

The new demography of private equity*

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Abstract

This paper analyzes global leveraged buyout (LBO) activity, exit behaviour, and holding periods using a data set of more than 21,000 LBO transactions 1970-2007. We estimate the total value of the firms acquired in these transactions to \$3.6 trillion, out of which \$2.7 trillion represents LBOs undertaken after 2000. We document a large increase in the geographical and industry scope of LBO transactions over time. Most LBO activity consists of acquisitions of private rather than public firms and LBOs provide a net positive flow of firms to public markets over the long-run. LBO holding periods are longer than what has been documented in previous research. Only 8% of firms stay in LBO ownership for less than two years and the median firm stays in LBO ownership for about 9 years. LBO transactions sponsored by more experienced private equity partnerships tend to stay in LBO ownership for a shorter period of time, are more likely to go public, and are less likely to end in bankruptcy or financial restructuring.

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In his seminal paper “The eclipse of the public corporation”, Jensen (1989) predicted that the LBO would eventually become the dominant corporate organization form. With emphasis on corporate governance, concentrated ownership by active owners, strong managerial incentives, and efficient capital structure, Jensen argued that the LBO-form was superior to the public corporation, with disperse shareholders and weak governance. A few years later, this prediction seemed premature. First, Kaplan (1991) studied the staying power of 1980’s public-to-private LBOs and concluded that the median LBO-target remained in private ownership for 6.82 years. In addition, the activity of the LBO market slowed down significantly in the early 1990’s. One reason for this, brought forward by Kaplan (1997), was that public corporations seemed to embrace and adopt many of the governance features of the 1980’s buyouts, such as higher incentive pay and leaner capital structures, at the same time as institutional owners became more active in governance.

Still, the private equity market has developed significantly since the 1980’s period studied by Kaplan (1991), and it is time to revisit this issue. First, the buyout market has grown tremendously in the last 10 years, both in terms of value and number of transactions, and has broadened its industry scope significantly. Second, an increasing number of buyout transactions seem to be exited through sales to another buyout firms, so called secondary buyouts. Third, some have argued that the benefits of private ownership have increased significantly in the wake of the sometimes onerous corporate governance regulation imposed in 2001-2002. Finally, private equity has become a global phenomenon, first spreading to Europe and then to other parts of the world such as Asia and Australia. So, maybe Jensen (1989) was not that far off, after all?

In this paper we build a data set of international LBO transactions to study the demography of the private equity market. We have three broad goals. First, we want to provide descriptive evidence on the growth and changing nature of the private equity market, going beyond the previous analysis of U.S. going private transactions. We document the growth in private equity activity over the 1970-2007 time period, the variation in deal pricing across time, geography, industries, and deal types, and the ultimate outcome of these transactions. In the process, we build the most comprehensive (to our knowledge) data base to date on worldwide leveraged buyout transactions, which can be used for further research of this

phenomenon.¹ Second, we analyze the extent to which LBO transactions are successfully exited, and whether exit success has varied across time periods, regions, and deal characteristics. Third, and most importantly, we focus on the longevity, or “staying power,” of leveraged buyouts, building on the work of Kaplan (1991). Kaplan’s analysis focused on 183 U.S. large U.S. leveraged buyout deals completed between 1979 and 1986. Although this work was original and important, the conclusions from his analysis are limited by the relatively small sample size and the short history of the private equity market at the time of his study. Using our data set we will be able to analyze more than 21,000 transactions undertaken worldwide between 1970 and June 2007. One shortcoming relative to Kaplan (1991) is that the CapitalIQ data, on which we base our sample selection, does not enable us to study the capital structures of these transactions.²

In order to assess the role of economic private equity in the economy it is important to understand how long firms stay in LBO ownership. The academic discussion on the longevity of leveraged buyouts can be summarized in two disparate views. One extreme is provided in Jensen (1989), which argues that the LBO organizational firm is a long-term superior governance structure, which imposes strong investor monitoring and managerial discipline through a combination of ownership concentration and substantial leverage. Thanks to these benefits, Jensen predicted that leveraged buyouts would eventually become a dominant organizational form, implying that LBO ownership is a long-term optimal structure. The other extreme, represented by Rappaport (1990), views LBOs as a short term “shock therapy,” which allows inefficient, badly performing firms with inferior corporate governance to enter a quick but intense period of corporate and governance restructuring, in order to return to public ownership in a few years. Kaplan (1991) found a median time in private ownership of 6.8 years, and concluded that leveraged buyouts are “neither short-lived nor permanent.” After these original academic contributions, a common view of leveraged buyouts has been that it is a temporary governance structure, particularly aimed at improving governance in public companies with dispersed ownership structures that suffer from an excess of free cash flow relative to investment opportunities. After management pay-performance incentives are

¹ E.g. Lerner, Strömberg, and Sørensen (2007), Lerner et al (2007), and Axelson et al (2007) make use of this data.

² Axelson et al (2007) provide a recent empirical analysis on the evolution and determinants of capital structure in LBO transactions.

imposed, previous inefficient investments are divested, and free cash flow is being paid out to investors, the firm is then ready to return to the public market.³

Although this view may have been representative of the LBO boom in the 1980's, it is not clear how well it describes today's private equity market. The number of private equity transactions is an order of magnitude larger in 2007 than it was in the 1980's. The motivation behind leveraged buyouts is no longer primarily about solving governance problems in U.S. publicly traded conglomerates. Rather, LBO transactions occur worldwide in a variety of industries, and target both private and public companies. In addition, there seems to be an increase in so called secondary buyouts, where one LBO sponsor exits its investment by selling the firm to a new LBO fund sponsor, which could imply that the organizational form is becoming more permanent.

To address these issues we construct a new large-sample data base of leveraged buyout transactions, based on the CapitalIQ data base, which contains 21,397 leveraged buyout transactions across the world over the period January 1, 1970 to June 30, 2007, involving 19,500 distinct firms. We then utilize various other data sources and web searches to track down the ultimate outcomes of these transactions.

We start by documenting the dramatic growth of this industry in the last decade. Out of 21,397 leveraged buyout transactions 1970-2007, more than 40% have taken place since January 1, 2004. We estimate the total value of firms (both equity and debt) acquired in leveraged buyouts to 3.6 trillion dollars over our sample period, of which 2.7 trillion dollars worth of transactions occurred between 2001 and 2007. We also show that public-to-private transactions, which have been the focus of most earlier LBO research, only account for 6.7% of all transactions, representing 28% of the combined values of firms acquired. Most leveraged buyouts are acquisitions of private firms and divisions of other companies. We also show that public-to-private buyouts exhibits higher cyclicity than other types of transactions, and that they represent a smaller fraction of activity now compared to in the 1980's. On the other hand, divisional buyouts and secondary buyouts have increased in importance over time.

³ Baker and Wruck (1989) is one of the few more nuanced views of LBO transactions, going beyond the simple going private, "free cash flow" stories.

We also confirm that the LBO market is no longer primarily a U.S. phenomenon. The non-U.S. private equity activity has grown to be larger than that of the U.S. in the last few years, where the growth Continental European LBOs has been particularly pronounced. Still, LBO transactions outside of North America and Western Europe are relatively few and only account for approximately 13% of global LBO transactions in number and 7% in value over the 2001-2007 period.

The caricature of LBOs occurring in old and declining industries is no longer true, and never really has been. In fact, LBOs have always taken place in a wide range of industries. Although mature industries such as chemicals, machinery, and retailing still provide popular buyout targets, there fraction of LBOs undertaken in high-growth, “high-tech” sectors such as computers and biotech, has been growing significantly in the last decade.

We then go on and analyze the holding periods and exits for individual LBO transactions. As is well known, most LBOs are sponsored by private equity funds, which have a limited life and therefore a limited investment horizon, after which they have to exit their investments. The ability to achieve a successful exit before the end of the fund life is considered to be crucial for the financial performance to a private equity investor. The most common exit route, for PE and MBO deals alike, are trade sales to another corporation, accounting for 38% of all exits. The second most common exit route is secondary buyouts (24%), which have increased in importance over the last decade consistent with anecdotal evidence. In contrast, IPOs only account for 13% of exits, and this exit route seems to have decreased in relative importance over time.

Classifying financial failure in these investments is somewhat challenging, given the data limitations. We use a relatively unambiguous criterion for failure, namely whether the firm acquired in the LBO eventually files for bankruptcy or undergoes a financial restructuring, or if the company is reported to have gone out of business. Using this criterion, around 6% of all leveraged buyout transactions eventually fail and end up in financial distress. While this number implies is a higher failure rate compared to bankruptcy rates among U.S. publicly traded firms, it is implies a slightly lower rate than the average default rates among U.S. corporate bond issuers, and substantially lower than the default rates among average junk bond issuers.⁴ Hence, given the high leverage in these transactions, bankruptcy rates of LBOs seem relatively modest.

⁴ See Section IV for a more detailed description of these comparisons.

We find that LBOs sponsored by private equity investors exit earlier than deals without financial sponsors, as would have been expected. Still, only 42% of the private equity funds' investments are exited within 5 years of the initial transaction. LBOs sponsored by private equity funds with more years of experience exit earlier, and funds that are publicly traded (and hence lack a finite horizon on their fund) take longer time to exit their investments. So called "quick flips," i.e. quick exits by private equity funds, have been widely criticized in recent years. These cases turn out to be quite rare and only 2.9% of investments with financial sponsors are exited within 12 months. The incidence of quick flips has also decreased in the last few years. Early exits are more likely for larger transactions, but controlling for size they are less likely for going private transactions.

Although LBOs sponsored by private equity funds are more likely to experience a successful exit, they are also somewhat more likely to have their investments end up in financial distress, controlling for other factors. Deals sponsored by private equity funds that are publicly traded (as opposed to funds structured as private partnerships with a limited life) are more likely to go bankrupt compared to other investments sponsored by private partnerships. Together with the earlier finding that publicly traded funds are less likely to experience a successful exit, this suggests that publicly traded funds are less financially successful compared to other private equity funds.

Finally, we turn to the longevity issue and study the total time in which a particular firm remains in the LBO organizational form. This period will not coincide with the holding period of an individual LBO transaction to the extent that the investment is exited by selling the firm to a new private equity fund, either directly or indirectly through a trade-sale to another LBO-backed company. Of all firms entering LBO status over the 1980-2007 period, 69% are still in the LBO organizational form. The number of firms entering LBO status has been substantially higher than the number of firms leaving LBO status over time every year since 1970. As a result, at the beginning of 2007, close to 14,000 firms worldwide are held in LBO ownership, compared to fewer than 5,000 in 2000 and fewer than 2,000 in the mid-1990's. Compared to the early Kaplan (1991) study, the LBO organizational form seems more long-term than temporary, and almost 40% of all LBO remain in this organizational form 10 years after the original leveraged buyout was announced. In addition, holding periods have increased over time. The median firm undergoing the original LBO in the 1980's exited LBO status after 6-7 years, while the median LBO firm in the 1995-1999 period was exited in about 9 years. Smaller LBOs tend to last longer than larger ones, but controlling for size, going private transactions remain longer in LBO ownership compared to buyouts of private companies and corporate divisions.

We do not find much evidence that the growth of private equity has been at the expense of public stock markets, however. Among firms entering LBO status over the the 1970-2002 period, the fraction of firms exiting LBO status by going public was 11%, which is substantially higher than the fraction of LBOs that originated from going-private transactions, which was 6%. In other words, the flow from private to public equity markets is net positive over the long run. LBOs in economies with less developed financial markets are particularly likely to eventually go public, which suggests that private equity can play a role in promoting stock markets in these countries.

We also find that the likelihood of eventually going public is not substantially higher if the firm had been publicly traded before the initial LBO. In other words, most of the LBO firms going public originate from acquisitions of private companies, and most of the going private transactions do not return to public markets. This finding seems inconsistent with the Rappaport (1990) “shock therapy” view of going private transactions, which views LBOs as a temporary “quick fix” after which the firm return to public again after a few years. Rather, the evidence is more supportive of going private transactions taking place among firms that are less suitable for the public market over the long run. Overall, our evidence points towards public and private equity markets being complements rather than substitutes.

We believe our study has important implications for how to think about the economic role that private equity plays in the economy. Claims that LBO ownership leads to short-termism and financial failure do not find support in the data, given the substantial holding periods and relatively modest bankruptcy rates. Rather, evidence is more consistent with the view that the LBO organizational form is a long-run optimal governance structure for many firms in a variety of different industries and countries, consistent with the prediction of Jensen (1989).

I. Data

A. Sample construction

We use the CapitalIQ data base to construct a base sample of leveraged buyout transactions. We first select all the M&A transactions classified as “leveraged buyout,” “management buyout,” and “JV/LBO” in CapitalIQ that were announced between January 1 1970 and June 30 2007. To this sample we add all M&A transactions undertaken by a financial sponsor classified as investing in “buyouts.” This results in a sample of about 23,500 transactions. For the purposes of this study, we then exclude acquisitions that were announced but not yet completed, acquisitions of non-control stakes, acquisitions of stakes in public companies that remain publicly traded (PIPES), and other misclassified transactions.

This leaves us with a total sample of 21,397 leveraged buyout transactions over the period January 1, 1970 to June 30, 2007, involving 19,500 distinct firms.

In order to track the ultimate fate of these transactions, we first match this sample with the CapitalIQ acquisition data base to obtain any subsequent M&A transaction that our LBO firms have been involved in. This gives us information which is used to infer trade-sale exits, divestments, and add-on acquisitions. We then match our sample firms with the SDC, CapitalIQ, and the Cao and Lerner (2006) IPO data bases to track down prior and subsequent initial public offerings. Finally, we conduct extensive web searches on a firm-by-firm basis to infer the ultimate outcomes of these transactions.

