

Leveraged Buyouts in Norway

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Abstract:

This paper reviews several recent studies on buyouts in Norway that analyse the impact of buyout investors on the firms they acquire. After controlling for the endogeneity of the buyout decision, firms acquired by private equity funds seem to improve both their operational and financial performance relative to comparable firms. There is no evidence that the improved financial performance is caused by increased tax planning (again relative to comparable firms). Finally, there is little evidence that buyout funds rely on formal board work to effect these changes in firms.

Introduction

Private Equity (PE) in Norway is still a quite recent phenomenon and our understanding about this form of financing (and governance) stems mostly from studies abroad. Yet in recent years PE activity in Norway has been increasing a lot, both in terms of deals but also in terms of funds being raised. A rough count of buyout deals in NHH's Argentum Centre for Private Equity database suggests that around 250 buyouts happened in Norway up to 2013.² How are these buyouts managed? Does the operational and financial performance of the acquired firms change? What about the effects for stakeholders?

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² As compared to 250 in Denmark and 450 Sweden over the same time period

The empirical evidence about the effect of buyout funds on companies they acquired suggests that on average a buyout is a positive experience for these firms and the stakeholders in these firms. There are individual exceptions of course, like the Swedish Carema scandal (Johnson, 2014), but in this study I want to focus on the overall impact of private equity on firms and not on selected cases. In particular, I want to focus on the following three questions:

- 1) Do buyout investments in Norway increase firm performance?
- 2) What are the tax consequences of buyout investments?
- 3) How does corporate governance work?

I am opportunistic in my choice of topics as there are many other questions we could try to answer. I am able to analyse these three questions as I was given the opportunity to supervise three master thesis written by NHH students in fall 2015. I will complement these findings with some new results. All studies were written on data from NHH's Argentum Centre for Private Equity. As we will see later in more detail, there is, again, little evidence that a buyout is a bad experience for the average Norwegian firm that goes through it.³

Rather the opposite is true - a study by (Friedrich, 2015) suggests that Norwegian PE targets become more efficient in their operational (i.e. asset turnover improves by 50% over a three year horizon) and financial aspects (i.e. the EBITDA/total assets ratio improves by 23% over a three year horizon). There is also evidence that PE ownership reduces the probability of financial distress relative to comparable no-buyout firms. (Roald & Roti, 2015) investigate whether some of the increased financial performance in Norway comes at the expense of tax-payers. Yet it seems that there is no evidence for such a problem - there is no sign for more tax planning relative to comparable firms and back of the envelope calculations suggest that tax increases through efficiency improvements are larger than reductions in taxes through leverage. Finally (Farran & Lâm, 2015) investigate the channel through which buyout funds affect the (Norwegian) companies they have invested in. Interestingly, it turns out that this channel is not the firms' boards. We see almost no influence of the fund manager's presence on the firm's board.⁴

³ I am dropping the qualifier "relative to comparable firms" from now on for the sake of exposition but all statements made here, if not mentioned otherwise, are made with this qualifier in mind.

⁴ It is not clear what the exact channel is – we can only speculate that is the direct contact between the firm's management and the fund managers.

The focus of this study will be on the investments done by buyout funds and we will ignore the question of how funds in Norway are structured. For the impact of the fund's structure on buyouts see (Bienz, Thorburn, & Walz, 2016). In what follows I will continue by discussing some stylized facts before turning to the relevant theory. I will explain the empirical methodology used in the studies we analyse next and finally will discuss the studies themselves.

Private Equity – a short introduction.

