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Financial resource pooling in club deals

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ABSTRACT

Using a novel hand-collected dataset on leveraged buyouts, this study tests non-mutually exclusive hypotheses for club formation: collusion; financial resource pooling, either due to the riskiness of the target firm or to the fund's investment limits; and experience. Results of the empirical analysis support the resource pooling motivation: club deals allow their members to buy larger targets and to reduce their equity commitment compared to solo deals. As the amount of equity they should commit to a deal increases, private equity buyers' preference for club deals becomes stronger. Evidence also demonstrates that club deals do not harm competition, in that they are associated with a higher level of competition occurring in the private phase of deal negotiations. Targets' stock price reactions around the acquisition announcements and takeover premiums are similar in solo deals and club deals. Finally, club deals are more likely created when private equity funds are less experienced.

1. Introduction

The role of private equity (PE) funds has grown significantly over the past decades,² with a record \$1.2 trillion in global deal volume in 2021.³ Despite the increasing amount of uninvested capital at their disposal (i.e., dry powder)⁴, private equity funds joined forces in several deals. After falling out of favor post-2008 financial crisis, club deals, that is, consortia of acquirers including at least one private equity fund, became popular again.⁵ Club deals allow their members to extract additional benefits from leveraged buyouts (LBOs) with respect to sole PE deals. Previous literature has shown that club deals buy larger targets than sole PE acquirers (Officer et al., 2010; Cao et al., 2019) and obtain more favorable conditions, such as lower loan spreads, longer loan maturities and higher leverage owing to PE group members' reputation (Axelson et al., 2008; Demiroglu and James, 2010; Stanfield, 2020).

This study tests the motivations that lead PE funds to create club deals, by examining the following non-mutually exclusive explanations for club creation: (1) collusion, (2) financial resource pooling, either to share the risk of the target firm's assets or to overcome the investment limits of single funds, and (3) experience. According to the collusion hypothesis, PE club members collude

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² Private equity funds raised more than half a trillion dollars worldwide per year from 2016 to 2019. Examples of large acquisitions made by these funds include Thomson Reuters by Blackstone (with a deal value of approximately \$13.5 billion); Envision Healthcare (approximately \$10 billion); and BMC Software (approximately \$8.5 billion) by KKR.

³ <https://corpgov.law.harvard.edu/2022/02/09/private-equity-2021-year-in-review-and-2022-outlook/>

⁴ <https://www.mckinsey.com/industries/private-equity-and-principal-investors/our-insights/mckinseys-private-markets-annual-review>

⁵ The largest post-2007 buyout has been completed by a \$34 billion consortium including Blackstone, Carlyle and Hellman & Friedman, that, on June 5, 2021, took private the US medical supply group Medline, beating other two consortia and Apollo Management. See for example: <https://www.ft.com/content/3993dcb4-4cbc-4564-a22e-8c36992589b2>.

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to discourage other potential buyers from bidding, thus closing the deal within a shorter period of time and reducing transaction costs. The financial press and government officials have repeatedly expressed concerns about the PE collusive behavior in club deals to the detriment of target shareholders.⁶ Therefore, club deals alter the competitive process from the very beginning of the negotiations and end up paying lower premiums to target shareholders. There is evidence in the literature supporting the collusion view. Indeed, target shareholders gain less when the largest PE funds club together in LBOs (Officer et al., 2010). However, it has also been documented an above-average level of competition in club deals with respect to sole PE LBOs: Boone and Mulherin (2011) show that club deals are associated with more potential buyers, confidentiality agreements, indications of interest and offers.

The financial resource pooling hypothesis predicts that club deals allow their members either to share the risk associated with purchasing the target's assets or to overcome their investment limits. In both cases, by pooling their resources, PE funds can buy out targets that they would not be able to purchase as solo acquirers. Marquez and Singh (2013) and Jackson (2008) argue that creating coalitions among bidders allows for the spread of risk, thus making possible to bid for targets that otherwise could be too risky to buy for a single fund. Tykvořá and Borell (2012) also provide evidence that syndicates are able to invest in riskier companies than standalone acquirers are, as the higher number of bidders involved enables them to better manage these risks. Indeed, syndicate members exploit multiple sources of information about target companies, thus leading to better selection. In addition, investors can benefit from a more intense monitoring and support during the investment phase, owing to their combined skills.

Marquez and Singh (2013) argue that a possible reason why PE funds club together is the lack of resources that prevents them from buying targets as solo acquirers. This lack of resources may be due to PE funds' investment limits: buyout funds cannot tie more than a given percentage of their fund size to a single deal. Limited partner agreements typically set concentration limits for PE funds, which are usually prohibited from investing more than 20% to 25% of the fund value in a single transaction (Lerner et al., 2011a). By joining other acquirers and pooling their equity capital, syndicate members can overcome investment restrictions that prevent them from allocating a considerable fraction of their portfolios to a single transaction (Jackson, 2008).⁷ By doing so, PE funds can go after larger targets and conclude deals that could have not been funded solely with their own capital. Although there is no empirical testing in the literature on this hypothesis, Cao et al. (2019) argue that one of the benefits associated with club deals is the mitigation of PE fund financing constraints. Boone and Mulherin (2011) also conclude that joint-bidding is a competitive response of PE acquirers when bidding for larger targets. Thus, target size relative to the fund size is an important element to consider when investigating the need to create a club.⁸

Finally, PE funds may choose to partner with other buyers because they are not sufficiently experienced to successfully select and conclude the deal as standalone acquirers. By joining more experienced acquirers, they benefit from their superior abilities earned over time and extract a higher value from the deal. Conversely, more experienced funds may be better off acting alone, because the costs of sharing the investment would be higher than the associated benefits (Stanfield, 2020). Indeed, experience in the PE market plays a significant role, in that it leads to higher expected revenues (Metrick and Yasuda, 2010), better deal selection (Sørensen, 2007), and higher returns (Hochberg et al., 2015; Kaplan and Schoar, 2005).

To test these hypotheses, I employ a sample of 600 LBOs targeting US-listed firms from 1995 to 2019, comparing 428 sole PE LBOs to 172 club deals. Exploiting the documents related to the transactions filed by targets with the US Securities and Exchange Commission (SEC), I hand-collected data about the private phase of takeover negotiations, from the first contacts between targets and buyers to the public announcement of the merger and, where available, the financial structure of the deal. I integrate this information with web searches to identify the size of the funds used by PE acquirers to finance the deals.

Results show enhanced competition in club deals with respect to sole PE LBOs, thus rejecting the existence of collusion among PE club members. Examination of the private takeover negotiation phase, which occurs behind closed doors, reveals a higher number of potential acquirers and a longer time taken to conclude club deals. Moreover, club acquirers do not appear to have stronger bargaining power in that they do not pay lower prices than solo ones. Market reactions to sole PE and club deal announcements are also not significantly different.

Results provide support for the financial resource pooling hypothesis as the main rationale behind club formation. Acquirers in club deals are more likely to buy larger, thus riskier, targets and targets with lower pre-existing leverage, which allows them to lever the transaction more. Also, club deals allow their members to overcome their investment limits. In fact, controlling for target's size, they tie a lower amount of equity to club deals than to solo deals. Moreover, as the percentage of the fund size that PE acquirers should commit to the deal increases, they show a clear preference for consortia instead of acting as standalone acquirers. This finding supports the existence of concentration limits at PE funds' level that cannot be overcome, except by partnering with other buyers. Anecdotal evidence supporting the financial resource pooling explanation is that need for funds is the only reason reported in the SEC filings to explain club creation; the 10 largest LBOs by deal value in the whole sample include 8 club deals and 2 sole PE deals; and most of the club deals are sponsored by the largest PE acquirers, which should be the less constrained ones.

Finally, more experienced PE funds are less likely to create club deals, possibly because the experience gained over time and in specific industries makes it more convenient to act as solo acquirers rather than bearing the agency costs typical to syndication.

⁶ The US Department of Justice started an investigation in 2006, later abandoned once the financial crisis of 2007–2008 broke out (<https://www.nytimes.com/2006/10/11/business/equity-deals-attract-eye-of-justice.html>). More recently, in 2019, the "Stop Wall Street Looting Act" (SWSLA) proposed to eliminate the tax deductibility of interests and the limited liability for shareholders, due to the concern that the high levels of leverage in the PE market may have negative social consequences.

⁷ Private equity funds typically have in their governing documents specific requirements limiting the percentage of the fund size that may be tied to a single investment.

⁸ Officer et al. (2010), Guo et al. (2011), Cao et al. (2019) find that targets of club deals are three times larger than targets of sole PE LBOs.

Conversely, for less experienced PE funds, clubbing with more experienced partners is beneficial because they can exploit their superior screening, selection and value-adding abilities.

This study contributes to the literature about private equity and, specifically, club deals. Existing studies on club deals focus on single specific aspects of this phenomenon, with most of them studying their implications on competition (Boone and Mulherin, 2011) and the market reaction to their announcements (Officer et al., 2010). To the best of my knowledge, this is the first study that systematically investigate the reasons behind club creation by testing the non-mutually exclusive hypotheses of collusion, financial resource pooling and experience. The empirical investigation of the resource pooling motivation is novel to the literature. Marquez and Singh (2013) theoretically cite risk-sharing as one of the benefits of clubbing and Tykvová and Borell (2012) empirically show that syndicates are better able to handle financially distressed and bankrupted companies than standalone investors. The existence of financial constraints that limit PE funds in their LBO activity is recognized theoretically by Jackson (2008), Lerner et al. (2011a) and Marquez and Singh (2013), however, they do not provide any specific empirical testing. Cao et al. (2019) and Boone and Mulherin (2011) hypothesize that joint bidding could be motivated by the need for funds when going after larger targets, but they do not specifically test for this, whereas Officer et al. (2010) conclude that financial constraints are unlikely to determine club creation. This study is based on a novel and updated dataset that includes not only equity and debt commitments but also the size of the PE funds. Although the exact funds' concentration limits are unobservable because PE firms do not disclose them to the general public, it is possible to exploit this new information to obtain a better estimate of the actual constraints PE funds are subject to.

Furthermore, this study adds to the literature on competition in the takeover and leveraged buyout market, as it occurs during the private phase. Aktas et al. (2010, 2018) explain the seemingly low level of competition in the US takeover market, finding that it is moved to the private phase, before the deal is publicly announced. Boone and Mulherin (2011) also study private negotiations of strategic takeovers, sole PE LBOs and club deals, finding that joint bidding fosters competition. I contribute to this stream of literature by providing a detailed and updated overview of the LBO private negotiations based on novel hand-collected data from the SEC filings. I provide evidence that club deals are not associated with collusive behavior, in that they take more time to conclude and more participants are involved in negotiations. Also, most of the clubs do not start as consortia, which are created and formalized later on during negotiations. Moreover, those club deals that were meant to be strategic combinations turned into LBOs because strategic acquirers soon lost their interest in the merger, thus leaving target companies to search for financial acquirers.

The remainder of the paper is organized as follows: Section 2 reviews previous literature about private equity and club deals, Section 3 describes the sample and the variables, Sections 4 and 5 present the results and Section 6 concludes.

2. Literature review and hypotheses

Several studies have focused on LBOs in the US market, providing comprehensive evidence of their cyclicity (Robinson and Sensoy, 2016), their drivers and structure (Kaplan and Stromberg, 2009), the positive effects on target companies (Boucly et al., 2011; Wilson et al., 2012; Davis et al., 2014; Lerner et al., 2011b among others) and on the private equity funds themselves (Stanfield, 2020).⁹ However, theoretical studies and empirical evidence on club deals is scarcer. This study addresses a question that has been investigated only indirectly in previous studies, that is why PE acquirers create club deals.

Most of the existing studies looks at the market reaction to club deal versus sole PE announcements to infer about the different competitive profiles of these transactions. Officer et al. (2010) find evidence of lower gains to target shareholders in club deals with respect to sole PE LBOs, which they interpret as evidence of reduced competition (either inadvertent or intentional). Cao et al. (2019) also document significantly lower abnormal returns in club deals compared to non-club deals for a sample of global takeovers and for the US subsample as well. However, there are also studies showing a different picture: Guo et al. (2011) observe that pre and post buyout returns are higher for target companies of club deals, but not significantly related to other competition measures. Boone and Mulherin (2011) also find evidence of lower abnormal returns for club deals over narrow event windows; however, this difference disappears when observing longer event windows, which they interpret as evidence that club deals do not reduce overall competition.

More specifically, some studies address competition in takeovers and LBOs, by examining the private phase of deal negotiations. Boone and Mulherin (2007) are the first to analyze private negotiations for a sample of 400 U.S. takeovers announced between 1989 and 1999, concluding that competition is private in half of the deals. More recently, Aktas et al. (2010, 2018) observe that most of the competition in the US takeover market occurs during the private phase, before the deal is publicly announced to the market. Boone and Mulherin (2011) investigate the private phase of takeover negotiations for club deals and LBOs, finding that joint bidding fosters competition through resource and information pooling.