B. Sample selection issues

Although we believe we have constructed the most comprehensive data base of LBO transactions to date, we will still only have a partial coverage of these transactions for a couple of reasons.

First, our sampling methodology does not pick up all the LBO transactions in the CapitalIQ data base, due to the nature of the CapitalIQ classification methodology. For example, one of the more notable LBOs of the 1980's, Campeau's acquisition of Federated Department Stores, (see Kaplan (1989c)) is in the CapitalIQ data base but not classified as a leveraged buyout transaction. Also, a substantial number of the transactions of buyout funds are classified as "private placements" rather than acquisitions. In most cases, these are not proper LBO transactions, but rather acquisitions of minority stakes or follow-on investments, and for this reason we do not want to include transactions classified as private placements in our sample. Still, there are cases where the distinction is not clear, and some of the private placements should probably have been included in the data base. To correct these classification errors we would have to check each transaction on a case-by-case basis, which would not be practical given that there are more than 200,000 M&A and private placement transactions in CapitalIQ.

Second, even when the CapitalIQ classification is correct, there are quite a few judgement calls that have to be made. The distinction between a PIPE and minority transaction and a proper leveraged buyout is not always clear. Similarly, some LBO deals are more akin to venture capital investments. We try to err on the side of not including any non-LBO transactions, but this means that some real leveraged buyouts will be excluded as a result. Moreover, we do not include add-on acquisitions by LBO firms as separate LBO transactions, although again the distinction is not necessarily all that clear.

Third, CapitalIQ started its data service in 1999 and their coverage has increased over time. Although CapitalIQ has been back-filling their data using various sources, their coverage is likely to be incomplete for the earlier part of the sample. To gauge the extent of this attrition, we compare our

sample with that used in academic studies on U.S. 1980's transactions. In particular, we compare with the samples in Lehn and Poulsen's (1989) sample going private transactions 1980-1987, Kaplan's (1991) sample of LBOs above \$100 million in transaction value 1979-1986, Long and Ravenscraft's (1993) sample of LBOs of independent firms 1981-1987 (i.e. excluding divisional buyouts), and Cotter and Peck's (2001) comprehensive sample of buyouts 1984-1989. We summarize the results from this analysis in Table 1.

Overall, the attrition rate seems significant. The worst coverage seems to be compared to Lehn & Poulsen (1989), where the number of public-to-private transactions in our data is only 16% of the number identified in their paper. In comparison, looking at Long and Ravenscraft's sample of LBOs of independent companies during the same period, the coverage is substantially higher, 41%. This seems to indicate that some of the public-to-private transactions of Lehn and Poulsen, most likely the smaller ones, have been (mis)classified as private-to-private transactions in CapitalIQ. Moreover, coverage is improving significantly towards the end of the 1980's. For the 1984-1989 period our sample size is as high as 70% of the number of observations in Cotter and Peck (2001), compared to 41% for the 1981-1987 sample of Long and Ravenscraft (1993). Finally, the largest source of attrition in CapitalIQ is among "pure management buyouts," i.e. LBO transactions that are not sponsored by a buyout fund or other financial institution. Looking only at large LBOs with a financial sponsor during the 1979-1986 period, we pick up 62 transactions, compared to Kaplan's (1991) sample of 74 transactions, i.e. a coverage of 84%.

To evaluate attrition rates outside of the U.S., we are limited by the scarcity of international studies on leveraged buyouts. Wright et al (2005) report statistics on U.K. and Western European buyout transactions collected by the Centre for Management Buyout Research at Nottingham University Business School, which allows some suggestive comparisons, also reported in Table 1. According to this paper, there were 167 buyouts in U.K. and Continental Europe in 1986, while our CapitalIQ sample only includes 28, i.e. 17% of the sample size. Even for the later sample period, CapitalIQ only seems to cover 30-40% of U.K. buyouts, while the CapitalIQ coverage of Western European deals is more than four times larger for the period 2001-2005. Since Wright et al do not explicitly state their inclusion criteria, it is hard to identify the sources of these discrepancies. Still, it seems plausible that our sample may underreport smaller U.K. buyout transactions, but that international coverage is also improving over time.

To summarize, in interpreting the results of the analysis below we have to be aware of a few sample selection biases. Given that coverage is improving over time, we are understating the number of transactions occurring in the 1970's and 1980's, while the coverage from the mid-1990s and onwards

should be fairly complete. While the coverage of larger deals with financial sponsors is likely to be higher than 80% in the early parts of the sample, we are missing a substantial number of smaller transactions, and transactions without financial sponsors before the mid-1990s. We are likely to cover at least 70% of all U.S. deals after 1984, at least to the extent they could be identified with the data bases available at the time. Finally, there are reasons to believe that the coverage of LBO deals outside of the United States suffer from even larger attrition rates. Hence, part of the dramatic increase in buyout activity that we document in the last decade may be overstated due to sample selection bias.

II. The evolution of the buyout market

We start with documenting the evolution of this market over time across deal types, geographies, and industries, using our sample of 21,397 leverage buyout transactions. One of the challenges facing this analysis is that information on the value and pricing of deals is missing for a large fraction of deals. A natural measure of the size of a transaction is the Enterprise Value, defined as the price paid for the equity of the acquired company, plus the net debt (debt minus cash) that the company owed at the time of the transaction (i.e. pre-transaction debt). As seen in Table 3, data on enterprise values is missing for 58% of the transactions, and pricing information for even fewer of the deals. While CapitalIQ contains enterprise values for most public-to-private deals (87% of cases), it is only occasionally available buyouts of independent private companies (31% of cases). There are also differences in the extent to which enterprise value information is available across time and geographies. To be able to make inference concerning the value-weighted population, we therefore estimate imputed enterprise values for the observations with missing pricing information. This procedure, which uses a Heckman (1976) regression to estimate enterprise values, is outlined in Appendix 1. We use the imputed estimates whenever the original enterprise value is not available.

Our data set contains a total of 21,397 leveraged buyout transactions over the period January 1, 1970 to June 30, 2007. In terms of the enterprise values of firms acquired in LBO transactions, we estimate the total value (in 2007 US dollars) to \$3.9 trillion over this period. Although this estimate relies on estimated enterprise values, they do not seem unreasonable given the magnitude of private equity fundraising over this period. Taking the data from Private Equity Analyst and deflating into 2007 US dollars, I estimate the cumulative commitments to U.S. non-venture private equity partnerships between 1980 and 2006 to be close to \$1.4 trillion. Although this is less than \$3.9 trillion, we should keep in mind that (1) the transactions are leveraged, which is likely to make the enterprise values roughly

three times as large as the equity commitment,⁵ (2) many buyouts are undertaken without being sponsored by private equity partnerships, and (3) U.S. transactions only comprise 45% of the sample (although some of the funds raised by U.S. partnerships are invested firms outside of the United States).

Figure 1 documents the dramatic growth of this industry in the last decade. Out of 21,397 leveraged buyout transactions 1970-2007, more than 40% have taken place since January 1, 2004. Most of these deals, 80%, are “traditional private equity” (PE) deals, where a financial sponsor or LBO fund backs the deal and provides most of the equity capital. About 20% of the transactions are “pure management buyouts,” (MBO) where individual investors (typically the management team) acquire the firm in a leveraged transaction. Since the PE deals are larger, MBOs account for a smaller fraction in terms of the value, roughly 8% using imputed enterprise values. Interestingly, while we observe the cyclical patterns of LBO transactions that have been documented in earlier research, where transaction activity is positively correlated with activity in the leveraged loan market, MBO activity does seem not exhibit this cyclicity.⁶ For example, during the downturn in the credit market in 2000-2001 the number of PE transactions dropped by 25%, while the number MBO transactions increased by 250% and accounted for 38% of all buyout activity in 2002 in terms of the number of transactions. Finally, since CapitalIQ is likely to be under-reporting deals without a financial sponsor, we are likely to be underestimating the fraction of MBOs, particularly in the pre-1995 period.

Figures 2 and 3 shows that so called “going private” transactions, which have been the focus in most previous research, only accounts for a minor fraction of the number of LBOs undertaken. The corresponding numbers are shown in Table 2. Across the whole sample period, public-to-private deals account for 7% of the transactions, while the bulk of transactions are acquisition of private firms (47%). Since public-to-private transactions are larger than other LBOs, they are more significant in value terms, where we estimate that they account for 28% of the combined enterprise value of LBO transactions. In contrast, independent private firms acquired in LBOs are significantly smaller, and hence only account for 23% of value. The largest fraction of buyouts in terms of value is comprised by divisional buyouts (31% of transactions, 30% of value), where a division of a larger company is acquired in the LBO. The remaining types of transactions are secondary buyouts (13% of transactions, 19% of value), i.e. acquisitions from a financial vendor, and acquisitions of bankrupt or financially distressed companies

⁵ Axelson, Jenkinson, Strömberg, and Weisbach (2007) find an average debt to enterprise value ration of 67%.

⁶ See Gompers and Lerner (2000), Kaplan and Schoar (2006), Ljungqvist, Richardson, and Wolfenzon (2007), and Axelson, Jenkinson, Strömberg, and Weisbach (2007) for evidence on the cyclicity of private equity activity.

(2% of transactions, 1% of value). The composition of the different buyout types has been changing over the sample period. Public-to-private activity was relatively high during the 1980's, where it accounted for around 15% of the number and close to 50% of the value of all transactions. Following the demise of the junk bond market in the late 1980's public to private transactions dropped significantly, where they accounted for less than 3% of the value of transactions, picked up in the late 1990's, and has accounted for around 7% of the number and 35% of the value of transactions in the last few years. One clear trend in the last decade is that divisional and secondary buyouts have increased in importance, relative to the other groups.

Panels B and C of Table 2 shows how the geographical and industry composition of LBOs has been changing over time. Figure 2 shows that the LBO market is no longer primarily a U.S. phenomenon. The non-U.S. private equity activity has grown to be larger than that of the U.S. in the last few years, where the growth Continental European LBOs has been particularly pronounced. Still, despite growing, the LBO transactions outside of North America and Western Europe are relatively few, accounting for approximately 13% of the number (9% of the enterprise value) of global LBO transactions in 2001-2007.

Panel C shows that the caricature of LBOs occurring in old and declining industries is no longer true, and never really has been. In fact, LBOs have always taken place in a wide range of industries. Although mature industries such as chemicals, machinery, and retailing still provide popular buyout targets, there fraction of LBOs undertaken in high-growth, "high-tech" sectors such as computers and biotech, has been growing significantly in the last decade. The drop in activity is particularly pronounced in the retail sector, which accounted for almost 14% of the number of transactions in 1970's and 1980's, compared to less than 6% of transactions in the 2000's. It would be interesting to investigate the reasons for these trends in more detail. One potential explanation is that the changing industry mix of LBOs simply reflects a change in the industry composition in the economy as a whole. Alternatively, it may be the case that private equity firms are deliberately broadening their industry scope beyond the mature, high cash flow, high debt capacity type of industries that they initially targeted. We leave this question for future research.

Finally, Table 3 shows the pricing of the LBO transactions over time and types of deals. Pricing data is only available for a small fraction of the transactions in CapitalIQ, and only after 1995. The mean (median) enterprise value to revenue is 2.4 (0.9) and mean (median) enterprise value to EBITDA is 11.0 (8.0). After decreasing in the early 2000's, pricing multiples are at their historical highs for the 2006-2007 period. LBO's of independent private companies and LBO's in Continental Europe seem to be

priced lower than other LBO transactions. Still, the scarcity of observations limits the conclusions that can be drawn from the pricing data.

III. Analysis of LBO exits

After documenting the evolution of the buyout industry, we now turn to the core issue of this study, namely the longevity of leveraged buyouts. We study two different aspects of this. In this section we look at the holding periods and exits for individual LBO transactions. As is well known, most LBOs are sponsored by private equity funds, which have a limited life and therefore a limited investment horizon, after which they have to exit their investments. In section IV we will switch to the equally important issue how long a particular firm remains in the LBO organizational form. These two periods may not coincide, to the extent that an LBO fund exits the investment by selling the firm to a new LBO fund, either directly or indirectly through a trade-sale to another LBO-backed company.⁷

Table 3 shows the frequency of the exits of individual LBO transactions. We distinguish between deals sponsored by private equity funds from the pure management buyouts without a financial sponsor, since the latter do not face the same investment horizon restrictions. Given that so many LBO deals have occurred in the last few years of the sample, it is not surprising that 60% of all transactions have not yet been exited. The most common exit route, for PE and MBO deals alike, are trade sales to another corporation, which account for 38% of all exits. The second most common exit route is secondary buyouts (24%), which have increased in importance over the last decade, consistent with anecdotal evidence.⁸ IPOs account for 13% of exits, and this exit route has decreased significantly in importance over time, again consistent with anecdotal evidence.

Given the high debt levels involved in these transactions, we would expect that a non-trivial fraction of LBOs end up in bankruptcy. Axelson et al (2007) compare LBO leverage with the leverage in sample of public firms in the same location, industry, and year. For their sample of large LBO transactions, they report average net debt to enterprise value of 67% and average net debt to EBITDA of 5.4, compared to 14% and 1.1 for their matched public firm sample. Hence, we would expect bankruptcy rates to be substantially higher for LBOs compared to public firms.

⁷ In addition to the final exit, there may also be partial exits through divestments of assets and divisions along the way. We will study these in more detail in the next version of the paper.

⁸ There seems to be a drop in secondary buyouts over the 2006-2007 period, but very few of these transactions (2%) have been exited by the time of this study.

Classifying financial failure in these investments is somewhat challenging, given the scarcity of performance data in CapitalIQ. We use a relatively unambiguous criterion for failure, namely whether the firm acquired in the LBO eventually files for bankruptcy or undergoes a financial restructuring, or if the company is reported to have gone out of business. We largely rely on CapitalIQ information for this classification, but are able to complement this with information on company web sites and the like in some cases.

