

Fund Managers under Pressure: Rationale for Secondary Buyouts

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Abstract

Private equity funds are expected to invest in deals that maximize returns for their investors and to realize those returns when they exit their investments. During the last decade an increasing fraction of PE exits have been secondary deals, in which one PE fund sells their portfolio company to another PE fund. On a comprehensive sample of 9,771 LBO deals in the U.S. and in 12 European countries from 1980 to 2010, this paper investigates to what extent secondary deals are outcomes of opportunistic behavior of the sponsor and/or adverse incentives of the PE contract. We report evidence that a secondary deal is significantly more likely if the buyer fund is under pressure to invest and/or if the seller fund is under pressure to exit. Our index for deal pressure measures how close is a fund to the end of its lifecycle/investment period, its degree of inactivity/unused funds and its lack of reputation. Deal pressure also has an impact on deal valuation: Buyers under pressure pay relatively more for the secondary deals that they enter into, while sellers under pressure are willing to accept lower prices for their portfolio firms in secondary buyouts. The latter effect is dominated by the former suggesting that sellers have more bargaining power in secondary transactions.

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Introduction

The private equity (PE) industry has enjoyed tremendous growth in the last three decades, and is now estimated to encompass more than 13,000 funds with around 3 trillion dollars of assets under management,¹ of which roughly three quarters are dedicated to leveraged buyouts (LBOs). As the industry expanded during the last decade, one particular segment that has grown at even higher rate is secondary buyouts (SBOs), private equity transactions in which one PE fund sells its portfolio company to another PE fund. In our sample, SBOs constitute more than 20% of LBO activity and more than one-third of observed LBO exits in recent years.

While the rate of increase in secondary buyouts is puzzling, it is not a priori obvious what motivates PE funds to invest/exit this way. According to Jensen (1989) private equity funds have superior governance structures and incentive mechanisms, so it would follow that when they engage in secondary transactions, it is in the best interest of their investors. If, for example, PE funds specialize to add value at different stages of restructuring, then funds specializing in the first stage of the process would sell to funds specializing in the second stage and each fund would create value for its own investors along the way. Alternatively, some GPs may have unique skills that others do not possess, so their funds would take over firms from other PE funds when their special skills are needed and generate additional returns. Thirdly, more reputable funds may be able to succeed when other less experienced, less reputable ones do not, for example, they may have access to more deal financing at a cheaper rate, so investing in secondary deals would add value for these reputable funds.

A second view, in contrast, would suggest that these types of deals are likely to be chosen by self-serving GPs who place their own interest in front of their investors.² According to this view, less talented, less reputable private equity players pass unsuccessful portfolio companies from one fund to another aiming to window-dress their fund's investment and performance in order to collect management fees and to raise their next fund. When a PE fund cannot exit an investment via trade sale, merger or IPO, it may enlist another PE fund as a "white knight" to acquire its portfolio company at a good price and possibly promise a similar transaction at a later date in return. On the buy side, when a PE fund has been unsuccessful to invest in traditional deals, it may resort to secondary buyout which is quicker to complete, fills the fund's investment record and reduces non-invested capital. This view suggests that private equity contracts do not alleviate all conflicts of interests between GPs and LPs and potentially may give rise to adverse incentives for the GPs.

To investigate the motives of the sellers' and buyers' in secondary deals we put together a comprehensive dataset of 9,771 LBO transactions involving 8,758 target firms and 970 different PE acquirers. We extracted from S&P's Capital IQ database all closed LBO transactions with targets

¹ Source: Prequin, *Private Equity Spotlight* August 2012.

² See e.g. The Economist, "*Private-equity companies look to each other to solve their problems*", February 23 2010.

located in the U.S. and in 12 European countries from 1980 to 2010. We downloaded from Capital IQ data on corporate events for each target (bankruptcies, equity private placements, and mergers) and complemented this data with information on Initial Public Offerings (IPOs) from Thomson-Reuters' Securities Data Corporation (SDC) database. We constructed an "event history" of known corporate actions for each firm after the LBO, allowing us to identify the type and date of exit of the initial LBO investor. Our final sample contains 4,328 exits, of which 1,274 are secondary LBOs.

To identify which PE funds are more prone to conflict of interests and adverse incentives for window dressing, we study the contractual provisions in partnership agreements between GPs and LPs and how they impact the cross-section of PE funds. The typical fund has a lifetime of 10 years, after which it is dissolved with the remaining proceeds to be distributed among the LPs and the GPs. Any investment not exited before the end of the fund's life is written off or liquidated. The closer is the fund to the end of its life, the more pressure the GPs face to sell their remaining portfolio investments. This is particularly true for funds that have not had successful exits in recent years and are desperate to window-dress their record. These incentives are likely to be stronger for funds with less reputational capital at stake.

The partnership agreements include strong incentives for the buy side as well. The GPs are expected to make investments only during the first five years of the fund's life, called the investment period. The management fee is set to incentivize them to do so. While the GPs are paid as management fee a percentage of the size of the fund or committed capital during the investment period, in later years the basis for the management fee is replaced with the invested capital. The later the fund invests, the less time the GPs have left to add value and realize returns, so this provision is meant to induce GPs starting their funds to make early investments. However, for PE funds close to the end of their fifth year with substantial "dry powder" this provision creates adverse incentives to enter whatever deal they can find in order to lock in their management fee.

To continue operation beyond the ten-year life of a fund, PE sponsors aim to raise a new fund every three-to-five years. This overlapping fund structure is critical to stay in business. Their ability to raise the next fund affects the GPs reputation, continued access to deal flow and favorable terms in deal financing. The pressure of being reevaluated every three-to-five years is part of the incentive mechanism to induce the GPs to make timely investments early in the life of their fund and to realize attractive returns later. Prospective LPs not only look at past performance and track record of previous funds but also the rate of investment in the sponsor's young funds. If the most recent fund nearing the end of its investment period still sits on a lot of unspent capital, the GP will have a hard time to raise a new fund. This puts further pressure on PE funds late in their investment period to invest in order to use up their "dry powder" and to window-dress their record. This suggests a conflict of interest between the GP and their LPs, since the potentially self-serving substandard investments at the end of

the investment period would compromise future LP returns. These adverse incentives are likely to be stronger for funds with less reputational capital to lose.

To test the hypothesis whether secondary deals are more prone to opportunistic behavior by PE funds, we construct two composite indexes of characteristics that identify the type of funds most likely affected by adverse incentives and/or conflicts of interests. One of our indexes aims to capture a PE fund's pressure to invest (buy), while the other proxies for the GP's pressure to exit (sell). We predict that GPs are more likely to be under pressure to invest, if their fund is reaching the end of the investment period, if they have substantial non-invested capital, and/or if they have less reputational capital at stake. Similarly, we predict that GPs are more likely to be under pressure to sell if their funds are near the end of its life, if it had little recent exit activity, and/or if it has not built up a lot of reputational capital. We conjecture that buyers under pressure to invest are likely to pay higher prices, whereas sellers under pressure to exit are likely to accept lower prices for their portfolio companies. Finding no evidence for opportunistic behavior would provide support for Jensen's view that the GPs and LPs interests are well aligned and secondary transactions are driven by shareholder value maximizing strategies of the GPs, or if there is an agency problem, its nature is different.

Our empirical analysis documents that secondary purchases are more likely to involve buyers under pressure. The regression coefficients indicate that a one unit change in our index of buying pressure increases the likelihood of an SBO from 16.5% to 19.5%, or about 18% of the unconditional probability. Simultaneously, we find that buying pressure has an impact on SBO valuations. PE funds under pressure to invest pay relatively more for secondary buyouts, with a one unit shock in the index increasing the excess purchase multiple (relative to comparable M&A transactions) by about 10%.

Regarding sellers, we find that an exit through a secondary deal is more likely if the seller is under pressure: an increase of one unit shock in our index increases the likelihood of an SBO exit from 29.4% to 33%, or a 12% increase. We also find some evidence that sellers under pressure sell at lower prices, but the evidence in this regard is somewhat weaker. Results for transactions in which both buyers and sellers are under pressure indicate that sellers have most of the bargaining power. The presence of buyers under pressure to invest pushes the prices up while the reverse effect is not supported by the data.

Our finding provides support for the practitioner view that the boom in secondary activities is driven PE funds under pressure to invest at any price. The following quote from Private Equity International, June 10, 2010 well describes this view: "Deal intermediaries in London now use a not very flattering label for fund managers facing pressure to invest their capital promptly: 'desperate housewives'. [...] If you are a banker shopping a company, you track down those managers with unspent capital in their aging funds, struggling to extend their investment period and, crucially, who can't raise any new money until the tail is gone. They are basically dying to do a deal, at almost any price. The result is a deal market heavily skewed towards them, where businesses get sold at big

multiples, [...] which helps explain the secondary buyout spree of late. Buyout funds in exit mode invariably sell to the highest bidder, so given this flurry of activity with financial buyers outbidding strategic ones, it is hard to resist the conclusion that desperate housewives are indeed at large.”

A considerable amount of research in the finance literature has been devoted to private equity and LBO activity on a wide variety of questions, including productivity, growth, employment, financial distress and the performance of PE as an asset class.³ Our paper is most closely related to studies on the efficiency of PE investments. Like Axelson et al. (2009) and Axelson et al. (2012), we document PE sponsors incentives to overinvest. While Axelson et al (2012) documents overinvestment tendencies in a time series context for the PE industry as a whole, we report evidence related to overinvestment for a cross-section of private equity funds with specific fund characteristics.

Our paper also contributes to a small but growing literature on secondary buyouts. Investigating the motives for secondary buyouts, Wang (2012), Jenkinson and Sousa (2012), and Achleitner et al. (2012) find that SBOs are mainly driven by favorable debt market conditions and the state of the IPO market. Bonini (2010), Jenkinson and Sousa (2011), and Wang (2012) analyze operating performance of SBOs and report evidence of underperformance of these deals compared to primary deals. Looking at internal rates of return on a proprietary dataset from a reputable LP, Achleitner and Figge (2012) and Achleitner et al. (2012) find no difference in performance between primary and secondary deals. Our paper complements these findings by focusing on the GP’s incentives in partnership agreements and fund characteristics that drive the choice of secondary deals and by documenting that PE funds under pressure to invest and/or exit are more likely to buy or sell in secondary transactions.

The remainder of the paper is organized as follows. We develop our hypothesis in Section 1. Section 2 describes the data and the variables we use. Section 3 analyzes the impact of the “pressure to invest” on the likelihood and valuation of secondary LBOs. Section 4 presents results related to the “pressure to exit” on the likelihood of an exit via a secondary and its impact on valuation. Section 5 shows which effect dominates. A brief conclusion follows.

1. Hypothesis Development

It is useful to begin with a brief description of how PE funds are organized. The management company, or the general partner (GP), sets up the fund and takes all investment and divestment decisions. Investors, or limited partners (LPs), commit to transfer capital to the fund whenever the GP

³ See among many others, Kaplan (1989a, 1989b), Smith (1990), Stromberg (2008), Acharya, Hahn and Kehoe (2009), Phalippou and Gottschalg (2009), Axelson, Jenkinson, Stromberg and Weisbach (2012), Demiroglu and James (2010), Officer, Ozbas, and Sensoy (2010), Boucly, Sraer and Thesmar (2011), Guo, Hotchkiss and Song (2011), and Franzoni, Nowak, and Phalippou (2012).

finds an investment opportunity. LPs play no active role in the fund's management, and have no specific information upfront of what particular investments the GP will make after the fund is closed (i.e., PE funds are "blind-pool" vehicles). The limited partnership has a lifetime of 10 years (extendable by a maximum of one or two more years) that is divided into two distinct periods. The investment period normally lasts up to 5 or 6 years after the fund's inception; this is the period during which the GP can make investments by calling on the LPs' commitments. The divestment period or management period refers to the remaining years of the fund's lifetime, during which new investments are discouraged and the GP aims to exit from investments made at a profit.⁴

GPs are compensated in two main ways: a fixed management fee, typically 1.5% to 2% of assets under management; and a variable component known as carried interest (or carry), corresponding (in the overwhelming majority of cases) to 20% of the fund's profits (often a pre-specified hurdle rate must be reached before the GP can receive carry). This convex claim held by the GP is what aligns the incentives of both parties, since it is important to note that LPs are locked-in for ten years once the fund is closed. Apart from eventual distributions corresponding to exits, the LP's stake is illiquid as selling his stake is either not possible or extremely costly, and is usually subject to GP approval. Therefore, once the fund is closed, the only 'stick' that the LPs possess is the threat not to invest in subsequent funds by the same GP. This is a strong threat, since the GP will be out of a job at the end of the current fund's lifetime, if future fundraising is unsuccessful.