The empirical results described above are explained by the theoretical analysis of competition in club bidding by Marquez and Singh (2013), who show that allowing for a club when there are already fewer bidders reduces even more competition and decreases the expected value of the winning offer. However, as the number of bidders increases, clubs benefit target shareholders because value creation effect dominates the decrease in competition. By combining the individual values of each club member, it is possible to create greater synergies, exploit multiple expertises and overcome financial constraints, leading to higher value both for target shareholders and for club members.¹⁰

⁹ Acharya et al. (2013) and Scellato and Ughetto (2013) find similar improvements for European deals, too.

¹⁰ Value creation effect translates, for example, into operational improvements due to improved disciplines and incentives, stronger bargaining power with suppliers (Brown et al., 2009), Total Factor Productivity increases resulting from higher labor productivity (Harris et al., 2005) and reduced consumption of excessive perquisites (Edgerton, 2012).

H1 (Collusion Hypothesis): PE funds create club deals to alter competition during negotiations.

The second possible explanation for club formation hinges on the need for pooling financial resources, thus allowing PE funds to buy out targets that could not be bought out by single acquirers. This need for pooling resources is due either to the willingness to share the risk of the target's assets or to the necessity to overcome PE funds' investment limits. The risk-sharing hypothesis predicts that club deals buy riskier targets than sole PE buyers to share the risk of the target company's assets (Marquez and Singh, 2013). Tykvová and Borell (2012) argue that riskier companies are more likely to be bought out by club deals because consortia are better equipped than solo acquirers to deal with these risks. Indeed, they have access to a larger pool of financial resources when targets are in financial distress, they benefit from different sources of information, thus leading to better target selection, and they can more intensely monitor during investment phase. Cumming et al. 2010, Manigart et al. 2006, Lockett and Wright 2001 notice how syndication allows to spread financial risk of venture capital investments among syndicating members, thus providing portfolio diversification and risk sharing for PE acquirers and their investors.

H2-a (Risk-Sharing Hypothesis): PE funds create club deals to share the risk of the target company's assets.

The other reason why PE funds need to pool their resources is that they are subject to financial constraints that prevent them from investing more than a given amount in a single transaction. Marquez and Singh (2013) notice how bidders may be impeded from participating to the takeover competition because of their limited fund availability. Additionally, PE funds may be prohibited from investing in a single transaction by more than the amount specified in their bylaws (Jackson, 2008). Lerner et al. (2011a) acknowledge that limited partner agreements typically set concentration limits for PE funds, which are usually prohibited from investing more than 20% to 25% of the fund value in a single transaction. Moreover, in setting the LBO financial structure, PE funds need to consider the amount of debt used and, particularly, the Total Debt/EBITDA ratio.¹¹ The existence of financial constraints on the PE side in terms of percentage of fund size they are allowed to invest in single transactions has not been investigated yet. There are empirical studies that associate PE financial constraints with target size: Guo et al. 2011, Boone and Mulherin 2011 observe that targets of club deals are larger than targets of sole PE LBOs. Club deals offer an opportunity to mitigate financing constraints by pooling equity capital, thus being able to fund large transactions that they could not fund solely with their own capital (Cao et al., 2019). Officer et al. (2010) also find that targets of club deals are three times larger than targets of sole PE. However, they conclude that capital constraints are unlikely to determine club formation. Target size plays a significant role in club creation, in that larger targets require more funds to be bought out, which makes it more likely that PE funds cannot act alone. However, this does not necessarily imply that PE funds do not have sufficient equity to sponsor deals as standalone acquirers. It may be that PE acquirers cannot buy out club deal targets alone because their concentration limits prevent them from investing more than a given amount of their fund size in a single transaction.

H2-b (Financing Hypothesis): PE funds create club deals to overcome their investment limits.

Finally, PE funds may create club deals because they are not experienced enough to successfully conclude the transaction as solo acquirers. Metrick and Yasuda (2010) find that PE managers build on their prior experience by increasing the size of their funds, which leads to higher expected revenues per partner in later funds and Sørensen (2007) observes that more experienced venture capitalists (VC) invest in better companies. Experience also plays a significant role in syndicated deals, in that VC initial investment rounds usually involve parties with similar level of experience and more experienced VCs tend to enter later investment rounds of companies with better performance (Lerner, 1994). In examining the reasons for choosing specific partners in VC syndicates, Hochberg et al. (2015) find that different experiences enhance deal value. Kaplan and Schoar (2005) also observe higher returns for syndicates involving more experienced partners. More recently, Stanfield (2020) studies the role of different skills in the decisions of PE funds to syndicate LBOs, finding that low-skill firms are more likely to syndicate, because they benefit from pooling skill and expertise. High-skill firms already possess screening and value-adding abilities, thus their cost of sharing the investment is higher than the benefit (Meuleman et al., 2009). The possibility of sharing information, resources and experience (Hochberg et al., 2007; Cuny and Talmor, 2007; Humphery-Jenner, 2013) allows investors to improve deal selection and value addition to portfolio companies (Brander et al., 2002; Cumming et al., 2010). Therefore, club deals are more likely created when PE funds are less experienced and want to benefit from the experience accumulated by other PE funds.

H3 (Experience Hypothesis): PE funds create club deals to benefit from each other experience.

3. Data and sample

3.1. Data

I retrieve from Refinitiv a list of mergers and acquisitions (M&As) announced and completed between January 1, 1995 and December 31, 2019 with US public companies as targets. Following Officer et al. (2010), minimum deal value is \$1 million, initial ownership in the target has to be lower than 25% and final ownership higher than 50%, and target has to be delisted within one year from the announcement date. I then focus on leveraged buyouts, that is transactions with at least one private equity fund as acquirer, thus excluding strategic deals.¹² I exclude bankruptcies, restructurings and target companies classified as real estate

¹¹ According to the *Interagency Guidance on Leveraged Lending* issued by the Federal Reserve, when this ratio is higher than 4, the transaction is defined as a leveraged one; however, a ratio above 6 raises concerns for most industries about the target's ability to repay its debt. See <https://www.federalreserve.gov/supervisionreg/srletters/sr1303a1.pdf>

¹² Strategic acquisitions are performed by acquirers different from private equity funds.

Table 1
Time series of LBOs.

	Total	Sole PE	Club Deals
1995	3	3	0
1996	10	8	2
1997	20	18	2
1998	15	10	5
1999	28	21	7
2000	22	14	8
2001	8	5	3
2002	9	4	5
2003	18	12	6
2004	15	9	6
2005	29	17	12
2006	54	29	25
2007	49	27	22
2008	20	16	4
2009	16	13	3
2010	34	27	7
2011	35	28	7
2012	27	21	6
2013	28	26	2
2014	19	11	8
2015	19	9	10
2016	33	27	6
2017	31	25	6
2018	28	22	6
2019	30	26	4
Total	600	428	172

The table reports the time series of LBOs by year of announcement. *Total* is the sum of *Sole PE* LBOs and *Club Deals*.

investment trusts (REITs), closed-ended investment funds and financial institutions (SIC codes from 6000 to 6999), management buyouts (MBOs), transactions funded by individuals, spin-offs, share repurchases and stock splits. Finally, I eliminate the 48 private equity transactions for which related documents are unavailable on the SEC website. As last step, I match the resulting sample with Compustat and CRSP databases, generating a final sample of 600 events.¹³ Sample criteria are listed in [Appendix A](#), with the number of observations reported at each step.

I classify the deals on the basis of their acquirers, both by manually searching the deal synopses from Refinitiv, as in [Officer et al. \(2010\)](#), and by verifying them with the SEC filings and internet searches, as in [Boone and Mulherin \(2011\)](#). I start with the acquirers' short business description provided by Refinitiv. Being very general, sometimes it fails to identify private equity firms, particularly when groups of investors are involved. Therefore, I screen the SEC filings (DEF14 A, PREM14 A, SC-T-TO, DEFS14 A) to collect information about the bidder(s), searching for corroborating information on the web when necessary. Unlike [Officer et al. \(2010\)](#), I do not place any restriction on the top 50 PE firms, but I consider all the 300 companies listed in the Private Equity International magazine as of December 2019,¹⁴ to obtain the more detailed information possible. After this analysis, I create two categories of acquirers: sole PE (428 deals) and club deals (172 deals). Club deals are consortia including at least one private equity firm, with other members being either PE, financial firms, institutional investors or strategic companies; sole PE transactions are sponsored by a single private equity fund.

[Table 1](#) shows the time series of LBOs that occur in waves ([Harford, 2005](#); [Rhodes-Kropf et al., 2005](#)). The highest number of leveraged buyouts occurs in 2006 and 2007, with 25 and 22 club deals and 29 and 27 solo deals, respectively. In recent years, the number of solo deals has returned to the pre-2008 crisis levels. The number of club deals has been quite volatile following the 2008 financial crisis, however it has stabilized recently.

3.2. Variables and univariate analysis

The following subsection reports descriptions and summary statistics of the variables used to test the hypotheses of collusion, financial resource pooling, and experience. All the continuous variables are winsorized at the 1st and 99th percentile and defined in [Appendix B](#).

The main independent variable accounting for the acquirer type, *Club*, is a binary variable equal to one for club deals (172) and to zero for sole PE LBOs (428).

¹³ This relatively small number of deals (600) is because I consider as PE acquirers only those that explicitly define themselves as 'private equity' firms or that explicitly say that they make use of a private equity fund. Thus, I exclude all the financial and asset management companies that have funds with investment strategies similar to those of PE funds. Also, when the document related to the transaction cannot be retrieved from the SEC website, I exclude the deal.

¹⁴ <https://www.privateequityinternational.com/pei-300/>

Table 2, Panel A, reports summary statistics for premium, abnormal returns and controls. On average, sole PE LBOs pay significantly higher premiums to target shareholders than club deals (45.76% versus 39.15%). Abnormal returns are higher for sole PE LBOs than for club deals, with differences being significant both in mean and median values, except for runup. Targets of club deals are four times larger than targets of sole PE in terms of market capitalization (*Size*), have lower leverage (0.21 versus 0.25) and a higher percentage of institutional ownership (69% versus 55%). Moreover, club deals' value is three times the one of sole PE, with an average difference of \$2,210 million and a median difference of \$920 million.¹⁵

Table 2, Panel B, reports summary statistics for club composition. *Club Members* is the number of firms participating to the consortium (2.83 on average), distinguished among *PE Members* (2.13 on average), *Financial Members* and *Strategic Members*.

Table 2, Panel C, reports summary statistics for competition, risk, financing and experience variables.¹⁶ There are significantly more *Total Bidders* involved in club deals (7.48) than in sole PE (4.84), where *Total Bidders* is the sum of *Financial Bidders* and *Strategic Bidders*. On average, there are significantly more *Losing Bidders* in club deals (4.64) than in sole PE (3.84).

On average, targets of club deals receive significantly more price revisions (*Offers*) from final acquirers, than sole PE LBOs (3.66 versus 3.34). Targets of club deals also receive more *Indications Interest* from non-winning bidders than sole PE, not significantly, though.

Price Range, which is the difference between maximum and minimum price offered by the final acquirers during negotiations, is 0.6539 significantly higher for club deals than for sole PE LBOs. Final price is equal to the maximum price discussed during the private phase for 54% of club deals and for 59% of sole PE LBOs (*Price HI*). Club deals take more time to conclude, where *Time* is the number of months needed to close the deal. Finally, for the 68 LBOs that provide this information, targets of club deals receive more competing bids after the public announcement, during the go-shop period, than targets of sole PE (*Competing Bid*).

The next block of variables includes one operating risk measure (*Cashflow Volatility*) and four market risk measures (*PD*, *Beta*, *Return Volatility*, *Residual Volatility*). Sole PE targets are significantly riskier in terms of cashflow volatility (average difference of 0.98%), return volatility (average difference of 0.43%) and residual volatility (average difference of 0.47%), whereas they are less risky in terms of beta (average difference of 10.49%).

The third block of variables includes financing measures, computed starting from the *Financing to the Merger/Sources and Amount of Funds* section of the SEC filings. However, only 515 out of 600 documents (353 sole PE and 162 club deals) report complete information about the financing profile of the mergers, that is, they disclose deal value, debt and total amount of equity committed by acquirers to the transaction. Moreover, only 106 out of 172 club deals disclose each member's equity contribution.¹⁷

The first four financing variables are computed in percentage of deal value;¹⁸ the following four financing variables are expressed in dollars. *Equity (%)* and *Equity (\$)* is total equity committed to the deal by the acquirers. *Debt (%)* and *Debt (\$)* is debt obtained from investment banks or financial institutions to finance the deal. *Equity PE1 (%)* and *Equity PE1 (\$)* is the amount of equity committed to the deal by the single PE fund in sole PE LBOs,¹⁹ and by the highest PE contributing member in club deals. *Equity PE (%)* and *Equity PE (\$)* is the amount of equity committed to the deal by those funds that participate in at least one sole PE LBO and one club deal during the sample period (52 funds sponsoring 199 sole PE LBOs and 86 club deals).

