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A long-term perspective on private equity ownership

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Abstract: Private equity companies are targets to a never-ending controversy debate about their contribution to the economy. The existing empirical data provide, on the one hand, strong evidence that private equity activity contribute positively to efficiency of companies, but they are often viewed as short-term investors who utilize firms' resources. In this paper I find no empirical support for that claim. By a unique dataset that covers all majority buyouts in Sweden by Swedish private equity firms from 1997-2010 I end up following 680 portfolio firms before and after the buyout as well as after the exit and a peer group defined by industry, size, age and financial performance. I do, however, find that the firms actually performs better after they exit from the private equity firm, which might be a result of sustainable long-term investments rather than short-termism.

Keywords: Private equity, exit, financial performance

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1 Introduction

Private equity companies are nowadays a known actor in the economic landscape where financial- and operational-engineering are innovative characteristics of this emerging method of finance. The industry established about 35 years ago and has grown in importance for the economy in Sweden as well as in Europe and the rest of the world. (Kaplan and Strömberg (2008)). The Swedish Private Equity & Venture Capital Association estimates that private equity owned companies in Sweden account for 8% of GDP and employs about 200 000 people, which equal 4% of the total employment rate. Sweden's private equity market is accordingly a major player in relation to other private equity investors in Europe. The existing empirical data provide strong evidence that private equity activity contribute positively to the rapid growth of companies, and Michael Jensen in the article "The Eclipse of the Public Corporation" (1989) was among the first to claim that private equity is a powerful and superior way of management. The rationale behind this argument is that it reduces the agency problem, which is the conflict between managers and owners, which according to Jensen is the central weakness of large public corporations. By resolving these weaknesses and through a combination of high financial leverage and powerful incentive schemes the companies can make substantial gains in operating efficiency, employee productivity and shareholder value. So far there is a consensus between researchers when it comes to the perspective of private equity and performance that shows that private equity has a positive relationship to operating performance in their portfolio firms.

Even so, the private equity model have not escaped criticism. Private equity investors are often blamed for opportunistic behavior where they utilize the firm's resources for short-term gains. Labor unions claim that the returns generated by buyouts are at the expense of workers through layoffs and wage cuts. Josh Kosman, author of "The buyout of America" (Kosman (2010)) even argues that excessive debt and mismanagement will wipe out more than one million jobs and trigger another economic meltdown within the next five years and the word private equity is almost like a word of abuse. Critics also questioned their incentives to undertake and exit deals and to which extent private equity actually creates value.

In this paper I look at the actual performance of private equity firms in order to see if private equity firms really are that short sighted as argued by some authors. The question asked is if private equity firms increase long run performance of the companies bought and sold? To make companies more efficient in a long run perspective should be considered welfare increasing activity and not bad for the economy. The results of my study support such a positive view of private equity activities. I find that the companies sold to new owners by the equity firms have

a significant higher profit margin than other similar companies. In other words the private equity have succeeded to improve the long run efficiency of the companies in their portfolio. My study is unique both in its method to estimate long run efficiency of the companies in their portfolio and the use of a large database that essentially coves all Swedish corporations.

The paper is organized in sections as follows. After this introduction follows a review of earlier research. The private equity business model is presented in section 3. The method used and results are the subject matters of section 4 and 5. Section 6 offers a short summarizing comment.

2 Previous research

Private equity funds may well promote policies that boost short-run performance at the expense of more sustained long-term growth and funds' profits may be driven by favorable tax treatment of corporate debt, inducing senior executives of publicly traded firms to accept deals that go against the interests of the shareholders, or breach explicit and implicit contracts with workers (Shleifer,1988).

However, Jensen (1989) argues that LBO organizational form is a long-term superior governance structure, while the other extreme views LBOs as a short term "shock therapy," which allows inefficient, badly performing firms with inferior corporate governance to enter a quick but intense period of corporate and governance restructuring, in order to return to public ownership in a few years (Rappaport (1990)). In the fund settings they may grow fees at the expense of returns (Kaplan and Schoar (2005); Lopez de Silanes (2013)). Labor unions claim that the returns generated by buyouts are at the expense of workers through layoffs and wage cuts. There may be a quite plane and logic explanation to way the academics' and the societies' view are so different and it goes with the fact how the private equity industry have been exposed in media. The cases of Carema Care, John Bauer high school and tax avoidance have created massive headlines, but these examples do not contradict more positive explanations by academicians based on corporate governance models.

