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Club Deals in Leveraged Buyouts

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by

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Abstract

We analyze the pricing and characteristics of club deal leveraged buyouts (LBOs) – those in which two or more private equity partnerships jointly conduct an LBO. We find that target shareholders receive roughly 10% less in club deals than in sole-sponsor LBOs. The results are concentrated before 2006, when club deals began to receive heightened media and government scrutiny. High institutional ownership in the target firm mitigates the club deal effect, suggesting that sophisticated institutional investors are able to bargain effectively with clubs. We find little to no support for benign motivations for club deals based on capital constraints, diversification motives, or the ability of clubs to obtain favorable debt amounts or prices. Overall, our findings are consistent with the view that club deals are detrimental to passive, dispersed shareholders of publicly-traded corporations, especially before 2006.

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"While no buyout executives will say on the record that the purpose of forming a team is to keep the asking price from going too high, privately, most will concede that reducing the final takeover price is sometimes the result. 'You're not going to get me to say that aloud, but let's just say that you're not wrong,' said one legendary private equity investor who then immediately added, 'Please don't quote me by name.' " Andrew Sorkin, *New York Times*, October 16th, 2005, p.3.

"This case arises out of a conspiracy among defendant private equity firms to rig bids, restrict the supply of private equity financing, fix transaction prices, and divide up the market for private equity services for leveraged buyouts … Defendants, via the bid-rigging and market-allocation cartel described herein, have conspired to dominate and control the largest LBOs in the United States and to fix the prices for target companies at artificially low levels." Excerpt from the civil complaint in Klein et al v. Bain Capital Partners, LLC et al, US District Court (Boston), case #: 1:07-cv-12388-EFH, filed 12/28/2007.

Introduction

Following the leveraged buyout (LBO) boom of the 1980s and the relatively quiet 1990s, LBO activity has again boomed in this decade. Total LBO deal volume in the United States alone rose from approximately $30 billion in 2001 to over $450 billion in 2007 (Thomson Financial M&A Review, 2007). Kaplan and Strömberg (2008) report that total equity capital commitments to U.S. private equity funds reached $228.0 billion in 2007, or 1.57% of total U.S. stock market capitalization.[1] This sharp increase in private equity activity has reignited the debate among economists and policymakers regarding the efficiency and welfare implications of LBOs. Proponents of the private equity/LBO model stress the potential for creating value in target firms through operating improvements, reduced agency costs of free cash flow, and stronger managerial incentives (Jensen, 1986). Skeptics suggest that the large profits

[1] We use the terms LBO and private equity sponsored deal interchangeably, as do Kaplan and Strömberg (2008). Some authors also refer to these as "going private transactions" or management buyouts (MBOs). In this paper we focus on buyouts of publicly-traded targets in deals sponsored by prominent private equity firms. These deals almost universally involve large amounts of leverage and also frequently the involvement of the target's pre-deal executive management team. Therefore, we consider all these terms to be practically identical in describing the types of transactions that we are interested in.

earned by some private equity partnerships may be partly due to expropriation of target shareholders and stakeholders rather than bona fide efficiency improvements (Perry and Williams, 1994).[2]

Recently, particular criticism has been directed at so-called club deals, in which two or more private equity firms jointly sponsor an LBO. As the quotations above suggest, the fundamental concern about club deals is that private equity partnerships may be colluding to depress prices by limiting the number of competing bidders in an auction for a takeover target, and thereby may be shortchanging passive, dispersed shareholders of target publicly-traded corporations.[3] This concern has strong grounding in the auction literature, in which it is well-recognized that bidder collusion may depress sale prices (e.g. Graham and Marshall, 1989), and in the regulatory economics literature (e.g. Cramton and Schwartz, 2000, Hendricks and Porter, 1992).

In response to these concerns, in late 2006 the Department of Justice began an inquiry into possible anticompetitive behavior by some of the largest and most prominent private equity firms.[4] And in late 2007 several civil class action lawsuits were filed against essentially the same set of firms alleging collusion resulting in lower premiums for target firms. Furthermore, at least some informed sellers of business units to private equity firms have begun to actively dissuade the formation of clubs. For example, in January 2007 General Electric informed potential private equity bidders for its plastics unit that they were "restricted" from forming clubs for the potential buyout.[5] There is also anecdotal evidence that sellers impose restrictions to keep private equity firms from communicating during an auction, although according to one commentator "it is an open secret that the firms rarely adhere to the rules".[6]

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[2] Illustrating the scale of revenues in the private equity industry, Metrick and Yasuda (2007) estimate that the average revenue per partner in the buyout funds in their sample is $12.58 million.

[3] "Consortia often limits bidding" was reportedly a bullet point on a projected slide presented by a prominent private equity firm founder during a luncheon in New Orleans in March 2006. Andrew Sorkin, *New York Times*, October 22nd, 2006, p.3.

[4] "Private Equity Firms Face Anticompetitive Probe", *The Wall Street Journal*, October 10th, 2006.

[5] Although the exact nature of the "restrictions" was not made public: "GE Sets Private-Equity Limits", *The Wall Street Journal*, January 9th, 2007, page A3.

[6] Andrew Sorkin, *New York Times*, October 16th, 2005, p.3.

Of course, club deals may instead occur for more benign reasons. Capital constraints may induce the formation of clubs for sufficiently large transactions. Even if such constraints do not bind, diversification motives may induce funds to syndicate sufficiently large or risky deals. Furthermore, club deals may be motivated by a desire to certify deal quality to debt financiers. LBOs are highly levered, and it may be easier to acquire debt financing in sufficient quantity and at a favorable price if multiple private equity firms attach their names and reputations to a deal. Finally, as Lerner (1994) points out in the context of venture capital, syndication may improve investment decisions. To the best of our knowledge, these important hypotheses about syndication motives have not been tested in the context of the LBO market.

In this paper we provide evidence on these explanations for and concerns about club deals by examining the pricing and characteristics of club deals relative to sole-sponsor LBOs and to non-private equity merger and acquisition transactions. The concerns about collusion predict that acquisition premiums paid in club deals will be lower than those paid in sole-sponsor private equity deals. On the other hand, the more benign rationales suggest a similar, if not higher, willingness to pay controlling for deal size and risk. For instance, if clubs are able, through the pooling of opinions, to benefit from reduced uncertainty about the scope for value creation in a target, they would be able to bid more aggressively for that target.

The governance concerns (and lawsuits) over club deals primarily focus on prominent private equity firms because more minor players are much less likely to have the market power to effectively collude. Accordingly, we conduct our analysis using a comprehensive sample of completed LBOs of U.S. publicly-traded targets conducted by prominent private equity firms. Our sample includes deals announced between January 1984 and September 2007.

Our main finding is that target shareholders in club deals gain significantly less than in sole-sponsor LBOs and non-private equity merger and acquisition transactions. The differences are economically large: target shareholders receive on the order of 10% less in club deals compared to sole-sponsor LBOs. The lower pricing of club deals accounts for much of the lower pricing of private equity

deals compared to non-private equity deals documented by Bargeron, Schlingemann, Stulz, and Zutter (2007). These results are robust to numerous controls for target and deal characteristics, including size, Q, and measures of risk, as well as time and industry fixed effects. The results are also robust to private equity firm fixed effects, indicating that the results are not driven by the ability of some private equity partnerships to pay low prices regardless of whether they act alone or as part of a club.

We find that this club deal discount is concentrated in club deals announced *prior* to 2006, the year in which the financial media turned a spotlight onto the practice of club deals by private equity firms and the Department of Justice started its informal inquiry into the practice. This result is especially intriguing in light of Dyck, Volchkova, and Zingales' (2007) evidence that the media spotlight is effective in reversing corporate governance violations.

We also find that high institutional ownership mitigates the discount associated with club deals. Notably, there is no similar effect for sole-sponsor LBOs. These results suggest that sophisticated institutional investors are able to bargain effectively with clubs, and that the prices paid in club deals in the absence of institutional ownership are excessively low.

If these findings are indeed due to clubs reducing competition, we would expect to see qualitatively similar patterns in the level of bid competition. Indeed, we find that there are significantly fewer post-announcement competing bids in successful club deals than in successful sole-sponsor private equity acquisitions. This result is also mitigated by high institutional ownership, suggesting that soliciting competing bids is one mechanism by which institutions mitigate the club deal effect.

We also examine more directly the benign rationales for club deals mentioned above. While club deals are larger on average than sole-sponsor LBOs, only 18.6% of club deals are larger than the largest sole-sponsor LBO conducted by any of the club members in the four year window centered on the club deal announcement date. Moreover, club deal targets do not appear systematically riskier or harder to value as measured by beta, historical stock return volatility, historical cash flow volatility, number of business segments (a measure of complexity), or analyst forecast errors (a measure of asymmetric

information) than targets of sole-sponsor LBOs. These facts suggest that capital constraints or diversification concerns are unlikely to be first-order motivations for club deals.

Finally, we investigate whether debt financing terms are better or worse in club deals than they are in sole sponsored private equity deals. Our point estimates indicate that club deals have somewhat better financing terms as measured by lower spreads and less restrictive maximum debt to EBITDA covenants than sole-sponsor LBOs, but the differences are not statistically significant. These results are consistent with Axelson, Jenkinson, Strömberg, and Weisbach (2007) who find that debt to EBITDA ratios are higher, but not significantly so, in club deals. Moreover, these results suggest that it is not the case that club targets receive lower prices because they are excessively risky in unobservable ways. Furthermore, because better debt terms imply a greater surplus generated by the transaction, to the extent club deals have better debt terms we would expect them to be associated with higher, or at least not lower, acquisition prices. Interestingly, we find that club deals involve significantly more lenders than sole-sponsor LBOs, which may constrain the supply of debt financing for competing bids (Klein et al v. Bain Capital Partners, LLC et al).

Overall, our results seem hard to reconcile with a benign view of club deals, particularly for the pre-2006 sample. The results seem more consistent with the view that club deals may be detrimental to passive, dispersed shareholders of target publicly-traded corporations. We stress, however, that while our results are consistent with a collusive view of clubs, particularly before 2006, we lack direct evidence of collusive behavior. Moreover, our evidence is based on transactions in which club formation and target selection are not exogenous, so we cannot completely rule out the possibility that unobserved factors explain our findings.