Total equity (*Equity (%)*) is significantly higher and total debt is significantly lower in solo deals than in club deals, with average differences of 6.59% and 5.50%, respectively. The average equity contribution of the leading PE club member (*Equity PE1 (%)*) is significantly lower for club deals (24.75%) than for sole PE LBOs (45.55%). Regarding the subsample of the 52 PE funds, the average equity contribution (*Equity PE (%)*) to club deals is less than half the one to sole PE LBOs (17.92% and 43.45%, respectively).

Club deals are associated with a significantly higher total dollar value of equity and debt than sole PE LBOs, with an average difference of \$725 million and \$1,437 million, respectively. The equity contribution of single PE funds is slightly higher for leading PE club members than for sole PE acquirers (*Equity PE1 (\$)*), but it is lower for the subsample of the 52 PE funds (*Equity PE (\$)*). However, these last two differences are not statistically significant, implying that, on average, PE funds tie the same equity dollar amount to LBOs, irrespective of whether they act alone or in concert with other acquirers.²⁰

D/EBITDA, computed at the deal level as the ratio of LBO debt and target EBITDA, is slightly lower in sole PE, but not significantly. *Equity to Fund Size (%)* is computed at the fund level as the ratio between the total dollar equity commitment and the fund size.²¹ Only 309 sole PE and 153 club deals' members disclose in the SEC filings the name of the fund used for the transaction. For solo deals, *Equity to Fund Size (%)* is the percentage of fund size that the single PE acquirer committed to the LBO. For club

¹⁵ Deal values are hand-collected from the SEC filings; for the 83 documents that do not report it, I use the one from Refinitiv. When the deal value is available both from the SEC filings and from Refinitiv, the two values are closely similar.

¹⁶ When computing competition variables, I exclude three club deals and four sole PE LBOs, because the documents do not contain the Background to the Merger section. However, they provide information on the financial structure of the deal, thus I can compute risk and experience variables.

¹⁷ It is not mandatory for target companies filing documents to disclose the amount of equity and debt used to finance the deal, therefore, some of them do not do so.

¹⁸ Deal value is retrieved from the SEC filings when available, otherwise the one reported from Refinitiv is used. It is the sum of equity and debt.

¹⁹ For sole PE LBOs, *Equity (%)* and *Equity (\$)* are equal to *Equity PE1 (%)* and *Equity PE1 (\$)*, respectively.

²⁰ Appendix C reports mean and median values of equity percentage, dollar value of equity and deal value by PE fund, for those funds that sponsored both types of LBOs during the sample period. I only report those that sponsored at least 8 deals, but the complete list is available upon request. Deal values are higher and equity percentage is lower for club deals than for sole PE LBOs. However, dollar value of equity does not show a unique path, being higher, lower or similar between club deals and sole PE LBOs, depending on PE fund. Further analyses are provided in the next section. Apollo is an exception, in that deal value is lower and percentage equity contribution is higher for club deals with respect to sole PE. However, even if it is the acquirer that sponsors the highest number of LBOs, it shows a clear preference for sole PE (23 deals) than for club deals (3 deals), which possibly determines the out-of-path results.

²¹ In order to obtain the fund size, I collect the funds' names from the SEC filings, then I perform web searches to retrieve their size.

Table 2
Summary statistics for premium, market reaction, controls and club composition.

	Panel A: Premium, Abnormal Returns and Controls									
	Sole PE				Club Deals					
	Mean	Median	SD	N	Mean	Median	SD	N	Ttest (<i>P</i> -value)	P-value
<i>Premium and Abnormal Returns</i>										
Premium (%)	45.76	36.86	33.68	372	39.15	28.12	33.47	150	0.042	0.005
CAR(-2,+2) (%)	27.02	21.09	26.19	415	18.83	13.17	20.61	168	0.003	0.003
Runup(-42, -1) (%)	4.86	3.94	19.80	415	6.96	4.56	16.00	168	0.221	0.906
Markup(0,+126) (%)	27.94	22.83	32.99	415	19.05	16.06	26.30	168	0.001	0.000
Total Return(-42,+126) (%)	32.80	29.90	36.80	415	26.01	22.83	30.57	168	0.035	0.015
<i>Controls</i>										
BHAR	-0.0664	-0.1459	0.4352	426	-0.0284	-0.0718	0.3766	171	0.317	0.017
Capex	0.0492	0.0329	0.0508	428	0.0500	0.0332	0.0510	171	0.857	0.979
Cash	0.1722	0.0917	0.1987	428	0.1476	0.0911	0.1535	172	0.145	0.928
Deal Value (\$million)	1,030	380	2,140	428	3,240	1,300	4,870	172	0.000	0.000
Dividends	0.2219	0.0000	0.4160	428	0.2965	0.0000	0.4580	172	0.054	0.069
Industry M&A Liquidity	1.4863	1.1563	1.2123	427	1.4914	1.2866	1.0678	171	0.821	0.587
Institutional Ownership (%)	55.07	55.70	29.63	400	69.75	75.83	28.26	141	0.000	0.000
Leverage	0.2543	0.2173	0.2432	427	0.2134	0.1731	0.2018	172	0.051	0.431
R&D	0.0392	0.0000	0.0705	428	0.0296	0.0000	0.0559	172	0.109	0.415
Size	576.4889	190.8825	1468.65	427	2248.61	706.1335	4334.868	172	0.000	0.000
Tobin Q	1.5582	1.3025	0.8436	4098	1.6704	1.4159	0.8743	163	0.155	0.090
<i>Panel B: Club Composition</i>										
	Mean	Median	SD	N						
Club Members	2.8313	2	1.1750	172						
PE Members	2.1395	2	1.0886	172						
Financial Members	0.4941	0	0.7983	172						
Strategic Members	0.1744	0	0.3805	172						
<i>Panel C: Competition, Risk, Financing and Experience</i>										
	Sole PE				Club deals					
	Mean	Median	SD	N	Mean	Median	SD	N	Ttest (<i>P</i> -value)	P-value
<i>Competition Measures</i>										
Total Bidders	4.8419	4	4.3008	424	7.4852	7	4.4961	169	0.000	0.000
Financial Bidders	3.6485	2	3.3392	424	5.8047	5	3.6323	169	0.000	0.000
Strategic Bidders	1.1934	0	1.7906	424	1.6805	1	2.0041	169	0.001	0.002
Losing Bidders	3.8419	3	4.2846	424	4.6449	4	4.2557	169	0.035	0.024
Offers	3.3419	3	1.4838	424	3.6686	3	1.4339	169	0.014	0.251
Indications Interest	1.9033	1	2.3715	424	2.1775	2	2.2817	169	0.199	0.138
Time	11.2217	9	7.6044	424	11.4970	10	6.8696	169	0.682	0.775
Price HI	0.5957	1	0.4913	424	0.5465	1	0.4992	169	0.269	.
Price Range	2.5929	1.565	3.2502	424	3.2468	2	3.8222	169	0.037	0.138
Competing Bid	0.3404	0	0.4789	47	0.4761	0	0.5117	21	0.294	0.427
<i>Risk Measures</i>										
Cashflow Volatility	0.0407	0.0243	0.0506	414	0.0309	0.0193	0.0544	170	0.035	0.008
PD	0.0153	0	0.1166	424	0.0136	0	0.1087	171	0.872	0.034
Beta	0.8292	0.8309	0.5483	391	0.9341	0.9725	0.5552	136	0.055	0.012
Return Volatility	0.0331	0.0285	0.0159	391	0.0288	0.0249	0.0148	136	0.005	0.004
Residual Volatility	0.0314	0.0274	0.0158	391	0.0267	0.0222	0.0148	136	0.002	0.001
<i>Financing Measures</i>										
Equity (%)	45.5509	38.4792	27.4557	353	38.9559	36.0679	20.5931	162	0.006	0.410
Debt (%)	54.4491	61.0596	27.4934	353	59.9532	62.3781	20.7712	162	0.009	0.614
Equity PE1 (%)	45.5509	38.4792	27.4557	353	24.7510	19.7823	18.5542	106	0.000	0.000
Equity PE (%)	43.4563	36.2318	27.1629	199	17.9221	13.9939	17.8782	154	0.000	0.000
Equity (\$ million)	415	195	651	353	1,140	509	1,620	162	0.000	0.000
Debt (\$ million)	743	243	1,610	353	2,180	929	3,250	162	0.000	0.000
Equity PE1 (\$ million)	415	195	651	353	450	265	563	106	0.488	0.143
Equity PE (\$ million)	530	282	682	199	485	321	515	154	0.500	0.182
Equity to Fund Size (%)	11.9671	8.1048	17.0099	309	40.0554	21.3116	50.9217	153	0.005	0.062
D/EBITDA	8.5941	6.9809	9.5072	325	9.0238	8.0854	7.0144	154	0.617	0.090
<i>Experience Measures</i>										
High Exp	0.4369	0	0.4965	428	0.3793	0	0.4858	377	0.097	0.097
High Exp Industry	0.2803	0	0.4497	428	0.1697	0	0.3759	377	0.002	0.000
High Exp Leader	0.4369	0	0.4965	428	0.4593	0	0.4997	172	0.618	0.618
High Exp Industry Leader	0.2803	0	0.4497	428	0.2267	0	0.4199	172	0.178	0.178

The table reports summary statistics for targets of LBOs in Panel A and for competition, risk, financing and experience measures in Panel C. Variables are winsored at 1% and 99% percentile and defined in [Appendix B](#). Last two columns report the *p*-value for mean and median differences (ttest for mean values and non-parametric k-sample test for the equality of medians). Panel B displays summary statistics for the composition of club deals.

deals, *Equity to Fund Size (%)* is the percentage of fund size the club member would have had to use, were it to buy out the target as a standalone acquirer. On average, PE acquirers use 11.96% (8.1% in median) of their fund size for sole PE LBOs. To conclude the club deal as solo acquirers, club members need to tie, on average, 40.05% (21.31% in median) of their fund size to the transaction.

The last block of variables includes binary variables proxying for PE acquirers' experience. *High Exp* and *High Exp Industry* are computed at the fund level. *High Exp* equals one if the number of deals sponsored up to announcement by the fund is higher than median (2); *High Exp Industry* equals one if the number of deals sponsored up to announcement by the fund in a given industry is in the top tercile of the distribution. On average, solo acquirers are significantly more experienced than club acquirers, both in general (43% versus 37%) and within targets' industries (28% versus 17%). *High Exp Leader* and *High Exp Industry Leader* are computed in the same way but at the deal level: for club deals, the leader is used to measure the deal experience. Mean and median differences are not significantly different between sole PE and club deals, when computed at the deal level.

4. Empirical analysis

The univariate analysis has provided preliminary evidence that club deals are associated with a higher level of competition than sole PE LBOs and that the risk profile of club deal and sole PE targets is not significantly different. Moreover, PE funds contribute more equity when sponsoring solo deals than club deals, which in turn requires a significantly higher percentage of each member fund size, were they to conclude the transaction as solo acquirers. Finally, PE funds sponsoring solo deals are, on average, more experienced than club members.

This section provides a description of the private negotiation process, then it tests for the hypotheses that could explain club creation: collusion, financial resource pooling, be it due to risk-sharing reasons and/or to PE funds' investment limits, and experience.

4.1. Negotiation process

The private negotiation process is described in the *Background to the Merger* section of the SEC filings, from the first contacts between targets and potential acquirers to the public announcement of the takeover. When they occur, these events are unknown to the market, they become public only when the parties sign the final agreement and the target company files the related document with the SEC.²² I report below selected facts about the LBO negotiation process that can be useful to rule out collusion by PE club members.

The takeover process starts in two possible ways, either it is solicited by the target, that is the board of directors puts the company up for sale, or it is unsolicited. Most of the LBOs are unsolicited, 92 out of 169 club deals (54.4%) and 252 out of 424 sole PE deals (59.43%). The first interested acquirer that appears during club deal negotiations is a member of the winning consortium in 56.89% of the cases, a financial company in 23.95% and a strategic company in the remaining 19.16%. Only 21% of the club deals already start as consortia, the remaining 79% start as single acquirer deals, with the consortium being created later on during the negotiation. Moreover, at least one consortium other than the winning one is involved in the negotiations of 49 club deals and 64 sole PE LBOs.²³

Of the 169 club deals, 32 have a strategic company as the first interested party: 16 of them were solicited by the target and 16 were unsolicited. Of the 16 solicited sales, 11 were meant to be strategic combinations. However, 8 turned into LBOs because none of the strategic companies contacted by the target was interested in pursuing a combination and 2 turned into LBOs because the targets rejected the offers made by the strategic potential acquirers. In the last one, negotiations went on between the strategic bidder and the winning consortium (which involved a strategic member and a PE fund), however, the strategic bidder lost the competition because its offer was inferior to that of the consortium. The remaining 5 solicited sales were initiated by target companies that were available to evaluate both strategic and financial sales, depending on the best offer received. In 2 of these 5 transactions the target first contacted the strategic acquirer, in the other 3 the strategic acquirer first contacted the target. In 4 of these 5 cases, the strategic participants withdrew from competition before the financial acquirers presented formal bids, in the last one the strategic bidder went on bidding, but the winning consortium proposal was deemed to be superior by the target. The other 16 unsolicited club deals include 8 cases in which strategic potential acquirers approached target companies declaring their interest in pursuing a combination but did not present any formal price offer. The remaining 8 club deals involved formally bidding by strategic acquirers, but in 6 of them target companies refused the proposal because it was not in line with targets' estimated value. When asked to improve these offers, strategic bidders withdrew from the competition. In one case, the strategic bidder withdrew after making an offer even though the target was open to negotiate. The last case involves the strategic bidder becoming part of a consortium during negotiations, it bids head-to-head with the winning bidder, whose offer was judged to be superior.

