# Exploring the Impact of Private Equity-Backed Firms on Strategic Acquirers

Mark Soltys<sup>1</sup>, Saeyeul Park<sup>2</sup>, Jun Kyung Auh<sup>3</sup>

 <sup>1</sup> Master's Student, Hohenheim Management School, University of Hohenheim, Germany, m.soltys@uni-hohenheim.de
 <sup>2</sup> Assistant Professor, Yonsei School of Business, Yonsei University, Korea, sypark16@yonsei.ac.kr
 <sup>3</sup> Assistant Professor, Yonsei School of Business, Yonsei University, Korea, junkyung.auh@yonsei.ac.kr
 Corresponding author: Saeyeul Park

Abstract: Although selling to a strategic acquirer is the most typical way for private equity firms to exit, there is little proof that the acquirer benefits from such deals. The purpose of this study is to determine whether strategic acquirers profit from buying a private equity (PE) portfolio company. An event study is conducted to assess the value creation of PE-backed transactions and examine both short-run and long-run abnormal returns. Using the data of over 10,000 acquisition deals by U.S. public firms from 2000 to 2019, we find that acquiring a PE portfolio firm benefits strategic acquirers and leads to a positive stock price reaction, providing novel evidence that part of the value creation spills over to the acquisitions, the acquisition announcement return in the (-1/+1) window is about 0.7% greater. The long-term consequences of PE sales to strategic acquirers are also explored, with trade deals including PE being followed by a BHAR that is, on average, 3.1% greater than that of the control group after 1 year. These findings suggest a substantial difference between acquiring a PE-backed target and a non-sponsored target and highlight the value-creation potential of PE firms.

**Keywords**: Event Study, M&A (Mergers and Acquisitions), Private Equity, Spillover of Value, Stock Price Reaction, Strategic Acquirer

# 1. Introduction

Over the past decades, private equity has become a significant force in the M&A and investment market. PE firms' assets under management hit a new record in June 2019 with \$4.11tn[1]. Previous studies find PE funds add substantial value to portfolio firms through superior incentives paired with a unique skillset[2]. Furthermore, Axelson et al. (2013) find that PE firms generate returns by arbitraging debt and equity markets, thereby timing the market[3]. Another critical feature of PE funds is that, due to the closed-end fund structure, private equity firms seek to exit their investment. This research area remains in the shadows since the private status of portfolio companies and the interaction with the actual fund demand extensive data-collecting efforts. Kaplan and Stroemberg (2009) identify five main exit channels: IPO, trade sale, secondary sale, management buyback, and liquidation[4]. Past PE exit studies have mainly focused on IPOs as an exit channel[5][6]. Recently, a new string of literature evolved examining secondary sales as an exit route or the sale of a portfolio firm to another PE investor.

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Degeorge et al. (2016) highlight the growing importance of this exit channel as a way for PE funds to deploy "dry powder" or uncalled capital and its potential to create value and generate fund returns[7].

However, Kaplan and Stroemberg (2009) show that a PE firm's sale to a strategic acquirer (or trade sale) is the most common exit route[4]. In their sample from 1970 to 2007, 38% of portfolio firms were sold to strategic buyers. In contrast, only 24% were sold to another fund, and 14% were brought public via an IPO. This pattern has not changed until recently, as most exits in terms of the number of deals and deal value are still attributable to strategic buyers. Although a strategic sale is the most common exit route, surprisingly, evidence on this form is scarce. In this study, we ask: Does an acquirer profit from acquiring a PE portfolio firm? Or, in other words, do PE firms not only create substantial value and returns for their own benefit but also for a later industrial acquirer? Harford and Kolasinski (2014) show that such transactions can benefit a strategic acquirer under certain conditions[8]. However, they do not set returns directly related to a control group of regular transactions or examine the sources of such gains.

To answer our research question, we conduct an event study to assess the value creation of PE-backed transactions. Short-term announcement returns are a common component of studies in the M&A universe, whereas the long-term impact of acquisitions is only examined by a few (Rau & Vermaelen, 1998; Hazelkorn et al., 2004; Betton et al., 2008)[9-11]. Therefore, we also calculate long-term buyand-hold abnormal returns to provide further evidence of the value creation of PE-backed target acquisitions and M&A transactions in general. We expect the acquisition of a PE portfolio firm to outperform the control group of regular acquisitions in some cases since PE firms may be superior value creators[2][12], which could spill over to potential strategic acquirers.

