

# **Are Private Targets Better Buys?**

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November 15, 2011

We thank Houlihan Lokey for providing the data used in this research. We thank the workshop participants at Northwestern for helpful comments and the Accounting Research Center at the Kellogg School for financial support.

## Abstract

Acquirers of publicly-traded targets earn, on average, negative announcement-period abnormal returns while acquirers of private targets earn positive announcement-period abnormal returns. Motivated by this finding, this paper examines whether private targets are either “cheaper” relative to their stand-alone values or that they generate higher synergies (or both). Using a novel dataset that includes estimates of the fair value of the targets’ purchased assets, we find that private targets, while commanding higher premiums over the fair values than public targets also result in higher synergies. In addition, the variance of private target synergies is also much larger than the synergies involving public targets. Finally, we examine whether our results are driven by the method of payment and find that they are not. There is no difference in the synergies of private and public targets purchased with cash whereas private targets purchased with stock, are worse deals, on average, than public-target-stock acquisitions.

## 1. Introduction

Prior research documents that acquirers of publicly traded targets earn, on average, negative announcement-period abnormal returns (Jensen and Ruback ,1983 ; Jarrell, Brickley, and Netter, 1988; Loughran and Vijh, 1997; Andrade, Mitchell, and Stafford, 2001; Moeller, Schlingemann, and Stulz, 2005), while acquirers of private targets earn positive announcement-period abnormal returns (Fuller, Netter, and Stegemoller, 2002; Moeller, Schlingemann, and Stulz ,2004; Faccio, McConnell, and Stolin, 2006; Chang 1998; Poulsen and Stegemoller, 2008). These results suggest that private targets are either “cheaper” relative to their stand-alone values or that they generate higher synergies (or both).

Prior research has not resolved either of those questions. Specifically, the evidence on whether private targets are indeed cheaper critically depends on the method used to assess the private firms’ stand-alone values. Officer 2007 reports that transaction multiples based on accounting information are higher for private companies, suggesting that indeed private targets are more expensive. At the same time, matching private targets with a sample of public targets of similar size that were acquired around the same time and operate in the same industry, results in a much higher stand-alone value (Officer 2007, Koeplin, Sarin, and Shapiro ,2000; Kooli, Kortas, and L’Her 2003), resulting in the opposite conclusion namely that private targets are cheaper. Moreover, to the best of our knowledge, prior research has not addressed the question of whether these higher returns result from higher synergies in public-private acquisitions.

Our analysis relies on a novel dataset that includes estimates of the fair value of the targets’ purchased tangible and identifiable intangible assets. These estimates are likely to provide more reliable assessments of the stand-alone values of non-public targets. Our results, robust across multiple sensitivity checks, indicate that private targets, while commanding higher premiums over the fair values than public targets, also result in higher synergies. These results indicate that, while private targets are more expensive relative to their stand alone values, those costs are more than offset by higher

synergies. However, while on average the synergies are higher acquisitions where the targets are private, their variance is also much larger than the synergies involving public targets.

We begin our analysis by comparing the asset premiums across private and public targets to determine whether acquirers pay higher premiums when acquiring private targets. We use the *fair value* of the target's assets acquired as the benchmark to calculate the (acquisition) *asset premium*. Our results indicate that acquirers pay higher premiums paid for private targets, that is that private targets are more expensive.

We then estimate the overall synergies in mergers involving both private and public targets as the sum of the target and acquirer wealth effects. Because the market value of private targets is unobservable, we measure the wealth effect for the target using the asset premium. In a preliminary step, we perform a construct validity test of our measure, by comparing the asset premium and the target wealth effect for public targets. We find an economically and statistically significant correlation. Using our measure of synergies, we find that the overall synergies as a percentage of the fair value of the target assets are equal on average for private and public targets. When conditioning on the sign of the synergies, however, we find that deals involving private targets have both higher synergistic gains and higher synergistic losses. In addition, when examining the synergies' division between the shareholders of the target and the acquiring firms, we find that the acquiring firm shareholders receive a larger share of the synergies when the target is private.

Our synergy estimates are based on a market efficiency assumption. We consider two issues related to this assumption. First, in the case of private targets, although market prices may be on average unbiased, investors may find an individual private target difficult to value due to lack of information. We examine the volatility of the estimated synergies and find that it is lower for acquisitions involving public targets than it is for those involving private targets. In addition, we examine the relation between information asymmetry and estimated synergies within deals involving private and

public targets. Because the level of a firm's asymmetric information is not directly observable, we measure asymmetric information by firm size (Vermaelen, 1981; Diamond and Verrecchia, 1991)—in our case the fair value of the assets. We find that the volatility of synergies is monotonically decreasing in the target size.

Second, prior literature has found that acquirer returns in the announcement period and up to five years after closing are higher for cash deals than for stock acquisitions (e.g., Fuller et al., 2002; Shleifer and Vishny, 2003; Jensen 2005; Moeller et al., 2005; Lehn and Zhao, 2006). However, while we find that there is no difference in the overall synergies created across acquisitions of private and public targets for cash deals, we do find higher synergistic gains for acquisitions involving private targets' than public targets for stock and for deals where the consideration is mixed.

Having analyzed the expected synergies, which reflect the market ex-ante expectations of deal success, we study the ex-post operating performance of the combined firm. Our results indicate that the performance of the combined firm in the five years following the acquisition is higher when the target is private. Our results show that the change in ROA due to the acquired assets is higher when the target is private than when it is public. In addition, we find a statistically significant relation between both the acquirer announcement return and the asset premium and the change in ROA due to the acquired assets.

Finally, we repeat the above analysis, partitioning on the method of payment. We find that, for cash deals, acquisitions of private targets are better deals on average than acquisitions of public targets. In addition, there is no difference in the post-acquisition realization of synergies across private and public targets, consistent with our ex ante estimation. Private targets purchased with stock, on the other hand, are worse deals on average than public-target-stock acquisitions. Synergies estimated for acquisition of private targets paid by stock have a lower ex post realization in terms on operating

performance than public deals paid for by stock. This is consistent with the ex ante overstatement of synergies by the market for stock deals.<sup>1</sup>

Our paper makes several contributions to the literature. We establish a more reliable metric to compare private and public deals. The above procedure is different from the traditional comparables method—comparing acquisition multiples for unlisted targets to average trading multiples for all comparable publicly traded firms or comparable public targets that has been used and discussed extensively in the literature (e.g., Boatsman and Baskin, 1981; Alford, 1992; Berger and Ofek, 1995; Kaplan and Ruback, 1995; Kim and Ritter, 1999; Gilson, Hotchkiss, and Ruback, 2000, Officer, 2007).

Also, we are the first to compute synergies created in deals involving private targets. Prior literature (Bradley, Desai and Kim, 1988; Kaplan, 2006; Bruner, 2004) has focused exclusively on public targets. Finally, we offer an alternative explanation for the high announcement returns for acquisitions of private targets, namely the higher synergies generated in these deals.

There are several caveats to this research. First, estimates of the fair market value of the target's identifiable net assets are subject to measurement error, which could confound our results. Second, we compute estimated synergies using the difference between the consideration paid and the fair value of net assets acquired; this calculation is affected by any estimation errors in the fair value of the acquired assets. Third, our use of market returns during the acquisition period to estimate the synergies is based on market efficiency.

The next section of the paper provides our research design. Section 3 places this work in the context of prior research. Section 4 describes the data, and section 5 discusses the tests and empirical results. Section 6 summarizes and concludes.

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<sup>1</sup> Our results for private targets purchased with stock are consistent with Louis (2011).

## 2. Research Design

### 2.1 Asset Premium (AP)

An analysis such as ours must begin by identifying an appropriate metric against which to compare the purchase price when calculating the premiums or discounts paid. Because market values are not available for private targets, we use the fair value of the assets purchased (including the value of the liabilities assumed) as a proxy for the “stand alone value” of the targets.

We collect the information about the value of the assets acquired from the disclosures made by public acquirers. SFAS #141 (*Business Combinations*, 2001) and SFAS #142 (*Goodwill and Other Intangible Assets*, 2001) require an acquiring firm to disclose the fair market value of a target’s identifiable net assets, which exclude any synergies. We define the difference between the purchase price of the equity and the fair value of the assets is defined as the asset premium:

$$\text{Asset premium (AP)} = \text{purchase price (PP)} - \text{fair value of net assets acquired} \quad (1)$$

Where:

Purchase price (PP) = amount paid for the target’s equity (i.e., the target net assets)

We also define the asset premium ratio as:

$$\text{AP ratio} = \text{purchase consideration/fair value of assets acquired} \quad (1a)$$

Where:

Purchase consideration (PC) = amount paid for the target assets, equal to the sum of asset premium and the fair value of assets acquired.

The AP ratio allows us to compare the premium across targets with different capital structures and does not depend of the amount of liabilities assumed in the acquisition.

SFAS #141 came into effect in mid 2001. It requires a level of detailed disclosure regarding the fair value of the acquired assets that far exceeds what was previously disclosed. It, for example, requires that the purchase price in a business combination be allocated “to the assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition” (par. 35).

## 2.2 Estimating Synergies

For a given acquisition, synergies created in a business combination are computed as the difference between the market value of the post-merger combined firm and the market value of the acquirer and the fair value (i.e., the stand-alone value) of the target. Fair value represents the net present value of the assets' expected future cash flows and includes not just the recorded assets on the target's books but also all sources of future cash flows. Synergies are combination dependent; for a given target, synergies are likely to differ across bidders.

There are several potential sources for synergies, including more efficient management, combination of complementary resources, economies of scale, improved production techniques, redeployment of assets to more profitable uses, or exploitation of market power. Synergies can be positive or negative. Positive synergies imply that the value of the combined entity is greater than the sum of the two stand-alone companies. In contrast, negative synergies imply that the sum of the stand-alone fair values of the acquirer and the target's net assets is greater than the combined value of the merging firms.

Prior literature (e.g., Bradley, Desai, and Kim, 1988) has estimated total synergies as the sum of the change in wealth of the stockholders of the target and acquiring firms. This change in the wealth is measured using the change in market value of the target and acquiring firms.

$$SYN = \Delta W_A + \Delta W_T \quad (2)$$

$\Delta W_T$  represents the portion of synergies that were captured by target shareholders, while  $\Delta W_A$  reflects the portion of the synergies that are retained by the shareholders of the acquiring firm. Each of the wealth effects can be either positive or negative.