How does this organization structure impact GP's investment behavior and what are the corresponding hypotheses that we can formulate? First, we postulate that the GP-LP relationship can be viewed as a principal-agent problem in which an uninformed principal (the LPs) hires a (potentially skilled) agent (the GP) to trade on his behalf.⁵ In this asymmetric information setting, the investor learns about the ability of the GP by observing deal activity and performance. In an important paper, Dow and Gorton (1997) have shown that the agent would try to influence the principal's perception of his ability by "churning" its portfolio, i.e. engaging in trades even when doing so might not be optimal. The intuition for this result is as follows. Suppose the agent (the GP) diligently exerts effort only to find that there are no suitable investment opportunities to cover the principal's (the LP) cost of capital. The LPs cannot distinguish this situation from an alternative scenario in which the GP simply consumes the fixed fee and shirks; in the terminology of Dow and Gorton the principal cannot distinguish between "actively" searching for investment opportunities and "simply" doing nothing. Furthermore, inaction is never rewarded, since doing so would attract lazy or incompetent managers. As a result, in equilibrium there is excessive trading by the GP, because the latter has every incentive to engage in deals in order to show activity to the principal. This problem, although applicable to all

⁴ So called follow-on investments, usually acquisitions made by companies already in the fund's portfolio, are sometimes allowed, but these are typically limited to at most 10% to 15% of the fund's size and must be authorized by the LPs.

⁵ See e.g. Berk and Green (2004).

managers, would be more severe for managers that need to build their reputation and less so for established ones.

Second, the compensation structure of private equity is also likely to induce the GP to engage in excessive deal making, for two reasons. First, as Metrick and Yasuda (2010) simulate data on observed PE contract features, they go on to show that the fixed compensation component represents a large portion (roughly 60%) of the net present value of flows accruing to the GP. Second, their data indicates that for about 84% of buyout funds, the fixed fee is calculated as a percentage of capital committed during the investment period but as a percentage of capital actually invested in the management or divestment period. Therefore, GPs considering new investment close to the end of the investment period face a tradeoff. Suppose that the target in question is slightly overvalued. This implies, on the one hand, that the fund's internal rate of return (and hence its carry) would be slightly lower if the GP makes the investment. On the other hand, doing the deal will increase the invested capital, and thereby fees captured during the management period. The tradeoff between the two will determine whether the GP will make or pass up this investment. Given Metrick and Yasuda's findings, the temptation to buy an additional firm will probably be strong.⁶

The arguments above suggest that under some circumstances PE managers will face pressure to do more and larger deals. Moreover, among all available deal sources, secondary buyouts are particularly attractive for a fund that wishes to conclude a deal quickly, for several reasons. First, a fund buying into a secondary deal saves on search costs, because the target has already been pre-screened by the primary PE investor. Second, anecdotal evidence suggests that because of the seller fund's incentives to exit promptly, SBOs are faster to complete relative to divisional deals (in which the decision process by the corporate parent might be more convoluted or involve more intermediaries), delistings of public firms (in which the buyer has to contend with delisting regulations and possible hold-out by minority shareholders), and sales of family firms (in which the emotional attachment of the founder or conflicts among family members can delay the sale process). In particular, if the seller fund is close to the end of its lifetime, or its GP is planning to raise a new fund and wants to show off some recent profitable exits, the seller has a strong incentive to complete the deal fast and the transaction cost is likely to be lower. Third, SBOs are probably easier to finance since a substantial amount of information production has occurred at the time of the primary deal (in the form of debt documentation, due diligence, financial reporting systems put in place by the primary owner) that is a sunk cost at the time of the secondary deal. Furthermore, lenders are likely to be familiar with the target and the firm has a track-record of being able to support the debt load.

⁶ Chung, Sensoy, Stern and Weisbach (2010) suggest that the prospect of raising another fund constitute an important source of performance-sensitive compensation that might restore incentives. However the argument still holds that the change in fee basis induces the temptation to increase the invested capital during the management period.

With this framework in place, we predict that, from a buyer's perspective, fund managers are under more pressure to engage in secondary deals: (i) if they have more capital available to spend ("dry powder" in the industry's jargon), since letting the capital commitment expire unexercised will reflect negatively on the LP's perception of the GP's ability; (ii) if their fund is reaching the end of the investment period, because they have the opportunity to lock in management fees that would be lost if committed capital remains unspent; (iii) if they do not belong to the top group of high-reputation funds, implying that they have less access to quality deal flow than players with established top reputation (i.e. face higher search costs for new deals), and might therefore find it easier to piggyback on screening costs incurred by primary investors. Simultaneously, we predict that sellers, when facing a buyer under such elevated pressure to buy in a secondary deal, have a strong bargaining position, leading to higher prices for these types of deals.

Our framework also has implications for the choice of exit route for a private equity fund contemplating when and how to sell its portfolio companies. For a given fund, the pressure to exit is likely to be higher: (i) if the seller hasn't exited a deal for some time, as this absence of activity and related distributions would negatively affect LP's beliefs about GP skills; (ii) if the fund that owns the target firm is reaching the end of its lifetime; (iii) if the seller does not have high reputation as a GP, for the reasons mentioned above. For sellers, a secondary sale is an attractive transaction for several reasons. First, initial public offerings (IPOs) are time-consuming, costly, and cannot be always be used as an exit route due to cold IPO periods. Secondly, trade buyers might take more time to react to deal opportunities, compared to financial buyers, and are more likely to be constrained by antitrust concerns or shallow pockets. Again, in terms of valuations sellers under pressure to exit are likely to accept lower prices for their portfolio companies. However, conditional on an acceptable offer, sellers under pressure are more likely to do a secondary deal now than to hold out for another more attractive exit option later.

2. Data and Empirical Testing Issues

This section describes in general terms how we generated our sample and variables. Appendix A provides the full details of the sample construction procedure, and Appendix B presents the full list of variables and their definitions.

2.1. Sample Construction

We extracted from S&P's Capital IQ database all closed LBO transactions with targets located in the U.S. and in 12 European countries (Belgium, Denmark, Finland, France, Germany,

Italy, Luxembourg, Netherlands, Spain, Sweden, Switzerland, and United Kingdom) for the period ranging from January 1st, 1980 to December 31st, 2010. As a first set of filters we excluded targets in financial industries, acquisitions of minority stakes or of remaining interest, deals involving targets with reported negative sales or negative enterprise value, and misclassified non-PE related transactions such as corporate acquisitions, purchases of stakes by hedge funds, and venture capital deals. On this initial sample of 23,032 deals we implement Strömberg's (2008) methodology to obtain an imputed Enterprise Value for transactions without deal value information (roughly 60% of the sample). This involves running a Heckman regression model with the likelihood of a deal having its value disclosed in the first stage, and the determinants of target Enterprise Value in the second stage (see Table A-1 in the Appendix for results and details). This imputed value is used to compute market shares and activity measures of PE fund families required in the analysis.

We then apply a second set of filters excluding: deals without Capital IQ identifiers of buyers and sellers; acquisitions by management teams (management buy-outs) with no evidence of involvement by a PE sponsor; deals in which the target firm is bankrupt or in financial distress; and transactions with a deal value lower than one million dollars.⁷ When an acquisition involves multiple stages or transactions, we keep the one in which the buyer acquired most of its stake (typically the first transaction). We also require that we can reasonably trace the purchase to a given fund within a PE fund family under mild assumptions (see below). The final sample contains 9,771 LBO deals involving 8,758 target firms and 970 different PE acquirers.

To obtain the exit of each LBO transaction, we download from Capital IQ data on corporate events related to each target firm (bankruptcies, equity private placements, and mergers) using each firm's unique identifier. We complement this data with information on Initial Public Offerings (IPOs) from ThomsonReuters' Securities Data Corporation (SDC) database. We then construct an "event history" of known corporate actions for each firm after the LBO, allowing us to identify the type and date of exit of the initial LBO investor. We say that an exit takes place if there is evidence of a change in control (e.g., sale of a majority stake) even if the original buyer funds remain minority shareholders. The final sample contains 4,328 exits, of which 1,274 are secondary LBOs.

2.2. Buyer-related variables

We extract from Capital IQ buyer and seller information that we use to create a unique PE fund family identifier to group fund-level information (again see the Appendix A for details). We identify the "leading buyer" in a multi-buyer transaction as the PE fund family with the highest reputation among the deal's buyers, measured as the dollar market share across all LBO deals made

⁷All monetary amounts in this paper are in real December 2010 dollars, values in European currency having been converted to U.S. dollars at historical exchange rates.

up to that year.⁸ For single-buyer transactions, the “leading buyer” (henceforth, the buyer) is the PE fund family of the acquiring fund. We then match each LBO deal with information on the buyer’s existing funds. We check if the LBO’s acquisition date is within the investment period range (e.g., years 1 through 6) of at least one of the funds in the PE fund family. If the condition is not fulfilled, we discard the LBO transaction because that is a sign that fund-level information in Capital IQ about the family is incomplete. If the condition is fulfilled, we assume that the deal is performed by the fund family’s youngest fund still investing at the time of the deal. We therefore create the variables: *Stage*, the time in the fund’s lifecycle at which the deal is made (that is, the number of years elapsed since the raising of the buyer’s fund); and *Late Buyer*, an indicator variable equal to 1 if the buyer’s fund is at the end of its investment period (that is, 4 to 6 years after inception) at the time of the deal, and zero otherwise.

To proxy for the pressure to buy, we create several other variables. First, for each PE fund family and year, we calculate: (i) the aggregate amount that was raised in the past 3 years and the corresponding median that was raised across fund families in that year; (2) the aggregate dollar value of all investments made during the past three years, and its corresponding median. Using these two quantities, we define *Dry Powder*, a dummy variable equal to 1 if the buyer’s PE fund family is above median in terms of fund raising and below median in terms of deal activity. Second, we define *Lack of Reputation*, an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms, and zero otherwise. Third, the index variable *Buyer Pressure* is created as the sum of dummy variables *Dry Powder*, *Late Buyer*, and *Lack of Reputation*.

Finally, to control for fund family characteristics, we create two other control variables: *Affiliated*, a dummy variable equal to 1 if the fund family is affiliated to a financial institution or government agency, and zero otherwise; and *Novice*, an indicator variable equal to 1 if the buyer is from a PE fund family with 3 funds or less under management at the time of the LBO deal, and zero otherwise.

2.3. Seller-related variables

In line with the buyer-related variables, we define the seller-related variables with respect to the time of the LBO exit. The “leading seller” at the exit is the PE fund family initially selected as leading buyer, and for consistency we assume that the selling fund (within the family) is the same

⁸We also compute market shares of PE fund families using three other backward-looking horizons, 3, 5, and 10 years. In the overwhelming majority of cases the ranking of fund families, and thus the leading buyer, is the same. In very small number of cases in which the different horizons produce different results, we take the buyer with the highest average among the all horizons.

fund assumed as buyer at the initial transaction.⁹ Armed with these definitions, we compute several variables for the pressure to sell: *Late Exit* is an indicator variable equal to 1 if three years or more elapsed since the PE fund family last exited an LBO deal; *Late Seller* is a dummy variable that takes the value of 1 if the exit takes place in year 9 or 10 of the life of the selling fund, and zero otherwise; *Lack of Reputation*, an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms, and zero otherwise. We then define *Sell Pressure* as the sum of the variables *Late Exit*, *Late Seller*, and *Lack of Reputation*. For completeness, we also compute *Novice at Exit*, an indicator variable equal to 1 if at the time of exit from the LBO deal the buyer is a PE fund family with 3 funds or less under management and zero otherwise.