This paper contributes to two strings of literature. First, we contribute to the M&A research by evaluating long-and short-term acquirer performance and the impact of important deal characteristics. Second, we also add to the private equity literature by comparing the trade sale performance of the acquirer to their counterfactual, identifying PE-specific factors that matter and providing evidence of how PE firm value creation. As mentioned above, many reseachers have examined the effectiveness of PE investments. In line with this, the purpose of this study is to determine whether strategic acquirers profit from buying a private equity (PE) portfolio company.

The remainder of the paper is organized as follows. Section 2 provides a literature review and develops hypotheses. In Section 3, we describe the sample and methodology. Section 4 provides our empirical results. Section 5 concludes.

## 2. Literature Review

## 2.1 Literature Review on Value Creation by PE Firms

How PE firms operate and reshape portfolio firms is a question that has captured researcher attention for a long time. While some argue that PE firms are short-termists who strip off assets and sacrifice long-term performance and investment (Lerner et al., 2011), most studies show that they add substantial and sustainable value to their portfolio firms. Lerner et al. (2011) find that PE involvement spurs innovation activity as meaningful patenting activity increases, thereby arguing that PE-backing often makes firms fit for the long-run by ramping up value-creating investments[2]. Operating efficiency improvements are another source of value creation for PE firms, which occurs according to Kaplan (1989) by providing managers with superior incentives[12].

One could suspect that part of a value creation spills over to the acquirer, effectively creating superior returns compared to the acquisition of a regular target. Past research indicates that this might be the case and that announcement returns are higher when acquiring a PE portfolio firm. For example, Harford and Kolasinski (2014) observe an average CAR of 2.1%, which is higher than the counterfactual sample of

Faccio et al. (2006) they cite, with an average of only 1.2%. However, this comparison lacks consistency since those are samples of two different studies with potentially heterogeneous characteristics[8][13].

Harford and Kolasinski (2014) investigate another channel in how PE firms earn returns: the wealth transfer from other stakeholders[8]. However, they find this is only observable when the acquiring firm has inferior corporate governance. Betton et al. (2008) argue that part of the announcement returns occurs not due to the deal but due to a reassessment of the acquiring firm itself[11]. Also, other papers, such as Harford et al. (2012), show that corporate governance matters and impacts abnormal returns in non-PE-backed target acquisitions as well[14]. Furthermore, Huang et al. (2016) find, for a sample of IPO exits, that PE firms do not expropriate other stakeholders[6]. They argue that reputational concerns dominate such incentives. Overall, previous studies suggest that the exploitation by PE firms may not be the primary driver of acquirer returns.

Existing studies find that some PE firms generate superior returns than their peers. Korteweg and Sorensen (2017) find that the performance difference in investor returns between a superior and inferior performing PE firm is highly persistent over time, with a return gap of 7-8% annually[15]. Braun et al. (2017) show, however, that return persistence declined as the PE industry matured[16]. Are champions in the PE industry better at transferring wealth to themselves from strategic acquirers, or are they just better at creating value through a better skill set, experience, and looser financing conditions? The latter seems to be the case (Alperovych et al., 2013), as PE firm experiences can be beneficial in improving efficiency post-buyout[17].

Acharya et al. (2013) show that PE portfolio firms outperform their peers because they have a better investment skill set[17]. They find that deal partners with consultancy/industry backgrounds are superior at facilitating organic growth through improving operating efficiency and boosting sales. On the other hand, partners with a banking background drive abnormal performance through inorganic growth with smart acquisitions. Da Rin and Phalippou (2017) find that larger funds are more specialized and have larger investment scope[18]. That indicates that large funds could have a superior skill set. All this evidence indicates that funds with a better reputation, through a superior skill set, experience, and size, could create more value, thereby creating a higher spillover to a portfolio firm's acquirer.

Gompers and Lerner (2000) measure a fund's reputation using fund size and age[19]. Previous studies also mention that the number of past deals/recent deals can be another indicator. Of course, some may question whether the pure fund size can be a good proxy for past experiences and relative ability to add value. Kaplan and Schoar (2005) find that returns are persistent in follow-on funds, and outperforming funds are more likely to be able to open a subsequent fund and obtain larger amounts of capital[20]. Additionally, such experienced funds have a less cyclical performance.

