

UK Private Equity Market – Longevity, Exit Strategies, and Performance of Management Buy-outs

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Acknowledgements: I gratefully acknowledge a personal research grant from the UK Institute for Quantitative Investment Analysis (INQUIRE) received for the project: UK Private Equity Market- Longevity, Exit Strategies and Performance of Management Buyouts. I would like to thank to Peter Pope for his continuous help and support regarding the above project. Especial thanks to my co-authors on other projects, Wolfgang Aussenegg and Mike Wright. Mike has inspired me to do research in area of private equity and Wolfgang has helped me on this project with his advice and data analysis. The research assistance of Thi Hoang Anh and Lei Zheng is also gratefully acknowledged.

Abstract

The size of the UK private equity market is equal to the rest of the European markets put together and the market is dominated by management buy-outs (MBO) and buy-ins (MBI). More recently, ‘club’ deals and increased availability of debt finance has contributed to significant increase in the capital accumulated by private equity funds resulting in more funds raised by UK-based private equity (PE) fund managers on the London Stock Exchange public equity markets. Phenomenal growth and highly publicized cases of acquisitions of some FTSE 100 companies by PE firms created controversy regarding the economic benefits of PE investments. Some of the above controversies stem from the paucity of research on private equity markets.

Using a hand-collected dataset of 1,333 buy-outs, we examine buy-outs longevity, choice of investors/managers exit strategies, private equity firms (PE) backing and buyouts’ operating performance, during the period 1980-2004. Our results suggest that it takes, on average, 46 months for sample firms to exit from their buyout structure. Smaller buy-outs and those backed by private equity tend to have longer longevity than their larger and non-PE backed counterparts. In our sub-sample for IPO exits, however, PE backed buy-outs tend to have shorter longevity. Our probit regressions successfully predicted choice of IPO exit strategy in 81% of cases, and show that backing by highly reputable PE firms increases the likelihood of initial public offerings (IPO) exit by 45%.

We track operating performance of sample buyouts up to 13 years (3 pre and 10 post buy-out years) and conduct both univariate and multivariate examinations of the operating performance after buy-out and exit transactions. The results of our pooled cross-sectional time series models suggest a statistically significant increase in output, efficiency and dividends during the post buy-out period. Overall, our sample companies exhibited statistically significant improvements in output and statistically significant reductions in gearing in the post-exit phase, after controlling for sample selection bias regarding the choice of exit strategy. More reputable PE firms tend to be associated with increases in employment in both post buy-out and post exit phases. The results for changes in employment of PE backed buy-outs shed more light on the ongoing debate about the long term role of PE firms in UK. Based on the evidence, benefits from PE investment do not come at the expense of the longer term health of companies and employees. Our IPO sub-sample displays no evidence of statistically significant underperformance that is often documented in the IPO literature. On contrary, the evidence suggests improved performance during the post listing period.

JEL classification: G24, G32, G34

Key words: MBO, Operating Performance, Private Equity, IPO, Acquisitions

Introduction

The UK private equity market is dominated by management buy-outs (MBO) and buy-ins (MBI).¹ A recent study reports that the private equity asset class has outperformed all principal UK comparative asset classes since 1987.² Nevertheless, the average private equity weight for UK pension managers was only 3.75% until 2003.³ In the past, the reluctance to invest in private equity was often attributed to fund trustees' psychological barriers, and investors' misconceptions about risks and cash flows associated with investments in private equity.⁴

More recently, syndicated (i.e. club) deals and increased availability of debt finance has contributed to a significant increase in the capital accumulated by private equity funds. For example, in the first half of 2006 UK-based PE fund managers raised £11.2 billion of capital, compared to £10.4bn of funds raised via IPO on the London Stock Exchange public equity markets, during the same period.⁵ An average PE-backed buy-out deal size has increased from £11.6m in 2002 to £ 16.7 million in 2006. During the same period, the total number of PE backed deals steadily increased reaching more than 2000 in 2004, and continuing to increase in 2005 and 2006.⁶ The above growth of PE funding was accompanied by cases of takeovers of large (i.e. FTSE 100) UK public companies by private equity groups, increased leveraged finance provision to private equity transactions and development of secondary markets for both individual and PE funds holdings.

The recent trends have generated public interest and raised the profile of PE- backed deals but at the same time have created controversy: *"...to its defenders, private equity makes companies more efficient. To its attackers, its practitioners are financial*

¹ The size of the UK private equity (i.e. venture capital) market is equal to the rest of the European markets put together (EVCA, 2001). Private equity refers to all equity investments in unquoted companies, to include late stage (buy-outs) and early stage (seed) investments. The UK, however, private equity market is dominated by venture backed late stage investments. In the USA term private equity is used interchangeably with leveraged buy-out investments whereas term venture capital is reserved for early stage investments.

² BVCA (2000).

³ Financial Times, 12 May 2003.

⁴ BVCA (2000).

⁵ FSA (2006), p. 4.

⁶ Financial Times, 30 April 2007.

*manipulators and asset-strippers.”*⁷ The opinions on the long term effects of PE investments and in particular, whether the benefits for PE funds come at the expense of the longer term health of companies, are also divided. While the British Private Equity and Venture Capital Association (BVCA), has provided statistics suggesting that companies backed by PE have grown employment and sales faster than other companies, many argue that after the PE exits (typically 3 years) the implications for shareholders, employees, and others may be unpleasant.⁸ The above controversy prompted both public and regulators (i.e. FSA) to require more transparency and a new regulation for the industry.⁹ At least some of the above controversies stem from the paucity of research on private equity markets.

Many of the earlier studies on UK buyouts have focused on short term post-buy-out operating performance (Wright et al., 1996; Wright, 1986), the short and long term financial performance of buyouts that went public through IPO (Jelic et al., 2005; Levis, 2007), the involvement of various institutions in these transactions (Robbie et al., 1992), and analysis of failure of buyouts (Wright et al., 1996). In the USA, there has been some separate analyses of reverse leverage and/or management buyouts (L/MBO) (Muscarella and Vetsuypens, 1990; DeGeorge and Zeckhauser, 1993; Holthausen and Larcker, 1996) and venture-backed IPO (e.g. Megginson and Weiss, 1991; Lerner, 1994; Brav and Gompers, 1997). The studies of reverse L/MBO, however, did not examine the role of the private equity funding.¹⁰

The objective of this study is to shed more light on the UK private equity market by investigating factors that influence buyout’s longevity, the choice of investors/managers exit strategies, post buyouts’ and post exit long term operating

⁷ Wolf (2007); private equity firms have been characterized by trade unions as “asset strippers who destroy jobs and load companies with debt.” Financial Times, 30 April 2007.

⁸ See Gordon (2007).

⁹ The FSA, for example, published a discussion paper aiming to stimulate discussion among policy makers and industry participants about the development of the PE market and in particular on an appropriate level and form of regulatory engagement with the private equity sector in 2006.

¹⁰ In the USA, term private equity is used interchangeably, with leveraged buy-out investments whereas term venture capital is reserved for early stage investments. The L/MBO specialists usually invest in mature companies with predictable cash flows. They are normally organized as limited partnerships, and structure their deals using both equity and debt.

performance, and the effects different exit strategies, PE backing, and reputation of PE firms may have on the performance.

Our work contributes to the previous literature by examining deal specific determinants of buyouts' longevity and exit strategies. The importance of tracking the performance over a longer period has been highlighted by both the ongoing debate about overall benefits of the PE investments and the operating performance literature (Barber and Lyon, 1996). We, therefore, track the buyouts operating performance up to 13 years (3 years before and 10 years after buyout transactions), and separately examine the determinants of the performance changes after both buyouts and exit transactions. Finally to the best of our knowledge, this is the first study to control for sample selectivity bias with regard to the choice of different exit strategies in examining the post events operating performance.

Our results suggest that it takes, on average, 46 months for sample firms to exit from their buyout structure. Buyouts exited via IPO are, on average, smaller than sample buyouts exited via trade sales. PE backed transactions tend to be larger than their non-PE backed counterparts, both in terms of MBO value and value at exit. Backing by a highly reputable PE firms increases likelihood of flotation by 45%. The reputation of the PE firm is also positively associated with increase in employment both after buy-out transaction and after exit. This evidence suggests that long term benefits from PE investments do not come at the expense of employees.

The rest of the paper is organised as follows. In Section 2, we provide a summary of related literature and develop testable hypotheses. Section 3 describes the data sources and our sample. Methodology is discussed in Section 4. Results are presented and discussed in Section 5. Section 6 contains conclusions with suggestions for further research.

2. Relevant literature and hypotheses

2.1. Determinants of buyouts' longevity and exit strategies

In spite of the popularity and extensive media coverage of IPO, the evidence on what is the most desired (and dominant) form of 'harvesting' is not clear. For example, Sahlman (1990) reports that more venture capital backed private firms opted for trade sales than IPO during the 1980s.¹¹ In addition, recent popularity of public to private transactions in the UK questions some advantages of public listed companies over non-listed companies.

A number of studies have identified differences in exit strategy. IPO, for example, involve public (including regulatory) scrutiny and lengthy disclosure during and after exit. On the other hand, only a limited number of investors are involved in information gathering related to trade sales (Chemmanur and Fulghieri 1999). It can be argued, therefore, that the level of information asymmetry is much higher for trade sales than for IPO. Although both IPO and sales benefit from the subsequent access to public debt and equity market, a profitable project in companies that have undergone trade sales may find it more difficult to raise funding within the internal capital markets of the acquiring firms (Stein, 1997). Trade sales often entail selling the entire company so that original owners retain no ownership, while insiders involved in IPO exits tend to retain some ownership (Poulsen and Stegemoller, 2005).¹² Exit strategies also tend to affect the valuation of the companies. Lerner (1994) for example, reports that return to investment in companies that exit via flotation was four times that of the return for trade sales for venture capital backed private firms. Similarly, Koeplin et al. (2000) report that trade sales are often valued at a 20-30% discount to similar public takeover deals. The above differences suggest that choice between different exit strategies may not be random, and that some determinants of choice could be identified.

Brau et al. (2003) classify the determinants into four different categories: industry related, market timing related, factors related to overall demand for funding by private

¹¹ Terms: trade sale, sell-out, and direct sale will be used inter-changeably.

¹² Insiders would normally enter a lock-up agreement which would prevent them from selling their ownership stakes for a number of months (sometimes years) after IPO.

firms, and deal-specific determinants. The evidence for market timing in IPO markets suggest that peaks in the IPO market (hot issue periods) coincide with peaks in stock market returns (Ritter, 1984; Lowry (2003), while the overall demand for funding influences the choice between IPOs and acquisitions to a lesser degree (Mikkelson et al., 1997). Boehmer and Ljungqvist (2004) suggest that more companies will go public when outside valuations are high or have increased. They also highlight the importance of deal (i.e. company) specific factors, such as uncertainty related to future profitability and insider ownership. For example, when uncertainty is high more firms would choose IPO, while companies whose shareholders enjoy significant private benefits of control are less likely to go public. Finally, industry classification has been identified as an important determinant of exit strategies (Pagano et al., 1998).

Ellingson and Rydquist (1997) report that sell-outs would be preferred to IPO by companies with assets that are more difficult to value by dispersed public shareholders. Poulsen and Stegemoller (2005) consider companies' ownership, growth, and information asymmetry as important determinants of choice. They hypothesise that firms with low insider ownership, lower growth opportunities, and assets that are more difficult to value by dispersed public shareholders would prefer trade sale to IPO. They found that IPO are the preferred exit strategy for US companies with greater growth opportunities, while trade sales seem to be favoured when managers are selling higher ownership stakes and when firms face financial constraints.