For our total sample, 6% of deals have ended in bankruptcy or reorganization using this criterion, and the frequency of financial distress seems to have gone down over time. Excluding the LBOs occurring after 2002, which may not have had enough time to enter financial distress, the average rate is 7%. Assuming an average holding period of six years, this works out to an annual default rate of 1.2% per year. As a comparison, the annual default rates for U.S. publicly traded firms in Compustat over the 1983 to 2002 was half this number, 0.6% (Ben-Ameur et al (2005)). Even though the LBO default rates are indeed higher than that of Compustat firms, they are lower than the average default rates of corporate bond issuers 1980-2002, which was 1.6% according to Moody's (Hamilton et al (2006)).⁹ One caveat is that not all distress cases may be recorded in publicly available data sources, and some of these cases may be "hidden" in the relatively large fraction of "unknown" exits (11%).

The univariate sorts indicate that LBOs involving acquisitions of distressed companies seem relatively more likely to once again end up in financial distress, and bankruptcy rates are twice as high for this sub-sample. Compared to deals backed by private equity funds, pure MBOs have somewhat higher incidence of bankruptcy, lower incidence of IPOs, and have overall significantly lower exit rates looking at average figures.

Financial economists have documented the importance of equity market conditions and development for initial public offering activity. The effect of public market conditions on the composition of exits seems surprisingly small in our data. Although the fraction of IPO exits dropped somewhat in the 2000-2002 period compared to before, there was an even larger drop in the late 1990's, where IPO markets were at their historical highs. Similarly, LBOs in the most developed equity markets, the U.S. and the U.K., actually have a lower fraction of IPO exits compared to Asia, Australia, and other developing markets.

⁹ For the sub-set of corporate issuers that were rated as speculative grade, the average annual default rates were as high as 4.7% for the 1980-2002 period, according to Moody's.

Since these simple comparisons are univariate, they do not control for other variables that may affect exit rates simultaneously, such that the fact that firms may differ in size across time, regions, and LBO types. We will address this issue in the multivariate regression analysis below.

Table 5 shows the average holding periods for the individual LBO transactions. Overall, the average LBO lasts between four and five years, conditional on exit. Still, it is important to conduct the analysis on a cohort basis, since older deals are more likely to have been exited. In fact, only 42% of PE-sponsored deals, and only 16% of pure MBO deals, were actually exited within five years of the announcement of the original transaction. In recent debate, many have argued that private equity funds have become more and more short-term oriented, preferring to quickly “flip” their investments rather than keeping their ownership of companies to fully realize their value potential. In our analysis, we see no evidence of “quick flips” becoming more common. On the contrary, holding periods of private equity funds over the 12, 24, and 60 month horizons have increased since the 1990’s. Overall, only 12% of deals are exited within 24 months of the LBO acquisition date.

Table 6 reports multivariate regression results on the determinants of exits. We consider a number of different independent variables that can affect exit.

First, the likelihood of a successful exit may depend on the status of the firm pre-LBO. We control for transaction type, i.e. public-to-private, divisional, secondary, distressed, or independent private, where the latter is the omitted category (so that the coefficients on the other variables can be interpreted relative to this category).

Second, the involvement of a financial sponsor can be important both for the incentives to exit the deal, as well as for the ability to do so. Everything else equal, financial sponsors may have an incentive to exit the deal earlier than a deal without a sponsor, because of the need for a private equity fund to return capital to its investors. For this reason, we include a sponsor for the presence of a financial sponsor in the regression. We also consider the possibility of exit rates varying depending in the experience of the private equity fund, and include the number of years since the first buyout investment was undertaken by the financial sponsor involved in the deal. (In the case of syndicated transactions, we simply pick the first listed fund in the syndicate when calculating this variable.) We also include a dummy for whether the LBO transaction was syndicated between several sponsors as well as a dummy for whether any private equity fund sponsoring the deal was a publicly traded entity. The latter should face less of an incentive to exit quickly compared to a private partnership with a limited fund life.

Third we control for the location of the firm acquired in the LBO as well as the time period of the original transaction. Among other things, this controls for the fact that financial market development and liquidity may differ across different regions and across time, which may affect the ability to exit.

Finally, we also include the log of the imputed enterprise value of the original transaction in some of the specifications, to control for the possibility that LBOs of larger companies may exhibit a different exit behaviour compare to smaller LBOs.

Regressions (1) and (4) analyzes the determinants of “quick flips,” which we define as deals which are exited successfully, i.e. through an IPO, trade-sale to a strategic buyer, or a secondary buyout, within 24 months of the original transaction announcement. The results are somewhat sensitive to whether the imputed enterprise value is included in the regression or not. Everything else equal, quick flips are significantly more likely for larger LBOs. A one standard deviation change in size increases the likelihood of a “quick flip” by 2 percentage points. On the other hand, public to private deals are less likely to be exited early, which suggests that the size effect is most pronounced among divisional and secondary buyouts. As expected, deals with a financial sponsor are much more likely to be exited early, a difference of between 4 and 5 percentage points compared to pure MBOs. Within the deals with a private equity sponsor, public funds are around 3 percentage points less likely to exit early, confirming that the limited life of private partnerships shortens the holding periods. Finally, the more experienced private equity funds are more likely to do “quick flips” although the magnitudes are economically quite small. 10 years of experience increases the likelihood of a quick exit with 1.7 – 2.2 percentage points. The tendency to exit early does not differ significantly across regions. Finally, there is no evidence that early exits are increasing over the sample period, and the LBOs undertaken in the 2000-2002 period were the least likely to exit early.

We then examine the likelihood of a successful exit over the longer term in regressions (2) and (5), using a horizon of 7 years. Again, many of the patterns are similar to the short-term horizon, with larger deals being more likely to have exited successfully. Controlling for size, public to private deals less likely, and divisional and secondary buyouts are now significantly more likely to have exited successfully within 7 years. The presence of a financial sponsor increases the exit likelihood, especially for sponsors that have longer experience, are not publicly traded, and syndicate the investment with other sponsors. With respect to region, LBOs undertaken in the U.K. and Scandinavia are more likely to have exited successfully compared to other regions. Finally, the 1990-1995 period seems to have been a particularly successful period in terms of successful exits (although the 7 year criterion only allows us to consider deals undertaken before November 2000).

Finally, regressions (3) and (6) consider the flip side of the issue, and analyze the determinants of LBOs ending up in bankruptcy or financial restructuring. We only consider LBO deals undertaken by 2002 in the analysis so that the deals have at least five years to eventually go bankrupt. In contrast with the successful exits, there is no significant relation between bankruptcy and deal size. Confirming the pattern from the univariate analysis, deals that were originally distressed acquisitions are more than 5 percentage points more likely to end up in financial distress again. Divisional buyouts, on the other hand, are significantly less likely to end in financial distress. In contrast with the univariate results, deals with financial sponsors are somewhat more likely to go bankrupt when other factors are controlled for, although the economic magnitude is relatively small. Among financial sponsors, the deals undertaken by publicly traded funds exhibit a higher incidence of bankruptcy and restructuring compared to private partnerships. Somewhat surprisingly given earlier research (e.g. Kaplan and Stein (1993)) we find no major difference in bankruptcy probability across time periods. Finally, LBOs undertaken in the U.S. and the U.K. seem more likely to end up in bankruptcy or financial restructuring, and the magnitudes are very large (5 and 7 percentage points, respectively). One potential explanation could be that more aggressive leverage is used in these more developed private equity markets. One caveat with this result, however, is that CapitalIQ coverage of corporate failures may be more accurate in these regions.

Across the different tests and specification a few consistent findings emerge. Larger deals are more likely to be exited successfully, although among larger deals the going private transactions are slower to exit. Deals undertaken by private equity funds exit quicker than pure management buyouts, but they are also somewhat more likely to end in bankruptcy or restructuring. Among the LBOs with a financial sponsor, the deals that are syndicated and undertaken by experienced funds or funds that are not publicly traded are more successful in terms of exit. Finally, distressed investments are the most risky form of LBO deals, with a significantly higher bankruptcy risk compared to other deals.

IV. Analysis of LBO holding periods

Finally, we turn to the issue of the longevity of the LBO organizational form, which has been at the core of the academic discussion of the economic impact of leveraged buyouts. Tables 6 through 9, look at the ultimate holding periods of firms undergoing LBOs, i.e. the time from the initial LBO transaction until the transition out of LBO ownership status. Again, this is a different measure compared to the time until an individual transaction is exited, since firms whose exit involves a sale to another private equity-backed firm remain in the LBO organizational form.

Table 7 considers the transition out of LBO status over time (panel A) and across different types of LBO transactions (panel B).

When we extend the sample from the early Kaplan (1991) study, the LBO organizational form seems more long-term than temporary. Panel A shows that out of all firms ever entering LBO status over the 1980-2007 period, 69% are still in the LBO organizational form by November 2007. Disregarding the 2003-2007 period which may have had too short time to exit, the number is still as high as 45%. For a non-trivial fraction firms, the LBO status seems more or less permanent. For firms undergoing their original LBO before 1990, 10% are still in LBO status by 2007.

Figure 4 shows the total stock of LBO firms as a function of transitions in and out of LBO ownership. In order to mitigate the effect of missing transactions in CapitalIQ, we assume that firms leave LBO ownership if no subsequent M&A, bankruptcy, or securities offering have been recorded within 12 years of the original transaction. As shown in figure 4, the number of firms entering LBO status has consistently been substantially higher than the number of firms leaving LBO status over time. At the beginning of 2007, close to 14,000 firms worldwide were in LBO ownership, compared to fewer than 5,000 in 2000 and fewer than 2,000 in the mid-1990's.

Panel B considers transitions out of LBO ownership as a function of pre-LBO status for the subset of firms doing their first LBO before 2003. 45% of these firms still remain as LBOs, and the highest fraction are found among firms that were publicly traded before the LBO, i.e. for going private transactions. In addition, only 13% of firms in the going private subsample eventually return to public markets, which is not all that different from the sample average of 11%. These facts seem highly inconsistent with the Rappaport (1990) view that going private transactions are a temporary “shock therapy” for public firms. Still, this does not imply that LBOs are draining public markets of firms. In fact, Panel B shows that among firms entering LBO status over the the 1970-2002 period, the fraction of firms exiting LBO status by going public was 11%, which is substantially higher than the fraction of going-private transactions over the 1970-2002 period (6.3%). Hence, the net flow into public markets has been positive over the long run.¹⁰ In other words, most of the LBO firms going public originate from

¹⁰ This argument disregards the fact that many LBOs are buyouts of divisions of public companies, while many trade-sale exits are to public company acquirers. A more complete flow analysis will have to take this into account as well. We intend to pursue this issue in future research, where we will also analyze the acquisition and divestment activity of LBO firms in more detail,

acquisitions of private companies, and most of the going private transactions do not return to public markets.

Panel B also shows that the most common fate of firms transitioning out of LBO ownership is to be acquired by another strategic buyer, which happens to 29% of all doing their original LBO in 1970-2002, which works out to 53% of all firms transitioning out of LBO ownership. 6% of firms undergoing leverage buyouts eventually enter financial restructuring or bankruptcy, which again is higher than the Compustat average but seems low given the high leverage used in these deals. This number also disregards the fact that many distressed firms are eventually financially restructured and continue as independent companies. In fact, 49 cases (10%) of all bankruptcies and restructurings, the financial distress is resolved by the firm again being acquired in an LBO transaction. Out of these 49 firms, 36 firms are still in LBO ownership, 10 firms were acquired by a strategic buyer, and 3 firms eventually ended up in bankruptcy a second time.

Panel C considers transitions out of LBO ownership as a function of the location of the acquired firm, again for the subset of firms doing their first LBO before 2003. One reason why we might expect differences across regions is that the liquidity and development of local financial markets may affect the propensity of firms to stay in LBO ownership, and the types of exit routes that are available. For example, the local availability of capital may affect the likelihood of LBOs failing, or the ability of a potential acquirer to buy the LBO firm in a trade sale. Similarly, the development of local equity markets may affect the ability of firms to exit through an IPO. Previous research has shown that the U.K. and the U.S. has the most developed financial markets, while most emerging markets have relatively small and underdeveloped financial markets and institutions (e.g. LaPorta et al (1997) and King and Levine (1993)). Hence, we would expect exit patterns in the United States and United Kingdom to exhibit different behaviour compared to the rest of the world. The support in favour of these hypotheses is quite weak. Although the likelihood of LBO firms eventually going public is somewhat higher in the United States and Canada (13% of firms), it is not significantly different from the probability of IPO exits in Asia, Australia, and emerging markets (i.e. "Rest of World," 12%). U.K. LBOs seem more likely to become acquired than those in other regions. Bankruptcy and financial restructuring rates are significantly higher in the U.S. and the U.K. These conclusions should be taken with a grain of salt, however, since they only consider univariate differences and do not control for other factors. We return to this issue in the multivariate regression below.

Table 8 considers the ultimate holding periods of LBO firms, taking into account the fact that many firms remain in LBO status even though the original LBO sponsor has exited. The holding periods

are remarkably long. The median firm remains in LBO status for more than 9 years, and only 17% of firms exit LBO status within 3 years of the original LBO transaction. In addition, holding periods seem to have increased over time. The median firm undergoing the original LBO in the 1980's exited LBO status after 6-7 years, while the median LBO firm in the 1995-1999 period exited after 9 years. Deals that were originally sponsored by private equity funds tend to transition out of LBO ownership more quickly, and only 32% of the pure management buyouts have transitioned out of LBO ownership 10 years after the original transaction.

