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Value Creation in German Private Equity Buyouts

Does pre-buyout ownership matter?

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Abstract

Despite the vast research on private equity buyouts, literature has provided little empirical evidence about the effects of private equity ownership in German companies. Using a dataset of 102 buyout deals in Germany between 2009 and 2013, we investigate whether private equity ownership affects operational value creation in target companies and if this effect is contingent on the pre-buyout ownership type.

We provide evidence that the magnitude of operational value creation in the post-buyout period differs among pre-buyout ownership types due to different governance mechanisms and firm-specific characteristics in Germany. In the three years following a buyout, targets expand their margins and grow regarding assets as well as in employment compared to a carefully selected peer group in Germany. Moreover, we provide evidence that value creation and especially growth is concentrated in private-to-private buyouts, where the seller is one or several individuals. The increase in growth in private-to-private transactions is especially prevalent in firms having faced financial constraints in the pre-buyout period. Surprisingly, secondary buyouts, where the seller is a financial investor, also experience higher growth and capital expenditures, whereas firms where the seller is a conglomerate, downsize following the buyout.

Our findigs contrast the evidence of literature conducted in the UK and the US, which found private equity firms to create value by prioritizing downsizing initiatives and lower investment levels in their target firms in the post-buyout period. This study supports the results of more recent research in Europe, providing evidence of private equity firms enabling growth by alleviating growth constraints.

Table of Content

Table of Figures

Table of Tables

List of Abbreviations

CAPEX	Capital Expenditures
CFO	Cash Flow from Operations
DBO	Divisional Buyouts
EBIT(DA)	Earnings before Interests, (Depreciation and Amortization)
FA	Fixed Assets
IRR	Internal Rate of Return
LBO	Leveraged Buyout
LLC	Limited Liability Company
MBI	Management Buy-in
MBO	Management Buyout
(N)WC	(Net) Working Capital
PBO	Private Buyouts
PE	Private Equity
PPA	Purchase Price Allocation
ROCE	Return on Capital Employed
ROE	Return on Equity
ROOA	Return on Operating Assets
SBO	Secondary Buyouts
SME	Small and Medium-Sized Enterprise
VC	Venture Capital

Notes:

1. In this work, we use the terms private equity firms, private equity investors, private equity entities, and private equity companies interchangeably.
2. In this work we use the terms target companies, target firms, portfolio companies, portfolio firms, buyout firms, buyout companies and PE-backed companies interchangeably.

1. Introduction

"Some financial investors do not waste their thoughts on the people whose jobs they are destroying. They remain anonymous, have no face, fall like locusts swarms over companies, graze them until there is nothing left and then move on." In 2005, the former Chairman of the Social Democratic Party in Germany, Franz Müntefering, was expressing his resentment towards private equity (PE) firms with this statement and started a general debate about the role, responsibilities, and value of such investors in Germany (Serrao, 2015). The public perception at the time was that international private equity investors acquired companies that were deeply rooted in the German economy, only to initiate cost-cutting initiatives, reduce investments, increase the debt burden, lay-off employees and after a few years sell those companies with a profit to other investors without adding any value to the society. The public especially frowned upon investors that split up companies and sold off divisions without taking their social responsibility into account (Büschemann, 2013). In the years after the turn of the century, the public perceived private equity investments as an excrescence of modern capitalism. However, the percipience of PE firms and their impact on the target company is not only negative nowadays. A recent survey amongst 300 decision makers in family-owned businesses suggests that companies owned by PE firms are considered to experience abnormal growth, higher innovative capability and higher productivity (PwC, 2017). Further, the survey reports that PE firms are appreciated more and more as a potential partner to strengthen the equity base of a company, to import professionalized knowledge, or as a viable successor. While there is anecdotal evidence that PE firms are solely focused on improving financial metrics through deploying cost-cutting measures and a high leverage, the same holds true for the claim that PE ownership fosters operating improvements in Germany (Brigl, Nowotnik, Pelisari, Rose, & Zwillenberg, 2012; Büschemann, 2013; Serrao, 2015).

These contradictory opinions about the effect of private equity ownership highlight the need for an empirical analysis. Empirical evidence about this subject and its implications grows in importance for further debates about the German private equity market, especially given the scale of recent PE investments. Germany has developed to be the third biggest private equity market in Europe, and since the global recession after 2008, PE investments in Germany have reached a new record of 11.3 billion Euros in 2017 (Handelsblatt, 2018). In this study, we aim to shed light on

different aspects of the German PE market by analyzing a dataset of 102 PE buyouts and comparing their development to an appropriate control group. We do this by using prevailing theories of value creation mechanisms in PE buyouts, deploying a differentiated view on different buyout types and putting it into the context of specific market characteristics in Germany.