At the same time, we believe the evidence offers significant challenges for such explanations. For instance, one might speculate that club deals involve precisely those targets in which, due to some unobservable factor, the scope for value creation is small and only a club of private equity acquirers can unlock that value. Such a story faces the difficult task of also explaining why we are unable to detect such differences using our battery of control variables, why the presence of institutional investors

mitigates the influence of the unobserved factor, and why the pricing differentials induced by the unobserved factor weaken after club deals began to receive media/government scrutiny in 2006. We should also emphasize that econometric methods for modeling unobservable reasons for club formation are unlikely to improve inference because collusion is presumably tacit – which implies that there does not exist a well specified model of club formation, and as a result, one cannot distinguish between benign and collusive explanations using error terms from an estimated model of club formation.

Finally, our results on pricing in club deals do not rule out the possibility that the transactions are economically efficient even if there is room for target shareholders to share more in the surplus. Club deals may in fact be socially beneficial if they redeploy assets to productive uses that would otherwise remain undiscovered without the pooling of multiple expert opinions.

Our work adds to the literature on the efficiency and welfare implications of LBOs and going private transactions. DeAngelo, DeAngelo, and Rice (1984) examine a sample of 81 going private transactions announced between 1973 and 1980, and conclude that the average going private transaction does not result in expropriation of wealth from dispersed target shareholders. Kaplan (1989) investigates pre- to post-buyout changes in operating performance and market value for management buyouts conducted in the early 1980s, and finds considerable improvements that he concludes are likely driven by bona fide efficiency improvements. Kaplan and Stein (1993) examine the LBO wave of the 1980s, and find evidence consistent with "overheating" of the LBO market towards the end of the wave. Perry and Williams (1994) find that target managers appear to manipulate earnings downward in the year preceding a management buyout (using discretionary accruals), consistent with complicity in lowering the acquisition price, although DeAngelo (1986) finds contradictory evidence.

More recently, Guo, Hotchkiss, and Song (2007) find that LBOs from the most recent buyout wave create substantial value for private equity firms (in terms of cash flow and returns on private equity capital), particularly in club deals. Our results are complementary to theirs in the sense that the lower prices paid by club deals that we document help explain the greater returns on capital that they document. In independent and contemporaneous work, Boone and Mulherin (2008) also examine the issue of

collusion by private equity firms in club deals, but do not find evidence of lower bid competition for publicly traded target firms in club LBO deals. Their data and research design are, however, substantially different from ours. In a related setting, Hochberg, Ljungqvist and Lu (2007) find that syndication networks among venture capital firms lead to low valuations for entrepreneurs seeking financing.

Our paper proceeds as follows. Section 1 describes our sample selection procedure and provides summary statistics on the resulting sample. Section 2 analyzes the gains to target shareholders using stock-return measures. Section 3 considers multiples-based pricing measures. Section 4 provides further evidence on post-announcement competition and on the benign motivations for club deals. Section 5 concludes.

1. Sample

Our sample of mergers and acquisitions comes from the SDC Platinum database. We extract all completed transactions announced between January 1984 and September 2007 in which the deal value is greater than $100 million, the deal is characterized by SDC as a merger, acquisition, or LBO, and the acquirer is seeking to own more than 50% of the target's shares outstanding. To ensure that we obtain a sample of publicly-traded target firms, we match this preliminary sample of 14,335 transactions to the Center for Research in Security Prices (CRSP) database, and require that the target firm have a stock price in the CRSP database in the seven days prior to the announcement date reported by SDC. Furthermore, to ensure that all transactions in the dataset are completed acquisitions, we require a delisting event within one year (most are within one month) of the deal effective date in SDC. This procedure leaves 4,030 completed acquisitions of publicly-traded target firms.

Because the concerns about club deals primarily focus on large buyouts by prominent private equity firms, we determine which of these transactions are LBOs led by prominent private equity firms. It is not obvious how to do this or how to determine whether any given LBO is a club deal. While SDC contains an LBO flag and a "going private" flag, it unclear what criteria are used to set these flags. We observe that the flags capture some transactions that are not sponsored by private equity firms, such as

corporation-led buyouts and management buyouts that do not involve a private equity firm, and also miss some transactions that are sponsored by private equity firms. In fact, the LBO flag provided by SDC misses about one in five of the deals we identify using the procedure outlined below.

In light of these difficulties, we code indicator variables for whether a private equity firm is involved in the deal and for whether multiple private equity firms are involved. This coding is done by hand for a sample of acquisitions which we identify using a text search for the names of prominent private equity firms in the transaction synopses for the sample of 4,030 deals from SDC. Unfortunately there is no data source that we know of that provides a comprehensive list of prominent private equity firms that have ever been active in the U.S. public-to-private market. We create our own list in the following way.

We begin with the names of the 50 largest private equity firms in the world as reported in the May 2007 issue of Private Equity International (PEI) magazine. PEI's ranking is based on capital raised over the five-year period between 2002 and 2007, and this list of prominent private equity firms contains all the well-known financial sponsors of LBOs.[7] To this list of prominent LBO sponsors we add the names of the in-house private equity units of the investment banks Merrill Lynch, Morgan Stanley, and JP Morgan. Despite their importance, these sponsors may not be on the PEI list because they may use internal capital rather than relying on external fundraising. We also add Forstmann Little and HM Capital Partners (formerly Hicks, Muse, Tate, and Furst) because they are historically-prominent LBO sponsors that have been less active in recent fundraising.

If a deal synopsis from SDC contains the name of one of the prominent private equity firms described above, and the role of that firm is an acquirer, then we code that deal as a private equity deal. Further, if that deal synopsis also contains the name of another private equity firm (even a minor one) as a joint acquirer, then the deal is coded as a "club" deal. While there is some discretion involved in hand-coding transactions based on text synopses from SDC, we conduct the search in a conservative way that is

[7] Highlighting the importance of focusing on prominent private equity sponsors, PEI reports that the members of its top-50 list were responsible for 75% of global LBO deal volume during 2002 – 2007.

intended to ensure that all deals coded as sponsored by private equity firms are, in fact, such transactions. The resulting sample consists of 198 private equity deals of which 59 are club deals.

Table 1 displays the distribution of our sample by year and acquirer type. We consider four mutually exclusive and exhaustive acquirer types: private equity clubs, sole private equity firms, private firms that are not private-equity firms, and public firms. The merger waves of the late 1980s and late 1990s are evident in the table. Table 1 also shows that club deals are a relatively new phenomenon: 32 of the 59 take place in 2005-2007, and 52 of the 59 take place in 1995-2007. We also examine the distribution of our sample in the Fama-French 12-industry portfolio categories,[8] and find that there is a concentration of bids in the Finance, Business Equipment, and Manufacturing industries (not tabulated). More importantly for our purposes, this pattern is the same across the various categories of acquirers documented in Table 1, with one notable exception: there is a concentration of private equity bids (both sole-sponsor and club) in the Wholesale and Retail industry.

Panel A of Table 2 gives a frequency distribution of deals by private equity firm. Kohlberg Kravis Roberts leads the table with 26 deals (10 of which are club deals) followed by Blackstone with 24 deals (11 of which are club deals) and TPG with 21 deals (17 of which are clubs deals, the vast majority of TPG's LBO activity). Participation in club deals roughly mimics overall participation in LBO activity, though there are a few exceptions such as TPG.

Panel B of Table 2 displays a participation matrix, documenting the frequency with which private equity firms partner with each other in club deals. TPG (the most common club participant in Panel A) partners four times each with the other three most prominent private equity groups in our sample (Blackstone, KKR, and Goldman Sachs). Panel B shows that the very most prominent private equity firms (who are also the subject of the litigation referred to in the introduction) are more likely to partner with each other than with less prominent private equity firms.

[8] We classify acquisitions into industries using the target's SIC code. Details of industry portfolio assignments are available at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

2. Returns to target shareholders

In this section, we use several measures of the gains to target shareholders in our sample to provide preliminary evidence on the pricing of club deals relative to sole-sponsor LBOs and relative to non-private equity transactions.

2.1 Variable construction

We collect daily return data for each of our targets from CRSP. We use these data to construct the raw returns, buy-and-hold abnormal returns, and cumulative abnormal returns over the following intervals for each target (all dates are trading days relative to the deal announcement date (0)): day -42 to day -1 (labeled Runup); day 0 to day +126 or the delisting date, whichever occurs first (labeled Markup); and day -42 to day +126 or the delisting date, whichever occurs first (labeled Premium).

We calculate all cumulative abnormal returns by summing market-model residuals as in Schwert (1996), and estimate market-model parameters for each target using daily returns from day -379 to day -127 relative to the deal announcement date. In addition to the above-mentioned variables, we also calculate the cumulative abnormal return to the target's shares from day -1 to day +1 (labeled CAR3). All buy-and-hold abnormal returns (BHARs) are calculated by subtracting the compound return to the CRSP value-weighted market index (including dividend distributions) from the compound return to the target shares over the given period.[9] These return/premium measures are all used in a variety of papers in the M&A literature (see, for example, Schwert, 1996, and Bargeron, Schlingemann, Stulz, and Zutter, 2007).

[9] Our results are robust to defining the buy-and-hold abnormal return as the target's compound return over the relevant period minus the compound return to the matching Fama-French (5 x 5) size and book-to-market portfolio (style-adjusted buy-and-hold abnormal return) as well as defining bid premiums using SDC deal prices relative to target share prices 43 days prior to announcement (as in Officer, 2003, Table 3). Results using these alternative measures of abnormal returns and premiums are omitted for brevity, but available from the authors by request.

