Private Equity, Club Deals and Competition

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Abstract

Using a novel hand-collected data on leveraged buyouts (LBOs), I investigate three motivations behind club formation in private equity deals: collusion; risk-sharing in financing the deal; and riskiness of the deal. This evidence does not support the view that club deals reduce the competitiveness of the takeover process. Compared to LBOs sponsored by a single private equity firm (sole deals), club deals have a higher level of competition, especially in the private phase of deal negotiation. Consistent with this lack of collusion view, targets' stock price reactions around the acquisition announcement and takeover premia are similar in sole and club deals. Results provide support for the financing motivation of club creation. Club deals are larger, and clubs allow members to commit a lower amount of equity as percentage of deal value with respect to sole-private equity LBOs, sharing the risk of investing in the deal. Finally, data do not support the hypothesis that clubs are formed because the target firms are riskier than targets of sole-PE deals. In fact, while both club targets and sole-PE targets are less risky than targets in strategic deal, there is no significant difference between them. Examination of the SEC filings shows that the financing motivation is the only reported explanation provided by the acquirers to motivate the consortium.

JEL classification code: G34.

Keywords: leveraged buyouts, consortium, private negotiation, collusion, deal financing.

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1. Introduction

A new boom in private equity transactions has been observed in recent years, with a peak in 2016 and some large deals in 2018.[1] Private equity funds have raised more than half a trillion dollars worldwide for four years in a row, from 2016 to 2019. They have been the most active buyers during COVID 19 pandemic too, having invested $561.3 billion in 4,335 American companies.[2]

Another trend observed in recent years is the increasing willingness of financial institutions to co-sponsor leveraged buyouts (henceforth LBOs) by acting as equity providers. [3] According to the Global Private Equity Report for 2019 by Bain, co-sponsoring transactions allows private equity funds (henceforth PE) to access larger deals and deepen their relation with institutional investors. It also allows financial institutions to benefit from lower arrangement fees and, thus, better returns on their investments and it does not require them to be involved in the due diligence process and deal sourcing, which is left to PE. [4] Therefore, club deals, i.e. consortia of acquirers including at least one private equity firm, are of particular interest because they allow syndicate members to overcome issues associated with LBOs sponsored by single private equity firms. Indeed, clubs buy larger targets (Officer et al. [2010]) and get more favorable conditions on the deal, such as lower loan spreads, longer maturities and higher leverage thanks to PE group members' reputation (Stanfield [2020], Axelson et al. [2008] and Demiroglu and James [2010]).

[1] The biggest ones in 2018 are the LBOs of Thomson Reuters by Blackstone (with a deal value of about $13.5 billion), of Envision Healthcare (with a deal value of almost $10 billion) and BMC Software (with a deal value of about $8.5 billion) by KKR.

[2] https://www.investmentcouncil.org/2020investment/

[3] The most active ones are Canada Pension Plan Investment Board (CPPIB), Caisse de depot et placement du Quebec (CDPQ) and the Government of Singapore Investment Corporation (GIC).

[4] https://www.bain.com/insights/year-in-review-global-private-equity-report-2020/

Although empirical evidence has documented that, on average, positive effects predominate, some critics argue that PE funds have a negative impact on their targets. Indeed, since they have a limited life (usually ten years according to Kaplan and Stromberg [2009]) to deliver returns to their investors, they exploit their targets to make short-term money.[5] The press and the legislator have repeatedly expressed some concerns about PE collusive behavior, such that in 2006 the US Department of Justice started an investigation, but it soon abandoned it once the great financial crisis broke up.[6] More recently, in 2019, there has been a renovate interest by the legislator in private equity market and practices with the 'Stop Wall Street Looting Act' (SWSLA). [7]

This paper aims at showing that club deals are motivated by financing needs, not by collusion among members. On the contrary, club deals are characterized by a higher level of competition if compared to sole PE LBOs, although this competition occurs during the private phase of takeover negotiation.

Many studies have focused on LBOs, providing comprehensive evidence of their cyclicality (Robinson and Sensoy [2016]), their main drivers, their functioning (Kaplan and Stromberg [2009]) and effects on target companies (Boucly et al. [2011] among others) and on the private equity funds themselves (Stanfield [2020] and Humphery-Jenner et al. [2017]), but theoretical studies and empirical evidence on club deals is scarcer. On the one hand, Officer et al. [2010] provide evidence of collusion among the largest PE firms, which pay lower premium in club deals, thus reducing the gains for target shareholders. On the other hand, Boone and Mulherin [2011] show that joint bidding in LBOs is not detrimental to target shareholders since it fosters competition among potential acquirers. Other researches about possible anti-competitive effects of private equity transactions are in general more supportive of Boone and Mulherin [2011]'s view, even though they do not explicitly focus on club deals

[5]PE funds have been defined "locusts" by the German politic Franz Münterfering in 2004 because they exploit their targets to make short-term profits.

[6]https://www.nytimes.com/2006/10/11/business/equity-deals-attract-eye-of-justice.html

[7]In response to the concern that the high levels of leverage in the private equity market may have negative social consequences, the SWSLA proposed to eliminate the tax deductibility of interests and the limited liability for shareholders.

(e.g. Wang [2012] and Fidrmuc et al. [2012]).[8]

This apparently opposite empirical evidence can be reconciled with the theoretical study by Marquez and Singh [2013], who show that allowing for club of bidders may be beneficial if there are many interested acquirers. In this case, competition is enhanced and value is created for target shareholders. Therefore, in trying to determine whether or not PE firms are detrimental to target shareholders due to their collusive behavior, it is important to take into account other unobserved factors, such as the number of potential competitors and the bidding costs. This information may be crucial in explaining club formation and the differences between sole PE transactions and club deals in terms of risk and returns. Following this line of thought, my paper aims at investigating the rationales behind clubs formation by analyzing the private phase of PE deal negotiation. I first confirm previous literature by showing that private equity pays lower premium to target shareholders and it is associated with lower abnormal returns (see Bargeron et al. [2008] among others). This difference has already been explained with the substantial difference between PE and strategic buyers. Strategic buyers select their targets on the basis of specific characteristics that are complementary to their own to create a new integrated entity that will stay in business for as many years as possible. PE firms instead select mature and less risky targets with agency problems but with high potential for improvements. After having implemented financial engineering and corporate governance changes (Eckbo and Thorburn [2013] and Stowell [2017]), PE exits their investment to make profits (Kaplan and Stromberg [2009]). Therefore, LBOs do not signal the existence of synergies between target and acquirer (Harford et al. [2016]), which are at the basis of strategic business combinations. This allows strategic acquirers to exploit not only the common undervaluation component but also the private component, which financial buyers can not take advantage of (Dittmar et al. [2012]).

This absence of synergies is a characteristic both of sole PE and of club deals. However,

[8]Wang [2012] does not find evidence of collusion among PE firms in the UK market for secondary buyouts and Fidrmuc et al. [2012] also agree that PE buyers do not pay less for their targets: differences in premiums observed are due to the differences in firms being sold.

since multiple bidders invest in the same target in clubs, we can expect a different market reaction to these transactions, even if the direction is not clear a priori. Indeed, it may be that the market gives a higher valuation to these targets since more than an acquirer is willing to buy them, or it may be that the market gives them a lower valuation because the deal is larger, thus riskier. Surprisingly, there is no significant difference between sole PE and club deals, which is first evidence that the market does not price them differently. Also, target shareholders do not gain less when they sell their company to clubs since premium received is in line with premium received by shareholders selling their company to a single PE fund.

The absence of synergies and the different risk profile of strategic and PE takeovers is the main explanation given in the literature to different premium and abnormal returns observed (Bargeron et al. [2008] and Dittmar et al. [2012] among others). I test this conjecture on a sample of 4,462 US takeovers from 1995 to 2019 and find that PE buyers pay lower premium and a higher risk is actually associated with higher premium, but PE buying riskier targets does not pay higher premium. The same does not hold true when looking at sole PE and club deals (excluding strategic mergers), which is in line with Officer et al. [2010].

Once tested that risk is not what really distinguish sole PE and club deals, I focus on the subsample of LBOs sponsored by PE funds only (sole PE and club deals) and I analyze the private phase of the takeover process. Information disclosed in the SEC filings is of particular relevance since it describes the events that led to the public announcement of the merger and reports the amount of equity and debt used to finance the deal. However, there is no available database that collects these data. Therefore, I screen the filings and hand-collect the number of competitors taking part to the process, indications of interest and offers made to the target by non-winning and winning bidders, time taken to conclude the deal, price offered and amount of equity and debt used to finance the deal. Results from this analysis supports the financing hypothesis as main rationale for club formation. Indeed, club members commit less equity as percentage of deal value as they do in sole PE deals. In 28 transactions, the

filings explicitly say that the reason why bidders created the consortium was the need for funds to buy the target. The hypothesis of collusion among club members is not supported, though. Private takeover negotiation phase, the one happening behind closed doors, shows that there is a higher lever of competition in club deals than in sole PE transactions in terms of number of potential acquirers, number of offers made to the target and time taken to close the deal. Therefore, club deals are not detrimental to targets shareholders as compared to sole PE LBOs in terms of lower gains due to lower competition.

This study contributes first to the literature about private equity and, specifically, club deals. Previous literature has focused on positive effects of LBOs either on targets (Humphery-Jenner et al. [2017], Davis et al. [2014]) and Lerner et al. [2011] among others) or on PE firms (Stanfield [2020]). It has shown that PE pays lower premium than strategic buyers (Bargeron et al. [2008] and Dittmar et al. [2012]), even if this difference vanishes when accounting for the endogeneity implicit in the takeover process (Fidrmuc et al. [2012]). Syndication in the LBO market offers some advantages such as the possibility of exploiting PE members reputation, where more reputable PE members make the market perceive the transaction as less risky, thus allowing to get better terms on the deal (Axelson et al. [2008] and Demiroglu and James [2010]) and skills (Stanfield [2020]). I show that there is a difference in market reaction and in premium paid and it is linked to the different risk profile of targets.

A novel contribution is to the reason why clubs are created, that is for financing needs. Indeed, by hand-collecting the amount of debt and equity committed to the deal by single club members, I show that they tie significantly less equity than in sole PE deals. Another contribution is to literature about competition in the market for LBOs, and specifically, club deals. The theoretical study by Marquez and Singh [2013] reconciles Officer et al. [2010]'s results of collusion among largest PE firms and Boone and Mulherin [2011]'s findings of competitive explanation for consortia, with the need for taking into account bidding costs and number of competitors. Using novel hand-collected data from the SEC filings about

the private phase of takeover negotiations, I contribute to this argument by showing that club deals are characterized by a higher level of competition than sole PE deals. However, this competition is private since it occurs during the private phase of takeover negotiations, before the deal is publicly announced to the market.

The rest of the paper proceeds as follows: Section 2 reviews previous literature about private equity and club deals, Section 3 describes the sample and the variables, Section 4 presents the results and Section 5 concludes.