1.1. Problem Identification and Research Gap

In his early research studying large US public-to-private transaction in the 1980s, Kaplan (1989) provided evidence that buyout targets were improving their profitability through cutting down investments and selling-off assets but keeping their revenue constant. Lichtenberg & Siegel (1990) show that in the years after a buyout the productivity of plants increases abnormally relative to the industry, while white-collar employment decreases. Amess & Wright (2007) and Davis, Haltiwanger, Jarmin, Lerner, & Miranda (2011) present similar results when examining the UK and US buyout market in a period between the 1980s and the early 2000s. Most researchers base their reasoning on the hypothesis that a better incentive alignment results in agency cost decreases, which leads to this improvement of company performance (Jensen, 1986; Liebeskind, Wiersema, & Hansen, 1992). The reduction of agency cost has since then been perceived as a predominant theory to explain the operational development of buyout targets (Kaplan, 1989; Lichtenberg & Siegel, 1990; Smith, 1990). The results of these studies have shaped the perception that buyouts primarily increase the efficiency of a company through cost-cutting and downsizing with the only objective of generating returns for their investors without creating value for other stakeholders (Berg & Gottschalg, 2005). However, such evidence does not necessarily hold true in different contexts due to several reasons.

First, most of the abovementioned studies focused on buyouts in the 1980s or a period between 1980s and the early 2000s. According to (Boucly, Sraer, & Thesmar, 2011), this era was dominated by intense corporate restructuring as a result of the increased globalization and deregulation of many industries. However, the economic environment has changed substantially since the early 2000s, and with it, the business models of PE firms may have adjusted (Boucly et al., 2011; Chung, 2011). In recent years, the PE market has shifted from enhancing financial efficiency metrics, employing higher leverage, and cost-cutting initiatives towards operational

value creation within target firms. (Brigl et al., 2012; Croce & Martí, 2016; Scellato & Ughetto, 2013)

Second, many of these studies solely examine the effect of public-to-private transactions in the US and the UK, while other types of buyouts or countries have been largely neglected. However, already in the years after the 2000s Kaplan & Stromberg, (2009) finds that globally public-to-private buyouts only constituted for about 7% of the total number of transactions. Other types of buyouts, such as private buyouts, secondary buyouts, where the target is bought from another financial sponsor or divisional buyouts, where a division of a company is sold to a private equity investor have increased substantially in their importance. Especially in Europe, the most significant number of deals involves buyouts of private firms, followed by secondary buyouts and divisional buyouts, whereas public-to-private transactions are almost negligible (Gilligan & Wright, 2014).

Given the vast dominance of private and secondary buyouts in Europe, and more specifically in Germany, we propose that there are potentially other value creation mechanisms than the reduction of agency costs at work. For instance, evidence suggests that private companies have a highly concentrated ownership prior to buyouts indicating that they are not likely to suffer from the same agency problems in the form of misaligned incentives as public companies (Chung, 2011). The analysis that value creation mechanisms potentially differ dependent on the pre-buyout ownership of a target company has received more attention in recent years (Alperovych, Amess, & Wright, 2013; Boucly et al., 2011; Chung, 2011). However, contemporary research on European buyouts remains somewhat scarce. Especially when it comes to European countries other than the UK, research on the firm-level effect of Private Equity buyouts is highly limited. Although the UK remains the most significant buyout market in Europe, there has been considerable growth in deal value in France, Germany, and Italy (Bundesverband Deutscher Kapitalbeteilgungsgesellschaften, 2018). This increase in deal value in countries such as France or Germany, where potentially other macroeconomic and regulatory conditions are at work than in the Anglo-Saxon world, highlight that research on PE buyouts in these countries seems relevant. To the best of our knowledge, there has been very limited research upon the German PE market in recent years. Therefore, we aim to close this gap by empirically researching if and what operating improvement mechanisms are

observable in German buyouts and if they are related to the pre-buyout ownership. We do this by attempting to draw inferences from available theories and empirical evidence and apply it to the economic environment of the German PE market.