2.2 Target return comparisons by bidder type

Table 3 displays means and medians of these return measures classified by acquirer type. Our results are easily summarized. For all return measures except Runup (either cumulated or compounded), shareholders of club deal targets earn significantly lower returns than shareholders of targets that are acquired by any other category of acquirer. This is true in both means and medians. The economic magnitudes of the differences are large: for example, the differences in the buy-and-hold abnormal returns over the whole bid period (buy-and-hold abnormal premium) range from 12 to 24 percentage points on average. Thus, target shareholders gain considerably less from clubs of private equity firms than from other types of acquirers. The insignificant results on Runup merely suggest that pre-announcement leakage or anticipation of the deal is not different in club deals, and are not particularly important for our purposes because our goal is to investigate gains to target shareholders when and after the deal is announced.[10]

Our main interest is a comparison between club deals and sole-sponsor private equity deals. Even if private equity deals are priced lower than deals by publicly traded acquirers, skepticism of club deals may be misplaced if pricing does not differ between the two types of private equity deals.

Table 3 shows that on average shareholders of club deal targets earn a buy-and-hold abnormal return over the premium period that is a statistically and economically significant 12 percentage points less than shareholders of targets involved in sole-sponsor deals. Another, more striking, way to view the differences between club deals and sole-sponsor private equity deals is that target shareholders gain 84% greater premiums on average if the acquisition is by a sole private equity firm rather than a club.

Table 3 also shows that the results that target shareholders gain less in club deals than in sole-sponsor private equity deals is robust to different return measurement periods and return definitions.

[10] The sample sizes differ slightly between cumulative and buy-and-hold abnormal returns in Table 3 because the former relies on the estimation of market-model parameters (described in Section 2.1) while the latter does not.

2.3 Differences in target firm characteristics

It is possible that the reason clubs of private equity firms pay less to target shareholders than do other types of acquirers is that they seek to acquire different types of firms. We investigate whether this is likely to be the case by focusing on target characteristics that the literature has found to be important in explaining gains to target shareholders. Table 4 compares target firm characteristics across acquirer types. Given our interest in club deals, we focus mostly on differences between club and sole-sponsor private equity deals.

We begin with target size, measured as market value of equity (from CRSP) 43 days prior to the announcement (i.e., the day before the beginning of the runup period). Consistent with the notion that club deals are a way for private equity firms to share the risk inherent in large transactions, club deal targets are significantly larger than targets of other types of acquirers, including sole-sponsor private equity deals. This is true in both means and medians. This fact is potentially important for the interpretation of the results in Table 3 that club deals produce lower premiums for target shareholders in light of existing evidence that target shareholder gains are negatively related to target size (e.g., Comment and Schwert, 1995; Officer, 2003).

We also consider the Tobin's Q ratio of the target (defined as in Kaplan and Zingales, 1997). Lang, Stulz, and Walking (1989) argue that acquirers have greater scope to create value if low target Q (or market-to-book) is caused by rectifiable agency problems at the target firm. Our results confirm the well-known finding (e.g., Bargeron, Schlingemann, Stulz, and Zutter, 2007) that private equity firms in general acquire significantly "cheaper" targets (lower industry-adjusted Q ratios) than publicly traded acquirers. However, there is no significant difference in target industry-adjusted Q between club deals and sole-sponsor private equity deals. These results suggest that lack of scope to create value is unlikely to explain the lower premiums associated with club deals.

To provide further evidence on the scope to create value, we examine the target's profitability as measured by the ratio of EBITDA to total assets (from Compustat) for the fiscal year prior to the deal announcement. There is no significant difference in pre-deal industry-adjusted operating performance for

targets of club versus sole private equity firm deals, which is inconsistent with the notion that there is less scope to improve profitability in club deals (which would justify a lower price).

We next consider a measure of pre-transaction target leverage, the ratio of the book value of total debt (short- and long-term, from Compustat) to the sum of the book value of debt and the market value of equity. There are no significant differences in pre-deal target leverage between club deal and non-club deal transactions.

Institutional ownership of the target firm may reduce the ability of private equity firms to acquire such firms cheaply. In Table 4 we document the average and median fraction of target shares that are reported as owned by institutional investors in the year prior to deal announcement. Our measure of institutional ownership is from Thomson Financial's 13F Holdings database, which contains the stock-level holdings of institutional money managers collected from mandatory quarterly filings with the SEC. We compute the fraction of a firm's outstanding shares owned by all institutions at the end of every quarter and compute an annual measure by averaging over the previous four calendar quarters. Targets in private equity transactions, both sole-sponsor and club, have significantly higher institutional ownership than targets of acquisitions by publicly traded firms, both on average and at the median. However, there is no difference between club and sole-sponsor private equity transactions.

Lastly, we consider stock-return-based measures of pre-deal performance and risk. We measure pre-deal stock return performance using buy-and-hold stock returns for the twelve months prior to the beginning of the runup period (day -294 to day -43 relative to the announcement date), both raw and market-adjusted. Targets of club acquisitions have insignificantly different pre-deal stock return performance than targets of other acquirers. There is some evidence that publicly-traded bidders acquire targets with better pre-deal performance, suggesting that publicly traded acquirers are more likely to target well-performing and highly-valued firms than private equity groups are.

We measure pre-deal target risk in two ways: using the standard deviation of the target's daily returns over the twelve months prior to the beginning of the runup period and using the beta estimated in the market-model described in Section 2.1. Neither metric indicates significant differences in target-firm

pre-deal risk between the categories of private equity deals (sole-sponsor and club). However, the targets of both sole-sponsor and club private equity deals have significantly lower total volatility and higher beta than the targets of acquisitions by publicly traded acquirers do.

As an additional measure of risk, we also examine the target's operating risk (historical cash flow volatility, as measured by the volatility of EBITDA to assets based on up to 10 years of history, with a minimum of 5). We also examine target complexity (as measured by the number of reported segments in Compustat segment files) and information asymmetry surrounding the target (as measured by analyst forecast errors in I/B/E/S). We find no significant differences between club and sole-sponsor private equity target firms along these dimensions. To conserve space, we do not tabulate these results.

Taken together, our univariate comparisons of target characteristics suggests that it is unlikely that the lower gains to club deal target shareholders are due to differences in pre-deal target performance, to the premium being incorporated in the stock price before deal announcement, to differences in risk, or to there being a lesser scope to create value in club deal targets.

2.4 Target return regressions

To further investigate the possibility that the differences in gains to target shareholders between club deals and other transactions may be due to differences in target or deal characteristics, we estimate regressions in which we use two of the return measures in Table 3 as the dependent variables. Because we want to investigate the gains to target shareholders when and after the deal is announced, rather than during the pre-announcement (runup) period when we did not find, nor expect to find, significant differences, we focus our attention on explaining announcement returns (CAR3) and buy-and-hold abnormal markups. Our conclusions are unchanged if we use raw announcement returns, raw markups, or cumulative abnormal markups, but we do not report those specifications for brevity.

Our main indicator variables of interest are whether the acquirer is a club, a non-private equity private firm, or a public firm. Thus the omitted category is sole-sponsor private equity firms. The other explanatory/control variables are target and deal characteristics. The control variables are all relatively

standard in the merger and acquisition literature, and many are defined in the prior section. Those that are not previously defined are: indicator variables for the method of payment (cash, stock, or a mix); the bidder's toehold at announcement; an indicator variable for whether the offer is a tender offer; an indicator variable for whether target managers have a hostile reaction to the offer; and an indicator variable for whether there are other bidders competing to acquire the target firm (equal to one if there is another offer in the SDC database for the same target in the 6 months prior to the bid announcement date). These variables are all defined using SDC data. We also include year and industry (based on 2-digit SIC codes) fixed effects to capture as much remaining unmodeled heterogeneity as possible, cluster standard errors by year, and correct the standard errors for heteroskedasticity.

The results are displayed in Table 5. The coefficient on the club indicator variable is significantly negative in all but one of the specifications. Thus, whether one considers announcement returns or post-announcement markups, target shareholders gain significantly less in club deals than in sole-sponsor private equity deals.[11]

Interestingly, the coefficient on the Public indicator variable is insignificant in 4 out of the 6 regressions. At first glance, these results contrast with those reported in Bargeron, Schlingemann, Stulz, and Zutter (2007) who, using similar specifications, conclude that targets of acquisitions by publicly traded bidders earn significantly higher returns (reflecting higher premiums) than targets of acquisitions by privately held bidders do. However, we include the Club indicator variable in our regressions while they do not. Our evidence combines with theirs to suggest that the lower gains to shareholders in club deals go a long way towards explaining their finding that acquisitions by privately held firms (some of which act in clubs) involve much lower premiums than acquisitions by publicly traded firms do.

The results are robust to private equity firm fixed effects, indicating that the results are not driven by the ability of some private equity partnerships to pay low prices whether acting alone or as part of a

[11] We control for the natural logarithm of target size in Table 5 for consistency with prior literature. The results are robust to additional linear and quadratic controls for target size.

club. The results are also robust to restricting the sample to all cash deals. We omit these specifications for brevity.

We hypothesize that target firms with high institutional ownership will be less likely to accept an unreasonably low offer price, due to the strong incentives and sophistication of their institutional owners to negotiate a fair price at the bargaining table. We investigate this idea by adding the target firm's institutional ownership (as in Table 4) to the regressions in columns 3 and 4 in Table 5. We interact target institutional ownership with indicator variables for whether the acquirer is a club of private equity firms or a sole private equity firm to examine whether the effect of institutional ownership differs across different types of acquirers. The first row of columns 3 and 4 in Table 5 shows the same club deal discount as in the first two columns, with significantly lower target premiums when the acquirer is a club of private equity firms.

However, the coefficients in the second row of the table (the interactions of the Club indicator with institutional ownership) are positive, and significantly so when the buy-and-hold abnormal markup is the dependent variable (4th column). This suggests that the lower premiums for targets of club deals dissipate as institutional ownership increases, and are almost completely eliminated for targets with high institutional ownership. The fact that this effect shows up most significantly for the markup period return measure suggests that it reflects hard ex-post bargaining by institutional investors that is not fully anticipated in the announcement return. There is no incremental effect of institutional ownership on target deal-period returns when the acquirer is a sole private equity firm. The coefficients on the institutional ownership variable by itself suggest that institutional ownership is associated with higher premiums in all deals (regardless of the acquirer type).