For UK companies, Wright et al. (1995) reported that size of buy-out is positively related to exit probability since private equity funds tend to prefer larger companies. Larger buyouts also tend to have shorter longevity (period between buyout transaction and exit) than their smaller counterparts. Wright et al. (1995) is one of the rare studies that examine buyouts' longevity. The study examines 158 buyouts during 1983-86. The authors report that many buyouts experience short-term changes in ownership, many of them remain as such for a considerable period. The longevity seems to be associated with the size of the transaction and with institutional control variables. For example, buy-outs with board representation from PE firms have lower survivability in the buy-out form than those where this is absent.

We examine deal specific and market related determinants of longevity and choice of different exit strategies from buyout structures. In accord with the previous literature, we predict that larger buyouts and buyouts with PE backing will have shorter longevity than their smaller and non-PE backed counterparts:

H1: Buyouts' size is negatively associated with buy-outs longevity

H2: PE backing is negatively associated with buy-outs longevity

Kaplan (1991) suggests that reputation of PE firm may be important for the longevity of buy-outs. He finds that buy-outs sponsored by more reputable LBO partnerships are more likely to go public within a particular time period than those sponsored by less reputable backers.¹³ Reputable PE firms may be more successful in both selecting good deals and implementing changes in backed buy-outs. It may, therefore, take less time for them to prepare the buy-outs for the exit and, thus, they may be more likely to bring companies to the market sooner (Jelic et al. 2005):¹⁴

H3: Reputation of PE firms is negatively associated with buy-outs longevity

We hypothesize that size of buy-outs (*LNVMB0*), PE backing (*PE*), and market conditions at the time of exit (*AVFTSE*), may be important determinants of the choice of exit strategy.¹⁵ Larger buy-outs and those with PE backing exiting during peaks in 'hot IPO market' periods would be more likely to exit via floatation than their counterparts. We control for source of buy-out transaction (*DIVESTMENT*), since divisional buyouts (divestment) may be better suited to a particular exit strategy than

¹³ The difference, however, was not statistically significant.

¹⁴ This hypothesis is opposite to the 'Grandstanding hypothesis' proposed by Gompers (1996), according to which less reputable venture capital firms may be tempted to take companies to the market sooner in order to free capital for new investment and establish reputation by investing in a larger number of deals.

¹⁵ The market conditions are proxied by average market index (FTSE All Share Index) growth over a two-year period which includes year of exit and the previous year.

of entire firm buyouts. The same applies to type of buy-out deal (*MBI*) and industry classification (*INDUSTRY*). Finally, we control for time to exit (*TIMEX*).

H4: Larger buyouts are more likely to exit via IPO

H5: PE backing increases likelihood of exit via IPO

2.3 Private equity backing and performance

2.3.1 Performance after buy-out transaction

There is extensive evidence that restructuring of buy-outs within a two to three year period is key to generating gains, and that PE firms board representation contributes to better performance of PE backed buy-outs (see Thompson and Wright (1995), for a comprehensive literature survey). The evidence on improvements in operating performance after buy-out transactions is conclusive (Kaplan, 1989; Smith, 1990; Opler, 1992; Wright et al., 1996). For example, Wright et al. examine 251 UK buy-outs and 446 non-buy-outs which were tracked for up to six years after the buy-out. The authors conclude that buy-outs significantly outperform non-buy-outs in terms of return on assets and return on equity in years 3 to 5 post buy-out.

The only evidence, so far, on the relative performance of UK buy-outs opting for different exit strategies comes from Nikoskelainen et al. (2005). The authors report an internal rate of return of enterprise value of 22.2% and the average equity internal rate of return of 70.5%, for the sample of 321 UK buy-outs exiting during the period 1995-2004. Buy-outs that exited via IPO outperformed trade sale exits and secondary buyout exits. Larger buyouts performed better than medium and smaller buyouts. The authors also suggest that returns are related to corporate governance mechanisms resulting from leveraged buyouts.

We, therefore, test the following hypothesis:

H6: Operating performance improves in the post-buy-out phase

H7: PE backing is positively associated with improvements in operating performance in the post-buy-out phase

2.3.2 Operating performance in post-exit phase

The operating performance of buy-outs exited via floats was also examined as a part of larger samples in IPO literature. For example, Khurshed et al. (2003) report long term reductions in operating performance for UK IPOs during 1980-83 period, in the first year after listing. Jain and Kini (1994) and Mikkelsen et al. (1997) report long term deterioration in operating performance for US IPOs. Mikkelsen et al. (1997) argue that the drop in the performance was associated with the firms timing ability to go public during periods of exceptionally good performance.¹⁶ A common feature of these studies, however, is that they have examined both early stage and buy-out stage investments combined. Buy-out firms, however, are quite distinct and are not representative of a typical firm going public, and it is important to study them separately (Jelic et al., 2005).

Barber and Lyon (1996) provide an alternative explanation for operating ‘underperformance’ after IPO. They report that the results of some studies could be biased due to the fact that authors did not track the performance of IPO firms long enough after the floatation. They also suggest that cash flow, rather than accrual based, measures of performance should be used since the use of accruals tends to overstate earnings pre-event. Finally, scaling profit by sales rather than total asset can be a better measure of performance after IPO since it avoids the ‘build up in assets’ measurement problem. The problem is related to the fact that operating assets tend to increase immediately after the IPO but their deployment is often delayed which would mean further delay in the effect on operating income. We, therefore, test for the following hypothesis:

¹⁶ Elsewhere a significant decline in the post IPO performance was documented for Japanese IPO (Cai and Wei, 1997; Kutsuna et al. 2002).

H8: Buy-outs do not exhibit significant deterioration in the performance in the post-exit phase, after controlling for sample-selection bias regarding choice of exit strategy

Lin and Smith (1998) hypothesize that venture capital (VC) firms balance the cost of continued monitoring involvement (i.e. inability to redeploy advisory talent to other ventures) against the adverse market reaction to insider selling during IPO. To expedite redeployment of investments, companies backed by VC are brought to the market sooner than non-VC backed companies. The authors also report a decline in VC's board seats after the IPO exits from 13.6% to 4.9%. This further may imply that one should expect deterioration in performance after the exit. Empirical evidence for financial performance (i.e. stock market price based) seems to contradict this view, and documents absence of the statistically significant underperformance for PE backed IPO (Espenlaub et al., 1999; Jelic et al. 2005; Levis, 2007).¹⁷ Jelic et al. (2005), for example, report that private equity reputation plays an important role in financial long term performance of (reversed) buy-outs that were subsequently floated. The authors have not found underperformance by PE backed buy-outs. Furthermore, the buy-outs backed by more prestigious firms performed better than those backed by less prestigious firms, measured by two year buy-and-hold returns. We, therefore, test for the following hypothesis:

H9: Reputation of PE firms is positively associated with improvements in the operating performance, after controlling for sample selection bias regarding choice of exit strategy

¹⁷ Levis (2007) reports that PE backing does not seem to be reliable a factor in differentiating average long term performance of UK IPOs, although they do seem to generate more homogenous performance.

3. Data sources and sample descriptive statistics

3.1. Data sources

Buy-out and exit transactions have been identified from the Center for Management Buy-out Research (CMBOR) Quarterly Reviews (various issues), KPMG MBO commentaries (various issues), Barclays Private Equity Deal Maker (various issues), Barclays Private Equity – Exits (various issues), KPMG New Issue Statistics, and www.growthbusiness.co.uk website. This data collection exercise enabled us to obtain a list of 1,333 UK buyouts, with inception and/or vintage years, size and details about exit strategies, type of transaction (MBO vs. MBI), vendors, and industry classification for the period 1980-2004. We monitor the progress of buy-outs following completion, by surveying the same sources plus London Stock Exchange Primary Market Fact-sheets, BVCA reports, and websites of PE firms. Additional data on operating performance, current ownership status, venture capital involvement, and exit strategies was collected from various sources such as: FAME database, Reuters database, Datastream database, companies' annual reports (obtained either from Companies House or directly from the companies), and IPO and/or acquisition prospectuses.

The sample firms that exited via IPO were floated either on the Main Board of the London Stock Exchange (310 firms) or on one of the second boards (200 firms) (see Table 1).¹⁸ The second sub-sample (non-floats) consists of 354 MBOs that exited via either trade sales (237 firms), secondary MBOs (88 firms) or through the receivership process (29 firms). Finally, 232 of our sample buyouts had not exited by the end of 2004.

Insert Table 1 about here

¹⁸ USM until 1995, and AIM since 1995.

3.2 Sample descriptive statistics

The firms from the second sub-sample (non-floats) are, on average, larger than other sample firms (median and value at exit, of £40 million and £105 million, respectively). Non-exits tend to be much smaller transactions than their counterparts from float and non-float sub samples. It takes, on average, 46 months for sample firms to exit from their buyout structure. The difference in time to exit for floats and non-floats is not statistically significant (see Table 2).

Insert Table 2 about here

In our sub-sample for floats, PE backed transactions tend to be larger than their non-PE backed counterparts, both in terms of buy-out value and value at exit (see Table 3). They also tend to have shorter longevity (time to exit) than their counterparts that have not received PE backing. For example, it takes on average 39 months for PE backed buy-outs to exit via IPO, compared to 56 months for their non-PE backed counterparts. The differences in average (both mean and median) size and time to exit between venture backed and non venture capital backed buy-outs are statistically significant at 1% significance level.

Insert Table 3 about here

In the sub-sample of non-floats, trade sales tend to be smaller transactions than secondary buy-outs (see Table 4). The differences in median MBO values and values at exit are statistically significant. Trade sales, however, tend to exit earlier than their secondary buy-out counterparts. Finally, buy-outs that exit via receivership are the smallest transactions within the sub-sample.

Insert Table 4 about here

Overall, the descriptive statistics and the results of univariate analysis suggest statistically significant differences between sample firms stratified by different exit strategies (and PE backing). The identified differences are consistent with findings

reported in Nikoskelainen et al. (2005) who suggest that smaller buy-outs tend to attract less interest from big investors. Given the above mentioned characteristics of our sample firms, any comparison of buy-outs that adopted different exit strategies (e.g. differences in operating performance) requires consideration of the sample selection bias.

4. Methodology

4.1 Determinants of longevity and exit strategies

We test hypotheses 1 to 3 within the following OLS regression models, with time to exit as a dependent variable:

$$TIMEX_i = \alpha_0 + \beta_1 LNVMBO_i + \beta_2 PE_i + \beta_3 MBI_i + \beta_4 INDUSTRY_i + \beta_5 FLOAT_i + \varepsilon_i$$

$$TIMEX_i = \alpha_0 + \beta_1 LNVMBO_i + \beta_2 REPUTATION_i + \beta_3 MBI_i + \beta_4 INDUSTRY_i + \beta_5 FLOAT_i + \varepsilon_i$$

Where, *TIMEX* is time to exit in number of months from a buy-out transaction until exit; *LNVMBO* is the natural logarithm of buy-out value; *MBI* is a dummy variable taking value equal to 1 for buy-ins, 0 otherwise; *INDUSTRY* is a dummy variable taking value equal to 1 for buy-out/in from manufacturing industry, 0 otherwise; *FLOAT* is a dummy variable for IPO taking value equal to 1 for buy-outs exited via flotation, 0 otherwise; *REPUTATION* is a dummy variable for reputation of PE firms taking value equal to 1 for buy-outs backed by more reputable firms, 0 otherwise.

