subsample of all Canadian targets, Canadian public targets, and Canadian private targets, respectively. Models 9 and 10 consider the subsamples for US and other country targets, respectively. Models 11-13 consider the subsample of stock, mixed and cash transactions, respectively. Standard errors are two-way clustered by acquiring firm and year following Petersen (2009). *, **, *** Significant at the 10%, 5% and 1% levels, respectively.

	Predicted Sign Based on Studies of Post-Announcement CARs	Model 1		Model 2		Model 3				Model 4		Model 5	
		Full Sample		Full Sample		Step 1: Private, Pay Stock, US Acquisition		Step 2: Treatment		Public Target Only		Private Target Only	
		Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Constant		0.164	2.76***	0.110	1.95*	-10.396	-5.34***	0.072	1.11	-0.127	-1.39	0.116	1.59
<u>Firm Characteristics</u>													
Private Target	-	-0.045	-3.02***										
VC-Backed Target	+	0.107	1.65*					0.103	2.40**	0.177	2.93***	0.118	1.72*
VC-Backed Target * Cash Payment				0.105	2.79***								
Leverage of Acquirer	-	-0.002	-0.69	-0.002	-0.64			-0.003	-1.05	-0.002	-0.95	-0.002	-0.45
Diversifying	-	-0.021	-1.10	-0.021	-1.06			-0.023	-1.73*	-0.026	-1.08	-0.017	-0.82
Standard Error of Equal Weighted Market Model	-	-1.083	-1.67*	-0.972	-1.49	40.178	3.30***	-0.997	-1.77*	0.382	0.35	-1.243	-1.42
Tobin's q	-	-0.015	-3.47***	-0.015	-3.09***	0.077	1.08	-0.014	-3.69***	-0.009	-1.26	-0.016	-1.92*
Number of Institutional Holders of Acquirer		-2.477E-04	-1.22	-2.426E-04	-1.19			-2.219E-04	-1.33	-3.878E-04	-1.67*	-7.760E-05	-0.27
Log Assets		-2.463E-03	-0.80	-3.047E-04	-0.10	2.616E-02	0.18	4.679E-04	0.09	7.598E-03	1.71*	-1.250E-03	-0.20
Relative Size		0.013	0.57	0.020	0.88			0.026	1.14	-0.009	-0.30	0.055	0.96
<u>Country Effects</u>													
US	-	-0.037	-2.44**							-0.064	-2.15**	-0.034	-1.96**
Other Country	-	-0.033	-1.43							-0.016	-0.60	-0.036	-1.11
Public * US	-			-0.029	-1.05								
Public * Other Country	-			0.002	0.10								
Private * US	-			-0.044	-2.93***								
Private * Other Country	-			-0.049	-1.72*								
<u>Payment Method</u>													
Shares	-	-0.049	-2.69***							-0.035	-1.65*	-0.064	-1.72*
Mixed	-	-0.023	-1.76*							-0.022	-0.99	-0.018	-0.92
Shares * Public	-			-0.015	-0.65								
Mixed * Public	-			-0.002	-0.08								
Shares * Private	-			-0.070	-2.28**								
Mixed * Private	-			-0.026	-1.63								
Shares * Private * US	-							-0.219	-2.34**				
<u>Market / Industry Variables</u>													
Year dummies		Yes		Yes		Yes		Yes		Yes		Yes	
Industry dummies		Yes		Yes		Yes		Yes		Yes		Yes	
Lambda								0.097	1.74*				
<u>Model Diagnostics</u>													
Number of Observations		736		736		736		736		270		466	
Adjusted R ²		0.123		0.121		0.349		0.349		0.188		0.150	

Table 7. (Continued)