The evidence in columns 3 and 4 of Table 5 also offers a rebuttal to the potential criticism that the differences between the premiums to target shareholders in club and non-club deals may be explained innocuously by unobservable target and/or deal characteristics. It seems unlikely that a benign view of club deals can reconcile the relations with institutional ownership documented here. The most natural interpretation is that clubs may have anticompetitive effects and that high institutional ownership helps

target shareholders obtain a fair offer especially when competition, which would otherwise ensure it, may be absent.

In columns 5 and 6 of Table 5 we include an indicator variable for deals announced prior to 2006, the year in which the financial media turned a spotlight onto the practice of club deals by private equity firms and the Department of Justice started its informal inquiry into the practice. It is possible that the attention placed on club deals by the media and the U.S. Government has caused private equity firms to be more timid in exploiting the lack of competition created by private equity clubs and, therefore, less aggressive with deal pricing in such situations. This is indeed what we find. The coefficients on the interactions of the pre-2006 and club indicator variables have significantly negative coefficients in both columns 5 and 6, of about the same magnitude as the club coefficient by itself in columns 1 and 2. Therefore, most of the club deal discount that we observe is driven by the 35 club deals announced prior to 2006 (and not the 24 club deals announced after, and including, 2006). Note that the same pattern is not evident in the coefficients on the interactions of the sole-PE and pre-2006 indicator variables, and that these results hold after controlling for the fact that, in general, premiums appear to be lower for all deals announced prior to 2006.

The coefficients on the control variables in Table 5 generally have signs and significance levels consistent with prior literature. The coefficients on the pre-bid competition indicator variables appear unusual, because these coefficients are significantly negative in all of the specifications in Table 5 and intuition would suggest that pre-bid competition would be associated with higher premiums. However it is likely that this coefficient reflects the fact that prior bids reduce the surprise associated with the current bid. The same result is reported in Officer (2003). There is also evidence of markup pricing (Schwert, 1996) in our regressions. Specifically, the coefficients on the runup variables in the markup regressions are all significantly negative and equal to about 0.2 in magnitude, suggesting that acquirers only shade their bids downwards by about 20% of the pre-bid runup.

In unreported specifications, we also consider the subsample of 198 private equity deals alone, again examining the differences in cumulative abnormal announcement returns (CAR3) and buy-and-hold

abnormal markups (Markup BHAR) between club and sole-sponsor private equity deals. We conduct this analysis using the bias-corrected matching estimator developed by Abadie and Imbens (2007). The matching is conducted based on the control variables in Table 5. In essence, the estimator compares the returns of each club deal to those of a matched sole-sponsor deal. The method again yields statistically and economically significantly lower estimates of gains to target shareholders in club deals compared to sole-sponsor private equity deals.

Overall, the evidence so far indicates that clubs of private equity firms pay lower premiums to target shareholders than those observed in sole-sponsor private equity deals, especially in the period before investors and regulators began to scrutinize the practice of private equity sponsors forming deal acquisition clubs. The results are harder for benign views of clubs to explain, since they do not predict lower gains to target shareholders in clubs.

3. Multiples-based measures of acquisition prices

While the mergers and acquisitions literature typically focuses on returns-based measures of prices paid to target shareholders, as we have done so far, the private equity literature typically focuses on pricing measures based on multiples of an accounting variable, most commonly sales or EBITDA. Unfortunately, multiples are a noisy valuation metric and it is not clear what the appropriate benchmark for comparison should be. But valuation multiples do serve a useful purpose because they facilitate comparison of acquisitions of public and private targets and also provide a robustness check for returns-based measures of premiums.

We do not have to rely on noisy valuation multiples in this paper because we study acquisitions of public targets for which stock return data are available. Indeed, one may argue that post-deal announcement stock returns represent the true wealth gain experienced by target shareholders, since stock prices reflect all available value relevant information in an efficient market. Nevertheless, in keeping with the private equity literature, we analyze transaction multiples in the following way.

We use the "comparable industry transaction method" described in Kaplan and Ruback (1995) and employed in Officer (2007). We measure deal multiples by dividing each of four different measures of enterprise value by annual sales or EBITDA (from Compustat for the fiscal year ending immediately prior to the deal announcement date). The reason for using four potential measures of enterprise value is that each is potentially flawed in its own way, but if the totality of the evidence points in one particular direction then we can be confident in our conclusions.

The four measures of target enterprise value we use are:

1) Deal value excluding assumed liabilities (from SDC) + total debt (from Compustat) – cash (from Compustat): labeled EV1 in Table 6;

2) Market capitalization at the delisting date (from CRSP) + total debt (from Compustat) – cash (from Compustat): labeled EV2 in Table 6;

3) (Delisting stock price (split adjusted) multiplied by the number of shares outstanding at the beginning of the runup period (both from CRSP)) + total debt (from Compustat) – cash (from Compustat): labeled EV3 in Table 6;

4) (Price paid to acquire each target share (from SDC) multiplied by the number of shares outstanding at the beginning of the runup period (from CRSP)) + total debt (from Compustat) – cash (from Compustat): labeled EV4 in Table 6.

We divide each of these measures by annual sales or EBITDA to produce eight valuation multiples. The principal difference between these multiples is the first term in the numerator – the measurement of the value of the equity in the target firm (including the premium paid by the acquirer). EV1 and EV4 (above) employ SDC data to calculate this value, while EV2 and EV3 employ CRSP data only. EV2 differs from EV3 if the number of shares outstanding changes between the beginning of the runup period and the delisting date: this could happen in, for example, two-tier offers (which are likely part of our sample).

Cash (from Compustat for the fiscal year ending immediately prior to the deal announcement date) is subtracted from the numerator of each of these multiples to ensure that we are consistent in capturing payment by the acquirer for the real assets and operations of the target firm: private equity firms, for example, often use the target's cash to directly offset any liabilities assumed as part of the acquisition (Kaplan and Stein, 1993). By subtracting cash from the numerators of these valuation multiples we are also ensuring that our results are robust to systematic differences in excess cash holdings by targets of the various types of acquirers.

We then use these deal multiples to produce estimates of the "discount" in private equity sponsored acquisitions (as in Officer, 2007). Specifically, for each private equity sponsored deal in our sample (club or sole-sponsor), we find a matching portfolio of non-private equity sponsored deals and calculate the average multiple for that portfolio. Each portfolio is formed by finding all non-private equity sponsored deals announced in the three year window centered on the announcement date of the private equity sponsored deal and for which the target is in the same two-digit SIC code industry as the target of the private equity sponsored deal. The percent difference between the deal multiple for each private equity sponsored deal and the average comparable multiple for the portfolio described above is the acquisition discount for that private equity sponsored deal. As described in Officer (2007), the percent difference in *multiples* is a conservative estimate of the difference in *premiums* between private equity sponsored deals and non-private equity sponsored deals.

The regressions in Table 6 use the acquisition discount for private equity sponsored deals as the dependent variable. The sample includes only private equity sponsored deals (sole-sponsor or club), because the discount is calculated relative to portfolios including all other deals (non-private equity sponsored) in the main sample. The independent variables are the club indicator and the natural log of target size. We choose to control for size in the regressions rather than in the matching procedure to ensure a reasonable number of matches.

In Panel A, the coefficient on the club indicator variable is negative in all specifications, although not statistically significant (except in the last column) due to the inherent noise in deal valuation multiples

and our small sample size. The club coefficient ranges from -8.1 to -10.5 percentage points, which is broadly in line with our earlier estimates using returns-based premium measures. In Panel B we restrict the analysis to private equity deals before 2006, for the same reason that we included the pre-2006 indicator variable in Table 5. We find that, for deals announced before 2006, the coefficient on the club indicator variable is negative, statistically significant, and substantial in magnitude. The point estimates in Panel B suggest that, before 2006, premiums in club private equity deal were approximately 13.5 to 19.5 percentage points lower than premiums in sole-sponsor private equity acquisitions. Overall, the results in Table 6 are consistent with the conclusion from Table 5.

4. Further evidence on sole-sponsor and club private equity deals

4.1 Post-announcement competition

Our evidence so far indicates that target shareholders receive lower premiums when private equity partnerships act jointly than when they act alone, and that high institutional ownership in the target firm (and the media spotlight) mitigates this effect. If these findings are indeed due to clubs constraining competition, we would expect to see qualitatively similar patterns in the level of bid competition.

In Table 7, we present evidence on the incidence of post-announcement competition, and test whether club deals encounter less post-announcement competition than sole-sponsor private equity deals. Our approach relies on publicly disclosed bids in SDC rather than the informal indications of interest that are the main focus of Boone and Mulherin (2008). Our concern is that informal indications are not binding and so may be sham bids, as alleged by plaintiffs in recent lawsuits.[12] We construct an indicator variable for post-announcement competition that is equal to one if there is at least one competing bid by

[12] Even in the absence of repeat play among a handful of private equity firms, indications of interest in an one-shot auction may not reliably measure the extent of real competition because it is not uncommon for private equity firms to submit separate bids in an auction, and then for the eventual winner to later invite losers to participate in the same deal. In one such case, KKR won the auction for PanAmSat in April 2004, beating out the Carlyle Group and Providence Equity Partners, only to include them in the deal two months later. "Carlyle, Providence Will Each Buy 27% PanAmSat Stakes," *Bloomberg*, June 29th 2004.

another potential acquirer in the six-month period following the announcement date in SDC, and zero otherwise.

Panel A of Table 7 shows post-announcement competition in 13 out of 139 sole private equity sponsored deals (9.4%) and 3 out of 59 club deals (5.1%), consistent with club deals being anticompetitive and depressing bid competition. Despite the large magnitudes, though the difference is not statistically significant in a univariate probit regression (column 1 of Panel C). Interestingly, the average target return from the initial bid to the final bid in the 13 sole private equity sponsored deals with post-announcement competition is 12.1 percent whereas the corresponding average for the 3 club deals with post-announcement competition is just 6.9 percent.