Hypotheses 4 and 5 were tested within the following probit models for determinants of choice of exit strategies:

$$FLOAT_i = \alpha_0 + \beta_1 LNVMBO_i + \beta_2 DIVESTMENT_i + \beta_3 MBI_i + \beta_4 AVFTSE_i + \beta_5 TIMEX_i + \beta_6 INDUSTRY_i + \beta_7 PE_i + \varepsilon_i$$

$$FLOAT_i = \alpha_0 + \beta_1 LNVMBO_i + \beta_2 DIVESTMENT_i + \beta_3 MBI_i + \beta_4 AVFTSE_i + \beta_5 TIMEX_i + \beta_6 INDUSTRY_i + \beta_7 REPUTATION_i + \varepsilon_i$$

Dependent variable is a dummy variable taking value equal to 1 if buy-out exited via flotation, and 0 otherwise (trade sale, secondary buy-outs, liquidation) (*FLOAT*). The choice of floatation is a function of the following explanatory/control variables: a variable for buy-out value, as natural logarithm buy-out value (*LNVMBO*); a dummy variable for source of buy-out transaction taking value equal to 1 for domestic and foreign divestments, and zero otherwise (privatizations and/or family owned entire companies, secondary buy-outs, and receivership) (*DIVESTMENT*); a dummy variable for buy-in transactions taking value equal to 1 for buy-in transactions, and 0 for buy-outs (*MBI*); an average growth rate for FTSE All Shares Market Index during the exit year and the year preceding the exit (*AVFTSE*); a dummy variable taking value equal to 1 for manufacturing companies, and 0 otherwise (*INDUSTRY*); a variable for length of time (number of months) before exits (*TIMEX*); a dummy variable taking value equal to 1 for PE backed firms, and 0 otherwise (*PE*).

4.2. Operating performance during post buy-out/exit phase

4.2.1 Univariate analysis

We investigate operating performance of sample firms before/after buy-out transactions, as well as before/after exits. Specifically, our study tries to determine changes in operating performance by measuring changes in (1) profitability, (2) operating efficiency, (3) output, (4) dividend payments, (5) employment levels, and (6) leverage.

Profitability:

Return on assets (ROA) = Net profit after tax divided by asset

Return on sales (ROS) = Net profit after tax divided by sales

Operating efficiency:

Sales efficiency (SALEFF) = Sales in £, divided by number of employees, normalized to unity in the year of MBO or exit (year 0)

Output:

Sales (SALE) = Sales in £, normalized to unity in the year of MBO and or exit (year 0)

Dividends:

Dividends to sales (DIVSAL) = Cash dividends divided by sales

Dividends to assets (DIVA) = Cash dividends divided by assets

Employment:

Total employment (EMPL) = Total number of employees, normalized to unity in the year of MBO or exit (year 0)

Leverage:

Long term debt ratio (GEAR1) = Total long term debt divided by total assets

Total liabilities ratio (GEAR2) = Total liabilities divided by total assets

Barber and Lyon (1996) evaluated the choice of an accounting based performance measure, statistical tests, and models of expected operating performance. Their findings highlight the importance of following performance of sample firms for several years following the event (i.e. buy-out and/or IPO). IPO, for example, may create a large increase in the book value of their assets as they invest in additional operating assets, but no commensurate increase in operating profit, since these assets have not been employed long enough to generate operating profit. Following performance over a longer period of time would ascertain whether erosion in operating performance is the result of a temporary build-up in assets. Usage of alternative measures of performance (i.e. cash based) which are unaffected by the changes in a firm's operating assets is also recommended. We follow both recommendations by following the performance for 5 years after buy-outs and/or IPO and by calculating both returns on sales (ROS) and return on assets (ROA) measures. It has also been noted that companies may be motivated to overstate reported profits in the year prior to IPO. An accrual-based measure, therefore, can increase the likelihood that 'underperformance' will be recorded after IPO. For that reason, we use an average performance for 3 years prior to the event (buy-out/IPO). The authors report that non-parametric test perform much better than parametric tests, regardless of the operating performance measure employed. We, therefore, deploy both parametric and non-parametric tests (Mann-Whitney and Proportion tests) in order to check for the robustness of the results.

With regard to the choice of expected performance (i.e. benchmark) the authors suggest that models that yield well specified and powerful statistical results incorporate a company's past performance. In particular, models based on change in the performance dominate level models in detecting abnormal operating performance.¹⁹ We, therefore, examine and test for significance in changes in performance up to five years after the event and adopt one of the recommended models based on companies' past performance.²⁰

¹⁹ Matching by size of sample companies does not seem to be critical in tests designed to detect abnormal performance.

²⁰ The model is also known as a naïve, no-change model of earnings and is often used in the economic literature on analysts and management forecasts. Despite its simplicity, the empirical evidence suggest that it is often not outperformed by more sophisticated forecasting models. The model corresponds to model number 9 discussed in Barber and Lyon (1996).

$$E(P_{it}) = P_{i, t-k}$$

$E(P_{it})$ = expected performance of the buyout during post-event period

$P_{i, t-k}$ = past performance before the event ²¹

First, we compute relevant ratios for every firm for three years before and five years after buyouts. We then calculate means and medians of cross-section of the firms, for each ratio, for the pre-buyouts (-1 to -3) and post-buyouts and/or exit (years, +1 to +5) period. The year of buyout (year 0) is excluded from the analysis, because it may include both public and private ownership phases of the firm. We compare the performance in each of the post buy-out years with the average over a 3-year period before MBO. To test whether the changes in operating performance are significant, we run a two sample T-test for significant changes in means and a Mann Whitney test for significant changes in medians. Finally, a proportion test is used to determine whether proportion (p) of companies that have experienced change in a given direction is greater than the proportion of the companies expected by chance.²² We use the same method for analysis of post exit performance.

Insert Figure 1 about here

²¹ In our case we use average 3 year performance prior to MBO/IPO.

²² Typically we test whether, $p = 0.5$.

4.3 Multivariate analysis of determinants of operating performance

4.3.1 Operating performance in post buy-out phase

The data on the number of deals and the total amount of equity invested by different PE firms in UK companies was collected from MBO Statistics – KPMG Corporate finance publications – various issues, from 1981 to 1998. More recent data was collected from the PE firms' home websites and www.growthbusiness.co.uk website. The data collection resulted in a list with number of deals and total funding for more than 60 leading equity providers. Reputation is then established using the number of deals as equity leader and total amount invested as criteria, and calculating the reputation score as a weighted average:

$$\text{Reputation score} = \frac{1}{2} (\text{number of deals as equity leader}) + \frac{1}{2} (\text{total equity funding in } \pounds m)$$

Based on the reputation score we established a list of top 10 most reputable PE equity providers who, among themselves, funded more than 2,000 buy-outs from 1981 to 2004. Two overseas PE firms were included in the list outside the criteria since they have established their reputation elsewhere (i.e. the USA) before, more recent, investments in UK companies.

Our models for hypotheses 6 and 7 for determinants of change in operating performance in post-buyout phase are:

$$P_{it} = \alpha_0 + \beta_1 \text{POST}_{it} + \beta_2 \text{LNVMBO}_{it} + \beta_3 \text{INDUSTRY}_{it} + \beta_4 \text{PE}_{it} + \beta_5 \text{MBI}_{it} + \epsilon_i$$

$$P_{it} = \alpha_0 + \beta_1 \text{POST}_{it} + \beta_2 \text{LNVMBO}_{it} + \beta_3 \text{INDUSTRY}_{it} + \beta_4 \text{REPUTATION}_{it} + \beta_5 \text{MBI}_{it} + \epsilon_i$$

Where, performance measures (P_{it} = dependent variables) for output, efficiency, employment, profitability, gearing, and dividends, respectively are: (i) sales in £, normalized by sales in exit year ($SALE$), (ii) sales per employee ratio, normalized by the ratio in exit year ($SALEFF$), (iii) number of employees, normalized by number of

employees in exit year (*EMPL*), (iv) profit divided by total assets (*ROA*), (v) long term debt divided by total assets (*GEARI*), and (vi) dividends divided by sales (*DIVSAL*). Performance is a function of a pre/post dummy taking value equal to 1 for post exit years, and 0 otherwise (*POST*) and several explanatory/control variables. The explanatory/control variables are a variable for buy-out value at exit, as natural logarithm of buy-out value (*LNVMB0*); a dummy variable taking value equal to 1 for manufacturing companies, and 0 otherwise (*INDUSTRY*)²³; a dummy variable for more reputable private equity firms' taking value equal to 1 for top ten PE firms, and 0 otherwise (*REPUTATION*); a dummy variable for buy-in transactions taking value equal to 1 for buy-in transactions, and 0 for buy-outs (*MBI*); a dummy variable taking value equal to 1 for PE backed firms, and 0 otherwise (*PE*). All parameters of the pooled cross-sectional time-series regression are estimated via a Generalized Least Squares method (GLS).²⁴

4.3.2 Operating performance in post-exit phase

Our sample descriptive statistics confirms our expectations about the differences between buy-outs that exited via different methods. The above mentioned differences suggest that the choice of exit strategy may not be a random choice. In order to address the selectivity bias we employ a version of Heckman's two-step estimation procedure similar to the procedure applied in Jelic et al. (2005).²⁵ The procedure involves estimating initially a probit regression for the determinants of exit strategy. The dependent variable is a dummy variable for flotation (1 if exit via floatation; 0, otherwise) as a dependent variable and several explanatory/control variables as defined earlier:²⁶

²³ A similar classification was made in KPMG's publications on buy-outs given a significant number of buy-outs from this sector (more than 40% during 1980s). In addition, manufacturing companies require different monitoring skills from PE firms.

²⁴ Reported R^2 is an overall R^2 as a weighted average of the estimates produced by the between and within estimators.

²⁵ The Heckman (1979) procedure, also known as the 'Heckit' estimator and/or Endogenous Switching Regression, was developed for the economic modelling of labour force participation and labour supply decisions. For more on sample selection as a specification error see Greene (2000), Li and Prabhala (2005), Berndt (1991).

²⁶ Note that variables *INDUSTRY*, *PE*, and *TIMEX* were not used in this regression in order to avoid multicollinearity problem in second stage regressions.

$$FLOAT_i = \alpha_0 + \beta_1 LNVMB0_i + \beta_2 DIVESTMENT_i + \beta_3 MBI_i + \beta_4 AVFTSE_i + \varepsilon_i$$

Then, we use the parameters from the probit regression to estimate the probability that a company will exit via flotation (i.e. IPO). The estimated probabilities (*LAMBDA*) are then added as a correction variable to our second stage models for post exit operating performance. The second stage models are estimated as pooled cross sectional regressions across time by random-effects GLS method. This model is useful for the analysis of the effects of an event based on data with cross-sectional and time series aspects. The effect of changes pre/post event is normally established by including a dummy variable for all but the earliest period (or year) in the sample which represents the pre-event (base) period (year).²⁷

We, therefore, run two separate regressions for hypotheses 8 and 9: first for all buy-outs and second for buy-outs exited via IPO:

$$Pit = \alpha_0 + \beta_1 POST_{it} + \beta_2 TIMEX_{it} + \beta_3 LNVEXIT_{it} + \beta_4 INDUSTRY_{it} + \beta_5 FLOAT_{it} + \beta_6 LAMBDA_{it} + \beta_7 REPUTATION_{it} + \varepsilon_i$$

$$Pit = \alpha_0 + \beta_1 POST_{it} + \beta_2 TIMEX_{it} + \beta_3 LNVEXIT_{it} + \beta_4 INDUSTRY_{it} + \beta_5 REPUTATION_{it} + \varepsilon_i$$

Where, performance measures (*Pit* = dependent variables) for output, efficiency, employment, profitability, gearing, and dividends, respectively are: (i) sales in £, normalized by sales in exit year (*SALE*), (ii) sales per employee ratio, normalized by the ratio in exit year (*SALEFF*), (iii) number of employees, normalized by number of employees in exit year (*EMPL*), (iv) profit divided by total assets (*ROA*), (v) long term debt divided by total assets (*GEAR1*), and (vi) dividends divided by sales (*DIVSAL*). The performance is a function of a pre/post dummy taking value equal to 1 for post exit years, and 0 otherwise (*POST*) and several explanatory/control variables.