Table 9 analyzes the factors determining the longevity of buyouts, and the likelihood of LBOs eventually returning to public markets, using logit regressions. Similar to the exit regressions of Table 6, we control for pre-LBO firm status, financial sponsor characteristics, original transaction size, location, and time period of the original transaction. Regressions (1) through (4) address the likelihood firms transitioning out of LBO status for different time horizons (3, 5, and 9 years). The factors that determine the longevity are largely consistent with the factors determining exit likelihood in Table 6. LBOs that originate from divisions of other companies exit LBO ownership significantly faster than other LBOs and are 7% more likely to have exited within 9 years. Consistent with the univariate analysis, pure MBOs remain longer, and are 22% less likely to have exited within 9 years. LBOs acquired by more experienced funds and funds that are not publicly traded have shorter longevity, as do syndicated deals. Larger transactions transition from LBO ownership quicker than smaller deals. LBOs undertaken in Continental Europe are less likely to leave LBO ownership. Finally, holding periods seem to have increased significantly over the last 10 years of our sample period. I.e. the longevity of leveraged buyouts has increased significantly compared to the time Kaplan (1991) wrote his original study.

Regressions (5) and (6) analyze the likelihood of LBOs returning to public markets. As expected, larger deals are more likely to eventually go public. Interestingly, the presence of a financial sponsor per se does not significantly increase the probability of going public, but experienced sponsors seem to do so, as does the presence of a financial sponsor syndicate. The development of local equity markets do not seem to be a significant factor predicting “reverse LBOs,” as deals in Asia, Australia, and emerging markets are significantly more likely to eventually go public compared to other regions, including U.S. and U.K.¹¹

¹¹ See Cao and Lerner (2007) for an analysis of post-IPO performance of LBOs that return to public markets, so called “reverse LBOs.”

Two important economic conclusions emerge from this analysis. First, firms stay in LBO ownership for long periods of time, even in cases when a private equity fund, with strong incentives to exit, is backing the original transaction. For sponsored deals, the median LBO remains more than 8 years after the original deal was announced. Second, public and private equity markets appear more complements than substitutes. LBOs provide a net positive supply of firms to public markets over the longer run. Moreover, LBOs in countries with less developed markets are more likely to return to public ownership, suggesting that buyouts can play a positive role in improving stock market development in these countries.

V. Conclusion

This paper has conducted the first comprehensive study of the worldwide demography of leverage buyouts. We confirm that LBOs have grown dramatically over the last decades, not only in magnitude but also in industrial and geographical scope. We also find that LBOs are a more long-term organizational form than what was previously thought. Still, there is no evidence that the increase in LBO activity has come at the expense of stock market development. Rather, the private and public equity markets appear to be more complements than substitutes.

Many important issues still remain to be resolved in order to understand the economic impact of leveraged buyouts. First, although the sample is the most comprehensive one assembled to date, we still find evidence of underreporting, particularly for the early part of the sample. We will continue to update and build this data base in the future, in order to provide a research resource for future private equity research. Second, one important part of LBO activity is the substantial number of acquisitions and divestitures that LBO firms undertake after their original transaction, which we have largely ignored in the present study. In order to properly estimate the total size of the buyout market, the M&A activities of LBO firms also have to be taken into account. We intend to pursue this in a future project, using CapitalIQ data. Third, we would like to know more about the role of LBOs in the consolidation and restructuring of industries. Finally, we are not able to study the financial performance of leveraged buyouts in any greater detail. Looking at how financial performance is affected by LBOs and how performance varies across transaction types, time periods, and countries is an important issue for future research.