By definition Private Equity investments are about buying (controlling) equity stakes in privately held firms.⁵ Family offices or Sweden's Investor AB do the same yet we would not consider them to be a typical example for Private Equity. There are several differences. First, PE typically is organized via limited duration funds, with a ten-year commitment, that collect capital from institutional investors. These funds are then run by professional managers. The managers are usually compensated by fees and share in the return they generate (called carry in the industry) (Bienz, Thorburn, & Walz, 2016).⁶

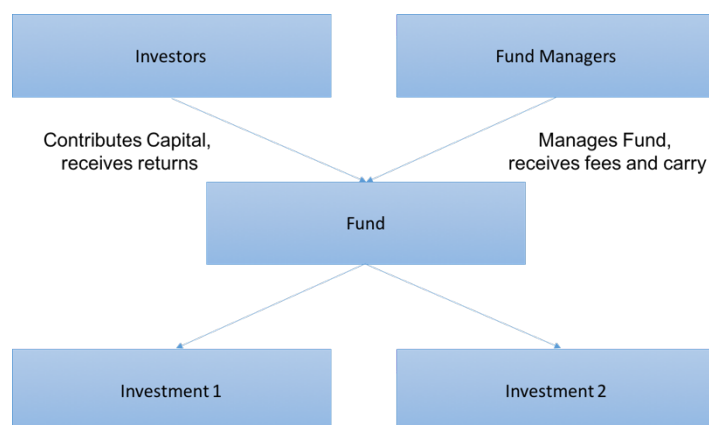


Figure 1: PE Investment Structure

This structure (shown in Figure 1: PE Investment Structure) resembles an idealized X where capital flows from the investors (the limited partners or LP) to the fund. The investors are passive and the fund is managed by the fund manager, called General Partner (short: GP). The fund uses the capital to purchase firms. To be more precise, the capital from the fund finances the equity portion of the deal but usually there is a substantial debt portion too. This debt is typically raised from banks on a case-by-case basis.⁷

⁵ Unlike, for example, activist hedge funds that only buy small stakes in public firms.

⁶ <http://www.dn.no/nyheter/naringsliv/2013/01/04/tok-av-med-herkules>

⁷ In Europe typically banks are the main providers of capital. In the US, bond markets also often play a large role (Axelson, Strömberg, & Weisbach, 2009).

Third, given the funds' limited life, the investment is always of a temporary nature and the funds "exit" their investments. Any proceeds from the firm (in the form of dividends or sales proceeds) are then paid back to the investors, minus the fund manager's share of the returns ("carry").

What types of firms are typical targets for PE funds? Three reasons that make firms interesting for PE funds have been proposed:

1. Firms are under-levered.
2. Firms are under-performing.
3. Firms lack capital or managerial expertise.

Our perception of buyouts is shaped by the large transaction that make it into the financial press. Examples are the RJR Nabisco buyout by KKR or the purchase of ISS by EQT in Denmark, both two well-known buyout funds. In each case a listed firm was taken private. RJR Nabisco was clearly mismanaged while ISS was operating with low levels of leverage.⁸ Yet conversations with Norwegian PE fund managers suggest that in Norway often the third reason is of major importance.

Both RJR Nabisco and ISS were publicly traded before they were acquired by a PE fund. This does not seem to be the case in Norway where (Bienz, Thorburn, & Walz, 2016) find that only that two out of more than sixty deals in Norway involve a firm going private. Most deals in Norway are transactions where a private firm is sold to a PE fund.

The debate about Private Equity

What makes private equity different from other types of (equity) investments? We discussed several institutional aspects that make PE different – controlling stakes, the use of limited duration funds, the use of professional fund managers, the type of investments done, and the financing structure that mixes inside equity with outside debt. Individually taken none of these choices are very special yet this particular setup seems to give rise to a relatively special form of financing. Given the complexity of the funding arrangement, the academic debate has usually focused on explaining the effects of one of these aspects in isolation.