²⁷ The estimates are obtained using the routine XTREG from Stata Corporation that allows for robust standard errors.

The explanatory/control variables are a variable for buy-out value at exit, as a natural logarithm of market value at exit (*LNVEEXIT*), a variable for time to exit in number of months (*TIMEX*), a dummy variable for exit type, taking value equal to 1 for flotation, 0 otherwise (*FLOAT*), selectivity correction factor, estimated from the probity regression for choice of exit strategy, as the inverse Mills ratio (*LAMBDA*), a dummy variable for manufacturing companies taking value equal to 1 for manufacturing companies, and 0 otherwise (*INDUSTRY*), a dummy variable for more reputable private equity firms' taking value equal to 1 for top ten PE firms (*REPUTATION*), and 0 otherwise.

5. Results

5.1 Determinants of longevity and exit strategies

Table 5 reports results for determinants of buy-out longevity. The *LNVMBO* and *PE* variables have the expected signs and are highly statistically significant. The results, therefore, lend support to our hypotheses 1 and 2, and are consistent with the results of our univariate analysis. We, however, find no evidence that reputation of PE firms determines longevity of buy-outs.

Insert Table 5 about here

The results for determinants of exit strategies are shown in Table 6. Regressions A and D exhibit high goodness of fit (78 and 81 percent, respectively) and have a highly significant Pasaran-Timmermann statistic. The variables *DIVESTMENT*, *MBI*, and *INDUSTRY* are all positively associated with the likelihood of flotation, and are highly statistically significant. *LNVMBO* and *TIMEX* are negatively associated with the likelihood of flotation and are also highly statistically significant. Overall, the results provide support for our hypothesis 5. The results are also consistent with the results of our univariate analysis which also suggests statistically significant differences between sample firms stratified by different exit strategies: non-floats tend

to exit later and, on average, tend to be larger firms than their counterparts which opted for flotation.

The regressions with PE variable (B and C) have extremely high goodness of fit, but poor Pesaran-Timmermann statistic which prevents us from drawing relevant insights about the association of PE backing and IPO exits. Regression D, however, suggests positive association between *REPUTATION* and the likelihood of flotation. For example, backing by a highly reputable PE firm increases likelihood of flotation by 45%.

Insert Table 6 about here

5.2 Operating performance after exit

Evidence for changes in the performance after exits is presented in Table 8 (Panels A and B). For non-floats, we find no significant changes in employment and efficiency after exits. The evidence for changes in profitability and dividends is inconclusive. The only statistically significant change in performance was found for leverage which significantly dropped after exit (see Panel A).

Insert Table 7 about here

The evidence for the operating performance of buyouts after they exited via IPO is more conclusive than the evidence for their counterparts exiting via sales and/or secondary buy-outs (see Panel B). For example, we find conclusive evidence of improvements in employment, sales efficiency and sales up to 5 years after IPO. We also find strong evidence of improvements in dividends (measured by DIVS). Buyouts exiting via IPO also significantly reduced gearing levels following flotation. The effect is statistically significant up to 5 years after IPO. The results for changes in profitability are less conclusive but they do seem to suggest statistically significant

improvements in the year following IPO, based on the results of MW and one sample proportion tests.

5.4 Multivariate analysis: determinants of post buy-out/exit operating performance

5.4.1 Determinants of post buy-out performance

Table 8 reports the results of pooled cross-section regression across time for changes in operating performance after buyouts. The results suggest statistically significant increases in output, efficiency and dividends during the post buy-out period.²⁸ Among control variables value of buyout is important for changes in gearing and dividends (both positively associated with value of buyout), while management buy-ins tend to be associated with an increase in gearing in the post buyout period. Buy-outs backed by PE firms tend to increase employment after buy-outs. Surprisingly, PE backing and the reputation of the PE firms are negatively associated with changes in profitability.

Insert Table 8 about here

5.4.2 Determinants of post exit performance

Overall, our sample companies exhibited statistically significant improvements in output and statistically significant reductions in gearing (see Table 9). Exit type is statistically significant in the regression for changes in employment. The floated buy-outs tend to increase employment after exiting the buyout structure. The coefficient for the inverse Mills ratio variable (*LAMBDA*) is negative and statistically significant in the regression for employment. The significance of *LAMBDA* indicates that models which do not control for self-selection regarding the choice of type of exit tend to underestimate improvements in employment for buyouts exiting via IPO. The reputation of PE firms is important for changes in output and employment. More reputable PE firms tend to increase output and employment after exits. Among control variables, size, time to exit, industry classification and reputation of PE firms seem to

²⁸ The t-statistics for the coefficients of POST variable for change in output, efficiency and dividends are statistically significant at 5%, 1% and 10%, respectively. Our unreported results of univariate analysis for post-buyout performance are economically and statistically consistent with the results of the multivariate analysis.

be the most important for changes in performance. For example, larger companies tend to perform worse in terms of output, but better in terms of efficiency and dividends. Manufacturing companies, on average, experience reduction in output after exits.

Insert Table 9 about here

In a separate regression for post exit performance of buyouts exited via floatation, we find a statistically significant increase in output, employment, profitability and dividends, and a reduction in gearing. The results confirm the results of our univariate analysis, except for changes in efficiency. Among control variables, size (*LNVEEXIT*) seems to be the most important determinant of changes in performance. Overall, the sub-sample displays no evidence of statistically significant underperformance that is often documented in the IPO literature. On contrary, the evidence suggests improved performance during the post listing period. The results for changes in employment of PE backed buyouts are particularly interesting and shed more light on the ongoing debate about the role of PE firms in the UK (Johnson, 2007). The evidence on changes in employment is consistent with early empirical evidence on changes in employment following buy-outs (Kaplan, 1989; Smith, 1990) as well as more recent evidence by CMBOR.²⁹

²⁹ The CMBOR data, as cited in Johnson (2007), reported a steady increase in employment from the second up to the fifth year after buy-outs.

5. Conclusion and further research

Using a hand-collected dataset of 1,333 buyouts, we examine buyout's longevity, the choice of investors/managers exit strategies, and buyouts' operating performance. We add to the literature by examining deal specific determinants of buyouts' longevity and exit strategies and by tracking the operating performance up to 13 years (3 pre and 10 post buy-out years). We separately examine the determinants of the performance changes after both buy-outs and exit transactions. Finally to the best of our knowledge, this is the first study to control for sample selectivity bias with regard to the choice of different exit strategies in examining post event operating performance.

The average longevity of our sample buyouts is 46 months. The difference in time to exit for IPO and non-IPO is not statistically significant. Buyouts exited via IPO are, on average, smaller than sample buyouts exited via trade sales, secondary buy-outs or receiverships. The results of multivariate analysis suggest that smaller buy-outs and those backed by private equity tend to longer longevity than their larger and non-PE backed counterparts. In our IPO sub-sample, however, PE backed buy-outs have shorter longevity. Our probit regressions for determinants of exit strategies exhibit high goodness of fit and levels of statistical significance, and show higher likelihood of flotation for larger and those companies backed by highly reputable PE firms. Backing by highly reputable PE firms, for example, increases the likelihood of flotation by 45%.

The results of our pooled cross-sectional time series models suggest a statistically significant increase in output, efficiency and dividends during the post buyout period. Overall, our sample companies exhibited statistically significant improvements in output and statistically significant reductions in gearing in the post-exit phase. Exit type is statistically significant in the regression for changes in employment. The floated buy-outs tend to increase employment after exiting the buyout structure. The significance of our correction variable for self selection (*LAMBDA*) indicates that models which do not control for self-selection regarding the choice of type of exit tend to underestimate improvements in employment in the post-exit phase. More

reputable PE firms tend to increase employment in both post-buyout and post-exit phases. Reputation of PE firms is also important for changes in output.

In a separate regression for post exit performance of buyouts exited via floatation, we find statistically significant increases in output, employment, profitability and dividends, and reductions in gearing. The results confirm the results of our univariate analysis, except for changes in efficiency. Overall, the sub-sample displays no evidence of statistically significant underperformance that is often documented in the IPO literature. On the contrary, the evidence suggests improved performance during the post listing period. The results for changes in employment of PE backed buyouts are particularly interesting and shed more light on the ongoing debate about the role of PE firms in UK. Based on the evidence presented, benefits for PE equity investors do not seem to come at the expense of the employees. Finally, our result for the sub-sample of IPO buy-outs contradict the long term IPO underperformance hypothesis supported by US and UK data (Jain and Kini 1994; Khurshed et al. 2003).

Surprisingly, PE backing and the reputation of the PE firms are negatively associated with changes in profitability measured by ROA. Data constraints have prevented us from checking for the robustness of this result. Further research should use alternative measures of profitability which are not affected by changes in gearing (e.g. operating income). Fama and French (2000) provided strong evidence for mean reversion properties of earnings together with cross-sectional variations in the tendency for mean reversion. Control of mean reversion properties of earnings in smaller companies experiencing exceptional before-even results could, therefore, be of particular importance for further research in this area.

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Table 1: Sample buy-out exits, stratified by vintage year

Data for sample consists only of buy-outs that exited via IPO or any other method, compiled by the author. Data for total number of buy-outs (population) includes all buy-outs by inception year (regardless of whether they exited or not) adopted from CMBOR, Management Buy-outs, Autumn 2006.

Year	Total number of buy-outs (Population)	Sample buy-outs by exit strategy			Av. value at exit (m£)		Av. time to exit (months)	
		Total	Non-IPO	IPO	Non-IPO	IPO	Non-IPO	IPO
1980	36	1	0	1	-	2.27	-	60
1981	152	4	0	4	-	29.18	-	99
1982	247	6	0	6	-	5.9	-	39
1983	252	9	0	9	-	11.8	-	25
1984	251	15	1	14	27	16.4	36	31
1985	294	30	3	27	2.7	10.8	24	52
1986	370	41	2	39	3.55	18.1	36	56
1987	436	38	4	34	2.65	25	33	40
1988	501	43	6	37	10.7	36.3	36	46
1989	529	25	11	14	67.4	151.3	26	34
1990	606	11	5	6	0.4	56.3	30	53
1991	581	31	15	16	-	90.6	24	40
1992	598	13	0	13	-	111.7	-	49
1993	493	32	0	32	-	61.1	-	44
1994	565	51	7	44	-	71.3	62	42
1995	598	40	12	28	175.1	65.9	41	51
1996	647	55	10	45	218.1	58.6	35	47
1997	709	46	16	30	228.4	49.7	42	57
1998	691	26	7	19	129.3	238	50	36
1999	657	46	37	9	123.2	241.4	43	27
2000	622	55	38	17	170.9	126	40	36
2001	643	38	31	7	216.4	268.1	55	64
2002	638	36	24	12	281.4	296.5	50	41
2003	712	28	18	10	218.4	550.9	53	58
2004	705	66	35	31	333.4	158.6	57	48

Table 2 Sample descriptive statistics

The table presents descriptive statistics for sample MBOs, during 1980-2004, stratified by occurrence of exits and exit strategies. Floats are MBOs where investors/managers exited via flotations (IPOs). Other exits are MBOs where investors/managers exited via trade sales, secondary MBOs, or liquidations. Non-exits are MBOs that have not changed their status (as of 2004). P-values are reported for two sample T and Mann Whitney tests for differences in mean and median values, respectively.