1.2. Research Question

Based on previous research on value creation mechanisms in Private Equity buyouts in general and on different buyout types we seek to provide evidence on the German PE market by aiming to answer the following research questions:

1. What is the effect of private equity ownership on the operational performance development of target companies when comparing it to relatable non-target companies?
2. Does the impact of PE ownership differ dependent on the pre-buyout ownership of the target company?

By answering these two research questions, we contribute to the existing evidence about PE buyouts and their effect on the firm-level performance of target companies. We primarily provide a more nuanced view of the relationship between the pre-buyout ownership characteristics and the consequently deployed value creation levers of PE companies. To do so, we develop rationales on the basis of prevailing research about what value creation drivers are likely to be deployed in different buyout transactions. We then combine those theoretical considerations with the context of the recent development in the German PE market. The analysis is aimed at providing new and up-to-date evidence on the discussion about the value of PE investors.

1.3. Delimitation

We would like to highlight that the scope of this paper is to examine the effect of private equity ownership on the firm-level operating development of the target company on the basis of accounting metrics. The consequence is that this research scope does exclude some aspects deliberately.

First, we limit ourselves to study the development of target companies in the period of +/- 3 years to the buyout. Hence, the chosen time frame does not necessarily include the complete

period where a PE owns their target company and thus does not capture the whole effect of PE ownership on the firm-level performance.

Second, as a result of the limited period, we do not take into account any considerations related to the financial performance of a specific private equity fund, i.e., their generated return through the respective transaction, as their return on their investment can only be calculated after the sale of the target company.

Third, our analysis solely focuses on majority buyout transactions, meaning that we do not take any minority investments such as venture capital (VC) into account. We are primarily interested whether and in what scale an active majority owner can influence the operating performance of their portfolio company.

Finally, we have chosen to focus solely on German buyout transactions between 2009 and 2013. While Germany constitutes the third biggest PE market in Europe, research in this market remains scarce.

1.4. Disposition

The paper is organized as depicted in Figure 1. In **Section 2** we first present a general introduction to private equity and develop an understanding of the PE market development in Germany in the period of interest to then elaborate upon specific characteristics of German companies. **Section 3** comprehensively reviews the existing theories and empirical evidence on value creation mechanisms of PE buyouts. Our focus lies on reviewing evidence on how the effect of value creation drivers is related to pre-buyout ownership and highlighting the recent development of the PE market in general. We finalize the section by concluding our key findings and developing our own framework of operational value creation drivers. By combining the country-specific characteristics of the buyout market and the value creation theory, we then develop four main hypotheses in **section 4**. In **Section 5** we continue by describing our meticulous sample selection and data gathering process and presenting our variables with which we test our hypotheses. We then elaborate upon the used empirical estimations. After having established our hypotheses and the methodological approach, we present our results in **section 6.** We start by introducing the