⁸ (Michel & Shaked, 1991) and (ISS A/S: The Buyout, 2013)

The academic debate typically tries to explain why PE deals occur in practice and this explanation is often coupled with the implicit assumption that PE ownership of a firm is something positive for the firm (and the shareholders in the firm).⁹

The beginning of the academic debate about PE can usually be traced back to (Jensen, 1986) who emphasizes the disciplining factor of high leverage or dividend payments. Jensen develops a short theoretical model where a (time-inconsistent) manager commits to not wasting cash by taking on external leverage or by committing to a high dividend. Such commitment prevents the manager from investing into negative NPV projects/empire building as the high leverage reduces the firm's free-cash flow. In theory such commitment should also incentivize managers and employees to increase efficiency in the firm. A famous example of such a strategy is Sealed Air Corporation. (Sealed Air Corp.'s Leveraged Recapitalization (A), 1994) Sealed Air Corp paid out a special dividend twice the value of its book equity. Despite the extremely high leverage, the firm outperformed its industry peers significantly afterwards. Its CFO at the time attributed the change to the incentive effects of the increased leverage.

However, one empirical finding that does not fit the Jensen story is the fact that in some instances leverage in LBOs is not significantly higher than in normal firms, at least initially. For example, table 1 tracks the leverage ratios for 105 Norwegian buyout deals found in (Friedrich, 2015) from the year of the buyout to the year and compares it to similar firms:

Leverage Ratio		Year relative to buyout			
		0	+1	+2	+3
$\frac{Assets - Equity}{Assets}$	Buyout	73%	74%	74%	71%
	Control	72%	71%	69%	70%
$\frac{LT Debt}{LT Debt + Equity}$	Buyout	32%	30%	30%	28%
	Control	26%	25%	23%	24%

Table 1: Leverage Ratios. Source: Friedrich (2015)

In the year of the buyout, overall leverage (as measured by assets minus equity divided by equity) is not very different between controls and buyout targets and it does not change much over time; yet long term

⁹ Even if this might not be the case for all stakeholders.

debt is somewhat higher than in comparable firms, though it falls more. In addition, (Bienz, Thorburn, & Walz, 2016) report that the change in leverage from the year before the buyout to the buyout year is not statistically significant.¹⁰ Some of this result can be explained by the fact that historically Norwegian buyout funds were constrained in using the acquired firm's assets as collateral for leverage, restricting the initial increase in leverage.¹¹ Yet this result also suggests that increased leverage is probably not the only mechanism that matters during a buyout and it questions the importance of Jensen's model. (Axelson, Strömberg, & Weisbach, 2009) argue that the use of outside debt disciplines the GPs as they have to find banks that are willing to lend funds to the GP for the proposed transaction. Theoretically this should prevent GPs from overpaying and from acquiring bad firms.

(Shleifer & Summers, 1988), on the other hand, explain the gains to the GP and LP not as a result of increased efficiency but as the outcome of the renegotiation of implicit contracts. "Implicit contracts" is an academic term for a gentlemen's agreement. Given the lack of formal documentation, such an informal agreement can be easily broken when ownership changes. (Shleifer & Summers, 1988) and many others argue that PE investor use their powers as owners to renegotiate (implicit and explicit) contracts with stakeholders, such as employees or bondholders. The new owners use this possibility to shift rents to the firms. There is often an implicit assumption that this shift is short sighted as it destroys firm value in the long run.

While not explicitly mentioned in Shleifer and Summers, leverage seems to be large source of value to PE funds (Kaplan, Management Buyouts: Evidence on taxes as sources of value, 1989). This explanation rests of the fact that buyout targets in the 1980s were often not highly levered without the sellers realizing this issue. If increased leverage were the only source of gains for LPs and GPs, then of course a PE investment would simply be a tax arbitrage opportunity.

Empirically it seems the Shleifer and Summers conjecture does not get a lot of support, possibly with the exception of negative returns for some bondholders.¹² A good example, and one that comes closest to the Norwegian results is (Boucly, Sraer, & Thesmar, 2011), who follow 839 French buyout firms for three years

¹⁰ The mean leverage ($\frac{Assets-Equity}{Assets}$) was 78% and falls to 76% in the buyout year.

¹¹ This restriction was usually deemed to be obsolete one year after the buyout and hence one can observe large re-caps a year after the buyout.