In the case of private targets, the information concerning the change in market value is not available. We therefore use the asset premium instead. Our measure of synergies is therefore<sup>2</sup>:

$$SYN = \Delta W_A + AP \quad (3)$$

By measuring the target's wealth effect as the asset premium, we implicitly assume that the value of the target firm prior to the acquisition is approximately the fair value of its assets. Put differently, if the equity shareholders of the target were to realize their investment before the acquisition, they would have received the value of the target's assets. In addition, to sum up the target and acquirer wealth effects, we assume that equity shareholders of the acquiring firm consider the fair value of the net assets acquired when setting up the price of the acquirer's stock. This condition holds in reality because in many cases the preliminary information about the fair value of the assets acquired is released before the deal closing date.<sup>3</sup> As a construct validity test, we repeat our analyses by also estimating synergies for publicly traded targets using equation (3).

### 3. Prior Research

Our research builds on three streams of research. The first examines the acquirer's announcement return for acquisitions of private targets compared with those of public targets. Fuller, Netter, and Stegemoller (2002) find positive abnormal announcement returns in a sample of repeat acquirers of private targets, as do Moeller, Schlingemann, and Stulz (2004) in a large, relatively unrestricted sample and Faccio, McConnell, and Stolin (2006) in non-US acquirers. Other papers find a

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<sup>2</sup> Note that under SFAS #141, the asset premium (goodwill) cannot be negative. However, the target wealth effect is unlikely to be negative as well.

<sup>3</sup> In rare and infrequent cases, the fair market value of the target's identifiable net assets exceeds the purchase price paid. During our sample period, SFAS #141 required that the excess of the fair market value of the target's identifiable net assets (FMVINA) over acquisition cost of the target decreases acquired assets *pro rata*. After reducing to \$0 the amounts that would have been allocated to the acquired assets, any remaining excess (i.e., negative goodwill) was recognized as an extraordinary gain. There are no transactions with negative accounting goodwill, and the resulting extraordinary gain, in our sample.

relation between the method of payment and acquirer returns. Chang (1998) shows that acquirers benefit when the owners of closely held private targets become block holders of the acquirer in stock acquisitions. Officer, Poulsen, and Stegemoller (2009) find that the acquirer's use of stock as a method of payment mitigates the negative effects of information asymmetry on acquirers and results in positive announcement returns. However, despite considerable investigation into the source of such gains, there is little understanding of why takeovers of nonpublic targets result in positive returns for acquirers while acquisitions of publicly traded targets do not.

A second stream of research investigates "the private firm discount." If such a discount exists, then acquirers may be able to buy private firms at a substantial discount relative to public firms, and thus it receives a more advantageous split of the value among the merging firms. Koeplin, Sarin, and Shapiro (2000), for example, find that acquirers receive an average discount of 18 percent (book multiples) or 20–30 percent (earnings multiples) when purchasing private firms compared with equivalent public firms. Kooli, Kortas, and L'Her (2003) find a median discount of 20 percent (cash flow multiples) and 34 percent (earnings multiples). Officer (2007) documents average acquisition discounts for stand-alone private firms and subsidiaries of other firms (unlisted targets) of 15% to 30% relative to the multiples for comparable publicly traded targets. His results point to a demand for liquidity on the part of target firms' shareholders. He also finds that corporate parents are significantly liquidity-constrained before the sale of a subsidiary, particularly in cases where they choose to sell a subsidiary for cash. Furthermore, acquisition discounts are significantly greater when debt capital is relatively more expensive to obtain and when the parent firm has below market stock returns in the 12 months before the sale.

Yet, these studies have methodological limitations, the most important of which is that private firms have no observable price to serve as an objective measure of market value, which complicates the

measurement of acquisition discounts.<sup>4</sup> To overcome this problem, prior researchers have used size, industry membership, and time period to match the private targets with comparable public ones. Yet size and industry membership might not be sufficient to establish comparability (Graebner and Eisenhardt, 2004; Shen and Reuer, 2005).

The third stream of research investigates synergies and their division among the merging firms. Bradley, Desai, and Kim (1988) show that bidding wars increase the returns to targets and decrease the returns to acquirers. They find that changes in the legal environment of tender offers have had no impact on the total (percentage) synergistic gains created but have significantly affected their division between the stockholders of the target and acquiring firms. In the case of private targets, bidders face lower competition. The lack of visibility, transparency, and market price associated with private firms creates frictions in the purchases of these companies. Acquisitions of public and private firms also involve different negotiation processes, which affect each party's bargaining power. The selling of public targets is typically auction-like, and these contests are more likely to attract multiple entrants (Milgrom, 1987). In contrast, private targets are typically sold through negotiations based on voluntary exchange (Koeplin et al., 2000). Although a private target can contact many bidders and promote an auction-like atmosphere, it often lacks financial resources and social connections with reputable investment bankers to do so. Moreover, private sellers often have different motivations than public sellers. Graebner and Eisenhardt (2004) find that private sellers often consider dealing with a preferred buyer more important than creating competitive bidding. Cultural fit or employee welfare are often more important in their selling decision than the price per se (Graebner and Eisenhardt, 2004). In contrast, governance-based mechanisms in public firms, such as shareholder litigation, exert pressure on directors and managers to foster bidder competition in order to find the best purchase price for their shareholders (Thompson and Thomas, 2004).

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<sup>4</sup> Another limitation is that these studies typically do not consider the cost of going public as an alternative to obtaining liquidity.

## 4. Sample and Summary Statistics

### 4.1 Sample

Our sample consists of 1,604 100% acquisitions by U.S. publicly traded firms in the period 2002 – 2006 of public or private targets.<sup>5</sup> Of these, 1,169 are acquisition of private targets, while 435 are acquisitions of public targets. To be included in the sample, a firm had to disclose enough information regarding its acquisition so that the purchase consideration could be calculated. As a result, there is a presumption that the acquirer considered the acquisition material. For this reason, we did not impose a relative size requirement on the target despite our concern about the impact of relatively small acquisitions on our empirical results. We exclude targets that are subsidiaries.

Table 1, Panels A and B, provides descriptive statistics of accounting information for the acquirer and target firms respectively. The information refers to the last twelve months before the acquisition announcement. As private targets are not required to disclose their financial information, some of the accounting information is missing for private targets. The acquiring firms are larger on average with mean (median) total assets of \$3.6 billion (\$489 million) compared with a mean (median) size of \$790 (\$103) million for targets. Acquirers also are on average larger in terms of revenue and are more profitable.

Panel C details the information for the target firms by their status (public or private). Public targets are larger on average with mean (median) total assets of \$1.3 billion (\$228 million) compared with a mean (median) size of \$119 (\$23) million for private targets. The profitability of private targets is also substantially lower than that of public ones.

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<sup>5</sup> We thank Houlihan Lokey for providing the original data set which comprises 2,708 transactions identified from Mergerstat. We first matched the sample with CRSP based on CUSIP and company name. The resulting sample had 2,436 observations. We further merged the sample with COMPUSTAT based on the merged CRSP COMPUSTAT file, resulting in 2,123 observations. Finally, excluding targets that are subsidiaries results in 1,608 observations.

## 4.2 Asset Premiums

Table 2 Panel A presents characteristics of the sample business combination transactions. The mean (median) deal size is \$467 (\$62) million with a range of \$5 million to \$2 billion. The mean (median) AP ratio is 2.27 (1.76) with a range of 1 to 5.23. Panel B reports the consideration and AP by target status as well as the allocation of the purchase consideration among all the acquired assets. The mean (median) percentage of the total consideration allocated to asset premium is 34% (29%) for public targets and 44% (47%) for private ones. Although the premium is computed as a residual in the purchase price allocation process, these statistics suggest that it is often a significant component of the total price paid.

Panel C details the method of payment by the target status. For 261 observations in our sample, some portion of the method of payment is not disclosed—for 237 observations there is no disclosure at all, while for 24 observations a component of the method of payment is not disclosed.<sup>6</sup> We therefore omit 254 observations for which at least 50 percent of the method of payment is not disclosed from the sample. The remaining 1,350 transactions are classified in the table. A higher percentage of the acquisitions of public targets are carried out more in stock (37%) than in cash (31%), while a substantially higher percentage of the acquisitions of private targets are carried out more in cash (47%) than in stock (10%).

## 4.3 Acquirer Announcement Returns by Target Status

Table 3 presents the results of the acquirer announcement return by target status. Panel A shows the announcement returns in different windows. CR (-5A,+1A); CAR (-5A,+1A) are the cumulative return (CR) and the cumulative abnormal (CAR) announcement return respectively, from 5 days prior to the announcement day (-5A) to one day after the announcement day (+1A). We find higher short-

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<sup>6</sup> For seventeen out of the 24 the undisclosed portion that exceeds 50 percent of the deal value.

window announcement returns for acquisitions of private targets, consistent with prior literature (Chang, 1998).

CR (-5A,+1C); CAR (-5A,+1C) are the cumulative return and the cumulative abnormal return from five days prior to the announcement (-5A) to one day after deal completion (+1C) respectively. We find a higher abnormal return for deals involving private targets but not raw returns. This finding is consistent with the different durations of private and public deals from announcement to completion. In our sample, the duration is substantially shorter for private deals (27 days compared with 93 days).

Table 3 Panel B shows information regarding the overpayment and underpayment in the deals. We define overpayment or underpayment according to the sign of CR (-5A,+1C). We find a similar frequency of underpayment in private (59 percent) and public (57 percent) deals. Also, as can be expected, the average asset premium ratio for cases of overpayment is larger, consistent with a higher purchase consideration compared with the stand-alone value of the target's assets. Finally, the acquirer returns calculated using the four different variations above show similar pattern across public and private targets.

## **5. Methodology and Results**

### **5.1 Estimated Synergies**

As previously noted, we estimate the synergies generated in the business combination as the sum of the acquirer and target wealth effect, where the latter is measured as the asset premium. We consider two main issues in the calculating of the acquirer wealth effect. The first issue is the length of the estimation window. One alternative is to use the change in the acquirer's market value during a short window around the earliest announcement of the acquisition, thus basing the estimate on the market's initial reaction to the news. Measuring the return over a several day (3 to 7 days) window around the announcement as either the raw return or the abnormal return generally results in comparable inferences. The cumulative raw (or abnormal) return over the short window is multiplied

by the market value of the acquirer's equity 30 days before the announcement to avoid any contamination of the price from the leakage of information about the acquisition. An increase (decrease) in the acquirer's stock price in the event window indicates underpayment (overpayment). The main advantage of this approach is that it includes the market reaction only to acquisition-related news. The disadvantages of this approach are that includes the probability of deal completion, which is likely to differ across our sample firms. Prior research has shown that it is larger for private targets than for public targets (Fuller et al., 2002). In addition, it excludes any future changes in the transaction structure or the terms of the deal (Larcker and Lys, 1987). On the other hand, to the extent that the market assigns a positive probability that the outstanding offer will be topped by a higher-valued bid, the measure will be an overestimate.