2. Literature review

Studies on the US market provide evidence of positive effects of private equity investing, concluding that on average buyout activities create value by improving operating performance (Humphery-Jenner et al. [2017], Boucly et al. [2011]), Wilson et al. [2012]), employment (Davis et al. [2014]), innovation (Lerner et al. [2011]) and corporate governance (Jensen [1989]). Acharya et al. [2013] and Scellato and Ughetto [2013] also find similar improvements for European deals.

An important characteristic of the LBO market are club deals, that is deals where PE firms club together with other companies or other funds to buy the same target. Empirical evidence about club deals shows both the positive and the negative effects of joint bidding, therefore it is not clear whether or not they are beneficial or detrimental to target shareholders.

Market reaction is a first proxy for how investors perceive LBOs and club deals in particular, how they react to their announcements with respect to strategic takeovers'. Bargeron et al. [2008] find that abnormal returns in public acquisitions are 63% higher than in LBOs and 35% higher than in private acquisitions, notwithstanding the method of payment and the targets' characteristics. These lower abnormal returns are due to the existence of operating

synergies between targets and bidders in corporate takeovers. Since PE firms cannot exploit these synergies with their targets, they pay systematically lower premiums. The same conclusion is reached by Dittmar et al. [2012] when observing that financial buyers (PE firms and groups of investors) are more skilled than corporate buyers at selecting targets with high potential for improvement but can only benefit from the common value component of a takeover. Corporate buyers are able to exploit the private value component of takeovers too, which is derived from synergies with target firm.

Evidence of lower premium in LBOs than in corporate takeovers is also documented by Cao et al. [2019] for a sample of global takeovers, but results hold on the US subsample too. When focusing on club deals, they find that they have significantly lower premiums than non-LBOs, after controlling for the self-selection of targets, thus suggesting that target shareholders of clubs receive lower offering prices than those of non-club deals. This result is in line with Officer et al. [2010], who find that premium[9] is significantly lower in club deals relative to sole-sponsored LBOs and other corporate takeovers, especially if institutional ownership is higher, and this discount is concentrated prior to 2006, when the Department of Justice started its informal inquiry. Although they acknowledge that it is not possible to distinguish between deliberate collusion and inadvertent reduction in bid competition due to PE firms partnering to buy the same target, lower gains for targets' shareholders are interpreted as evidence of collusion, thus agreeing with the concerns expressed by the press about reductions in premium paid to target shareholders in club deals.[10] Since there are no significant differences in observables, a part from the fact that targets of club deals are three times larger, they conclude that it is unlikely that targets' characteristics determine this lower abnormal return.

On the other hand, Boone and Mulherin [2011] find that abnormal returns for club deals are lower only over narrow event windows, but this difference vanishes when looking

[9]They follow Schwert [1996] in defining premium: it is the cumulative abnormal return over an event window starting 42 days before the announcement and ending 126 days after or when the target was delisted.

[10]AndrewSorkin, New YorkTimes, October 16, 2005. "Private equity firms face anticompetitive probe," The Wall Street Journal, October 10, 2006.

at longer event windows [11], which better accounts for differences in the takeover process for different types of bidders. Following Boone and Mulherin [2007], they also study how many competitors are involved at various stages of club deals and private equity deals, from the initial contacts between target and buyers to the submission of formal offers. Their analysis points to joint bidding fostering competition through resources and information pooling during auctions.

Boone and Mulherin [2007]'s competition measures are also used by Guo et al. [2011] to investigate the potential collusive behavior in club deals. They find that pre and post buyout returns are higher for target companies but not significantly related to other measures of competition, thus concluding that when ex-ante prospects of a deal are better, multiple firms are attracted and willing to participate. Fidrmuc et al. [2012] also conclude that observed differences in LBOs and non-LBOs premiums are due to differences in firms being acquired: more profitable and lower market-to-book firms get on average higher premiums. They acknowledge that premium determination is one part of the takeover process, which includes also selling mechanism and bidder type. When choosing how to sell their companies, managers take into account firm and deal characteristics, with more profitable firms and takeover markets with a high number of potential targets being more likely associated with auctions or controlled sales rather than with private negotiations. This choice has a feedback effect on the buyer type: private equity buyers are more likely to operate through controlled sales than auctions, having private negotiations as benchmark. However, premium is impacted by neither of these two choices and this is interpreted as evidence that PE buyers do not pay less for their targets with detriment to target shareholders.

Therefore, existing empirical evidence about premium and market reaction to LBOs and club deals in particular has different implications. On the one hand, lower premium and abnormal returns are interpreted as evidence of collusion among PE firms partnering to buy the same target at a significant discount, on the other hand, when taking into account

[11] Completion window starts 42 prior to takeover announcement and ends at takeover completion.

other variables and characteristics of the takeover process, such as private negotiation phase, results seem to support another explanation, that competition is not dampened by club of PE acquirers, but it occurs prior to the public announcement to the market.

In this paper, I analyze the market reaction and the premium paid to target shareholders in LBOs and club deals as opposed to strategic mergers to determine if PE firms really pay less than corporate bidders. This leads to the core question, that is the reason why club deals are created. Two interconnected explanations are risk sharing and deal financing. Jackson [2008] and Demiroglu and James [2010] underline the role of PE group reputation in making investors perceive the transaction as less risky, thus allowing them to take on more debt or at better conditions and benefit from higher leverage. Lower riskiness of the deal translates into narrower bank and institutional loan spreads, longer maturities and higher leverage. Therefore, I investigate whether premium paid to PE and club deals' target shareholders is lower because investors perceive the transaction as less risky. Indeed, PE tends to buy mature and less risky targets, with agency problems, but with high potential for improvements (Eckbo and Thorburn [2013] and Stowell [2017]). Since their business is to detect those kinds of targets (Dittmar et al. [2012]), the deal is viewed as less risky than corporate acquisitions. However, when focusing on the PE subsample, it is not clear a priori if club deals are safer than sole PE deals because multiple bidders buying the same target signal that it is worth investing in the LBO. Also, club members benefit from each other skills and reputation thus making premium lower.

When focusing on the PE subsample, differences in premiums between sole PE and club deals could also be linked to deal financing, meaning that buying larger targets require more funds to finance the takeover and club deals typically buy larger targets than sole PE deals. This is in line with Officer et al. [2010], who find that the only significant difference between sole PE and club deals targets is their size, where clubs' targets are three times larger. This leads to the other hypothesis for club formation, that is deal financing, with clubs requiring more funds than sole PE. Therefore, I look whether it is true that total equity committed to

clubs is higher in clubs than in sole PE and if single PE members contribute less equity in clubs than in sole PE.

Then, I complement the market analysis with the analysis of the private negotiation phase of sole PE sponsored LBOs and club deals to study if competition level is significantly different. The theoretical analysis of competition in club deals by **?** shows the importance of taking into account the cross-sectional differences in bidding costs and the number of potential competitors. When number of potential acquirers is low, allowing for clubs is detrimental for target shareholders since it reduces the expected values of the winning offer. However, when there are many interested bidders, clubs are benefi

cial for targets because value creation effect predominates. Also, when bidding costs are high and a club is already present, independent bidders are discouraged to enter the market, thus lowering competition ex-ante. Boone and Mulherin [2007] and Aktas et al. [2018] also show that most of the competition happens during the private phase of takeover negotiation before the deal is publicly announced to the market. Therefore, even if club deals mathematically reduce the number of competitors taking part to the bidding process, it does not mean that club members collude with detriment to target shareholders. Indeed, joining a PE club can also be beneficial, since it allows to go after larger targets and share risk, thus solving some investment restrictions that prevent firms from investing too large a fraction of their portfolios in one transaction only Jackson [2008].

3. Data and sample construction

3.1. Sample

I start retrieving a list of mergers and acquisitions from ThomsonOne Banker M&A module. The transactions of interests were announced and completed between January 1, 1995 and December 31, 2019 and have US public companies as targets. Following Officer et al. [2010], deal value has to be at least $1 million, the acquirer has to have an initial ownership of less than 25% and it has to close the transaction with at least 50% of the total shares in the target. Moreover, I impose a delisting event for the target within one year from the announced transaction (Officer et al. [2010]). I exclude bankruptcies, restructurings and target companies classified as REITs, closed-ended investment funds and financial institutions (SIC codes from 6000 to 6999). I also exclude MBOs and transactions funded by individuals, spin-offs, shares repurchases and stock splits. Finally, I drop private equity transactions for which related documents are not available on the SEC website. As last step, I match the resulting sample with Compustat and CRSP databases and I am left with 4,411 events. Sample criteria are listed in Appendix A, with number of observations reported at each step.

Then, I classify the deals on the basis of acquirers involved, both by manually searching the deal synopsis, as in Officer et al. [2010], and by verifying them with the SEC filings and internet searches, as in Boone and Mulherin [2011], to make sure of how many firms are involved in the deal and of how much they invested in the transactions. Deal synopsis from ThomsonOne Banker provides a short business description of the acquirer. However, this description is usually very general and sometimes fails to identify private equity firms, especially in cases when group of investors are involved. Thus, for transactions where financial and PE acquirers are involved, I screen the SEC filings (DEF14A, PREM14A, SC-T-TO, DEFS14A) to collect information about the bidder's type, searching for corroborating infor-

mation on the web when necessary. Following Officer et al. [2010], I also make reference to the list of companies classified as private equity firms in the Private Equity International (PEI) magazine [12]. However, unlike Officer et al. [2010], I do not place any restriction to the top 50 PE firms, but I consider all the 300 companies listed, to have the more precise information possible.

After this analysis, I created three categories of acquirers: strategic (3953 deals), sole PE (383 deals) and club (126 deals). Club deals are consortia comprising at least one private equity firm, with other components being either other PE firms or strategic ones. Sole-PE sponsored transactions are the ones promoted by a single private equity firm. Strategic acquisitions are performed by acquirers different from private equity funds, either financial institutions such as REITs, insurance companies, banks, asset management companies, investment funds, or purely strategic (non-financial companies). This category also includes deals completed by consortia of acquirers, i.e. deals with more than one bidder, different from private equity funds.

Table 1 shows the time series of takeovers considered for the analysis. The column *Total* is the sum of *strategic*, *sole PE* and *club deals*. As it has already been shown by Harford [2005] and Rhodes-Kropf et al. [2005] among others, mergers tend to happen in waves. My data capture the first merger wave of late 1990s, followed by a slow down, then another peak is observed before the crisis of 2008, after which the market freezes for some years, till it comes back to grow in recent years. This trend is evident in all the different categories of acquisitions. However, there is a difference between strategic acquisitions and LBOs. For deals sponsored by PE firms, either single PE firms or club deals, the merger wave observed before the 2008 crisis includes more deals than the first wave of late 90s. Indeed, the highest number of club deals is observed in 2005 (11), 2006 (15) and 2007 (14). A similar trend is observed for LBOs sponsored by sole PE funds, where 2006 and 2007 have the highest number of transactions, 27 and 25 respectively. 2010 and 2011 also had 22 and 27 single PE deals.

[12] https://www.privateequityinternational.com/pei-300/

This is higher compared to the late 90s wave, with a peak of 20 single PE deals in 1999 and a peak of 8 club deals in 2000. By contrast, the late 90s waves sees more strategic takeovers than the second wave, with a peak of 366 takeovers in 1999 and a peak of 166 takeovers in 2007. In recent years, starting from 2014, the trend of mergers is reversed. Indeed, we observe a decline in strategic takeovers and a rise in private equity deals, especially in LBOs sponsored by single PE firms,which is indicative of the increasing relevance of PE deals.