2.4. Other variables

The set of controls in our regression specifications includes several variables. *Imputed TEV* is the target's enterprise value, that is, the sum of equity market value (valued at the offer price) and the target's pre-deal net debt (financial debt minus cash and marketable securities). Enterprise value, like all monetary amounts in this paper, is measured in real December 2010 U.S. dollars after conversion at historical exchange rates (exchange rates and inflation rates are obtained from the FRED Economic data of the Federal Reserve Bank of St. Louis). *Management Participation*, *U.S. dummy*, and *Syndicated* are dummy variables that indicate, respectively, that management is a shareholder of the acquiring group, the target is a U.S. firm, and there is more than one buyer. As proxies for capital market conditions, we include *HY Spread*, the difference between interest rates on leveraged loans and on AAA-rated bonds, and *Cold IPO Market*, an indicator variable equal to 1 if the geography-, industry-adjusted IPO dollar volumes are below their time series average.

The tests concerning entry valuations use as dependent variables the *Excess Sales Multiple* and the *Excess Ebitda Multiple*, both constructed as follows. We first compute for each LBO deal the *Sales Multiple (Ebitda Multiple)* as the ratio between Enterprise Value (TEV) and latest available yearly sales (Ebitda) for the target firm at the time of the LBO. Multiples are constructed only when the deal value is non-missing, that is, Imputed TEVs are not used in this calculation. To obtain the benchmarked variables, we subtract from each multiple the median sales (Ebitda) multiple by geography (U.S. versus Europe), industry (Fama-French 12-industry classification), and public status (public or private), of all merger transactions from ThomsonReuters' SDC over the previous two years relative to the date of the LBO.

⁹In a few cases, LBOs are marked as secondary deals in Capital IQ but no information related to the primary deal exists. In this case we replicate the process described above for the buyer, that is, we compute market shares among sellers in a deal to select the leading seller, and require that the sale takes place during the lifecycle (i.e. years 1 through 10) of at least one fund in the selling family to compute seller-related variables. The selling fund is then defined as the oldest active fund (i.e. less than 11 years old) in the selling fund family.

For tests involving exit, we construct similar variables but computed as of the time of exit (*Exit HY Spread*, *Exit Cold IPO Market*, and *Exit Excess Sales (Ebitda) Multiple*). One additional variable specific to exit regressions is *Add-ons*, a dummy variable equal to one if there were significant acquisitions during the time that the buyer held the target firm in its portfolio.

2.5. Summary Statistics

Table 1 presents the main characteristics of our LBO sample. Panel A shows that the average (imputed) Enterprise Value is 281 million (M) USD, while the median is 87 M. Management is part of the acquiring group 44% of the time, and slightly more than half of our deals refer to U.S. targets and have more than one buyer. Our proxy for dry powder indicates that buyers have significant capital available 23% of the time. About 21% of LBO deals are made in the last years of the buyer's investment period, and 76% are made by fund families outside the PEI Top 50. Concerning our measure for buying pressure, the average (median) buyer fund fulfills 1.2 (1) of our buying pressure proxies. For completeness, Panel A also shows the proportion of other LBO types present in the sample, of which the largest fraction is from private sellers (53.6%) and divestitures by corporations (19.4%).

Panel B of Table 1 presents summary statistics for our valuation variables (recall that valuation measures are only available if the deal value is known and the accounting item entering the multiple is also available). The average Sales Multiple (Ebitda Multiple) for LBOs in our sample is 1.39 (9.39), while their Excess equivalent, net of median transaction multiples, is 0.28 (-1.3).

Finally, Panels C and D of Table 1 present statistics for exits. 29% of the LBOs in our sample are exited through a secondary deal, the second most frequent form of exit after trade sales (48%). About 11% of exited deals involved significant acquisitions. Among the sellers 10.4% have last exited a deal three or more years ago, 12.6% sell at the end of the fund's lifetime, and 68.8% of exits involve firms without reputation. Our index for the pressure to sell shows an average (median) value of 0.92 (1). For valuations the average Sales Multiple at exit is 1.86 and the average Ebitda Multiple is 10.8, somewhat higher than the corresponding entry valuations. The same pattern holds for excess multiples which reach 0.76 (Excess Sales Multiple) and 0.82 (Excess Ebitda Multiple).

3. Secondary Buyouts and the Pressure to Invest

3.1. Secondary LBOs: Univariate Comparisons

To better understand the systematic differences between secondary LBOs and other buyouts, Table 2 shows univariate comparisons of means and medians of our variables between these two types of deals. Panel A shows that, relative to non-secondary LBOs, secondaries are larger both in the mean and in the median, are more often syndicated, and management participates more often as equity holder (all differences statistically significant at 1%). Secondary buyouts are more likely to occur when credit spreads are relatively lower, and more often when IPO markets are cold (all differences again statistically significant at 1%).

For our main variables of interest Panel A of Table 2 presents a preview of our main results. We report that secondary LBOs more often involve buyers with Dry Powder (26.2% of the time versus 22.6% for non-secondaries, statistically significant at 1%), those late in their investment cycle (23.9% versus 20.8%, statistically significant at 1%), and buyers without high reputation (77.9% versus 76%, but the difference is not statistically significant). The Buy Pressure index is therefore higher for secondaries (1.28 versus 1.19, statistically significant at 1%). The table also shows that affiliated buyers do secondaries relatively more often, and novice funds less often than other deals. This shows the importance of controlling for these fund characteristics in our analysis.

Panel B reports the differences in valuation between the two types of deals. The table shows that secondary deals are more expensive than other LBOs across all valuation measures employed. For example, the average secondary transaction in our sample was priced at a sales (Ebitda) multiple of 1.61 (10.16), about 20% (13%) higher than the multiple for other types of deals. The results for the benchmarked excess multiples are similar (all differences statistically significant at 5% or less).

3.2. Secondary LBOs: Multivariate Analysis

This subsection investigates the characteristics of secondary versus primary deals in a multivariate regressions setting. We estimate the following logistic regression:

$$y_{1,i} = \alpha_1 + \beta_1 \times \text{Buy Pressure}_i + \gamma_1 X_i + \varepsilon_i \quad y_{1,i} = \begin{cases} 0 & \text{if } y_{1,i}^* \leq 0 \\ 1 & \text{if } y_{1,i}^* > 0 \end{cases} \quad (1)$$

In the regression y_i , the dependent variable, is an indicator that takes the value 1 if deal i is a secondary buyout and 0 if the LBO is a primary deal. \mathbf{X} represents the matrix of control variables defined in section 2.4. All regression specifications include industry-and year-dummies, and we cluster standard errors by deal year.

Column 1 of Table 3 presents the results from estimating the Logistic model under our basic specification. The coefficient of Buy Pressure is positive and highly significant (t-statistic 4.82). This suggests that buyers that are more likely to be under pressure to invest when deciding whether to engage in secondary deals do proportionally more. The marginal effect of Buy Pressure (not shown in the table) is 0.030, implying that an increase of one standard deviation in Buy Pressure represents an increase in the probability of doing a secondary exit of about $0.030 \times 0.724 = 2.2\%$.¹⁰ This is a 13.3 percent increase relative to the unconditional mean of the likelihood of a secondary (equal to 16.5% from Table 1).

Columns 2 through 4 of Table 3 present the results of running the same specification using the individual components of our Buy Pressure index as the main independent variables. All coefficients show a positive loading, with statistically significant t-statistics ranging from 2.2 (Dry Powder) to 5.1 (Lack of Reputation). To gauge robustness, Table 3 shows two other specifications. Column 5 adds buyer characteristics Affiliated and Novice to the set of controls, as well as market condition variables HY Spread and Cold IPO Market. The results show that affiliated funds participate more often in secondary buyouts (t-stat. 2.17), and that this type of deal is less likely to be done in times of tight credit conditions (t-stat. -1.67). Column 6 performs the basic regression within the set of deals for which the deal value is known (such that the size variable TEV refers not to imputed TEV but to actual TEV). Although the number of observations drops to 4,237 and R^2 decreases slightly, Buy Pressure is still statistically significant with a similar point estimate as in the larger sample (coefficient 0.225, t-stat. 3.82).

Results from other variables show that targets of secondary LBOs are larger than primary deals (with very large t-statistics between 10 and 20) and have management as shareholder more often (t-statistics ranging between 4 and 6). Secondaries seem to be somewhat less prevalent in the U.S. compared to Europe (t-statistics around -2.5). Finally, and in contrast with the univariate evidence, syndication is negatively correlated with the likelihood of a secondary, even though this result is statistically significant only in some specifications.

3.3. Valuation of Secondary LBOs

To gauge valuation effects, we run the following least-squares regression in the sample of deals with valuation information:

$$XSMULT_i = \alpha_2 + \delta_2 \times \text{Buy Pressure}_i + \beta_2 \times \text{Buy Pressure}_i \times D_i^{SEC} + \phi_2 \times D_i^{SEC} + \gamma_2 X_i + \varepsilon_i \quad (2)$$

Where $XSMULT$, the dependent variable, is one of our two measures of deal valuation (Excess Sales Multiple or Excess Ebitda Multiple) and D^{SEC} is an indicator variable that takes the value 1 if the deal

¹⁰ All marginal effects in this paper are evaluated using the sample average of the individual marginal effects.

is a secondary transaction and 0 otherwise. Our focus of attention is on the coefficient β_2 of the interaction term $\text{Buy Pressure} \times D^{SEC}$ which measures the impact of our pressure variable in the context of secondary deals. As before, \mathbf{X} represents the matrix of control variables, but with one exception: we replace TEV (which is part of our Sales Multiple definition) with an instrument for deal size, represented by Buyer Size, the log value of all deals made by the buyer in the last 5 years. All specifications include industry- and year-dummies and year-clustered standard errors.

Column 1 of Panel A, Table 4 presents our main results. For brevity we focus on the discussion of the Excess Sales Multiple results of Panel A (results of Panel B using Excess Ebitda Multiple are similar in magnitude and slightly stronger in terms of statistical significance). The coefficient δ_2 that measures the impact of Buy Pressure on the valuation of buyouts in general, is negative and statistically significant the 10% level (coefficient -0.188, t-stat. 1.77), albeit not in all specifications. This implies that buyers under pressure to invest would tend to buy less expensive targets in general. In contrast, our coefficient of interest β_2 is positive and statistically significant (coeff.0.218, t-stat. 2.57), indicating that in the case of secondary deals, increasing pressure is associated with higher multiples paid. Taking the difference between these coefficients and multiplying by a one-standard deviation shock of 0.72 in Buy Pressure, we obtain a change of 0.021 in Excess Sales Multiple, equivalent to an increase of 7.6% with respect to the sample average of this valuation measure (0.283 from Table 1).

Results related to the individual components of Buy Pressure in columns 2 through 4 show that: late buyers (t-stat. -1.91), and particularly buyers that lack reputation (t-stat. -6.13) tend to engage in cheaper acquisitions; the interaction terms $\text{Dry Powder} \times D^{SEC}$ and $\text{Late Buyer} \times D^{SEC}$ are positive and statistically significant at the 10% level, while the interaction $\text{Lack of Reputation} \times D^{SEC}$ has a negative sign but is not distinguishable from zero. Regarding other variables, purchase prices are positively associated with our proxy for deal size and negatively related to management participation, although statistical significance depends on the precise specification. Results using the extended set of controls (column 5) show that affiliated buyers also tend to pay lower prices.

As a robustness check, Column 6 shows the results from estimating our regression exclusively within the set of secondary LBOs. The coefficient of Buy Pressure is positive and significant (coeff. 0.146, t-stat. 2.47). Comparative statics in this subsample (which has an average Excess Sales Multiple of 0.61) indicates that the impact of a standard deviation increase in Buy Pressure would increase prices by 0.11, or about 17% of the average excess multiple.