On average, club deals formalize 8.97 months after the beginning of the takeover process. In a few cases (16), some club members withdrew during the negotiations for unspecified reasons.

From the first description of the private negotiation phase, collusion does not seem to be the main driver of club creation. Most club deals (79%) do not start as consortia, as the target firm is first approached by single interested bidders. The acquiring

²² The secrecy in the private phase is protected by securities laws, which do not require bidders to disclose confidential non-public information until a definitive takeover agreement is reached, except when insider trading or company leakage is detected. See the New York Stock Exchange Listed Company Manual, section 2.02.

²³ There is 1 other consortium in 35 club deals and 43 sole PE LBOs, 2 consortia in 8 club deals and in 12 sole PE LBOs, 3 consortia in 3 club deals and in 4 sole PE LBOs, 4 consortia in 2 club deals and 1 sole PE LBO and 5 consortia in 1 club deal.

Table 3
Value effects.

	Premium	CAR(-2,+2)	Runup(-42, -1)	Markup(0,+126)	Total Return(-42,+126)
Club	-0.0276 (0.0451)	-0.0184 (0.0273)	0.0447** (0.0190)	-0.0134 (0.0306)	0.0313 (0.0375)
Size	-0.0577*** (0.0119)	-0.0700*** (0.0175)	0.0092 (0.0108)	-0.0710*** (0.0239)	-0.0618** (0.0235)
Leverage	-0.0635 (0.0730)	0.0985 (0.0694)	0.1119*** (0.0387)	0.1123 (0.0826)	0.2242** (0.0841)
Cash	-0.0267 (0.1128)	0.0046 (0.0831)	-0.0329 (0.0807)	-0.0281 (0.0929)	-0.0610 (0.0938)
TobinQ	0.0105 (0.0573)	-0.0152 (0.0274)	-0.0730*** (0.0181)	-0.0355 (0.0504)	-0.1085** (0.0495)
Capex	-0.0372 (0.3968)	-0.1436 (0.1820)	0.1002 (0.1402)	-0.3655 (0.2409)	-0.2653 (0.2219)
R&D	1.3455*** (0.4020)	-0.0928 (0.2404)	-0.0434 (0.2064)	0.1035 (0.3065)	0.0601 (0.3313)
BHAR	-0.0438 (0.0460)	-0.1252*** (0.0366)	-0.1985*** (0.0244)	-0.3111*** (0.0396)	-0.5096*** (0.0472)
Cashflow Volatility	-0.5548 (0.4204)	0.0764 (0.3880)	-0.3223 (0.2050)	0.4342 (0.6591)	0.1119 (0.5553)
Institutional Ownership	0.0308 (0.0657)	0.0152 (0.0438)	-0.0548 (0.0483)	0.0031 (0.0835)	-0.0516 (0.0969)
Dividends	0.0451 (0.0468)	-0.0532* (0.0283)	0.0072 (0.0241)	-0.0586* (0.0294)	-0.0513* (0.0268)
M&A market liquidity	-0.0321 (0.0394)	0.0216 (0.0277)	0.0494*** (0.0164)	0.0238 (0.0414)	0.0732* (0.0392)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	442	487	487	487	487
Adjusted R ²	0.158	0.189	0.251	0.279	0.417

The table reports results of OLS regressions for premium and abnormal returns in sole PE and club deals. *Club* is an indicator variable equal to one for club deals and zero otherwise. All the regressions have industry fixed effects and year fixed effects; standard errors are clustered at industry level. Coefficients denoted with ***, **, * are significant at the 1%, 5% and 10% level, respectively.

consortium was created only at the end of the negotiations. If club members colluded, participants had to enter negotiations as consortia to undermine competition from the beginning of the process. This would significantly reduce the time taken to close the deal and would likely contribute to benefit from more favorable conditions such as lower prices or fewer competing bids after the public announcement. Moreover, of the 133 club deals that started as single acquirer transactions, approximately 90% involved members that were not already in contention. That is, the leader of the consortium enters into negotiations as standalone acquirer, it starts looking for other outside financing partners only later on. Also, in nearly half of the deals (43.11%), the first interested acquirer is not even a member of the club. If club members wanted to depress competition, at least one member of the winning consortium should start the negotiations alone, then immediately join other bidders. Moreover, strategic initiated sales turned into LBOs because strategic acquirers contacted by the target were not interested in pursuing a combination, or because they withdrew without bidding, or because their bids were rejected by the target because too low. Except for two cases, the strategic party abandoned negotiations well before the consortium was created and even before the financial bidders entered negotiations. These facts help rule out the possibility that club deals are created to push strategic bidders out of the competition and they also explain why club deals take longer to conclude: target companies have to search for other acquirers when the initial ones do not show interest in such a transaction.

4.2. Do club deals dampen competition in the takeover market?

The collusion hypothesis predicts that club deals are associated with reduced competition during takeover negotiations. If PE club members colluded to the detriment of target shareholders, lower premiums and lower abnormal returns should be observed. Moreover, I expect a significant difference in the private negotiation phase of club deals with respect to sole PE LBOs, in terms of participants involved in the bidding process, offers received from bidders, time taken to close the deal and final price paid.

Table 3 reports the results from OLS regressions of takeover premiums paid to target shareholders and CARs over different event windows around the merger announcement on the acquirer dummy and factors known to affect premiums and market reactions.²⁴ The only significant difference, albeit small, is on runup, which is higher for club deals than for sole PE LBOs, thus signaling that the market is aware that some private negotiation is taking place and it adjusts targets' stock price accordingly.

²⁴ I run the same OLS regressions on a larger sample comparing the 600 LBOs with 3,898 strategic mergers with the same characteristics as the LBOs of interest and I find that, in line with Barger et al. (2008), Dittmar et al. (2012), strategic mergers pay a higher premium with respect to LBOs, but there is no incremental difference for club deals with respect to strategic mergers.

Table 4
Competition.

	Total Bidders	Financial Bidders	Strategic Bidders	Losing Bidders	Time	Offers	Indications Interest	Price HI	Price Range	Competing Bids
Club	2.2345*** (0.5818)	1.5972*** (0.4359)	0.6806** (0.2838)	0.6136 (0.5878)	1.7039* (0.9224)	0.2174 (0.1409)	0.2564 (0.2907)	-0.1563 (0.1267)	0.1331 (0.3692)	-0.0815 (0.2973)
Size	0.3694** (0.1800)	0.3485** (0.1351)	0.0256 (0.0889)	0.2543 (0.1943)	-0.6863** (0.3108)	0.0834 (0.0641)	0.0994 (0.1382)	-0.1216* (0.0711)	0.7273*** (0.1435)	0.0209 (0.1884)
Leverage	0.4463 (0.8369)	0.2352 (0.7161)	0.2906 (0.3226)	0.3860 (0.8456)	0.2192 (1.6018)	-0.3869* (0.2060)	0.0540 (0.3661)	-0.0144 (0.3561)	-1.6799*** (0.5951)	1.0745 (0.7272)
TobinQ	-0.5382** (0.2617)	-0.4384* (0.2255)	-0.1172 (0.0947)	-0.4927** (0.2376)	-0.7305** (0.2801)	-0.1547*** (0.0490)	-0.2575* (0.1319)	0.2806*** (0.0778)	0.5630 (0.3458)	-0.1487 (0.2174)
Cash	1.8102 (1.3749)	0.8787 (0.8641)	0.9582 (0.6906)	1.4061 (1.3525)	0.5379 (1.8619)	0.0056 (0.3920)	-0.1570 (0.6109)	-0.0267 (0.3805)	-2.6265*** (0.7422)	1.2383* (0.7047)
Institutional Ownership	-0.1086 (0.7328)	-0.2001 (0.6897)	0.1093 (0.3001)	0.2367 (0.6986)	-0.5481 (1.9530)	-0.0396 (0.2157)	-0.8448 (0.8025)	0.8309** (0.3588)	0.1658 (0.5506)	0.3010 (0.7083)
BHAR	-0.3106 (0.2747)	-0.3165 (0.2070)	-0.0270 (0.1648)	-0.3024 (0.2775)	-0.1112 (0.8436)	-0.0189 (0.1794)	0.0014 (0.2299)	0.3048* (0.1767)	0.4683 (0.3347)	-0.3168 (0.3554)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	510	510	510	510	510	510	510	504	510	58
R ²	0.270	0.237	0.219	0.218	0.174	0.218	0.149	0.125	0.289	0.775

The table reports results of OLS regressions for competition in sole PE LBOs and club deals. Dependent variables are computed from 'Background to the Merger' section of the SEC filings and they proxy for the competitive level of the private phase of deal negotiations. *Total Bidders* is the number of companies taking part to the merger negotiation, distinguished between *Financial Bidders* and *Strategic Bidders*. *Losing Bidders* is *Total Bidders* less 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 the final acquirer; *Indications Interest* is the number of proposals made by bidding firms that lost the competition; *Price HI* is a binary variable equal to one if the final price agreed between the parties is equal to the maximum price discussed during the private phase; *Price Range* is the difference between the maximum and the minimum price offered to the target during negotiations; and *Competing Bid* is a binary variable equal to one if the target has received at least one offer from another bidder different from the winning one after the public announcement. 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.

Even in the absence of differences in the market reaction to sole PE and club deal announcements, suggesting that competition is not significantly impacted in club deals, competition may be altered during private negotiations. Results in Table 4 show that the process leading to the final merger agreement involves a higher number of total participants, both financial and strategic, in club deals than in sole PE LBOs. Financial companies participating in negotiations are more than twice the strategic ones in club deals. The number of losing bidders, that is, firms participating in but not winning the competition, is higher in club deals than in sole PE LBOs, not significantly though. Also, it takes significantly more time to sign the final merger agreement for club deals than for sole PE LBOs, in terms of number of months from the beginning of the takeover process to the public announcement of the deal. Club deals' targets receive more price revisions from actual acquirers (*Offers*) than sole PE targets and more indications of interest from competitors than sole PE targets, even if these variables are not significant.

Price HI is the dependent variable from a probit regression for the probability that final price paid to target shareholders is equal to maximum price offered by acquirers during the private phase. If PE acquirers colluded to pay lower prices, *Club* should have a negative and significant coefficient. However, the coefficient is negative, but not significant. *Price Range* is the difference between maximum and minimum price offered by winning bidders to target shareholders: if PE club members colluded to the detriment of target shareholders, a smaller price range for club deals than for sole PE LBOs should be observed. Conversely, targets of club deals are associated with a wider offer price range, although not significantly; thus, the bargaining power of target shareholders of club deals and solo deals is similar.²⁵

The last column of Table 4 examines competition after the public announcement of the LBOs by comparing the number of offers received by targets of sole PE and of club deals after the public announcement of the merger agreement. The sample size decreases because data on competing bids are available for only 68 of the 600 transactions. Targets of club deals receive fewer competing bids, that is, bids from other interested acquirers, even if the coefficient is not significant.

Overall, results in Table 4 provide evidence that club deals are associated with higher competition than LBOs sponsored by single PE funds, in terms of more bidders, both financial and strategic and more months to close the deal. On average, there are 2.23 more bidders involved in club deal negotiation, which is a relevant difference, when considering a mean value of 4.84 total bidders in sole PE and of 7.48 total bidders for club deals. A similar difference is observed for financial and strategic bidders as well. Time taken to close the deal is even more relevant, as club deals take 1.7 more months to close, however, the mean difference between sole PE and club deal number of months is 0.27 months. Also, the probability that the final price paid to target shareholders is equal to the minimum price offered during private negotiations is not significantly higher in club deals than in sole PE LBOs.²⁶ Moreover, when

²⁵ It is clear when reading the SEC filings that target companies seek several price revisions in club deals.

²⁶ Given that I deal with discrete count of events, in unreported analysis I run the same regressions with a Poisson and a negative binomial model to allow for overdispersion in the dependent variables and results are in line with those of simple OLS regressions.

Table 5
Target risk.