	Mean	Median	StDev	Min	Max	No
MBO value (£ mill)						
Floats (510 sample firms)	120.00	16.80	295.50	0.10	2,140	92
Other exits (354 sample firms)	97.30	40.00	194.20	1.80	2,013	322
Non-exits (232 sample firms)	45.40	18.00	163.80	9.00	2,375	223
Floats vs. other exits P-value	0.488	0.000				
Floats vs. non exits P-value	0.024	0.211				
Other vs. non exits P-value	0.001	0.000				
Time to exit (months)						
Floats	45.72	36.00	36.78	1	246	499
Other exits	45.65	36.00	32.94	10	180	254
Floats vs. other exits P-value	0.981	0.542				
Value on exit (£ mill)						
Floats	47.43	22.55	80.68	1.25	890	384
Other exits	212.80	105.00	308.20	21.00	2,300	223
Floats vs. other exits P-value	0.000	0.000				

Table 3 Buy-outs exited via IPO

The table presents descriptive statistics for sample MBOs, during 1980-2004, where investors exited via flotation (IPO). Two sample T and Mann Whitney tests for differences in mean and median values for venture capital (PE) backed MBO and MBO not backed by PE firms.

		Mean	Median	StDev	Min	Max	No
MBO value (£ mill)							
PE backed		143.2	22.3	320.6	0.4	2,140	76
Non-PE backed		9.87	3.15	16.69	0.1	66.9	16
PE vs. non-PE backed	P-value	0.001	0.000				
Time to exit (months)							
PE backed		39.02	31	28.67	1	246	307
Non-PE backed		56.43	47	44.98	1	225	192
PE vs. non-PE backed	P-value	0.000	0.000				
Value on exit (£ mill)							
PE backed		67.48	38.8	98.75	1.6	890.00	225
Non-PE backed		19.05	10.77	23.87	1.25	185.0	159
PE vs. non-PE backed	P-value	0.000	0.0154				

Table 4 MBO exited via trade sales, secondary MBO and liquidations

The table presents descriptive statistics for sample MBOs, during 1980-2004, where investors/managers exited via trade sales, secondary MBOs, or liquidations. P-values are reported for 2 sample T and Mann Whitney tests for differences in mean and median values, respectively.

		Mean	Median	StDev	Min	Max	No
MBO value (£ mill)							
Trade sales (237 sample firms)		99.9	36.9	216.7	2.0	2,013	210
Sec. MBOs (88 sample firms)		95.8	49.1	143.7	1.8	700.0	84
Liquidations (29 sample firms)		78.7	22.0	150.3	2.0	667.0	26
Trade sale vs. S. MBOs	P-value	0.851	0.405				
Trade sale vs. Liquidations	P-value	0.526	0.200				
Sec. MBOs vs. Liquidations	P-value	0.612	0.122				
Time to exit (months)							
Trade sales		42.1	36	31	10	180	165
Sec. MBOs		53.7	48	36.07	12	168	83
Trade sale vs. S.MBOs	P-value	0.014	0.004				
Value on exit (£ mill)							
Trade sales		195.2	90.0	288.6	21.0	2,300	141
Sec. MBOs		242.9	121.3	343.1	28.0	2,013	80
Trade sale vs. S. MBOs	P-value	0.295	0.036				

Figure 1: Time frame for analysis of operating performance

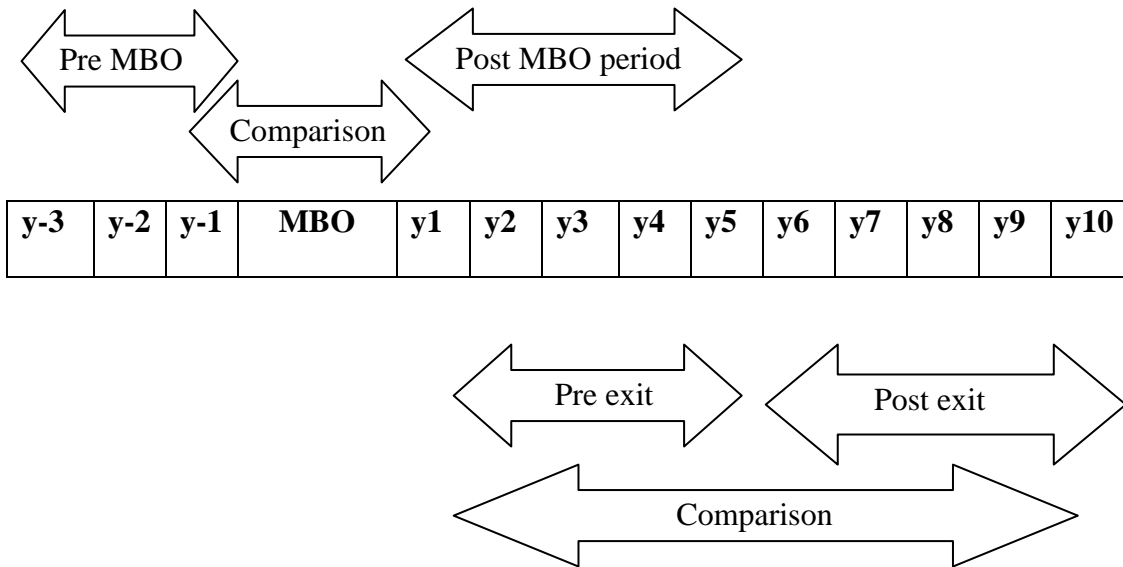


Table 5 Determinants of buy-out longevity

OLS regression for the determinants of longevity of buy-outs. Dependent variable is length of time (number of months) from MBO to exit (TIMEX). FLOAT is a dummy variable taking value equal to 1 if buy-out exited via flotation, and 0 otherwise (trade sale, secondary MBO, liquidation). LNVMB0 is a natural logarithm of buy-outs' value. MBI is a dummy variable for buy-in transactions taking value equal to 1 for buy-in transactions, and 0 for buy-outs. PE is a dummy variable taking value equal to 1 if buy-out received private equity backing and 0 otherwise. REPUTATION is a dummy variable for more reputable private equity firms' taking value equal to 1 for top ten PE firms, and 0 otherwise. Test statistics are presented in parenthesis.

	TIMEX	TIMEX	TIMEX
INTERCEPT	51.8 (0.000)	51.72 (0.000)	50.15 (0.000)
LNVMB0	-2.12 (0.006)	-2.11 (0.008)	-1.55 (0.037)
MBI	2.64 (0.446)	2.63 (0.444)	3.24 (0.349)
INDUSTRY	-3.99 (0.224)	-3.98 (0.225)	-3.60 (0.273)
PE	8.32 (0.017)	8.12 (0.034)	
PE*REPUTATION		0.468 (0.900)	
REPUTATION			3.78 (0.266)
FLOAT	-8.13 (0.031)	-8.10 (0.032)	-2.68 (0.337)
DW	1.938	1.938	1.949
F statistics	2.41 (0.035)	2.01 (0.063)	1.49 (0.189)
R² adjusted (%)	1.0	0.9	0.4
Number of observations	703	703	703

Table 6 Probit maximum likelihood estimation for the choice of exit strategy

Probit regression for the determinants of exit strategy. Dependent variable is a dummy variable taking value equal to 1 if buy-out exited via flotation, and 0 otherwise (trade sale, secondary MBO, liquidation) (FLOAT). The choice of floatation is a function of the following explanatory/control variables: a variable for buy-out value, as natural logarithm buy-out value (LNVMB0), a dummy variable for source of buy-out transaction taking value equal to 1 for domestic and foreign divestments, and zero otherwise (privatizations, entire company (including family owned) going private, secondary buy-outs, and receivership) (DIVESTMENT), a dummy variable for buy-in transactions taking value equal to 1 for buy-in transactions, and 0 for buy-outs (MBI), average growth rate for FTSE All Shares Market Index during the exit year and the year preceding the exit (AVFTSE), a dummy variable for manufacturing companies taking value equal to 1 for companies from engineering, hi-tech, IT, chemicals, textiles, paper and wood, and plastic, and 0 otherwise (INDUSTRY), a variable for lengths of time, as number of months, before exits (TIMEX); PE is a dummy variable taking value equal to 1 if buy-out received private equity backing, and 0 otherwise. REPUTATION is a dummy variable for more reputable private equity firms' taking value equal to 1 for top ten PE firms, and 0 otherwise. All parameters are estimated using Probit Maximum Likelihood Estimation. The estimation method converged after 6 iterations in models A, D and E; after 8 iterations in models B and C. Test statistics are presented in parenthesis. Regression E is used for estimation of probabilities (inverse Mills ratio) for our pooled cross-sectional time-series regression.

	A: FLOAT	B: FLOAT	C: FLOAT	D: FLOAT	E: FLOAT
LNVMB0	-0.315 (0.000)	-0.489 (0.000)	-0.510 (0.000)	-0.301 (0.000)	-0.299 (0.000)
DIVESTMENT	1.323 (0.000)	1.111 (0.000)	1.164 (0.000)	1.230 (0.000)	1.349 (0.000)
MBI	0.443 (0.004)	0.049 (0.815)	0.030 (0.887)	0.418 (0.009)	0.379 (0.014)
AVFTSE	0.242 (0.306)	-0.174 (0.580)	-0.215 (0.503)	0.206 (0.395)	0.304 (0.185)
INDUSTRY	0.696 (0.000)	0.582 (0.008)	0.563 (0.012)	0.706 (0.000)	
TIMEX	-0.006 (0.002)	-0.007 (0.004)	-0.008 (0.003)	-0.006 (0.003)	
PE		2.530 (0.000)	2.829 (0.000)		
REPUTATION			-0.713 (0.008)	1.172 (0.000)	
INTERCEPT	0.495 (0.143)	0.668 (0.131)	0.765 (0.092)	0.377 (0.273)	0.226 (0.450)
Marginal effects factor	0.390	0.379	0.379	0.386	0.391
Goodness of fit	0.782	0.905	0.900	0.807	0.780
Pseudo R² (%)	30.1	62.68	63.46	34.51	27.0%
Pesaran-Timmermann statistic	-4.411 (0.000)	-0.964 (0.335)	-0.921 (0.357)	-3.798 (0.000)	-4.612 (0.000)
Number of observations	703	703	703	703	703

Table 7 Panel A: Changes in Performance after exit (non-floats)

The table presents mean and median values for the measures of operating performance relative to exit year. Statistical significance of mean and median of the operating performance measures in post-exit years (+1 to +5) and the average performance measure during the three year period prior to exit, tested using two sample T-test (for the differences in mean; assuming unequal variance) and Mann Whitney test (for the differences in median). One sample proportion test was used to analyze whether the proportion of firms with increasing performance in post exit years is likely to be equal to 50 percent. > indicates an increase in average (mean and median) performance or higher proportion of MBOs with increase in performance; < indicates a decrease in average (mean and median) performance or higher proportion of MBOs with decrease in performance. Firms included only if they have at least one observation before/after exit (i.e. minimum of three year data). Employment (EMPLOY) =total number of employees, normalized to unity in the year of exit (year 0). Return on sales (ROS) = net profit after tax divided by sales. Return on assets (ROA) =net profit after tax divided by total assets. Return on equity (ROE) = net profit after tax divided by total equity. Sales efficiency (SALEFF) = sales divided by number of employees, normalized to unity in the year of exit (year 0). Sales (SALES) = sales normalized to unity in the year of exit (year 0). Long term debt ratio (GEAR1) = long term debt divided by total assets. Total liabilities ratio (GEAR2) = total liabilities divided by total assets. Dividends to assets (DIVA) = cash dividends divided by total assets. Dividends to sales (DIVS) = cash dividends divided by sales.