[Please Insert Table 1 here]

3.2. Variables and univariate analysis

In order to look at the differential effect generated by LBOs, and club deals in particular, I create binary variables for the acquirer's type: *PE*, which takes the value of one if the acquirer is a private equity company, either a sole PE or a club, and (*Club*) which takes the value of one for club deals. Moreover, given the investigation of the US Department of Justice of 2006 and the findings by Officer et al. [2010] that the discount in premium for target shareholders of club deals is concentrated before 2006 in targets with low institutional ownership, I also create the dummy *Club post2006*, taking the value of one if the club is after 2006 (79 deals) and zero otherwise (47 deals).

All the following variables are computed as of the end of fiscal year before the announcement date and they are winsorized at the 1st and 99th percentile.

Table 2 reports summary statistics for premium, abnormal returns, risk and control variables. Panel A compares LBOs sponsored by PE firms (either sole PE or club deals) to strategic mergers as benchmark, Panel B considers the subsample of PE transactions only. All the variables discussed below are defined in Appendix B.

As first measure of takeovers wealth effect, I use the *Premium* paid to target shareholders, as in Boone and Mulherin [2007], Alexandridis et al. [2013] and Aktas et al. [2018]. It is computed as the ratio of the offer price to the target stock price four weeks before the

announcement date, as reported in ThomsonOne, and it is restricted between 0 and 200 (as in Officer [2003]). Consistent with prior literature (see, for example, Fidrmuc et al. [2012]), PE buyers pay less for their targets, where the average premium is 35.37 compared to 44.77 observed in strategic transactions (the 9.4 mean difference is significant).

In order to look at the market reaction to deals announcement, I follow Officer et al. [2010] in computing four specifications of abnormal returns, using daily data from CRSP [13]. *CAR(-2,+2)* is the cumulative abnormal return over an event window starting 2 days before the announcement date and ending 2 days after, *Runup(-42,-1)* is the cumulative abnormal return from 42 days before the announcement till the day immediately preceding it, *Markup(0,+126)* is the cumulative abnormal return from the announcement day up to 126 days after (0,+126) and *Total Return(-42,+126)* is the sum of *Runup* and *Markup*. For estimating market model parameters, I make use of an estimation window starting 379 days before the acquisition and ending 127 days before it (-379,-127) and I require a minimum of 20 daily returns over this period (as in Officer et al. [2010] and Schwert [1996]).

CAR and *markup* are about 1% higher for PE deals than for strategic buyers but the difference is not significant. *Runup* is significantly higher for strategic mergers with an average value of 11.29% versus 5.94% for PE. Therefore, the market gives a higher valuation to strategic targets than to PE targets during the three months preceding the public announcement of the deal. This is first evidence that the market acknowledges that negotiations between targets and potential acquirers are taking place, even if privately, and updates its valuations accordingly. As a consequence of higher *Runup*, *Total Return* is significantly higher in strategic deals than in LBOs, with a 5.18% mean difference. This preliminary evidence is consistent with Officer et al. [2010], who find that targets of club and sole PE acquirers receive a lower market valuation than targets of strategic acquirers. Bargeron et al. [2008] also find that abnormal returns are higher when the acquirers is public strategic with respect to LBOs.

[13] All the dates used are trading days.

Targets of PE firms have a lower risk, as proxied by operating measure, *Cashflow Volatility* and market measures, *Residuals Volatility* and *Returns Volatility*, whereas differences in default probability, *PD*, and *Beta* are not statistically significant. They are also smaller in terms of assets, have higher leverage, less cash, a lower market valuation as proxied by Tobin Q (as in Bargeron et al. [2008]) and higher institutional ownership. They also invest less in terms of *Capex* and *R&D* (as in Bargeron et al. [2008]).

Finally, *Deal Value*, as reported in ThomsonOne, is higher for strategic deals (with a mean difference of $801.54 million, significant at 1%) and the degree of liquidity of market for mergers (*Industry MA Liquidity*) is also higher in strategic deals.

In order to investigate the rationale behind club formation, Panel B of Table 2 focuses on the characteristics of PE deals, distinguishing between sole PE and club deals. *Premium* paid to target shareholders is higher both in mean and in median values for sole PE transactions, but neither of these differences are significant. *CAR* has a mean (median) value of 27.88% (21.54%) for sole PE deals and of 19.74% (17.15%) for club deals, with this difference being significant at 5% level (5%), thus meaning that the market evaluates targets of club deals less than targets of sole PE LBOs in a five days window centered around the announcement date. This is consistent with Officer et al. [2010] and Boone and Mulherin [2011]. Average *Markup* is 8.98% higher for sole PE deals, significant at 5% (median *Markup* is 9.28% significantly higher). *Runup* and *Total Return* are not significantly different between sole PE sponsored LBOs and club deals, though (only median *total return* is significantly lower for club deals).

Similar to what we observed on the full sample, most of the market reaction is concentrated in the 2 days before and after the announcement (*CAR*) and in the six months following the announcement (*Markup*), with a lower reaction in the three months preceding the public announcement. However, CARs for targets of strategic buyers are significantly different from CARs of targets of LBOs only in the three months preceding the public announcement (*Runup*), whereas when focusing on LBOs only, CARs for targets of sole PE are significantly different from CARs of targets of club deals in the months following the

announcement (*Markup*) and in the days around it (*CAR*). As for risk measures, club deals are less risky than sole PE in terms of *Returns Volatility* and *Residuals Volatility* (0.03 for clubs versus 0.04 for sole PE), whereas *Beta* is higher for club deals. Mean and median differences for *PD* and *Cashflow Volatility* are not significant.

As it can be expected, targets of club deals are bigger in terms of assets, have a higher percentage of institutional ownership and a better performance with respect to the market in the year preceding the deal announcement (as in Officer et al. [2010] and in Boone and Mulherin [2011]). Also, *Deal Value* is significantly higher for club deals (with an average difference of $1412.8 million and a median difference of $474.91 million).

[Please Insert Table 2]

Table 3 reports summary statistics of clubs composition. *Club members* is the number of firms taking part to the consortium, distinguished among *PE members*, *inancial members* and *strategic members*. Mean number of club members is 2.74 (median is 2). Most of those members are PE firms, only few of them are strategic, with financial in between. Variables are winsored at 2.5% and 97.5% level.

[Please Insert Table 3 here]

Summary statistics about competition variables are presented in Section 4.4, together with multivariate analysis.

4. Empirical Analysis

In previous univariate analysis I have provided preliminary evidence that targets of PE firms have different characteristics from targets of strategic buyers, whereas targets of club deals are bigger than targets of sole PE transactions and have higher institutional ownership. Also, tests for mean and median differences find higher premiums for strategic mergers and

differences in targets CARs depending on the acquirer type (Bargeron et al. [2008]).
In this section, I better investigate the market reactions to the takeovers, the premium paid to target shareholders and the risk profile of targets as possible explanation of differences observed. Then, I document that financing is the main reason why clubs are created and, last, I show that clubs do not dampen competition with detriment to target shareholders. On the contrary, they are characterized by a higher level of competition than sole PE LBOs during the private phase of negotiations, before the deal is publicly announced.

4.1. Premium and market reaction

Table 4 reports the results of OLS regressions of takeover premiums paid to target shareholders (Column 1) and of CARs over different windows around the merger agreement (Columns from 2 to 5) on PE variables and factors known to affect premiums and market reactions. PE buyers pay less than strategic buyers, but club deals do not pay significantly less than other buyers. As for the market reaction, *runup* is negative and significant for PE (Bargeron et al. [2008]) and club deals, *total return* is negative and significant for *PE*, whereas neither *CAR* nor *markup* are significantly different between PE and strategic acquirers. Therefore, in the three months preceding the deal announcement, during the private negotiations phase, some information leakage about LBOs occurs, such that the market gets to know something is going on and reacts to PE and club targets. This result is consistent with prior research on private equity, where it has been found that there is a significant leakage of information prior to formal takeover announcement (Kaplan [1989] and Lehn and Poulsen [1989]).

In line with Bargeron et al. [2008], companies with higher leverage, lower market valuation, lower (higher) stock performance in the previous 12 months and more liquid markets are associated with positive CARs (premium). Also, a higher percentage of institutional ownership has a negative impact on premium paid to shareholders.

[Please Insert Table 4 here]

Table 5 replicates the analysis of Table 4 on the LBOs subsample. When I exclude strategic takeovers, I do not observe any significant difference between sole PE and club deals. This result is in line with Boone and Mulherin [2011], who do not find any significant difference in abnormal returns of club deals and sole PE deals. Officer et al. [2010] find that clubs have lower abnormal returns than sole PE, however they restrict their sample to prominent PE firms, thus excluding smaller deals, which are included in Boone and Mulherin [2011] and in my sample.

[Please Insert Table 5 here]

Results from Table 4 and 5 highlight that transactions sponsored by PE firms receive lower premiums and are evaluated by the market differently from strategic takeovers. However, when focusing on the LBOs only, I do not observe differences in premium and in market reaction..

The fact that PE buyers pay less than strategic ones is in line with strategic acquirers being able to exploit synergies with their targets (Bargeron et al. [2008]). By contrast, PE firms buy a company with the aim of making improvements through financial engineering and corporate governance changes to successfully exit the investments after some years. PE buyers can not exploit synergies with their targets (private value), but they can only benefit from the common value component of transaction (Dittmar et al. [2012]). This is why PE selects safer companies to buy, then makes the deal riskier by leveraging it.

The result of positive *Runup* for clubs and negative *Runup* for sole PE suggests that what happens during the private negotiations phase affects market valuations, which may be different in clubs and sole PE deals. Indeed, since *Runup* is computed during the two months preceding the public announcement, it means that the market is aware that negotiations are

taking place and it changes its valuations of targets accordingly.

4.2. Deal risk

Once confirmed that LBOs premium is lower than strategic premium, I relate this difference to target level of risk. Univariate analysis supports the hypothesis that target risk differs between strategic mergers and LBOs and also between sole PE and club deals. Therefore, I first test if risk has an impact on target selection, then I investigate whether risk can explain the difference observed in premium paid to target shareholders.

Table 6 Panel A reports the results of a logit model estimating the probability of being acquired by a PE firm, either sole PE or club deals. Target risk is proxied both by an operating measure as in Officer et al. [2010] and Furfine and Rosen [2011] (*Cashflow Volatility*) and by market measures (*PD*, *Beta*, *Residuals Volatility*, *Returns Volatility*). All the risk variables, with the exception of *PD*, have negative and significant coefficients, indicating that PE buyers are more likely to bid for relatively safer targets. These targets are also smaller, have higher leverage, less cash, lower market valuation and higher institutional ownership.

However, when moving to PE subsample (Table 6 Panel B), only *PD* is higher for targets of club deals, meaning that a higher default probability makes more likely that the company becomes target of a club. Also, bigger companies with higher leverage are more likely to be acquired by club deals, as expected. These results are in line with Officer et al. [2010], who find no significant difference between risk level of sole PE and club deals.
Therefore, as supposed, target risk is significantly different between strategic mergers and LBOs, but it is not what drives PE firms to create consortia to buy targets.