We consider separately a subsample in which we expect the potential anticompetitive effects of clubs to be strongest, namely clubs involving the top-five private equity firms from the PEI50 rankings, which are Carlyle, KKR, Goldman Sachs, Blackstone and TPG. Our sample has 80 deals involving these private equity firms, 44 of which are sole-sponsor and 36 are clubs. Panel A of Table 7 shows post-announcement competition in 7 out of the 44 sole-sponsor deals (15.9%) but only 1 of the 36 club deals (2.8%). This difference is statistically significant (column 2 of Panel C).

Our main evidence on prices paid in club deals indicates that sophisticated institutional investors play an important role in mitigating what appears to be the anticompetitive effect of clubs. Column 3 of panel C shows that the negative relation between club deals and post-announcement competition is mitigated by high institutional ownership, which suggests that encouraging or soliciting post-announcement bid competition is one of the ways in which institutional investors improve prices.

Overall, the evidence on post-announcement competition is consistent with our earlier evidence and with the view that club deals are anticompetitive.

4.2 Financing commitments and syndication patterns in club deals

To further study potential differences between club and sole sponsored private equity deals in our sample, we read definitive merger proxy statements (DEFM14s, or in the few cases of tender offers, SC

TOs) and do not detect important differences in target characteristics that may explain our finding of low prices in club deals. In the process, we collect information on (i) debt and equity commitments made to target shareholders, (ii) total funds needed to complete the deal, and (iii) club syndication patterns where available. These data may provide an objective assessment of the financial credibility of offers made to target shareholders and explain differences in prices. We collect these data from Capital IQ and the SEC's Edgar database when available. Neither of these databases contains proxy statements for deals prior to 1994.

We present our findings from this analysis in Table 8. Panel A shows that the total amount of debt and equity commitments made to target shareholders is on average roughly equal to the total amount of funds needed to complete the deal – the average ratio of total commitments to total funds is 100.3%. This ratio is somewhat higher in club deals (101.5%) than it is in sole sponsored private equity deals (99.6%), but the difference is not statistically significant. Hence, there does not appear to be a large enough systematic difference in the financial credibility of offers as proxied by financing commitments made to target shareholders to explain their willingness to accept low prices in club deals. Panel A also reports the number of deals where total commitments fall below, exceed or equal total funds (as presented in rows labeled *under*, *over*, and *equal*, respectively). Total commitments made are less than total funds needed in 14 out of 37 club deals (38%) compared to 20 out of 66 sole-sponsor private equity deals (30%). The difference in offer credibility captured by this measure (though again, the difference is not statistically significant) is actually counter to explaining low prices in club deals.

In Panel B, we present evidence on the mix of debt and equity commitments made to target shareholders. On average, equity commitments represent 34.9% of all commitments received. This ratio is higher in club deals (38.5%) than in sole sponsored private equity deals (32.8%), but the difference is not statistically significant at conventional levels. These results are inconsistent with the hypothesis that clubs are able to benefit from higher leverage ratios as a result of attaching multiple private equity sponsors to a deal.

As we mentioned earlier, we also collect information on club syndication patterns where available. Out of 28 clubs deals where we are able to find detailed information on equity commitments made by individual club members, 18 deals have a lead private equity firm – meaning that one of the club members made an equity commitment greater than other club members did – and 10 deals have a non-hierarchical, 1/N structure – meaning that each club member committed an equal amount of equity. Theory predicts club syndication structure to be an important determinant of moral hazard in teams (Holmström, 1982) and to affect post-transaction efficiency improvements, though it is not obvious why target shareholders should care about potential incentive problems that a particular bidding team may rationally expect to face in the future.

4.3 Size, risk, and debt terms rationales for club deals

In this subsection, we provide more direct evidence on the view that club deals are motivated by capital constraints, diversification motives, or the ability to borrow at favorable terms.

Bearing in mind that our pricing results are robust to controls for target size, we investigate whether capital constraints are a convincing rationale for club deals. We do so by asking how many club deals are large enough that the private equity firms involved could not have acquired the target without pooling resources. Specifically, we ask how many club deals are such that the deal size (as measured by EV1 defined in Section 3) exceeds the largest sole-sponsor private equity deal done by the club members during a [-2,+2] year window centered around the announcement date.

We find that only 11 of our 59 club deals (18.6%) meet this criterion, and the average premium in those deals (23.9%) is not statistically different from that of the other 48 deals (23.0%).

Our evidence on target risk in Table 4 does not point to significant risk differences between targets in club and sole sponsored private equity deals. Our two risk measures, return volatility and beta, do not differ significantly between the two categories of targets. As mentioned in our discussion of Table 4, neither does a measure of operating risk, historical cash flow volatility. We further investigate whether differences in target complexity (as measured by the number of reported segments in Compustat segment

files) or information asymmetry surrounding the target (as measured by analyst forecast errors in I/B/E/S) may explain our findings. On average, club targets report 2.1 segments for the fiscal year prior to the deal announcement, which is statistically indistinguishable from 2.2 segments reported by sole-sponsor targets. We also find no significant differences in analyst forecast errors between the two types of targets. Overall, these results suggest that capital constraints and risk diversification motives are probably not first-order determinants of club formation and pricing.

Next, we investigate whether debt financing terms are better or worse in club deals than they are in sole sponsored private equity deals. Recent papers find that more reputable private equity firms (Demiroglu and James, 2007) and those with stronger bank relationships (Ivashina and Kovner, 2007) are able to obtain better terms on the debt financing for the LBOs they conduct. While Table 2 shows that a substantial fraction of our club deals are undertaken by the oldest and best-known private equity partnerships, a large fraction of our sole-sponsor deals are as well, so it is not clear a priori whether we should expect clubs to receive better debt financing terms.

If systematic differences in debt financing terms do exist, they could proxy for unobserved target characteristics. Specifically, if club deals have systematically worse debt financing terms than sole sponsored private equity deals, then one may wonder whether unobserved target characteristics that drive up observed financing costs are also driving down target prices. If, on the other hand, club deals systematically have better debt financing terms than sole sponsored private equity deals, this would be consistent with "benign" theories of club deals in which lenders offer superior terms when multiple private equity firms attach their names and reputations to a deal – though this would further deepen the puzzle about low prices paid to target shareholders in club deals.

To investigate these ideas, we link our sample of deals in SDC to credit facilities in DealScan using target and buyer names in SDC and all available name fields in DealScan. Because we do this by electronic text matching, we further require that the facility start date in DealScan fall within a [-14,+14] day window centered around the deal effective date in SDC. This procedure, along with a manual check

to eliminate two false positives, results in 91 of our deals in SDC being matched to at least one credit facility in DealScan.

Panel C reports evidence on five measures, namely the number of lenders, spread over LIBOR, adjusted spread (the spread minus the average spread for all LBO debt raised in the previous calendar quarter), the maximum debt to EBITDA allowed under the credit facility and adjusted maximum debt to EBITDA (relative to LBO debt raised in the previous calendar quarter). On average, the number of lenders is higher in club deals (10.9) than in sole sponsored private equity deals (8.1). The difference is statistically significant at the 5 percent level, and robust to controlling for transaction characteristics such as size, operating profitability and leverage in the transaction (reported in Panel D). The fact that club deals involve more lenders than sole sponsored private equity deals do is consistent with the allegation that clubs constrain the supply of debt financing for competing bids by aggressively locking up debt financiers.

The rest of our findings in Panels C and D suggest that club deals have lower spreads (raw and adjusted) and better maximum debt to EBITDA covenants (raw and adjusted) than sole sponsored private equity deals do, though the differences are not statistically significant at conventional levels. Overall, the evidence is not strongly supportive of debt certification benefits in club deals, and the observed terms are inconsistent with there being important unobserved target characteristics that may account for low prices paid to target shareholders in club deals.

5. Conclusion

In this paper, we show that acquisitions by clubs of private equity acquirers are priced significantly lower than sole-sponsor private equity transactions and non-private equity merger and acquisition transactions. The differences are economically large: target shareholders receive on the order of 10% less in club deals compared to sole-sponsor LBOs. These results are robust to numerous controls for target characteristics, including size, Q, and measures of risk, as well as time and industry fixed

effects. While our main results are based on target returns, we obtain similar results when we consider pricing measures based on acquisition multiplies.

We also find that the pricing differences are larger before 2006, when club deals began to receive heightened media and government scrutiny, and that high institutional ownership in the target firm mitigates the club deal effect, suggesting that sophisticated institutional investors are able to bargain effectively with clubs. We find little to no support for benign motivations for club deals based on capital constraints, diversification motives, or the ability of clubs to obtain favorable debt amounts or prices. Overall, our findings are consistent with the view that club deals may be detrimental to passive, dispersed shareholders of publicly-traded corporations.

We stress, however, that while our results are consistent with a collusive view of clubs, particularly before 2006, we lack direct evidence of collusive behavior. Moreover, our evidence is based on transactions in which club formation and target selection are not exogenous, so we cannot completely rule out the possibility that unobserved factors explain our findings.

At the same time, we believe the evidence offers significant challenges for such explanations. For instance, one might speculate that club deals involve precisely those targets in which, due to some unobservable factor, the scope for value creation is small and only a club of private equity acquirers can unlock that value. Such a story faces the difficult task of also explaining why we are unable to detect such differences using our battery of control variables, why the presence of institutional investors mitigates the influence of the unobserved factor, and why the pricing differences are weaker after club deals began to receive media/government scrutiny in 2006.

Finally, our results on pricing in club deals do not rule out the possibility that the transactions are economically efficient even if there is room for target shareholders to share more in the surplus. Club deals may in fact be socially beneficial if their pooling of multiple expert opinions help redeploy target assets to more productive uses. Several studies into the economic impact of private equity show substantial long-term benefits to society (Gurung and Lerner, 2008). Whether club deals are different from sole-sponsor LBOs along this dimension is an important question for future research.