Another source of potential value creation for portfolio firms, from which the acquirer could also benefit, is heterogenous or even complementary skill sets between PE firms in an investment syndicate. Brander et al. (2002) show, in a VC context, that syndicates tend to add value by bringing managers with complementary skills together[21]. Furthermore, there may exist a relationship between reputation and syndication. Meuleman et al. (2009) find that a high reputation of a leading PE firm can mitigate agency problems in a syndicate[22]. However, Lockett and Wright (1999) show that syndication is primarily undertaken to share risk[23]. Therefore, especially when investment sums get large, the importance of complementary resources diminishes. Those conflicting findings make an interaction between fund size and syndication size a potential factor in explaining strategic acquirer returns.

Based on the above discussions, we anticipate that the value created from a PE firm may spill over to strategic acquirers. Therefore, we formulate and test the following hypothesis:

**H**: The acquisition announcement return for strategic acquirers acquiring firms from PE firms is higher than that of firms acquiring from other sources.

#### 2.2 Literature Review on Non-random Exit Choice

The primary endogeneity concern in this study is a selection bias, i.e., that the trade sale transactions cannot be compared directly to the control group of transactions where the target is not backed by a financial sponsor because they differ on several characteristics with potential value implications. This is because the choice of the PE firm to exit via a sale to a strategic acquirer is not random. For example, an exit via IPO or a secondary sale to another PE fund may be valid alternatives. Jenkinson and Sousa (2015) show that PE firms actively choose their exit routes by modeling trinomial logistic and hazard functions[24]. Other studies that find similar results are Giot and Schwienbacher (2007), who study the venture capital exit decision over time using survival analysis[25], and Sudarsanam (2005), who apply trinomial logistic functions on a sample of UK buyouts [26]. Jenkinson and Sousa (2015) find that the choice between a trade sale and an IPO is more determined by market conditions, i.e., a hot or cold IPO market and credit market conditions[24]. Harford (2005) shows that merger waves occur through industry shocks that stipulate the need to consolidate[27]. When accommodated by the necessary liquidity, these shocks only cluster into a merger wave. Potential value implications through merger waves and a potential endogenous impact through an exit "window of opportunity," which Sudarsanam (2005) state plays a major role in the choice of PE firm when to exit, making the Fed Tightening Index even more important[26].

Jenkinson and Sousa (2015) show that the choice between a strategic and secondary sale depends on target characteristics and piled-up uncommitted funds[24]. Portfolio firms that are more mature and have low investment needs to be paired with a high cash flow generating potential tend to be more suited to be sold via a secondary sale. They argue that those portfolio companies can better support LBO-related high debt levels. Other significant factors that Jenkinson and Sousa (2015) find are the log of total assets and EBIT margin[24]. Capex to total assets has an insignificant impact. Sudarsanam (2005) also find that whether the portfolio firm is in a high-tech industry matters[26]. Those characteristics could have abnormal return consequences for the acquirer and present a valid endogeneity concern. Hence we perform a propensity score matching based on the four variables log of total assets, EBIT margin, capex to sales, and whether the target is in a high-tech industry (SDC flag) to match control group transactions to the PE exits.

## 3. Sample and Research Methodology

## 3.1 Sample

Following Harford and Kolasinski (2014), we use the Refinitiv SDC Platinum database to track down M&A deals, including strategic exits[8]. We identify exit transactions by tracking the initial buyout, identifying involved PE players, and looking at subsequent transactions. While Harford and Kolasinski (2014) did not use a control group[8], we intend to use a different approach. We identify PE exits directly out of the control group sample. We screen for closed transactions in which the acquirer is a public, non-financial firm (sic code 6) and not a financial sponsor. A change of control must have occurred for a deal to be included in our sample. We screen for US acquirers but allow the target to be international.

Furthermore, the minimum deal size is set to \$50 million. Next, we use SDC's "buyout firm or financial sponsor firm involvement flag" to identify a PE strategic exit. By examining the deal synopsis, we find this approach is incomplete since transactions are also flagged when the acquirer is a financial sponsor/firm. However, excluding acquisitions where the acquirer is in the finance industry alleviates this concern. Finally, we use the CRSP daily stock returns file to obtain the daily stock returns of acquirers.