	Club	Club	Club	Club	Club
Cashflow Volatility	1.8428 (3.8557)				
PD		1.0465 (1.8620)			
Beta			0.2582 (0.2861)		
Residual Volatility				14.7821 (15.5848)	
Return Volatility					16.7542 (14.6306)
Size	0.5095*** (0.1658)	0.5123*** (0.1505)	0.5601*** (0.1693)	0.6615*** (0.1750)	0.6672*** (0.1797)
Leverage	-1.9403*** (0.6906)	-2.1041*** (0.5918)	-2.0481*** (0.6476)	-2.1564*** (0.7036)	-2.1802*** (0.7057)
TobinQ	-0.1672 (0.1519)	-0.1302 (0.1373)	-0.1727 (0.1813)	-0.1922 (0.1816)	-0.1920 (0.1834)
Cash	-0.4888 (1.2402)	-0.4349 (1.1617)	-0.4637 (1.1129)	-0.5370 (1.1503)	-0.5500 (1.1595)
Institutional Ownership	1.7347*** (0.5836)	1.5761*** (0.5552)	0.8759 (0.6252)	0.9646* (0.5718)	0.9428 (0.5748)
BHAR	0.6711* (0.3956)	0.6581* (0.3858)	0.6329 (0.3995)	0.5739 (0.3752)	0.5818 (0.3736)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	463	476	447	447	447
Pseudo R ²	0.231	0.231	0.222	0.223	0.224

The table reports results of logistic regressions for the probability of being bought out by a club deal based on target risk. Each column considers a different measure of risk (*Cashflow Volatility*, *PD*, *Beta*, *Residual Volatility* and *Return Volatility*). 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.

controlling for targets' characteristics, the offer price range for club deals and solo deals is not significantly different, thus showing that target shareholders have similar bargaining power. Results about higher competition in the private phase and the absence of differences in premiums paid to target shareholders and in the stock market reaction to deal announcements allow to rule out collusive behavior by PE acquirers in club deals. These results are consistent with [Boone and Mulherin \(2011\)](#), who show that LBOs do not inhibit competition among bidders and that consortia among PE funds do not have a collusive effect to the detriment of target shareholders. Results are also in line with [Guo et al. \(2011\)](#), who conclude that PE acquirers bid jointly when target companies have better ex-ante prospects, thus being more attractive investments.

4.3. Pooling of financial resources

After showing that competition in club deals is not dampened, I investigate the financial resource pooling hypothesis as a possible explanation for club creation, that is PE funds join other acquirers because they are not able to conclude the deal as standalone acquirers. This may be due either to risk-sharing motivations, that is, target companies are too risky for a single acquirer, or to investment limits, that is, PE funds do not want or cannot invest more than a given amount of their fund size in a single deal.

4.3.1. Target's risk

I first explore the possibility that PE funds create club deals to share the risk associated with purchasing the target's assets. Univariate analysis shows that target risk differs between sole PE LBOs and club deals, but there is no unique direction across the risk measures computed. I investigate below if higher target's risk makes it more likely the acquirer is a club than a single firm.

[Table 5](#) reports results from logistic regressions for the probability of being acquired by a club with respect to a single PE fund, depending on different target's risk measures, all of them computed in the year preceding the LBO. *Cashflow Volatility* proxies for operating risk, as in [Officer et al. \(2010\)](#) and in [Furfine and Rosen \(2011\)](#), *PD*, *Beta*, *Residual Volatility*, *Return Volatility* proxy for market risk. None of the risk measures considered has any influence on the probability of being acquired by a club deal. However, the likelihood of being bought out by a club deal is positively influenced by the target dimension and the low leverage. This is indicative of the fact that PE acquirers care about the financial risk, but they do not seem to care about either operating or market risk. Indeed, target's size and leverage can be viewed as proxies for the financial risk of the transaction: larger companies make the deal riskier because they require higher investments and lower pre-deal leverage allows acquirers to lever the transaction more ([Cumming et al., 2010](#)).

4.3.2. Deal financing

The other possible explanation for resource pooling is the need to overcome investment limits that prevent PE funds from tying more than a given amount of their size to a single transaction. In order to test this hypothesis, I compare debt, equity contribution and fund size of sole PE LBOs and club deals.

Table 6 reports the results from OLS regressions of financing variables on the acquirer dummy and controls. Equity and debt commitments are expressed as percentages of deal value in Panel A and as logarithms of dollar values in Panel B. Columns 1 and 2 of both panels consider the 515 LBOs (353 sole PE and 162 club deals) for which SEC filings disclose the financing mix, that is the amount of equity and debt tied to the deal. Controlling for target size and other characteristics, total equity and debt used to finance the LBOs are significantly different between sole PE and club deals, neither as percentages of deal value (*Equity (%)* and *Debt (%)* in Panel A), nor as dollar value (*Equity (\$)* and *Debt (\$)* in Panel B). Column 3 of both panels compares equity tied to the deal by the single PE fund in the 353 sole PE LBOs with equity tied to the deal by the highest contributing PE club member for the 106 club deals that disclose this information in the SEC filings. Controlling for target size and other characteristics, the leading PE fund commits significantly less equity when participating in club deals than when sponsoring solo deals, both in percentage (*Equity PE1 (%)* in Panel A) and as dollar value (*Equity PE1 (\$)* in Panel B). It is important to notice that the magnitude of this result is not negligible: club deals' leaders, on average, commit 29.46%²⁷ less than sole PE funds, with a mean equity contribution of \$415 million for sole PE and \$450 million for club deals. The last column of both panels restricts the sample to the 52 PE funds that sponsor 86 club deals and 199 solo deals. Controlling for target size and other characteristics, PE funds tie significantly less equity to club deals than to solo deals, both in percentage of deal value (*Equity PE (%)* in Panel A) and in dollar value (*Equity PE (\$)* in Panel B).²⁸ The economic magnitude of this effect is also relevant, because club members commit, on average, 29.84% less than sole PE funds, with a mean equity contribution of \$530 million for sole PE and \$485 million for club deals.

Taken together, results from Table 6 indicate that deal financing is a relevant concern for PE funds. Total equity and debt commitment do not significantly change between club deals and sole PE LBOs, as they are only influenced by target characteristics. Larger targets require more equity and debt in dollar value (Panel B), but less equity and more debt in percentage of deal value (Panel A). However, consortia allow all their members to contribute less equity to the deal than if they had to buy out the target as solo acquirers. The fact that this result also holds in dollar value alleviates the concern that the percentage reduction is a mechanical effect of multiple acquirers sharing the same equity commitment.

I now investigate the possibility that PE acquirers have internally set investment limits that prevent them from allocating more than a given amount of their fund size to a single transaction. PE funds do not openly disclose their concentration limits, which cannot be observed. However, Lerner et al. (2011a) notice that they are often prohibited from investing more than 20% to 25% of their fund value in a single transaction. Therefore, I exploit the size of the funds used by PE acquirers to finance the deal and their actual equity contribution to compute a proxy for these limits and investigate whether they play a role in consortium creation. Results are reported in Table 7, which relates the probability of being acquired by a club with *Equity to Fund Size (%)* and targets' controls. *Equity to Fund Size (%)* is the total dollar equity commitment divided by the PE fund size, where total dollar equity is equal to *Equity (\$)* of Table 6. Fund size is the dollar value of the fund used by a single PE acquirer to fund the deal. Therefore, for solo deals, this variable shows how much of its fund size the PE acquirer uses to finance the deal; for club deals, it shows how much of its fund size the PE acquirer would have used, were it to buy out the target as a standalone acquirer. *D/EBITDA* is used as control variable in columns 2 and 4 of Table 7: it is the ratio of total debt used to finance the deal and target's EBITDA, computed at deal level. The first two columns consider all the LBOs for which there is information about total equity contributed and fund size, the last two columns consider the subsample of the 52 PE funds that sponsor 86 club deals and 199 solo deals, for which there is information about total equity contributed and fund size. The last two columns have been added to include PE firm fixed effects to the model.²⁹ Results show that, as PE acquirers need to tie a higher percentage of their fund size to the deal, it is more likely that a club is created to buy out the target. The first column shows that PE funds are 42% more likely to create club deals, as equity to fund size increases by 1%. This result also holds when controlling for *D/EBITDA*, which is not significant. This means that the debt repayment ability of the target does not influence the choice of creating a consortium, which only depends on how much of their fund size PE acquirers would need to fund the transaction.³⁰

Overall, deal financing is a key issue in explaining the creation of club deals in the market for LBOs. Total debt and equity commitment only depend on target size, however, they do not differ between club and solo deals, once controlling for targets' characteristics. The relevant advantage of club deals is the possibility for its leader and all its members to contribute less equity than what they do in sole PE LBOs. This is even clearer when observing that, when PE acquirers need to tie a higher percentage of their fund size to the transaction, they tend to create consortia. This finding supports the existence of concentration limits that prevent PE acquirers from allocating more than a given percentage of their funds to the same deal (Lerner et al., 2011a; Jackson, 2008).

²⁷ Variables expressing dollar commitments are computed in logarithm, therefore decrease in equity commitment is obtained as $0.2946 = e^{-0.349} - 1$.

²⁸ I repeat these analyses excluding the 67 equity buyouts (9 club deals and 58 sole PE LBOs), that is deals financed exclusively with equity and no debt and I find that results are qualitatively and quantitatively in line with those of Table 6.

²⁹ Throughout this study, PE firm fixed effects refer to the parent private equity company (KKR for example), not the single funds created by it.

³⁰ I repeat the same analyses with a logistic model and results are in line with the ones reported.

Table 6
Deal financing.

	Panel A: Percentage Commitments			
	Equity (%)	Debt (%)	Equity PE1 (%)	Equity PE (%)
Club	0.8628 (2.6225)	-1.0999 (2.6436)	-12.5641*** (3.2997)	-13.2515*** (2.7579)
Size	-4.1627*** (1.2081)	4.1575*** (1.2999)	-5.3615*** (1.5299)	-6.7201*** (1.8007)
Leverage	0.6938 (7.1889)	1.3060 (7.0706)	5.0680 (6.9817)	-2.4550 (11.7600)
TobinQ	3.5678*** (1.1973)	-3.3917*** (1.2332)	3.2624** (1.3323)	3.0480 (2.3157)
Cash	26.5751** (10.4455)	-29.2315** (10.9224)	28.5587** (11.9461)	22.9571* (11.5780)
Institutional Ownership	-11.2752 (7.3037)	11.7653 (7.9439)	-4.9732 (7.3921)	2.9343 (7.1890)
BHAR	-4.2058 (4.7584)	5.3169 (4.9239)	-4.6256 (4.8873)	1.6991 (8.4709)
Industry FE	YES	YES	YES	YES
PE Firm FE	NO	NO	NO	YES
Year FE	YES	YES	YES	YES
Observations	431	431	384	255
R ²	0.373	0.390	0.421	0.648
	Panel B: Dollar Commitments			
	Equity (\$)	Debt (\$)	Equity PE1 (\$)	Equity PE (\$)
Club	0.1216 (0.0823)	0.8413 (0.6254)	-0.3490*** (0.1262)	-0.3545*** (0.1201)
Size	0.7140*** (0.0494)	1.8421*** (0.2740)	0.6674*** (0.0559)	0.5870*** (0.0484)
Leverage	0.9531*** (0.2113)	0.9125 (2.0921)	1.0132*** (0.2028)	0.7406** (0.3019)
TobinQ	0.0493 (0.0543)	-0.6366* (0.3625)	0.0366 (0.0540)	-0.0514 (0.0488)
Cash	-0.2045 (0.2600)	-9.4091*** (3.3560)	-0.1131 (0.3293)	-0.2083 (0.2918)
Institutional Ownership	0.2276 (0.1917)	1.5934 (1.8315)	0.3279 (0.2277)	0.1817 (0.3497)
BHAR	0.0048 (0.1162)	0.9106 (1.3511)	-0.0425 (0.1354)	0.1731 (0.1774)
Industry FE	YES	YES	YES	YES
PE Firm FE	NO	NO	NO	YES
Year FE	YES	YES	YES	YES
Observations	431	431	384	255
R ²	0.836	0.365	0.804	0.850

The table reports results of OLS regressions for equity and debt financing of sole PE LBOs and club deals. Panel A considers financing commitments as percentages of deal value; Panel B takes the logarithm of dollar commitments. *Equity (%)* and *Equity (\$)* is equity committed by buyers to the deal; *Debt (%)* and *Debt (\$)* is debt obtained from lenders; *Equity PE1 (%)* and *Equity PE1 (\$)* is equity committed to the deal by the highest contributing member of club deals and by the single PE fund in solo deals. *Equity PE (%)* and *Equity PE (\$)* is equity committed to the deal by the 52 funds sponsoring 86 club deals and 199 solo deals. All the regressions have industry and year fixed effects, the last one also includes PE firm fixed effects; standard errors are clustered at industry level. Coefficients denoted with ***, **, * are significant at the 1%, 5% and 10% level, respectively.

4.4. Experience

The last motivation that could explain club creation is experience, that is, less experienced PE funds join other acquirers to benefit from their superior abilities in the LBO market. Conversely, more experienced PE funds are less likely to create consortia because the costs of syndication (such as coordination costs and profit sharing) are higher than the benefits. Table 8 reports results of logistic regressions for the probability of club creation based on the acquirers' experience, controlling for target characteristics. The first two regressions are performed at fund level, thus including PE firm fixed effects. PE funds with experience in the LBO market are 22.78%³¹ less likely to create club deals (24.3% if they possess experience within the target's industry). The last two regressions are performed at deal level, thus considering a club deal as experienced if its leading member is experienced. Once again, if the fund sponsoring the LBO already has experience, it is 53.36% less likely to create a club (40.9% if the fund has experience in the target's industry). In unreported analyses, I run the same logistic regressions using as independent variables the logarithm of the number of deals sponsored by PE funds instead of dummy variables and results are in line with those of Table 8: the higher the number of deals already sponsored by PE funds, the lower the probability of creating a club.