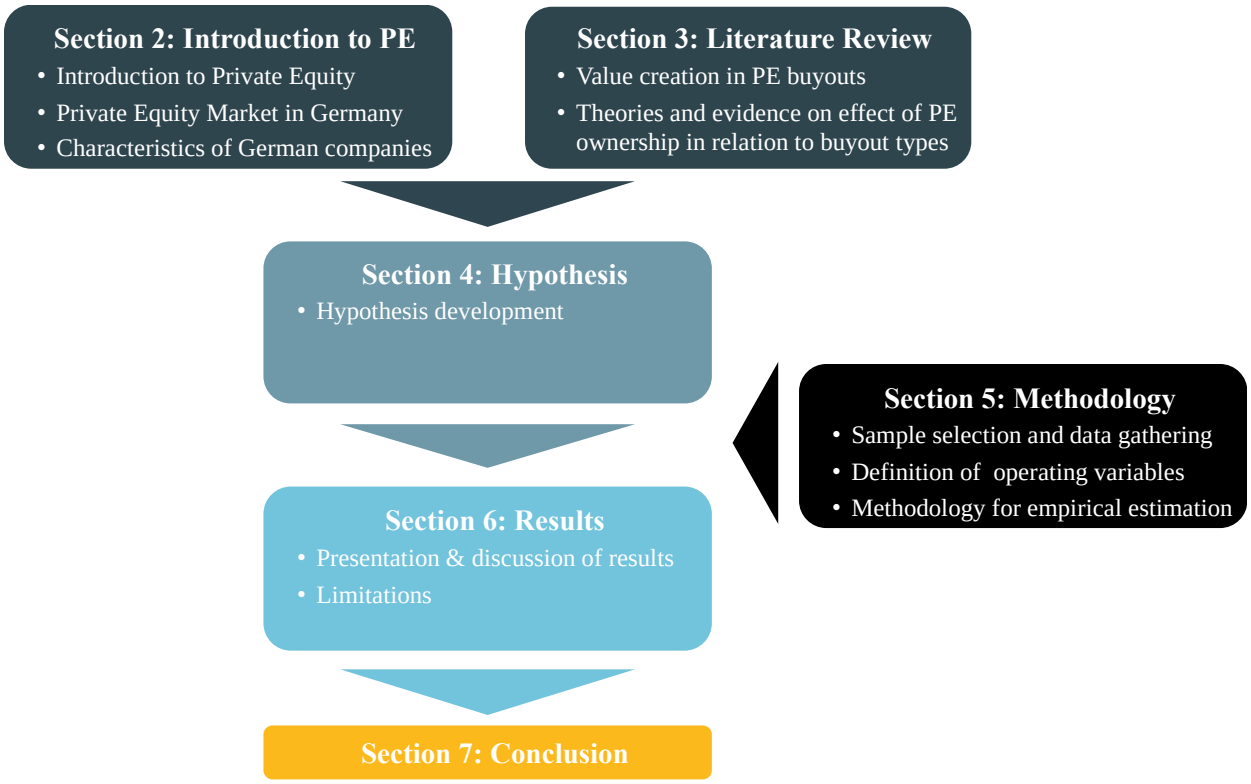


Figure 1: Structure of the paper
Source: Own depiction

results for each hypothesis and subsequently discuss the results in depth. To conclude this chapter, we present an overall discussion to elaborate upon potential implications, and we set our results in context with its limitations. **Section 7** concludes our paper.

2. Introduction to Private Equity

The purpose of this section is to derive a definition for private equity as an investment class, to elaborate on its objectives, to outline the mechanisms and process of private equity investments, and to set it into the context of the German Private Equity market. In the first part, we provide a review on the different private equity investment types and specify which asset class is of interest to us. In the following, we depict the development of the Private Equity industry in Germany and elaborate on firms specific characteristics that may influence the potential value creation mechanisms.

2.1. What is Private Equity?

In general, private equity capital is a form of medium to long-term finance for companies in exchange for an equity stake in the firm and is complementary to traditional forms of financing such as credit loans from banks (Bundesverband Deutscher Kapitalbeteiligungsgesellschaften, 2010). Private equity firms mainly act as intermediaries for institutional investors that provide most of the capital for investments into private companies.

2.1.1. Investor Types and Forms of Private Equity Financing

Various forms of private equity financing have emerged over the last decade and are associated to the investment cycle of firms and the stake obtained in the transaction (see Figure 2). Private Equity investors serve the whole investment cycle, the seed, start-up, expansion, replacement, buyout and turnaround stage (European Private Equity & Venture Capital Association, 2014).

Broadly, Private Equity investors can be separated into three categories, (1) venture capital investors who invest in start-up companies in the first three stages of the investment cycle, (2) minority investors who facilitate growth or replace existing shareholders in mature companies, and (3) majority investors who take on debt to finance the acquisition or recapitalize the equity base in mature companies (see Figure 3).