Figure 1A: LBO transactions over time, number of transactions

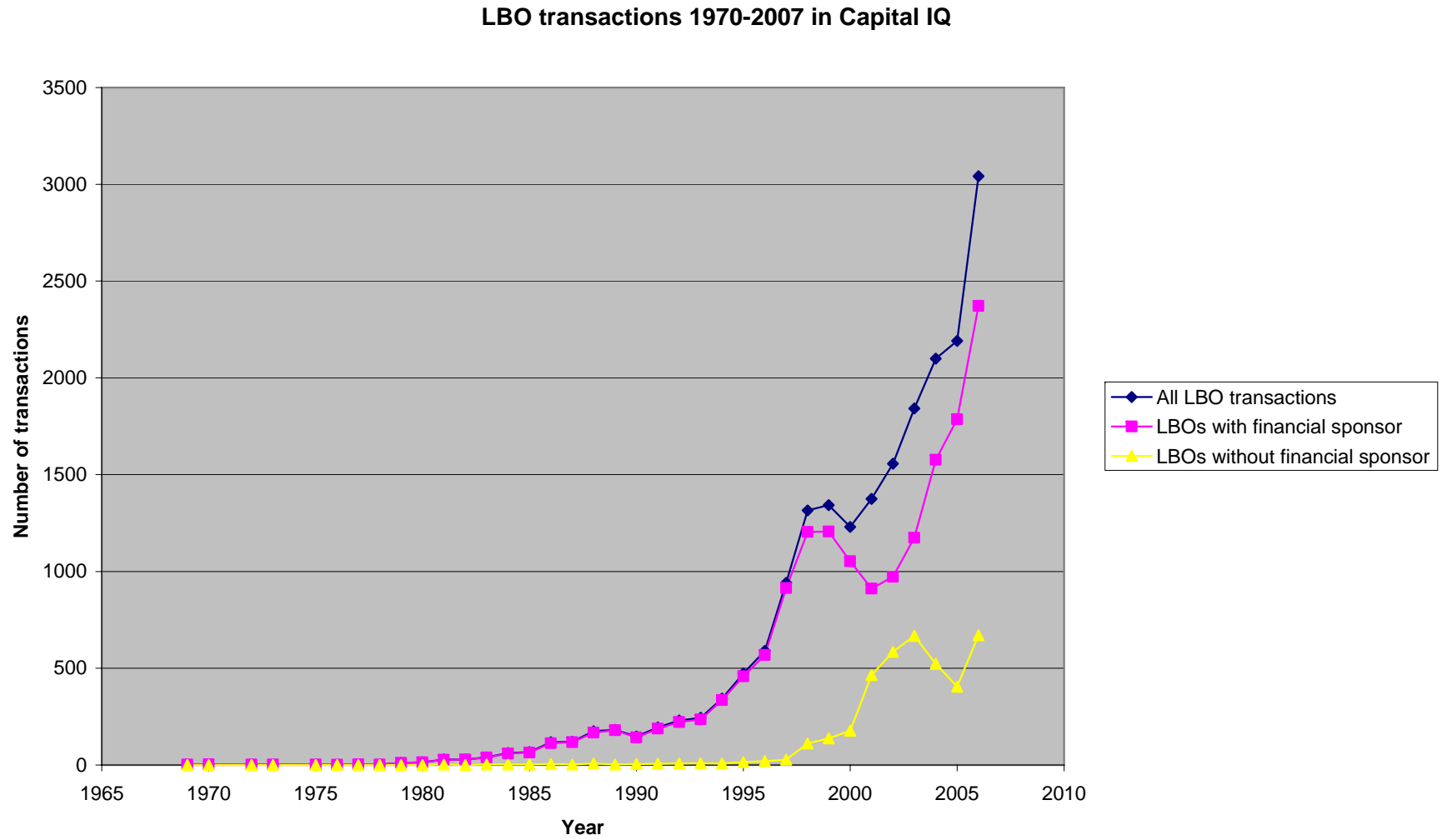


Figure 1B: LBO transactions over time, sum of imputed enterprise values

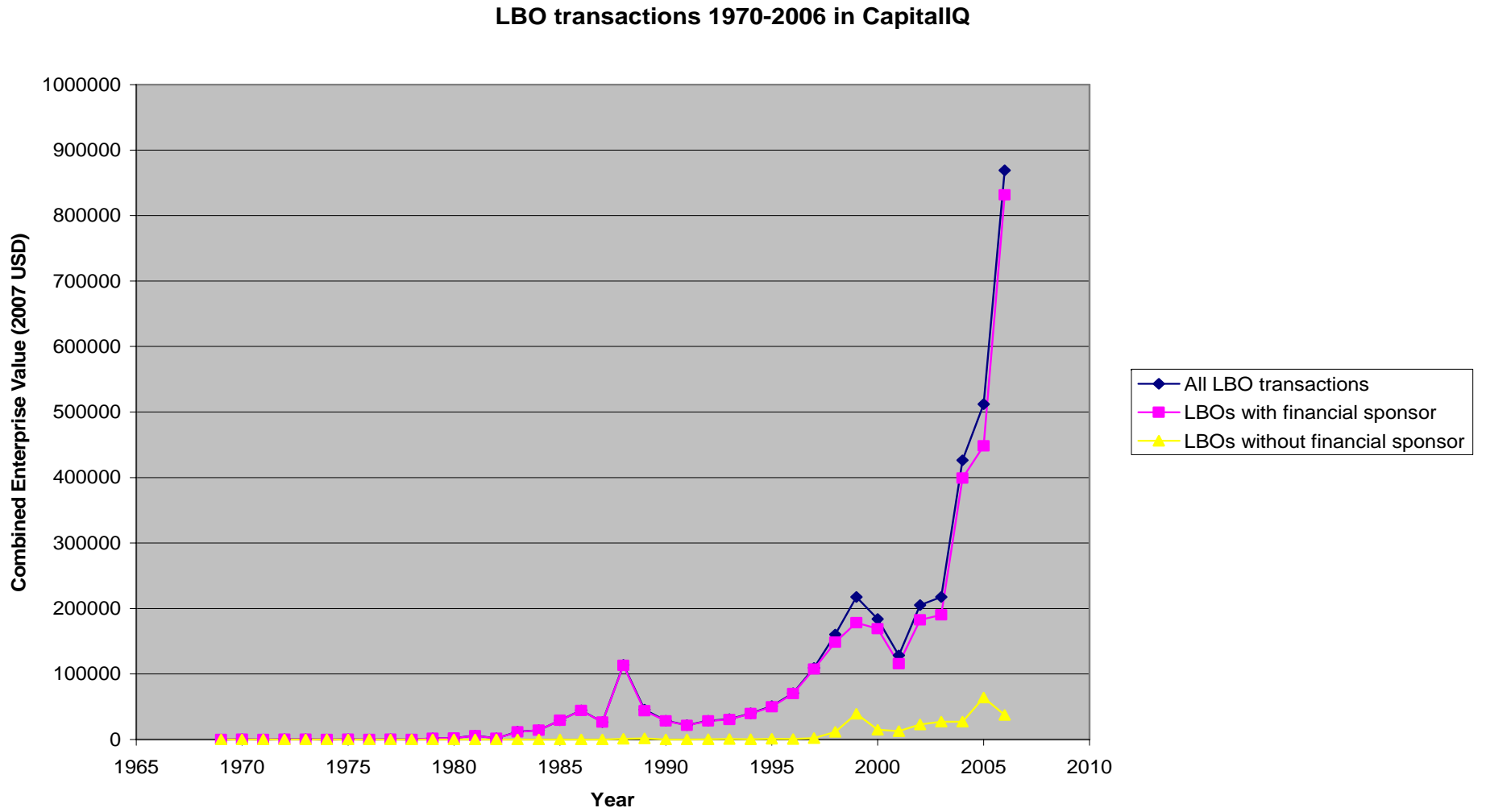


Figure 2: LBO transactions by type

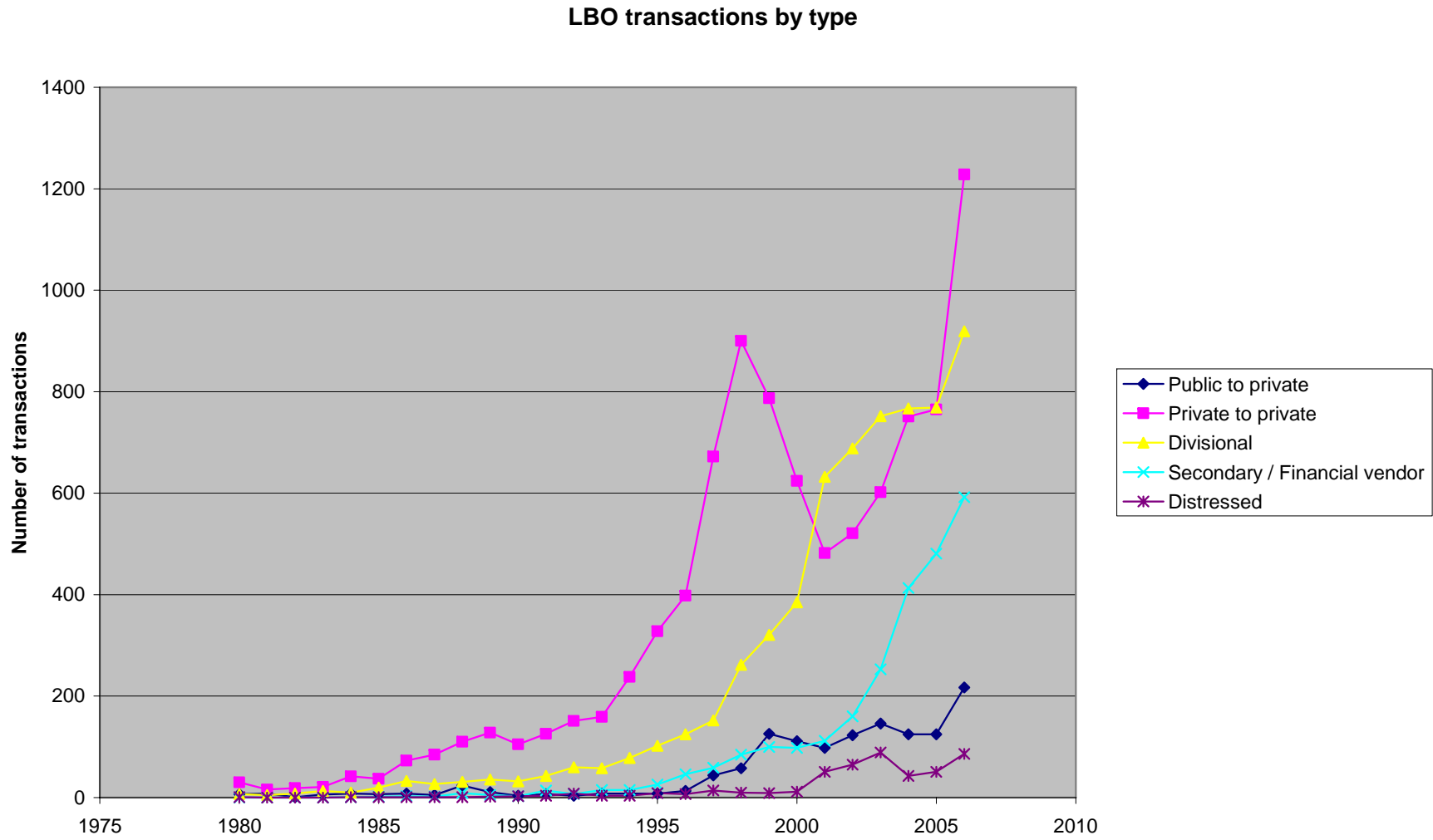


Figure 3A: Composition of LBOs over time, equally weighted transactions

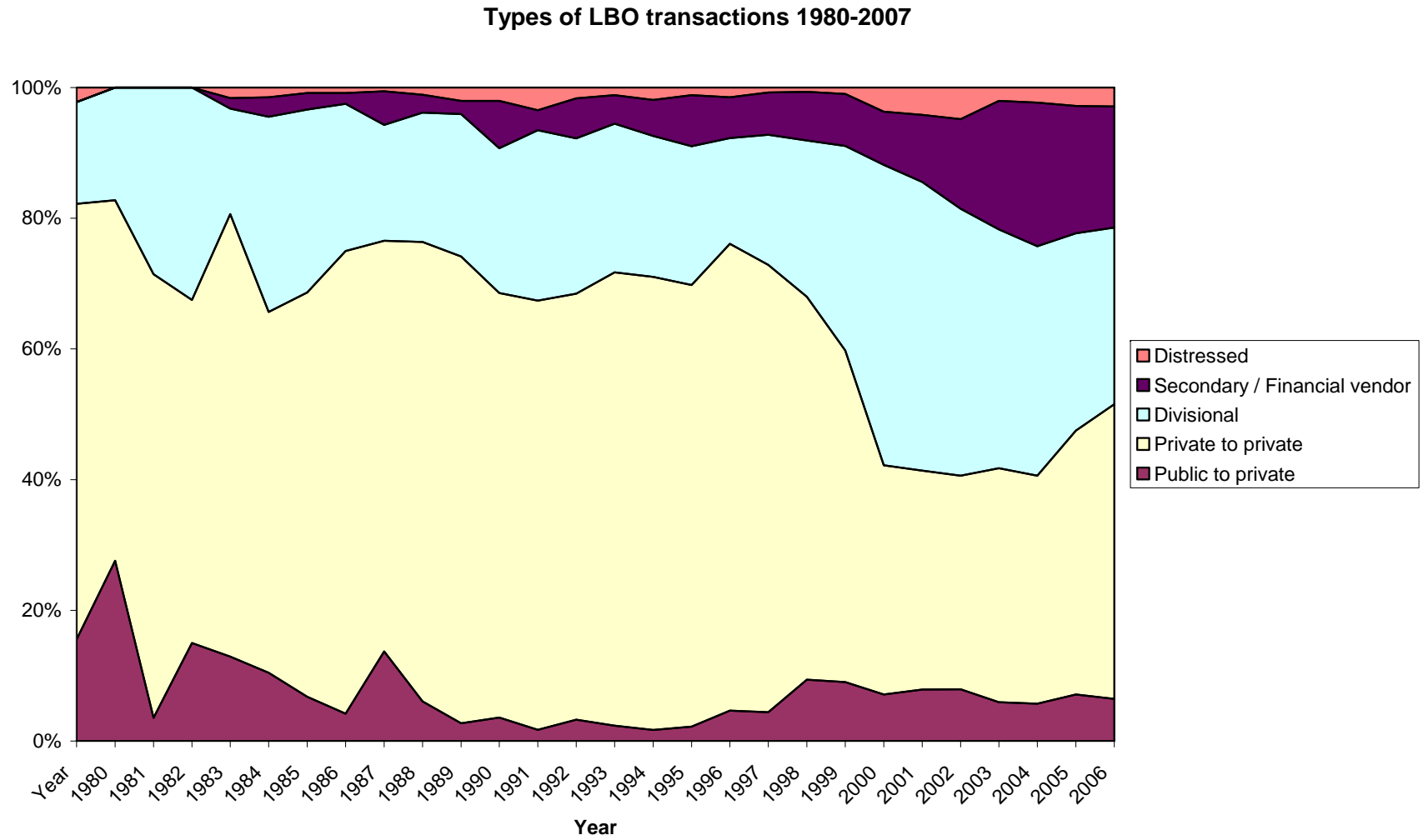


Figure 3B: Composition of LBOs over time, transactions weighted by imputed enterprise value

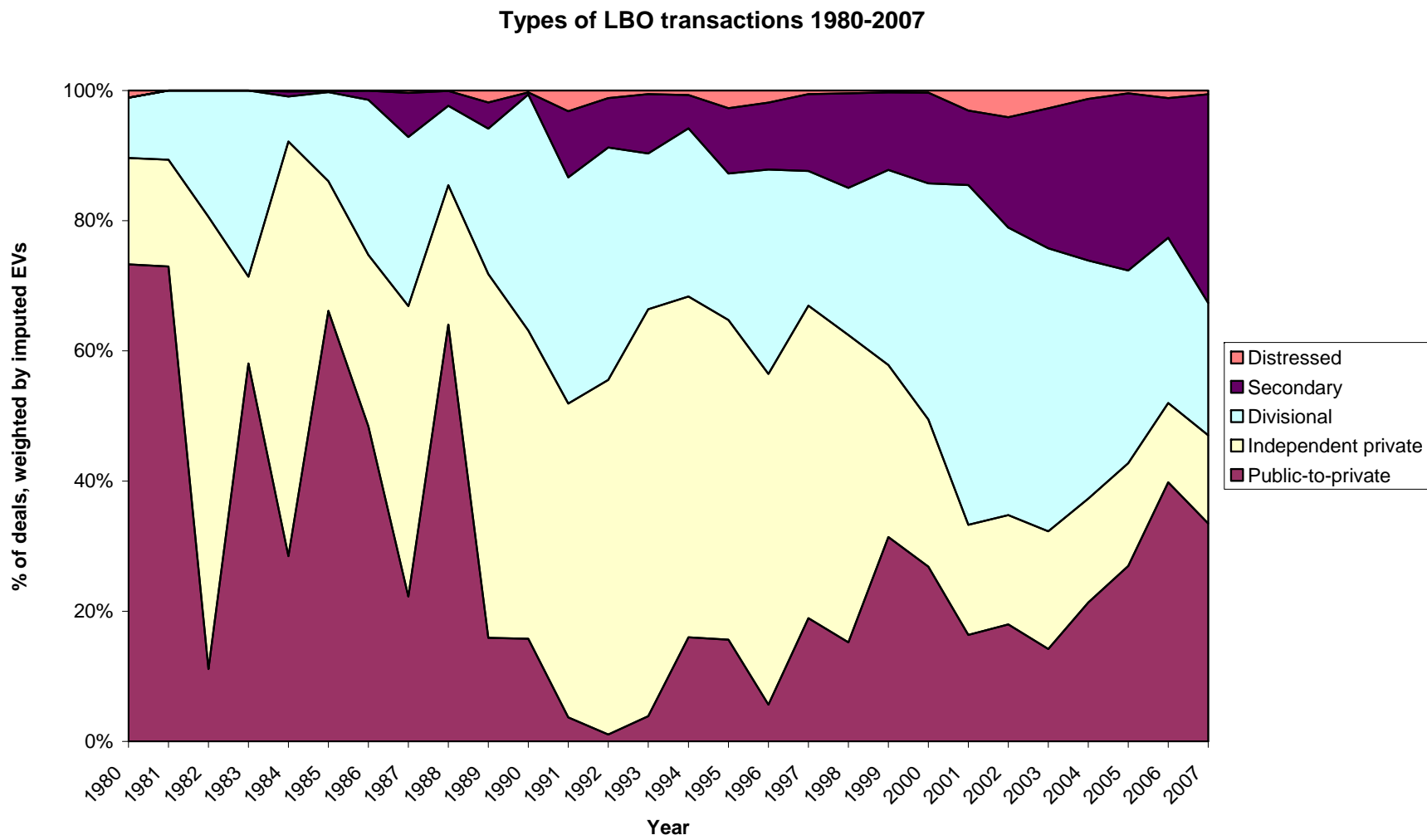


Figure 4: Stock of firms in firms in LBO ownership over time

Number of firms entering and exiting LBO ownership
Jan. 1970 to Jan. 2007

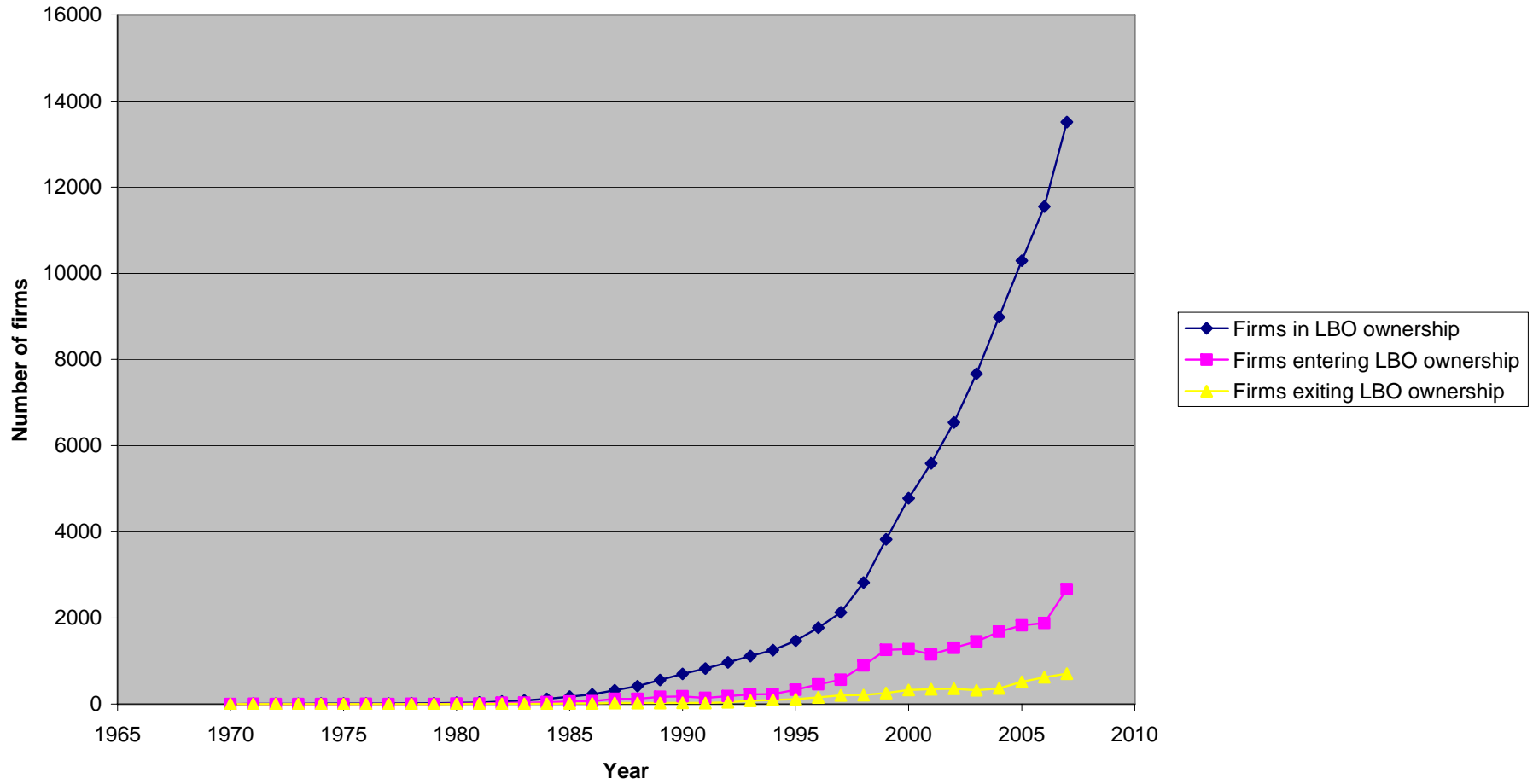


Figure 5: Firms in LBO ownership by region.