[Please Insert Table 6 here]

Given the difference in target risk documented above, it may be that lower risk of PE

targets explains the lower premium paid to shareholders. Results in Table 7 Panel A confirm the above finding that PE tends to pay lower premium. Moreover, level of risk impacts positively on premium, that is acquirers pay higher premium when target risk is higher. However, coefficients on interactions between risk measures and *PE* are not significant, providing no support to the conjecture that PE buyers acquiring riskier targets pay higher premium.

In Table 7 Panel B, I repeat the same analysis on LBOs only and I observe difference neither between sole PE and club deals nor in the risk level.

[Please Insert Table 7 here]

Overall, these results confirm previous findings that PE pays lower premium and buys safer targets than strategic acquirers, but PE buyers of riskier targets do not pay significantly different premium. Also, there is no significant difference between sole PE and clubs risk, meaning that risk is not one of the main reasons why PE firms club together to buy a given target.

4.3. Why are clubs formed?

Given the above findings that risk is significantly different between strategic and PE targets but it is not between sole PE and club deals, I turn to the financing side of the LBOs as distinguishing feature of sole PE and club deals.

In order to investigate the financing rationale for club formation, I collect the total amount of equity committed by bidders to the deal and, for clubs, the amount of equity committed to the deal by each member, and the total amount of debt obtained to finance the deal. This information is hand-collected from the 'Financing of the Merger'/'Sources and Amount of Funds' section of the SEC filings. Unfortunately, financing commitments are not available for all the deals: there are 368 deals whose documents report the total amount of debt and equity committed by bidders, 112 of them are club deals and 256 are sole sponsored

LBOs. For 63 club deals, documents also report the split of equity contributed by each participant.[14]

If it is true that the need for financing larger deals is behind club formation, PE firms should tie a lower or equal amount of equity to club deals than in sole PE LBOs. Also, if we consider the funds committed to the deal by the single PE firm, it should be the case that when PE firms take part to club deals, they commit less or the same amount of equity because they take advantage of the possibility of collaborating with other companies to bid for a given target.

Panel A of Table 8 reports summary statistics for the financing variables. *Equity (%)* is the total amount of equity committed to the deal by the acquirers as percentage of the deal value. *Equity PE1 (%)* is the amount of equity committed to the deal by the single PE firm in sole PE LBOs (thus equal to total equity) and by the highest PE contributing member in club deals. *Debt (%)* is the amount of debt obtained from investment banks or financial institutions to finance the deal. The deal value is retrieved from the SEC filings and it is the sum of equity and debt minus cash on hand of the target when used to finance the deal. When the deal value is not available, I use the deal value reported in ThomsonOne.

Sole PE firms contribute more equity than clubs to the deal, with a mean of about 45.91% for sole PE and 40.28% for clubs. This 5% difference is statistically significant. Officer et al. [2010] find an average equity contribution of 33.7% for sole PE and 38.2% for clubs.

When looking at the split of equity contributed to the deal by each member of the club, there are only 63 cases where information is available. These data are used to compare the amount of equity contributed by the single PE firm to the PE firm member of the club that contributed the highest amount of equity (leading PE). Mean equity contribution is significantly higher for sole PE deals (about 45.91%) with respect to clubs, where the leading PE committed to the deal only the 30.31% of total equity (median is 39.84% for sole PE and 21.47% for clubs). Debt used to finance the transaction is not significantly different between

[14]It is not compelling for firms filing the document to disclose the amount of equity and debt used to finance the deal, therefore some of them do not do it. This is the reason why data are incomplete.

clubs and sole PE. Thus, total equity committed to the deal is not significantly different between clubs and sole PE, the difference is in the amount of funds committed by the single acquirer, which means that need for funds is an important driver of club formation.

Panel B of Table 8 reports the results of OLS regressions of club dummy on financing variables and target size. The total amount of debt and equity is not significantly different between sole PE and club deals, which is consistent with Officer et al. [2010]. However, there is a significant difference when looking at individual PE firm contribution. In club deals the leading PE firm committed significantly less than the single PE firm in sole PE deals (Column 2 of Table 8).

Overall, these results show that, controlling for target size, there is no significant difference in the total amount of debt and equity. The difference is observed in the amount of equity contributed by the single PE firm, which is lower in case of clubs than in sole PE transactions. This supports the hypothesis that club deals are actually created because firms need more resources than what they actually have to conclude the LBO.

[Please Insert Table 8 here]

Financing need could be linked to risk sharing, meaning that it may be the case that clubs are created not only because larger targets require more funds to be bought due to their size, but also because they are riskier. LBOs involving riskier targets require a higher percentage of equity to be funded because it is harder to obtain debt financing from banks and financial institutions.

Results from OLS regressions in Table 9 show that club deals do not commit a significantly higher percentage of equity than sole PE. *PD*, *Residuals Volatility* and *Returns Volatility* have a positive effect on the equity percentage, meaning that the higher risk of target, the more equity bidders have to contribute. This is likely due to the fact that it is hard to obtain debt financing when the market considers target a risky investment.

However, club deals' targets that are considered riskier by the market (higher *PD*, *Beta*,

Residuals volatility and *Returns volatility*) do not require more equity financing as percentage of deal value, since interactions between risk variables and *Club* are not significant. The only significantly negative interaction is *Cashflow Volatility x Club*, meaning that targets of club deals that are riskier from an operating point of view require less equity financing.

[Please Insert Table 9 here]

Table 10 repeats the same analysis as Table 9, but it considers as dependent variable the percentage of equity committed to the deal by single PE firm in sole PE and by the highest PE contributing member in club deals. In this case, the base effect of *Club* is negative and significant only when using *PD*. Coefficients on the same risk measures as in Table 9 are positive and significant, thus higher *PD*, *Residuals Volatility* and *Returns Volatility* for target requires higher percentage of equity committed to the deal by the highest PE contributing member. The only significant interaction is on *Cashflow Volatility x Club*, meaning that targets of club deals that are riskier from an operating point of view require less equity financing by the PE leader. Baseline effects are not significant, though.

Taken together, these results show that target risk as proxied by market measures has an impact on the amount of equity committed to the deal (both the total amount and the amount of individual firms), with more equity required when risk is higher. This is likely due to the fact that it is hard to get debt financing for the LBOs from lending banks and institutional investors. However, the percentage of equity committed does not change between clubs and sole PE, but it changes according to the risk of the target.

[Please Insert Table 10 here]

4.4. Do club deals dampen competition in the market for LBOs?

I have provided evidence above that financing is the main reason behind club formation. However, it is still to be investigated whether or not club deals are detrimental to target

shareholders with respect to sole PE transactions. Using hand-gathered data from the SEC filings, I compare club deals to sole PE LBOs as benchmark. SEC filings disclose important information about non public events that led to the public announcement of the deal in the 'Background to the merger' section.

If PE members of the club really colluded to get better terms and to pay lower price, there should be a significant difference in the private negotiation phase of club deals with respect to sole PE transaction. This should translate in less participants involved in the bidding process, less offers from the winning club and less indications of interest from competitors. Also, it should take less to conclude the deal, since competition is harmed from the beginning.

Panel A of Table 11 reports summary statistics for the variables used to analyze the private phase of LBOs negotiations. Similar measures have been used by Boone and Mulherin [2007] and Boone and Mulherin [2011]. In showing that much of the competition happens during private phase of takeover negotiation, they compute the average number of potential bidders involved at various stages of the process, from the initial contacts to the submission of private and public bids.

The first information of interest is the number of participants involved in the process, where participants are companies that at some point of the negotiation process were interested in the target. Some of them asked for information [15], went through the due diligence process and presented a formal bid to the target with price range. Some others only asked for information or were interested in the target but then withdrew without bidding for the target. *Total Participants*, as distinguished between *Strategics* and *Financials*, include all the companies that at some point of the process intervened, without necessarily bidding. The category 'financials' includes both private equity firms and financial companies, such as investment banks and asset management companies, since the filings do not distinguish among them, labeling them generically as financials. In club deals, there are significantly

[15]Companies that ask for information are potential acquirers that had some contact with the target, inquiring about targets' financials, operations, market share, products.

more participants involved in the process, both *Financials* and *Strategics*, even if *Financial* companies are more than *Strategic* ones. In about 55% of clubs, the first participant to the takeover is one of the member of the club itself, in the remaining cases it is another company (strategic in 19% deals and financial in 26% deals). Only in 17 deals, the first participant was the winning consortium. For sole PE deals, the first participant was the winning PE firm in 63% transactions, a strategic company in 17% cases and a financial company in 19% cases.

Indications of Interest is the number of offers that targets received from non winning bidders, thus accounting for the number of firms that bid for the target but lost the competition. They are higher in club deals, meaning that there are more bidders in club deals, the difference is not significant though. In club deals, targets receive more *Offers* than in sole PE sponsored transactions, meaning that winning club changed its proposal in terms of price more than sole PE acquirer. Clubs revise their offer price more than single PE. In 50.39% of the clubs, final price of the deal is equal to the maximum price discussed during the private phase of negotiation, in the remaining 49.61% of the cases, final price is at some point in between minimum and maximum price discussed. In sole PE LBOs, 61.46% of the deals are concluded with final price equal to the maximum price.

Comparing these statistics with Boone and Mulherin [2011], average values are lower. For example, in computing *contact*, which is the average number of potential bidders with which the target and its investment bank were in contact, they find a mean of 31.6% for sole PE and 33.5% for clubs. The *total participants* involved in the transaction are on average 3.78 for sole PE and 6.99 for clubs, thus supporting the hypothesis that there is more competition in clubs than in sole PE. The difference is due to the fact that I only consider potential acquirers that were specifically identified in the filings with letters or numbers. As for *Indications of Interest* and *Offers*, I only consider the ones that reported either a specific price or a price range. Similar to Boone and Mulherin [2011], targets of club deals receive more indications of interest than targets of sole PE (2.08 versus 1.77).

Losers, that is companies that took part to the process either bidding or just asking for information, are significantly more in club deals.

Clubs also take more *Time* to conclude than sole PE, where *Time* is the number of months needed to conclude the transactions, from the initial contacts between target and first participant or from the date when the Board of Directors deliberated to put the company up for sale, to the public announcement of the deal.

These results suggests that club deals do not harm the competition of the takeover process. Even if this competition happens behind closed doors, it is still there, it only happens in the private phase of the negotiations. These results are in line with Boone and Mulherin [2011], who show that competition is higher in clubs than in sole PE deals.

Additional characteristics of LBOs collected when reading the filings are that clubs are formalized towards the end of the negotiations, meaning that members of the club first enter the process alone, then choose to create a consortium with other companies. There are a few cases (7) where some members of the club withdrew before the deal was closed, meaning that they were part of the consortium but then chose to withdraw for unspecified reasons. 28 clubs explicitly say that the reason why they created the consortium was for financing needs, that is the target was too big and they did not have the financial resources to buy it alone. All the other 98 clubs do not say why they choose to create the consortium.
In 9 clubs, members first made offers as separate bidders, then chose to create a club and bid together, whereas in 62 clubs members made their first offers together. In the latter case, they entered the process alone, but their first offer with a price specified is done as consortium. Only 24 deals started as clubs, meaning that the winning club first entered the process as club since the very beginning.