Numerous research papers (e.g. (Badunenko (2010); Bergström (2007); Jensen (1989); Kaplan (1989); Lichtenberg and Siegel (1990); Muscarella and Vetsuypens (1990); Smith (1990))) have considered what happen to firms that have been bought by private equity firms and the majority shows that they have a positive impact on the portfolio firms. A common feature of the studies in the early 90's is that the samples are relatively small. With a sample of 58 U.S. management buyouts between 1977 and 1986 Smith (1990) finds that operating cash flows both

per employee and per dollar of book value of assets increased on average after a management buyout due to better working capital management. Smith finds little evidence that the post-buyout cash-flow improvements are driven by cutbacks in discretionary expenses. The increases in operating cash flows were correlated with the buyout-induced changes in debt ratios and management ownership, suggesting that these organizational changes play an important role in value creation in LBOs.

Badunenko et al (2010) study the performance of Private Equity backed firms in Europe and conclude that if the holding period is less than a year. They find that the Private Equity backing firm performance is lower than that of a firm without Private Equity backing. The effect disappears if the holding period exceeds six years. Kaplan (1989) presents evidence on improved operating performance of 48 large management buyouts of public companies completed between 1980 and 1986. Consistent with Jensen's hypothesis, he finds evidence of operating changes were the buyout firms experienced increases in operating income, decreases in capital expenditures, and increases in net cash flow. Furthermore, he discusses different explanations for the operating changes and value increases. First, the median change in employment for the buyout firms is positive, which do not support the view that investors benefit from large employment cuts. Second, the evidence favors reduced agency costs rather than superior managerial information as an explanation for the operational changes. The evidence thus suggests that the operational changes are due to improved incentives rather than layoffs and managerial exploitation of shareholders through inside information. A paper that challenges the short-run-gain statement is Lerner et al (2011), which investigate investments in innovation measured by patent activity. They analyze the changes in patenting behavior of 495 firms with at least one successful patent application filed in the period from three before to five years after being part of a Private Equity transaction. Their main finding is that firms pursue more influential innovations, as measured by patent citations, in the years following private equity investments.

A more recent study by Olsson & Tåg 2013 that also questions the short-termism view, shows that workers in Private Equity owned firms are not more likely to become unemployed relative to workers in similar non-acquired firms due to a Leveraged Buy Out (Olsson (2013)). In order to reduce the management´s incentive to manipulate short-term performance, the management team is typically given a large equity upside through stock and options so that management not only have a significant upside gain, but a significant downside as well (Kaplan (1989)). Consequently the increased management ownership provides strong incentives for managers to

improve operating performance and generate cash flows. According to these arguments, leveraged buyouts, takeovers, corporate breakups, divisional spin-offs and going private transactions are organizational innovations associated with positive properties (Badunenko (2010); Bergström (2007); Jensen (1989); Kaplan (1989); Lichtenberg and Siegel (1990); Muscarella and Vetsuypens (1990); Smith (1990)).

There are three bodies of literature to consider. The first one concerns real effects of buyouts, second deals with reversed leverage buyout (RLBO) which only consider public firms, and the third one analyses the performance of private equity funds which is out of the scope for this study. The studies that deals with the real effects are mainly from U.S. and do unfortunately suffer from limited data, which are probably the reason to the concentration on public firms in the previous the RLBO research. The interesting question about what happens to the portfolio firms after exit from the care of the private equity investor has accordingly not being fully answered. Is performance equally good as during the holding period? In order to fully comprehend the question about if they are good or bad players I argue that you need to analyze the performance after the exit as well as during the ownership for all firms and not only on IPOs. That is the only procedure that makes it possible to out rule if they are short-term players or not. Otherwise the public picture of these big bad exploiters might be true, since short-term performance can be enhanced by financial-engineering. If private equity companies on the other hand increase firm efficiency persistently they perform a valuable service to the society by increasing economic efficiency and it might overrule the criticism that they have had to bear over the years.