4. Exits via Secondary Deals and the Pressure to Sell

4.1. Determinants of Secondary Exit Route

We estimate a logistic model similar to the one of Section 3.1 to examine the determinants of the choice of exiting via a secondary deal:

$$y_{3,i} = \alpha_3 + \beta_3 \times \text{Sell Pressure}_i + \gamma_3 X_i + \varepsilon_i \quad y_{3,i} = \begin{cases} 0 & \text{if } y_{3,i}^* \leq 0 \\ 1 & \text{if } y_{3,i}^* > 0 \end{cases} \quad (3)$$

In the regression y_3 is an indicator variable that takes the value 1 if deal i is exited through a secondary buyout and 0 if the LBO is exited through some other routes. We modify the control variable matrix \mathbf{X} by adding the following variables as controls: Stage, the time of the fund's lifecycle at which the target was originally bought; Add-On, an indicator of significant build-ups during the tenure of the seller; and dummy variables identifying the original deal's source, that is, whether it was itself a secondary deal, or a divisional, public-to-private; of financial seller LBO (the missing category is that of a private-to-private deal). In addition, some of our variables, like Novice, HY Spread, and Cold IPO Market, are now calculated as of the date of exit.

The results are presented in Table 5. Column 1 shows that our proxy for pressure to engage in a sale is strongly positively related to the likelihood of exiting through a secondary buyout (coeff. 0.183, t-stat. 3.20). The marginal effect (not shown) of the Sell Pressure variable is 0.036. Given that the standard deviation of Sell Pressure in the exit sample is 0.691, a one standard-deviation shock of Sell Pressure would increase the likelihood of an exit through a secondary LBO by 2.5%, or about 8.5% of the average sample frequency of secondary exits. This result is robust to the inclusion of variables related to market conditions (column 5) and when we limit ourselves to the subsample of LBOs with valuation information. The individual components of the pressure index are also positive and statistically significant, with t-statistics ranging from 1.89 (Lack of Reputation) to 2.24 (Late Seller).

Table 5 also shows that the deal's initial source is a strong determinant of exit type, with secondary deals highly likely to follow secondary deals (t-stats in the range of 3, for all but one specification) while targets originally divested by corporate sellers are less likely to be resold to a PE fund. In addition, market conditions matter: the variable HY Spread is negative and statistically significant (t-stat. -4.97), indicating that at times of high credit spreads this type of exit is more difficult.

4.2. Valuation of Secondary Exits

To test our hypotheses regarding valuation at exit, we run the regression model:

$$XSMULT_i^{EXIT} = \alpha_4 + \delta_4 \times \text{Sell Pressure}_i + \beta_4 \times \text{Sell Pressure}_i \times D_i^{SECEXIT} + \phi_2 \times D_i^{SECEXIT} + \gamma_4 X_i + \varepsilon_i \quad (4)$$

In this regression $XSMULT^{EXIT}$ is a measure of valuation at the time of the exit using either Sales or Ebitda as the basis for the calculation of the excess multiple. $D^{SECEXIT}$ is an indicator variable that takes the value 1 if the LBO is exited through a sale to another PE fund and 0 otherwise. As before, the coefficient β_4 of the interaction term $\text{Sell Pressure} \times D^{SEC}$ is the coefficient of interest. The matrix \mathbf{X} includes control variables measured at the time of exit, as in subsection 4.1, and we also replace TEV (part of the multiple) with an instrument for deal size, represented by Buyer Size. All specifications include industry- and year-dummies and year-clustered standard errors.

The results are reported in Table 6. We find that the coefficient of the sale pressure variable for secondary exits β_4 is negative and marginally statistically significant (coefficient -0.222, t-stat. -1.69) in Panel A, when we use the Exit Excess Sales Multiple as dependent variable, but statistically insignificant in Panel B, when we use the Exit Excess Ebitda Multiple. The negative sign in Panel A implies that sellers under pressure exit at lower multiples in secondary deals than other sellers but the impact of the selling pressure on valuations is weak. Out of the three individual components, the interaction $\text{Late Seller} \times D^{SECEXIT}$ is statistically significant at the 10% level (columns 2 through 4) in both panels, while other terms are not consistently statistically significant. The interaction $\text{Sell Pressure} \times D^{SECEXIT}$ also loses statistical significance in our extended specification (column 5). Within the set of secondary exits, a statistically significant association exists between selling pressure and valuation using the sales multiple but not for the Ebitda multiple. We conclude that there is some evidence that selling pressure affects secondary exit valuation but this evidence is weak and that the effect that does exist is driven by the seller fund's age.

5. Further analyses

5.1. Buyer or Seller Pressure: Which effect dominates?

An important additional question for our analysis is which force dominates when buyers under pressure to invest enter into secondary deals with sellers under pressure to exit. The evidence on valuation suggests that sellers probably have the upper hand but further empirical analysis is needed to decide whether this is indeed the case. Hence, we estimate a model for the valuation of secondary LBOs within the subsample of exits for which we have information about buyers' status, sellers'

status, and deal valuations. We include as explanatory variables the Buy Pressure and the Selling Pressure variables simultaneously, as well as the control variables used in subsection 4.2 above.

The results, available in Table 7, show that the coefficient of Buy Pressure is positive and statistically significant at 10% or less across specifications. This result holds irrespective of the choice of multiples used. In contrast, the Sell Pressure variable is negative and statistically significant only once, in the case of Sales-based multiple (Panel A, column 1), losing significance when we use Ebitda-based multiples or our extended specification. For completeness, the table also shows results for the individual components of the Sell Pressure. Consistent with our findings above, we find that deals involving late sellers seem to display lower prices, but Buy Pressure is still statistically significant even in this case.

We conclude that in these transactions the selling party seems to have the upper hand and buyers under pressure to invest pay higher prices for secondary targets.

6. Conclusion

This paper tests hypotheses on how the organizational structure and contractual framework of PE funds affect deal making incentives. We focus on secondary buyouts, an increasingly important segment of the LBO market where PE funds exit the target firm by selling to other PE funds. Independent estimates (confirmed in our data) suggest that SBOs account for more than 20% (and growing) of deal flow¹¹. Previous studies in the literature analyzing the reasons for secondaries conclude that they are mainly driven by looser debt market and tighter equity market conditions¹². In contrast, we posit that the PE fund structure and incentives are likely to impact the choice of investment/exit. We conjecture that PE funds are more likely to do a SBO if they are under pressure to invest (exit) and the transaction will be priced at higher (lower) valuations depending on whether the buyer (seller) is under deal pressure. We test these hypotheses using an almost complete set of LBO deals in both U.S. and Europe from 1980 through 2010 (9,771 LBO deals, out of which we able to trace 4,328 exit routes and dates). We find robust support for these hypotheses, both for pressured buyers and sellers for the probability of SBOs as well as the impact on valuation, even after controlling for market conditions.

For future research additional insights can be obtained by access to data on actual contractual provisions between GPs and LPs of PE funds (which we do not currently have) assuming sufficient contractual variations exist in the data for the terms that drive the pressure to invest and exit. While such data will unlikely be accessible for the universe of LBO transactions we studied here and will

¹¹ See Prequin Buyout Deals Analyst, 2011.

¹² See Wang (2012), Jenkinson and Sousa (2012) amongst others.

likely cover only one or a few LPs with limited contractual variations, further analysis of actual contractual terms driving investment and exit choices would nevertheless be an interesting new avenue for future research.

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Table 1 Summary Statistics

This table presents summary statistics for the sample used in this study. Panel A presents the summary statistics data for our firm-level panel. Secondary is an indicator variable with value 1 if the seller in a deal is a PE fund. Imputed TEV of the target firm is the sum of the target's equity market value valued at the LBO offer price, and the target's net debt (financial debt minus cash and marketable securities). For transactions without deal value information, we compute an estimate of deal value using the methodology of Stromberg (2008) (see Appendix for further details). Mgmt. Participation is an indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction. U.S. target is equal to 1 if the target is headquartered in the US. Syndicated is an indicator variable equal to 1, if there is more than one buyer. Fund belonging to the same fund family are counted as a single buyer. HY Spread is the difference, at the time of the LBO, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987. Cold IPO Market is an indicator variable equal to 1 if the IPO market is 'cold' at the time of the LBO. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12- industry classification, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. Dry Powder is an indicator variable equal to 1 if the buyer is above median in terms of fund raising and below median in terms of deal activity. These criteria are computed as follows. First, for each PE fund family and year, we calculate the aggregate funds raised in the past 3 years, and the corresponding median across fund families in that year. Second, for each PE fund family and year, we compute the aggregate dollar value of all investment made during the past three years, and its respective median across fund families in that year. Late Buyer is an indicator variable with value 1 if the buyer's most recent fund at the time of the deal is at the end of its investment period (4 to 6 years after inception). Lack of Reputation is an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms. Buyer Pressure is the sum of variables Dry Powder, Late Buyer, and Lack of Reputation. Affiliated is an indicator variable equal to 1, if the buyer is affiliated to a financial institution or government agency. Novice is an indicator variable with value 1 if the buyer is a PE fund family with 3 funds or less under management at the time of the LBO deal. Panel B presents the variables used to measure valuation of the deal at the time of entry. Sales Multiple is the ratio between TEV and latest available yearly sales for the target firm at the time of the LBO. This variable only takes non-missing values when deal value is known. Excess Sales Multiple is the difference between the target's Sales Multiple and a valuation benchmark constructed as follows. For every year, geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private), we compute the median sales multiple for all merger transactions with value larger than 1 million dollars involving a majority stake over the previous two years relative to the date of the LBO. Ebitda Multiple is the ratio between TEV and Ebitda for the target firm at the time of the LBO. This variable only takes non-missing values when deal value is known. Excess Ebitda multiple is the difference between the target's Ebitda Multiple and the benchmark, the median Ebitda multiple for all merger transactions with value larger than 1 million dollars involving a majority stake over the previous two years in the same geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private) as the target LBO firm. Panel C describes the characteristics at the time of exit. Secondary Exit is an indicator variable equal to 1, if the exit route of the LBO is a sale to another PE fund or group of PE funds. Add-ons is equal to 1, if there were significant acquisitions during the time that the buyer held the target firm in its portfolio. We define acquisitions as significant if there are three or more acquisitions made by the target company during this period or if they represent a cumulative dollar value of 5% or more of the original LBO deal value. Stage is the number of years elapsed since fund raising for the youngest fund in the PE fund family whose investment period overlaps with the LBO deal date (that is, whose deal date falls within years 1 through 6 of the lifetime of the fund). Last Exit is equal to 1 if three or more years have elapsed since the PE fund family last exited an LBO deal. Late Seller is an indicator variable with value 1, if the sale takes place in years 9 or 10 of the PE fund family's oldest active fund (i.e. less than 11 years old). Seller Pressure is the sum of variables Exit Pressure, Late Seller, and Lack of Reputation. Down Exit is equal to 1 if exit route of the LBO is a sale to existing management, a distressed merger transaction, or bankruptcy. M & A Exit is equal to 1, if exit is through sale to a corporate buyer. IPO Exit is equal to 1 if exit is an equity listing on public markets. Panel D describes the valuation variables at the time of exit (see Panel B above for a description of the variables). All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates.

Table 1
Summary Statistics (cont.)