In about 46% of club the takeover process started because the Board of Directors chose to put the company up for sale, whereas the corresponding percentage for sole PE deals is 39%.

Results from OLS regressions in Panel B Table 11 show that the process leading to the

merger agreement sees a higher number of *total participants* involved, both *Financials* and *Strategics*, in club deals than in sole PE LBOs. Financial companies taking part to negotiations are almost double than strategic companies in club deals. Of course, there are also more non-winning participants, where *non-winning participants* are firms that took part to the competitive process but did not win it (they are computed as the difference between *Total Participants* and winning members of the club).

Club deals also take more time to conclude, where *Time* is measured in number of months from the beginning of the takeover process to the public announcement of the deal. The beginning of the process is the date when target's Board of Directors deliberated to put the company up for sale if they did so, otherwise, if the process was not target initiated, it is the date when target was first contacted by a potential bidder to inquire about the possibility of a business combination.

Clubs' targets receive significantly more indications of interest from competitors (*Indications of Interest*) and more price revisions by actual acquirers (*Offers*) than sole PE deals. I consider them when they have a price or a specified price range. *Offers* are formal offers by winning bidder, that is the number of proposals made to the target by the single PE firm in case of sole PE sponsored deals or by club members in case of club deals. [16] Therefore, this variable counts the number of price revisions made by winning bidder. *Indications of Interest* are the ones received from non-winning bidders. That is, *Total Participants* is the number of firms that took part to the process but need not to have made a bidding proposal. Some of those *Total Participants* just requested information about the target without making proposals, others had an active bidding behavior.

The last column is a probit regression for the probability that final price paid to target shareholders is equal to the maximum price offered by acquirers during the private phase. If firms really colluded to get to pay lower price to target shareholders, I should observe a

[16] In case of clubs, since the consortium formalization happens towards the end of the deal and in most cases winning members made single offers before the club was created, I also consider those offers in the variable.

negative and significant coefficients on *Club* variable. Yet, this coefficient is not significant.

In unreported analysis, I run the same regressions with a Poisson and a negative binomial model and results are the same as in simple OLS regressions. Finally, results are also robust to the inclusion of control variables.

Taken together, this is evidence of higher competition in club deals with respect to LBOs sponsored by single PE firms. Indeed, there are significantly more participants involved, both financial and strategic. Competing firms that actually bid for target are significantly more in club deals and the acquiring club revises more often its initial offer. Also, the probability that final price paid to target shareholders is equal to the maximum price discussed is not significantly higher. Last, clubs take more time to conclude the merger agreement. Therefore, we can conclude that firms do not collude in creating clubs to get better terms or lower prices. Similar results have been reached by Boone and Mulherin [2011], who show that LBOs do not inhibit competition among bidders and consortia among PE firms do not have a collusive effect with detriment to target shareholders.

A similar conclusion is also reached by Guo et al. [2011], who reject the hypothesis of potential collusive behavior in club deals, concluding that PE firms bid jointly when target companies have better ex-ante prospects, thus being more attractive investments.

[Please Insert Table 11 here]

4.5. Additional Analysis and Robustness Checks

Since Officer et al. [2010] find that abnormal returns for target companies are concentrated in targets of club deals with low institutional ownership before 2006, I verify this result in my sample, adding a dummy variable *Club post 2006* equal to one for club deals occurred after 2006 (Table 12). Results confirm what the ones discussed above, that is lower *Premium* and *Runup* for *PE* and higher *Premium* and *Runup* for clubs. Moreover, *Premium* is signif-

icantly lower for club deals concluded after 2006, thus meaning that after the financial crisis clubs pay target shareholders less. *Total return* is lower for LBOs than for strategic mergers and even lower for club deals after 2006, thus supporting Officer et al. [2010] findings of lower premium for club deals after 2006. However, when focusing on the LBOs subsample, I do not observe any difference between sole PE and clubs and between clubs after and before 2006. This result is in line with Boone and Mulherin [2011], who also do not find evidence of this discount.

[please Insert Table 12 here]

In order to control for target self-selection in LBOs, I run a two-stages Heckman regression and perform the same analysis as above, as in Boone and Mulherin [2011]. Results are displayed in Table 13. First column of Panel A is the first stage, which estimates the probability of becoming target of a PE buyer. Smaller targets, with higher market valuation, higher institutional ownership, lower cashflow volatility and less R&D investments are more likely to be selected by PE firms. Level of liquidity in M&A market also impacts negatively on the probability of becoming target in an LBO.

Other columns of Panel A report the results for premium and CARs, in general supporting what I have already shown in basic OLS regressions, that there are no appreciable differences between sole PE and club deals. *Inverse Mills Ratio* is significant in explaining CARs, but not premium, thus meaning that target self-selection is actually there. However, results are in line with basic OLS regressions, with higher *Runup* for club deals and no appreciable difference between sole PE and club deals in premium and CARs.

Panel B displays the results for the financing hypothesis and Panel C for the collusion hypothesis. Results found above are robust to target self-selection, with *Inverse Mills Ratio* not significant in any of the models. Club deals can be explained with the need for financing and they are associated with higher level of competition. Debt and total equity commitments are not significantly different between sole PE and club deals, but highest contributing mem-

ber of a club pays significantly less than single PE firm. A higher number of competitors is involved in clubs, both strategic and financial, more offers are received by target clubs, clubs take more time to conclude and price paid is not more likely to be the highest one discussed during the private phase.

[please Insert Table 13 here]

5. Conclusions

Using a novel dataset of hand-collected data about the private phase of LBOs negotiations, I show that financing is the main reason why clubs are formed. Indeed, club members commit a significantly lower amount of equity as percentage of deal value than what they do in sole PE transactions. Also, club deals do not harm the competitive process of takeover negotiations with detriment to target shareholders. On the contrary, the opposite holds true, since club deals are characterized by a higher number of potential acquirers, more offers are received by clubs' targets, more time is needed to reach an agreement and price is not likely to be the highest discussed during the private negotiations. Thus, the paper sheds light on the reason why PE firms join other acquirers, both other PE funds and other companies, to buy a given target. Also, it contributes to the debate about the possible collusive behavior of PE club members, showing that clubs are characterized by higher competition than sole PE deals.

Consistent with prior literature, market reaction and premium paid to target shareholders are lower in PE deals than in strategic takeovers. This is due to the absence of synergies in LBOs, which can be exploited in strategic mergers. However, no appreciable difference exists between sole PE and club deals, thus meaning that the market distinguishes LBOs from strategic takeover, but not single sponsored LBOs and club deals. Target risk plays a role in explaining the probability of being acquired by a PE firm, with PE buying safer targets but no difference once again between sole PE and club deals.

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TABLES

Table 1: Time series of takeovers.
The table reports the time series of takeovers by year of announcement. First column considers all the takeovers, other columns split the sample according to acquirers' type, strategic vs PE (sole PE or club deals). *Total* is the sum of *strategic* takeovers, *sole-PE* sponsored LBOs and *club deals*.

	Total	Strategic	Sole-PE	Club deals
1995	190	187	3	0
1996	204	197	7	0
1997	305	288	16	1
1998	359	345	10	4
1999	391	366	20	5
2000	312	290	14	8
2001	228	220	5	3
2002	137	131	3	3
2003	143	126	11	6
2004	134	120	8	6
2005	173	148	14	11
2006	195	153	27	15
2007	205	166	25	14
2008	126	112	12	2
2009	116	103	11	2
2010	151	125	22	4
2011	127	94	27	6
2012	127	106	19	2
2013	104	82	20	2
2014	113	97	10	6
2015	143	126	9	8
2016	142	112	24	6
2017	119	92	23	4
2018	111	86	21	4
2019	107	81	22	4
Total	4,462	3,953	383	126

Table 2: Summary statistics.
Summary statistics for targets of takeovers are displayed below. Panel A compares strategic mergers to PE LBOs (without distinction between club deals and sole PE transactions). Panel B splits the PE subsample into sole PE sponsored LBOs and club deals. Panel C reports summary statistics for competition and financing variables derived from the manual analysis of SEC filings. Variables from Panels A and B are winsored at 1% and 99% level; variables from Panel C are winsored at 2.5% and 97.5% level. Last two columns of each panel report the results for ttest of mean differences (with p-value in parenthesis) and the p-value associated with a non-parametric k-sample test on the equality of medians. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

Panel A

	Strategic				PE					
	Mean	Median	Std dev	N	Mean	Median	Std dev	N	ttest (p-value)	P-value median
Premium and Abnormal Returns										
Premium	44.77	37.03	34.58	3740	35.37	30.12	26.90	500	0.000	0.000
CAR (%)	24.95	20.15	26.40	2880	25.49	19.22	25.09	278	0.744	0.534
Runup (%)	11.29	8.50	27.28	2880	5.94	5.29	21.11	278	0.001	0.004
Markup (%)	24.93	21.12	39.23	2880	25.10	22.09	32.89	278	0.945	0.797
Total return (%)	36.23	33.02	50.32	2880	31.05	26.44	38.98	278	0.094	0.012
Risk measures										
Cashflow volatility	0.06	0.03	0.08	3705	0.03	0.02	0.05	496	0.000	0.000
Returns volatility	0.04	0.03	0.02	3170	0.03	0.03	0.01	325	0.000	0.000
Residuals volatility	0.04	0.03	0.02	3149	0.03	0.02	0.01	325	0.000	0.000
PD	0.02	0.00	0.12	3335	0.01	0.00	0.12	356	0.693	0.226
Beta	0.83	0.73	0.65	3149	0.74	0.64	0.58	325	0.021	0.294
Controls										
Size	1246.83	184.34	3471.96	3953	901.92	276.34	2042.66	509	0.028	0.000
Leverage	0.22	0.17	0.23	3923	0.24	0.20	0.23	508	0.047	0.080
Cash	0.23	0.13	0.24	3950	0.17	0.10	0.19	509	0.000	0.001
Tobin Q	2.01	1.48	1.61	3780	1.54	1.29	0.85	487	0.321	0.000
Capex	0.06	0.04	0.06	3898	0.05	0.03	0.05	508	0.001	0.001
R&D	0.08	0.01	0.13	3953	0.04	0.00	0.07	509	0.000	0.000
BHAR	0.01	-0.07	0.56	3917	-0.03	-0.09	0.38	508	0.070	0.543
Deal value ($million)	1823.71	337.37	4536.52	3953	1001.97	357.20	2319.50	509	0.000	0.778
Industry M&A liquidity	2.51	1.54	3.17	3953	1.44	1.14	1.16	509	0.028	0.000