The accusation about the short-term perspective also puts light on the buyer in the exit-process. Since the price that will be paid are future discounted cash flows, and since we assume that the buyer are rational, it would be a downgrade of the buyers' capability of making rational decisions. With a unique data set consisting of 99 per cent of all Swedish private equity firms and their portfolio firms from 1997-2010, I show in contrast to earlier studies that the financial performance decrease after buyout but increase after exit. Even though this is not a bullet-proof post-exit analysis, this is a first step with a procedure that studying the whole period from before the buyout to after the exit from the private equity firm for all firms, which I claim is a more accurate way of analyze the performance of the private equity owned firms and by which contributes to the existing literature on private equity performance.

3 The Private Equity Business model

Basically the private equity business model is very simple; they buy companies that have significant potential for growth and over time, they invest capital, time and effort to improve their performance and increase their value. Eventually, they sell the improved companies, hopefully at a profit, and undertake a new investment. Hence, private equity is a form of equity investment into private companies most commonly not listed on the stock exchange and it is a medium to long-term time restricted investment and characterized by a very active ownership. The longevity of buyouts is a disputed academic topic where on the one hand the holding period depends on strategy and the market conditions and the holding period have changed during their existents (Axelson, Stromberg, Jenkinson and Weisbach (2009)). Kaplan concluded that large leverage buyouts in U.S. between 1979-1986 had a median holding period of 6.8 years (Kaplan (1991)). Private equity builds better businesses by strengthening management expertise, delivering operational improvements and helping companies to access new markets. Buyout capital is an investment, where all or a significant amount if shares are acquired with a substantial amount of associated indebtedness 60-70% in more mature companies with strong cash flows. Private equity firms' focus is on investing in high-growth potential companies. The investments are thus not solely about capital but mainly about ownership, competence and networking. The private equity firm attempts to professionalize the company and offer on-going support to the management on strategic and policy matters. The private equity transaction includes three phases; the investment phase, where targets are identified and subject to a due diligence. Second is the holding period in which the value creation is made and last the exit where the firm either is subject for an IPO, sold to an industry or secondary buyout which is a case when they sell to another private equity firm (Berg and Gottschalg 2007). The theory about why this type of ownership should be the best one where first described in Michael Jensen's article "The Eclipse of the Public Corporation" (1989) who strongly argue in favor of private equity ownership since it reduces the agency problem which he argues is the central weakness of a corporation.

In Jensen and Meckling's seminal paper a starting point is a situation where a corporation finance is entirely by equity and there is just one owner. In other words there is no division of ownership and control. The sole owner bears all the consequences of her/his resource allocation decisions. The negative wealth and income effects of shirking are entirely borne by one owner. The positive wealth and income effects of working harder and making wiser managerial decisions are also concentrated to one owner. Principal-agent problems arise first when new

owners are let in. The cost of shirking will be shared amongst many owners and the benefits of harder work and clever decision making are also shared. As a consequence the incentives for efficient allocation are decreased. One control mechanisms that aims to preserve strong efficiency incentives is stock options to managers. Another control mechanism is takeover and threat of takeovers (see Manne 1965). A third control mechanism is an increase in financial leverage that forces managers to be efficient in order to avoid bankruptcy and a fourth is to introduce experts in the board of directors. An increase in financial leverage also means that returns are increase according to Modigiliani and Millers proposition two. From a principal agent perspective a private equity corporation is strengthening the efficiency incentives of managers and owners by concentrating ownership, making managers owners through e.g. stock options, increase the competence of the board and increasing leverage. The upshot is that the private equity corporation after a buyout has a strong incentive to increase the efficiency of the treated firm in order to be able to cash in when the firm is sold to new owner/owners (i.e one can say that they want to dress up the bride in order to get a good offer) These increase efficiency aspects of private equity is behind my first hypothesis that the portfolio firms' operating performance will increase during the holding period, relative to the peer group.

The buyers of the firm after the treating period are professionals such as in trade sales, IPO's or secondary buyouts. Consequently there is less of an asymmetric information problem in these deals than in others. Considering that the price of a firm is based on present value of future profits a second hypothesis that the portfolio firms' operating performance will increase after they have been sold by the private equity firm, relative to the peer group.