³¹ Table 8 reports regression coefficients. Odds ratios are computed by exponentiating the coefficient, so that, for example, 0.2278 = $e^{-1.4792}$.

Table 7
Fund investment limits.

	Club	Club	Club	Club
Equity to Fund Size (%)	0.3553*** (0.0685)	0.3399*** (0.0707)	1.4689*** (0.4815)	1.4236** (0.5724)
D/EBITDA		0.0001 (0.0034)		0.0035 (0.0043)
Size	0.0531 (0.0332)	0.0590* (0.0349)	0.0221 (0.0565)	0.0321 (0.0767)
Leverage	-0.3061*** (0.1121)	-0.3259** (0.1309)	-0.2622 (0.3503)	-0.3426 (0.4130)
TobinQ	-0.0183 (0.0259)	-0.0135 (0.0367)	0.0004 (0.0490)	-0.0194 (0.0667)
Cash	0.0927 (0.2051)	0.2643 (0.2228)	0.2857 (0.4258)	0.4887 (0.5108)
Institutional Ownership	0.1728 (0.1501)	0.1415 (0.1421)	0.1880 (0.2216)	0.1986 (0.2404)
BHAR	0.1226* (0.0714)	0.0966 (0.0855)	0.2224* (0.1180)	0.2483* (0.1457)
Industry FE	YES	YES	YES	YES
PE Firm FE	NO	NO	YES	YES
Year FE	YES	YES	YES	YES
Observations	362	342	216	203
R ²	0.373	0.388	0.640	0.653

The table reports results for the probability of becoming target of a club deal versus a solo deal depending on two financial ratios. *Equity to Fund Size (%)* is the ratio of the total equity committed to the deal relative to the fund size used to finance the LBO; *D/EBITDA* is the ratio of the total LBO debt with respect to target EBITDA. The first two columns consider the full sample, the last two columns restrict the sample to the 52 funds that sponsor 86 club deal and 199 sole PE LBOs. All the regressions have industry and year fixed effects, the last two columns also include PE firm fixed effects; standard errors are clustered at industry level. Coefficients denoted with ***, **, * are significant at the 1%, 5% and 10% level, respectively.

These results provide support for the role of experience in creating club deals: as PE funds gain experience, both in general and in specific industries, they tend to act as solo acquirers instead of joining buyers' consortia. This is likely due to the fact that benefits stemming from syndication are overcome by associated costs. Conversely, unexperienced funds can extract larger benefits from syndication, with associated costs being smaller, thus being more likely to join club deals.

5. Additional analyses and robustness checks

5.1. Matching analyses

In previous sections, I have shown that there exists a correlation between competition, financing and club creation. Specifically, club deals are associated with a higher level of competition than solo deals, and they are not created to collect a higher amount of total equity, but to allow their members to tie a lower amount of equity to the deal. However, there may be omitted variables that are unobserved and uncontrolled for, which could contribute to explain club creation. To address this concern, I run two propensity score matching (PSM) analyses to check whether target companies have significantly different characteristics that may predict whether they are bought out by club deals or by single PE funds. In [Table 9](#), Panel A, I match target companies of club deals (treated) and of sole PE (control), depending on observable characteristics (size, leverage, TobinQ, cash holdings, institutional ownership, BHAR, industry, year). Except for *Price HI*, none of the competition variables is significantly different between sole PE and club deals. Panel B focuses on the subsample of the 233 LBOs for which at least one consortium takes part in the private negotiation phase, thus considering all the 169 club deals (control) and the 64 sole PE transactions (treated) that have at least one bidding club during private negotiations. Results for competition measures show that sole PE deals with club involvement have significantly more losers, fewer price revisions and more indications of interest, which are not significant in the main analysis, though. As for financing variables, the only significant difference is in the percentage of the leader's equity contribution, which is higher in sole PE than in club deals.

The next analysis considers the subsample of the 52 PE funds that sponsor 86 club deals and 199 sole PE LBOs, thus having 353 unique funds' observations (199 sole PE funds and 154 funds for 86 club deals). I match club deal and sole PE targets whose size is in between 75% and 125%, that is, I match club deals' targets sponsored by a PE fund with solo deals sponsored by the same PE fund in an interval of 5 years before and 5 years after the sole PE LBO. I am able to match 121 sole PE with 83 club deals' targets. Then, I compare the PE fund's equity contribution in Panel A and their equity to fund size in Panel B of [Table 10](#). Results are in line with those of [Tables 6](#) and [7](#), that is PE funds commit less equity to club deals than to sole PE LBOs, both as percentage of deal value and in dollar value, when going after targets of similar size. However, when including PE firm fixed effects in last two columns, coefficients are not significant anymore, possibly due to the small sample size. Moreover, it is more likely that PE funds create club deals as the amount of equity relative to their fund size increases, even when going after targets of similar size.

Table 8
Experience.

	Fund Level Club	Club	Deal Level Club	Club
High Exp	-1.4792*** (0.5618)			
High Exp Industry		-1.4144** (0.6360)		
High Exp Leader			-0.6281*** (0.2389)	
High Exp Industry Leader				-0.8938*** (0.2752)
Size	1.4997*** (0.2874)	1.5556*** (0.3121)	0.5671*** (0.1548)	0.5776*** (0.1754)
Leverage	-3.9179*** (0.8816)	-3.8333*** (1.0406)	-2.0364*** (0.5800)	-1.9667*** (0.6302)
TobinQ	-0.3564 (0.2335)	-0.3614 (0.2626)	-0.1240 (0.1304)	-0.1066 (0.1319)
Cash	-0.1114 (1.6082)	0.0467 (1.6441)	-0.2473 (1.1735)	-0.1401 (1.1765)
Institutional Ownership	2.0313* (1.2266)	2.0042 (1.3075)	1.6092*** (0.5488)	1.5475*** (0.5634)
BHAR	1.8387*** (0.6187)	1.7161*** (0.6600)	0.6845* (0.3730)	0.6139 (0.3947)
Industry FE	YES	YES	YES	YES
PE Firm FE	YES	YES	NO	NO
Year FE	YES	YES	YES	YES
Observations	331	331	476	476
Pseudo R ²	0.483	0.487	0.238	0.243

The table reports results from logistic regressions for the probability to create a club depending on the experience of the PE buyer. The first two regressions are performed at fund level, the other two at deal level, thus considering the club as experienced if its leader has experience. *High Exp* is a binary variable equal to one if the fund sponsors a number of deals higher than median (2); *High Exp Industry* is a binary variable equal to one if the number of deals sponsored by the fund in a given industry is in the top tercile of the distribution; *High Exp Leader* and *High Exp Industry Leader* are computed in the same way as the previous two variables but at deal level, thus considering a club deal as experienced if its leader has experience. All the regressions have industry and year fixed effects, the first two regressions also have PE firm fixed effects; standard errors are clustered at industry level. Coefficients denoted with ***, **, * are significant at the 1%, 5% and 10% level, respectively.

5.2. Cross-border LBOs

This study focuses on US deals, meaning that targets need to be US publicly listed companies to be included in the sample, but no requirement is imposed as for the acquiror nation. Cao et al. (2015) find that cross-border LBOs are a widespread phenomenon, even though club deals are less common in cross-border LBOs. Therefore, it could be the case that the presence of a foreign, non-US, LBO sponsor has an impact on the syndication decision. I thus investigate the nationality of the PE funds and classify the deals into domestic (the PE funds are from the US) and cross-border (the single PE fund in solo deals or at least one club member is not from the US). Then, I include in the baseline models the variable *Cross-border*, equal to one if the LBO is a cross-border one (results are available in the Online Appendix³²).

Although most of the acquirors are from the US, there are 62 out of 600 deals that involve a foreign acquiror. Out of these 62 LBOs, 56 deals involve a PE firm whose fund is incorporated and managed in a country different from the US. The remaining 6 LBOs involve PE funds incorporated and managed in a country different from the US, whose PE parent firm is from the US, though.³³ As for the remaining 56 deals involving a foreign acquiror, they are 27 solo deals and 29 club deals. As for the 29 club deals, 13 of them are consortia of foreign, non-US, PE funds only; the remaining 16 club deals are sponsored by at least one US PE fund and another foreign, non-US, PE fund. When including the variable *Cross-border* in the regression models, results are unchanged. Moreover, cross-border LBOs are associated with higher premium and runup, more total and financial potential buyers and more price revisions by the winning bidder. Furthermore, when controlling for target risk, PE fund experience and equity to fund size, cross-border LBOs are more likely syndicated. Importantly, cross-border deals are not associated with significantly different equity commitment, which is further proof that club deals allow to reduce PE fund investment, independent of their nationality.

5.3. Geographical proximity

Geographical proximity plays an important role in shaping investment decisions in the venture capital (VC) industry, where on-site visits and in-person meetings are of paramount importance. Cumming and Dai (2010) observe local bias in VC, in that local

³² Tables from A1.1 to A1.3 in Online Appendix report short version results from baseline regressions, controlling for the presence of a foreign PE fund.

³³ Since the parent firm of these 6 PE funds is from the US, they have been classified as non-foreign in the regression analysis; however, results are consistent with those commented here when classifying them as foreign.

Table 9
Propensity score matching.

	Panel A: Full Sample					
	Treated	Controls	Difference	S.E.	T-stat	N
Total Bidders	7.0977	6.1578	0.9398	0.7332	1.28	133
Financial Bidders	5.3834	4.5413	0.8421	0.5731	1.47	133
Strategic Bidders	1.7293	1.6015	0.1278	0.3331	0.38	133
Losing Bidders	4.3609	5.1654	-0.8045	0.7308	-1.10	133
Time	12.2781	11.76691	0.5112	1.3542	0.38	133
Offers	3.5413	3.5413	0	0.2308	0.00	133
Indications Interest	2.1278	2.3458	-0.2180	0.3932	-0.55	133
Price HI	0.5298	0.7089	-0.1791	0.0782	-2.29	133
Price Range	3.1327	2.7584	0.3742	0.5888	0.64	133
Competing Bid	0.5	0.7222	-0.2222	0.2415	-0.92	18
	Panel B: Club Involvement Subsample					
	Treated	Controls	Difference	S.E.	T-stat	N
<i>Competition</i>						
Total Bidders	8.8301	8.0880	0.7421	0.8893	0.83	53
Financial Bidders	6.5849	6.1194	0.4654	0.6926	0.67	53
Strategic Bidders	2.1509	1.9683	0.1823	0.4224	0.43	53
Loosing Bidders	7.8301	5.5345	2.2955	0.8852	2.59	53
Time	12.0754	12.9811	-0.9056	1.4571	-0.62	53
Offers	3.3207	3.8867	-0.5660	0.2774	-2.04	53
Indications Interest	3.3396	2.2327	1.1069	0.4453	2.49	53
Price HI	0.5740	0.5061	0.0679	0.0972	0.70	53
Price Range	2.8009	3.1615	-0.3605	0.6615	-0.55	53
Competing Bid	0.4285	0.5714	-0.1428	0.2131	-0.67	14
<i>Financing</i>						
Equity (%)	38.7857	45.1564	-6.3706	5.8391	-1.09	50
Debt (%)	60.7540	54.7578	5.9961	5.8558	1.02	50
Equity PE1 (%)	38.7857	25.0030	13.5152	5.7386	2.36	50
Equity (\$)	19.6319	19.8470	-0.2151	0.3599	-0.60	50
Debt (\$)	18.6772	18.7502	-0.0730	1.5133	-0.05	50
Equity PE1 (\$)	19.6247	19.0689	0.5558	0.4004	1.39	50
Equity to Fund Size (%)	0.1800	0.3373	-0.1573	0.1281	-1.23	43

The table reports results from propensity score matching (PSM) analysis for competition and financing measures, to check if there are other unobserved and unaccounted for variables that could explain the different level of competition observed. Panel A matches club deals (treated) with solo deals (control) on the basis of target characteristics. Panel B considers the subset of LBOs where at least one consortium of acquirers takes part to private negotiations, thus comparing 64 sole PE LBOs (treated) with the 169 club deals (control). For each variable, the table shows the Average Treatment effects on the Treated (ATT), with the associated standard error, the T-stat and the number of observations.

investment opportunities allow VC managers to have better access to information about target companies, easily create networks with entrepreneurs, and closely monitor investees to avoid moral hazard problems after the funding decision. However, after the COVID-19 pandemic, VCs have been investing in more distant start-ups, particularly when they can benefit from better internet infrastructure, lower information asymmetry and smaller deal size (Han et al., 2022).

In LBO deals, the role of geographical proximity between targets and buyers should be less relevant in the pre-investment phase, since information for public companies is easily available. However, distance should be relevant in the post-investment phase, once targets have received financing, as PE funds typically implement operational and governance changes and target's managers have to be monitored.