Our final sample consists of 10,942 transactions for which announcement returns are available,

covering the period from 2000 to 2019. Among the 10,942 transactions, 1,319 are identified as trade sales, or PE exits.

#### 3.2 Research Methology

#### 3.2.1 Announcement Return

The event of interest is the announcement of M&A. To estimate announcement returns, we use two event windows over the event date and apply the Carhart four-factor model, which adds momentum, as proposed by Carhart (1997)[28]. The four-factor model is an extension of the well-known three-factor asset pricing model and includes an additional factor to explain the cross-section of stock returns. The model uses four factors to explain the variation in stock returns:

$$r_{it} = \alpha_{it} + \beta_{1,it}RMRF_t + \beta_{2,it}SMB_t + \beta_{3,it}HML_t + \beta_{4,it}WML_t + \epsilon_{it}$$
(1)

RMRF<sub>t</sub> is the excess return of the market portfolio over the risk-free rate. SMB<sub>t</sub> is the size factor and defined as the difference between the returns of small stocks and large stocks. HML<sub>t</sub> is the value factor and is calculated by the difference between the returns of value stocks and growth stocks. Finally, WML<sub>t</sub> is the momentum factor, defined as the difference between the returns of stocks with high returns over the past 12 months and low returns over the past 12 months.

To measure the short-term impact of the acquisition announcement, we calculate CARs using an event window of (-1/+1) with an estimation window of (-181/-1). We also estimate CARs using a different event window of (-21/+21) with a one-year estimation window (-386/-21). We consider a long CAR window along with a short one because there could be potential run-up returns since, as Betton et al. (2008) stated, partial anticipation can bias abnormal return estimation. However, they find that the share that runs-up pre-announcement is significantly larger for target firms than bidder firms, implying that target M&A activity may be more anticipated than bidder M&A activity.

To assess the long-term performance of the acquirer, we estimate two long-term post-announcement buy-and-hold returns, 1-year and 3-year BHAR.

#### 3.2.2 Regression Model

The basic controls we use in our main regression model are deal characteristics that past research found important in explaining abnormal announcement returns. Those factors contribute to controlling for potential endogeneity since PE exit deal characteristics could differ significantly.

An identification challenge may arise in our analysis because the choice of exit route is not random but dependent on IRR pressure, market conditions, and firm characteristics, as Jenkinson and Sousa (2015) find[24]. This may lead to a selection bias, meaning that trade sales cannot be compared directly to other transactions due to significant differences in target characteristics and M&A timing. We perform a propensity score matching to gather a representative control group to alleviate the concern. We also control for multiple factors that are known to affect PE transactions or can add or destroy value for a strategic acquirer. Kaplan and Schoar (2005) show that some funds outperform their peers, leading to a higher reputation. These funds may be the best at adding value to a portfolio firm or acting as a certifier for the market, thereby potentially increasing gains for a strategic acquirer[20]. Also, Brander et al. (2002) show that PE funds syndicate to profit from complementary resources and skills[21].

Existing research indicates that the deal financing structure or the choice between cash and stock matters for acquirer announcement returns. However, evidence is mixed, but most studies indicate that a large share of stock impacts returns negatively. Hazelkorn et al. (2004) argue that this can be the case due to the behavioral incentive to offer a higher fraction of stock when the acquirer is overvalued and

the disciplining effect of debt issuance in cash deals[10]. Betton et al. (2008) find that the impact of deal consideration is potentially attributable to the target company status differences, where public target deals consist of a higher fraction of stock[11]. Past M&A studies include the consideration type with differing approaches. Harford and Kolasinski (2014) include a stock dummy if stock is offered and find that it negatively impacts acquirer returns[8]. In a different setting of examining dividend effects through takeovers, previous papers use the percentage of stock offered as a continuous variable. We follow the latter approach by calculating the fraction of deal consideration offered as stock.

Another factor that matters, according to Hazelkorn et al. (2004), is the deal type, i.e., focused mergers are seen as more favorable by the market than the diversifying counterpart[10]. This may be partly explained by the "playing it safe" agency problem hypothesis. *Focused* is a dummy variable that takes on the value of one when the target and acquirer are in the same industry (first digit sic-code). Otherwise, it is a diversifying acquisition.

Hazelkorn et al. (2004) also find that cross-border transactions can be associated with positive abnormal returns[10]. Although geographical and cultural differences may raise integration costs, the market sees the decision to enter a new geographical market as beneficial. *Crossborder* is a dummy variable that takes on the value of one if the target and acquirer country differ (SDC flag) and zero otherwise.