4 Data and methodology

4.1

All firm level data is from PAR, a Swedish consulting firm that gathers information from Patent and registration office (PRV). The data cover 523 210 Swedish limited liability firms active at some point during 1997-2010. To identify the private equity investments, I used the membership list of the Swedish Private Equity & Venture Capital Association, which covers 99 percent of all Private Equity investors in Sweden. I only included the firms that entitles themselves in the buyout segment. This list gave me 43 Swedish Private Equity firms, of which 7 where inactive, hence I ended up with 36 active Private Equity firms. Thereafter, I used the PE investors' identification number to identify their subsidiaries in the Enterprise Group Register. Following this strategy I end up with an unbalanced panel of 680 firms that at some

point in time between the years 1997-2010 have been owned (majority owned) by any of the 36 private equity firms in the original list. The variables used is presented in Table 1. Since the panel is unbalanced I need two dummies to identify the private equity ownership. The first PT 1 is a dummy that equals 1 when the firms are owned by a private equity firm and 0 for the years prior to the private equity ownership, and PT 2 is a dummy that equals 1 the years after the private equity ownership and 0 during the holding period.

Tabell 1Description of variables

Variabels	Description
EBIT margin	Dependent variable Earnings before interest and tax divided by turnover.
PT 1	Dummy that equals 1 for the years the firms are owned by a private equity firm, and 0 for the years prior the buyout.
PT 2	Dummy that equals 1 for the year after the firms exit from the private equity firm and 0 the years prior the exit, that is during the years they are owned by private equity.
PEQ	Portfolio firm post buyout dummy 1=owned by a PE firm, 0 not owned (including all other firms)
Age	Age of the portfolio firm
Leverage	Leverage ratio defined by debt/equity
TA/rev	Total fixed asset/ revenue. Measure of capital intensity. (manlgoms).
Sales	Log of sales (lnntoms)

The final sample of the buyouts is summarized in table 2 & 3. Table 2 summarize the first group PT1 which show the means before the firms where bought and during the holding period. In this sample, the average holding period is 3 years. The performance measure are winzorized, which implies that observations that have EBIT margin < -90 and >90 are set to -90 and 90 since the data contained unreasonable outliers and since it is not feasible to have an EBIT margin >100. A positive feature about winzorize the data is that you do not lose any observations that would have been the case if you just remove the outliers. According to table 2 the mean EBIT margin are negative before the buyout and become even more negative during the holding period. The t-statistic show that the difference is statistical significant. We interpret this as if they heavily use writ-offs or depreciation during this time which might be due to investments. The earnings before depreciations increases, which goes in line with previous research. But when I run the regression with EBITDA margin (Earnings before interest, tax, depreciation and amortisation divided by total revenue) as a dependent variable, the number of observation where heavily reduced, and I did not get any significant results at all. The sales increase after the buyout and more interesting more than doubles after exit in table 3. TA/rev

also increases significantly after the exit, which indicates that the firms are well capitalized even after the exit. The drastic increases in leverage during the treatment period decrease with an equal magnitude when the company is sold.

EBIT margin increase after exit (even though it is negative during the three phases). Sales increase significantly through the three phases and employment that is a highly debated issue does not change when the firms are bought but seems to double when the firms exit. A plausible explanation for that is that they merge entities during the holding period which makes them larger and more competitive.

Tabell 2. Before and during Private equity (group PT1)

	Firms before Private Equity (PT1=0)					Firms during Private Equity (PT1=1)					
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	t-test
EBIT - margin	1919	-1.08	32.54	-90	90	1464	-3.67	41.81	-90	90	2.03
Age	2668	16.52	18.13	0	100	2543	15.96	19.40	0	107	1.09
D/E	2463	7.01	23.15	0	447.6	2360	14.27	75.99	0	999	-4.52
TA/rev	1919	31.48	124.97	0	999	1464	33.24	137.28	0	999	-0.38
Sales	2551	44709	113544	0	1815347	2464	58016	181158	0	2851450	-3.13
No. of empl	2468	31	86	0	1724	2333	31	115	0	2968	-0.24
Δ TA	2093	0.12	0.78	-4.55	7.10	2146	0.09	1.05	-8.11	10.09	1.02

Tabell 3. During and after Private equity (group PT2)