Geographical proximity also plays a role in syndicates: Tykova and Schertler (2014) show that VC syndicates help to overcome information and transaction costs and the risk of dealing with an unfamiliar institutional system, associated with investing in target companies located farther away from VCs. Moreover, the higher the distance between targets and the leading VC, the lower the likelihood of a successful exit, implying that syndicate members are probably not just capital providers, but they also play a role in information collection and monitoring (Cumming and Dai, 2010). Therefore, I included the variable *Distance*,³⁴ in the baseline regressions, whose results are available in Online Appendix.³⁵ For the same level of fund experience, the farther the PE fund and the target are located, the more likely it is the club creation, possibly to lower monitoring costs. Moreover, for the same level of target risk, PE funds located farther from targets are more likely to act as standalone acquirers. This can be explained with the idea that when a fund considers joining another fund to create a club, it has to take into account not only the risk associated with holding the target's assets, but also the risk associated with clubbing with a leading investor that is far away from its investments and will have to bear higher monitoring costs.

³⁴ Following Tian (2011) I retrieved targets' and PE funds' addresses (states, cities, zip codes, streets and numbers) from the SEC filings, as cross-checked with Pitchbook and web searches, I obtained their latitude and longitude, and I took the difference between targets' and buyers' addresses. When regressions are performed at deal level, I computed the distance between the target and the club leader.

³⁵ Tables from A2.1 to A2.5 in Online Appendix report results from baseline regressions, controlling for the geographical distance between targets and buyers.

Table 10
Deal financing for size-matched targets.

	Panel A: Equity Contribution			
	Equity (%)	Equity (\$)	Equity PE (%)	Equity PE (\$)
Club	-11.1965** (4.9538)	-0.5855** (0.2193)	-12.1928 (7.4731)	-0.4106 (0.2556)
Size	-11.1796*** (3.5431)	0.5727*** (0.1041)	-12.5951** (4.9582)	0.5534*** (0.1013)
Leverage	-3.6282 (11.3314)	0.7018 (0.4309)	-3.1173 (19.7912)	0.8446 (0.7218)
TobinQ	4.0831 (2.7393)	0.0711 (0.0830)	3.3604 (5.0583)	-0.0208 (0.1376)
Cash	20.1142* (10.3360)	-0.0776 (0.4156)	6.4918 (16.9643)	-0.0623 (0.4929)
Institutional Ownership	4.6087 (11.8217)	0.1155 (0.3822)	1.6228 (14.9990)	-0.1026 (0.5329)
BHAR	-1.0717 (10.9478)	0.2917 (0.3528)	-2.9062 (9.7411)	0.0156 (0.3700)
Industry FE	YES	YES	YES	YES
PE Firm FE	NO	NO	YES	YES
Year FE	YES	YES	YES	YES
Observations	155	155	155	155
R ²	0.495	0.740	0.685	0.856
	Panel B: Investment Limits			
	Club	Club	Club	Club
Equity to Fund Size (%)	1.1481** (0.4842)	1.1183** (0.5034)	1.3557* (0.7650)	1.3546 (0.8328)
D/EBITDA		-0.0004 (0.0054)		0.0031 (0.0058)
Size	0.0217 (0.0739)	0.0090 (0.0856)	0.0297 (0.0713)	0.0333 (0.0733)
Leverage	-0.3204 (0.4079)	-0.3020 (0.4329)	-0.8170 (0.4876)	-0.8596 (0.5463)
TobinQ	-0.0341 (0.0394)	-0.0123 (0.0436)	0.0245 (0.0589)	0.0118 (0.0977)
Cash	0.2126 (0.5875)	0.3796 (0.6061)	0.1107 (0.5923)	0.0571 (0.8146)
Institutional Ownership	0.1916 (0.1439)	0.2372 (0.1429)	0.0757 (0.2313)	0.0577 (0.2618)
BHAR	0.2380 (0.1516)	0.2312 (0.1731)	0.2265 (0.1646)	0.2564 (0.1923)
Industry FE	YES	YES	YES	YES
PE Firm FE	NO	NO	YES	YES
Year FE	YES	YES	YES	YES
Observations	137	132	137	132
R ²	0.517	0.524	0.756	0.754

The table reports results for the equity contribution of club deals versus solo deals (Panel A) and for the probability of becoming target of a club deal versus a solo deal depending on deal financing ratios (Panel B). All the regressions have industry and year fixed effects, last two columns also include PE firm fixed effects; standard errors are clustered at industry level. Coefficients denoted with ***, **, * are significant at the 1%, 5% and 10% level, respectively.

5.4. PE fund managers' education and working experience

There is a stream of literature that relates PE managers' education and working experience with fund performance, deal outcome and syndication. Fuchs et al. (2022) show that PE funds' performance improves when managers attend high-ranked universities and are hired by highly selective employers immediately after graduation. Fuchs et al. (2021) also find that managers' educational ties play an important role in the PE industry in securing deals, especially the more exclusive and less common ties. Moreover, Gompers et al. (2016) among others find that VCs with similar educational and career backgrounds are more likely to syndicate.

In order to account for education and working experience, I collected information about PE managers' names and employment history through manual searches of Pitchbook, LinkedIn and PE firms' websites, associating 644 managers with 393 funds. I was able to track educational backgrounds (undergraduate program, MBA, Master of Science/Arts, Juris Doctor Degree) for 635 managers, and working experience for 480 managers. Following Fuchs et al. (2022), I created the interaction binary variable *Top ARWU|Top Exp*, taking the value of one if managers attended a top university and have top working experience. *Top ARWU* equals one if managers attended any of the top ten universities, based on the Shanghai Academic Ranking World Universities,^{36,37} and *Top Exp*

³⁶ <https://www.shanghairanking.com>

equals one if managers have already worked for another top investment bank before joining the PE fund.³⁸ Overall, the fact that a PE fund is led by a manager that has attended a high-ranked university and has high-quality working experience does not significantly impact the clubbing decision^{39,40}

5.5. Religiosity

It has been shown that VCs located in more religious counties are more risk averse, in that they tend to syndicate more, use more financing rounds and select companies that are in later expansion stages (Chircop et al., 2020). Therefore, I compute *Adherents*, which measures the number of people following a religion in each county.⁴¹ Religiosity, defined as the number of people following a religion, is associated with a lower total dollar equity contribution and a lower dollar equity contribution by the leading PE club member.⁴²

5.6. Political orientation

Political dynamics and M&A decisions are often interconnected: Duchin et al. (2021) find that, not only mergers between politically divergent firms have become less common over time, but also mergers between firms from politically divergent states have virtually disappeared in recent years. In the USA, Democratic and Republican parties adopt different approaches in dealing with economic and financial issues, with the latter interfering less with the economy (Alesina, 1987). This different approach also influences firms' incentives to acquire (Dissanayake et al., 2022), as Republican, more conservative, CEOs are less likely to engage in M&As Elnahas and Kim (2017). Therefore, I include in my models the binary variable *Democratic Governor* to account for the target states' political orientation. Results show that states led by Democratic governors are associated with lower competition in the private phase, in terms of fewer total (and financial) participants, fewer losers, fewer indications of interest from potential buyers and a lower probability of a final price close to the maximum discussed during private negotiations. Moreover, when PE funds possess the same level of LBO experience, Democratic states' governors are more likely associated with club creation.⁴³

5.7. Target firm complexity

Bayar et al. (2020) find that venture capitalists (VCs) are more likely to form syndicates when they invest in more complex targets because they are riskier, thus creating a syndicate allows to share this risk. Target firms are more complex if they are R&D intensive and use more intangible assets, controlling for growth opportunities (sale growth and market-to-book ratio). Therefore, I include in my models binary variables equal to one if those firms' ratios are higher than corresponding industry median values for each year. Overall, measures of target complexity do not significantly impact the clubbing decision, possibly indicating that PE funds are more interested in the target itself, than in how it is positioned within the industry.⁴⁴

5.8. Top PE acquirers

The following analysis aims to verify whether top PE acquirers behave differently from non top acquirers. To do so, I repeat the analyses on competition, risk and financing, adding a binary variable that accounts for top PE acquirers. *TopPE* is thus equal to one if the number of deals sponsored by the PE fund up to announcement is in the top tercile of the distribution, where the leader is used for club deals. There are 151 out of 428 sole PE LBOs (35%) sponsored by an experienced PE fund and 68 out of 172 club deals (39%) whose leader is an experienced PE fund. The presence of a top PE fund does not change the main result, that is club deals are created to allow their members to contribute less than what they would if they had to act as standalone acquirers. Also, the presence of a top PE fund does not affect competition, except for lower runup. As for the risk-sharing analysis, top PE funds make it less likely that the target is bought out by a club deal only when risk is measured with cashflow volatility and probability of default, otherwise it is not significant. Finally, top PE funds decrease the dollar amount of debt used to finance the transaction.⁴⁵

³⁷ I also used rankings provided by the Times Higher Education -THE- (<https://www.timeshighereducation.com/world-university-rankings/2023/world-ranking>), the U.S. News MBA -US News MBA- (<https://www.usnews.com/best-graduate-schools/top-business-schools>) and the Financial Times MBA -FT MBA- (<https://rankings.ft.com/rankings/2909/mba-2023>).

³⁸ I considered as top investment banks the ones listed in the Global Investment Banking Review by Refinitiv, available here: <https://thesource.lseg.com/TheSource/getfile/download/8f559031-7ba5-4abb-8ce3-ecde1ad95757>.

³⁹ Tables from A2.1 to A2.4 in Online Appendix report results from baseline regressions, controlling for PE fund managers' education and working experience.

⁴⁰ Notice that this group of variables is not added to the baseline experience model because funds' experience can be reconduced to managers' experience, since managers are the ones selecting the deals.

⁴¹ Data about religiosity are retrieved from ARDA (Association of Religion Data Archives) decennial surveys of 1980, 1990, 2000, 2010 and 2020, - <https://www.thearda.com> - with missing data linearly interpolated.

⁴² I report in Online Appendix (Tables from A2.1 to A2.5) results from baseline regressions, controlling for the religiosity of the PE fund county. Unreported results with the variable *Denominations*, which captures the variety of religious denominations in each county, are consistent with those presented and available upon request from the author.

⁴³ Tables from A2.1 to A2.5 in Online Appendix report results from baseline regressions, controlling for the presence of a Democratic governor in the target state.

⁴⁴ Tables from A2.1 to A2.5 in Online Appendix results from baseline regressions, controlling for different measures of target firm complexity.

⁴⁵ Results are reported in Tables from A3.1 to A3.3 of the Online Appendix.

5.9. PE firm fixed effects

The following robustness check includes PE firm fixed effects in the regressions performed at deal level, to control for unobserved characteristics of PE buyers that could contribute to explaining club creation. However, these results are to be taken with caution because, in order to add PE firm fixed effects to deal level regressions, I have to exclude all the PE acquirers that perform only one deal during the sample period. Also, I consider the leader when club deals are concerned, thus ignoring other members. Overall, when adding PE firm fixed effect to deal level regressions, results of higher competition in club deals still hold. Moreover, club deals are more likely to acquire riskier companies (Tykvvová and Borell, 2012), which is consistent with the resource pooling hypothesis due to risk-sharing reasons. Finally, club deals do not influence the relative financing mix of debt and equity, as they do not significantly affect the equity contribution of their leading member. However, they allow all their members to contribute less and to tie a lower percentage of their fund size to the deal, which is again evidence in favor of the financial resource pooling hypothesis.⁴⁶

5.10. Market reaction before and after 2006

Table 3 indicates that there is no significant difference in premium and market reaction to club deals' and sole PE LBOs' announcements, except for runup, that is target stock return in the three months preceding the public announcement. However, given the 2006 investigation of the US Department of Justice 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 test this result in my sample, adding the binary variable *Club Post 2006* equal to one for club deals that occurred after 2006 (91 deals) and the interaction variable *Club Post 2006 x Institutional Ownership*. Results reported in Online Appendix, Table A4, are consistent with those discussed in Table 3. The only significant incremental effect is a lower runup after 2006 for club deals' targets with higher institutional ownership, significant at the 10% level only, though. This result is in line with Boone and Mulherin (2011), who also do not find evidence of this discount and can be reconciled with results by Officer et al. (2010) because of a larger sample period and a more comprehensive dataset of LBOs.⁴⁷

5.11. Discussion and future research

On top of the already analyzed factors influencing the syndication decision, the literature has investigated other elements in relation with LBOs and club deals, such as style drifts and misconduct, among others. Koenig and Burghof (2022) find that when general partners (GPs) deviate from the stated VC fund's investment style generate an agency conflict with limited partners (LPs), thereby increasing the deal risk. Therefore, it is plausible that these deals are more likely syndicated because riskier. However, testing this hypothesis requires having access to funds' stated investment goals to assess whether or not an investment represents a deviation from what was agreed upon among GPs and LPs. Since these data are not publicly available, it is left for future research.

Another element in evaluating club formation is misconduct by their members and the ability to enforce security laws. Cumming et al. (2022) find that private enforcement, with strong disclosure rules and liability standards, encourages the creation of denser syndication networks, whereas public enforcement, with strong investigative powers, deters the creation of denser networks due to the heightened misconduct risk by their members. The possibility to monitor the counterpart and to enforce the law in case of misconduct may have an impact on the decision to syndicate a deal, with a PE fund refusing to syndicate with a buyer that was involved in some form of misconduct. However, integrating this aspect into this study would require detailed information about the alleged violations and the enforcement actions taken against each PE fund and/or their managers, which remains unavailable.