¹² In particular Bondholders not protected by covenants. See (ISS A/S: The Buyout, 2013) for an example.

and compare them to a peer group. They report that buyout targets increase their profitability and are able to grow faster than their peers. This growth seems to be concentrated in firms that were acquired from private owners (Private-to-private) deals. The fact that growth seems to be concentrated in these types of firms suggests that PE is able to help overcome a restricted supply of capital. They also report that growth seems to be coming from industries that are more focused on external finance.¹³

The results from (Boucly, Sraer, & Thesmar, 2011) suggest that a relaxation of financing constraints causes firms acquired by private equity funds to increase profitability. However, improvements in management quality are also often cited as a reason for private equity investments. These improvements are hard to measure, possibly with the exception of boards. Here (Cornelli, Kominek, & Ljungqvist, forthcoming) find a causal link between board monitoring and firm performance for Eastern European buyout deals. Their findings point out that any performance increase by firms can be explained by a combination of better oversight and better access to managerial talent.

To sum up, existing research conjectures (and is able to document) an increase in firm performance for companies acquired by PE funds. Both theory and empirical research suggest that this increase in performance cannot be explained by a simple transfer from stakeholders to shareholders. However, the exact channel for these improvements is not clear yet. Increased incentives seem to play a role, but whether these incentives come through increased leverage, better corporate governance, better access to capital, or simply because access to managerial talent increases is not clear.

How should we compare PE financed firms with non PE financed ones?

In general, we cannot directly compare firms that receive PE financing with non-PE financed firms as buyout targets are selected by their investors. What does that mean and how does it affect our analysis? First of all, we need to realize that by being selected by a buyout fund, firms are probably somewhat different from the average firm. What could cause this difference? It might be that the firm has higher growth potential than a comparable firm, that its management is considered to be better or that the GP has private information about the firm. The problem for us is that it is difficult to find out.

¹³ It is difficult to directly verify that private to private deals grow faster than formerly public firms given that almost all deals in Norway are Private-to-private deals to start with, but anecdotal evidence (such as the buyout of XXL) supports this explanation in Norway too.

However, what we can do is to find firms that did not receive PE financing but that look similar on the outside and compare them to firms that did receive financing. We can then try to see if we find differences in the future performance of these two types of firms. In a sense the idea behind this approach is to come as close as possible to a random experiment that one might find in medicine where ideally both treatment and controls are randomly assigned. While we cannot randomly assign treatment, i.e. being subject to a buyout, we go the other way around and find comparable firms that are as close as possible to the treated firms. In the end we can compute the following difference in difference (another word for a double difference):¹⁴

$$Diff - in - Diff = (EBITDA_{(B,t+n)} - EBITDA_{(B,t)}) - (EBITDA_{(C,t+n)} - EBITDA_{(C,t)})$$

The above example computes the change in EBITDA for a buyout deal (B) at two points in time (t and t+n) and a control group (C) over the same time period. If this difference is positive, it means that buyout targets performed better than their peers and vice versa with respect to EBITDA.

How can we find out which firms are comparable? There are several statistical techniques that all can be seen as a variation of a matching approach that can help us find appropriate comparable firms. The papers cited here all use a technique called propensity score matching that finds comparable firms based on an index value. The closer two firms are in their index value the more comparable they are. This system has the advantage that it allows for many different attributes to be used but it works not particularly well with industries (which cannot be numerically compared) and years (2007 is close to 2008 but very different).

This procedure is used to capture the effects of the PE fund on the company. We can call this effect a “treatment” effect. Ideally our procedure has eliminated any “selection” effect, that is that PE fund managers are just better at selecting good firms. How realistic this assumption is, is not entirely clear. However, by focusing on observable characteristics we should at the very least minimize any selection effect as much as possible. Of course, if there are any systematic unobservable characteristics – i.e. buyout funds excel at finding the best management teams or management teams with private information proactively pursue buyouts– then our results can still be misleading.