	Firms during Private Equity (PT2=0)					Firms after Private Equity (PT2=1)					
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	t-test
EBIT margin	624	-4.55	41.61	-90	90	1197	-.046	36.62	-90	90	-2.37
Age	1081	13.64	14.91	0	98	2068	20.33	18.62	0	101	-10.22
D/E	971	11.87	62.86	0	999	1876	8.12	41.02	0	999	1.92
TA/rev	624	41.92	159.15	0	999	1195	59.87	197.34	0	999	-1.96
Sales	1014	45695	138289	0	2851450	1944	135356	545632	0	9953316	-5.15
No. of empl	954	30	75.25	0	673	1820	64	176.13	0	1686	-5.67
Δ TA	812	0.08	1.07	-5.15	10.09	1802	0.03	1.02	-7.58	9.58	1.07

Next, I identify a peer group to use in a difference-in-difference approach. That is, analyzing the difference in performance during the holding period and after exit, with the peer group differences during the same periods. The need of a suitable control group is essential since the distribution and business characteristics of the buyout firms are not random. That is, the buyout firms are bought for a reason, they do not buy random firms but rather industries that are under significant restructurings due to regulatory changes, foreign competition or technological change (Davis (2011)). Comparing the number of employees in private equity owned firms with the on average number of employees in all other firms (table 1 and table 2) it is clear that the buyout firms are larger than the overall average.

The peer group is identified by Coarsened Exact Matching (CEM), which possesses a wide range of statistical properties that is not available in most other matching methods and at the same time is exceptionally easy to comprehend (Iacus, King and Porro (2012)). CEM is a monotonic reducing matching method, which means that the balance between the treated and control group is chosen by ex-ante user choice rather than discovered through the usual laborious process of checking after the fact, tweaking the method, and repeatedly estimating. The key goal of matching is to prune observations from the data so that the remaining data have better balance between the treated and control groups, meaning that the empirical distributions of the covariates (x) in the groups are more similar. Exactly balanced data implies that controlling further for x is unnecessary. Following (Olsson 2013), (Bouclya (2011)) and the discussion in Davis et al (2011) which states that firm growth and volatility vary systematically with firm size and age I construct the control group by age, leverage, solvency, asset growth, earnings and cash liquidity and the ex-ante year, that is the matching year is set to one year prior to the buyout. The matching method ensures that the control firms do not appear in the buyout group and also that a control firm only can be used as a match once.

I examine the effects by using a difference-in-difference approach, where you can study the effect of a treatment of any kind of response. When a treatment is the result of a policy change or event that occurs completely outside the context of the study it is often referred to as a natural experiment. In my case it is not a natural experiment and hence the choice of control group are highly important. The impact is measured by the difference in differences in equation 1;

$$E = \left[\left(\bar{y}_{after}\,|treatment\right) - \left(\bar{y}_{before}|treatment\right)\right] - \left[\left(\bar{y}_{after}\,|untreated\right) - \left(\bar{y}_{before}|untreated\right)\right] \quad (1)$$

Written in a simple form of a model with an outcome variable y;

$$y_i = \beta_1 + \beta_2 T_t + \beta_3 D_i + \beta_4 T_t \times D_i + \varepsilon_{it,} \quad t = 1, 2. \quad (2)$$

In this model, T_t is a dummy variable that is zero in the period before the treatment and one after the treatment, D_i equals one for the observations that received the treatment, and the change in the outcome variable for the treated observations is then;

$$(y_{i2}|D_i = 1) - (y_{i1}|D_i = 1) = (\beta_1 + \beta_2 + \beta_3 + \beta_4) - (\beta_1 + \beta_3) = \beta_2 + \beta_4 \quad (3)$$

And for the control group;