	Predicted Sign Based on Studies of Post-Announcement CARs	Model 6		Model 7		Model 8		Model 9		Model 10	
		Canada Target Only		Canada Public Target Only		Canada Private Target Only		US Target Only		Other Country Target Only	
		Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Constant		0.315	5.98***	0.073	0.77	0.203	3.92***	-0.106	-1.08	0.245	1.04
<u>Firm Characteristics</u>											
Private	-	-0.043	-2.92***					-0.015	-0.47	-0.052	-0.61
VC-Backed Target	+	0.033	0.54			-0.016	-0.42	0.126	1.41	0.152	1.79*
Leverage of acquirer	-	-0.001	-0.47	-0.001	-0.31	0.002	0.64	0.004	0.66	-0.002	-0.29
Diversifying	-	-0.019	-0.59	-0.051	-1.62	0.033	0.49	-0.016	-0.46	-0.136	-2.83***
Standard Error of Equal Weighted Market Model	-	-1.101	-2.09**	-0.795	-0.76	-1.008	-1.25	-1.244	-1.08	-2.441	-0.79
Tobin's q	-	-0.016	-4.01***	-0.002	-0.35	-0.022	-2.38**	-0.014	-1.28	-0.029	-2.23**
Number of institutional holders of acquirer		-2.476E-04	-1.50	-6.804E-04	-2.55**	2.129E-04	0.73	-2.470E-05	-0.06	-1.148E-03	-1.27
Institutional Investors and Target Same Country	-	0.071	2.23**	0.114	2.22**	0.023	0.84	0.005	0.18	-0.100	-1.46
Log Assets		-9.138E-03	-2.06**	-1.167E-02	-1.74*	2.275E-03	0.26	-2.246E-03	-0.22	-2.840E-02	-1.24
Relative Size		0.014	0.70	-0.011	-0.31	0.066	2.13**	0.140	1.29	-0.109	-1.52
<u>Payment Method</u>											
Shares	-	-0.053	-2.40**	-0.043	-1.78*	-0.117	-3.29***	-0.070	-2.36**	0.107	0.94
Mixed	-	-0.018	-0.96	-0.031	-1.17	-0.004	-0.12	-0.011	-0.29	-0.074	-1.48
<u>Market / Industry Variables</u>											
Year dummies		Yes		Yes		Yes		Yes		Yes	
Industry dummies		Yes		Yes		Yes		Yes		Yes	
<u>Model Diagnostics</u>											
Number of Observations		457		217		240		196		83	
Adjusted R ²		0.140		0.263		0.150		0.220		0.523	

Table 7 (continued)

	Predicted Sign Based on Studies of Post- Announcement CARs	Model 11 Shares Only		Model 12 Mixed Only		Model 13 Cash Only	
		Coefficient	t- statistic	Coefficient	t- statistic	Coefficient	t- statistic
Constant		-0.023	-0.18	-0.027	-0.16	0.299	3.52***
<u>Firm Characteristics</u>							
Private	-	-0.065	-1.15	-0.016	-0.33	-0.044	-1.89*
VC-Backed Target	+	0.336	1.05	-0.141	-1.11	0.119	2.90***
Leverage of acquirer	-	-0.003	-1.24	-0.004	-0.90	0.002	0.61
Diversifying	-	-0.013	-0.43	0.004	0.13	0.027	0.09
Standard Error of Equal Weighted Market Model	-	-0.743	-0.44	-0.445	-0.20	-1.407	-1.19
Tobin's q	-	-0.023	-	-0.003	-0.32	-0.017	-
Number of institutional holders of acquirer		-7.592E-04	-1.39	-3.650E-05	-0.06	-3.479E-04	-1.85*
Log Assets		0.014	1.68*	0.012	0.74	-0.009	-1.61
Relative Size		0.004	0.12	-0.005	-0.14	0.025	0.71
<u>Country Effects</u>							
US	-	-0.112	-2.41**	-0.021	-0.49	-0.037	-1.51
Other Country	-	0.075	1.25	-0.073	-1.73*	-0.021	-0.61
<u>Market / Industry Variables</u>							
Year dummies			Yes		Yes		Yes
Industry dummies			Yes		Yes		Yes
<u>Model Diagnostics</u>							
Number of Observations			149		207		380
Adjusted R ²			0.343		0.182		0.131

Table 8. Robust Checks with Alternative Dependent Variables

This table presents OLS regression analyses of value-weighted CARs (Model 14), CARs from the composite index (Model 15), and the number of transactions (Model 16) of the acquirer firm for -40 days to -2 days prior to acquisition announcement. Explanatory variables are as defined in Table 1. Standard errors are two-way clustered by acquiring firm and year following Petersen (2009). *, **, *** Significant at the 10%, 5% and 1% levels, respectively.

	Model 14		Model 15		Model 16	
	Value Weighted	t-statistic	Composite	t-statistic	Number Transactions	t-statistic
Constant	0.143	2.58**	0.138	2.42**	-7635.099	-1.70*
<u>Firm Characteristics</u>						
Private	-0.027	-1.77*	-0.027	-1.73*	-758.304	-7.02**
VC	0.110	1.86*	0.108	1.73*	1515.131	1.20
Leverage of acquirer	-0.001	-0.55	-0.001	-0.66	140.512	1.04
Diversifying	-0.020	-1.25	-0.020	-1.27	280.155	0.74
Standard Error of Equal Weighted Market Model	-1.196	-1.79*	-1.142	-1.75*	12597.190	0.53
Tobin's q	-0.016	-3.55***	-0.015	-3.06***	664.941	2.73***
Number of institutional holders of acquirer	-1.801E-04	-0.97	-1.929E-04	-1.06	9.224	1.29
Log Assets	-2.994E-03	-0.94	-2.796E-03	-0.91	924.746	2.16**
Relative Size	0.014	0.48	0.016	0.55	-143.470	-0.13
<u>Country Effects</u>						
US	-0.031	-2.06**	-0.029	-1.88*	338.799	0.52
Other Country	-0.023	-1.11	-0.022	-1.01	1044.104	0.75
<u>Payment Method</u>						
Shares	-0.023	-1.36	-0.021	-1.25	-214.887	-0.41
Mixed	-0.013	-1.07	-0.013	-1.08	39.894	0.10
<u>Market / Industry Variables</u>						
Year dummies	Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes	
<u>Model Diagnostics</u>						
Number of Observations	736		736		736	
Adjusted R ²	0.124		0.120		0.198	