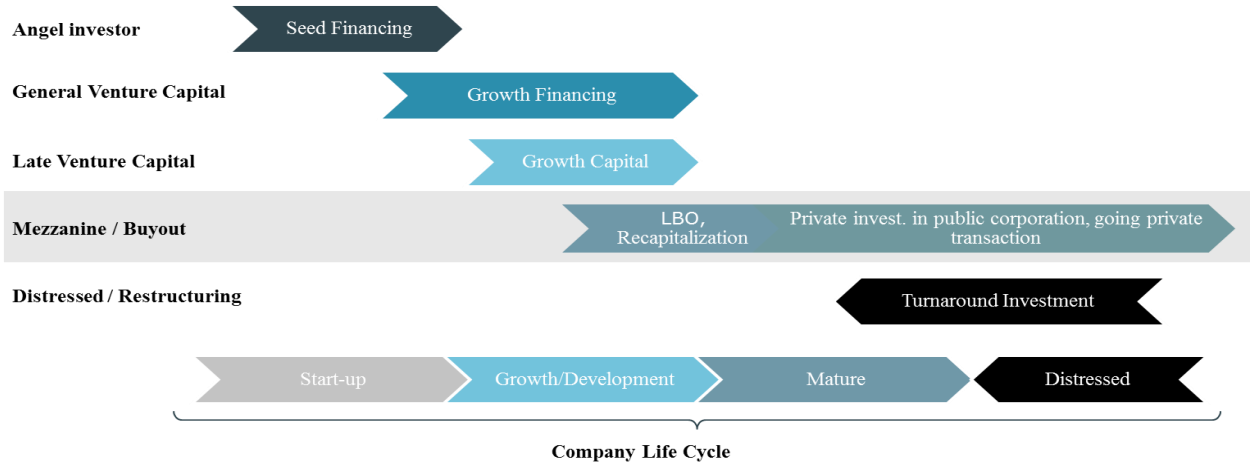


Figure 2: Forms of private equity financing
Source: Own depiction on the basis of Mekouar (2016)

Venture capital investors provide capital to immature companies with an unstable business model that are exposed to volatile markets with recurring disruptions (Gompers & Lerner, 2001). Therefore, investments of venture capital investors are often very risky. To mitigate the risk investors usually invest in minority equity positions of 20-40 % in several companies to obtain a balanced portfolio (Kaplan & Strömberg, 2009).

Minority investors enable growth, turnarounds, and replacements of existing shareholders or debt with minority positions in relatively mature companies. These investors do not actively interfere in the operation of the company.

Majority or buyout capital investors, on the opposite, mainly intend to acquire majority stakes to obtain full control over their targets and invest in mature firms with an established business model (Jensen, 1989). According to the EVCA (2014), three different forms of buyout capital exist, leveraged buyout (LBO) capital, recapitalization capital, and public-to-private capital. In LBOs the target firm is acquired with a considerable amount of debt to ameliorate the return to equity holders (Kaplan & Strömberg, 2009). Preconditions for LBOs are stable cash flows and maturity of the target company. Recapitalization capital is primarily used to fund expansions or to rebalance the captial strucure towards a healthier equity ratio. In public to private investments, the private equity entity takes a public company private to create value through aligning the management incentives with the owner's objectives and by reorganizing the company's operations.

Thus, the main differentiators among the forms of financing of the three investor types are the age of the target company at investment and the proportion acquired (Kaplan & Strömberg, 2009). For this analysis, *the scope is restricted to buyout capital providers with majority shareholdings* (third category) for the following reasons:

- *First*, it is difficult to draw inferences from venture capital investments since most of them fail.
- *Second*, operating improvements in venture capital investments are not as crucial as in mature buyout capital investments, since valuations of venture capital firms are not based on EBIT/EBITDA multiples.
- *Third*, to realize operational improvements in the interest of the investor the majority of shares is required to prevent interferences from other shareholders, which does not apply to investments pursued by minority and venture capital investors.