Panel B

	Sole PE				Club deals					
	Mean	Median	Std dev	N	Mean	Median	Std dev	N	ttest (p-value)	P-value median
Premium and Abnormal Returns										
Premium	36.27	30.96	27.21	377	32.80	27.49	25.69	125	0.211	0.122
CAR (%)	27.88	21.54	26.47	202	19.74	17.15	20.29	77	0.015	0.088
Runup (%)	5.14	4.59	22.94	202	7.86	6.64	15.18	77	0.336	0.480
Markup (%)	27.57	25.51	34.9	202	18.59	16.23	25.75	77	0.040	0.012
Total return (%)	32.71	30.08	41.6	202	26.45	22.18	30.58	77	0.230	0.049
Risk measures										
Cashflow volatility	0.04	0.02	0.05	376	0.03	0.02	0.06	124	0.230	0.049
Returns volatility	0.04	0.03	0.02	238	0.03	0.03	0.02	90	0.009	0.019
Residuals volatility	0.04	0.03	0.02	238	0.03	0.02	0.02	90	0.004	0.004
PD	0.02	0.00	0.12	268	0.02	0.00	0.15	92	0.698	0.704
Beta	0.71	0.59	0.57	238	0.85	0.89	0.62	90	0.044	0.063
Controls										
Size	619.13	220.30	1206.57	387	1806.97	626.48	3397.71	126	0.000	0.000
Leverage	0.26	0.22	0.24	386	0.21	0.17	0.20	126	0.064	0.473
Cash	0.18	0.10	0.20	387	0.15	0.09	0.16	126	0.301	0.938
Tobin Q	1.56	1.29	0.89	369	1.47	1.28	0.66	122	0.300	0.937
Capex	0.05	0.03	0.05	387	0.05	0.03	0.05	125	0.939	0.837
R&D	0.04	0.00	0.07	387	0.03	0.00	0.06	126	0.158	0.528
BHAR	-0.05	-0.11	0.36	386	0.02	-0.04	0.41	126	0.064	0.010
Institutional ownership (%)	0.56	0.56	0.29	379	0.68	0.74	0.29	124	0.000	0.000
Deal value ($million)	673.88	281.61	1117.84	387	2086.78	756.52	4150.55	126	0.000	0.000
Industry M&A liquidity	1.49	1.15	1.24	387	1.29	1.11	0.82	126	0.100	0.778

Table 3: Summary statistics.
The table reports summary statistics for the clubs composition. *Club members* are distinguished in private equity firms (*PE members*), financial companies *financial members* and strategic companies (*strategic members*). These are the categories identified in the SEC filings.

	Club Deals			
	Mean	Median	Std dev	N
Club members	2.74	2	1.39	126
PE members	1.91	2	0.91	126
Financial members	0.63	0	1.07	126
Strategic members	0.19	0	0.43	126

Table 4: Value effects.
The table reports results of OLS regressions for premium and CARs considering the full sample of takeovers. *PE* is a dummy variable equal to one for LBOs sponsored by PE firms; *club* is a dummy variable equal to one for club deals; controls are defined in the appendix. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

	Premium	CAR	Runup	Markup	Total return
PE	-6.1770***	-0.0025	-0.0427***	-0.0105	-0.0482**
	(1.0943)	(0.0164)	(0.0150)	(0.0229)	(0.0213)
Club	1.6244	-0.0345	0.0538**	-0.0416	0.0191
	(2.1754)	(0.0421)	(0.0222)	(0.0529)	(0.0529)
Size	-0.1018	-0.0129***	-0.0018	-0.0084	-0.0072
	(0.4119)	(0.0042)	(0.0046)	(0.0057)	(0.0053)
Leverage	5.7024***	0.0860***	0.0671*	0.0791**	0.1526***
	(2.1151)	(0.0251)	(0.0369)	(0.0348)	(0.0536)
Cash	1.0927	0.0325	-0.0312	0.0729**	0.0339
	(3.5323)	(0.0325)	(0.0293)	(0.0316)	(0.0375)
TobinQ	-3.0516***	-0.0671***	-0.0639***	-0.1033***	-0.1732***
	(0.4399)	(0.0079)	(0.0084)	(0.0104)	(0.0177)
Capex	5.1635	-0.1466**	0.0074	-0.0656	-0.0935
	(7.2843)	(0.0668)	(0.1090)	(0.1445)	(0.1916)
R&D	0.2926	0.0625	-0.0912	0.3255***	0.1504
	(4.9845)	(0.0529)	(0.0705)	(0.0689)	(0.1129)
BHAR	53.0992***	-0.1207***	-0.1270***	-0.0933***	-0.3606***
	(2.6739)	(0.0090)	(0.0169)	(0.0184)	(0.0158)
Cashflow volatility	6.9893	-0.1307**	0.1051	-0.2108*	-0.1263
	(8.1165)	(0.0644)	(0.1315)	(0.1231)	(0.1451)
Institutional ownership	-4.4339*	-0.0144	-0.0154	-0.0166	-0.0475
	(2.4291)	(0.0201)	(0.0257)	(0.0262)	(0.0333)
Dividends	-0.8098	-0.0007	-0.0069	-0.0001	0.0001
	(0.8063)	(0.0121)	(0.0131)	(0.0194)	(0.0204)
M&A market liquidity	1.7655***	0.0344***	0.0341***	0.0298***	0.0765***
	(0.3528)	(0.0043)	(0.0063)	(0.0054)	(0.0099)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	3283	2721	2737	2721	2737

Table 5: Value effects PE.
The table reports results of OLS regressions for premium and ARs considering the PE subsample. *Club* is a dummy variable equal to one for club deals; controls are defined in the appendix. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

	Premium	CAR	Runup	Markup	Total return
Club	0.1913	-0.0298	0.0462	-0.0441	0.0165
	(2.6440)	(0.0522)	(0.0296)	(0.0681)	(0.0639)
Size	1.4026	-0.0168	-0.0080	-0.0330	-0.0380
	(1.2015)	(0.0188)	(0.0171)	(0.0294)	(0.0350)
Leverage	5.5274	0.1270	0.1594**	0.0105	0.2442**
	(5.6697)	(0.1047)	(0.0671)	(0.1390)	(0.1181)
Cash	-8.6610	-0.0699	-0.0219	-0.0978	-0.0680
	(8.0996)	(0.1019)	(0.1106)	(0.1397)	(0.1953)
TobinQ	-2.7720	-0.0759	-0.0822**	-0.0100	-0.1598
	(4.0975)	(0.0667)	(0.0389)	(0.0899)	(0.0997)
Capex	37.1868*	0.0793	0.1344	-0.1064	0.1435
	(19.1906)	(0.2413)	(0.2016)	(0.4093)	(0.3747)
R&D	58.9261*	-0.3312	0.7049**	-0.2779	0.3474
	(30.5710)	(0.2273)	(0.3027)	(0.3401)	(0.4918)
BHAR	39.7809***	-0.2999***	-0.1205***	-0.1801**	-0.5078***
	(7.6034)	(0.0554)	(0.0760)	(0.0703)	(0.0760)
Cashflow volatility	30.7874	0.2319	-0.6495**	0.0295	-0.6368
	(25.4363)	(0.3143)	(0.2925)	(0.8648)	(0.6088)
Institutional ownership	-10.4058*	-0.1379*	0.0744	-0.0771	-0.0133
	(5.5610)	(0.0794)	(0.0777)	(0.0806)	(0.1294)
Dividends	0.4934	-0.1049***	0.0459	-0.1537***	-0.1072**
	(2.3747)	(0.0320)	(0.0395)	(0.0448)	(0.0511)
M&A market liquidity	2.6125	0.0321	0.0571*	-0.0460	0.0664
	(3.4849)	(0.0458)	(0.0299)	(0.0630)	(0.0733)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	410	261	261	261	261

Table 6: Target risk and probability of takeover.
The table reports results of logit regressions for the probability of being taken over by a PE buyer (Panel A) or by a club (Panel B) on the basis of target risk. Each column considers a different measure of risk (*cashflow volatility*, *leverage*, *PD*, *beta*, *residuals volatility*, *returns volatility*). Panel A considers the full sample of takeovers, with *PE* dummy as dependent variable. Panel B focuses on PE subsample, with *club* dummy as dependent variable. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

Panel A

	Cashflow volatility	PD	Beta	Volatility Residuals	Volatility Returns
PE	-3.1574***	-0.8282	-0.2972**	-21.9015***	-21.3817***
	(0.9874)	(0.6364)	(0.1506)	(4.0147)	(4.0105)
Size	-0.2800***	-0.2441***	-0.2362***	-0.3785***	-0.3663***
	(0.0551)	(0.0714)	(0.0739)	(0.0951)	(0.0934)
Leverage	0.6970*	0.8491	0.7909	1.1148*	1.0743*
	(0.3682)	(0.5307)	(0.5447)	(0.5842)	(0.5667)
Cash	-0.6862***	-0.4856*	-0.1196	-0.1267	-0.1420
	(0.2350)	(0.2643)	(0.3129)	(0.2945)	(0.2894)
TobinQ	-0.3597***	-0.4934***	-0.4649***	-0.5378***	-0.5416***
	(0.1288)	(0.1136)	(0.1176)	(0.1244)	(0.1250)
BHAR	-0.0960	-0.0059	0.0084	-0.0191	-0.0138
	(0.0901)	(0.1242)	(0.1203)	(0.1358)	(0.1335)
Institutional ownership	1.1063***	0.9086**	1.0935**	0.7607	0.8264*
	(0.3389)	(0.4552)	(0.5382)	(0.4798)	(0.4689)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	3785	3348	3168	3168	3181

Panel B

	Cashflow volatility	PD	Beta	Volatility Residuals	Volatility Returns
Club	4.0553	2.2435*	0.3159	8.4414	12.0592
	(3.0278)	(1.3090)	(0.3971)	(18.6589)	(17.9565)
Size	0.9355***	0.8570***	0.8020***	0.8910***	0.8995***
	(0.1712)	(0.2276)	(0.2006)	(0.2532)	(0.2466)
Leverage	-3.8974***	-4.8358***	-4.3943***	-4.5746***	-4.6548***
	(0.6990)	(1.0206)	(1.1120)	(1.1762)	(1.1984)
Cash	-0.3469	0.0922	0.1148	0.1092	0.0942
	(1.2719)	(1.4816)	(1.4795)	(1.4662)	(1.4758)
TobinQ	0.0136	-0.1031	-0.1400	-0.0888	-0.0785
	(0.1769)	(0.2457)	(0.2769)	(0.2851)	(0.2846)
BHAR	0.9279*	0.9437*	0.8052	0.7228	0.7278
	(0.5565)	(0.5552)	(0.5372)	(0.5172)	(0.5105)
Institutional ownership	0.6652	0.5771	0.2615	0.4024	0.4287
	(0.5869)	(0.7130)	(0.8137)	(0.7449)	(0.7388)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	417	279	268	268	268

Table 7: Premium and risk.
The table reports results from OLS regressions for the relationship between premium and risk. Panel A relates premium to acquirer type (strategic vs private equity), risk measures and interactions between them. Panel B repeats the analysis on the subsample of PE LBOs. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

Panel A

	Cashflow volatility	PD	Beta	Volatility Residuals	Volatility Returns
Risk variable	7.2810	14.5236*	1.3695	124.6407***	130.5539***
	(8.0003)	(7.5291)	(1.1269)	(45.0423)	(46.3702)
PE	-5.6751***	-3.9820***	-4.2531	-4.7995*	-4.4042***
	(1.1018)	(1.1008)	(2.8545)	(2.8454)	(1.3853)
Risk variable x PE	-7.4195	15.3238	0.1302	30.1663	2.0938
	(23.0015)	(22.6389)	(2.8214)	(88.7263)	(2.8677)
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	3283	2800	2629	2629	2635