To account for time-invariant differences between industries, we add industry fixed effects to the regression model. We also include year fixed effects. Our main regression models are as follows:

$$CAR_{it} = \alpha_{i} + \beta_{1}PEexit_{i} + \beta_{2}Pctstock_{i} + \beta_{3}Focused_{i} + \beta_{4}Crossborder_{i} + \lambda_{i} + \eta_{t} + \epsilon_{it}$$

$$BHAR_{it} = \alpha_{i} + \beta_{1}PEexit_{i} + \beta_{2}Pctstock_{i} + \beta_{3}Focused_{i} + \beta_{4}Crossborder_{i} + \lambda_{i} + \eta_{t} + \epsilon_{it}$$

$$(2)$$

$$(3)$$

Our dependent variables are cumulative abnormal returns (CAR) over the event window of (-1/+1) and (-21/+21) in model (2) and buy-and-hold abnormal returns (BHAR) for one year and three years in model (3). The main explanatory variable, *PEexit<sub>i</sub>*, is a dummy variable that takes the value of one if the deal is a strategic exit by a PE firm and zero otherwise. *Pctstock<sub>i</sub>*, *Focused<sub>i</sub>*, and *Crossborder<sub>i</sub>* are control variables as defined above.  $\lambda_i$  is the industry fixed effects, and  $\eta_t$  is the year fixed effects. We use SAS and STATA to conduct empirical analyses.

# 4. Results and Discussion

#### 4.1 Summary Statistics

[Table 1] shows the summary statistics of the dependent variables. It reports the number of observations, mean, standard deviation, minimum, and the maximum of the four dependent variables used in this study. Panel A shows the summary staristics of the raw data, and Panel B shows the summary statistics after trim and winsorization.

Panel A of [Table 1] shows that the distribution of announcement returns is extreme, especially for BHARs. Short-term CARs have a mean relatively close to zero, but a relatively high standard deviation suggests that there are M&A transactions that add or destroy substantial value. The BHAR distribution seems problematic as it is extremely skewed. There are several potential explanations. First, it is well known that BHAR are noisy and lack power, which makes inference limited (Kothari & Warner, 2007). Second, we cannot rule out that there are any confounding events post-merger, such as industry shocks or other significant transactions. Third, we did not exclude the two major crises in the sample: the dot-

com bubble and the financial crisis.

#### [Table 1] Summary Statistics of Announcement Returns (%)

Panel A: Unadjusted Sample

	Ν	Mean (%)	Std. Dev.	Min (%)	Max (%)
CAR (-1/+1)	10,942	1.05	9.74	-47.67	431.32
CAR (-21/+21)	10,443	-0.34	19.18	-127.64	416.15
1-Year BHAR	10,443	-80.21	491.15	-20,529.60	1,648.80
3-Year BHAR	10,296	-88,218.00	7,409,692.00	-744,919.00	3,070.00

Panel B: Trimmed and Winsorized Sample

	Ν	Mean (%)	Std. Dev.	Min (%)	Max (%)
CAR (-1/+1)	10,942	0.89	5.79	-10.47	14.23
CAR (-21/+21)	10,443	-0.41	12.01	-20.65	19.00
1-Year BHAR	7,830	-4.58	39.64	-85.70	55.00
3-Year BHAR	7,715	-49.00	119.34	-371.00	99.00

To address the concern about outliers, we winsorize CAR (-1/+1) and CAR (-21/+21) at the 5% and 95% levels. With the problematic BHARs, we take an asymmetric outlier approach. BHARs are winsorized at the 90% level and trimmed at the 25% level. We trim instead of winsorizing at the 25% level because the BHARs exhibit unrealistically large negative returns up to the 25th percentile in their distribution, which we believe cannot be used for the analysis.

Panel B shows that the distributions are more stabilized after trim and winsorization. 1-year and 3-year BHAR have means of -4.6% and -49.0%, which suggests that a negative long-run performance on average followed acquisitions in our sample.

## 4.2 Main Results

[Table 2] presents the result of the t-test for differences in means of main variables between PE exit transactions (the treatment group) and the control group.