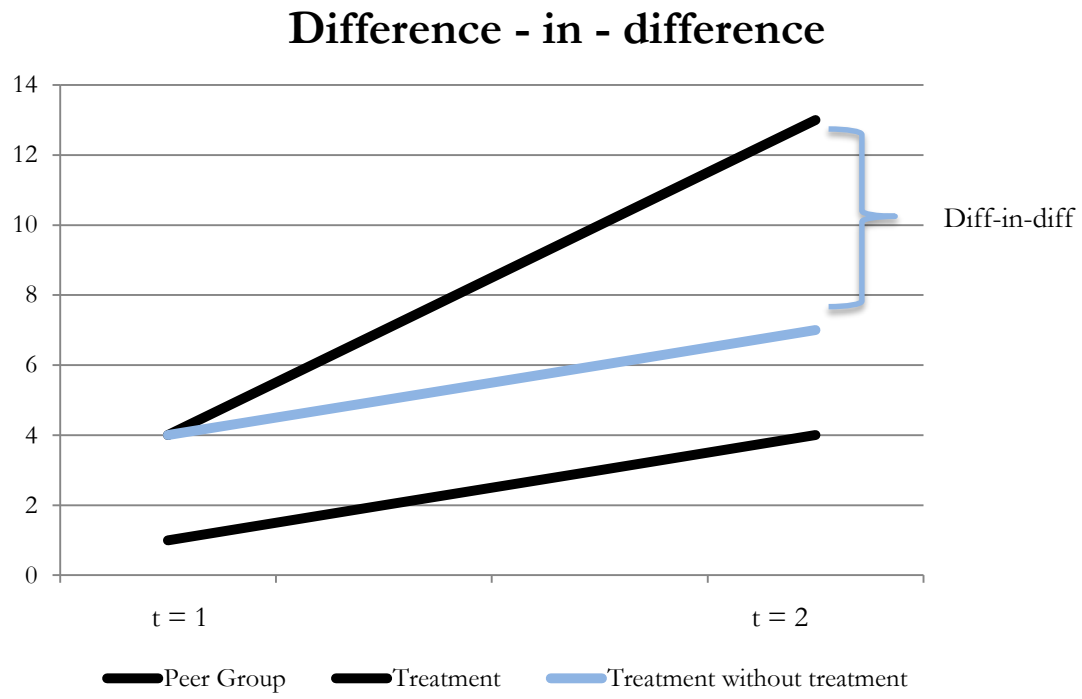
$$(y_{i2}|D_i = 0) - (y_{i1}|D_i = 0) = (\beta_1 + \beta_2) - (\beta_1) = \beta_2 \quad (4)$$

The difference in difference between the treated and un-treated is then;

$$[(y_{i2}|D_i = 1) - (y_{i1}|D_i = 1)] - [(y_{i2}|D_i = 0) - (y_{i1}|D_i = 0)] = \beta_4 \quad (5)$$

and is graphically described in figure 1.

Figur 1. Difference in difference



Applying this model to my data, where the financial performance is compared between the buyouts, which in this case are the treated group, and the control group accounts for the untreated group. The estimated regression is;

$$y_{i,t} = \alpha_i + \lambda_t + \gamma PE_t + \delta PE\ 1 + \mathbf{X}_{i,t} + \epsilon_{i,t} \quad (6)$$

$$y_{i,t} = \alpha_i + \lambda_t + \gamma PE_t + \delta PE\ 2 + \mathbf{X}_{i,t} + \epsilon_{i,t} \quad (7)$$

where i indexes firms and t indexes the time, $y_{i,t}$ is the dependent variable which in this case is the operating profit margin, α_i are the firm fixed effects, λ_t are the time effects, $\mathbf{X}_{i,t}$ are control variables and $PE\ 1$ is an interaction term that equals one during the years the firms are controlled by the private equity firm and zero the years prior the private equity ownership and $\epsilon_{i,t}$ is the error term. In model 2 that explains the change in operating performance between treated and control during the holding period and after the exit, the interaction term $PE\ 2$ represents the year after the exit and takes the value one for all years after exit and zero for the

years before the exit, which is during the private equity ownership. This methodology controls for the fixed unobserved differences between the treated and control through the firm fixed effects.

5 Results

The results from equation 7 and 8 are presented in table 4. In model 1, I only include private equity owned firms, and shows what happen to the portfolio firms before and after a buyout. The buyout analysis (equation 7) shows that the financial performance EBIT margin decrease after the buyout, which contradicts my hypothesis and previous research. The result is not significant in model 2 where I include the peer group, but valid in Model 3 where I compare the portfolio firms with all other firms in Sweden. In the second model, we include a peer group and in the third model we run it with all other firms in the data set. This setting makes the results more robust since I show that the increased performance is not only true for the portfolio firm but also rather in comparison with a matched control group as well as in comparison with all other firms. To be noted is that I include depreciation when measuring the operating performance. The reason is that it is an interesting performance measure from the shareholders' perspective as residual claimants. My measure shows what is left to the shareholders after all other contractual parties to the firm have been paid off plus provision made for refinancing investment.