Panel B

	Cashflow volatility	PD	Beta	Volatility Residuals	Volatility Returns
Risk variable	87.7094***	2.7729	4.3556	101.1599	142.3224
	(28.4576)	(9.2666)	(5.0852)	(153.8387)	(153.8236)
Club	4.5058	-0.1667	6.0375	3.6333	4.7982
	(2.7110)	(4.8121)	(7.6613)	(7.9586)	(8.2434)
	(4.0462)	(3.8365)	(8.4167)	(5.0061)	(5.2818)
Risk variable x club	-123.3168**	33.0566*	-5.9412	-83.8743	-116.6056
	(34.2745)	(17.2583)	(7.3251)	(285.1941)	(277.6544)
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	410	286	258	258	258

Table 8: Financing.
The table reports the results of OLS regressions on the subsample of PE LBOs. Dependent variables are computed starting from the 'Financing of the merger' section of the SEC filings and they account for the amount of equity committed to the transactions by PE firms. They are winsored at 2.5% and 97.5% level. *Equity (%)* is the total amount of equity committed to the deal as percentage of the deal value; *equity PE1(%)* is the amount of equity committed to the deal by the sole PE firm in case of sole PE sponsored LBOs and by the highest contributing PE member in case of club deals as percentage of the deal value; *debt (%)* is the total amount of debt obtained by the sponsors to fund the transaction as percentage of the deal value. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

					Panel A					
		Club Deals				Sole PE				
	Mean	Median	Std dev	N	Mean	Median	Std dev	N	ttest (p-value)	P-value median
Equity (%)	40.28	38.77	21.42	112	45.91	39.84	26.35	256	0.035	0.365
Equity PE1 (%)	30.31	21.47	23.40	63	45.91	39.84	26.35	256	0.000	0.000
Debt (%)	57.87	60.47	21.64	112	53.51	59.49	25.93	256	0.120	0.650

	Panel B		
	Equity (%)	Equity PE1 (%)	Debt (%)
Club	0.9778	-10.3783**	-2.8895
	(3.4505)	(3.9418)	(3.2331)
Size	-5.5074***	-5.5571***	5.4648***
	(1.1372)	(1.2252)	(1.0710)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	368	319	368

Table 9: Risk and equity financing.
The table reports results of OLS regressions on the subsample of PE LBOs for the relationship between target risk and total amount of equity committed to the deal. Each regression includes the base effect of acquirer type (*club*), different measures of target risk (*cashflow volatility*, *leverage*, *PD*, *beta*, *volatility residuals*, *volatility returns*) and interactions between them. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

	Cashflow volatility	PD	Beta	Residuals volatility	Returns volatility
Club	5.8730*	0.2439	-0.1491	3.3857	1.5569
	(3.2564)	(4.4801)	(7.9285)	(8.2204)	(8.3560)
Risk variable	1.2726	0.3925***	1.3296	5.5927***	4.4068***
	(0.8685)	(0.1218)	(4.8934)	(1.6779)	(1.6087)
Risk variable x club	-2.0141**	-0.1227	1.8535	-0.5381	0.0373
	(0.8918)	(0.1725)	(7.4311)	(2.9746)	(2.8847)
Size	-4.9428***	-2.6696*	-2.5211	0.1631	-0.5570
	(1.3817)	(1.4502)	(1.8526)	(1.5311)	(1.4622)
Observations	361	240	216	216	216
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	335	226	203	203	203

Table 10: Risk and individual equity financing.
The table reports results of OLS regressions on the subsample of PE LBOs for the relationship between target riskiness and the amount of equity committed to the deal by the highest PE contributing member and the single PE firm for sole PE LBOs. Each regression includes the base effect of acquirer type (*club*), different measures of target risk (*cashflow volatility*, *leverage*, *PD*, *beta*, *volatility residuals*, *volatility returns*) and interactions between them. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

	Cashflow volatility	PD	Beta	Residuals volatility	Returns volatility
Club	-3.2929	-12.2523**	-10.5992	-3.0925	-4.6604
	(4.5992)	(5.4283)	(8.2698)	(11.1239)	(11.0234)
Equity PE1 (%)	1.3182	0.3458***	1.3379	7.0280***	5.7961**
	(0.9038)	(0.1270)	(5.0539)	(2.4467)	(2.1389)
Equity PE1 (%) x club	-2.4919**	0.1417	0.3361	-2.4012	-1.7833
	(0.9204)	(0.1396)	(7.0703)	(3.5895)	(3.3529)
Size	-4.8809***	-3.1760**	-3.2228	0.0732	-0.8676
	(1.5181)	(1.5077)	(1.9332)	(2.0609)	(1.9687)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	313	209	186	186	186

Table 11: Collusion.
The table reports results of OLS regressions for measures of competition on the subsample of PE LBOs. Dependent variables are computed starting from the 'Background to the merger' section of the SEC filings and they proxy for the competitive level of the private phase of deals negotiations. They are taken in logarithms and winsored at 2.5% and 97.5% level. *Total participants* is the number of companies that take part to the merger negotiation, divided in *financials* and *strategics*. *Non-winning participants* is *total participants* minus actual acquirers; *time* is the number of months needed to conclude the deal (from the beginning of the process till public announcement); *offers* is the number of price revisions made by acquirer; *indications of interest* is the number of proposals made by bidding firms that lost the competition and *price HI* is a dummy variable equal to one if the final price agreed between the parties is equal to the maximum price discussed during the private phase. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

Panel A

	Club Deals				Sole PE					
	Mean	Median	Std dev	N	Mean	Median	Std dev	N	P-value ttest	P-value median
Tot participants	6.99	6	3.78	127	4.34	3	3.70	384	0.000	0.000
Financials	5.45	5	3.10	127	3.27	2	2.87	384	0.000	0.000
Strategics	1.62	1	1.88	127	1.07	0	1.67	384	0.000	0.000
Losers	4.27	3	3.80	127	3.32	2	3.70	384	0.001	0.013
Time	12.06	10	6.87	127	10.93	9	7.10	384	0.030	0.119
Offers	3.54	3	1.33	127	3.25	3	1.43	384	0.010	0.188
Indic Interest	2.08	2	2.21	127	1.77	1	2.25	384	0.026	0.038
Price HI	0.5	0.5	0.5	127	0.61	1	0.48	384	0.019	.

Panel B

	Tot Participants	Financials	Strategics	Losers	Time	Offers	Indic interest	Price HI
Club	0.4710***	0.4404***	0.2564***	0.2454**	0.1827***	0.0728**	0.1522*	-0.2239
	(0.0725)	(0.0552)	(0.0780)	(0.1036)	(0.0646)	(0.0321)	(0.0892)	(0.1523)
Size	0.0474	0.0603**	0.0061	0.0589	-0.0630**	0.0258**	0.0009	-0.0278
	(0.0304)	(0.0280)	(0.0323)	(0.0466)	(0.0255)	(0.0100)	(0.0379)	(0.0543)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	511	511	511	511	511	511	511	502

Table 12: Value effects after and before 2006.
The table reports results of OLS regression for premium and CARs on the full sample of takeovers (Panel A) and on the PE subsample (Panel B) with a focus of club deals occurred after 2006. *PE* is a dummy variable equal to one for LBOs sponsored by PE firms; *Club* is a dummy variable equal to one for club deals *club* is a dummy variable equal to one for club deals; *club post 2006* is a dummy variable equal to one for club deals concluded after 2006; controls are defined in the appendix. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

			Panel A		
	Premium	CAR(-2,+2)	Runup(-42,-1)	Markup(0,+126)	Total return(-42,+126)
PE	-6.2316***	-0.0028	-0.0431***	-0.0110	-0.0492**
	(1.1020)	(0.0165)	(0.0150)	(0.0229)	(0.0211)
Club	5.8456**	-0.0144	0.0737***	-0.0102	0.0769
	(2.7410)	(0.0363)	(0.0258)	(0.0456)	(0.0504)
Club post 2006	-6.3601**	-0.0441	-0.0436	-0.0689	-0.1268*
	(2.8877)	(0.0468)	(0.0304)	(0.0623)	(0.0670)
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	3281	2720	2736	2720	2736
			Panel B		
	Premium	CAR(-2,+2)	Runup(-42,-1)	Markup(0,+126)	Total return(-42,+126)
Club	3.1854	-0.0414	0.0476	-0.0591	0.0142
	(5.2438)	(0.0531)	(0.0436)	(0.0716)	(0.0743)
Club post 2006	-4.4337	0.0239	-0.0031	0.0300	0.0035
	(5.9453)	(0.0607)	(0.0600)	(0.0824)	(0.0837)
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	408	260	260	260	260

Table 13: Robustness.
The table reports results from Heckman two-stages regression model. The first stage is reported in first column of Panel A. Panel A also reports second stage results for premium and CARs, Panel B focuses on competition models and Panel C on equity financing models. All the regressions have industry and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with *, **, *** are significant at the 1%, 5% and 10% level, respectively.

			Panel A			
	PE	Premium	CAR	Runup	Markup	Total return
Club		0.0894	-0.0211	0.0554*	-0.0538	0.0270
		(2.627)	(0.0494)	(0.0295)	(0.0677)	(0.0584)
Size	-0.179***	10.79	0.195**	0.321***	-0.589*	0.341**
	(0.0293)	(7.163)	(0.0932)	(0.0582)	(0.297)	(0.140)
Leverage	0.230	-7.462	-0.147	-0.267***	0.744**	-0.237
	(0.190)	(11.48)	(0.185)	(0.0973)	(0.364)	(0.208)
Cash	-0.0784	-3.676	0.0303	0.152*	-0.344	0.132
	(0.159)	(8.376)	(0.102)	(0.0871)	(0.221)	(0.171)
TobinQ	0.0868*	-6.852*	-0.185***	-0.243***	0.281	-0.340***
	(0.0476)	(3.779)	(0.0595)	(0.0412)	(0.197)	(0.0874)
Institutional ownership	0.661***	-44.47*	-0.912***	-1.145***	1.976*	-1.425**
	(0.188)	(24.33)	(0.327)	(0.232)	(1.103)	(0.533)
BHAR	0.0799	41.36***	-0.403***	-0.248***	0.0354	-0.656***
	(0.0583)	(7.507)	(0.0786)	(0.0464)	(0.146)	(0.0782)
Capex	-0.270	48.50**	0.346	0.543***	-0.807	0.607*
	(0.394)	(21.22)	(0.309)	(0.174)	(0.533)	(0.355)
R&D	-1.824***	159.9*	1.878*	4.210***	-6.111**	4.370***
	(0.383)	(80.94)	(1.034)	(0.709)	(2.881)	(1.593)
Dividends	-0.0489	3.256	-0.0504	0.134***	-0.281***	-0.000211
	(0.0936)	(2.941)	(0.0437)	(0.0468)	(0.0964)	(0.0597)
Cashflow volatility	-1.328***	109.3*	1.940**	2.065***	-4.479	2.506**
	(0.491)	(59.63)	(0.718)	(0.554)	(2.884)	(1.013)
M&A market liquidity	-0.235***	14.49*	0.319***	0.497***	-0.802*	0.570***
	(0.0281)	(7.765)	(0.115)	(0.0772)	(0.419)	(0.170)
Inverse Mills Ratio		-68.48	-1.501**	-2.364***	3.991*	-2.730***
		(48.99)	(0.688)	(0.414)	(2.103)	(0.938)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	3725	407	259	259	259	259