	N		Pre EXIT			Post EXIT				
			Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5
		EMPLOY								
Total	31	Mean	1.111902	1.068114	1.052908	0.960437	0.935736	0.897597	1.32192	0.614682
		Median	1.020952	0.997664	1	1.002366	1	1.106308	1.156627	0.614682
		Change; T-stat; P-value	Mean = 1.082			<0.096	<0.142	<0.258	>0.323	<0.587
		Change; MW-statistic; P-value	Median = 1.0211			<0.4815	<0.5356	>0.8147	>0.2168	<0.7342
		Prop: After > Before; p=50% (P-value)				<1.000	<0.839	>0.607	>0.375	<1.000
Trade sales	22	Mean	1.118222	1.06596	1.052419	0.960855	0.935436	0.900029	1.393621	0.614682
		Median	1.003184	0.995283	0.991745	1.004505	0.986012	1.146006	1.369163	0.614682
		Change; T-stat; P-value	Mean =1.090			<0.203	<0.234	<0.351	>0.327	<0.583
		Change; MW-statistic; P-value	Median = 1.0211			<0.6149	<0.5500	>0.6340	>0.2506	<0.7025
		Prop: After > Before; p=50% (P-value)				>1.000	<1.000	>0.549	>0.125	<1.000
Sec. MBO	9	Mean	1.089352	1.070048	1.045737	0.954491	0.936374	0.890909	1.035112	n.a.
		Median	1.006936	1.005685	1.007344	0.975467	1.027453	1.080542	1.035112	n.a.
		Change; T-stat; P-value	Mean = 1.059			<0.281	<0.460	<0.614	n.a.	n.a.
		Change; MW-statistic; P-value	Median = 0.9975			<0.5365	>0.8852	>0.5892	n.a.	n.a.
		Prop: After > Before; p=50% (P-value)				<1.000	<0.727	<1.000	n.a.	n.a.

		Pre EXIT					Post EXIT			
N		Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5	
		ROA								
Total	41	Mean	0.090566	0.078429	0.091	0.081221	0.021809	-0.06701	0.07828	0.022742
		Median	0.07243	0.086409	0.080866	0.056028	0.043625	0.065545	0.03994	0.022742
		Change: Mean (T-stat; P-value)	Mean = 0.072		>0.881	<0.711	<0.460	>0.885	<0.165	
		Change: Median (MW-statistic; P-value)	Median = 0.0790		<0.5222	<0.8370	<0.4661	<0.5785	<0.8400	
		Prop: After > Before; p=50 % (P-value)			>0.755	<0.860	<1.000	>1.000	>1.000	
Trade sales	28	Mean	0.074009	0.066269	0.085849	0.066488	-0.07642	-0.15387	0.075926	0.022742
		Median	0.067462	0.086409	0.074319	0.054824	0.026508	0.054846	0.035007	0.022742
		Change: Mean (T-stat; P-value)	Mean = 0.062		>0.958	<0.458	<0.448	>0.812	<0.404	
		Change: Median (MW-stat; P-value)	Median = 0.0802		<0.6641	<0.7619	<0.6216	<0.6034	<0.8353	
		Prop: After > Before; p=50 % (P-value)			<1.000	<0.832	<0.791	<1.000	>0.500	
Sec. MBO	13	Mean	0.126991	0.104774	0.102096	0.112955	0.23792	0.106706	0.08299	0.112955
		Median	0.15552	0.091813	0.104449	0.074159	0.097326	0.067266	0.084796	0.074159
		Change: Mean (T-stat; P-value)	Mean = 0.094		>0.728	>0.335	>0.833	<0.842	n.a.	
		Change: Median (MW-stat; P-value)	Median = 0.0657		>0.6081	>0.4757	>0.8121	>0.8930	n.a.	
		Prop: After > Before; p=50% (P-value)			>0.581	<1.000	>1.000	>1.000	n.a.	
		ROS								
Total	33	Mean	0.381297	0.212627	0.245696	0.722329	0.248542	0.063189	0.263609	0.692308
		Median	0.073304	0.074706	0.083657	0.101449	0.11377	0.105059	0.233608	0.692308
		Change: Mean (T-stat; P-value)	Mean = 0.253		>0.356	<0.986	<0.368	>0.960	n.a.	
		Change: Median (MW-statistic; P-value)	Median = 0.0762		>0.1865	>0.1671	>0.6621	>0.0343	n.a.	
		Prop: After > Before; p=50 % (P-value)			>0.487	>0.845	<0.804	>0.375	n.a.	
Trade sales	24	Mean	0.381297	0.212627	0.245696	0.722329	0.248542	0.063189	0.263609	0.692308
		Median	0.073304	0.074706	0.083657	0.101449	0.11377	0.105059	0.233608	0.692308
		Change: Mean (T-stat; P-value)	Mean = 0.338		>0.892	<0.925	<0.348	<0.885	n.a.	
		Change: Median (MW-stat; P-value)	Median = 0.0762		>0.3122	>0.2994	>0.7152	>0.0441	n.a.	
		Prop: After > Before; p=50 % (P-value)			>0.678	>0.815	<0.774	>0.625	n.a.	
Sec. MBO	9	Mean	0.083511	0.082769	0.049663	1.621232	0.117345	0.088345	0.142159	n.a.
		Median	0.131068	0.103099	0.083657	0.120843	0.11377	0.128793	0.142159	n.a.
		Change: Mean (T-stat; P-value)	Mean = 0.045		>0.339	>0.228	>0.561	n.a.	n.a.	
		Change: Median (MW-stat; P-value)	Median = 0.050		>0.4799	>0.3606	>1.0000	n.a.	n.a.	
		Prop: After > Before; p=50% (P-value)			>1.000	<1.000	<1.000	n.a.	n.a.	

	N		Pre EXIT				Post EXIT			
			Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5
		GEAR1								
Total	23	Mean	0.44452	0.37095	0.42428	0.84774	0.27657	0.21056	0.07675	0.07497
		Median	0.48387	0.24598	0.34346	0.31257	0.26736	0.24604	0.07298	0.07497
		Change: Mean (T-stat; P-value)	Mean = 0.378			>0.348	<0.330	<0.119	<0.001	<0.001
		Change: Median (MW-statistic; P-value)	Median = 0.3274			<0.9186	<0.3183	<0.2947	<.1423	<0.3945
		Prop: After > Before; p=50 % (P-value)				>1.000	<0.481	<0.180	<1.000	>0.500
Trade sales	17	Mean	0.39365	0.4273	0.41888	0.94638	0.25091	0.17199	0.10186	0.07497
		Median	0.26455	0.36902	0.32201	0.24211	0.26736	0.24604	0.0851	0.07497
		Change: Mean (T-stat; P-value)	Mean = 0.365			>0.374	<0.363	<0.079	<0.016	<0.008
		Change: Median (MW-stat; P-value)	Median = 0.2807			<0.9177	<0.4265	<0.4848	<0.5254	<0.550
		Prop: After > Before; p=50 % (P-value)				>1.000	<0.791	<0.453	>1.000	>0.500
Sec. MBO	6	Mean	0.58442	0.21318	0.4387	0.51237	0.36	0.34553	0.00141	n.a
		Median	0.66038	0.08663	0.49525	0.63388	0.3786	0.34553	0.00141	n.a
		Change: Mean (T-stat; P-value)	Mean = 0.415			>0.555	<0.795	<0.880	n.a.	n.a.
		Change: Median (MW-stat; P-value)	Median = 0.3877			>0.6481	<0.7491	<0.6171	n.a.	n.a.
		Prop: After > Before; p=50% (P-value)				<1.000	<0.625	<0.500	n.a.	n.a.
		GEAR2								
Total	32	Mean	0.3506	0.34981	0.35969	0.64176	0.25703	0.18917	0.11115	0.06697
		Median	0.24081	0.20244	0.17844	0.11044	0.11769	0.18868	0.1115	0.06697
		Change: Mean (T-stat; P-value)	Mean = 0.370			>0.435	<0.239	<0.058	<0.003	n.a.
		Change: Median (MW-statistic; P-value)	Median = 0.2353			<0.1592	<0.1598	<0.2574	<0.5186	n.a.
		Prop: After > Before; p=50 % (P-value)				<0.020	<0.035	<0.065	<0.125	n.a.
Trade sales	22	Mean	0.35105	0.34768	0.35521	0.77975	0.25778	0.16774	0.14266	0.06697
		Median	0.25972	0.28454	0.22228	0.11044	0.11769	0.21161	0.15516	0.06697
		Change: Mean (T-stat; P-value)	Mean = 0.368			>0.415	<0.345	<0.038	<0.023	n.a.
		Change: Median (MW-stat; P-value)	Median = 0.2353			<0.5186	<0.3285	<0.3133	<0.5305	n.a.
		Prop: After > Before; p=50 % (P-value)				<0.134	<0.332	<0.289	<0.250	n.a.
Sec. MBO	10	Mean	0.37182	0.36068	0.39361	0.37468	0.25492	0.24633	0.01663	n.a.
		Median	0.20077	0.15328	0.25391	0.1946	0.10111	0.01227	0.01663	n.a.
		Change: Mean (T-stat; P-value)	Mean = 0.402			<0.886	<0.441	<0.603	<0.3719	n.a.
		Change: Median (MW-stat; P-value)	Median = 0.2495			<0.5660	<0.2159	<0.1956	n.a.	n.a.
		Prop: After > Before; p=50% (P-value)				<0.180	<0.031	<0.250	n.a.	n.a.