The second alternative is to compound the acquirer's stock price returns over the long window from the first announcement of the deal through completion of the acquisition and multiply this cumulative return by the pre-acquisition stock price of the acquirer. This approach incorporates changes in the deal terms and incorporates 100% probability of deal completion. However, it also introduces noise in the form of non-acquisition related news, which may affect the acquirer's stock price, and thus contaminates the computation of the announcement return. This is especially true in the case of private targets, where the value of the acquired target is relatively small compared with the value of the acquirer. At the same time, in case of private targets, the length of time from announcement to completion is likely to be substantially shorter.

The second issue is the choice of raw vs. abnormal returns. The arguments for using abnormal returns (e.g., market-adjusted returns) are well known: we want to capture the returns related to the event of interest and exclude any overall market movement. On the other hand, when there is a market-wide increase in prices, this would not only affect the announcement return but also the asset

premium, because the market-wide increase may result in a higher total consideration. Thus using abnormal returns might inflate our overall measure of synergies.<sup>7</sup>

After weighing the advantages and disadvantages, we calculate the acquirer wealth effect using the long-window approach and raw returns. We add them to the difference between the price paid and the target's net assets to estimate the overall synergies:

$$SYN = W_{Ai} \times CRA_i + AP \quad (3a)$$

Where:

- $W_{Ai}$  = market value of the acquiring firm as 30 days before the first announcement made by the acquiring firm,  
 $CRA_i$  = Compounded raw return to the acquiring firm from five trading days before the announcement of the first offer made by the firm through five trading days after the completion of the business combination.

We perform several robustness checks on our results by computing the acquirer's wealth effect based on short window returns (calculated as the cumulative return to the acquirer from five days prior to the announcement date until one day after the announcement date multiplied by the acquirer's market value of equity 30 days prior to the announcement date) as well as computing both long and short window returns using abnormal (defined as size-adjusted) returns. The results from these sensitivity tests (untabulated) are not significantly different from those reported. One reason for the robustness of the results is the high correlation between announcement returns calculated using long- and short-window returns. In summary, our main inferences do not change across the various measures of the acquirer's wealth effect.

Our synergies estimation assumes market efficiency, specifically, that investors assess the economic impact of the acquisition on the acquirer in an unbiased manner. We consider two issues

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<sup>7</sup> A third approach would be to cumulate the returns/abnormal returns over event days with significant deal-related news (see Lys and Vincent, 1995). However, given the extensive sample size, this approach is very difficult to implement.



related to this assumption. First, in the case of private targets, although the market is efficient on average, investors might find a particular private target difficult to value due to the high level of information asymmetry. We expect the volatility of synergies to be higher in this case. Second, in the case of stock acquisitions, prior research has shown that, in stock deals, the market overreacts to the acquisition news and corrects itself in the long run. As a result, our measure of synergies might be inflated in the case of stock deals. We therefore also control for the method of payment in our calculation.

### 5.1.1 Asset Premium and Wealth Effect for Public Targets

As discussed above, to calculate the synergies for private targets, we substitute the target wealth effect with the asset premium. To validate this measure, we compare the asset premium with the wealth effect for public targets. In the case of public targets, both the measures can be computed.

To estimate the relationship between the asset and market premium formally, we run the following regression:

$$AP_t = \beta_0 + \beta_1 \text{Announcement Return}_{i,t} + \varepsilon_t \quad (4)$$

We expect  $\beta_1$  to be 1. However, because the asset premium might contain error,  $\beta_1$  might be attenuated towards zero. To determine the coefficient upper and lower bounds, we also estimate the reverse regression:

$$\text{Announcement Return}_{i,t} = \beta_0 + \beta_1 AP_t + \varepsilon_t \quad (4a)$$

Where:

- AP = Asset premium deflated by the market value of the target firm 30 days before the announcement.
- Announcement Return = The return of the target firm around the announcement of the acquisition where  $i = CR (-5A,+1C)$  or  $i = CAR (-5A,+1C)$
- CR (-5A,+1C) = Cumulative return between five days before the announcement and one day after the closing date.
- CAR (-5A,+1C) = Cumulative abnormal return between five days before the announcement and one day after the closing date.

Table 4 presents the results. Panel A presents descriptive statistics, while Panel B includes the regression estimation. We rank the sample into quintiles based on the compounded announcement to completion raw return- between five days before the announcement to one day after the completion<sup>8</sup>. We compare the announcement return with the asset premium deflated by the market value of the target firm 30 days before the announcement. We include both the long window (announcement to completion) as well as the short window (announcement only) returns. All these measures exhibit a monotonic correlation with the asset premium. We find a monotonic relation between the several measures of announcement returns and the asset premium.

Table 4 Panel B presents the results of estimating equation (4). The coefficient of regressing the asset premium on the announcement return is 0.631 and is significantly different from zero. Regressing the announcement return on the asset premium results in a coefficient of 0.2. This suggests that the bounds for  $\beta_1$  are 0.631 and 5 ( $=1/0.2$ ), which is consistent with our expectations. Using the abnormal return instead of the raw return yields similar results.

### 5.1.2 Synergies by Target Status

Table 5 Panel A presents the results of estimating synergies for public and private targets. We begin by calculating overall synergies. Panel A shows higher overall synergies for deals involving public targets. However, because deals involving public targets are larger than deals involving private targets, we deflate the estimated synergies by the fair value of the assets. We find that the average synergies are not different across public and private targets<sup>9</sup>. In addition, the percentage of deals with positive synergies is higher for public firms: 73% compared with 61%. The difference between these proportions

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<sup>8</sup> In some cases the announcement return is negative as a result of bidding wars. This is because we use the announcement date for the specific acquirer, and not the first bid for the target.

<sup>9</sup> The results of estimating the synergies using a short window show a significant difference in synergies.

is statistically significant ( $\chi^2=8.87$ ). This suggests that the likelihood of positive synergies is higher for deals involving public targets.

We then calculate the mean synergies conditionally on their sign. The average synergistic gains are higher for deals involving private targets than for deals involving public ones, suggesting that these deals are better on average. The average synergistic losses for deals involving private targets are not different than the ones for deals concerning public ones. This suggests that deals involving private targets result on average in more volatile synergies.

Table 5 Panel B presents the acquirer and target shares of total synergies by target status. We condition the analysis on the sign of the synergies. In the case of synergistic gains, the acquirer share of total synergies is calculated as the acquirer wealth effect deflated by total synergies. The target share is the asset premium deflated by total synergies. Our results indicate that, in the case of synergistic gains, the share of the total synergies that goes to the acquirer is larger for private deals (36%) than for public ones (12%). In the case of synergistic losses, the shares are calculated in the opposite way. The acquirer share in this case is the difference between the purchase price and fair value of the assets divided by the negative synergies, because any payment for negative synergies is considered an overpayment. We find in this case that the share of the acquirer is more negative when the target is public (-85%) than when it is private (-65%).

Table 5 Panel C examines the volatility of the synergies. We examine the mean and standard deviation of the synergies deflated by the fair value of the target's assets. We find a higher volatility for synergies of private target acquisitions. A potential explanation for the higher synergies for private target acquisitions is the high level of information asymmetry in these transactions. We use the value of the assets as a proxy for information asymmetry and rank the entire sample to quintiles based on it.

Table 5 Panel D presents the results. We find a monotonic relationship between the size of the target

and the volatility of synergies. This is consistent with the information asymmetry explanation of the higher synergy volatility for private targets.

### **5.1.3 Synergies by the Method of Payment**

Table 6 shows the estimation of synergies by method of payment and by target status. We find that there is no difference in the synergies created across acquisitions of private and public targets for cash deals. For stock deals, we find higher synergistic gains for private targets' acquisitions. For mixed deals, we find a higher level of synergies for acquisitions involving private targets. This suggests that the main differences in synergies across public and private targets are not driven by the method of payment.

## **5.2 Target Status and the Combined Firm Future Operating Performance**

This section examines the combined firm performance following an acquisition and compares that performance between private and public target companies. Having documented higher synergies for the deals involving private targets, we expect the future performance of private targets to be higher.

Table 7 presents information about the pre-performance of target firms as well as one- and five-year ahead operating performances of the combined firm post acquisition. Panel A shows on average higher operating performance following acquisitions of private targets but lower pre-acquisition income. Note that the pre-acquisition information about revenue and EBITDA is not available for all targets.

Panel B and C report this information separately for private and public targets. Panel B indicates that the performance of the combined firm following acquisition of public targets is not monotonic in the AP ratio. In contrast, Panel C reveals that the combined performance is monotonically increasing in AP ratio following acquisitions of private targets. The pre-acquisition information for private targets exhibits monotonicity in revenue but not in EBITDA.

Table 7 examines post-acquisition performance of the combined firm. However, this performance could be driven by the acquisition (i.e., the target assets acquired and synergies) or the acquirer pre-acquisition performance. In other words, because private targets are better deals, better performing acquirers might decide to acquire them. To distinguish between these two explanations, we regress the change in future performance around the acquisition on the assets acquired in the deal, as well as the change in the acquirer's pre-acquisition assets.