In the Swedish paper by (Bergström, Grubb and Jonsson (2007)), they use EBITDA margin (earnings before interest, taxes, depreciation and amortization divided by sales) and got a positive sign for profitability of portfolio firms after they have been acquired by private equity firms. EBITDA margin in the descriptive statistics in table 4 goes in line with Bergström et al but did not show any significant results in the regressions, probably according to the low number of observations when EBITDA is used in my sample. The period after the exit (Post Exit analysis, equation 8) that is when the firm has been sold by the private equity firm, has on the other hand a significantly positive relationship with the financial performance and this is true for all three models.

Table 1. Regression results

	Model 1 Only treated		Model 2 Treated and control		Model 3 All firms	
	Buyout analysis	Post Exit analysis	Buyout analysis	Post Exit analysis	Buyout analysis	Post Exit analysis

VARIABLES	OP/ TO	OP/ TO	OP/ TO	OP/ TO	OP/ TO	OP/ TO
PT1	-2.378*		-0.543		-2.401***	
	(1.289)		(0.771)		(0.906)	
PT2		3.660*		4.510***		3.962***
		(1.913)		(1.076)		(1.328)
Age	-0.512**	0.154	-0.606***	-0.449***	-0.494***	-0.494***
	(0.206)	(0.285)	(0.104)	(0.114)	(0.00721)	(0.00721)
Debt/equity	-0.0528***	-0.0372***	-0.158***	-0.125***	-0.0241***	-0.0241***
	(0.0165)	(0.0139)	(0.00818)	(0.00701)	(0.000610)	(0.000610)
TA/revenue	0.0254***	0.00291	-0.00436***	-0.00571***	-0.0172***	-0.0172***
	(0.00578)	(0.00706)	(0.000852)	(0.000850)	(0.000163)	(0.000163)
Sales (log)	6.048***	5.742***	5.514***	5.446***	7.584***	7.584***
	(0.435)	(0.589)	(0.0874)	(0.0881)	(0.0177)	(0.0177)
Constant	-48.52***	-62.32***	-32.58***	-32.73***	-43.72***	-43.71***
	(5.150)	(7.497)	(0.807)	(0.822)	(0.181)	(0.181)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,988	2,425	212,785	211,470	2,821,208	2,821,208
R-squared	0.071	0.073	0.067	0.066	0.097	0.097
Number of firms	627	447	137,663	137,608	401,575	401,575

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 Note: OP/TA is the same as EBIT margin

Even though we do not get significant results in all regressions, there are similar patterns in all three models that give some directions. The pattern is that the financial performance (measured as operating profit/ turnover) decrease after a buyout (PT1) and increases when the firm has been sold again by the private equity firm (PT2). According to earlier studies and our hypothesis, the patterns were expected to be positive for both periods. But as mentioned my performance measure includes depreciation and depreciation should increase if the private equity firm wants to make the acquired firm more attractive for subsequent buyers through different kinds of investment. The higher profitability as measured by operating performance after sold indicates that the private equity succeeded to make more attractive and efficient. A result that makes sense since the business idea is to sell at a higher price than paid for acquired firms. Only way to get a higher price is to make firms more efficient.

The results are in line with our hypothesis but totally contradict medias' and most of the politicians' view of the private equity industry, whose performance growth far too often is equated with utilization of the portfolio firm's resources. We do not use the same performance measure as Bergström et al. (2007) did, and hence it is not appropriate to completely compare our result with their study, but we draw the same conclusion since their financial performance is significantly higher after the exit from a Private Equity firm (See Appendix 1).

6 Concluding remark

The results are largely inconsistent with the view of private equity as short-term and opportunistic investors. Rather the findings support the hypothesis that private equity investors appears to be associated with a beneficial refocusing of firms' innovative portfolios, which can be evaluated by the performance post exit. This is what can be expected as the business idea is to profit from making acquired firms more efficient. There is no reason to believe that actors in this line of business are consistent irrational.