**Number of firms in LBO ownership
Jan. 1970 to Jan. 2006**

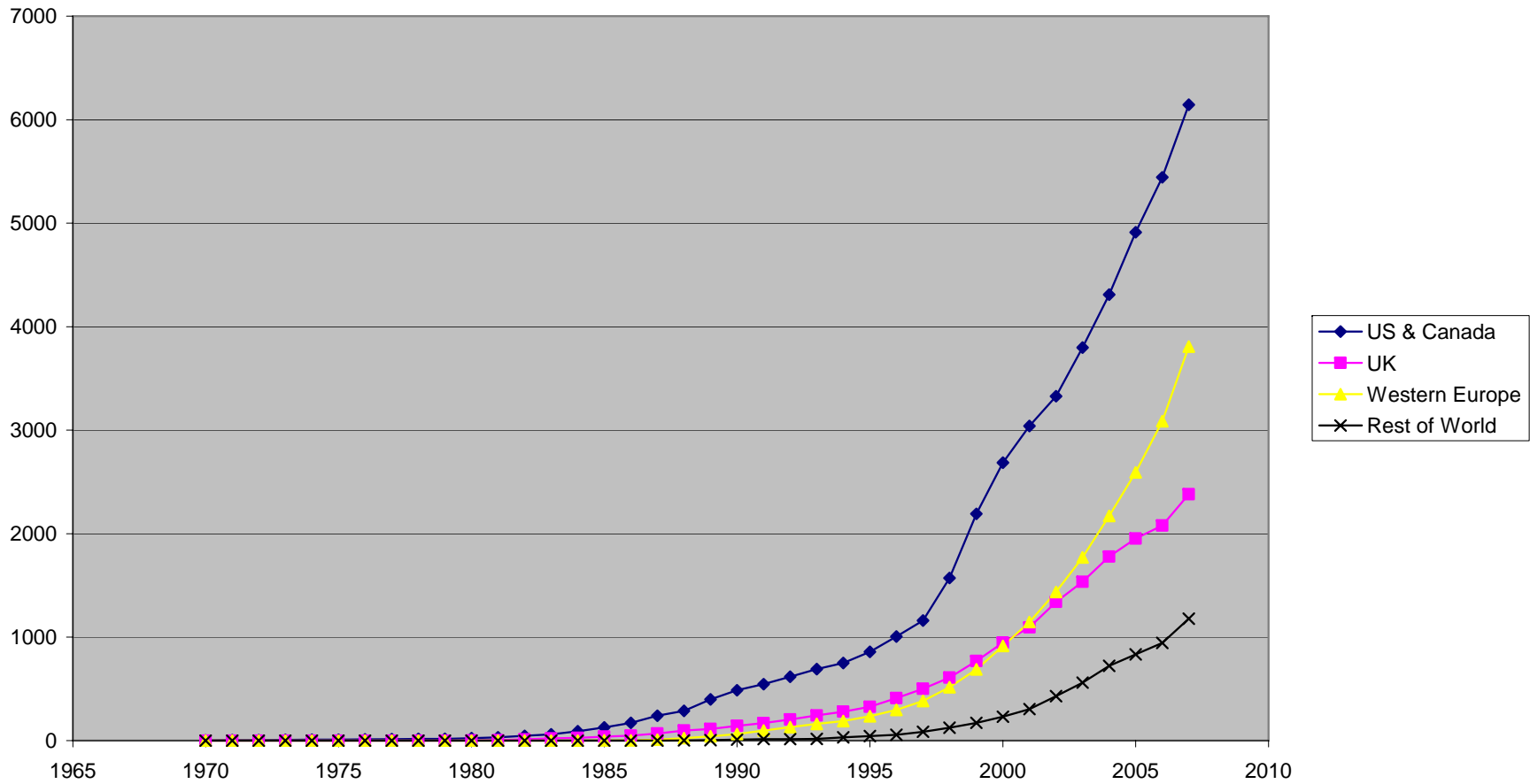


Table 1: Capital IQ 1980's coverage analysis

	Comparison study	Comparison study sampling criterion	Sample size, comp. study	Sample size, CIQ data	% coverage
U.S. Public-to-private (P2P) transactions 1980-1987	Lehn and Poulsen (1989)	Going-private transactions according to <i>WSJ</i> of firms covered by COMPUSTAT.	263	43	16%
Large U.S. P2Ps 1979-1986	Kaplan (1991)	LBOs with transaction value above \$100 million according to the SDC and Morgan Stanley data bases	183	62	34%
Large U.S. P2P transactions 1979-1986 with fin. Sponsor	Kaplan (1991)	Subsample where LBO partnership or merchant bank sponsored the deal	74	62	84%
U.S. Leverage buyout transactions 1984-1989	Cotter and Peck (2001)	LBOs according to <i>Mergers and Acquisitions</i> magazine, <i>Investment Dealers Digest</i> , and <i>WSJ</i> .	763	531	70%
U.S. Leverage buyout transactions 1981-1987	Long and Ravenscraft (1993)	LBOs of independent firms identified through the ADP/MLR Publishing M&A data base and from other academic studies	600	245	41%
U.K. and Continental European Leverage Buyouts in 1986	Wright, Renneboog, Simons, Scholes (2006)	Buyouts recorded by the Centre for Management Buyout Research (CMBOR)	167	28	17%
U.K. buyouts 1996-2000	Wright, Renneboog, Simons, Scholes (2006)	Same as above	3320	964	29%
U.K. buyouts 2001-2005	Wright, Renneboog, Simons, Scholes (2006)	Same as above	3576	1461	41%
Continental European and Scand. buyouts 1996-2000	Wright, Renneboog, Simons, Scholes (2006)	Same as above	652	1073	165%
Continental European and Scand. buyouts 2001-2005	Wright, Renneboog, Simons, Scholes (2006)	Same as above	566	2364	418%

Table 2: Magnitude and growth of LBO activity

A. LBO transactions by deal type

Number of deals

	Financial sponsor		No financial sponsor		All LBO transactions		% of deal types by period	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	1970-2000	2001-2007
Public to private	999	5.8%	400	9.5%	1399	6.7%	6.0%	6.8%
Private to private	8987	52.2%	1031	24.6%	10018	46.8%	63.8%	36.9%
Divisional buyout	4497	26.1%	2210	52.7%	6707	31.3%	22.8%	36.3%
Financial vendor	2329	13.5%	427	10.2%	2756	12.9%	6.2%	16.8%
Distressed	391	2.3%	126	3.0%	517	2.4%	1.2%	3.2%
Total number of transactions	17203		4194		21397		7915	13482
Percentage of total	80%		20%				37%	63%

Million USD (year 2007) amounts using imputed enterprise values (see Appendix I)

	Financial sponsor		No financial sponsor		All LBO transactions		% of deal types by period	
	<i>Total EV, \$million</i>	%	<i>Total EV, \$million</i>	%	<i>Total EV, \$million</i>	%	1970-2000	2001-2007
Public to private	972 433	26.8%	132 511	44.3%	1 104 944	28.2%	26.9%	28.8%
Private to private	823 699	22.7%	32 110	10.7%	855 809	21.8%	37.2%	14.7%
Divisional buyout	1 069 688	29.5%	97 904	32.7%	1 167 591	29.8%	25.9%	31.6%
Financial vendor	713 218	19.7%	34 243	11.4%	747 462	19.1%	9.4%	23.5%
Distressed	43 753	1.2%	2 334	0.8%	46 087	1.2%	0.6%	1.4%
Total enterprise value of firms acquired	3 622 792		299 102		3 921 894		1 242 629	2 679 265
Percentage of total	92%		8%				32%	68%

B. LBO transactions by region

Number of deals

	Financial sponsor	No financial sponsor	% with sponsor	All LBO transactions	% of world total		
	<i>N</i>	<i>N</i>		<i>N</i>	Whole period	1970-2000	2001-2007
United States	8031	1628	83.1%	9659	45.1%	55.1%	34.8%
Canada	334	137	70.9%	471	2.2%	1.5%	3.5%
Continental Europe	3920	699	84.9%	4619	21.6%	15.6%	17.6%
Scandinavia	829	140	85.6%	969	4.5%	3.1%	3.6%
United Kingdom	2889	1137	71.8%	4026	18.8%	20.1%	28.7%
Africa and Middle East	180	104	63.4%	284	1.3%	0.7%	2.8%
Asia	398	110	78.3%	508	2.4%	1.5%	2.8%
Australia	183	95	65.8%	278	1.3%	0.5%	2.5%
Eastern Europe	296	93	76.1%	389	1.8%	1.1%	2.5%
Latin America	143	51	73.7%	194	0.9%	0.8%	1.3%
Total	17203	4194	80.4%	21397			

Million USD (year 2007) amounts using imputed enterprise values (see Appendix I)

	Financial sponsor	No financial sponsor	% with sponsor	All LBO transactions	% of world total		
	<i>\$ million</i>	<i>\$ million</i>		<i>\$ million</i>	Whole period	1970-2000	2001-2007
United States	1 814 557	133 973	93.1%	1 948 530	49.7%	64.5%	42.8%
Canada	76 448	4 980	93.9%	81 428	2.1%	1.5%	2.4%
Continental Europe	819 626	44 587	94.8%	864 213	22.0%	13.2%	26.1%
Scandinavia	128 298	20 324	86.3%	148 623	3.8%	2.3%	4.5%
United Kingdom	539 385	62 247	89.7%	601 632	15.3%	15.0%	15.5%
Africa and Middle East	24 777	13 328	65.0%	38 105	1.0%	0.3%	1.3%
Asia	116 440	13 109	89.9%	129 549	3.3%	1.8%	4.0%
Australia	36 070	2 365	93.8%	38 435	1.0%	0.3%	1.3%
Eastern Europe	26 197	2 849	90.2%	29 045	0.7%	0.2%	1.0%
Latin America	40 994	1 340	96.8%	42 334	1.1%	0.9%	1.2%
Total	3 622 792	299 102	92.4%	3 921 894	100.0%	100.0%	100.0%

C. LBO transactions by industry

Industry distribution of LBO transactions across 38 main, ordered by rank.

	1970- 1989	1990- 1999	2000- 2007	1970- 2007	Change
Retail	13.8%	6.7%	5.7%	6.3%	-8.1%
Software and internet	3.1%	5.7%	6.2%	5.9%	3.1%
Industrial machinery	5.6%	5.8%	5.8%	5.8%	0.1%
Advanced industrial equipment	7.6%	6.1%	5.0%	5.4%	-2.6%
Hotels, Resorts and Cruise Lines, Leisure facilities, Restaurants	2.7%	3.8%	5.8%	5.2%	3.1%
Chemicals, industrial, and agricultural products, paper and forest products	7.6%	5.8%	4.7%	5.1%	-3.0%
Media, publishing, advertising	4.5%	5.2%	4.7%	4.8%	0.2%
Industrial and commercial services	2.3%	4.0%	4.7%	4.4%	2.4%
Other services	2.5%	4.1%	4.2%	4.1%	1.7%
Trading Companies and Distributors	4.2%	4.1%	4.1%	4.1%	-0.2%
Food, beverages, and tobacco	4.0%	4.5%	3.7%	3.9%	-0.2%
Financials	2.1%	2.8%	4.0%	3.6%	1.9%
Industrial and construction materials	4.9%	3.3%	3.5%	3.5%	-1.5%
Household non-durables	2.8%	4.0%	3.2%	3.4%	0.3%
Metals and mining, steel	4.0%	3.6%	2.9%	3.2%	-1.0%
Automotive	3.5%	2.8%	3.0%	3.0%	-0.5%
Transportation	2.7%	2.2%	2.8%	2.7%	0.1%
IT and data services	2.0%	2.6%	2.7%	2.7%	0.7%
Household durables	5.1%	2.5%	2.5%	2.6%	-2.5%
Construction and Engineering	2.3%	2.0%	2.8%	2.5%	0.5%
Healthcare products and equipment	2.8%	2.9%	2.1%	2.3%	-0.7%
Healthcare services and providers	0.3%	2.3%	2.4%	2.3%	2.1%
Computer and telecommunications equipment	3.4%	3.0%	2.0%	2.3%	-1.4%
Biotech, Pharmaceuticals, Life Sciences	0.8%	2.3%	1.5%	1.7%	0.7%
Multi-Sector Holdings and conglomerates	2.0%	2.1%	1.3%	1.5%	-0.7%
Infrastructure and utilities	0.4%	0.7%	1.8%	1.5%	1.4%
Real estate	0.3%	0.7%	1.7%	1.4%	1.4%
Education, Human Resource and Employment Services	0.7%	1.3%	1.5%	1.4%	0.7%
Energy	1.1%	1.3%	1.4%	1.4%	0.3%
Telecom	0.3%	1.1%	1.2%	1.2%	1.0%
Movies and Entertainment	0.4%	0.7%	1.1%	1.0%	0.7%

Table 3: Size and pricing of LBO deals

A. By time period

	<u>Enterprise value, 2007 USD</u>				<u>Implied Enterprise Value/Revenues</u>				<u>Implied Enterprise Value/EBITDA</u>			
	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>
1970-1984	287.2	72.8	103	50%				0%				0%
1985-1989	669.1	118.4	304	46%				0%				0%
1990-1994	196.5	74.1	473	41%				0%				0%
1995-1999	216.6	65.4	1952	42%	2.0	1.0	223	5%	10.6	7.7	169	4%
2000-2002	191.6	34.4	2110	51%	1.7	0.7	380	9%	10.9	6.1	225	5%
2003-2005	325.6	61.6	2635	43%	1.7	0.9	695	11%	10.5	7.6	412	7%
2006-2007	601.5	86.8	1416	32%	3.0	1.1	626	14%	12.0	9.7	335	8%

B. By LBO type

	<u>Enterprise value, 2007 USD</u>				<u>Implied Enterprise Value/Revenues</u>				<u>Implied Enterprise Value/EBITDA</u>			
	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>
Public to private	872.0	174.0	1224	87%	2.8	1.0	881	63%	11.2	7.8	761	54%
Private to private	140.3	35.5	3076	31%	1.8	0.9	245	2%	11.6	6.5	84	1%
Divisional	274.1	54.0	3307	49%	2.5	0.7	473	7%	9.4	8.1	120	2%
Financial vendor	376.2	160.1	1115	40%	1.9	1.2	291	11%	10.8	9.4	161	6%
Distressed	139.4	29.8	271	52%	0.7	0.4	46	9%	13.6	12.1	16	3%
Total	318.3	61.1	8993	42%	2.4	0.9	1936	9%	11.0	8.0	1142	5%