Specifically, we calculate the change in the operating performance as the difference between one in one- and five-year ahead EBITDA<sup>10</sup> and the EBITDA of the acquiring firm in one and five years before the consummation of the business combination. We then regress the future realized change in operating income ( $\Delta EBITDA$ ) on the fair value of the assets acquired plus the change in the assets held by the acquirer before the acquisition. We classify the assets acquired into tangibles (*TAN*), intangibles (*INTAN*), in process R&D (*IPR&D*), and asset premium (*AP*). For the acquired assets, we assume no opening balance, and therefore we use their value as of the acquisition date. The other assets of the acquirer, unrelated to the business combination, appear in a change form.

$$\begin{aligned} \Delta OPRET_{i,t+1,5} = & \beta_0 + \beta_1 P + \beta_2 AP + \beta_3 SYN + \beta_4 TAN + \beta_5 INTAN + \beta_6 IPRD \\ & + \beta_7 \Delta ACQASSETS + \beta_8 P \times AP + \beta_9 P \times SYN + \beta_{10} P \times TAN \\ & + \beta_{11} P \times INTAN + \beta_{12} P \times IPRD + \beta_{13} P \times \Delta ACQASSETS + \varepsilon_{t+1,5} \end{aligned} \quad (5)$$

Where:

- $\Delta OPRET_{i,t+1,5}$  = The change in EBITDA between the first  $n$  full fiscal years following the consummation of the business combination and the  $n$  years before the year of the business combination;  $n=1$  or  $5$ .  
EBITDA is earnings before interest, taxes, depreciation, and amortization for the first full fiscal year and the first two full fiscal years year following the year of the business combination
- $P$  = A dummy variable equal to one if the acquired target is a private firm
- $AP$  = Asset premium as part of the acquisition as of the date of the business combination
- $SYN$  = Total estimated synergies

<sup>10</sup> We use EBITDA rather than EBIT because depreciation and amortization are affected by the purchase price allocation decision

<i>TAN</i>	=	Tangible assets acquired as part of the business combination as of the date of the business combination
<i>INTAN</i>	=	Intangible assets acquired as part of the business combination as of the date of the business combination
<i>IPRD</i>	=	In-process research and development acquired as part of the business combination as of the date of the business combination
<i>ΔACQASSETS</i>	=	The change in total assets of the acquirer unrelated to the business combination, calculated as the acquirer's total assets as of the fiscal year-end of the year of the business combination (excluding the purchase consideration) and the total assets of the acquirer at the end of the year before the acquisition.

All variables are deflated by the acquirer's total assets at the end of the fiscal year of the acquisition. To facilitate easy interpretation of the marginal effect of private target on the change in future performance all the continuous variables in equation (5) have a zero mean.

We expect the coefficient on each asset category to be positive and significant. If acquisitions of private targets are better deals, we expect them to result in a higher increase in the acquirer's profitability. Because all the continuous variables have a mean zero, we would expect the indicator variable for private targets to be positive and significant.

We estimate equation (5) twice: once with asset premium (AP) and once with the total synergies of the deal (SYN). SYN is a better measure of the deal synergies than AP because AP proxies only for the target wealth effect and therefore captures the synergies that were paid for, while SYN sums up wealth effects and captures both synergies that were paid for and those that were not paid for. However, because our goal is to test whether future performance explains announcement returns, using SYN in equation (5) will result in a circular estimation. We therefore also estimate equation (5) with the AP.

Because we estimate equation (5) at the acquisition level, not at the firm level, and each acquirer might participate in multiple acquisitions, the residuals for acquirers of multiple targets might exhibit cross-correlation. We therefore report robust t-statistics, which are calculated using clustered standard errors by acquirer (see Rogers, 1993; Petersen, 2009).

Table 8 contains the results of the estimation of the association between the change in operating performance, following the business combination, and the assets acquired from acquisition of

private and public targets. Panel A reports the results for all firms, while Panel B and C repeat the analysis for cash and stock deals.

Panel A shows a positive and significant coefficient on the dummy for private targets in the one- and two-year window around the acquisition completion year, suggesting that the future performance of the combined firm is higher following these acquisitions. We find that the both AP, the amount of the synergies paid for, and SYN, the overall synergies created in the deal, are positively related with future performance. However, the coefficient on the synergies generated in private deals is lower on average: the interaction between SYN and the target status is negative and significant. The coefficient on TAN is also lower for acquisitions involving private targets.

Panel B shows the results for cash deals. The dummy for private targets is positive and significant at the 10% level, when SYN is included in the regression. This suggests that, for cash deals, private target acquisitions are better. In addition, the coefficient on the interaction between the target status and overall synergies is insignificant, suggesting that there is no difference in the synergies effect on future performance between private and public deals. This is consistent with our finding that they are similar in magnitude.

Panel C repeats the analysis for stock deals. Because only 10% of the private target acquisitions are carried out in cash, we require that the percentage of consideration paid in stock be higher than 75% to increase the power of the test. We find that the dummy on acquisitions of private targets is negative. This implies that acquisitions of private targets paid with stock are worse on average than similar acquisitions of public targets.

### **5.3 Asset premium, Acquirer Announcement Returns and Future Operating Performance**

Table 8 presented the relation between the change in operating performance and the change in the assets of the acquirer and the target. Using the regression estimated in Table 8, we calculate for each firm the predicted value from equation (5). We then report the change in ROA attributable to the

target’s assets and the change in ROA due to the change in the acquirer’s own assets. To assign the change in profitability to the acquirer and the target, we need to set the intercept in equation (1) to zero<sup>11</sup>. To do so, we set the mean of both the continuous and the dummy variables in equation (1) to zero.

Table 9 Panel A presents the mean change in ROA that is attributable to acquirer and target assets. Because all variables in equation (1) are zero mean, the change in performance is relative to the mean change in performance for the entire sample of firms. We find that acquisitions of private targets results in a relative increase in ROA for both the acquirer assets and the target assets in the five years following the acquisition. Acquisitions of public targets result in a relative reduction in ROA for both.

Panel B and C show the relative change in ROA attributable to the target and acquirer assets by quintiles of AP ratio for acquisitions of public targets. Panel B (Panel C) presents the results for public (private) targets. We find that for private targets, the return on the target’s assets as well as the overall combined EBITDA is monotonically increasing in AP ratio. This suggests that, for private firms, a higher premium results in a better deal. Had the acquirer paid the full market value for the acquisition—both assets in place and synergies—we would have found no relationship between the asset premium and future profitability, because the acquired assets would have earned the cost of capital only. The finding of a monotonic relation suggests that in deals in which the acquirer paid a higher premium, the ROA to the shareholders is higher.

#### 5.4 Acquirer Announcement Return and Future Operating Performance

Table 10 estimates the relations between asset premium and the change in ROA attributable to the target and acquirer’s assets in a regression form:

$$AP_t = \beta_0 + \beta_1 Target \Delta OPER_{i,t,5} + \beta_2 P \times Target \Delta OPER_{i,t,5} + \beta_1 Acquirer \Delta OPER_{i,t,5} + \beta_1 P \times Acquirer \Delta OPER_{i,t,5} + \varepsilon_t \quad (6)$$

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<sup>11</sup> Setting the intercept to zero is necessary in order to fully allocate the future operating return between the assets of the target and the assets of the acquirer.



If indeed the acquisitions of private targets are better deals, we expect the premium paid for acquisition of private targets to be more strongly related to the change in ROA attributable to the target's assets. We therefore expect the interaction between Target ROA and the private target deal dummy to be positive and significant.

The results are presented in Table 10 Panel A and are consistent with our predictions. The coefficient on the interaction between the target status and the change in ROA attributable to the target's assets is positive and significant. In addition, we find that the interaction between the target status and the change in ROA attributable to the change in the acquirer's own assets is negative and significant, suggesting a lower contribution of the acquirer's assets to the return of the combined firm post merger, in case of private targets.

Table 10 Panel B shows the results of regressing the acquirer announcement return on the change in ROA attributable to the target and acquirer's assets:

$$Announcement\ Return_t = \beta_0 + \beta_1 Target\ \Delta OPER_{i,t,5} + \beta_2 P \times Target\ \Delta OPER_{i,t,5} + \beta_1 Acquirer\ \Delta OPER_{i,t,5} + \beta_1 P \times Acquirer\ \Delta OPER_{i,t,5} + \varepsilon_t \quad (7)$$

If the future performance is the reason for the high announcement returns for private targets, then the coefficient on the interaction between the target status and target ROA should be positive and significant. Our results are consistent with our prediction. We find that future performance of the target is more strongly related to the announcement returns for private targets.

## 6. Are Asset Premiums Biased?

We assess whether the asset premium is an unbiased measure of the premium paid to target shareholders. To do so, we evaluate whether the fair value of the target's assets acquired represent the stand-alone value of the target firm. We consider two main issues. The first issue is the omission of growth opportunities from the stand alone value of the target. As we showed before, the asset premium is calculated as the difference between the acquisition price, which reflects both asset in place and

growth opportunities and the fair value of the assets, which reflects the value of the asset in place only. To the extent that private firms have higher growth opportunities, this should bias their premium upwards. The second issue is the effect of the tax rules. Both financial reporting and tax incentives can impact the valuations used to compute the fair value of the net assets acquired. Acquiring firms' financial reporting incentives probably do not depend on whether the assets were acquired from a publicly traded or a non-publicly traded entity. As a result we do not expect these financial reporting incentives to bias these valuations across private and public targets. However, taxes may create different incentives across public and private acquisitions as we explain below. While there is no explicit requirement for valuation for tax purposes to be the same as those used for financial reporting, as a practical matter, they may be, mainly because the IRS may question any material differences.

### **6.1 Asset premium adjusted for growth opportunities omission**

To address the omission of growth opportunities, we regress the asset premium on the average market-to-book ratio of public targets with similar size within the same industry and year. We use the market-to-book as a proxy for growth opportunities. Specifically, we calculate the market-to-book ratio by for each year and for each two-digit industry for the entire Compustat population. We then rank the companies within each industry-year group to deciles according to their asset size and calculate the mean market to book ratio for the group. We define the asset size as the sum of the market value and total debt. We then use the asset-size decile cutoffs to merge the average market to book information with our sample. We are able to match 1786 observations. We run the following regression:

$$Asset\ Premium_t = \beta_0 + \beta_1 Market\ to\ book_{t,IND} + \beta_2 P + \beta_3 S + \varepsilon_t \quad (8)$$

We deflate the asset premium by total consideration. If the higher asset premium for private firms is partially the results of growth opportunity omission from the stand alone value of the target, then  $\beta_1$  should be positive – larger premium (as a percentage of total consideration) are associated with

larger market to book ratios. Table 11 Model I shows the results. As expected the coefficient on  $\beta_1$  is positive and significant, suggesting that growth opportunities account for some of the premium for private target acquisitions. In Model II we control for private targets and subsidiaries. If the difference in premium across the different target type is only the result of growth opportunities omission, then  $\beta_2$  should be insignificant. The results of Model II indicate that  $\beta_2$  is significant even after controlling for growth opportunities, suggesting their omission does not affect the inferences about the premiums.