Panel A. LBO characteristics						
Variable	N	Mean	Std. Dev.	Q1	Median	Q3
Secondary	9,771	0.165	0.371	0	0	0
Imputed TEV	9,771	281.8	1283.4	41.6	87.5	186.2
Mgmt. participation	9,771	0.440	0.496	0	0	1
U.S. target	9,771	0.511	0.500	0	1	1
Syndicated	9,771	0.511	0.500	0	1	1
HY Spread	9,588	3.809	2.063	2.380	3.030	4.550
Cold IPO Market	9,766	0.523	0.499	0	1	1
Dry Powder	9,771	0.232	0.422	0	0	0
Late Buyer	9,771	0.213	0.410	0	0	0
Lack of Reputation	9,771	0.763	0.425	1	1	1
Buy Pressure	9,771	1.209	0.724	1	1	2
Affiliated	9,771	0.199	0.399	0	0	0
Novice	9,770	0.507	0.500	0	1	1
Divisional	9,771	0.194	0.395	0	0	0
Financial seller	9,771	0.055	0.228	0	0	0
Public to private	9,771	0.051	0.219	0	0	0
Private to private	9,771	0.536	0.499	0	1	1
Panel B. LBO Valuation at Entry						
Variable	N	Mean	Std. Dev.	Q1	Median	Q3
TEV	1,399	892.1	2773.9	60.2	211.4	703.8
Sales Multiple	1,399	1.397	1.247	0.592	1.021	1.761
Excess Sales Multiple	1,399	0.283	1.173	-0.393	0.027	0.656
EBITDA Multiple	684	9.397	4.809	6.288	8.404	11.514
Excess EBITDA Multiple	684	-1.352	5.822	-3.931	-1.514	1.182

Table 1
Summary Statistics (cont.)

Panel C. LBO characteristics at Exit						
Variable	N	Mean	Std. Dev.	Q1	Median	Q3
Secondary Exit	4,328	0.294	0.456	0	0	1
Add-ons	4,328	0.113	0.317	0	0	0
Stage	4,328	2.306	1.346	1	2	3
Affiliated	4,328	0.186	0.389	0	0	0
Novice	4,165	0.374	0.484	0	0	1
HY Spread	4,144	3.754	2.174	2.350	2.920	4.545
Cold IPO Market	4,328	0.565	0.496	0	1	1
Last Exit	4,328	0.104	0.306	0	0	0
Late Seller	4,328	0.126	0.332	0	0	0
Lack of Reputation	4,328	0.688	0.463	0	1	1
Sell Pressure	4,328	0.919	0.691	0	1	1
Affiliated	4,328	0.186	0.389	0	0	0
Novice	4,165	0.374	0.484	0	0	1
Down Exit	4,328	0.100	0.300	0	0	0
M&A Exit	4,328	0.479	0.500	0	0	1
IPO Exit	4,328	0.126	0.332	0	0	0
Panel D. LBO Valuation at Exit						
Variable	N	Mean	Std. Dev.	Q1	Median	Q3
Sales Multiple	1,127	1.860	1.560	0.829	1.443	2.374
Excess Sales Multiple	1,127	0.756	1.423	-0.155	0.405	1.251
EBITDA Multiple	613	10.840	5.141	7.390	9.468	13.643
Excess EBITDA Multiple	613	0.821	6.061	-1.968	0.341	3.826

Table 2
Univariate Comparisons: Secondary Deals vs. Non-Secondary Deals

This table presents univariate tests of significance of LBO characteristics and valuation between Secondary and Non-secondary deals. A LBO deal is defined as Secondary if the seller in the deal is a PE fund and Non-secondary otherwise. Panel A presents the tests for our firm-level panel. Imputed TEV of the target firm is the sum of the target's equity market value valued at the LBO offer price, and the target's net debt (financial debt minus cash and marketable securities). For transactions without deal value information, we compute an estimate of deal value using the methodology of Stromberg (2008) (see Appendix for further details). Mgmt. Participation is an indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction. U.S. target is equal to 1 if the target is headquartered in the US. Syndicated is an indicator variable equal to 1, if there is more than one buyer. Fund belonging to the same fund family are counted as a single buyer. HY Spread is the difference, at the time of the LBO, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987. Cold IPO Market is an indicator variable equal to 1 if the IPO market is 'cold' at the time of the LBO. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12-code industry, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. Dry Powder is an indicator variable equal to 1 if the buyer is above median in terms of fund raising and below median in terms of deal activity. These criteria are computed as follows. First, for each PE fund family and year, we calculate the aggregate funds raised in the past 3 years, and the corresponding median across fund families in that year. Second, for each PE fund family and year, we compute the aggregate dollar value of all investment made during the past three years, and its respective median across fund families in that year. Late Buyer is an indicator variable with value 1 if equal to 1 if the buyer's most recent fund at the time of the deal is at the end of its investment period (4 to 6 years after inception). Lack of Reputation is an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms. Buyer Pressure is the sum of variables Dry Powder, Late Buyer, and Lack of Reputation. Affiliated is an indicator variable equal to 1, if the buyer is affiliated to a financial institution or government agency. Novice is an indicator variable with value 1 if the buyer is a PE fund family with 3 funds or less under management at the time of the LBO deal. Panel B presents the variables used to measure valuation of the deal at the time of entry. Sales Multiple is the ratio between TEV and latest available yearly sales for the target firm at the time of the LBO. This variable only takes non-missing values when deal value is known. Excess Sales Multiple is the difference between the target's Sales Multiple and a valuation benchmark constructed as follows. For every year, geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private), we compute the median sales multiple for all merger transactions with value larger than 1 million dollars involving a majority stake over the previous two years relative to the date of the LBO. Ebitda Multiple is the ratio between TEV and Ebitda for the target firm at the time of the LBO. This variable only takes non-missing values when deal value is known. Excess Ebitda multiple is the difference between the target's Ebitda Multiple and the benchmark, the median Ebitda multiple for all merger transactions with value larger than 1 million dollars involving a majority stake over the previous two years in the same geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private) as the target LBO firm. All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange, rates. T-test for differences in means and medians (where applicable) are reported, the symbols ***, **, * denote significance at 1%, 5% and 10% respectively.

Panel A. Univariate Comparisons: LBO characteristics								
Variable	Secondary Deals			Non-secondary Deals				
	N	Mean	Median	N	Mean	Median		
Imputed TEV	1,611	361.9	212.8	8,160	265.9	74.5	***	***
Mgmt. participation	1,611	0.503	1	8,160	0.427	0	***	
U.S. target	1,611	0.472	0	8,160	0.518	1	***	
Syndicated	1,611	0.549	1	8,160	0.503	1	***	
HY Spread	1,597	3.494	2.830	7,991	3.872	3.210	***	***
Cold IPO Market	1,611	0.589	1	8,155	0.510	1	***	
Dry Powder	1,611	0.262	0	8,160	0.226	0	***	
Late Buyer	1,611	0.239	0	8,160	0.208	0	***	
Lack of Reputation	1,611	0.779	1	8,160	0.760	1		
Buy Pressure	1,611	1.280	1	8,160	1.194	1	***	
Affiliated	1,611	0.233	0	8,160	0.192	0	***	
Novice	1,611	0.400	0	8,160	0.528	1	***	

Panel B. Univariate Comparisons: LBO Valuation at Entry								
Variable	Secondary Deals			Non-secondary Deals				
	N	Mean	Median	N	Mean	Median		
TEV	337	650.6	329.5	1,061	968.8	184.5	*	***
Sales Multiple	337	1.604	1.333	1,062	1.331	0.964	***	***
Excess Sales Multiple	337	0.607	0.325	1,062	0.180	-0.058	***	***
EBITDA Multiple	144	10.164	9.509	540	9.193	8.022	**	***
Excess EBITDA Multiple	144	-0.411	-0.261	540	-1.603	-1.851	**	***

Table 3
Likelihood of a Secondary Deal

This table presents results of a logistic regression, where the dependent variable is a secondary deal, an indicator variable with value 1 if the seller in a deal is a PE firm. The explanatory variables are Buy Pressure, the sum of variables Dry Powder, Late Buyer, and Lack of Reputation. Dry Powder is an indicator variable equal to 1 if the buyer is above median in terms of fund raising and below median in terms of deal activity, computed as follows: First, for each PE fund family and year, we calculate the aggregate funds raised in the past 3 years, and the corresponding median across fund families in that year; second, for each PE fund family and year, we compute the aggregate dollar value of all investment made during the past three years, and its respective median across fund families in that year. Late Buyer is an indicator variable with value 1 if equal to 1 if the buyer's most recent fund at the time of the deal is at the end of its investment period (4 to 6 years after inception). Lack of Reputation is an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms. Imputed TEV of the target firm is the sum of the target's equity market value valued at the LBO offer price, and the target's net debt (financial debt minus cash and marketable securities). For transactions without deal value information, we compute an estimate of deal value using the methodology of Stromberg (2008) (see Appendix for further details). Mgmt. Participation is an indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction. U.S. target is equal to 1 if the target is headquartered in the US. Syndicated is an indicator variable equal to 1, if there is more than one buyer. Fund belonging to the same fund family are counted as a single buyer. Affiliated is an indicator variable equal to 1, if the buyer is affiliated to a financial institution or government agency. Novice is an indicator variable with value 1 if the buyer is a PE fund family with 3 funds or less under management at the time of the LBO deal. HY Spread is the difference, at the time of the LBO, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987. Cold IPO Market is an indicator variable equal to 1 if the IPO market is 'cold' at the time of the LBO. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12-code industry, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates. Regressions include industry dummies and yearly dummies. Industries are defined using the Fama and French (1992) classification. We use standard errors clustered by deal year to accommodate heteroskedasticity and within-year autocorrelation. t-statistics are reported in parentheses and ***, **, * denote significance at 1%, 5% and 10%.

Dependent variable: Secondary Deal Indicator												
	(1)		(2)		(3)		(4)		(5)		(6)	
Buy Pressure	0.261	***							0.260	***	0.225	***
	(4.82)								(4.49)		(3.82)	
Dry Powder			0.145	**								
			(2.22)									
Late Buyer					0.127	***						
					(2.80)							
Lack of Reputation							0.636	***				
							(5.09)					
Imputed TEV	0.706	***	0.667	***	0.673	***	0.761	***	0.708	***	0.298	***
	(20.48)		(19.38)		(19.88)		(18.44)		(18.51)		(10.58)	
Mgmt. Participation	0.468	***	0.488	***	0.485	***	0.448	***	0.451	***	0.482	***
	(6.15)		(6.06)		(6.13)		(6.28)		(5.91)		(3.44)	
U.S. Target	-0.256	***	-0.22	**	-0.231	***	-0.283	***	-0.222	**	-0.28	***
	(-3.14)		(-2.57)		(-2.67)		(-3.39)		(-2.46)		(-3.15)	
Syndicated	-0.132	*	-0.114		-0.113		-0.146	**	-0.133	*	-0.096	
	(-1.87)		(-1.58)		(-1.60)		(-2.09)		(-1.94)		(-0.92)	
Affiliated									0.137	**		
									(2.17)			
Novice									0.004			
									0.06			
HY Spread									-0.028	*		
									(-1.67)			
Cold IPO Market									-0.039			
									(-0.32)			
Intercept	-8.032	***	-7.686	***	-7.684	***	-8.443	***	-7.33	***	-5.582	***
	(-14.31)		(-14.09)		(-14.09)		(-13.90)		(-15.19)		(-10.44)	
Ind. & year dummies	Yes											
N	9,771		9,771		9,771		9,771		9,587		4,237	
R-squared	0.16		0.15		0.15		0.16		0.15		0.12	

Table 4 **Valuation of Secondary Deals**

This table presents regression results of the relation between the Excess Sales Multiple (Panel A) and Excess Ebitda Multiple (Panel B) and Buy Pressure for Secondary deals. Excess Sales (Ebitda) Multiple is the difference between the target's Sales (Ebitda) Multiple and a valuation benchmark constructed as follows. For every year, geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private), we compute the median sales multiple for all merger transactions with value larger than 1 million dollars involving a majority stake over the previous two years relative to the date of the LBO. Columns (1) to (5) present results as interactions of Secondary deals and the variables of interest for the entire sample whereas Column (6) shows results within the sub-sample of Secondary deals. Secondary deals are deals in which the seller in a deal is a PE fund. Buy Pressure is the sum of variables Dry Powder, Late Buyer, and Lack of Reputation. Dry Powder is an indicator variable equal to 1 if the buyer is above median in terms of fund raising and below median in terms of deal activity. These criteria are computed as follows. First, for each PE fund family and year, we calculate the aggregate funds raised in the past 3 years, and the corresponding median across fund families in that year. Second, for each PE fund family and year, we compute the aggregate dollar value of all investment made during the past three years, and its respective median across fund families in that year. Late Buyer is an indicator variable with value 1 if equal to 1 if the buyer's most recent fund at the time of the deal is at the end of its investment period (4 to 6 years after inception). Lack of Reputation is an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms. Buyer Size is the log of the value of deals done by the buyer in the last five years. Mgmt. Participation is an indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction. U.S. target is equal to 1 if the target is headquartered in the US. Syndicated is an indicator variable equal to 1, if there is more than one buyer. Fund belonging to the same fund family are counted as a single buyer. Affiliated is an indicator variable equal to 1, if the buyer is affiliated to a financial institution or government agency. Novice is an indicator variable with value 1 if the buyer is a PE fund family with 3 funds or less under management at the time of the LBO deal. HY Spread is the difference, at the time of the LBO, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987. Cold IPO Market is an indicator variable equal to 1 if the IPO market is 'cold' at the time of the LBO. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12-code industry, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates. Regressions include industry dummies and yearly dummies. Industries are defined using the Fama and French (1992) classification. We use standard errors clustered by deal year to accommodate heteroskedasticity and within-year autocorrelation. T-statistics are reported in parentheses and the symbols ***, **, * denote significance at 1%, 5% and 10%.