¹⁴ The technical term for this procedure is difference-in-difference as we compute the difference between two changes.

Data sources

The data comes from several sources. Information about investments is taken from NHH's Argentum Centre for Private Equity's (ACPE) database. The database is compiled by NHH and contains information on buyout deals from the late 1990s up to 2012. We already mentioned that the database contains around 250 deals up to 2013. The database also contains information on the name of the portfolio company, the fund investing and the deal year. It is matched to SNF's accounting database, maintained by Aksel Mjøs at NHH, using organization numbers. Organization numbers are independently hand-collected and verified by two research assistants. The SNF accounting database covers all Norwegian firms from 1997 to 2014. Historical ownership information was purchased from Bisnode and covers all Norwegian deals up to 2012. We need this information to identify holding companies and the leverage in these holding companies.¹⁵

Do buyout investments in Norway create value?

(Friedrich, 2015), investigates the changes firms undergo during the time they are owned by a buyout fund relative to non-buyout firms. Friedrich structures his analysis along three major dimensions: First, how does the firm develop financially and in terms of operating efficiency? Second, how are default rates affected? Finally, how are stakeholders affected?

Friedrich uses propensity score matching to assign a control group to each firm going through a buyout. The idea is, as explained above, to find one to (five) comparable firms for each buyout deal. He matches against the population of all firms in the Brønnesund registry. In order to compare performance between buyout firms and controls he tracks the changes in key firm variables. This procedure ensures that a development is not something that would have happened because of a common trend. He uses the double difference introduced above: the change over time for each buyout firm is compared with a non-buyout firm and the relative change is computed by looking at the difference in difference. In case of EBITDA this is:

$$Diff - in - Diff = (EBITDA_{(B,t+n)} - EBITDA_{(B,t)}) - (EBITDA_{(C,t+n)} - EBITDA_{(C,t)})$$

¹⁵ Some funds hold their investments directly and hence we can measure leverage directly. Others use holding companies. In this case we need to look up all (historical) holding companies during the buyout. This info is not available in the standard accounting data we get from RAVN or Proff as only the current holding structure is given.

Percentage Changes between Buyout Targets and Controls

	Financial Measures		
	0 to+1	0 to+2	0 to+3
EBITDA/total assets	44.30%**	32.47%**	23.60 %
Net cash flow/total assets	9.12 %	26.37 %	52.14 %
	Operational Measures		
	0 to+1	0 to+2	0 to+3
Return on sales	25.36 %	-3.35 %	21.90 %
EBITDA-margin	5.29 %	9.30 %	16.37 %
Asset turnover	8.95%***	19.74%***	49.56%***
Current ratio	-4.40 %	-67.23%***	-48.14%***

Source - Friedrich (2015)

Table 2: Financial and Operation Performance of Buyout Targets: Source: Friedrich (2015). * Denotes statistical significance at the 10% level, ** denotes statistical significance at the 5% level, *** denotes statistical significance at the 1% level.

The results in the first panel of table 2 show that financial performance improves relative to control firms over a three-year horizon, although not all results are statistically significant. Operational improvements also display a positive outcome (Return on sales, EBITDA margin and Asset turnover) as can be seen from the second panel of table 2. Also note how the firms' current ratio declines. This hints at an improved liquidity management in the firm, possibly caused by stricter control of capital in the firm or by closer governance.

Insolvency risk, measured by the firm's z-score, also decreases more than for comparable firms.¹⁶ (Friedrich, 2015) uses a modified z-score below (where the market value of equity is dropped in favour of the book value of equity) and shows that in the buyout year the z-score is initially lower for buyout firms but improves remarkably in the years after the buyout, up to levels above that of comparable firms.

$$Z' = 0.717 * \frac{\text{Working Capital}}{\text{Total Assets}} + 0.847 \frac{\text{Ret.Earnings}}{TA} + 3.107 \frac{\text{EBIT}}{TA} + 0.42 \frac{\text{Book Equity}}{TA} + 0.998 \frac{\text{Sales}}{TA}$$

		Year			
		0	1	2	3
Z' Score	Buyout	1.09	1.34	1.38	1.31
	Control	1.16	1.19	1.27	1.27

Table 3: Modified Z-Score. Source: Friedrich (2015)

¹⁶ A z-score is a numerical value that tries to evaluate a firm's likelihood of default. The higher the score the lower the probability of default. Typically, z-scores are computed for public firms and use the market value of equity.