We repeat our main analysis, after adjusting the asset premium for growth opportunities. Specifically, we recalculate the asset premium as the sum of the intercept and the residual from equation (8) in Panel A Model I. Panel B of Table 11 shows the distribution of the asset premiums, adjusted for growth opportunities. As in Table 2 we find that private targets are more expensive than public ones.

We further use the adjusted premiums to calculate the synergies by target status. The results are reported on Table 12. The main inferences are similar to what is reported in Table 5.

## **6.2 Asset premium and tax incentives**

Acquisitions paid primarily with the purchasing corporation's stock are likely to qualify as tax-free reorganizations and therefore not qualify for a step-up of the tax basis. In a tax-free transaction, the acquiring corporation assumes the tax attributes of the target company, including depreciable amounts, asset lives, and tax-loss carry forwards, subject to limitations. Consequently, there is no tax-based incentive to value the assets high or low, for that matter.

However, if the acquiring company uses cash or other boot property (e.g., notes) as the consideration for the target corporation, then the deal is likely to be taxable. In a taxable asset purchase or a taxable acquisition of stock followed by a 368 election, the acquiring corporation does not take over the target corporation's tax attributes. Instead, the tax attributes are eliminated with the liquidation of the target. This allows the acquiring corporation to mark the assets up to fair market value, which may

create additional tax-shelters, such as additional depreciation, but will trigger taxes due by the target corporation. Depending on the effective tax rates of the target and the acquiring corporations, the acquiring corporation may have incentives to value the acquired assets high (when its effective tax rate is sufficiently higher than that of the target corporation) or low (when it is not). Both the asset premium and the assets are subject to depreciation. While the asset premium is always deductible using the straight line method over 15 years, the deductibility of the assets acquired depends on the asset type and its expected useful life.

Table 2 Panel C shows that compared with public firm acquisitions, a larger percentage of the private-firm acquisitions are paid in cash. As a result, they are likely to be taxable. We therefore examine the valuation of tangible assets in stock and cash deals across private and public acquisitions as a percentage of total consideration. This is because tangible assets are expected to have a shorter useful life than the asset premium, resulting in earlier deductions for tax purposes. Untabulated results show that this is not the case. These results lead us to believe that there is no systematic bias in the valuations of the assets acquired across private and public targets.

In addition, because the premium is calculated relative to the fair value of net assets of the target, it includes growth opportunities that are excluded from the intangible asset valuations. To the extent that the growth opportunities of the private targets are larger than growth opportunities of public targets, this could bias our measure. To examine this possibility we regress the asset premium on the industry median market to book ratio, and a dummy variable the equal one if the target is private. Untabulated results indicate that the median market to book in this regression is not significant, suggesting that growth opportunities do not bias our measure.

## **7. Summary and Conclusions**

Motivated by prior literature finding of a positive announcement returns in private target acquisition, this paper examines whether the source of these returns is the lower consideration paid for

these deals, compared with public target acquisitions, or the fact that they are “better.” We use a novel data set, which includes the fair value of the net target’s assets acquired, and use this value as a benchmark to calculate the (acquisition) asset premium. Our first finding shows that the premium paid for private targets typically exceeds the premium paid for public ones.

Second, we estimate the overall synergies in mergers involving both private and public targets as the sum of the target and acquirer wealth effects. We substitute the target wealth effect by the asset premium. Our results indicate that deals involving private targets have both higher synergistic gains and higher synergistic losses. In addition, when examining the synergies’ division between the shareholders of the target and the acquiring firms, we find that the acquiring firm shareholders receive a larger share when the target is private. We also examine the volatility of the estimated synergies. We find lower volatility for public-target acquisitions than for private-target ones.

Next, we consider the method of payment. Prior literature has found that the market inefficiently values stock acquisitions. We find that there is no difference in the overall synergies created by the two types of deals. For stock deals, we find higher synergistic gains for private targets’ acquisitions. For mixed deals, we find a higher level of synergies for acquisitions involving private targets.

Having analyzed the estimated synergies, we also examine the post-acquisition performance of the combined firm. With private targets, we find higher operating performance for the combined firm in the five years following the acquisition. This suggests that the cross-sectional differences in synergies division are higher for public targets than for private ones. We repeat this analysis, partitioning on the method of payment. Here, we find that, for cash transactions, private-target acquisitions are better on average than public-target ones. But for stock transactions, we show that private-target deals are *worse* on average.

Overall, our findings show that private targets, while commanding higher premiums over the fair values than public targets, also result in higher synergies. These results indicate that, while private targets are more expensive relative to the stand-alone values, those costs are more than offset by higher synergies. However, while on average the synergies are higher acquisitions where the targets are private, their variance is also much larger than the synergies involving public targets.

**TABLE 1**  
**Acquirer and Target Information by Target Status**

The sample comprises 1,604 merger transactions for the period 2002 – 2006. All acquiring firms are publicly traded U.S. firms. To be included in the sample, the acquiring firm had to acquire 100% of the target and to disclose the allocation of the purchase price consideration.

*Panel A – Characteristics of Acquiring Firms*

	5%	10%	25%	50%	75%	90%	95%	Mean	N
Revenue	18.8	33.3	87.0	274.8	991.9	3,232.8	8,400.2	1,671.2	1,603
Net Income	-67.6	-21.6	-0.3	13.5	59.5	253.6	541.6	145.7	1,603
EBITDA	-10.4	-2.2	7.9	41.8	159.1	642.4	1,502.8	383.1	1,598
Return on Assets	(9.55%)	(2.58%)	2.96%	11.7%	19.4%	27.6%	34.5%	11.5%	1,595
Total Assets	27.6	53.1	143.6	488.6	2,210.5	7,392.4	18172.4	3,610.0	1,453

*Panel B – Characteristics of Target Firms*

	5%	10%	25%	50%	75%	90%	95%	Mean	N
Revenue	3.0	4.6	10.2	31.3	115.0	493.1	1,522.1	296.0	907
Net Income	-45.4	-18.4	-1.8	1.4	7.0	34.3	95.0	16.2	767
EBITDA	-21.1	-9.0	0.0	4.9	24.5	113.0	324.6	72.0	749
Return on Assets	(118%)	(65.0%)	(7.48%)	0.96%	5.87%	14.3%	23.2%	(14.2%)	739
Total Assets	2.4	5.1	18.4	103.2	373.5	1,450.5	2,894.8	790.3	743

**TABLE 1 (Cont.)***Panel C – Characteristics of Public and Private Target Firms**Public Targets*

	5%	10%	25%	50%	75%	90%	95%	Mean	N
Revenue	5.4	8.9	21.8	71.6	272.1	1,602.9	2,713.7	553.5	433
Net Income	-82.5	-35.3	-4.7	2.4	14.2	77.4	184.0	27.6	433
EBITDA	-33.1	-16.8	0.8	12.1	58.9	274.9	683.7	121.5	433
Return on Assets (using Net Income)	(70.1%)	(41.5%)	(7.16%)	0.91%	3.83%	8.81%	12.3%	(10.8%)	432
Total Assets	12.8	21.8	64.7	227.5	851.3	2,618.8	5,651.4	1,289.9	432

*Private Targets*

	5%	10%	25%	50%	75%	90%	95%	Mean	N
Revenue	2.0	3.4	7.0	16.8	50.0	120.0	335.0	68.9	493
Net Income	-15.5	-6.2	-0.9	0.9	3.5	11.3	20.0	2.3	347
EBITDA	-9.8	-5.0	-0.3	2.3	6.5	19.7	39.0	8.4	329
Return on Assets (using Net Income)	( 179%)	( 105%)	(9.25%)	1.12%	11.7%	24.8%	39.6%	(18.8%)	318
Total Assets	1.7	2.3	6.0	22.9	119.5	292.4	435.7	118.9	323



**TABLE 1 (Cont.)**

*Variable Definitions:*

<i>Revenue</i>	=	<i>The target company's revenue for the latest twelve months prior to the acquisition completion scaled by total assets at the beginning of the fiscal year prior to the acquisition</i>
<i>Net Income</i>	=	<i>The target company's net income for the latest twelve months prior to the acquisition completion year scaled by total shareholders' equity at the beginning of the fiscal year prior to the acquisition</i>
<i>EBITDA</i>	=	<i>Earnings before interest, taxes, and depreciation and amortization, scaled by total shareholders' equity at the beginning of the fiscal year prior to the acquisition. EBITDA is calculated by adding interest expenses, taxes, and depreciation and amortization to pre-tax income.</i>
<i>Return on Assets</i>	=	<i>The target company's net income for the latest twelve months prior to the acquisition completion scaled by total assets at the beginning of the fiscal year prior to the acquisition</i>
<i>Total Assets</i>	=	<i>The target company's total assets at the beginning of the fiscal year prior to the acquisition</i>

**TABLE 2**  
**Deal Information by Target Status**

The table presents descriptive statistics about the deal by target status (i.e., public or private)

*Panel A – Deal Characteristics for All Deals*

	5%	10%	25%	50%	75%	90%	95%	Mean
Purchase Consideration	4.60	7.36	18.60	61.89	213.70	822.00	1982.60	467.17
AP Ratio	1.00	1.02	1.18	1.76	2.66	3.96	5.23	2.27

*Panel B – Deal Characteristics and the Composite of Assets Purchased by Target Firm Status*

	Public				Private				T-stat
	25%	Median	75%	Mean	25%	Median	75%	Mean	
Purchase Consideration (PC)	109.00	340.21	1,385.93	1,463.85	13.00	37.00	107.00	107.25	15.34
Asset Revaluation	0.88	1.06	1.40	1.34	0.92	1.14	2.08	1.89	-4.48
AP Ratio	1.14	1.41	2.21	1.88	1.25	1.88	2.85	2.41	-5.51
Fair Value of Assets (FVA)	58.70	213.68	831.20	987.48	5.95	18.09	56.70	64.86	14.35
As a percentage of the purchase consideration:									
Asset Premium (AP)	12.2%	29.1%	54.7%	33.8%	20.2%	47.4%	65.4%	44.1%	-6.76
Tangible assets (TAN)	22.9%	43.1%	84.2%	49.2%	7.67%	21.1%	44.9%	30.5%	10.69
Total intangibles (INTAN)	1.45%	9.65%	20.4%	14.3%	4.51%	18.1%	31.9%	21.9%	-6.67
IPR&D (IPRD)	0.00%	0.00%	0.00%	2.70%	0.00%	0.00%	0.00%	3.60%	-1.25