Figure 1. Mean Runup CARs for Canadian targets by method of payment

This Figure presents mean runup CARs for Canadian acquirers and both private and public Canadian targets by stock, cash and mixed method of payment for the event window -40 to +30 days.

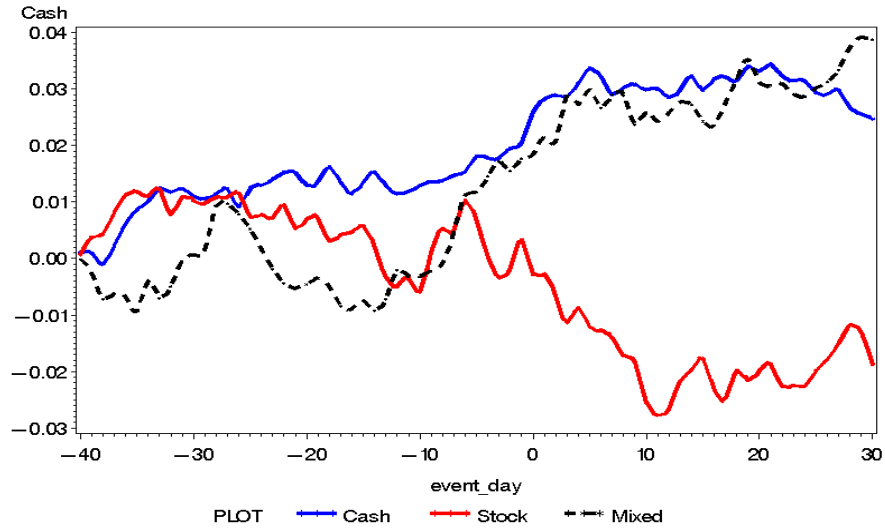


Figure 2. Mean Runup CARs for Canadian public targets by method of payment

This Figure presents mean runup CARs for Canadian acquirers and Canadian public targets by stock, cash and mixed method of payment for the event window -40 to +30 days.

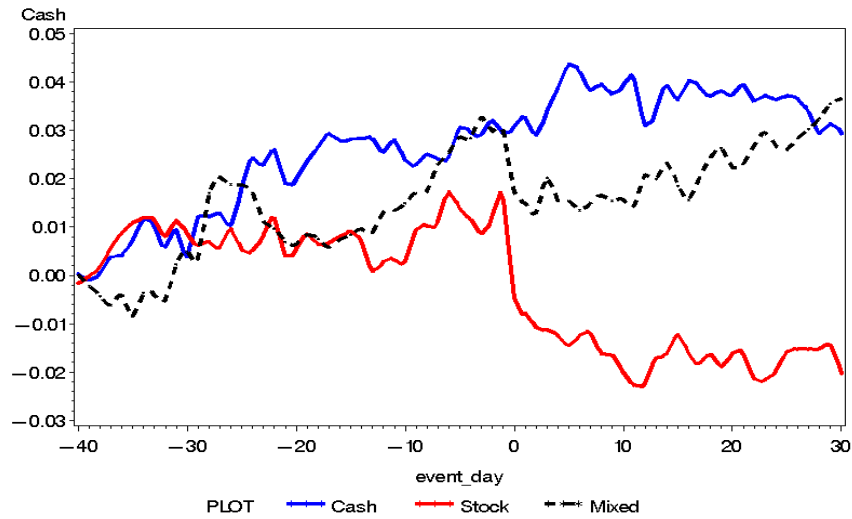


Figure 3. Pre-announcement for US targets by method of payment

This Figure presents mean runup CARs for Canadian acquirers and US public and private targets by stock, cash and mixed method of payment for the event window -40 to +30 days.