There seem to be no adverse effects with respect to employment although (Friedrich, 2015) acknowledges that this issue is difficult to evaluate with the data at hand. Buyout firms often sell and buy additional firms after the deal date, something that is very hard to keep track off, and he may end up mixing organic employment growth with employment growth from acquisitions.¹⁷

What are the tax consequences of buyout investments?

The state and society are a special kind of stakeholder in firms through their (tax) claim on future profits. Yet firms can attempt to change the distribution of current and future profits through more aggressive tax planning or by increasing leverage. Reducing taxes is a simple way of moving wealth from one stakeholder in the firm (the state) to the equity owners. (Roald & Roti, 2015) attempt to answer this question by comparing PE backed firms and non-PE backed firms with respect to their behaviour towards measures of tax planning. In order to do so they use tax balance sheets obtained from the Norwegian tax authorities and match these to firms. This allows for a comparison between tax and financial statements.

In total four specific measures are analysed. All measures aim to reflect systematic differences between profits recorded in the financial accounts and in the tax accounts and are frequently used in the tax-avoidance literature.¹⁸ Yet (Roald & Roti, 2015) show that there are no systematic differences between buyout targets and control firms on any measure of tax planning.¹⁹ Even more so, they show that GPs do not seem to target firms with a large potential for tax savings when selecting investments.

The only discernible difference is the leverage ratio of the firms going through a buyout. Here they find an increase in the leverage ratios of treated firms, consistent with the results in (Friedrich, 2015). However, both theory and empirical research suggest that a mere increase in leverage is not sufficient to claim that buyout deals are detrimental to the public. As mentioned before, if increases in leverage lead to an increase in efficiency, then the ultimate outcome is up in the air in the sense that the productivity gains could lead to higher overall tax payments despite higher leverage ratios. Unfortunately, we do not have a definite answer to this question. Between the results of (Roald & Roti, 2015) and (Friedrich, 2015) we do not know whether higher (long term) leverage leads to lower overall taxes or whether the efficiency

¹⁷ Imagine the firm A has 10 employees, acquires firm B with 5 but also lays off four employees. The net effect would be a reduction in employment. Without being able to fully track add-on acquisitions this question is difficult to answer. A fully satisfactory treatment would use either establishment level employment data or tax records.

¹⁸ Exact definitions can be found in Appendix A and in (Roald & Roti, 2015).

¹⁹ See table 6 – the only exception is the buyout targets leverage ratio.

increases reported compensate for the increase in leverage.

A back of the envelope computation suggests that the increase in productivity clearly dominates the decrease in taxes. Let's consider a firm that initially has a pre-tax return on assets of 10%. To generate one kroner of EBIT the firm needs ten kroner of capital. Taking the long-term debt numbers from (Friedrich, 2015), 32% for a buyout target, a 28% tax rate, a 5% coupon, and zero depreciation a firm pays 0.235 kroner taxes while a comparable firm (with a 26% long term debt ratio) will pay 0.246 kroner in taxes, a 1.1 øre loss for the state. Now let's assume that the buyout target is able to increase EBITDA by 23% after three years relative to comparable firms, as suggested by (Friedrich, 2015), while reducing leverage to 28%.