**TABLE 2 (Cont.)**

*Panel C – Method of Payment Information*

<i>Method of Payment</i>	<i>Public Targets</i>		<i>Private Targets</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Pure Cash	129	30.94%	435	46.62%
Pure Stock	154	36.93%	95	10.18%
Mixed	134	32.13%	403	43.19%
Total deals with disclosed info	417	100.00%	933	100.00%

*Variable Definitions:*

- Asset Revaluation* = *The ratio of the Fair value of the assets to their book value (available for all public targets and a subsample of private firms, for which the book value of total assets is available on Mergerstat – see Table 1).*
- Purchase consideration (PC)* = *Consideration paid for the target’s assets, equal to the sum of asset premium and the fair value of the target’s assets*
- Asset Premium (AP)* = *The difference between the considerations paid for the target’s net assets and the fair value.*
- Asset Premium Ratio* = *The ratio of total consideration to the fair value of the asset, where total consideration is the amount paid for the target acquired assets*
- Fair Value of Assets (FVA)* = *The total fair value of the target assets measured as of the date of the business combination*
- AP* = *Asset Premium defined above as of the date of the business combination.*
- TAN* = *Tangible assets acquired as part of the business combinations measured as of the date of the business combination*
- INTAN* = *Intangible assets acquired as part of the business combinations measured as of the date of the business combination*
- IPRD* = *IPR&D acquired as part of the business combinations measured as of the date of the business combination*

**TABLE 3**  
**Acquirer Announcement Return by Target Status**

The table contains descriptive statistics of the acquirer announcement returns. Panel A presents descriptive statistics by the target status (i.e., private vs. public). Panel B presents information on overpayment and underpayment in deals involving private and public targets.

*Panel A – Information by Target Status*

<i>Target Status</i>	<i>Mean AP Ratio</i>	<i>Mean CAR (-5A,+1A)</i>	<i>Mean CR (-5A,+1A)</i>	<i>Mean CAR (-5A,+1C)</i>	<i>Mean CR (-5A,+1C)</i>	<i>N Days between Ann. to Closing</i>	<i>N</i>
Public	1.8845	-0.0103	-0.0105	0.0135	0.0463	93	435
Private	2.4143	0.0151	0.0167	0.0153	0.0320	27	1,152

*Panel B – Overpayment/underpayment by Target Firm Status*

<i>Target Status</i>		<i>AP Ratio</i>			<i>Mean</i>	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>
		<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>CAR (-5A,+1A)</i>	<i>CR (-5A,+1A)</i>	<i>CAR (-5A,+1C)</i>	<i>CR (-5A,+1C)</i>
Public	underpayment (57%)	248	1.7852	1.3771	0.0057	0.0076	0.1231	0.1672
	overpayment (43%)	187	1.9533	1.4657	-0.0310	-0.0316	-0.1164	-0.0966
Private	underpayment (59%)	692	2.2836	1.7806	0.0504	0.0508	0.0935	0.1204
	overpayment (41%)	477	2.6144	2.0836	-0.0341	-0.0315	-0.0957	-0.0938

*Variable Definitions:*

- CAR (-5A,+1A)* = *Cumulative Abnormal Return between five days before and one day after the announcement date.*
- CR (-5A,+1A)* = *Cumulative Raw Return between 5 days before to one day after the announcement date.*
- CAR (-5A+,1A)* = *Cumulative Abnormal Return between five days before the announcement date and one day after the closing date.*
- CR (-5A,+1A)* = *Cumulative Raw Return between five days before the announcement date and one day after the closing date.*

*Overpayment, Underpayment are determined by the sign of the acquirer compounded return from 5 days prior to the deal announcement to one day after its completion.*

*All other variables are defined in Table 2.*

**TABLE 4**  
**Asset Premium and Wealth Effect for Public Targets**

The table contains descriptive statistics for 434 deals involving public targets. Panel A presents descriptive statistics of the target mean asset premium by quintiles of cumulative raw return from the announcement of the deal until its completion. Panel B presents regression analysis of the relationship between asset and the announcement return.

*Panel A: Descriptive Statistics*

Mean <i>CR (-5A,+1A)</i> Quintile Rank	Mean <i>AP</i>	Mean <i>CAR (-5A,+1A)</i>	Mean <i>CR (-5A,+1A)</i>	Mean <i>CAR (-5A,+1C)</i>	Mean <i>CR (-5A,+1C)</i>	<i>N Days</i> <i>between Ann.</i> <i>to Closing</i>	N
1	0.6877	0.0569	0.0627	-0.0261	-0.0241	92	66
2	0.7834	0.1285	0.1303	0.1240	0.1615	98	66
3	0.8036	0.2029	0.2060	0.1833	0.2655	97	67
4	0.8870	0.3042	0.3063	0.3329	0.4002	93	66
5	1.1628	0.5561	0.5657	0.7389	0.9079	92	66

**TABLE 4 (Cont.)**

*Panel B: Regression analysis*

*Direct Regression*

Independent Vars:	Dependent Variable = AP	
<i>CAR (-5A,+1C)</i>	0.631 (6.890)	
<i>CR (-5A,+1C)</i>		0.656 (6.772)
<i>Intercept</i>	0.649 (13.98)	0.665 (14.70)
<i>R-squared</i>	0.126	0.122

*Reverse Regression*

Independent Vars:	Dependent Variable =	
	<i>CR (-5A,+1C)</i>	<i>CAR (-5A,+1C)</i>
<i>AP</i>	0.200 (6.890)	0.186 (6.772)
<i>Intercept</i>	0.169 (5.339)	0.143 (4.756)
<i>R-squared</i>	0.126	0.122

*Variable Definitions:*

*AP* = Asset premium - the difference between the considerations paid for the target's net assets and the fair value - deflated by the market value of the target 30 days prior to the announcement.

**TABLE 5**  
**Synergies Generated in the Deal by Target Status**

The table contains descriptive statistics on the overall synergies generated in the deal and the acquirer and target shares, by target status. Panel A presents estimation of overall synergies as well as synergistic gains and losses by the target status (i.e., private vs. public). Panel B presents the acquirer and target shares of the overall synergies in cases of positive and negative synergies for public (private) targets. Panel C presents information on the synergy volatility by the target status and size.

*Panel A – Mean Synergies by Target Status*

*All synergies*

<i>Target Status</i>	Freq of Positive Synergies	Total Synergies	Total FVA	SYN/FVA	Acq Synergies	Target Synergies
Public	73%	452.3317	885.5145	0.7932	98.1386	354.1931
Private	61%	62.5921	66.3527	1.3051	20.6079	41.9842
T-test		6.19	8.10	-0.99	1.58	9.10

*Synergistic Gains*

<i>Target Status</i>	Total Synergies	Total FVA	SYN/FVA	Acq Synergies	Target Synergies
Public	703.3859	1026.2533	2.8856	303.7583	399.6275
Private	159.6959	72.7763	5.4727	113.6882	46.0077
T-test	8.05	7.66	-4.93	3.75	8.50

**TABLE 5 (Cont.)**

*Synergistic Losses*

<i>Target Status</i>	Total Synergies	Total FVA	SYN/FVA	Acq Synergies	Target Synergies
Public	-509.0222	346.5879	-7.2193	-689.2348	180.2126
Private	-191.8327	49.5221	-9.6145	-223.2747	31.4421
T-test	-3.09	3.61	0.96	-3.72	3.66

*Panel B – Acquirer and Target Share of Total Synergies by Target Status*

<i>Target Status</i>	Positive Synergies			Negative Synergies		
	Acquirer Share	Target Share	N	Acquirer Share	Target Share	N
Public	0.0178	0.9822	324	-0.7843	1.7843	103
Private	0.2402	0.7598	824	-0.7596	1.7596	319
T-stat	-2.30	2.30		-0.12	0.12	



**TABLE 5 (Cont.)**

*Panel C – Volatility by Target Status*

<i>Target Status</i>	<i>SYN/FVA</i>	
	<i>Std</i>	<i>mean</i>
Public	9.21	1.37
Private	13.98	1.45
<i>F-stat /T-stat</i>	2.30	-0.13

*Panel D – Asset Value and Synergy Volatility by Target Status*

<i>Asset Fair Value</i> Quintile	<i>Public Targets SYN/FVA</i>			<i>Private Targets SYN/FVA</i>		
	<i>Std</i>	<i>mean</i>	<i>N</i>	<i>Std</i>	<i>mean</i>	<i>N</i>
1	23.8987	-5.1844	12	23.5119	0.7954	292
2	32.5959	-5.0979	26	15.4565	2.1668	279
3	15.9900	4.4021	50	14.3930	1.7442	255
4	9.3428	1.4028	96	7.4951	1.7148	209
5	3.0386	0.7287	211	3.7224	0.6298	94

**Variable Definitions:**

- Synergies(SYN)* = *The sum of the acquirer wealth effect and the asset premium.*
- FVA* = *The fair value of target’s assets acquired.*
- Acquirer (Target) Share* = *The acquirer (target) synergies deflated by total synergies.*

**TABLE 6**  
**Synergies Generated in the Deal by Method of Payment and Target Status**

The table contains descriptive statistics for synergies by the method of payment and the target status. Panel A presents descriptive statistics about synergies in cash deals. Panel B shows descriptive statistics about synergies in stock deals. Panel C presents descriptive statistics about synergies in mixed deals.

*Panel A – Synergies in Cash Deals*

Method of Payment			SYN/FVA		
Target Status	N	%	Mean	Positive	Negative
Public	145	41.5%	0.4393	5.3779	-10.8645
Private	500	35.2%	1.2405	6.3722	-11.8980
T-stat			-0.46	-0.79	0.22

*Panel B – Synergies in Stock Deals*

Method of Payment			SYN/FVA		
Target Status	N	%	Mean	Positive	Negative
Public	125	41.5%	1.1586	2.3179	-3.4663
Private	102	35.2%	-2.4045	4.8334	-5.7979
T-stat			1.08	-2.33	1.18

*Panel C – Synergies in Mixed Deals*

Method of Payment			SYN/FVA		
Target Status	N	%	Mean	Positive	Negative
Public	156	41.5%	0.2581	1.2193	-3.0492
Private	392	35.2%	2.6872	5.0441	-13.9851
T-stat			-3.73	-6.20	1.94

*Variable Definitions:*

*All variables defined in Table 5*

**TABLE 7**

**Asset Premium, the Target Pre-Acquisition Operating Performance and the Combined Firm Post-Acquisition Performance**

The table contains information about pre-acquisition performance of the target firm as well as post-acquisition performance of the combined firm. Panel A presents descriptive statistics by the target status (i.e., private vs. public). Panel B (Panel C) presents the results for public (private) targets by asset premium quintiles.