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Table 1. Sample distribution

This table contains the time-series distribution of a sample of acquisitions of publicly-traded targets from SDC. The transactions are classified into years based on announcement dates. We identify private equity (PE) deals by performing a text search for the names of prominent private equity firms in the deal synopses provided by SDC and manually confirming the results. Prominent private equity firms are defined as the 50 largest private equity firms in the world as reported in the May 2007 issue of Private Equity International (PEI) magazine (with some additions described in the text). If the synopsis from SDC contains the name of *only one* prominent private equity firm (and no other firms are identified as the acquirer), then the deal is classified as a Sole PE deal. If the synopsis from SDC contains the name of *at least one* prominent private equity firm (and at least one other private equity firm, prominent or not, is identified as the acquirer), then the deal is classified as a Club deal. The remaining transactions in the sample are classified by whether the acquirer is privately held (Private bidder deals) or publicly traded (Public bidder deals), with listing status determined by the bidder's inclusion in the CRSP database. Total deal value is the annual sum of deal value excluding assumed liabilities reported by SDC (in $m).

	All deals		Club deals		Sole PE deals		Private bidder deals		Public bidder deals	
Year	# deals	Total deal value	# deals	Total deal value	# deals	Total deal value	# deals	Total deal value	# deals	Total deal value
1984	33	17,359.1	0	0.0	2	882.2	13	5,809.7	18	10,667.2
1985	111	96,555.4	1	637.0	5	11,696.8	19	8,190.4	86	76,031.2
1986	131	79,560.9	2	1,381.0	8	12,387.4	41	25,642.2	80	40,150.3
1987	127	73,839.8	1	103.9	7	11,973.0	49	25,310.0	70	36,452.9
1988	135	127,241.3	1	538.9	10	34,013.0	74	49,630.0	50	43,059.4
1989	103	89,764.5	1	923.0	2	2,204.1	48	24,679.9	52	61,957.5
1990	49	41,629.3	0	0.0	3	2,500.3	17	7,644.1	29	31,484.9
1991	47	29,686.7	0	0.0	0	0.0	3	2,508.9	44	27,177.8
1992	54	24,431.9	0	0.0	0	0.0	3	998.8	51	23,433.1
1993	74	67,274.8	1	191.3	2	497.7	4	1,259.7	67	65,326.1
1994	130	88,392.1	0	0.0	1	2,243.4	25	17,825.6	104	68,323.1
1995	181	180,040.4	2	1,642.3	2	1,357.2	24	28,171.6	153	148,869.3
1996	220	247,262.4	1	112.8	5	2,334.2	31	33,570.2	183	211,245.2
1997	353	332,194.3	2	1,280.3	12	6,184.3	51	23,106.9	288	301,622.8
1998	351	960,167.2	5	2,691.2	3	1,352.8	64	43,783.0	279	912,340.2
1999	402	829,847.4	2	739.1	9	4,946.4	96	73,357.9	295	750,804.0
2000	330	857,332.8	2	613.7	3	1,783.2	83	85,100.9	242	769,835.0
2001	187	276,961.3	0	0.0	1	995.0	43	52,786.5	143	223,179.8
2002	112	141,999.3	1	1,720.8	3	1,009.2	29	8,835.9	79	130,433.4
2003	141	201,788.7	0	0.0	2	490.7	21	10,501.6	118	190,796.4
2004	163	356,586.9	5	12,850.6	6	8,000.6	22	51,857.5	130	283,878.2
2005	199	493,836.1	8	27,612.7	11	11,236.3	55	62,955.3	125	392,031.8
2006	239	633,690.8	18	113,335.3	19	59,274.0	61	57,105.7	141	403,975.8
2007	158	385,159.0	6	69,359.3	23	117,563.4	48	60,546.1	81	137,690.2
Total	4,030	6,632,602.4	59	235,733.2	139	294,925.2	924	761,178.4	2,908	5,340,765.6

Table 2. LBOs completed by private equity firms: counts and cross-participation

Panel A contains the number of deals sponsored by the most active private equity firms in our sample. Sole PE and Club deals are defined in the legend to Table 1. Panel B presents the number of times prominent private equity firms have undertaken club deals with one another (as opposed to other, non-prominent private equity firms). Our sample contains club LBOs by 27 prominent private equity firms of which panel B lists 24. The remaining three prominent private equity firms, Berkshire Partners, Clayton, Dubilier & Rice, and Fortress Group, are not listed because although they have done one club deal each, none of them are with other prominent private equity firms. In panel B, columns that do not contain additional information are omitted to save space.

Panel A: Number of deals

Rank	PEI 50	Name of Private Equity Firm	All Deals	Sole PE Deals	Club Deals
1	2	Kohlberg Kravis Roberts	26	16	10
2	4	The Blackstone Group	24	13	11
3	5	TPG	21	4	17
4	3	Goldman Sachs Principal Investment Area	16	6	10
5	42	Welsh, Carson, Anderson & Stowe	14	9	5
6	12	Apollo Management	13	9	4
7	…	Morgan Stanley	12	10	2
8	…	Merrill Lynch	10	6	4
9	30	Thomas H. Lee Partners	10	5	5
10	31	Leonard Green & Partners	9	6	3
11	1	The Carlyle Group	9	5	4
12	…	Forstmann Little	8	8	0
13	8	Bain Capital	8	2	6
14	…	HM Capital Partners (formerly Hicks, Muse, Tate, and Furst)	7	6	1
15	32	Madison Dearborn Partners	7	4	3
16	14	Warburg Pincus	6	4	2
17	9	Providence Equity Partners	6	0	6
18	47	Clayton, Dubilier & Rice	5	4	1
19	25	Lehman Brothers Private Equity	5	4	1
20	16	Hellman & Friedman	5	2	3
21	19	Silver Lake Partners	5	2	3
22	27	Fortress Investment Group	4	3	1
23	…	JP Morgan	4	1	3
24	44	GTCR Golder Rauner	3	1	2
25	34	Cerberus Capital Management	2	2	0
26	40	Berkshire Partners	2	1	1
27	33	Onex	2	1	1
28	39	TA Associates	2	1	1
29	29	BC Partners	1	1	0
30	21	EQT Partners	1	1	0
31	41	Pacific Equity Partners	1	1	0
32	28	Sun Capital Partners	1	1	0
33	6	Permira	1	0	1

Panel B: Cross-participation matrix

	TPG	The Blackstone Group	Kohlberg Kravis Roberts	Goldman Sachs	Providence Equity Partners	Bain Capital	Thomas H. Lee Partners	The Carlyle Group	JP Morgan	Morgan Stanley	Merrill Lynch	GTCR Golder Rauner
The Blackstone Group	4	…	…	…	…	…	…	…	…	…	…	…
Kohlberg Kravis Roberts	4	3	…	…	…	…	…	…	…	…	…	…
Goldman Sachs	4	3	3	…	…	…	…	…	…	…	…	…
Providence Equity Partners	3	1	2	2	…	…	…	…	…	…	…	…
Bain Capital	1	2	3	1	1	…	…	…	…	…	…	…
Thomas H. Lee Partners	1	0	0	1	1	0	…	…	…	…	…	…
The Carlyle Group	1	1	1	1	2	0	0	…	…	…	…	…
JP Morgan	0	0	0	1	0	0	1	0	…	…	…	…
Morgan Stanley	1	0	1	1	0	0	0	0	0	…	…	…
Merrill Lynch	0	0	1	0	0	1	1	0	0	0	…	…
GTCR Golder Rauner	0	0	0	0	0	0	0	0	0	0	0	…
Silver Lake Partners	3	1	1	1	1	1	0	0	0	0	0	0
Lehman Brothers Private Equity	1	0	1	1	0	0	0	0	0	1	0	0
Madison Dearborn Partners	1	0	0	0	1	0	1	0	0	0	1	0
Hellman & Friedman	2	1	1	0	0	0	0	0	0	0	0	0
Warburg Pincus	1	0	0	1	0	0	1	0	1	0	0	0
Welsh, Carson, Anderson & Stowe	0	1	1	0	0	0	0	0	0	0	0	1
Permira	1	1	0	0	0	0	0	1	0	0	0	0
Leonard Green & Partners	2	0	0	0	0	0	0	0	0	0	0	0
Apollo Management	0	0	0	0	0	0	0	0	1	0	0	0
HM Capital Partners	0	0	1	0	0	0	0	0	0	0	0	0
TA Associates	0	0	0	0	0	0	0	0	0	0	0	1
Onex	0	0	0	0	0	0	0	0	0	1	0	0

Table 3. Target returns, by bidder type

This table contains averages and medians (in brackets) for various measures of LBO target returns in the sample of deals from SDC described in the legend to Table 1. Runup is measured over the (-42, -1) period (defined as trading days relative to the announcement date (0)), Markup is the measured over the (0, +126) period (unless the target is delisted prior to trading day +126), and Premium is measured over the (-42, +126) period. All buy and hold abnormal returns (BHARs) are the compound return to the target shares minus the compound return to the CRSP value-weighted market index (including dividend distributions) over the same period. Cumulative abnormal returns are the sum of the target's daily market-model residuals over the corresponding periods (with market-model parameters estimated over the (-379, -127) period as long as there are 100 returns on CRSP in that period. ***, **, or * indicates that the difference in target returns is significantly different from zero at the 1%, 5%, or 10% level, respectively.