	N		Pre EXIT				Post EXIT			
			Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5
		DIVS								
Total	21	Mean	0.73226	0.32924	0.50029	0.57402	0.56805	0.28089	0.11404	4.79835
		Median	0.04402	0.04519	0.09997	0.1068	0.08321	0.04257	0.08255	0.15913
		Change: Mean (T-stat; P-value)	Mean = 0.40			>0.741	<0.745	<0.368	>0.416	n.a.
		Change: Median (MW-statistic; P-value)	Median = 0.0564			>0.1590	<0.3521	>0.6783	>0.0954	n.a.
		Prop: After > Before; p=50 % (P-value)				>0.383	<0.210	<0.727	>1.000	n.a.
Trade sales	15	Mean	1.03118	0.47634	0.7308	0.79704	0.77556	0.37601	0.11393	6.36253
		Median	0.02722	0.03099	0.10662	0.1068	0.08321	0.03458	0.07551	0.21247
		Change: Mean (T-stat; P-value)	Mean = 0.52			<0.396	<0.785	<0.367	>0.447	n.a.
		Change: Median (MW-stat; P-value)	Median =0.067			>0.3109	<0.1572	>0.9304	>0.1235	n.a.
		Prop: After > Before; p=50 % (P-value)				>1.000	<0.065	<1.000	<1.000	n.a.
Sec. MBO	6	Mean	0.23012	0.05309	0.09148	0.18065	0.10236	0.09064	0.11423	0.10579
		Median	0.08105	0.04908	0.05981	0.20056	0.07206	0.06884	0.08959	0.10579
		Change: Mean (T-stat; P-value)	Mean = 0.112			<0.895	<0.758	>0.975	n.a.	n.a.
		Change: Median (MW-stat; P-value)	Median =0.0415			>0.4034	>0.5309	>0.7656	n.a.	n.a.
		Prop: After > Before; p=50% (P-value)				>0.375	<1.000	>1.000	n.a.	n.a.
		DIVA								
Total	21	Mean	0.15896	0.13634	0.21503	0.23516	0.16283	0.13748	0.13067	0.00899
		Median	0.03956	0.04407	0.0929	0.13161	0.05972	0.09927	0.08246	0.00899
		Change: Mean (T-stat; P-value)	Mean = 0.168			>0.378	<0.955	<0.682	<0.680	n.a.
		Change: Median (MW-statistic; P-value)	Median = 0.0914			>0.2442	<0.3905	>0.6270	<0.9704	n.a.
		Prop: After > Before; p=50 % (P-value)				>0.664	<0.143	<1.000	<1.000	<1.000
Trade sales	16	Mean	0.06118	0.16681	0.24646	0.27001	0.19515	0.11637	0.13878	0.00899
		Median	0.03956	0.04407	0.13594	0.18856	0.04761	0.06921	0.05857	0.00899
		Change: Mean (T-stat; P-value)	Mean = 0.167			>0.271	>0.824	>0.553	<0.822	n.a.
		Change: Median (MW-stat; P-value)	Median = 0.0962			>0.2891	<0.2949	<0.4423	<0.6956	n.a.
		Prop: After > Before; p=50 % (P-value)				<1.000	<0.039	<1.000	<1.000	n.a.
Sec. MBO	5	Mean	0.40339	0.06016	0.1396	0.13755	0.10464	0.18674	0.10634	n.a.
		Median	0.12747	0.03779	0.07467	0.11547	0.07183	0.13732	0.10634	n.a.
		Change: Mean (T-stat; P-value)	Mean = 0.171			<0.805	<0.614	>0.931	n.a.	n.a.
		Change: Median (MW-stat; P-value)	Median = 0.0384			>0.6761	>1.000	>1.000	n.a.	n.a.
		Prop: After > Before; p=50% (P-value)				>0.375	>1.000	>1.000	n.a.	n.a.

	N		Pre Exit			Post Exit				
			Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5
		SALEFF								
Total	30	Mean	0.975827	1.038195	1.008403	1.048161	2.268878	2.663928	0.781106	n.a
		Median	0.923823	0.963963	0.971168	1.021718	1.059787	1.100572	0.795217	n.a
		Change: Mean (T-stat; P-value)		Mean = 1.004		>0.619	>0.238	>0.250	<0.433	n.a.
		Change: Median (MW-statistic; P-value)		Median = 0.9606		>0.4305	>0.1195	>0.1291	<0.5862	n.a.
		Prop: After > Before; p=50 % (P-value)				>0.720	<1.000	>0.791	<1.000	n.a.
Trade sales	21	Mean	0.975827	1.038195	1.008403	1.048161	2.268878	2.663928	0.781106	n.a
		Median	0.923823	0.963963	0.971168	1.021718	1.059787	1.100572	0.795217	n.a
		Change: Mean (T-stat; P-value)		Mean = 1.003		>0.692	>0.216	>0.361	<0.350	n.a.
		Change: Median (MW-stat; P-value)		Median = 0.9425		>0.4297	>0.2337	>0.2863	<0.1949	n.a.
		Prop: After > Before; p=50 % (P-value)				>0.832	<0.804	<1.000	<0.625	n.a.
Sec. MBO	9	Mean	0.975827	1.038195	1.008403	1.048161	2.268878	2.663928	0.781106	n.a
		Median	0.923823	0.963963	0.971168	1.021718	1.059787	1.100572	0.795217	n.a
		Change: Mean (T-stat; P-value)		Mean = 1.008		>0.709	>0.350	>0.388	n.a.	n.a.
		Change: Median (MW-stat; P-value)		Median = 1.0308		>0.9296	>0.7363	>0.5892	n.a.	n.a.
		Prop: After > Before; p=50% (P-value)				>1.000	>0.727	>0.625	n.a.	n.a.
		SALES								
Total	29	Mean	1.500697	1.854441	1.055443	1.116465	0.979075	0.94735	0.848181	1.170292
		Median	0.920408	1.047789	1.032672	1.053526	1.106113	1.078157	0.689688	0.818575
		Change: Mean (T-stat; P-value)		Mean =1.77		<0.315	<0.227	<0.215	<0.187	<0.457
		Change: Median (MW-statistic; P-value)		Median =0.9987		>0.5237	>0.5237	>0.4843	<0.0380	<0.6973
		Prop: After > Before; p=50 % (P-value)				>0.711	>0.076	>0.804	<1.000	<1.000
Trade sales	22	Mean	1.622955	2.137831	1.036768	1.162406	0.942002	0.872826	0.806686	1.170292
		Median	0.833457	1.024653	1.029918	1.067715	1.140072	0.743567	0.641462	0.818575
		Change: Mean (T-stat; P-value)		Mean = 1.97		<0.349	<0.238	<0.213	0.200	<0.415
		Change: Median (MW-stat; P-value)		Median = 0.948		>0.2359	>0.3399	<0.2563	<0.0348	<0.7788
		Prop: After > Before; p=50 % (P-value)				>0.134	>0.064	<1.000	<1.000	<1.000
Sec. MBO	7	Mean	1.19505	1.166206	1.111467	0.97208	1.079703	1.170923	1.221638	n.a.
		Median	1.138497	1.070925	1.108602	1.040886	1.094249	1.18085	1.221638	n.a.
		Change: Mean (T-stat; P-value)		Mean = 1.148		<0.082	<0.552	>0.802	n.a.	n.a.
		Change: Median (MW-stat; P-value)		Median = 1.1715		<0.2013	<0.7983	>0.7768	n.a.	n.a.
		Prop: After > Before; p=50% (P-value)				<0.125	>1.000	>0.625	n.a.	n.a.

Panel B: Changes in performance after exit (IPO)

The table presents mean and median values for the measures of operating performance relative to exit year. Statistical significance of mean and median of the operating performance measures in post-exit years (+1 to +5) and the average performance measure during the three year period prior to exit, tested using two sample T-test (for the differences in mean; assuming unequal variance) and Mann Whitney test (for the differences in median). One sample proportion test was used to analyze whether the proportion of firms with increasing performance in post exit years is likely to be equal to 50 percent. > indicates an increase in average (mean and median) performance or higher proportion of MBO with increase in performance; < indicates a decrease in average (mean and median) performance or higher proportion of MBO with decrease in performance. Firms included only if they have at least one observation before/after exit (i.e. minimum of three year data). Employment (EMPLOY) =total number of employees, normalized to unity in the year of exit (year 0). Return on sales (ROS) = net profit after tax divided by sales. Return on assets (ROA) =net profit after tax divided by total assets. Return on equity (ROE) = net profit after tax divided by total equity. Sales efficiency (SALEFF) = sales divided by number of employees, normalized to unity in the year of exit (year 0). Sales (SALES) = sales normalized to unity in the year of exit (year 0). Long term debt ratio (GEAR1) = long term debt divided by total assets. Total liabilities ratio (GEAR2) = total liabilities divided by total assets. Dividends to assets (DIVA) = cash dividends divided by total assets. Dividends to sales (DIVS) = cash dividends divided by sales.

		Pre EXIT			Post EXIT					
	N	Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5	
		EMPLOY								
Total floats	32	1.28113	0.898487	0.948176	1.195908	1.854461	2.837556	1.189334	1.22718	
					1.084211	1.172392	1.202105	1.197895	1.242105	
					Mean = 0.957545	> 0.011	> 0.072	> 0.133	> 0.021	>0.261
					Median = 0.935647	> 0.0001	> 0.0000	> 0.0014	> 0.0072	>0.1184
						> 0.001	> 0.000	> 0.012	> 0.063	>1.000

		Pre EXIT					Post EXIT			
N		Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5	
		ROA								
Total floats	44	Mean	0.045194	0.049146	0.084699	0.106939	0.073792	0.060158	0.029524	0.167235
		Median	0.035581	0.051811	0.084843	0.098871	0.089258	0.075345	0.078109	0.082429
		Change: Mean (T-stat; P-value)		Mean = 0.067932	>0.063	>0.752	<0.716	<0.404	>0.338	
		Change: Median (MW-statistic; P-value)		Median = 0.063809	>0.0124	>0.2119	>0.4922	>0.4787	>0.6046	
		Prop: After > Before; p=50 % (P-value)			>0.000	>0.000	>0.001	>0.001	>0.000	
		ROS								
Total floats	56	Mean	0.038123	0.14903	0.055563	0.662506	0.830486	3.355494	1.675717	0.060981
		Median	0.031854	0.032596	0.049342	0.070155	0.055207	0.059622	0.059552	0.050332
		Change: Mean (T-stat; P-value)				<0.339	<0.350	>0.184	>0.347	<0.537
		Change: Median (MW-statistic; P-value)				>0.0107	>0.1603	>0.1511	>0.2914	>0.3744
		Prop: After > Before; p=50 % (P-value)				>0.000	>0.000	>0.000	>0.000	>0.000

		Pre EXIT					Post EXIT			
N		Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5	
Total floats	56	GEAR1								
		Mean	0.24012	0.32598	0.30615	0.12297	0.130334	0.108174	0.11182	0.135143
		Median	0.06568	0.15699	0.20517	0.05603	0.10190	0.08277	0.095017	0.084135
		Change: Mean (T-stat; P-value)	Mean = 0.314068			<0.000	<0.000	<0.000	<0.000	<0.001
		Change: Median (MW-statistic; P-value)	Median = 0.200715			<0.0002	<0.0013	<0.0005	<0.0018	<0.0328
Prop: After > Before; p=50 % (P-value)					<0.000	<0.000	<0.000	<0.000	<0.115	
Total floats	54	GEAR2								
		Mean	0.73342	0.92737	0.79125	0.50897	0.35178	0.285337	0.286276	0.57283
		Median	0.69396	0.79717	0.73366	0.47948	0.435351	0	0	0.55198
		Change: Mean (T-stat; P-value)	Mean = 0.820042			<0.000	<0.000	<0.000	<0.000	<0.206
		Change: Median (MW-statistic; P-value)	Median = 0.749792			<0.000	<0.000	<0.000	<0.000	<0.0029
Prop: After > Before; p=50 % (P-value)					<0.000	<0.003	<0.000	<0.001	<0.115	