*Panel A – Information by Target Status*

Target Status	Mean <i>AP Ratio</i>	Post-Acq. Performance of the Combined Firm		Pre-Acq Performance of the Target			
		Mean One year ahead EBITDA	Mean Five year ahead EBITDA	Mean Revenue	N	Mean EBITDA	N
Public	1.8845	0.0841	0.4941	1.6548	408	0.0021	408
Private	2.4143	0.0909	0.6416	2.3207	480	-0.2828	323

*Panel B – Information for Public Targets by AP Ratio Quintiles*

<i>AP Ratio</i>				Post-Acq. Performance of the Combined Firm				Pre-Acq Performance of the Target					
				One year ahead EBITDA		Five year ahead EBITDA		Revenue		N	EBITDA		N
Mean	median	mean	median	mean	median	mean	median	mean	median		mean	median	
1.0491	1.0525	1.6342	1.0186	0.0667	0.0325	0.4322	0.1475	0.4580	0.0669	81	-0.0694	0.0325	81
1.1647	1.1591	1.3208	1.0291	0.0505	0.0288	0.2547	0.1306	0.2911	0.0687	83	-0.0487	0.0361	83
1.4389	1.4107	1.5462	1.3767	0.0999	0.1028	0.5025	0.5120	0.7665	0.5462	78	-0.3793	0.0694	78
2.0489	2.0568	1.3818	1.2090	0.1080	0.1136	0.6959	0.7113	4.5842	0.6212	83	0.6626	0.0595	83
3.7275	3.1632	0.8402	0.8458	0.0953	0.1060	0.5949	0.6360	2.0917	1.0188	83	-0.1796	0.0676	83

**TABLE 7 (Cont.)**

*Panel C – Information for Private Targets by Asset Premium Ratio Quintiles*

<i>AP Ratio</i>		Asset Revaluation		Post-Acq. Performance of the Combined Firm				Pre-Acq Performance of the Target					
				One year ahead EBITDA		Five year ahead EBITDA		Revenue		N	EBITDA		N
Mean	median	mean	median	mean	median	mean	median	mean	median		mean	median	
1.0430	1.0130	1.5673	1.0570	0.0298	0.0373	0.4115	0.2053	0.4108	0.0664	113	0.0345	0.0286	94
1.3722	1.3588	2.1584	1.3926	0.0976	0.0996	0.6135	0.5654	1.2003	0.7950	103	-0.1400	0.0339	72
1.9040	1.8821	2.0502	1.7124	0.1079	0.1138	0.6549	0.5865	2.0520	1.2903	90	-0.1225	0.1179	47
2.6412	2.6387	2.3999	1.7147	0.0947	0.1068	0.6744	0.6547	2.6264	0.9491	88	-0.0500	0.0800	55
5.1170	4.2759	1.5489	1.0671	0.1204	0.1412	0.8333	0.7751	3.8411	2.3626	77	-0.3081	0.0534	51

*Variable Definitions:*  
*All variables defined in Table 2*

**TABLE 8**  
**Future Operating Performance and Target Status**

This table shows the regression results of one year and five year ahead operating returns on the target status, asset premium, total synergies, and other assets acquired and the change in acquirer's assets prior to the acquisition.

$$\begin{aligned} \Delta OPRET_{i,t+1,5} = & \beta_0 + \beta_1 P + \beta_2 AP + \beta_3 SYN + \beta_4 TAN + \beta_5 INTAN + \beta_6 IPRD \\ & + \beta_7 \Delta ACQASSETS + \beta_8 P \times AP + \beta_9 P \times SYN + \beta_{10} P \times TAN \\ & + \beta_{11} P \times INTAN + \beta_{12} P \times IPRD + \beta_{13} P \times \Delta ACQASSETS + \varepsilon_{t+1,2} \end{aligned}$$

Panel A – All firms

Model	Dependent Variable = Change in			
	One year ahead EBITDA		Five year ahead EBITDA	
<i>P</i>	0.010 (2.317)	0.012 (2.649)	0.078 (2.377)	0.122 (3.719)
<i>AP</i>	0.053 (1.811)		0.449 (2.135)	
<i>SYN</i>		0.050 (4.463)		0.538 (5.437)
<i>TAN</i>	0.107 (4.567)	0.094 (4.025)	0.046 (0.258)	0.125 (0.735)
<i>INTAN</i>	0.118 (3.209)	0.105 (3.155)	1.258 (3.502)	1.090 (3.251)
<i>IPRD</i>	0.035 (0.373)	0.028 (0.354)	0.500 (0.746)	0.655 (0.809)
$\Delta ACQASSETS$	0.086 (3.870)	0.071 (3.472)	0.400 (2.679)	0.190 (1.532)
<i>P</i> × <i>AP</i>	0.067 (1.464)		0.054 (0.158)	
<i>P</i> × <i>SYN</i>		-0.025 (-1.646)		-0.469 (-3.734)
<i>P</i> × <i>TAN</i>	-0.096 (-2.555)	-0.077 (-2.009)	-0.480 (-1.674)	-0.539 (-1.906)
<i>P</i> × <i>INTAN</i>	-0.149 (-2.180)	-0.053 (-0.841)	-0.512 (-0.977)	0.044 (0.088)
<i>P</i> × <i>IPRD</i>	0.294 (1.283)	0.370 (1.723)	-0.621 (-0.467)	-0.732 (-0.510)
<i>P</i> × $\Delta ACQASSETS$	0.014 (0.536)	0.025 (1.076)	0.262 (1.572)	0.455 (3.063)
<i>Intercept</i>	0.023 (8.615)	0.024 (8.457)	0.250 (10.12)	0.244 (11.13)
<i>Adjusted R</i> <sup>2</sup>	0.105	0.107	0.088	0.100

(Robust t-stats in parentheses clustered by acquirer.)

**TABLE 8 (Cont.)**

*Panel B - Cash deals only*

Model	Dependent Variable = Change in			
	One year ahead EBITDA		Five year ahead EBITDA	
<i>P</i>	0.005 (1.219)	0.008 (1.847)	0.028 (0.583)	0.069 (1.632)
<i>AP</i>	0.091 (1.988)		0.025 (0.087)	
<i>SYN</i>		0.041 (4.264)		0.121 (0.986)
<i>TAN</i>	0.191 (4.594)	0.173 (4.726)	-0.007 (-0.012)	-0.029 (-0.053)
<i>INTAN</i>	-0.004 (-0.0478)	0.036 (0.493)	2.870 (4.833)	2.514 (5.853)
<i>IPRD</i>	0.392 (3.235)	0.407 (3.325)	6.934 (3.115)	7.522 (3.393)
$\Delta$ <i>ACQASSETS</i>	0.068 (3.233)	0.058 (3.039)	0.909 (4.209)	0.803 (4.691)
<i>P</i> × <i>AP</i>	0.032 (0.535)		1.492 (2.881)	
<i>P</i> × <i>SYN</i>		0.004 (0.224)		0.001 (0.007)
<i>P</i> × <i>TAN</i>	-0.140 (-2.735)	-0.140 (-2.965)	-0.896 (-1.337)	-0.731 (-1.104)
<i>P</i> × <i>INTAN</i>	0.204 (1.878)	0.201 (2.120)	-1.478 (-1.579)	0.298 (0.299)
<i>P</i> × <i>IPRD</i>	-0.398 (-1.080)	-0.132 (-0.365)	-7.281 (-1.836)	-5.952 (-1.560)
<i>P</i> × $\Delta$ <i>ACQASSETS</i>	0.090 (3.467)	0.091 (3.835)	-0.137 (-0.539)	-0.097 (-0.442)
<i>Intercept</i>	0.027 (8.074)	0.025 (8.388)	0.369 (9.039)	0.337 (11.79)
<i>Adjusted R</i> <sup>2</sup>	0.228	0.245	0.128	0.120

*(Robust t-stats in parentheses clustered by acquirer.)*

**TABLE 8 (Cont.)***Panel C – Deals with 75% stock or more*

Model	Dependent Variable = Change in			
	One year ahead EBITDA		Five year ahead EBITDA	
<i>P</i>	-0.023 (-1.622)	-0.022 (-1.773)	-0.548 (-2.109)	-0.557 (-2.205)
<i>AP</i>	0.065 (1.768)		1.078 (4.286)	
<i>SYN</i>		0.043 (2.336)		0.630 (6.658)
<i>TAN</i>	0.116 (3.289)	0.111 (3.232)	0.064 (0.416)	0.063 (0.431)
<i>INTAN</i>	0.130 (3.004)	0.122 (3.112)	0.602 (1.926)	0.806 (2.550)
<i>IPRD</i>	-0.047 (-1.422)	-0.034 (-1.040)	-0.256 (-0.617)	-0.717 (-2.431)
$\Delta$ ACQASSETS	0.113 (3.333)	0.119 (3.602)	0.466 (2.585)	0.192 (1.454)
<i>P</i> × <i>AP</i>	-0.009 (-0.105)		-0.585 (-0.763)	
<i>P</i> × <i>SYN</i>		0.029 (0.928)		-0.749 (-3.239)
<i>P</i> × <i>TAN</i>	-0.420 (-3.494)	-0.695 (-5.931)	-1.745 (-2.304)	-1.779 (-2.803)
<i>P</i> × <i>INTAN</i>	-0.924 (-11.70)	-0.440 (-2.268)	-0.293 (-0.160)	0.759 (0.477)
<i>P</i> × <i>IPRD</i>	-0.599 (-1.687)	-0.835 (-2.184)	-22.464 (-2.325)	-25.063 (-2.561)
<i>P</i> × $\Delta$ ACQASSETS	-0.323 (-6.805)	-0.366 (-8.013)	-1.264 (-3.399)	-0.869 (-2.646)
<i>Intercept</i>	0.016 (3.236)	0.015 (3.076)	0.170 (6.043)	0.175 (7.107)
<i>Adjusted R</i> <sup>2</sup>	0.430	0.363	0.207	0.294

*(Robust t-stats in parentheses clustered by acquirer.)*

**TABLE 8 (Cont.)**

*Variable Definitions:*

$\Delta OPRET_{i,t+1,5}$	=	<i>The change in EBITDA between the first n full fiscal years following the consummation of the business combination and the n years before the year of the business combination; n=1 or 5. EBITDA is earnings before interest, taxes, depreciation, and amortization for the first full fiscal year and the first two full fiscal years year following the year of the business combination</i>
<i>P</i>	=	<i>A dummy variable equal to one if the acquired target is a private firm</i>
<i>AP</i>	=	<i>Asset premium as part of the acquisition as of the date of the business combination</i>
<i>SYN</i>	=	<i>Total estimated synergies</i>
<i>TAN</i>	=	<i>Tangible assets acquired as part of the business combination as of the date of the business combination</i>
<i>INTAN</i>	=	<i>Intangible assets acquired as part of the business combination as of the date of the business combination</i>
<i>IPRD</i>	=	<i>In-process research and development acquired as part of the business combination as of the date of the business combination</i>
$\Delta ACQASSETS$	=	<i>The change in total assets of the acquirer unrelated to the business combination, calculated as the acquirer's total assets as of the fiscal year-end of the year of the business combination (excluding the purchase consideration) and the total assets of the acquirer at the end of the year before the acquisition.</i>

All variables are deflated by the acquirer's total assets as of the end of the fiscal year of the acquisition.