					Differences					
	Club	Sole PE	Private	Public	Club - Sole PE	Club - Private	Club - Public	Sole PE - Private	Sole PE - Public	Private - Public
Raw returns										
Runup	0.087	0.121	0.152	0.142	-0.035	-0.066***	-0.056**	-0.031	-0.021	0.010
	[0.102]	[0.098]	[0.102]	[0.105]	[0.004]	[-0.000]	[-0.003]	[-0.004]	[-0.007]	[-0.003]
Markup	0.138	0.216	0.265	0.266	-0.078***	-0.126***	-0.128***	-0.049**	-0.050***	-0.001
	[0.129]	[0.204]	[0.222]	[0.226]	[-0.075]***	[-0.092]***	[-0.097]***	[-0.017]	[-0.021]*	[-0.004]
Premium	0.232	0.353	0.441	0.438	-0.121***	-0.209***	-0.206***	-0.088***	-0.085***	0.003
	[0.224]	[0.322]	[0.367]	[0.374]	[-0.098]**	[-0.143]***	[-0.150]***	[-0.045]*	[-0.052]**	[-0.007]
Number observations	59	139	924	2,908						
Buy and hold abnormal returns										
Runup BHAR	0.061	0.088	0.128	0.116	-0.027	-0.066***	-0.055**	-0.039**	-0.028*	0.011
	[0.047]	[0.061]	[0.077]	[0.078]	[-0.014]	[-0.030]	[-0.031]*	[-0.016]	[-0.018]	[-0.002]
Markup BHAR	0.073	0.158	0.229	0.220	-0.084***	-0.156***	-0.146***	-0.072***	-0.062***	0.010
	[0.054]	[0.145]	[0.180]	[0.182]	[-0.091]***	[-0.127]***	[-0.128]***	[-0.036]*	[-0.037]**	[-0.001]
Premium BHAR	0.141	0.260	0.380	0.365	-0.120***	-0.239***	-0.224***	-0.120***	-0.104***	0.016
	[0.124]	[0.225]	[0.310]	[0.300]	[-0.101]***	[-0.186]***	[-0.176]***	[-0.085]***	[-0.075]***	[0.010]
Number observations	59	139	924	2,908						
Cumulative abnormal returns										
Runup CAR	0.066	0.083	0.122	0.096	-0.017	-0.057***	-0.031	-0.039**	-0.013	0.026***
	[0.059]	[0.061]	[0.080]	[0.074]	[-0.002]	[-0.021]	[-0.015]	[-0.019]	[-0.013]	[0.006]
CAR3	0.116	0.178	0.223	0.195	-0.062***	-0.107***	-0.079***	-0.045**	-0.018	0.027***
	[0.103]	[0.154]	[0.178]	[0.162]	[-0.052]*	[-0.075]***	[-0.060]***	[-0.023]**	[-0.008]	[0.015]**
Markup CAR	0.078	0.151	0.214	0.180	-0.073**	-0.137***	-0.102***	-0.064***	-0.030	0.034***
	[0.061]	[0.155]	[0.181]	[0.156]	[-0.095]***	[-0.121]***	[-0.095]***	[-0.026]*	[-0.000]	[0.026]**
Premium CAR	0.143	0.233	0.336	0.276	-0.090**	-0.193***	-0.133***	-0.103***	-0.043	0.060***
	[0.176]	[0.238]	[0.288]	[0.249]	[-0.062]**	[-0.112]***	[-0.073]***	[-0.050]**	[-0.011]	[0.039]***
Number observations	59	136	904	2,786						

Table 4. Target characteristics, by bidder type

This table contains averages and medians (in brackets) for various target characteristics. Numbers beneath medians are the number of observations. Size is the target's market capitalization 43 days prior to bid announcement (immediately before the beginning of the runup period), measured in $ billions. Accounting data for the target firm are from Compustat for the fiscal year ending immediately prior to deal announcement. Industry-adjusted Q is the target's Q ratio (defined in Kaplan and Zingales, 1997) minus the median Q for all firms in the same two-digit SIC code industry in the same year. Industry-adjusted EBITDA/Assets is the target's EBITDA/Assets minus the average EBITDA/Assets for all firms in the same two-digit SIC code industry in the same year. Debt/(Debt + Equity) is defined as the book value of the target's total debt (Compustat annual data item #9 plus Compustat annual data item #34) divided by the sum of the book value of the target's total debt and the target's market capitalization 43 days prior to bid announcement. Institutional ownership is measured in the year prior to deal announcement, and is the average fraction of the target's shares owned by institutions required to file a 13F statement and included in Thomson Financial's 13F Holdings database. Prior 12-month return is the compound return to the target's stock over the one year immediately preceding the beginning of the runup period (i.e., ending on trading day -43 relative to the announcement date). Prior 12-month BHAR (buy-and-hold abnormal return) is Prior 12-month return minus the compound return to the CRSP value-weighted market index (including dividend distributions) over the same period. Prior 12-month return volatility is the standard deviation over the target's daily returns for the one year immediately preceding the beginning of the runup period. Beta is the target's market-model beta estimated over the (-379, -127) period as long as there are 100 returns on CRSP in that period. ***, **, or * indicates that the difference in averages or medians is significantly different from zero at the 1%, 5%, or 10% level, respectively.

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					Differences					
	Club	Sole PE	Private	Public	Club - Sole PE	Club - Private	Club - Public	Sole PE - Private	Sole PE - Public	Private - Public
Size	2.962 [1.087] 59	1.438 [0.594] 139	0.539 [0.201] 924	1.276 [0.261] 2,903	1.525** [0.492]*	2.423*** [0.885]***	1.686** [0.826]***	0.898*** [0.393]***	0.162 [0.333]***	-0.737*** [-0.060]***
Industry-adjusted Q	0.009 [0.00] 52	0.023 [-0.115] 124	0.004 [-0.089] 823	0.440 [0.013] 2,620	-0.014 [0.115]	0.004 [0.089]	-0.432*** [-0.013]	0.019 [-0.026]	-0.418*** [-0.128]***	-0.436*** [-0.101]***
Industry-adjusted EBITDA/Assets	0.046 [0.027] 54	0.053 [0.029] 121	0.027 [0.024] 815	0.016 [0.010] 2,639	-0.007 [-0.002]	0.019* [0.003]	0.030*** [0.017]**	0.026*** [0.005]	0.037*** [0.019]***	0.011* [0.014]***
Debt/(Debt + Equity)	0.271 [0.264] 57	0.304 [0.298] 132	0.303 [0.267] 849	0.263 [0.208] 2,712	-0.033 [-0.033]	-0.033 [-0.002]	0.008 [0.057]	0.001 [0.031]	0.041** [0.090]**	0.040*** [0.059]***
Institutional ownership	0.628 [0.656] 55	0.562 [0.575] 123	0.422 [0.400] 864	0.410 [0.386] 2,758	0.066 [0.081]*	0.206*** [0.256]***	0.217*** [0.270]***	0.141*** [0.176]***	0.152*** [0.189]***	0.011 [0.014]
Prior 12-month return	0.163 [0.077] 59	0.136 [0.108] 139	0.133 [0.070] 924	0.219 [0.117] 2,903	0.027 [-0.031]	0.030 [0.007]	-0.057 [-0.040]	0.003 [0.038]	-0.083** [-0.009]	-0.086*** [-0.047]***
Prior 12-month BHAR	-0.002 [-0.062] 59	-0.008 [-0.045] 139	-0.007 [-0.069] 924	0.062 [-0.047] 2,903	0.006 [-0.017]	0.004 [0.007]	-0.064 [-0.015]	-0.002 [0.023]	-0.070** [0.002]	-0.068*** [-0.022]
Prior 12-month return volatility	0.024 [0.020] 59	0.024 [0.022] 137	0.030 [0.026] 919	0.031 [0.027] 2,855	0.000 [-0.002]	-0.006*** [-0.006]***	-0.007*** [-0.007]***	-0.006*** [-0.004]***	-0.007*** [-0.005]***	-0.001 [-0.001]
Beta	0.939 [0.929] 59	0.914 [0.938] 136	0.751 [0.698] 904	0.823 [0.720] 2,786	0.024 [-0.009]	0.188*** [0.232]***	0.116** [0.209]***	0.163*** [0.240]***	0.091** [0.218]***	-0.072*** [-0.022]

Table 5. Multivariate regressions explaining target returns

This table contains the results of multivariate regressions of CAR3 and markup BHAR described in Table 3. Club, Private, and Public are indicator variables for the deal categories described in Table 1. Pre-2006 is an indicator variable equal to one for deals announced prior to 2006, and zero otherwise. All cash (mix) is an indicator variable equal to one if the takeover offer is 100% cash (mix of cash and stock), and zero otherwise. % toehold at announcement is the fraction of the target's shares owned by the acquirer at announcement. Tender (Hostile) is an indicator variable equal to one if the takeover offer is a tender offer (receives a hostile reaction from target managers, as defined by SDC), and zero otherwise. Pre-announcement competition is an indicator variable equal to one if another potential acquirer bids for the target 6 months prior to the bid announcement date, and zero otherwise. All other explanatory variables are defined in prior tables. All regressions contain year and industry (two-digit SIC code) fixed effects, and standard errors are clustered by year and heteroskedasticity consistent. T-statistics are in brackets. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level (respectively).

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	CAR3	Markup BHAR	CAR3	Markup BHAR	CAR3	Markup BHAR
Club	-0.062***	-0.086***	-0.127**	-0.201**	-0.007	-0.031*
	[-2.929]	[-2.948]	[-2.220]	[-2.712]	[-0.564]	[-1.899]
Club * Inst. Ownership			0.085	0.192**		
			[1.607]	[2.182]		
Sole PE * Inst. Ownership			-0.025	-0.005		
			[-0.445]	[-0.0768]		
Inst. Ownership			0.055***	0.054**		
			[3.037]	[2.126]		
Club * Pre-2006					-0.069***	-0.107**
					[-4.018]	[-2.544]
Sole PE * Pre-2006					0.020	-0.012
					[0.742]	[-0.335]
Pre-2006					-0.030***	-0.044***
					[-4.018]	[-3.716]
Private	-0.006	0.009	-0.019	0.013	0.009	0.000
	[-0.297]	[0.375]	[-0.429]	[0.279]	[0.886]	[-0.0296]
Public	0.026	0.045	0.012	0.048	0.041***	0.035**
	[1.273]	[1.694]	[0.272]	[0.950]	[3.667]	[2.245]
Ln (Size)	-0.025***	-0.031***	-0.030***	-0.036***	-0.025***	-0.031***
	[-6.772]	[-6.742]	[-6.806]	[-7.206]	[-6.849]	[-6.849]
Prior 12-month return BHAR	-0.025***	-0.021	-0.023***	-0.020	-0.025***	-0.021
	[-3.650]	[-0.899]	[-3.372]	[-0.808]	[-3.656]	[-0.885]
Runup BHAR		-0.207***		-0.213***		-0.208***
		[-5.006]		[-5.356]		[-5.055]
Industry-adjusted EBITDA/Assets	0.004	0.000	-0.001	-0.006	0.004	0.001
	[0.114]	[0.00364]	[-0.0447]	[-0.0748]	[0.126]	[0.0106]
Industry-adjusted Q	-0.005**	-0.008***	-0.004**	-0.007***	-0.005**	-0.008***
	[-2.418]	[-3.095]	[-2.278]	[-3.168]	[-2.433]	[-3.106]
Beta	0.021**	0.003	0.017*	0.001	0.021**	0.004
	[2.365]	[0.274]	[2.028]	[0.0485]	[2.426]	[0.331]
Prior 12-month return volatility	-0.280	-0.678	-0.197	-0.593	-0.278	-0.679
	[-0.588]	[-0.600]	[-0.398]	[-0.494]	[-0.586]	[-0.600]
All cash	0.046***	-0.008	0.042***	-0.012	0.046***	-0.007
	[3.487]	[-0.288]	[3.174]	[-0.449]	[3.513]	[-0.263]
Mix	0.008	-0.029*	0.008	-0.026	0.008	-0.029*
	[0.809]	[-1.804]	[0.834]	[-1.663]	[0.830]	[-1.781]
% toehold at announcement	-0.068	0.031	-0.041	0.066	-0.066	0.033
	[-1.282]	[0.329]	[-0.753]	[0.668]	[-1.259]	[0.352]
Tender	0.085***	0.061***	0.084***	0.060***	0.084***	0.061***
	[6.475]	[5.622]	[6.613]	[5.430]	[6.426]	[5.592]
Hostile	0.051***	0.104***	0.050***	0.101***	0.051***	0.104***
	[3.018]	[4.296]	[2.941]	[4.168]	[3.015]	[4.282]
Pre-competition	-0.117***	-0.091***	-0.120***	-0.094***	-0.117***	-0.091***
	[-8.249]	[-3.803]	[-8.387]	[-3.897]	[-8.219]	[-3.786]
Constant	0.220	0.072	0.212	0.046	0.234*	0.125
	[1.678]	[0.836]	[1.621]	[0.497]	[1.740]	[1.507]
Observations	3381	3381	3326	3326	3381	3381
R-squared	0.154	0.122	0.157	0.124	0.154	0.123