Assumptions		Leverage Ratios			Interest	
ROA	10 %					
Tax Rate	28 %		t=0	t=3	t=0	t=3
Change in EBITDA/TA	23.60 %	Buyouts	32 %	28 %	0.16	0.14
Interest rate	5 %	Controls	26 %	24 %	0.13	0.12
Depreciation	0 %					

Table 1: Assumptions Efficiency Gains

	Taxes in year one			Taxes in year three with actual leverage ratio			Taxes in year three with comp leverage ratio		
	EBIT	Taxable income	Taxes paid	New EBIT	Taxable income	Taxes paid	Taxable income	Taxes paid	Difference
Buyout target	1	0.86	0.235	1.236	1.096	0.307	1.116	0.312	-1.8 %
Comparable Firm	1	0.87	0.244	1	0.88	0.246			
Difference			-3%			25%			

This leads to an increase in taxes of 0.065 kroner to 0.306 kroner. If the buyout target would have utilized the comparable firm's average leverage ratio of 24% then taxes would have increased to 0.312 kroner. Comparable firms' taxes meanwhile increase to 0.244 to 0.246 kroner. This change is solely driven by the reduction in the long-term leverage ratio from 26% to 24%. The net difference for the state is a 1.1 øre loss in the first year but a 6.5 øre net gain after three years (or a 25% gain relative to the comparable

firm's taxes). According to Friedrich's numbers, the state would gain relative to comparable firms in each year but the first. This simple calculation illustrates that a major increase in productivity can clearly outweigh any loss from leverage; however, I should caution that it is merely meant as an illustration. The problem is that we cannot be sure that the increase in leverage is what causes the improvements in firm performance. Other factors might cause this improvement.

A more formal analysis is not an easy task. To properly show that such a relationship exists one would have to prove that the increase in leverage causes an increase in efficiency and show that this leads to a larger total tax payment.

Internationally, (Badertscher, Katz, & Rego, 2010) show that, similar to Norway, US buyout targets engage in less tax-planning than publicly listed firms. On the other hand, higher leverage ratios in the US mean that US buyout targets have lower marginal tax ratios than public firms. Also, (Kaplan, Management Buyouts: Evidence on taxes as sources of value, 1989) first reported that tax savings caused by increased leverage are a large source of value for US buyout funds.²⁰

Boards and Private Equity

Our previous discussion centred around the fact that Private Equity firms seem to improve firm performance. We already discussed one potential channel: higher leverage. Often, PE funds are majority owners in the firm they invest into. This majority ownership gives them control over the firm and raises the question if boards are a tool that is actively used by GPs.

GP Ownership in Norwegian PE Deals					
Obs.	Mean	Median	Std. Dev.	Min	Max
99	54.1	55.6	30.3	2.18	100

Table 4: Average Share Ownership by individual GPs.

(Bienz, Thorburn, & Walz, 2016) show both the average and median ownership for 99 Norwegian PE deals between 1997 and 2009. On average GPs own 54% of the equity in their companies and own the majority

²⁰ Kaplan also documents large increases in firm productivity, but I am not aware of any study that tries to determine the overall change in taxed paid by comparing the two effects for US buyouts.

in 57% of all deals.²¹ Hence, in a large fraction of all deals the GPs have the ability to control the board as they see fit to.²²

The question then is whether or how this control is used and how it affects portfolio companies. Do GPs directly interact with managers; do they utilize the board or are there other mechanisms at work? Board work can be demanding in terms of attention and time. PE funds often manage multiple funds and will try to use their time effectively. This begs the question whether boards play a major role in supporting a portfolio company. On the other hand, boards may matter in cases where the GP owns less than the absolute majority and in situations that involve minority shareholders other than managers.

(Farran & Lãm, 2015) explore the board aspect of the GP - portfolio company relationship and look at CEO turnover as well as investigating whether the presence of GPs on the firm's board affects the success of the portfolio companies. In the latter analysis, they follow (Wintoki, Linck, & Netter, 2012) in their dynamic panel estimation approach and ask whether specific aspects of a firm's board can account for differences in outcomes among all firms that were bought by a PE fund. The idea behind a dynamic panel approach is that we should be able to reduce the endogeneity of firm performance by including past performance on the right hand side of the regression equation. They regress current performance on past performance and the extent of the GP's board representation. Other right-hand side variables include: CEO change, an exit dummy if the GP has divested himself, a syndication dummy, a dummy for a Norwegian GP, Firm Size, an industry and a year dummy.