Panel A. Dependent Variable: Excess Sales Multiple						
	(1)	(2)	(3)	(4)	(5)	(6)
Buy Pressure	-0.188 *** (-5.43)				-0.192 *** (-5.40)	
Secondary*Buy Pressure	0.218 ** (2.57)				0.226 ** (2.66)	0.146 ** (2.47)
Dry Powder		-0.032 (-0.38)				
Secondary*Dry Powder		0.261 * (1.91)				
Late buyer			-0.163 * (-1.91)			
Secondary*Late Buyer			0.281 * (1.74)			
Lack of Reputation				-0.444 *** (-6.12)		
Secondary*Lack of Reputation				0.121 (0.82)		
Secondary	0.106 (0.80)	0.28 *** (3.13)	0.286 *** (3.04)	(0.28) ** (2.19)	0.101 (0.75)	
Buyer Size	0.058 *** (3.72)	0.078 *** (5.51)	0.077 *** (5.39)	0.025 (1.60)	0.066 *** (3.88)	0.083 * (1.98)
Mgmt. Participation	-0.07 * (-1.92)	-0.082 ** (-2.31)	-0.087 ** (-2.49)	-0.038 (-1.01)	-0.056 (-1.51)	-0.015 (-0.26)
U.S. Target	-0.073 (-1.25)	-0.069 (-1.18)	-0.068 (-1.16)	-0.084 (-1.49)	-0.106 (-1.20)	0.185 (1.42)
Syndicated	-0.006 (-0.12)	-0.001 (-0.02)	-0.007 (-0.14)	-0.003 (-0.06)	0.011 (0.23)	-0.142 ** (-2.81)
Affiliated					-0.098 * (-1.94)	
Novice					0.048 (-0.57)	
HY Spread					-0.011 (-0.69)	
Cold IPO Market					0.009 (0.11)	
Intercept	0.921 *** (5.11)	1.046 *** (4.80)	1.007 *** (4.19)	1.165 *** (4.34)	-0.381 (-1.09)	0.371 (1.10)
Industry & year dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1399	1399	1399	1399	1383	337
R-squared	0.10	0.09	0.09	0.11	0.10	0.12

Table 4
Valuation of Secondary Deals (cont.)

Panel B. Dependent Variable: Excess Ebitda Multiple						
	(1)	(2)	(3)	(4)	(5)	(6)
Buy Pressure	-0.584 *				-0.465	
	(-1.77)				(-1.23)	
Secondary*Buy Pressure	2.36 ***				2.309 ***	2.407 ***
	(3.22)				(3.18)	(3.36)
Dry Powder		-0.055				
		(-0.12)				
Secondary*Dry Powder		2.848 **				
		(-2.03)				
Late buyer			-1.007 *			
			(-1.83)			
Secondary*Late Buyer			2.274 *			
			(-1.72)			
Lack of Reputation				-0.864 *		
				(-1.88)		
Secondary*Lack of Reputation				1.203		
				(-1.05)		
Secondary	-1.598	0.236	0.493	(0.38)	-1.468	
	(-1.28)	(0.25)	(0.68)	(0.41)	(-1.23)	
Buyer Size	0.027	0.045	0.051	-0.037	0.129	0.113
	(0.19)	(0.28)	(0.33)	(-0.23)	(1.41)	(0.39)
Mgmt. Participation	-0.63	-0.663	-0.710	-0.603	-0.56	0.121
	(-1.48)	(-1.57)	(-1.54)	(-1.44)	(-1.33)	(0.10)
U.S. Target	0.344	0.400	0.388	0.375	0.118	-1.229
	(0.45)	(0.52)	(0.52)	(0.49)	(0.17)	(-0.69)
Syndicated	-0.684 *	-0.689 *	-0.700 *	-0.695 *	-0.444	-1.644
	(-1.98)	(-1.87)	(-2.08)	(-1.92)	(-1.46)	(-1.10)
Affiliated					-0.621	
					(-0.89)	
Novice					0.307	
					(-0.79)	
HY Spread					-0.069	
					(-0.96)	
Cold IPO Market					0.087	
					(0.12)	
Intercept	3.300	-1.023	-1.523	2.259	6.900 **	-11.05 ***
	(0.66)	(-0.31)	(-0.46)	(0.47)	(2.14)	(-3.90)
Industry & year dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	684	684	684	684	674	144
R-squared	0.07	0.06	0.06	0.05	0.06	0.17

Table 5
Likelihood of Secondary Exits

This table presents results of a logistic regression, where the dependent variable is a Secondary Exit, an indicator variable with value 1 if the exit route of the LBO is a sale to another PE fund or group of PE funds. The explanatory variables are Sell Pressure, which is the sum of variables Late Seller, Late Exit, and Lack of Reputation.). Late Seller is an indicator variable with value 1, if the sale takes place in years 9 or 10 of the PE fund family's oldest active fund (i.e. less than 11 years old). Last Exit is equal to 1 if three or more years have elapsed since the PE fund family last exited an LBO deal. Lack of Reputation is an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms. Imputed TEV of the target firm is the sum of the target's equity market value valued at the LBO offer price, and the target's net debt (financial debt minus cash and marketable securities). For transactions without deal value information, we compute an estimate of deal value using the methodology of Stromberg (2008) (see Appendix for further details). Mgmt. Participation is an indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction. U.S. target is equal to 1 if the target is headquartered in the US. Syndicated is an indicator variable equal to 1, if there is more than one buyer. Fund belonging to the same fund family are counted as a single buyer. Stage is the number of years elapsed since fund raising for the youngest fund in the PE fund family whose investment period overlaps with the LBO deal date (that is, whose deal date falls within years 1 through 6 of the lifetime of the fund). Add-ons is equal to 1, if there were significant acquisitions during the time that the buyer held the target firm in its portfolio. We define acquisitions as significant if there are three or more acquisitions made by the target company during this period or if they represent a cumulative dollar value of 5% or more of the original LBO deal value. Secondary is an indicator variable equal to 1 if the seller is a PE fund. Divisional is an indicator variable equal to 1 if the seller is a corporate entity. Public-to-private is an indicator variable equal to 1 if the target firm is a publicly listed company. Financial seller is an indicator variable equal to 1 if the seller is a financial institution. Exit Affiliation is an indicator variable equal to 1, if the buyer is affiliated to a financial institution or government agency. Exit Novice is an indicator variable with value 1 if the buyer is a PE fund family with 3 funds or less under management at the time of exit. Exit HY Spread is the difference, at the time of the exit, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987. Exit Cold IPO Market is an indicator variable equal to 1 if the IPO market is 'cold' at the time of the exit. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12-code industry, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates. Regressions include industry dummies and yearly dummies. Industries are defined using the Fama and French (1992) classification. We use standard errors clustered by deal year to accommodate heteroskedasticity and within-year autocorrelation. T-statistics are reported in parentheses and the symbols ***, **, * denote significance at 1%, 5% and 10%.

Dependent variable: Secondary Exit Indicator						
	(1)	(2)	(3)	(4)	(5)	(6)
Sell Pressure	0.183 *** (3.20)				0.196 *** (3.51)	0.21 *** (3.01)
Late Seller		0.281 ** (2.24)				
Last Exit			0.176 ** (1.99)			
Lack of Reputation				0.168 * (1.89)		
Imputed TEV	0.032 (1.03)	0.011 (0.38)	0.012 (0.40)	0.026 (0.75)	0.031 (1.00)	0.026 (0.63)
Mgmt. Participation	0.007 (0.10)	0.016 (0.22)	0.011 (0.15)	0.002 (0.03)	0.024 (0.33)	-0.054 (-0.68)
U.S. Target	-0.422 *** (-5.55)	-0.373 *** (-5.32)	-0.391 *** (-5.39)	-0.400 *** (-5.57)	-0.418 *** (-4.73)	-0.503 *** (-4.67)
Syndicated	0.08 (1.10)	0.085 (1.19)	0.088 (1.22)	0.081 (1.09)	0.091 (1.29)	0.045 (0.45)
Stage	-0.027 (-0.78)	-0.026 (-0.80)	-0.011 (-0.32)	-0.014 (-0.40)	-0.03 (-0.82)	-0.007 (-0.15)
Add-On	0.102 (1.17)	0.088 (0.99)	0.103 (1.11)	0.099 (1.11)	0.12 (1.32)	0.108 (0.95)
Secondary	0.381 *** (3.21)	0.383 *** (3.19)	0.387 *** (3.27)	0.378 *** (3.17)	0.33 *** (2.76)	0.169 (0.90)
Divisional	-0.204 *** (-2.81)	-0.224 *** (-3.09)	-0.22 *** (-3.08)	-0.212 *** (-2.91)	0.21 *** (-3.18)	-0.137 (-1.35)
Public to private	-0.326 (-1.53)	-0.332 (-1.57)	-0.327 (-1.50)	-0.33 (-1.54)	0.39 ** (-1.96)	-0.309 (-1.25)
Financial seller	-0.087 (-0.61)	-0.086 (-0.60)	-0.087 (-0.61)	-0.087 (-0.61)	0.11 (-0.87)	-0.434 * (-1.71)
Affiliation					-0.039 (-0.39)	
Exit Novice					-0.129 * (-1.95)	
Exit HY Spread					-0.09 *** (-4.97)	
Exit Cold IPO Market					0.065 (0.60)	
Intercept	-1.93 *** (-5.03)	-1.809 *** (-4.89)	-1.786 *** (-4.76)	-1.891 *** (-4.74)	-1.491 *** (-3.66)	-1.851 *** (-4.55)
Industry & year dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	4,328	4,328	4,328	4,328	4,143	2,209
R-squared	0.06	0.06	0.06	0.06	0.06	0.07

Table 6
Valuation of Secondary Exits

This table presents regression results of the relation between the Excess Sales Multiple (Panel A) and Excess Ebitda Multiple (Panel B) at exit and Sell Pressure. Excess Sales (Ebitda) Multiple is the difference between the target's Sales (Ebitda) Multiple and a valuation benchmark constructed as follows. For every year, geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private), we compute the median sales multiple for all merger transactions with value larger than 1 million dollars involving a majority stake over the previous two years relative to the date of the LBO. Columns (1) to (5) present results as interactions of Secondary Exit and the variables of interest for the entire sample whereas Column (6) shows results within the sub-sample of Secondary Exits. Secondary Exit is the exit route of the LBO involving sale to another PE fund or group of PE funds. Sell Pressure is the sum of variables Late Seller, Late Exit, and Lack of Reputation. Late Seller is an indicator variable with value 1, if the sale takes place in years 9 or 10 of the PE fund family's oldest active fund (i.e. less than 11 years old). Last Exit is equal to 1 if three or more years have elapsed since the PE fund family last exited an LBO deal. Lack of Reputation is an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms. Buyer Size is the log of the value of deals done by the buyer in the last five years. Mgmt. Participation is an indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction. U.S. target is equal to 1 if the target is headquartered in the US. Syndicated is an indicator variable equal to 1, if there is more than one buyer. Fund belonging to the same fund family are counted as a single buyer. Stage is the number of years elapsed since fund raising for the youngest fund in the PE fund family whose investment period overlaps with the LBO deal date (that is, whose deal date falls within years 1 through 6 of the lifetime of the fund). Add-ons is equal to 1, if there were significant acquisitions during the time that the buyer held the target firm in its portfolio. We define acquisitions as significant if there are three or more acquisitions made by the target company during this period or if they represent a cumulative dollar value of 5% or more of the original LBO deal value. Affiliated is an indicator variable equal to 1, if the buyer is affiliated to a financial institution or government agency. Exit Novice is an indicator variable with value 1 if the buyer is a PE fund family with 3 funds or less under management at the time of exit. Exit HY Spread is the difference, at the time of the exit, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987. Exit Cold IPO Market is an indicator variable equal to 1 if the IPO market is 'cold' at the time of the exit. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12-industry classification, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates. Regressions include industry dummies, yearly dummies and dummies for deal type. Industries are defined using the Fama and French (1992) classification. We use standard errors clustered by deal year to accommodate heteroskedasticity and within-year autocorrelation. T-statistics are reported in parentheses and the symbols ***, **, * denote significance at 1%, 5% and 10%.