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Appendix 1. Extended summary statistics

Table 4. Extend summmary statistics PT1

	PT1=0		PT1=1		
Variable	Obs	Mean	Obs	Mean	T-test
EBITDA margin	463	23302.35	257	34723.39	-2.54
Total Assets	1919	56897.93	1464	197853.2	-6.94
Assets (Buildings and land)	1919	2372.976	1464	3012.527	0.87
Assets (mashinery)	1789	1886.046	1400	1770.673	1.72
Total fixed Assets	1919	7195.36	1464	7519.488	1.26

Tabell 5. Extend sum statistics PT2

	PT2=0		PT2=1		
Variable	Obs	Mean	Obs	Mean	T-test
EBITDA margin	82	34914.5	143	60488.61	-1.59
Total Assets	624	102763.5	1196	273256.3	-4.73
Assets (Buildings and land)	624	3894.223	1195	13191.7	-2.10
Assets (mashinery)	588	912.5391	1109	1310.096	-0.97
Total fixed Assets	624	7559.141	1195	19490.11	-2.56

Appendix 2. Financial performance by sectors

		PEQpreentry=0		PEQpreentry=1	
		obs	mean	obs	mean
1.	Mining and quarrying	-		-	
2.	Food, beverages and tobacco	-		-	
3.	Textile, clothing, leather and shoe production	11	2.74	3	2.4
4.	Wood and paper production	85	-1.535294	71	5.5859
5.	Fuel processing and chemicals production	9	4.033	4	2.25
6.	Rubber and plastics production	66	4.89	10	-2
7.	Glass, ceramic, clay and cement production	-		-	
8.	Metals and metal products	14	12.89	10	9.68
9.	Fabricated metal product manufacturing	53	9.96	44	7.5295
10.	Electrical machinery and optical equipment production	67	1.129	13	-5.8076
11.	Transport equipment production	32	4.284	20	3.31
12.	Furniture, jewelry, musical instruments, sports goods, toy production	38	5.18	11	6.2909
13.	Electricity, gas and steam production and distribution	-		-	
14.	Water supply and recycling	-		-	
15.	Construction	29	11.47	7	-.8714
16.	Motor and fuel retail trade	2	-48.4	2	8.55
17.	Wholesale trade	261	.49	181	-4.7254

18.	Retail trade and repair	36	-6.88	20	-1.665
19.	Hotel, restaurant and catering services	-		2	-39.55
20.	Transport and storage	23	18.25	26	-6.1384
21.	Media and communicati ons	20	-16.08	23	-26.42
22.	Real estate, renting and leasing	94	7.13	83	18.360
23.	Research and development sector	24	-40.89	4	1.15
24.	Business services	614	-9.309	565	-11.904
25.	Financial and insurance sector	46	1.95	102	4.299

		PEQpostexit=0		PEQpostexit=1	
		Obs	Mean	Obs	Mean
1.	Mining and quarrying	-		-	
2.	Food, beverages and tobacco	-		-	
3.	Textile, clothing, leather and shoe production	-		-	
4.	Wood and paper production	2	-3	1	90
5.	Fuel processing and chemicals production	-		1	6.3
6.	Rubber and plastics production	-		-	
7.	Glass, ceramic, clay and cement production	-		-	
8.	Metals and metal products	-		-	
9.	Fabricated metal product manufacturing	2	8.65	3	11.1666
10.	Electrical machinery and optical equipment production	6	-3.1	17	-1.770
11.	Transport equipment production	-		-	
12.	Furniture, jewelry, musical instruments, sports goods, toy production	4	-3.75	6	-3.0166
13.	Electricity, gas and steam production and distribution	-		-	
14.	Water supply and recycling	-		-	
15.	Construction	1	4.5	2	-4.25
16.	Motor and fuel retail trade	-		-	
17.	Wholesale trade	69	-1.1869	123	-2.630

18.	Retail trade and repair	13	-13.0461	26	2.792
19.	Hotel, restaurant and catering services	1	-90	17	13.8588
20.	Transport and storage	18	-3.305	85	-1.216
21.	Media and communicati ons	16	-1.95	16	-3.3562
22.	Real estate, renting and leasing	52	21.95	109	32.611
23.	Research and development sector	2	-33.1	1	20.4
24.	Business services	264	-9.5871	415	-10.77
25.	Financial and insurance sector	29	-14.91	53	8.692