			Panel B					
	Total Participants	Financials	Strategics	Time	Non-winning Participants	Offers	Indications interest	Price HI
Club	0.449***	0.432***	0.224**	0.193**	0.231**	0.0759**	0.155	-0.119
	(0.0831)	(0.0598)	(0.0894)	(0.0751)	(0.112)	(0.0375)	(0.101)	(0.162)
Size	0.0623*	0.0637**	0.0306	-0.0640**	0.0754	0.0262**	0.00806	-0.0686
	(0.0354)	(0.0300)	(0.0357)	(0.0280)	(0.0538)	(0.0109)	(0.0408)	(0.0519)
Inverse Mills Ratio	0.0371	-0.104	0.223	-0.155	-0.0156	0.0508	-0.155	0.470
	(0.113)	(0.112)	(0.138)	(0.152)	(0.156)	(0.0460)	(0.193)	(0.318)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	463	463	463	463	463	463	463	454

	Panel C		
	Equity (%)	Equity PE1 (%)	Debt (%)
Club	0.9398	-10.1096**	-2.9782
	(3.4036)	(4.3540)	(3.2817)
Size	-5.9101***	-6.1092***	5.8841***
	(1.1125)	(0.9954)	(1.0730)
Inverse Mills Ratio	12.6670	6.2963	-13.6220
	(13.1871)	(15.3738)	(12.6397)
Industry FE	YES	YES	
Year FE	YES	YES	
Observations	335	288	335

APPENDIX A: Sample criteria

Table A: Sample criteria.
The table specifies the criteria that have been used to create the sample of corporate acquisitions, with number of observations at each step. Data have been downloaded from ThomsonOne Banker M&A module.

Criterion	N
Deals announced between 1995 and 2019	1,071,204
Target is from the USA	283,158
Target is a public company	43,744
Exclude targets with SIC codes from 6000 to 6999	31,303
Deal value of at least $1 million	25,400
Acquirer owns at least 50% of target shares after transaction	6,975
Deals status is completed	6,911
Acquirer owns less than 25% of target shares as of 6 months before the deal announcement	6,376
Exclude bankruptcies and debt restructurings	6,122
Targets that are in Compustat	5,305
Exclude MBOs, spin-offs, shares repurchases, stock splits and transactions funded by individuals	5,188
Exclude transaction for which there are no filings	4,411

APPENDIX B: Variables Definition

PE	Dummy variable equal to one if the acquirer is either a single PE firm or a club
Club	Dummy variable equal to one if the acquirer is a group of bidders including at least one PE firm
Size	Logarithm of total assets
Leverage	Ratio of total debt (long plus short) to total assets
TobinQ	Ratio of market value of assets to book value of assets, where market value of assets is the sum of book value of assets and the market value of common equity less the sum of the book value of common equity and balance sheet deferred taxes (as in Officer et al. [2010] and Kaplan and Zingales (1997)).
Cash	Cash divided by total assets
Cashflow volatility	Standard deviation of ROA for the 3 years preceding the transaction
BHAR	Stock performance in excess of market return over the year preceding the takeover starting from 3 days before the announcement, computed from daily returns.
RBHAR	Stock performance in excess of market return over the year preceding the takeover starting from 43 days before the announcement, computed from daily returns.
MBHAR	Stock performance in excess of market return over the year preceding the takeover starting from the day before the announcement, computed from daily returns.
PBHAR	Stock performance in excess of market return over the year preceding the takeover starting from 32 days before the announcement, computed from daily returns.
PD	Probability of default.
Beta	Beta from market regression (as in **?**)
Residuals volatility	Residuals volatility from market regression (as in **?**)
Returns volatility	standard deviation of target's stock return computed starting from daily returns in the 12 months preceding the takeover
Institutional ownership	Percentage of target's shares owned by institutional investors that are required to file a 13F statement as reported in Thomson Financial's 13F Holdings database (as in Officer et al. [2010]).
Industry M&A liquidity	Deal value (as retrieved from ThomsonOne) scaled by total assets, computed by industry and year (as in **?**).
Capex	Capital expenditures to total assets
R&D	Research and development expenditures to total assets
Dividends	Dummy variable equal to one if target pays dividends
CAR (-2,+2)	Abnormal return over an event window going from 2 days before the announcement to 2 days after it. Estimation window goes from 379 days before the announcement to 127 days before it (I follow Officer et al. [2010]).
Runup (-42,-1)	Abnormal return over an event window going from 42 days before the announcement to the day before it.
Markup (0,+126)	Abnormal return over an event window going from the announcement day to 126 days after it.
Total return (-42,+126)	Sum of *runup (-42,-1)* and *markup (0,+126)*.
Premium	Ratio of the offer price to the target stock price four weeks before the announcement date, as reported in ThomsonOne. Following Officer [2003], it is restricted between 0 and 200.
	PE deals variables
Total participants	Number of companies, either financial or strategic, taking part to the private phase of takeover negotiation. These companies may or may not have made an offer to buy the target. Some of them just requested information about the target without submitting written proposals to buy target, others made formal bids. In order to be considered, they need to be identified in a specific way in the filings, with numbers or letters or other specific words. [17]. Generic firms are not considered.
Financials	Number of financial companies taking part to the private phase of takeover negotiation. Most of the SEC filings do not distinguish between PE and financial companies, labeling them as financial, thus I consider them as financial and use only variable only.
Strategics	Number of strategic companies taking part to the private phase of takeover negotiation.
Losers	Number of companies that took part to the private phase of takeover negotiation, but did not end up acquiring the target. For clubs, it is the difference between *Total participants* and *members*. For sole PE deals, it is *Total participants* less the winning PE firm.
Time	Number of months between the beginning of the private phase of takeover process and the public announcement of the deal. The public announcement is the date reported in ThomsonOne, the beginning of the deal is retrieved from the SEC filings. It is the date when the Board deliberated to explore the possibility of selling the company if it started the process (*target for sale* equal to one) or the date when one of the participant contacted the target to inquire about the possibility of a business combination (*target for sale* equal to zero).
Offers	Number of offers made to the target by the winning bidder. They are considered only if they specify a price or a price range.
Indications of interest	number of indications of interest made to the target by participants to the bidding process other than winners. They are considered only if they specify a price or a price range. Differently from *offers*, each competitor is considered only once, even if it revised its initial offers changing the price or other conditions.
Price HI	Dummy equal to one if the final price agreed when the deal is announced to the market is the same as the maximum price discussed during the private phase. I keep track of the price range of the offers made to the target by the winner (minimum price and maximum price) and I compare it with the final price.
Equity (%)	Total amount of equity committed to the deal by the sole PE firm for sole PE sponsored LBOs or by the club in case of club deals. It is computed as percentage of the deal value as retrieved from the SEC filings ('Financing of the Merger/Sources and Amount of Funds' section). Where the deal value is not specified in the document, it is replaced with the value reported in ThomsonOne.
Equity PE1 (%)	Amount of equity committed to the deal by the sole PE firm for sole PE sponsored LBOs and by the highest contributing private equity member for club deals. It is computed as percentage of the deal value as retrieved from the SEC filings ('Financing of the Merger/Sources and Amount of Funds' section). Where the deal value is not specified in the document, it is replaced with the value reported in ThomsonOne.
Debt (%)	Total amount of debt used to fund the transaction. It is computed as percentage of the deal value as retrieved from the SEC filings ('Financing of the Merger/Sources and Amount of Funds' section). Where the deal value is not specified in the document, it is replaced with the value reported in ThomsonOne.

[17] Due to privacy reasons, non winning firms can not be named in the filings, thus they are identified with letters, numbers (or colors in few cases).

APPENDIX C: Variables Construction

Financials = 6	*On June 5, 2018, representatives of a financial sponsor party, which we refer to as "Sponsor Party A" contacted Mr. Wagner [...] and inquired whether Mr. Wagner would be available to meet. [...] general discussion of a hypothetical acquisition of the Company. [...] From August 13, 2018 through August 15, 2018, Sponsor Party A and three additional financial sponsor parties, which we refer to as "Sponsor Party B," "Sponsor Party C" and "Sponsor Party D," respectively, entered into confidentiality agreements with the Company. [...] Mr. Wagner was also contacted by a representative of Francisco Partners (hereinafter referred to as "Francisco Partners"), who indicated an informal interest in potentially acquiring the Company based upon publicly available information. [...] On November 14, 2018, Elliott Management Corporation (hereinafter referred to as "Elliott") filed a Form 13F for the period ending September 30, 2018, disclosing that Elliott had accumulated 1,225,000 shares of the Company, representing approximately 2.4% of the then-outstanding shares.*
Indications of Interest = 1	*On July 30, 2018, a representative from Sponsor Party A called Mr. Wagner and informed him that Sponsor Party A would soon be delivering a non-binding indication of interest to the Company to acquire all of the outstanding shares of the Company for $105.00 per share in cash. Later that same day, Mr. Wagner received the non-binding indication of interest via email.*
Offers = 5	*Francisco Partners provided a written non-binding indication of interest to acquire the Company for $111.00 per share in cash. [...] On July 10, 2019, Mr. Wagner and a representative from Elliott held a telephonic meeting and discussed the Company's business and financial performance based on public information only. Elliott expressed an interest in potentially investing in the Company via a private placement of convertible preferred equity, and suggested that Elliott would be willing to enter into a customary confidentiality agreement to facilitate discussions. [...] On November 5, 2019, a representative from Francisco Partners and Mr. Wagner met telephonically and the representative informed Mr. Wagner that Francisco Partners and Elliott would be delivering a non-binding proposal to acquire the Company for $83.00 per share in cash. [...] The proposal indicated that Francisco Partners intended to partner with Elliott to obtain necessary equity financing for the transaction [...] On November 26, 2019, Francisco Partners provided a counterproposal to Qatalyst of $84.40 per share. [...] Francisco Partners indicated that its best price would be $85.00 per share. Francisco Partners provided a counterproposal to Qatalyst of $86.05 per share. [...] based upon and subject to the factors and assumptions set forth in its opinion, the $86.05 per share consideration to be paid to the holders of the Company's common stock pursuant to the Merger Agreement was fair, from a financial point of view, to such holders.*
Time = 18	*On June 5, 2018, representatives of a financial sponsor party, which we refer to as "Sponsor Party A" contacted Mr. Wagner [...] and inquired whether Mr. Wagner would be available to meet. [...] Later that morning of December 17, 2019 prior to the open of trading in the Company's stock, the parties executed and delivered the Merger Agreement and related transaction documents, and the Company issued a press release announcing the execution of the Merger Agreement.*