Panel A. Dependent variable: Exit Excess Sales Multiple						
	(1)	(2)	(3)	(4)	(5)	(6)
Sell Pressure	-0.098 (-1.22)				-0.059 (-0.82)	
Secondary*Sell Pressure	-0.222 * (-1.69)				-0.209 (-1.47)	-0.282 ** (-1.99)
Late seller		-0.259 ** (-2.37)				
Secondary*Late Seller		-0.297 * (-1.86)				
Last Exit			0.038 (-0.21)			
Secondary*Last Exit			-0.14 (-0.50)			
Lack of Reputation				-0.085 (-0.55)		
Secondary*Lack of Reputation				-0.128 (-0.50)		
Secondary	0.347 ** (2.40)	0.185 * (1.69)	0.134 (1.45)	(0.22) (1.16)	0.316 ** (2.25)	
Buyer Size	0.041 ** (2.20)	0.054 *** (3.81)	0.056 *** (3.77)	0.046 ** (2.35)	0.042 ** (2.21)	0.053 (1.11)
Mgmt. Participation	-0.133 * (-1.82)	-0.158 ** (-2.21)	-0.154 ** (-2.17)	-0.141 * (-1.96)	-0.131 * (-1.80)	-0.102 (-0.47)
U.S. Target	0.169 * (1.92)	0.144 * (1.73)	0.151 * (1.75)	0.16 * (1.87)	0.218 (1.65)	-0.154 (-0.89)
Syndicated	-0.086 (-0.88)	-0.074 (-0.78)	-0.081 (-0.83)	-0.085 (-0.88)	-0.089 (-0.92)	0.108 (-0.62)
Stage	0.031 (1.05)	0.04 (1.39)	0.015 (0.52)	0.019 (0.67)	0.024 (-0.80)	(-0.03) (-0.50)
Add-On	0.121 (1.06)	0.146 (1.30)	0.12 (1.05)	0.115 (1.02)	0.128 (-1.08)	0.420 (1.54)
Affiliated					-0.13 (-1.21)	
Novice					-0.102 (-1.49)	
HY Spread					-0.049 * (-1.86)	
Cold IPO Market					-0.151 (-1.06)	
Intercept	0.05 (0.13)	-0.119 (-0.49)	-0.093 (-0.26)	-0.272 (-1.51)	0.054 (-0.24)	3.553 (2.56)
Industry & year dummies	Yes	Yes	Yes	Yes	Yes	Yes
LBO type dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1127	1127	1127	1127	1098	237
R-squared	0.05	0.05	0.05	0.05	0.06	0.10

Panel B. Dependent variable: Exit Excess Ebitda Multiple						
	(1)	(2)	(3)	(4)	(5)	(6)
Sell Pressure	0.28 (-1.18)				0.634 ** (-2.61)	
Secondary*Sell Pressure	-0.366 (-0.29)				-0.414 (-0.32)	-1.241 (-1.15)
Late seller		0.496 (-0.70)				
Secondary*Late Seller		-2.883 * (-1.74)				
Last Exit			1.774 ** (-2.11)			
Secondary*Last Exit			-2.852 ** (-2.08)			
Lack of Reputation				-0.377 (-0.72)		
Secondary*Lack of Reputation				2.319 (-1.56)		
Secondary	-0.831 (-0.47)	-0.464 (-0.43)	-0.895 (-0.92)	(-2.50) * (-1.74)	-0.912 (-0.52)	
Buyer Size	0.05 (0.48)	0.031 (0.30)	0.048 (0.48)	0.008 (0.07)	-0.014 (-0.12)	-0.993 (-0.99)
Mgmt. Participation	-0.155 (-0.26)	-0.099 (-0.16)	-0.226 (-0.39)	-0.215 (-0.36)	-0.07 (-0.12)	0.018 (-0.01)
U.S. Target	1.369 ** (2.58)	1.454 *** (2.85)	1.302 ** (2.46)	1.357 ** (2.55)	1.991 *** (3.36)	0.696 (-0.24)
Syndicated	-0.493 (-0.80)	-0.49 (-0.79)	-0.449 (-0.74)	-0.536 (-0.86)	-0.343 (-0.56)	3.005 * (-2.10)
Stage	-0.066 (-0.47)	-0.043 (-0.28)	-0.036 (-0.27)	-0.006 (-0.04)	-0.07 (-0.51)	0.733 (1.08)
Add-On	0.464 (0.55)	0.489 (0.59)	0.576 (0.68)	0.517 (0.64)	0.443 (-0.51)	-1.019 (-0.46)
Affiliated					-0.469 (-0.72)	
Novice					-1.449 ** (-2.27)	
HY Spread					-0.206 * (-1.95)	
Cold IPO Market					-1.396 * (-2.01)	
Intercept	-6.425 *** (-3.04)	-7.278 *** (-4.48)	-0.779 (-0.40)	-0.897 (-0.45)	-3.05 (-1.35)	-7.01 (-0.63)
Industry & year dummies	Yes	Yes	Yes	Yes	Yes	Yes
LBO Deal type dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	613	613	613	613	599	85
R-squared	0.02	0.02	0.02	0.02	0.04	0.1

Table 7
Valuation of Secondary Deals: Buyer and Seller Pressure

This table presents regression results of the relation between the Excess Sales Multiple (Panel A) and Excess Ebitda Multiple (Panel B) for both Buy and Sell Pressure. Excess Sales (Ebitda) Multiple is the difference between the target's Sales (Ebitda) Multiple and a valuation benchmark constructed as follows. For every year, geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private), we compute the median sales multiple for all merger transactions with value larger than 1 million dollars involving a majority stake over the previous two years relative to the date of the LBO. Secondary deals are deals in which the seller in a deal is a PE fund. Buy Pressure is the sum of variables Dry Powder, Late Buyer, and Lack of Reputation. Sell Pressure is the sum of variables Late Seller, Late Exit, and Lack of Reputation. Late Seller is an indicator variable with value 1, if the sale takes place in years 9 or 10 of the PE fund family's oldest active fund (i.e. less than 11 years old). Last Exit is equal to 1 if three or more years have elapsed since the PE fund family last exited an LBO deal. Lack of Reputation is an indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms. Buyer Size is the log of the value of deals done by the buyer in the last five years. Mgmt. Participation is an indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction. U.S. target is equal to 1 if the target is headquartered in the US. Syndicated is an indicator variable equal to 1, if there is more than one buyer. Fund belonging to the same fund family are counted as a single buyer. Affiliated is an indicator variable equal to 1, if the buyer is affiliated to a financial institution or government agency. Novice is an indicator variable with value 1 if the buyer is a PE fund family with 3 funds or less under management at the time of the LBO deal. HY Spread is the difference, at the time of the LBO deal, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987. Cold IPO Market is an indicator variable equal to 1 if the IPO market is 'cold' at the time of the LBO deal. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12-code industry, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates. Regressions include industry dummies and yearly dummies. Industries are defined using the Fama and French (1992) classification. We use standard errors clustered by deal year to accommodate heteroskedasticity and within-year autocorrelation. T-statistics are reported in parentheses and the symbols ***, **, * denote significance at 1%, 5% and 10%.

Panel A. Dependent variable: Excess Sales Multiple					
	(1)	(2)	(3)	(4)	(5)
Buy Pressure	0.106 *	0.109 *	0.123 **	0.122 **	0.130 *
	(1.94)	(1.87)	(2.19)	(2.30)	(1.66)
Sell Pressure	-0.203 *				-0.164
	(-1.80)				(-1.31)
Late Seller		-0.447 ***			
		(-4.22)			
Last Exit			0.034		
			(0.13)		
Lack of Reputation (Seller)				-0.173	
				(-0.97)	
Buyer Size	0.074 *	0.086 *	0.086 *	0.079 *	0.113 **
	-1.81	-1.89	-1.96	-1.92	(2.34)
Mgmt. Participation	-0.04	-0.077	-0.069	-0.040	-0.013
	(-0.43)	(-0.74)	(-0.78)	(-0.42)	(-0.14)
U.S. Target	0.158	0.118	0.117	0.136	-0.136
	(-0.80)	(-0.60)	(-0.61)	(0.67)	(-0.54)
Syndicated	-0.111	-0.103	-0.143 *	-0.143 *	-0.104
	(-1.69)	(-1.65)	(-2.01)	(-1.96)	(-1.40)
Affiliated					-0.084
					(-0.53)
Novice					0.267
					(1.38)
HY Spread					-0.082
					(-1.17)
Cold IPO Market					0.453 **
					(-2.35)
Intercept	2.079 *	2.022 *	1.438	1.602	1.822 *
	(1.80)	(1.86)	(1.18)	(1.44)	(-1.74)
Industry & year dummies	Yes	Yes	Yes	Yes	Yes
N	296	296	296	296	294
R-squared	0.08	0.08	0.06	0.07	0.08

Table 7
Valuation of Secondary Deals: Buyer and Seller Pressure (cont.)