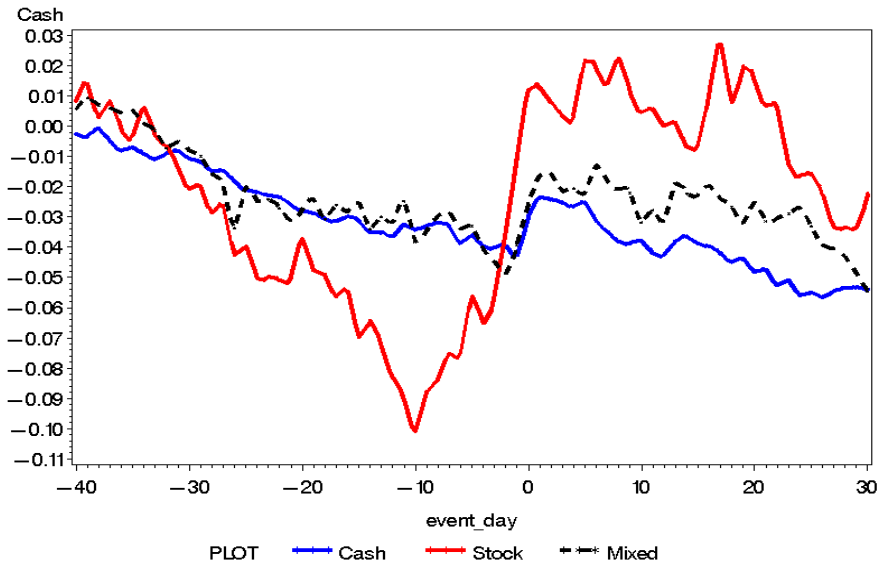


Figure 4. Pre-announcement for US private targets by method of payment

This Figure presents mean runup CARs for Canadian acquirers and US public targets by stock, cash and mixed method of payment for the event window -40 to +30 days.

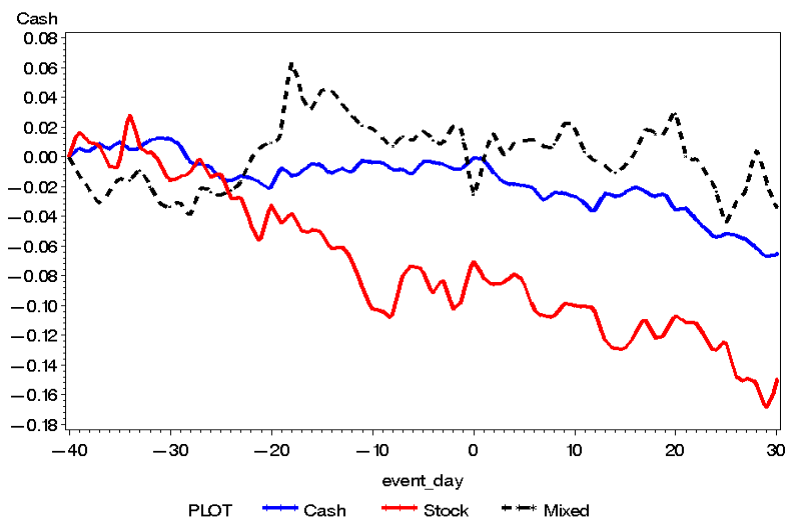


Figure 5: Mean Runup CARs for U.S. Private Targets by Quintile

This Figure presents mean runup CARs for Canadian acquirers and US private targets by stock for quintiles sorted for announcement day returns, for the event window -40 to +30 days.

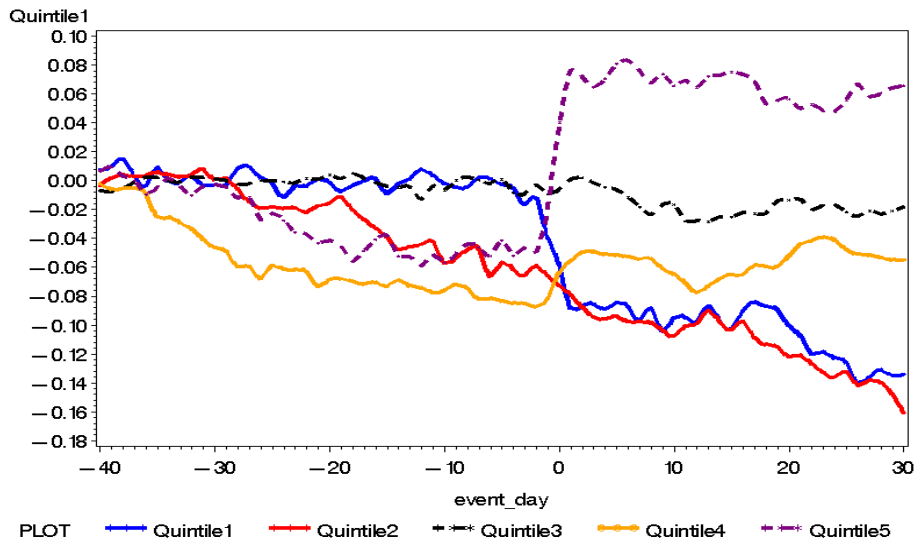


Figure 6: Mean Runup CARs for Firms Acquiring Targets Financed by Venture Capital Financed

This Figure presents mean runup CARs for Canadian acquirers and US private targets that were venture capital-backed for the event window -40 to +30 days.