C. By region (2001-2007 only)

	<u>Enterprise value, 2007 USD</u>				<u>Implied Enterprise Value/Revenues</u>				<u>Implied Enterprise Value/EBITDA</u>			
	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>	<i>Mean</i>	<i>Median</i>	<i>N</i>	<i>Observed</i>
United States	389.6	63.5	2029	41%	1.8	0.9	580	12%	11.2	8.3	413	7%
Canada	308.8	39.0	162	46%	4.1	1.1	70	20%	11.4	8.1	45	13%
Continental Europe	439.0	77.6	1129	33%	1.5	1.0	417	12%	10.6	7.6	170	5%
Scandinavia	381.1	8.1	206	29%	1.5	1.1	91	13%	9.8	8.5	50	7%
United Kingdom	279.6	36.1	1315	54%	1.9	0.8	294	12%	12.4	8.5	141	6%
Africa / Middle East	239.5	25.9	126	55%	7.3	1.0	30	13%	9.2	6.2	18	8%
Asia	386.5	109.4	215	55%	9.5	0.9	52	13%	14.4	9.9	33	8%
Australia	224.3	53.9	136	57%	1.8	0.8	30	13%	9.0	8.1	19	8%
Eastern Europe	173.2	27.3	121	40%	1.5	0.7	26	9%	8.4	8.6	4	1%
Latin America	408.0	102.9	58	45%	2.7	2.0	17	13%	10.4	7.1	12	9%
Total	358.5	55.5	5497	41%	2.2	0.9	1607	12%	11.2	8.2	905	7%

Table 4: Exits of individual LBO transactions

A. By time of LBO transaction

All deals (Number and % of exits)	1970- 1984	1985- 1989	1990- 1994	1995- 1999	2000- 2002	2003- 2005	2006- 2007	Total	1970- 1984	1985- 1989	1990- 1994	1995- 1999	2000- 2002	2003- 2005	2006- 2007	Total
Bankruptcy	13	36	53	260	126	61	3	552	7%	6%	5%	8%	6%	4%	3%	6%
IPO	54	155	233	372	152	143	1	1110	28%	25%	22%	11%	8%	10%	1%	13%
Sold to strategic buyer	63	215	403	1288	759	595	43	3366	32%	34%	38%	39%	39%	41%	38%	39%
Sold to financial buyer	11	82	182	774	595	437	25	2106	6%	13%	17%	24%	30%	30%	22%	24%
Sold to LBO-backed firm	4	17	34	175	106	94	16	446	2%	3%	3%	5%	5%	6%	14%	5%
Sold to management	1	8	15	53	38	14	1	130	1%	1%	1%	2%	2%	1%	1%	2%
Other / unknown	50	112	128	350	178	105	25	948	26%	18%	12%	11%	9%	7%	22%	11%
No exit (% of all deals)	8	37	110	1389	2208	4683	4304	12739	(4%	6%	9%	30%	53%	76%	97%	60%)
With financial sponsor	1970- 1984	1985- 1989	1990- 1994	1995- 1999	2000- 2002	2003- 2005	2006- 2007	Total	1970- 1984	1985- 1989	1990- 1994	1995- 1999	2000- 2002	2003- 2005	2006- 2007	Total
Bankruptcy	13	35	52	249	97	40	2	488	7%	6%	5%	8%	6%	3%	3%	6%
IPO	53	152	232	360	142	133	1	1073	28%	25%	23%	11%	9%	11%	1%	14%
Sold to strategic buyer	60	211	387	1258	616	472	27	3031	31%	35%	38%	40%	37%	40%	35%	38%
Sold to financial buyer	10	77	178	742	521	372	13	1913	5%	13%	17%	23%	31%	31%	17%	24%
Sold to LBO-backed firm	4	17	34	167	95	78	15	410	2%	3%	3%	5%	6%	7%	19%	5%
Sold to management	1	8	15	50	31	7	1	113	1%	1%	1%	2%	2%	1%	1%	1%
Other / unknown	50	111	127	340	166	86	19	899	26%	18%	12%	11%	10%	7%	24%	11%
No exit (% of PE deals)	6	31	98	1185	1268	3348	3340	9276	3%	5%	9%	27%	43%	74%	98%	54%
Without financial sponsor	1970- 1984	1985- 1989	1990- 1994	1995- 1999	2000- 2002	2003- 2005	2006- 2007	Total	1970- 1984	1985- 1989	1990- 1994	1995- 1999	2000- 2002	2003- 2005	2006- 2007	Total
Bankruptcy	0	1	1	11	29	21	1	64	0%	7%	4%	10%	10%	8%	3%	9%
IPO	1	3	1	12	10	10	0	37	20%	21%	4%	11%	3%	4%	0%	5%
Sold to strategic buyer	3	4	16	30	143	123	16	335	60%	29%	70%	28%	50%	47%	44%	46%
Sold to financial buyer	1	5	4	32	74	65	12	193	20%	36%	17%	30%	26%	25%	33%	26%
Sold to LBO-backed firm	0	0	0	8	11	16	1	36	0%	0%	0%	8%	4%	6%	3%	5%
Sold to management	0	0	0	3	7	7	0	17	0%	0%	0%	3%	2%	3%	0%	2%
Other / unknown	0	1	1	10	12	19	6	49	0%	7%	4%	9%	4%	7%	17%	7%
No exit (% of MBO deals)	2	6	12	204	940	1335	964	3463	29%	30%	34%	66%	77%	84%	96%	83%

B. By LBO type and region (1970-2002 only)

	Number of transactions by LBO type						Percentage of exited transactions					
	Public to private	Private to private	Division	Financial vendor	Distress	Total	Public to private	Private to private	Division	Financial vendor	Distress	Total
Bankruptcy	36	296	97	39	20	488	9%	7%	5%	7%	16%	7%
IPO	69	559	268	59	11	966	16%	13%	15%	11%	9%	14%
Fin. Buyer	120	914	419	169	22	1644	29%	22%	23%	32%	17%	23%
LBO-backed corporate buyer	16	188	100	27	5	336	4%	5%	5%	5%	4%	5%
Sold to mgmt	9	58	35	12	1	115	2%	1%	2%	2%	1%	2%
Strategic buyer	142	1538	804	191	53	2728	34%	37%	44%	37%	41%	38%
Other / unknown	28	623	125	25	17	818	7%	15%	7%	5%	13%	12%
							100%	100%	100%	100%	100%	100%
Total exited	420	4176	1848	522	129	7095	60%	69%	59%	69%	62%	65%
No exit	277	1876	1280	240	79	3752	40%	31%	41%	31%	38%	35%
							100%					
	US and Canada	UK	Continent Europe & Scandin.	Rest of World	Total		US and Canada	UK	Continent Europe & Scandin.	Rest of World	Total	
Bankruptcy	330	112	38	8	488	9%	9%	8%	3%	2%	7%	
IPO	588	165	147	66	966	15%	15%	11%	10%	19%	14%	
Fin. Buyer	763	333	490	58	1644	20%	20%	22%	34%	17%	23%	
LBO-backed corporate buyer	230	52	46	8	336	6%	6%	3%	3%	2%	5%	
Sold to mgmt	33	41	36	5	115	1%	1%	3%	3%	1%	2%	
Strategic buyer	1444	630	510	144	2728	38%	38%	42%	36%	42%	38%	
Other / unknown	451	155	161	51	818	12%	12%	10%	11%	15%	12%	
						100%	100%	100%	100%	100%	100%	
Total exited	3839	1488	1428	340	7095	68%	68%	67%	62%	52%	65%	
No exit	1830	741	862	319	3752	32%	32%	33%	38%	48%	35%	

Table 5: Holding periods for individual LBO transactions

	Exited deals only			% of exited and non-exited deals					
	Mean (months)	Median (months)	N	<u>All LBO transactions</u>		Exit within 12 months	Exit within 24 months	Exit within 60 months	
				Minimum (months)	Maximum (months)				
1970-1984	87	63	118	4	323	1.6%	13.5%	46.0%	
1985-1989	80	72	466	2	246	2.0%	11.3%	39.2%	
1990-1994	61	52	849	3	204	3.9%	13.8%	52.1%	
1995-1999	54	50	2624	1	145	3.1%	12.4%	39.2%	
2000-2002	43	43	1563	1	89	2.5%	7.5%	33.3%	
2003-2005	24	24	1156	1	55	2.7%	11.0%		
2006-2007	9	10	58	1	17	2.0%			
Total	49	42	6834	1	323	2.7%	10.7%	38.7%	
<u>LBO transactions with an LBO-fund sponsor</u>									
Period7	Mean (months)	Median (months)	N	Minimum (months)	Maximum (months)	Exit within 12 months	Exit within 24 months	Exit within 60 months	
1970-1984	87	63	114	4	323	1.7%	14.2%	46.7%	
1985-1989	80	72	453	2	246	2.1%	11.8%	40.1%	
1990-1994	60	51	830	3	204	4.0%	14.2%	53.3%	
1995-1999	54	50	2550	1	145	3.2%	12.9%	40.9%	
2000-2002	43	43	1367	1	89	2.7%	9.0%	40.4%	
2003-2005	25	24	998	1	54	2.9%	12.8%		
2006-2007	9	10	47	1	17	2.1%			
Total	50	42	6359	1	323	2.9%	12.0%	42.4%	
<u>LBO transactions without an LBO-fund sponsor</u>									
Period7	Mean (months)	Median (months)	N	Minimum (months)	Maximum (months)	Exit within 12 months	Exit within 24 months	Exit within 60 months	
1970-1984	95	65	4	30	220	0.0%	0.0%	33.3%	
1985-1989	86	80	13	27	159	0.0%	0.0%	15.8%	
1990-1994	98	96	19	35	198	0.0%	0.0%	16.1%	
1995-1999	55	53	74	2	133	1.8%	5.0%	15.8%	
2000-2002	40	40	196	1	89	1.9%	4.0%	15.3%	
2003-2005	23	22	158	1	55	2.1%	6.3%		
2006-2007	8	8	11	2	17	1.6%			
Total	40	34	475	1	220	1.9%	5.1%	15.6%	

Table 6: Determinants of exit success for individual transactions

This table shows the results from logit regressions of the likelihood of a certain exit type on deal and sponsor characteristics as well as country and time fixed effects. “Successful exit” is defined by IPO or acquisition by strategic or financial buyer. “Bankrupt” is defined as bankruptcy or financial reorganization/restructuring. For the deal type the omitted variable is “Independent private firm,” and for the time fixed effects the omitted category is “1970-1984.” For the dummy variables, the coefficients are the change in probability (in %) of changing the value from 0 to 1, and for the other variables it is the effect of an marginal increase of one unit. P-values are calculated using White robust standard errors (STDE).

Dependent variable:	Successful exit within 24 months			Successful exit within 84 months			Bankrupt by 11/2007 (1970-2002 obs only)		
	(1)			(2)			(3)		
	dY/dX	STDE	P-value	dY/dX	STDE	P-value	dY/dX	STDE	P-value
Public-to-private	-1.30	0.97	0.183	2.64	2.56	0.302	0.56	0.76	0.461
Divisional	1.15	0.59	0.051	11.70	1.46	0.000	-0.83	0.42	0.050
Secondary	2.69	0.91	0.003	16.21	2.47	0.000	0.87	0.77	0.258
Distressed	-1.57	1.57	0.318	1.37	5.51	0.804	5.22	1.96	0.008
Financial sponsor dummy	5.49	0.62	0.000	24.97	2.02	0.000	1.35	0.51	0.007
Yrs of sponsor experience	0.22	0.04	0.000	0.93	0.11	0.000	0.00	0.03	0.895
Syndicated deal	1.53	0.62	0.013	11.91	1.47	0.000	-0.42	0.43	0.331
Public fund sponsor	-3.34	0.66	0.000	-7.87	1.94	0.000	1.28	0.76	0.090
U.S.	1.86	1.10	0.090	3.73	2.83	0.188	5.78	1.51	0.000
Canada	3.10	2.58	0.228	3.83	5.63	0.496	7.26	5.04	0.149
U.K.	1.16	1.26	0.357	5.10	3.11	0.101	7.26	2.86	0.011
Continental Europe	1.03	1.24	0.404	-0.08	3.10	0.979	0.55	1.59	0.729
Scandinavia	1.52	1.83	0.405	11.17	4.29	0.009	2.76	2.93	0.346
1985-89	-1.88	2.01	0.351	3.08	4.21	0.465	-0.29	1.13	0.801
1990-95	-0.38	2.18	0.861	12.64	3.92	0.001	-0.23	1.08	0.835
1996-99	-2.19	1.98	0.269	2.31	3.76	0.538	0.19	1.09	0.860
2000-02	-5.27	1.74	0.002	2.36	4.03	0.557	-1.21	1.04	0.244
2003-05	-2.38	2.04	0.243						
	<i>N=13905</i>	<i>Ps.R²</i>	<i>=0.03</i>	<i>N=7915</i>	<i>Ps.R²</i>	<i>=0.05</i>	<i>N=10847</i>	<i>Ps.R²</i>	<i>=0.04</i>
	(4)			(5)			(6)		
	dY/dX	STDE	P-value	dY/dX	STDE	P-value	dY/dX	STDE	P-value
Public-to-private	-2.83	0.89	0.001	-5.92	2.60	0.023	0.31	0.80	0.700
Divisional	0.49	0.59	0.404	8.84	1.49	0.000	-0.86	0.43	0.045
Secondary	1.25	0.86	0.144	10.49	2.58	0.000	0.75	0.79	0.341
Distressed	-1.54	1.56	0.323	2.69	5.74	0.640	5.29	1.98	0.007
Financial sponsor dummy	4.32	0.72	0.000	21.35	2.28	0.000	1.30	0.54	0.016
Yrs of sponsor experience	0.17	0.04	0.000	0.68	0.11	0.000	-0.00	0.03	0.982
Syndicated deal	0.82	0.60	0.176	8.71	1.52	0.000	-0.48	0.44	0.281
Public fund sponsor	-2.91	0.68	0.000	-5.43	1.99	0.006	1.36	0.77	0.079
Log EV, imputed	1.07	0.22	0.000	5.24	0.52	0.000	0.10	0.16	0.530
U.S.	1.40	1.09	0.198	0.98	2.88	0.733	5.71	1.51	0.000
Canada	2.76	2.51	0.272	1.88	5.67	0.740	7.28	5.05	0.149
U.K.	1.50	1.28	0.240	6.42	3.15	0.041	7.21	2.84	0.011
Continental Europe	0.86	1.21	0.480	-1.28	3.11	0.681	0.52	1.58	0.743
Scandinavia	1.18	1.77	0.503	8.57	4.37	0.050	2.67	2.90	0.358
1985-89	-2.33	1.89	0.217	0.47	4.19	0.910	-0.34	1.12	0.763
1990-95	-0.15	2.21	0.945	13.76	3.94	0.000	-0.22	1.08	0.841
1996-99	-1.83	2.00	0.358	4.08	3.78	0.281	0.22	1.09	0.838
2000-02	-4.84	1.76	0.006	4.92	4.09	0.229	-1.18	1.04	0.258
2003-05	-1.99	2.05	0.332						
	<i>N=13883</i>	<i>Ps.R²</i>	<i>=0.03</i>	<i>N=7912</i>	<i>Ps.R²</i>	<i>=0.06</i>	<i>N=10834</i>	<i>Ps.R²</i>	<i>=0.04</i>