Panel B. Dependent variable: Excess Ebitda Multiple										
	(1)		(2)		(3)		(4)		(5)	
Buy Pressure	2.345	**	2.11	**	2.312	**	2.248	**	2.330	*
	(2.46)		(2.16)		(2.45)		(2.81)		(2.42)	
Sell Pressure	0.499								0.433	
	(0.38)								(0.32)	
Late Seller			-1.575							
			(-0.84)							
Last Exit					1.008					
					(0.41)					
Lack of Reputation (Seller)							1.441			
							(0.96)			
Buyer Size	-0.16		-0.183		-0.191		-0.113		-0.194	
	(-0.47)		(-0.54)		(-0.51)		(-0.32)		(-0.62)	
Mgmt. Participation	-0.72		-0.89		-0.678		-0.92		-0.671	
	(-0.58)		(-0.76)		(-0.57)		(-0.72)		(-0.49)	
U.S. Target	-2.575		-2.372		-2.56		-2.654		-2.039	
	(-1.17)		(-1.27)		(-1.20)		(-1.35)		(-0.87)	
Syndicated	-0.404		-0.179		-0.394		-0.216		-0.427	
	(-0.27)		(-0.13)		(-0.26)		(-0.15)		(-0.23)	
Affiliated									-0.717	
									(-0.45)	
Novice									-0.009	
									(-0.01)	
HY Spread									0.137	
									(0.20)	
Cold IPO Market									-1.146	
									(-0.38)	
Intercept	2.044		3.898		2.362		1.593		2.915	
	(0.41)		(0.85)		(0.49)		(0.28)		(0.35)	
Industry & year dummies	Yes		Yes		Yes		Yes		Yes	
N	121		121		121		121		121	
R-squared	0.26		0.26		0.26		0.26		0.23	

Appendix A

This appendix describes in detail the construction of the LBO sample. We extract from S&P's Capital IQ all closed merger transactions featuring the keywords "Going Private Transaction", "Leveraged Buy Out (LBO)", "Management Buyout" and "Secondary LBO" transactions with targets located in the U.S. and in 12 European countries (Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Spain, Sweden, Switzerland, and United Kingdom) for the period from January 1st, 1980 to December 31st, 2010. We exclude targets in financial industries, acquisitions of remaining interest, acquisitions of minority stakes, targets with reported negative sales or negative enterprise value, Venture Capital deals misidentified as LBOs in Capital IQ; corporate acquisitions in which the acquirer is not associated with a PE owner; acquisitions by non-PE investors, such as hedge funds, groups of individual investors, corporate venture funds, and non-PE arms of financial institutions. This initial sample includes 23,032 deals. After conducting extensive individual checks using the textual deal commentary, we further exclude: deals without information on the identity of buyers and sellers, acquisitions by management teams (e.g. management buy-outs) with no evidence of involvement by a PE sponsor; and deals in which the target firm is bankrupt or in financial distress. When an acquisition involves multiple stages or transactions, we keep the one in which the buyer acquired most of its stake (typically the first transaction).

Although Capital IQ contains the unique identifier(s) of the PE buyer(s), this information is sometimes available at the fund level (e.g. "KKR EUROPEAN BUYOUT FUND II, L.P.") and sometimes at the fund family level (e.g. "KOHLBERG KRAVIS ROBERTS & CO."). Moreover, we found cases in Capital IQ of families that are considered distinct but actually belong to the same PE group (e.g. "BARCLAYS PRIVATE EQUITY LTD." and "BARCLAYS PRIVATE EQUITY FRANCE SAS"). We therefore create a unique PE fund family identifier to address such cases.

For each deal we identify a "leading buyer": In single-buyer deals the leading buyer is the family of the acquiring fund; in syndicated deals the leading buyer is the PE fund family with highest reputation among all buyers, where reputation is measured as the dollar market share of the PE fund family across all LBOs conducted up to that year. For each deal and each leading buyer, we require that the acquisition date is within the investment period range (years 1 through 6) of at least one of the funds in the PE fund family. The final sample contains 9,771 LBO deals, out of which we are able to trace 4,328 exit routes and dates

Appendix B

Deal Variables	
Variable:	Definition:
Secondary	Indicator variable equal to 1 if the seller is a PE fund, and zero otherwise.
Divisional	Indicator variable equal to 1 if the seller is a corporate entity, and zero otherwise.
Financial seller	Indicator variable equal to 1 if the seller is a financial institution, and zero otherwise.
Public to private	Indicator variable equal to 1 if the target firm is a publicly listed company, and zero otherwise.
Private to private	Indicator variable equal to 1 if the seller is a non-PE investor group or individual, and zero otherwise.
Imputed TEV	Implied Total Enterprise Value (TEV) of the target firm is the sum of the target's equity market value valued at the LBO offer price, and the target's net debt (financial debt minus cash and marketable securities). For transactions without deal value information, we compute an estimate of deal value using the methodology of Stromberg (2008). For all 29,000 deals in the initial sample, we run a Heckman model of the likelihood of a deal having its value disclosed in the first stage, and the TEV of the target in the second stage. See Appendix 3 for details of this procedure. TEV amounts are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates.
Mgmt. Participation	Indicator variable equal to 1 if at least one member of the management team of the target is referenced as an investor in the LBO transaction, and zero otherwise.
U.S. Target	Indicator variable equal to 1 if the target is headquartered in the U.S., and zero otherwise.
Syndicated	Indicator variable equal to 1 if there is more than one buyer, and zero otherwise. Fund belonging to the same fund family are counted as a single buyer.
Stage	Number of years elapsed since fund raising for the youngest fund in the PE fund family whose investment period overlaps with the LBO deal date (that is, whose deal date falls within years 1 through 6 of the lifetime of the fund).
HY Spread	Difference, at the time of the LBO, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. The index is only available after 1987.
Cold IPO Market	Indicator variable equal to 1 if the IPO market is 'cold' at the time of the LBO, and zero otherwise. To define a cold [hot] IPO market, we compute the aggregate deal value of IPOs taking place in the same geography (U.S. or Europe), same Fama-French 12-code industry, and year as the target firm, and check if this value is lower [higher] than the geography- and industry-level time series mean. IPO amounts are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates.
Buyer Variables	
Variable:	Definition:
Dry Powder	Indicator variable equal to 1 if the buyer is above median in terms of fund raising and below median in terms of deal activity. These criteria are computed as follows. First, for each PE fund family and year, we calculate the aggregate funds raised in the past 3 years, and the corresponding median across fund families in that year. Second, for each PE fund family and year, we compute the aggregate dollar value of all investment made during the past three years, and its respective median across fund families in that year. All monetary values are measured in real December 2010 U.S. dollars, after conversion at historical exchange rates.

Late Buyer	Indicator variable equal to 1 if the buyer's most recent fund at the time of the deal is at the end of its investment period (4 to 6 years after inception), and zero otherwise.
Lack of Reputation	Indicator variable equal to 1 if the buyer is not among the PEI Media Top 50 PE firms, and zero otherwise.
Buy Pressure	Sum of variables Dry Powder, Late Buyer, and Lack of Reputation.
Affiliated	Indicator variable equal to 1 if the buyer is affiliated to a financial institution or government agency, and zero otherwise.
Novice	Indicator variable equal to 1 if the buyer is a PE fund family with 3 funds or less under management at the time of the LBO deal, and zero otherwise.
Sales Multiple	Ratio between TEV and latest available yearly sales for the target firm at the time of the LBO. This variable only takes non-missing values when deal value is known.
Excess Sales Multiple	Difference between the target's Sales Multiple and a valuation benchmark constructed as a follows. For every year, geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private), we compute the median sales multiple for all merger transactions with value larger than 1 million dollars (at constant 2010 dollars) involving a majority stake over the previous two years relative to the date of the LBO.
Ebitda Multiple	Ratio between TEV and Ebitda for the target firm at the time of the LBO. This variable only takes non-missing values when deal value is known.
ExcessEbitda Multiple	Difference between the target's Ebitda Multiple and the benchmark, the median Ebitda multiple for all merger transactions with value larger than 1 million dollars (at constant 2010 dollars) involving a majority stake over the previous two years in the same geography (U.S. versus Europe), industry (Fama-French 12-industry classification) and public status (public or private) as the target LBO firm.
Exit variables	
Variable:	Definition:
Secondary Exit	Exit route of the LBO is a sale to another PE fund or group of PE funds.
Down Exit	Exit route of the LBO is a sale to existing management, a distressed merger transaction, or bankruptcy.
Trade Sale Exit	Exit route of the LBO is a sale to a corporate buyer.
IPO Exit	Exit route of the LBO is a equity listing on public markets.
Add-Ons	Indicator variable equal to 1 if there were significant acquisitions during the time that the buyer held the target firm in its portfolio, and zero otherwise. We define acquisitions as significant if there are three or more acquisitions made by the target company during this period or if they represent a cumulative dollar value of 5% or more of the original LBO deal value.
Late Exit	Indicator variable equal to 1 if the three or more years have elapsed since the PE fund family last exited an LBO deal.
Late Seller	Indicator variable equal to 1 if the sale takes place in years 9 or 10 of the PE fund family's oldest active fund (i.e. less than 11 years old), and zero otherwise.
Sell Pressure	Sum of variables Exit Pressure, Late Seller, and Lack of Reputation.
Exit HY Spread	Difference, at the time of the exit from LBO, between the Barclays High Yield Composite index and the Barclays average corporate AAA corporate bond rate. Only available after 1987.
Exit Cold IPO Market	Indicator variable equal to 1 if the IPO market is 'cold' at the time of the LBO exit, and zero otherwise.
Novice at Exit	Indicator variable equal to 1 if, at the time of exit from the LBO deal, the buyer is a PE fund

	family with 3 funds or less under management, and zero otherwise.
Exit Sales Multiple	Ratio between TEV and latest available yearly sales for the target firm at the time of the exit from the LBO. This variable only takes non-missing values when exit value is known.
Exit Excess Sales Multiple	Difference between the target's Sales Multiple and the valuation benchmark at the time of exit from the LBO.
Exit Ebitda Multiple	Ratio between TEV and Ebitda for the target firm at the time of exit from the LBO. This variable only takes non-missing values when exit value is known.
Exit ExcessEbitda Multiple	Difference between the target's Ebitda Multiple and the valuation benchmark at the time of exit from the LBO.

Table A-1

This table shows the results of a Heckman selection model used to create the imputed Enterprise Values for transactions without deal value information, following Stromberg (2008). Variables specifically constructed for this regression include: Distress, an indicator variable equal to 1 if the LBO target deal is financially distressed; Financial sponsor, an indicator variable equal to 1 if there is at least one Financial Sponsor among buyers; Public Investment Fund, an indicator variable equal to 1 if at least one of the buyers is a listed fund; Independent Private Fund, an indicator variable equal to 1 if at least one of the buyers is a private fund not affiliated with a financial institution; MBO, an indicator variable equal to 1 if there is no evidence of PE involvement; Sponsor>20 deals, an indicator variable equal to 1 if the buyer is present in more than 20 deals within the sample period; dummies for geography, where Continental Europe is an indicator variable that takes the value 1 for targets in Belgium, France, Germany, Italy, Luxembourg, Netherlands, Spain, and Switzerland, and Scandinavia is an indicator variable that takes the value 1 for targets in Denmark, Finland, and Sweden; and time dummies for different yearly intervals. All other variables are as described in Appendix B. The outcome equation includes year and industry dummies, where industries are defined using the Fama and French 48-industry classification. T-statistics are reported in parentheses and the symbols ***, **, * denote statistical significance at respectively the 1%, 5% and 10% levels.

Dependent variable	Log of Enterprise Value (Censored obs.)			Deal Value is Disclosed (Uncensored obs.)		
		(1)		(2)		
Private-to-Private	-1.506	(11.69)	***	-2.061	(30.38)	***
Divisional	-1.335	(14.02)	***	-1.450	(21.02)	***
Financial-to-Private	-1.028	(7.00)	***	-1.921	(24.80)	***
Secondary	-0.382	(3.55)	***	-1.588	(22.21)	***
Distressed	-2.376	(17.87)	***	-1.490	(17.67)	***
Financial sponsor	0.100	(0.75)		0.563	(8.75)	***
Public Inv. Fund	-0.086	(1.23)		0.318	(8.03)	***
Indep. Private Fund	0.379	(5.62)	***	-0.146	(4.11)	***
MBO	-1.543	(13.09)	***	-0.069	(1.18)	
Sponsor > 20 deals	0.890	(19.82)	***			
Syndicated	0.126	(2.81)	**	0.204	(9.41)	***
U.S. dummy	0.543	(10.16)	***	-0.453	(18.84)	***
Continental Europe dummy	0.326	(4.74)	***	-0.606	(22.32)	***
Scandinavia dummy	0.084	(0.75)		-0.752	(16.59)	***
1970-1984 dummy				0.555	(5.55)	***
1985-1989 dummy				0.407	(7.21)	***
1990-1994 dummy				0.359	(7.70)	***
1995-1999 dummy				0.359	(12.89)	***
2000-2005 dummy				0.346	(16.40)	***
Heckman's Lambda	-1.459	(3.83)	***			
Intercept	4.777	(11.66)	***	1.206	(13.55)	
Industry dummies	Yes					
Year dummies	Yes					
N	8,535			23,032		