Maybe the most interesting part of their analysis can be found in table 7 of their thesis where they show that the presence of the GP on the board does not seem to affect firm performance. There are several different ways to interpret this result. The most straightforward one is simply to say that boards are superfluous as there is no relationship between the board and performance. This is the author's preferred interpretation: *"We find that general partners do not prioritize the board as long as everything is going according to plan. [...] Furthermore our findings suggest that the board is neglected and interaction*

²¹ Here we treat each GP as an individual investor. Hence we can have more than one GP as a shareholder and we do not measure total PE ownership but ownership by individual GPs. Or put it differently we do not control for syndication of investments between different GPs. Given current rules on reporting individual ownership we often do not know the level of managerial ownership.

²² However, we would like to thank our referee for pointing out that these numbers are actually lower than the typical ownership structure for a privately owned firm.

between general partners and management is conducted in alternative ways". There are two other possible interpretations. First is the possibility that their analysis simply lacks *power* to detect this relationship. Power is a statistical term that denotes a statistical methods' ability to detect a significant relationship. The second is that the board has been chosen optimally and hence it should not have a measurable effect. This interpretation is orthogonal to the first explanation as it takes the lack of any relationship as an indication that the current result represents an equilibrium outcome that cannot be improved upon.

If we believe the first interpretation, namely that boards do not add value, then the findings are in line with other papers, such as (Wintoki, Linck, & Netter, 2012) that fail to establish a relationship between board characteristics and firm performance once past performance is included in the analysis. However the results are in contrast to (Cornelli, Kominek, & Ljungqvist, forthcoming) who show that boards of buyout targets in Eastern European during the transition periods in the 1990s seemed to improve firm performance. In addition, if we believe that boards do not add value, then this finding of course raises the question about the channel that GPs use to influence their firms. Interviews with GPs suggest that they often do not involve boards in the day to day work with firms but instead work with the executive directors directly.

Another very effective way to change a firm is the replacement of the firm's CEO, another part of (Farran & Lâm, 2015) analysis. While CEO turnover is high (about 50% of all CEOs end up being replaced) they report that initial replacements are not explained by observable factors, such as past performance or firm characteristics. Bad past performance seems to play a role, but only in later stages of the relationship. Most likely unobserved CEO characteristics play a role in the initial replacement decision, so it is possible that these initial replacements are driven by a perceived lack of managerial experience in existing CEOs but without better data this question is hard to evaluate.

Conclusion

We have discussed some aspects PE ownership of Norwegian firms in this paper. In particular, the financial and operational performance of these firms was analysed. On most measures (both financial and operational) used firms seem to improve relative to a carefully selected group of controls. There is little indication that these improvements are to the detriment of other stakeholders. There is also evidence that PE firms do not systematically engage in tax planning to a larger extent than comparable firms. Finally,

there seems to be an indication that PE funds do not use boards in order to improve the firms they own but that other channels are being used, such as direct contact between the GP and the CEO.

There are also many questions that should still be answered. For example, the interaction between leverage and performance improvements needs to be analysed in more detail. We also know very little about the effect of PE ownership on competitors or the effect on the industries in which the buyout happens.

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Appendix A – Measures of Tax Planning

1. The difference between profits between the tax and financial accounts (Total Book Tax Difference)
2. Discretionary differences between financial and tax accounts
3. *Cash effective tax rate* =
$$\frac{\text{Cash taxes paid}}{(\text{Pre-tax income} - \text{Special items})}$$
4. *Marginal Tax Rate* =
$$\frac{\text{Cash Taxes Paid}}{\text{Operating Profits}}$$