		Pre EXIT					Post EXIT			
N		Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5	
Total floats	144	DIVS								
		Mean	0.01291	0.02546	0.01219					
		Median	4	2	2	0.160547	0.190384	0.262424	0.294648	0.019144
		Change: Mean (T-stat; P-value)	Mean = 0.018268			0.023515	0.019615	0.021615	0.020887	0.015447
		Change: Median (MW-statistic; P-value)	Median = 0.002157			>0.278	>0.297	>0.301	>0.316	>0.903
Prop: After > Before; p=50 % (P-value)					>0.000	>0.000	>0.000	>0.000	>0.000	
Total floats	58	DIVA								
		Mean	0.02538	0.03079	0.02613					
		Median	6	7	2	0.035445	0.021324	0.02159	0.017833	0.043691
		Change: Mean (T-stat; P-value)	Mean = 0.0247628			0.01797	0.00645	0.01700	0.032844	0.016487
		Change: Median (MW-statistic; P-value)	Median = 0.0163852			0.032844	0.016487	0.008035	0	0.018881
Prop: After > Before; p=50 % (P-value)					>0.177	<0.506	<0.635	<0.194	>0.413	
					>0.2639	>0.3550	<0.1585	<0.1155	>0.8863	
					>0.419	<0.890	<0.164	<0.090	<0.664	

		Pre EXIT				Post EXIT				
N		Year-3	Year-2	Year-1	Year+1	Year +2	Year +3	Year+4	Year+5	
SALEFF										
Total floats	32	Mean	0.679939	1.118901	0.990194	1.028586	1.073401	1.029469	0.829381	1.825153
		Median	0.673556	0.902823	0.946534	1.030968	1.083078	1.095858	1.115445	1.825153
		Change: Mean (T-stat; P-value)		Mean = 1.010119	>0.828	<0.558	>0.886	<0.511	>0.351	
		Change: Median (MW-statistic; P-value)		Median = 0.925367	>0.0136	>0.0284	>0.0356	>0.8764	>0.0370	
		Prop: After > Before; p=50 % (P-value)			>0.071	>0.093	>0.815	>1.000	>0.500	
SALES										
Total floats	154	Mean	0.755215	0.802322	0.907173	1.476156	2.03712	2.681188	3.186439	4.043112
		Median	0.641445	0.726957	0.834052	1.199349	1.50096	1.779399	1.999681	2.18367
		Change: Mean (T-stat; P-value)		Mean = 0.821614	>0.000	>0.000	>0.000	>0.000	>0.000	>0.000
		Change: Median (MW-statistic; P-value)		Median = 0.752401	>0.000	>0.000	>0.000	>0.000	>0.000	>0.000
		Prop: After > Before; p=50 % (P-value)			>0.000	>0.000	>0.000	>0.000	>0.000	>0.000

Table 8: Multivariate analysis: determinants of operating performance in post buy-out phase

Pooled cross-sectional time-series regression for the determinants of changes in operating performance. Performance measures (dependent variables) for output, efficiency, employment, profitability, gearing, and dividends, respectively are (i) sales in £, normalized by sales in exit year (SALE), (ii) sales per employee ratio, normalized by the ratio in exit year (SALEFF), (iii) number of employees, normalized by number of employees in exit year (EMPL), (iv) profit divided by total assets (ROA), (v) long term debt divided by total assets (GEAR1), and (vi) dividends divided by sales (DIVSAL). The performance is a function of a pre/post dummy taking value equal to 1 for post exit years, and 0 otherwise (POST) and several explanatory/control variables. The explanatory/control variables are a variable for buy-out value at exit, as natural logarithm of buy-out value (LNVMBO), a dummy variable taking value equal to 1 for manufacturing companies, and 0 otherwise (INDUSTRY), a dummy variable for more reputable private equity firms' taking value equal to 1 for top ten PE firms (PEREPUTATION), and 0 otherwise, a dummy variable for more reputable private equity firms' taking value equal to 1 for top ten PE firms (REPUTATION), and 0 otherwise. All parameters of the pooled cross-sectional time-series regression are estimated via a GLS random-effects model. R^2 is the overall R^2 as a weighted average of the estimates produced by the between and within estimators. Test statistics are presented in parenthesis.

	DEPENDENT VARIABLES											
	OUTPUT (SALE)		EFFICIENCY (SALEFF)		EMPLOYMENT (EMPL)		PROFITABILITY (ROA)		GEARING (GEAR1)		DIVIDEND (DIVSAL)	
POST	0.201 (0.048)	0.201 (0.048)	0.249 (0.000)	0.249 (0.000)	-0.001 (0.992)	-0.001 (0.992)	-0.083 (0.575)	-0.083 (0.575)	-0.006 (0.848)	-0.006 (0.848)	0.063 (0.078)	0.063 (0.078)
LNVMBO	0.043 (0.450)	0.037 (0.512)	-0.021 (0.351)	-0.025 (0.279)	-0.035 (0.337)	-0.019 (0.590)	-0.026 (0.669)	-0.050 (0.405)	0.052 (0.091)	0.058 (0.081)	0.035 (0.020)	0.041 (0.012)
MBI	-0.146 (0.643)	-0.135 (0.670)	0.137 (0.197)	0.146 (0.168)	-0.144 (0.407)	-0.186 (0.266)	0.066 (0.835)	0.121 (0.697)	0.297 (0.074)	0.325 (0.051)	0.010 (0.912)	0.006 (0.955)
INDUSTRY	-0.212 (0.371)	-0.180 (0.449)	-0.001 (0.998)	0.001 (0.995)	-0.055 (0.625)	-0.087 (0.423)	0.128 (0.590)	0.226 (0.339)	-0.174 (0.116)	-0.175 (0.119)	-0.012 (0.819)	-0.011 (0.848)
PE	0.166 (0.361)		-0.067 (0.264)		0.133 (0.165)		-0.373 (0.039)		-0.086 (0.291)		-0.133 (0.002)	
REPUTAT		-0.046 (0.834)		-0.099 (0.179)		0.340 (0.004)		-0.701 (0.002)		0.007 (0.957)		-0.067 (0.197)
INTERCEPT	0.929 (0.000)	1.029 (0.000)	0.921 (0.000)	0.932 (0.000)	1.172 (0.000)	1.108 (0.000)	0.228 (0.397)	0.308 (0.246)	0.164 (0.217)	0.114 (0.422)	0.007 (0.914)	-0.068 (0.299)
R² (overall)	0.015	0.012	0.162	0.165	0.022	0.058	0.016	0.030	0.166	0.153	0.149	0.093
Wald χ^2 stat.	6.18 (0.289)	5.38 (0.371)	48.67 (0.000)	49.25 (0.000)	3.49 (0.625)	9.85 (0.080)	4.85 (0.434)	9.76 (0.082)	14.37 (0.013)	12.99 (0.024)	21.30 (0.001)	12.31 (0.031)
N obs./group	432/144	432/144	216/72	261/72	225/75	225/75	327/109	327/109	174/58	174/58	159/53	159/53

Table 9: Multivariate analysis: determinants of operating performance in post exit phase

Pooled cross-sectional time-series regression for the determinants of changes in operating performance. Performance measures (dependent variables) for output, efficiency, employment, profitability, gearing, and dividends, respectively are (i) sales in £, normalized by sales in exit year (SALE), (ii) sales per employee ratio, normalized by the ratio in exit year (SALEFF), (iii) number of employees, normalized by number of employees in exit year (EMPL), (iv) profit divided by total assets (ROA), (v) long term debt divided by total assets (GEAR1), and (vi) dividends divided by sales (DIVSAL). The performance is a function of a pre/post dummy taking value equal to 1 for post exit years, and 0 otherwise (POST) and several explanatory/control variables. The explanatory/control variables are a variable for buy-out value at exit, as natural logarithm of market value at exit (LNVEXIT), a variable for time to exit in number of months (TIMEX), a dummy variable for exit type, taking value equal to 1 for flotation, 0 otherwise (FLOAT), selectivity correction factor, estimated from the probit regression for choice of exit strategy, as the inverse Mills ratio (LAMBDA), a dummy variable for manufacturing companies taking value equal to 1 for manufacturing companies, 0 otherwise (INDUSTRY), a dummy variable for more reputable private equity firms' taking value equal to 1 for top ten PE firms (PEREPUTATION), and 0 otherwise. All parameters of the pooled cross-sectional time-series regression are estimated via a GLS random-effects model. R^2 is the overall R^2 as a weighted average of the estimates produced by the between and within estimators. Test statistics are presented in parenthesis.

	DEPENDENT VARIABLES											
	OUTPUT (SALE)		EFFICIENCY (SALEFF)		EMPOLYMENT (EMPL)		PROFITABILITY (ROA)		GEARING (GEAR1)		DIVIDEND (DIVSAL)	
	ALL	IPO	ALL	IPO	ALL	IPO	ALL	IPO	ALL	IPO	ALL	IPO
POST	0.635 (0.000)	0.939 (0.000)	0.377 (0.329)	0.021 (0.807)	0.232 (0.171)	0.668 (0.060)	0.006 (0.906)	0.033 (0.037)	-0.158 (0.000)	-0.194 (0.000)	0.255 (0.100)	0.276 (0.000)
LNEXIT	-0.149 (0.033)	-0.153 (0.099)	0.423 (0.054)	-0.098 (0.130)	-0.098 (0.257)	0.014 (0.944)	0.020 (0.456)	0.029 (0.006)	0.026 (0.358)	0.049 (0.035)	0.517 (0.000)	0.607 (0.099)
TIMEX	-0.002 (0.287)	-0.003 (0.357)	-0.001 (0.967)	-0.003 (0.039)	-0.001 (0.619)	0.002 (0.688)	0.001 (0.839)	0.001 (0.263)	-0.001 (0.861)	-0.001 (0.802)	0.010 (0.033)	0.011 (0.357)
INDUSTRY	-0.296 (0.061)	-0.340 (0.119)	0.127 (0.803)	0.302 (0.052)	-0.214 (0.439)	-0.813 (0.285)	0.030 (0.666)	0.002 (0.942)	-0.063 (0.338)	-0.058 (0.271)	-0.001 (1.000)	-0.400 (0.119)
FLOAT	0.223 (0.222)		-0.247 (0.651)		0.553 (0.030)		-0.006 (0.934)		-0.077 (0.322)		0.437 (0.340)	
LAMBDA	-0.180 (0.603)		-0.057 (0.955)		-1.109 (0.011)		0.023 (0.863)		-0.040 (0.760)		-0.077 (0.912)	
REPUTATION	0.279 (0.008)	0.294 (0.138)	0.108 (0.851)	-0.055 (0.666)	0.506 (0.064)	0.807 (0.076)	-0.009 (0.903)	0.003 (0.896)	-0.041 (0.535)	-0.028 (0.575)	-0.249 (0.411)	-0.248 (0.138)
INTERCEPT	1.471 (0.000)	1.421 (0.001)	-0.691 (0.578)	1.538 (0.000)	1.721 (0.001)	0.605 (0.514)	-0.023 (0.884)	-0.072 (0.148)	0.340 (0.052)	0.158 (0.160)	-2.612 (0.005)	-2.615 (0.001)
R² (overall)	0.108	0.122	0.049	0.186	0.142	0.120	0.005	0.154	0.156	0.205	0.126	0.143
Wald χ^2 stat.	51.19 (0.000)	40.72 (0.000)	6.47 (0.486)	8.88 (0.114)	21.50 (0.003)	7.37 (0.195)	0.91 (0.996)	14.10 (0.015)	38.78 (0.000)	41.31 (0.000)	20.15 (0.005)	19.42 (0.002)
N obs./group	431/149	278/97	134/46	68/24	137/47	62/22	198/69	102/37	201/70	153/54	252/87	210/73