**TABLE 9**  
**Future Performance by Asset Premium and Target Status**

The table contains information about future performance of the combined firm. Panel A presents descriptive statistics by the target status (i.e., private vs. public). Panel B (Panel C) presents asset premium and the target and acquirer components of future profitability based on Table 8.

*Panel A – Information by Target Status*

Target Status	median	Acquirer $\Delta OPERT_{i,t+5}$
Public	-0.0104	-0.0067
Private	0.0064	0.0009

*Panel B – Information for Public Targets by asset premium*

AP Ratio Quintile Rank	Target $\Delta OPERT_{i,t+5}$		Acquirer $\Delta OPERT_{i,t+5}$	
	median	median	Mean	median
1	-0.0189	-0.0335	-0.0044	0.0037
2	-0.0189	-0.0360	-0.0065	-0.0021
3	0.0102	0.0005	-0.0102	-0.0088
4	-0.0022	-0.0112	-0.0133	-0.0109
5	-0.0224	-0.0324	0.0011	0.0020

**TABLE 9 (Cont.)**

*Panel C – Information for Private Targets by asset premium ratio*

AP Ratio Quintile Rank	Target $\Delta OPERT_{i,t+5}$		Acquirer $\Delta OPERT_{i,t+5}$	
	mean	median	mean	median
1	-0.0073	-0.0104	-0.0022	0.0017
2	0.0036	-0.0051	-0.0030	-0.0004
3	0.0108	0.0022	0.0011	-0.0004
4	0.0117	0.0014	0.0033	0.0022
5	0.0126	0.0043	0.0055	0.0049

*Variable Definitions:*

*Asset Premium* = *Total consideration deflated by the fair value of the assets*

**TABLE 10**  
**The Acquirer Announcement Return and Asset Premium by the Combined Firm ROA attributable to the Target and the Acquirer's assets by Target Status**

The table presents the results of regressing the announcement return in the different windows specified on the target component of the change in operating future return, estimated in Table 8.

*Panel A – Asset Premium Ratio*

$$AP_t = \beta_0 + \beta_1 Target \Delta OPER_{i,t,5} + \beta_2 P \times Target \Delta OPER_{i,t,5} + \beta_3 Acquirer \Delta OPER_{i,t,5} + \beta_4 P \times Acquirer \Delta OPER_{i,t,5} + \varepsilon_t$$

Dependent	Asset Premium		
<i>Target</i> $\Delta OPER_{i,t+5}$	2.972 (3.931)		3.118 (4.713)
<i>P</i> $\times$ <i>Target</i> $\Delta OPER_{i,t+5}$	3.430 (2.517)		2.861 (2.356)
<i>Acquirer</i> $\Delta OPER_{i,t+5}$		3.181 (3.751)	4.129 (4.228)
<i>P</i> $\times$ <i>Acquirer</i> $\Delta OPER_{i,t+5}$		-2.420 (-2.402)	-2.963 (-2.825)
<i>Intercept</i>	2.493 (17.18)	2.444 (26.79)	2.403 (24.56)
R-squared	0.010	0.002	0.019

*(Robust t-stats in parentheses clustered by acquirer.)*

**TABLE 10 (Cont.)**

**PANEL B – Acquirer Announcement Return**

$$\text{Announcement Return}_t = \beta_0 + \beta_1 \text{Target } \Delta\text{OPER}_{i,t,5} + \beta_2 P \times \text{Target } \Delta\text{OPER}_{i,t,5} + \beta_3 \text{Acquirer } \Delta\text{OPER}_{i,t,5} + \beta_4 P \times \text{Acquirer } \Delta\text{OPER}_{i,t,5} + \varepsilon_t$$

Dependent	CAR (-5A,+1A)	CAR (-5A,+1C)	CAR (-5A,+1A)	CAR (-5A,+1C)	CAR (-5A,+1A)	CAR (-5A,+1C)
<i>Target</i> $\Delta\text{OPER}_{i,t+5}$	0.064 (3.030)	0.087 (1.634)			0.057 (2.640)	0.156 (2.960)
<i>P</i> $\times$ <i>Target</i> $\Delta\text{OPER}_{i,t+5}$	0.076 (2.074)	-0.001 (-0.010)			0.110 (2.821)	-0.066 (-0.819)
<i>Acquirer</i> $\Delta\text{OPER}_{i,t+5}$			0.107 (2.443)	0.276 (2.634)	0.083 (1.800)	0.283 (2.605)
<i>P</i> $\times$ <i>Acquirer</i> $\Delta\text{OPER}_{i,t+5}$			-0.065 (-1.423)	-0.184 (-1.700)	-0.031 (-0.629)	-0.178 (-1.581)
<i>Intercept</i>	0.004 (1.948)	0.008 (2.227)	0.005 (2.884)	0.009 (2.790)	0.004 (2.052)	0.009 (2.521)
R-squared	0.010	0.001	0.004	0.012	0.023	0.018

(Robust t-stats in parentheses clustered by acquirer.)

*Variable Definitions:*

*Target*  $\Delta\text{OPER}_{i,t+5}$  = The component of the change in post acquisition performance of the combined firm, attributed to the target assets.

*Acquirer*  $\Delta\text{OPER}_{i,t+5}$  = The component of the change in post acquisition performance of the combined firm, attributed to the target assets.

**TABLE 11****Asset Premium and Growth Opportunities**

The table presents the relation between asset premium and growth opportunities

*Panel A – Regression of Asset Premium on Industry, Size and Year matched Price to Book ratio*

Dependent Model	Asset Premium	
	I	II
<i>Matched MTB</i>	0.005 (10.12)	0.004 (8.744)
<i>P</i>		0.095 (5.600)
<i>Constant</i>	0.341 (37.35)	0.218 (22.00)
<i>R-squared</i>	0.054	0.095

*Panel B – Descriptive Statistics of Asset Premium Adjusted for Growth Opportunities*

	Public				Private				T-stat
	25%	Median	75%	Mean	25%	Median	75%	Mean	
AP Ratio	1.12	1.37	2.10	1.73	1.21	1.73	2.50	2.05	-5.22
Asset Premium (AP)	10.6%	26.8%	52.4%	31.3%	17.2%	42.3%	60.1%	39.2%	-5.54

**TABLE 12**  
**Synergies Generated in the Deal by Target Status using Asset Premium Adjusted for Growth Opportunities**

The table contains descriptive statistics on the overall synergies generated in the deal and the acquirer and target shares, by target status. The synergies are based on asset premium adjusted for growth opportunities.

*Panel A – Mean Synergies by Target Status*

*All synergies*

<i>Target Status</i>	Freq of Positive Synergies	Total Synergies	Total FVA	SYN/FVA	Acq Synergies	Target Synergies
Public	79%	400.27	735.67	1.05	93.73	306.55
Private	71%	74.95	68.10	1.19	31.51	43.44
T-stat	7.88 ( $\chi^2$ )	5.63	8.24	-0.51	1.78	8.57

**TABLE 12 (Cont.)***Synergistic Gains*

<i>Target Status</i>	Total Synergies	Total FVA	SYN/FVA	Acq Synergies	Target Synergies
Public	625.10	854.22	2.80	279.33	345.77
Private	167.04	79.30	4.83	116.01	51.03
T-stat	7.44	7.79	-4.49	3.58	7.93

*Synergistic Losses*

<i>Target Status</i>	Total Synergies	Total FVA	SYN/FVA	Acq Synergies	Target Synergies
Public	-443.54	290.72	-5.49	-602.87	159.33
Private	-154.62	40.15	-7.91	-179.14	24.52
T-stat	-2.89	3.28	1.57	-3.44	3.44

**TABLE 12 (Cont.)**

*Panel B – Acquirer and Target Share of Total Synergies by Target Status*

<i>Target Status</i>	Positive Synergies			Negative Synergies		
	Acquirer Share	Target Share	N	Acquirer Share	Target Share	N
Public	0.19	0.81	320	-0.93	1.93	88
Private	0.35	0.65	744	-0.64	1.64	312
T-stat	2.31	2.31		1.44	-1.44	

*Panel C – Volatility by Target Status*

<i>Target Status</i>	SYN/FVA	
	Std	mean
Public	8.19	1.05
Private	12.54	1.34
<i>F-stat /T-stat</i>	2.35	1.20



**TABLE 12 (Cont.)**

*Panel D – Asset Value and Synergy Volatility by Target Status*

<i>Asset Fair Value</i> Quintile	<i>Public Targets SYN/FVA</i>			<i>Private Targets SYN/FVA</i>			<i>Sub Targets SYN/FVA</i>		
	Std	mean	N	Std	mean	N	Std	mean	N
1	22.09	-4.39	14	14.85	0.91	300	16.01	4.22	43
2	10.19	2.37	34	16.12	1.13	267	5.97	1.49	56
3	12.57	1.04	55	10.26	2.04	233	5.71	2.65	70
4	7.66	2.17	86	6.76	1.81	186	5.28	0.71	85
5	3.15	0.77	219	2.71	0.57	70	1.23	0.83	68

*Variable Definitions:*

- Synergies(SYN)* = *The sum of the acquirer wealth effect and the asset premium.*
- FVA* = *The fair value of target’s assets acquired.*
- Acquirer (Target) Share* = *The acquirer (target) synergies deflated by total synergies.*

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