B. By the type of the original LBO transaction (1970-2002 transactions only)

	By LBO type											
	Publ. to private	Private to private	Division	Financial vendor	Distress	All LBO types	Publ. to private	Private to private	Division	Financial vendor	Distress	All LBO types
Acquired by strategic buyer	124	1619	757	61	42	2603	22%	29%	31%	26%	30%	29%
Independent private company	30	645	126	14	15	830	5%	12%	5%	6%	11%	9%
Went bankrupt	37	316	93	19	15	480	7%	6%	4%	8%	11%	6%
Went public	72	604	282	21	12	991	13%	11%	12%	9%	8%	11%
Still in LBO ownership form	302	2307	1176	116	58	3959	53%	42%	48%	50%	41%	45%
All exits	565	5491	2434	231	142	8863	100%	100%	100%	100%	100%	100%

C. By the location of the LBO firm (1970-2002 transactions only)

	By region									
	US & Canada	UK	W. Eur. & Scand.	Rest of world	All regions	US & Canada	UK	W. Eur. & Scand.	Rest of world	All regions
Acquired by strategic buyer	1388	622	467	126	2603	29%	34%	26%	25%	29%
Independent private company	458	163	159	50	830	10%	9%	9%	10%	9%
Went bankrupt	324	112	36	8	480	7%	6%	2%	2%	6%
Went public	611	172	147	61	991	13%	9%	8%	12%	11%
Still in LBO ownership form	1989	756	964	250	3959	42%	41%	54%	51%	45%
All exits	4770	1825	1773	495	8863	100%	100%	100%	100%	100%

Table 8: Ultimate holding periods in LBO ownership. Fraction of firms exiting the LBO ownership form.

		<u>All LBO firms</u>									
Exit within		12 months	24 months	36 months	48 months	60 months	72 months	84 months	96 months	108 months	120 months
1970-1984		2%	13%	21%	34%	43%	48%	54%	55%	59%	64%
1985-1989		2%	10%	18%	24%	32%	39%	48%	54%	59%	65%
1990-1994		3%	12%	26%	36%	44%	52%	56%	60%	64%	67%
1995-1999		2%	10%	18%	24%	29%	35%	39%	43%	49%	56%
2000-2002		2%	5%	10%	16%	21%	27%	32%			
2003-2005		2%	7%	13%	18%						
2006-2007		1%									
Total		2%	8%	15%	22%	28%	36%	42%	48%	54%	61%
	<i>N</i>	15819	13541	11781	10119	8580	7253	6142	5101	4070	2999
		<u>Firms with PE-fund sponsor</u>									
Exit within		12 months	24 months	36 months	48 months	60 months	72 months	84 months	96 months	108 months	120 months
1970-1984		2%	14%	21%	35%	44%	50%	55%	56%	60%	65%
1985-1989		2%	10%	18%	25%	33%	39%	49%	55%	60%	67%
1990-1994		3%	13%	27%	37%	45%	53%	57%	61%	64%	68%
1995-1999		2%	11%	19%	25%	31%	36%	41%	45%	50%	56%
2000-2002		2%	6%	12%	19%	25%	31%	34%			
2003-2005		2%	8%	16%	23%						
2006-2007		1%									
Total		2%	9%	17%	25%	31%	38%	44%	49%	55%	62%
	<i>N</i>	12576	10794	9429	8288	7344	6540	5725	4831	3917	2920
		<u>Firms without PE-fund sponsor</u>									
Exit within		12 months	24 months	36 months	48 months	60 months	72 months	84 months	96 months	108 months	120 months
1970-1984		0%	0%	29%	29%	29%	29%	29%	43%	43%	43%
1985-1989		0%	0%	0%	0%	0%	13%	13%	20%	20%	27%
1990-1994		0%	0%	5%	5%	5%	5%	15%	25%	25%	35%
1995-1999		1%	4%	7%	9%	12%	13%	15%	18%	24%	30%
2000-2002		2%	3%	6%	9%	12%	14%	21%			
2003-2005		2%	5%	7%	9%						
2006-2007		1%									
Total		2%	4%	7%	9%	12%	13%	17%	20%	25%	32%
	<i>N</i>	3243	2747	2352	1831	1236	713	417	270	153	79

Table 9: Determinants of staying power of LBOs

This table shows the results from logit regressions of the likelihood of a the firm leaving LBO status on deal and sponsor characteristics as well as country and time fixed effects. For the deal type the omitted variable is “Independent private firm,” and for the time fixed effects the omitted category is “1970-1984.” For the dummy variables, the coefficients are the change in probability (in %) of changing the value from 0 to 1, and for the other variables it is the effect of a marginal increase of one unit. P-values are calculated using White robust standard errors (STDE).

Dependent variable	(1)			(2)			(3)		
	Firm exited LBO ownership within 9 years			Firm exited LBO ownership within 9 years			Firm exited LBO ownership within 5 years		
	dY/dX	STDE	P-value	dY/dX	STDE	P-value	dY/dX	STDE	P-value
Public-to-private	1.692	3.821	0.658	-4.831	4.075	0.236	-3.678	2.049	0.073
Divisional	9.226	2.009	0.000	7.204	2.068	0.000	3.482	1.209	0.004
Secondary	-0.250	5.943	0.966	-3.853	5.952	0.517	2.801	3.204	0.382
Distressed	8.847	6.588	0.179	9.122	6.805	0.180	8.026	4.243	0.059
Financial sponsor dummy	25.165	4.189	0.000	21.948	4.477	0.000	13.623	1.529	0.000
Yrs of sponsor experience	1.081	0.156	0.000	0.863	0.161	0.000	0.412	0.090	0.000
Syndicated deal	11.096	2.012	0.000	8.640	2.087	0.000	4.269	1.280	0.001
Public fund sponsor	-10.582	2.952	0.000	-8.309	2.999	0.006	-4.351	1.591	0.006
Log EV, imputed				4.235	0.752	0.000	2.151	0.424	0.000
U.S.	5.949	4.377	0.174	3.662	4.457	0.411	0.186	2.181	0.932
Canada	15.168	7.091	0.032	12.677	7.479	0.090	5.998	4.629	0.195
U.K.	4.636	4.642	0.318	5.675	4.685	0.226	0.500	2.380	0.834
Continental Europe	-7.117	4.858	0.143	-8.125	4.896	0.097	-7.487	2.108	0.000
Scandinavia	18.241	5.473	0.001	16.198	5.748	0.005	1.837	3.399	0.589
1985-89	-1.681	5.278	0.750	-4.001	5.343	0.454	-9.941	3.072	0.001
1990-95	-1.830	4.986	0.714	-1.030	5.022	0.837	-2.588	3.619	0.475
1996-99	-13.205	4.794	0.006	-11.729	4.857	0.016	-11.717	3.494	0.001
2000-02							-15.386	3.310	0.000
	<i>N=4070</i>	<i>Ps.R²</i>	<i>=0.05</i>	<i>N=4068</i>	<i>Ps.R²</i>	<i>=0.05</i>	<i>N=8569</i>	<i>Ps.R²</i>	<i>=0.05</i>
		(4)			(5)			(6)	
	Firm exited LBO ownership within 3 years			Firm exited to public market (1970-2002 deals only)			Firm exited to public market (1970-2002 deals only)		
	dY/dX	STDE	P-value	dY/dX	STDE	P-value	dY/dX	STDE	P-value
Public-to-private	-2.430	1.285	0.059	2.427	1.374	0.077	-1.944	0.936	0.038
Divisional	2.476	0.774	0.001	2.062	0.705	0.003	0.429	0.635	0.499
Secondary	0.756	1.797	0.674	0.551	2.053	0.788	-1.426	1.520	0.348
Distressed	1.429	2.323	0.538	-0.421	2.356	0.858	-0.310	2.237	0.890
Financial sponsor dummy	7.127	0.928	0.000	3.472	1.113	0.002	1.135	1.377	0.410
Yrs of sponsor experience	0.212	0.057	0.000	0.433	0.049	0.000	0.289	0.050	0.000
Syndicated deal	2.829	0.841	0.001	6.754	0.902	0.000	4.251	0.815	0.000
Public fund sponsor	-3.009	0.999	0.003	-2.254	0.805	0.005	-0.933	0.864	0.281
Log EV, imputed	0.942	0.275	0.001				2.583	0.241	0.000
U.S.	0.733	1.341	0.585	-3.381	1.209	0.005	-4.277	1.196	0.000
Canada	1.836	2.792	0.511	0.590	2.441	0.809	-0.120	2.185	0.956
U.K.	-0.418	1.452	0.773	-5.993	0.860	0.000	-5.069	0.873	0.000
Continental Europe	-3.007	1.317	0.022	-5.105	0.870	0.000	-5.021	0.819	0.000
Scandinavia	-1.447	1.939	0.456	-3.006	1.323	0.023	-3.370	1.146	0.003
1985-89	-3.160	2.441	0.196	-1.836	1.162	0.114	-2.726	0.994	0.006
1990-95	2.005	2.998	0.504	-4.453	0.935	0.000	-3.861	0.938	0.000
1996-99	-2.347	2.541	0.356	-13.041	1.376	0.000	-11.637	1.351	0.000
2000-02	-7.399	2.299	0.001	-13.712	0.912	0.000	-12.176	0.901	0.000
2003-05	-4.331	2.355	0.066						
	<i>N=11761</i>	<i>Ps.R²</i>	<i>=0.04</i>	<i>N=8863</i>	<i>Ps.R²</i>	<i>=0.11</i>	<i>N=8856</i>	<i>Ps.R²</i>	<i>=0.13</i>

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Appendix 1: Imputed enterprise values

This table displays the results from a Heckman (1979) maximum likelihood estimation of the log Enterprise Value in the LBO transaction on independent variables. The predicted values from this regression are used to calculate imputed valuations for the observation where enterprise value is missing. For the dummy variables measuring LBO type and location, the omitted categories are “Public-to-private” and “Africa/Middle East,” respectively.

Dependent variable: Log(Enterprise Value)	(Number of uncensored obs. = 8959)		
	<i>Coefficient</i>	<i>Stdev</i>	<i>P-value</i>
Private to private	-1.321	0.165	0.000
Divisional	-0.860	0.106	0.000
Financial vendor	-0.244	0.136	0.072
Distressed	-1.590	0.136	0.000
Financial sponsor	0.964	0.066	0.000
Public investment fund	-0.342	0.061	0.000
Indep. private investm.fund	0.217	0.049	0.000
Age of financial sponsor	0.040	0.004	0.000
Sponsor with >20 deals	0.318	0.056	0.000
Syndicated transaction	0.560	0.052	0.000
Asia	0.717	0.161	0.000
Australia	0.162	0.182	0.373
CE	0.341	0.146	0.019
Canada	0.284	0.172	0.098
EE	-0.424	0.182	0.020
LA	0.624	0.212	0.003
Scandinavia	0.459	0.175	0.009
UK	-0.096	0.134	0.473
US	0.577	0.137	0.000
Year Fixed Effects	Yes		
Industry Fixed Effects	Yes		
<i>Selection model (N = 21366)</i>			
Private to private	-1.679	0.046	0.000
Divisional	-1.103	0.046	0.000
Financial vendor	-1.357	0.050	0.000
Distressed	-1.013	0.071	0.000
Asia	-0.094	0.097	0.333
Australia	-0.029	0.110	0.792
CE	-0.532	0.081	0.000
Canada	-0.303	0.099	0.002
EE	-0.183	0.102	0.074
LA	-0.124	0.121	0.306
Scandinavia	-0.674	0.090	0.000
UK	0.118	0.081	0.148
US	-0.398	0.080	0.000
Syndicated transaction	0.297	0.024	0.000
Public investment fund	0.179	0.035	0.000
Independent private investment fund	0.036	0.027	0.182
Age of financial sponsor	0.023	0.002	0.000
Financial sponsor	0.189	0.033	0.000
LBO post-1990	-0.061	0.054	0.258
LBO post-1997	-0.100	0.036	0.005
LBO post-2000	0.137	0.029	0.000
LBO post-2004	-0.317	0.023	0.000
Constant	1.242	0.101	0.000