	PE Exits	Control Group	t-stat
CAR (-1/+1)	1.263	0.838	2.49**
CAR (-21/+21)	-0.055	-0.458	1.11**
1-Year BHAR	-3.383	-4.744	0.99**
3-Year BHAR	-43.051	-49.784	1.59**
Pctstock	16.25	17.23	-0.96**
Focused	72.90	74.10	-1.01**
Crossborder	23.05	20.49	2.14**

[Table 2] Differences in Means of Main Variables

Crude evidence that supports our hypothesis is that trade sales significantly positively impact the acquirer in the short-term, as the (-1/+1) window indicates. In the (-21/+21) window, trade sales also seem to have a superior short-term price reaction than other deals, but the difference is not statistically

significant. However, the long-term returns (BHAR) aren't significantly different between the two groups. The amount of stock offered in a deal and the distribution of focused and diversifying acquisitions are similar between the two groups. An interesting result is that strategic acquirers engage more in cross-border transactions when acquiring a PE-backed firm. One possible explanation may be that PE firms have a superior international network or that syndication with an international PE firm may increase crossborder bidding.

Next, [Table 3] shows our main result of multiple regression analyses. The dependent variables in columns (1)~(4) are CAR (-1/+1), CAR (-21/+21), 1-year BHAR, and 3-year BHAR. The main explanatory variable is the indicator variable, *PEexit*. In addition, we include three control variables described in the previous section as well as industry and year-fixed effects.

In column (1), the coefficient on *PEexit* is positive and significant. The result suggests that the acquisition announcement return in the (-1/+1) window is about 0.7% higher for PE-involved trade sales than other acquisitions. Our main result is consistent with the hypothesis that PE firms create value, and strategic acquirers benefit from the value creation when acquiring PE-backed firms. *PEexit* also positively impacts CAR (-21/+21) in column (2), but the coefficient is not statistically significant. Our results are consistent with Harford and Kolasinski (2014)[8], who also document a positive relationship between the announcement return and PE investment.

When examining the long-term effects of PE sales to strategic acquirers in columns (3) and (4), *PEexit* positively affects the 1-year BHAR, but the result is insignificant for the 3-year BHAR. Our result suggests that PE-involved trade sales are followed by 1-year BHAR that is on average 3.1% higher than that of the control group. To sum up, in [Table 3], we find that PE firm positively affects both the short-run and long-run returns of strategic acquirers, which suggests a substantial difference between acquiring a PE-backed target and a non-sponsored target. Overall, consistent with the existing literature and our hypothesis, these results suggest that value is created by the PE firm and spills over into the strategic buyer.

	(1)	(2)	(3)	(4)
	CAR (-1/+1)	CAR (-21/+21)	1-Year BHAR	3-Year BHAR
PEexit	0.737***	0.635***	3.118***	5.616***
	(3.44)	(1.36)	(1.78)	(1.04)
Pctstock	-0.006***	-0.022***	0.030***	-0.026***
	(-2.09)	(-3.74)	(1.29)	(-0.37)
Focused	0.592***	0.994***	1.188***	7.537***
	(3.59)	(2.78)	(1.64)	(1.85)
Crossborder	-0.073***	0.003***	-0.730***	-8.878***
	(-0.42)	(0.71)	(-0.51)	(-2.03)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	5,961	5,728	4,468	4,415
R2	0.029	0.013	0.026	0.023

[Table 3] Announcement Returns: OLS Regressions

# 5. Conclusion

This study aims to determine whether strategic acquirers profit from buying a private equity (PE) portfolio company. Whether PE firms create value and how they operate the firms they invest is a

question that fascinates researchers in finance and economics. However, research that attempts to answer this question from the perspective of a strategic acquirer who inherits a PE portfolio firm has been very scarce. This study is intended to fill a gap in the literature on PE firms by examining this interesting yet less explored topic.

We investigate announcement returns of over 10,000 M&A transactions by U.S. public firms from 2000 to 2019. We find that acquiring a PE portfolio firm benefits strategic acquirers and leads to a positive stock price reaction. This is novel evidence that part of a value creation spills over to the acquirer. However, this study has the following limitations. The sources of this premium have not been explored in this paper, and we believe this will be an interesting subject for future research. Future studies could also examine whether fund characteristics can explain which types of transactions add or destroy value, too. Overall, this study fills a gap in the literature on PE firms and provides important insights for strategic acquirers considering the acquisition of a PE-backed target.

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