Table 6. Multivariate regressions explaining acquisition discounts based on deal multiples

This table contains the results of multivariate regressions where the dependent variables are acquisition discounts for private equity sponsored deals. The acquisition discount is defined as the percent difference between a deal multiple for a private equity sponsored deal and the average multiple for a portfolio of non-private equity sponsored deals. Each portfolio is formed by finding all non-private equity sponsored deals announced in the three year window centered on the announcement date of the private equity sponsored deal and for which the target is in the same two-digit SIC code industry as the target of the private equity sponsored deal. Acquisition discounts are calculated for eight different enterprise value multiples, where each of four definitions of enterprise value is divided by either sales (Compustat annual data item #12) or EBITDA (Compustat annual data item #13). EV1 is deal value excluding assumed liabilities (from SDC) + total debt (from Compustat) – cash (from Compustat). EV2 is the target's market capitalization at the delisting date (from CRSP) + total debt (from Compustat) – cash (from Compustat). EV3 is (delisting stock price (split adjusted) multiplied by the number of shares outstanding at the beginning of the runup period (both from CRSP)) + total debt (from Compustat) – cash (from Compustat). EV4 is (price paid to acquire each target share (from SDC) multiplied by the number of shares outstanding at the beginning of the runup period (from CRSP)) + total debt (from Compustat) – cash (from Compustat). Compustat data is from the fiscal year ending immediately prior to deal announcement. All explanatory variables are defined in prior tables. All regressions contain year and industry (two-digit SIC code) fixed effects, and standard errors are clustered by year and heteroskedasticity consistent. T-statistics are in brackets. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level (respectively).

Panel A. Full sample

	EV1 to Sales	EV1 to EBITDA	EV2 to Sales	EV2 to EBITDA	EV3 to Sales	EV3 to EBITDA	EV4 to Sales	EV4 to EBITDA
Club	-0.081	-0.094	-0.084	-0.081	-0.092	-0.081	-0.074	-0.105*
	[-1.119]	[-1.507]	[-1.173]	[-1.460]	[-1.288]	[-1.484]	[-0.825]	[-2.048]
Ln (Size)	0.125***	-0.018	0.127***	-0.012	0.125***	-0.017	0.110***	0.007
	[4.913]	[-0.587]	[4.563]	[-0.407]	[4.465]	[-0.550]	[4.112]	[0.243]
Constant	-0.076	-0.237***	-0.113*	-0.237***	-0.100	-0.231***	-0.105	-0.200***
	[-1.194]	[-3.824]	[-1.746]	[-3.824]	[-1.530]	[-3.863]	[-1.359]	[-3.310]
Observations	176	162	172	160	172	160	169	159
R-squared	0.076	0.016	0.085	0.009	0.080	0.011	0.062	0.010

Panel B. Pre-2006 deals

	EV1 to Sales	EV1 to EBITDA	EV2 to Sales	EV2 to EBITDA	EV3 to Sales	EV3 to EBITDA	EV4 to Sales	EV4 to EBITDA
Club	-0.179**	-0.181***	-0.170**	-0.140**	-0.180**	-0.140**	-0.196**	-0.134*
	[-2.793]	[-3.639]	[-2.403]	[-2.243]	[-2.583]	[-2.213]	[-2.371]	[-1.867]
Ln (Size)	0.127***	-0.021	0.132***	0.000	0.129***	-0.006	0.130***	0.028
	[3.839]	[-0.497]	[4.356]	[-0.008]	[3.862]	[-0.146]	[4.092]	[0.679]
Constant	-0.044	-0.196***	-0.092	-0.184***	-0.076	-0.179***	-0.045	-0.148**
	[-0.584]	[-3.794]	[-1.191]	[-3.657]	[-0.935]	[-3.939]	[-0.461]	[-2.629]
Observations	120	115	116	113	116	113	115	112
R-squared	0.082	0.040	0.101	0.018	0.095	0.018	0.089	0.020

Table 7. Post-announcement competition

This table reports evidence on the incidence of post-announcement competition in leveraged buyouts sponsored by prominent private equity firms. Post-announcement competition is an indicator variable equal to one if another potential acquirer bids for the target in the 6 months after the deal announcement date, and zero otherwise. All of the explanatory variables are defined in prior tables. Top 5 refers to the PEI list and includes Carlyle, KKR, Goldman, Blackstone and TPG. The coefficients reported in Panel C are marginal responses. Standard errors are heteroskedasticity consistent and t-statistics are reported in brackets. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level (respectively).

Panel A: Frequency distributions

	Sole PE	%	Club	%	All	%
Full sample						
Competing bid	13	9.4	3	5.1	16	8.1
No competing bid	126	90.6	56	94.9	182	91.9
N	139		59		198	
Top 5						
Competing bid	7	15.9	1	2.8	8	10.0
No competing bid	37	84.1	35	97.2	72	90.0
N	44		36		80	

Panel B: Probit regressions explaining post-announcement competition

Sample:	All (1)	Top 5 (2)	All (3)
Club	-0.043	-0.131*	-0.156***
	[-1.018]	[-1.875]	[-3.808]
Club * Institutional ownership			0.197***
			[2.617]
Institutional ownership			-0.094
			[-1.454]
Ln (Size)			0.000
			[0.010]
Prior 12-month return			-0.020
			[-0.616]
CAR3			-0.089
			[-0.945]
% toehold at announcement			0.043
			[0.169]
Tender			-0.025
			[-0.822]
Hostile			0.198**
			[2.160]
Observations	198	80	176

Table 8. Financing commitments, syndication patterns, and debt terms

This table reports evidence on financing commitments, syndication patterns, and debt financing terms in leveraged buyouts sponsored by prominent private equity firms. Information on debt and equity commitments made by banks and private equity firms respectively are gathered from definitive merger proxy or tender offer statements filed with the SEC. Data on debt financing terms are gathered from DealScan. For deals with multiple credit facilities in DealScan, data are weighted using face values. Spread is the interest rate spread over LIBOR, and "Adj. spread" is the spread minus the average spread on LBO debt taken out in the previous calendar quarter. Max. Debt/EBITDA is the maximum amount of debt allowed relative to EBITDA under the terms of the credit facility, and "Adj. Max. Debt/EBITDA" is relative to the average corresponding covenant on LBO debt taken out in the previous calendar quarter. Standard errors are heteroskedasticity consistent and t-statistics are reported in brackets. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level (respectively).

Panel A: Total financing commitments relative to total funds needed

	Sole PE	Club	All
Mean ratio (%)	99.6	101.5	100.3
Median ratio (%)	100.0	100.9	100.0
Under	20	14	34
Over	15	3	18
Equal	31	20	51
N	66	37	103

Panel B: Equity commitments relative to total financing commitments

	Sole PE	Club	All
Mean ratio (%)	32.8	38.5	34.9
Median ratio (%)	30.8	33.6	31.6
N	75	43	118

Panel C: Debt financing terms

	No. of lenders	Spread	Adj. spread	Max. Debt/EBITDA	Adj. Max Debt/EBITDA
Sole PE	8.1	291	-34	6.1	0.2
N	56	53	53	27	27
Club	10.9	273	-65	6.7	0.7
N	35	35	34	17	16

Panel D: Regressions explaining debt financing terms

	No. of lenders	Spread	Adj. spread	Max. Debt/EBITDA	Adj. Max Debt/EBITDA
Club	3.756**	-21.79	-21.664	0.129	0.047
	[2.586]	[-1.055]	[-0.937]	[0.235]	[0.085]
Ln (Size)	1.269***	-18.853***	-24.195***	0.477***	0.337**
	[2.807]	[-3.063]	[-3.346]	[3.286]	[2.325]
EBITDA/Assets	8.660	-45.970	-35.172	-2.986	-3.522
	[1.202]	[-0.276]	[-0.185]	[-0.790]	[-0.953]
Post-LBO Lev.	9.843**	10.814	7.256	2.576	2.849
	[2.594]	[0.113]	[0.078]	[1.450]	[1.311]
Constant	-1.306	302.444***	-28.918	5.114***	-0.951
	[-0.516]	[4.652]	[-0.458]	[3.586]	[-0.594]
Observations	70	69	69	34	34
R-squared	0.276	0.093	0.127	0.299	0.196