One final issue is that this study does not claim any causal implication, in that findings of higher competition, lower equity contribution and lower experience in club deals is a correlation. Although several additional tests and robustness checks were conducted to strengthen the results, endogeneity could not be ruled out with certainty. Despite this limitation, I believe this study provides a valuable contribution to the current understanding of the club deal phenomenon in the LBO market.

6. Conclusions

Using a novel hand-collected dataset of leveraged buyouts' private negotiations, financing structure and PE fund size, I investigate the reasons why PE acquirers create club deals. Evidence provided shows that club deals do not alter competition during takeover negotiations to the detriment of target shareholders. Conversely, the opposite holds true, since they are associated with a higher number of competing bidders, both financial and strategic, more time is required to sign the final agreement, and the final price is not likely to be the lowest discussed during negotiations, thus implying similar bargaining power by club deal and sole PE target shareholders. Moreover, the premium paid to target shareholders is not significantly different between club deals and sole PE and no appreciable difference exists in the market reaction to sole PE and club deal announcements.

Results provide support for the financial resource pooling hypothesis, in that acquirers are more likely to buy larger, thus riskier, targets and targets with lower pre-existing leverage, which allows them to lever more transactions. Moreover, club deals allow their members to overcome those investment limits that prevent them from investing more than a given amount of their fund size in

⁴⁶ Results are reported in Tables from A4.1 to A4.4 of the Online Appendix.

⁴⁷ Results are reported in Table A5 of the Online Appendix.

a single transaction. Indeed, controlling for target's characteristics, there is no difference in the total amount of equity and debt committed to club deals and sole PE LBOs. The difference is in the equity contribution of each club member, which is lower for club deals than for sole PE. Moreover, as the amount of equity commitment relative to fund size increases, it is more likely that PE sponsors create consortia instead of acting as solo acquirers.

Finally, more experienced PE funds are less likely to create club deals, possibly because the experience gained over time and in specific industries makes it more convenient for them to act as solo acquirers, rather than sharing the profit with other members and bearing the coordination costs typical of syndication.

CRedit authorship contribution statement

Lara Faverzani: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix A. Sample criteria

See [Table A](#).

Appendix B. Variable definitions

See [Table B](#).

Appendix C. LBOs by PE

See [Table C](#).

Appendix D. Supplementary data

Supplementary material related to this article can be found online at <https://doi.org/10.1016/j.jcorpfin.2023.102538>.

Table A
Sample criteria.

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 are in Compustat	5,305
Exclude MBOs, spin-offs, share repurchases, stock splits and transactions funded by individuals	5,188
Exclude transactions for which there are no filings	4,458
Exclude strategic mergers	600

The table reports the criteria used to create the sample of LBOs, with number of observations at each step. Data are retrieved from Refinitiv, M&A module.

Table B
Variable definitions.

	Acquirer, Control and Risk Variables
Club	Binary variable equal to one if the acquirer is a consortium including at least one PE fund.
Club Post 2006	Binary variable equal to one if the club occurs after 2006.
Size	Logarithm of market capitalization.
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, computed from monthly returns, as in Officer et al. (2010) .
PD	Probability of default computed as in Farre-Mensa and Ljungqvist (2016) .
Beta	Beta from market regression computed as in Liu et al. (2009) .
Residual Volatility	Residual volatility from market regression (Liu et al., 2009).
Return Volatility	Standard deviation of target's stock returns 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 (Officer et al., 2010).
Industry M&A Liquidity	Deal value as retrieved from Refinitiv, scaled by total assets, computed by industry and year (Harford and Uysal, 2014).
Capex	Capital expenditures to total assets.
R&D	Research and development expenditures to total assets.
Dividends	Binary variable equal to one if target pays dividends over the year preceding the deal.
CAR (-2,+2)	Abnormal returns 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 (Officer et al., 2010 ; Boone and Mulherin, 2011).
Runup (-42, -1)	Abnormal returns over an event window going from 42 days before the announcement to the day before it.
Markup (0,+126)	Abnormal returns over an event window going from the announcement day to 126 days after it.
Total Return (-42,+126)	Sum of runup and markup.
Premium	Difference between the final offer price, as reported in the SEC filings, and the target stock price 43 days before the announcement date, divided by the target stock price 43 before days the announcement date. When the resulting value is lower than 0 or higher than 200, it is replaced with the ratio of the final offer price and the target stock price 43 days before the announcement date. If the resulting value is still lower than 0 or higher than 200, the value is left as missing (as in Officer, 2003 ; Boone and Mulherin, 2007 ; Alexandridis et al., 2013 ; Aktas et al., 2018).
Competition and Experience Variables	
Total Bidders	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, others made formal bids. In order to be considered, they need to be specifically identified in the filings, with numbers or letters or other specific words. Indeed, due to privacy reasons, non-winning firms cannot be named in the filings.
Financial Bidders	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 group them in this variable.
Strategic Bidders	Number of strategic companies taking part to the private phase of takeover negotiation.
Losing Bidders	Number of companies taking part to the private phase of takeover negotiation, but not winning the competition. For club deals, it is the difference between <i>Total Bidders</i> and club members. For sole PE deals, it is <i>Total Bidders</i> less the winning PE acquirer.
Time	Number of months between the beginning of the private phase of takeover negotiation and the public announcement of the deal. The public announcement is the date reported in Refinitiv, the beginning of the deal is retrieved from the SEC filings. It is the date when the Board deliberates to put the company up for sale if it started the process or the date when the first participant contacted the target to inquire about the possibility of a business combination.
Offers	Number of price revisions made to the target by the winning bidder. They are considered only if they specify a price or a price range. For club deals, since the formalization of the consortium happens towards the end of negotiations and in most of the cases winning members made single offers before the club was created, I also consider those offers in the variable.
Indications Interest	Number of indications of interest made to the target by bidders other than winners. They are considered only if they specify a price or a price range. Differently from <i>Offers</i> , each bid is considered only once, even if the competitor submits a revised offer.

(continued on next page)

Table B (continued).

Acquirer, Control and Risk Variables	
Price HI	Binary variable 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. It is equal to zero if it is at some point in between the minimum and the maximum price discussed during negotiations.
Price Range	Difference between the maximum and the minimum offer price discussed during private negotiations by targets and winning bidders.
Competing Bid	Number of competing offers received by target from interested acquirers other than winning ones after the public announcement is made to the market.
High Exp	Binary variable equal to one if the number of deals sponsored up to announcement is higher than median, computed at fund level.
High Exp Industry	Binary variable equal to one if the number of deals sponsored up to announcement in a given industry is in the top tercile of the distribution, where Fama–French 12 is used for industry classification. It is computed at fund level.
High Exp Leader	Binary variable equal to one if the number of deals sponsored up to announcement is higher than median. It is computed at deal level, thus the leader is used for club deals.
High Exp Industry Leader	Binary variable equal to one if the number of deals sponsored up to announcement in a given industry is in the top tercile of the distribution, where Fama–French 12 is used for industry classification. It is computed at deal level, thus the leader is used for club deals.
Financing Variables	
Equity (%)	Total amount of equity committed to the deal by the single PE fund for sole PE 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). If the filing does not report the deal value, it is replaced with the value from Refinitiv.
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). If the filing does not report the deal value, it is replaced with the value from Refinitiv.
Equity PE1 (%)	Amount of equity committed to the deal by the single PE fund for sole PE LBOs (in this case it is equal to <i>Equity (%)</i>) and by the highest contributing PE 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). If the filing does not report the deal value, it is replaced with the value from Refinitiv.
Equity PE (%)	Amount of equity committed to the deal by those PE funds that sponsor at least one club deal and one solo deal during the sample period. 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). If the filing does not report the deal value, it is replaced with the value from Refinitiv.
Equity (\$)	Logarithm of the total dollar amount of equity committed to the deal by the single PE fund for sole PE LBOs or by the club in case of club deals.
Debt (\$)	Logarithm of total dollar amount of debt used to fund the transaction.
Equity PE1 (\$)	Logarithm of the dollar amount of equity committed to the deal by the single PE fund for sole PE LBOs (in this case it is equal to <i>Equity (\$)</i>) and by the highest contributing PE member for club deals.
Equity PE (\$)	Logarithm of the dollar amount of equity committed to the deal by those PE funds that sponsor at least one club deal and one sole PE LBO during the sample period.
Equity to Fund Size (%)	Total dollar amount of equity committed to the deal by the single PE fund for sole PE LBOs or by the club in case of club deals divided by the size of the PE fund used to finance the transaction. Fund size is hand-collected through web searches.
D/EBITDA	Total amount of debt used to fund the transaction divided by target EBITDA.

Table C
LBOs by PE acquirer.

		Sole-PE			Club Deals			N Total
		Mean	Median	N	Mean	Median	N	
Apollo	Equity (%)	31.34	27.44	23	42.82	17.00	3	26
	Equity (\$mill)	804	456	23	496	276	3	26
	Deal Value (\$mill)	2,800	1,620	23	1,360	1,240	3	26
TPG	Equity (%)	41.55	37.00	9	16.6	9.3	15	24
	Equity (\$mill)	436	485	9	728	540	15	24
	Deal Value (\$mill)	1,240	737	9	7,560	5,450	15	24
Thoma Bravo	Equity (%)	52.68	46.98	17	26.32	26.32	2	19
	Equity (\$mill)	653	200	17	735	735	2	19
	Deal Value (\$mill)	1,060	445	17	2,800	2,800	2	19
Blackstone	Equity (%)	26.01	20.75	11	15.31	16.57	7	18
	Equity (\$mill)	980	550	11	923	540	7	18
	Deal Value (\$mill)	4,530	2,200	11	7,000	5,000	7	18
KKR	Equity (%)	40.12	32.71	5	12.38	11.86	10	15
	Equity (\$mill)	332	75	5	670	458	10	15
	Deal Value (\$mill)	774	300	5	7,310	5,940	10	15

(continued on next page)

Table C (continued).

		Sole-PE			Club Deals			N Total
		Mean	Median	N	Mean	Median	N	
Carlyle	Equity (%)	44.43	37.91	9	17.78	18.67	4	13
	Equity (\$mill)	879	900	9	533	539	4	13
	Deal Value (\$mill)	3,360	3,650	9	6,280	3,660	4	13
Leonard Green	Equity (%)	47.43	36.71	6	12.75	10.16	7	13
	Equity (\$mill)	353	184	6	325	317	7	13
	Deal Value (\$mill)	812	402	6	2,970	3,120	7	13
Vista	Equity (%)	74.44	77.27	12	15.62	15.62	1	13
	Equity (\$mill)	1000	703	12	1200	1200	1	13
	Deal Value (\$mill)	1,410	1,360	12	7,680	7,680	1	13
Golden Gate	Equity (%)	70.49	68.08	7	43.64	23.24	3	10
	Equity (\$mill)	151	152	7	52.3	34.5	3	10
	Deal Value (\$mill)	311	152	7	491	148	3	10
JP Morgan	Equity (%)	37.34	37.34	1	18.95	12.66	9	10
	Equity (\$mill)	447	447	1	208	200	9	10
	Deal Value (\$mill)	1,200	1,200	1	3,350	1,810	9	10
Bain Capital	Equity (%)	26.29	25	5	23.00	13.97	4	9
	Equity (\$mill)	449	524	5	742	697	4	9
	Deal Value (\$mill)	1,720	1,810	5	10,100	8,080	4	9
Goldman Sachs	Equity (%)	22.89	22.89	2	9.65	6.26	7	9
	Equity (\$mill)	1,410	1,410	2	688	500	7	9
	Deal Value (\$mill)	5,420	5,420	2	9,440	8,680	7	9
WCAS	Equity (%)	31.79	28.36	7	15.38	15.38	2	9
	Equity (\$mill)	257	145	7	187	187	2	9
	Deal Value (\$mill)	906	425	7	665	665	2	9
Francisco Partners	Equity (%)	44.37	39.75	5	29.67	35.26	3	8
	Equity (\$mill)	440	241	5	275	128	3	8
	Deal Value (\$mill)	993	241	5	1,730	363	3	8
Providence	Equity (%)	46.54	42.5	3	8.58	6.45	5	8
	Equity (\$mill)	515	391	3	710	914	5	8
	Deal Value (\$mill)	1,390	1,780	3	9,330	7,280	5	8
Veritas	Equity (%)	31.16	35.77	5	7.4	7.03	3	8
	Equity (\$mill)	383	320	5	103	112	3	8
	Deal Value (\$mill)	1,740	1,130	5	2,450	1,300	3	8
Warburg Pincus	Equity (%)	62.93	63.08	4	27.37	16.54	4	8
	Equity (\$mill)	257	229	4	470	528	4	8
	Deal Value (\$mill)	786	537	4	4,420	4,460	4	8

The table reports summary statistics of equity and deal value for LBOs sponsored by those funds that take part both in sole PE and club deals.

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