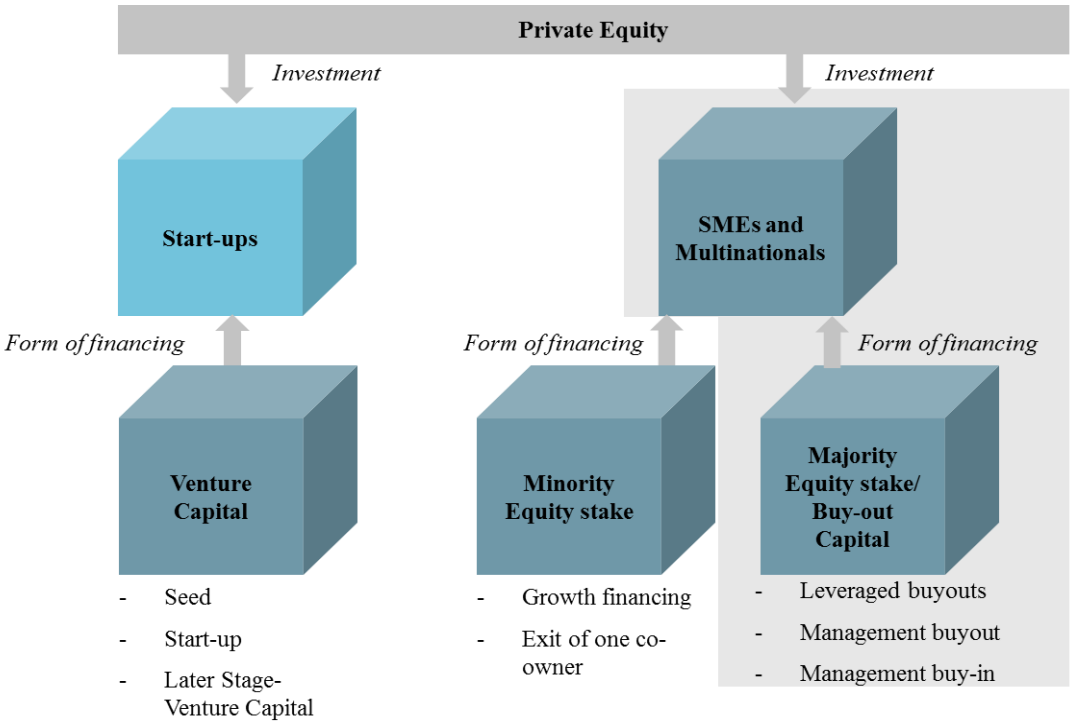


Figure 3: Investor types
Source: Own depiction on the basis of Bundesverband Deutscher Kapitalbeteiligungsgesellschaften (2016)

2.2. Mechanisms of a Private Equity Investments

The main participants in a buyout transaction are outside investors, intermediaries, and target companies. Outside investors provide capital to intermediaries (private equity firms) who acquire equity holdings in target companies to generate returns for the ouside investors. The investment process evolves over several phases, (1) the inception of a fund, (2) the acquisition phase, (3) the holding phase, and (4) the exit phase. In this section, we outline the dynamics of establishing a private equity fund, and elaborate on the acquisition, holding and exit process. We then explain how financial performance objectives affect the entire process.

2.2.1. The Private Equity Fund

In general, private equity firms only invest a small portion of their own equity into their portfolio companies (Kaplan & Strömberg, 2009). Most of the capital comes from outside investors, such as pension funds, insurance companies, and wealthy individuals (Schawalder et al., 2010). The capital contributed by the private equity firm and outside investors is usually pooled in a fund. This fund

is structured as a limited partnership, in which the private equity firm serves as the general partner and the outside investors as limited partners (Lerner, Hardymon, & Leamon, 2011). The general partner manages the fund and is compensated amongst others through management fees and a share of the profits of the fund, whereas the sole purpose of the limited partner is to contribute most of the capital (Kaplan & Strömberg, 2009). From the time the limited partners has committed his capital to the fund, he has no discretion in how the general partners deploys the capital, as long as it is within the boundaries of the contractual agreement (Lerner et al., 2011). After a specified investment period, the limited partner is allowed to withdraw his funds. The structure of the fund is not exclusive to the one explained above, as other forms such as evergreen funds that have an unlimited holding period exist.

2.2.2. The Acquisition Process

Having succeeded in raising sufficient capital, the fund enters the deal flow and acquisition stage. A typical deal involves the acquisition of a company with a mix of equity, mezzanine financing, and debt. The length of the investment period is typically contractually fixed at around five years, and after expiration the limited partner is permitted to withdraw his funds (Kaplan & Strömberg, 2009). By leveraging the deal, private equity firms dedicate lower amounts of equity to the transaction, which implies an amplification of the returns to the fund. Studying the formula for the return on equity (ROE) elucidates the effect of "gearing" on the return for the fund.

$$ROE = ROCE + (ROCE - Cost\ of\ Debt) * \frac{Debt}{Equity}$$

As long as the return on capital employed (ROCE) remains above the cost of debt, any gearing will result in an inflation of the return on equity. However, when the cost of debt outweighs ROCE losses are also amplified, leading to a greater risk of bankruptcy. Therefore, leverage increases the volatility of a company's earnings. In general, debt is preferred because it is cheaper than equity and thereby lowers the transactions costs. Additionally, by using the company's cash flow to pay back interests and the principal of the debt equity returns are ameliorated as the private equity firm increases its equity position in the company over the course of the ownership (Puche et al., 2015). Thus, the private equity investor receives more of the proceedings when the company is sold.

It is common for private equity funds to establish a special purpose vehicle (SPV) with which the target company is acquired. Debt and equity are injected into the SPV to finance the acquisition of the target company (Gilligan & Wright, 2014). In Germany, the legal form of a typical SPV is a limited liability company (LLC) that is owned directly or indirectly by the private equity fund. In case the future management of the target company participates with equity in the buyout, a holding is established that is partly owned by the fund and the management, and which itself owns the SPV. See Figure 4 for a legal overview of a typical buyout. Yet, also other legal structures exist.

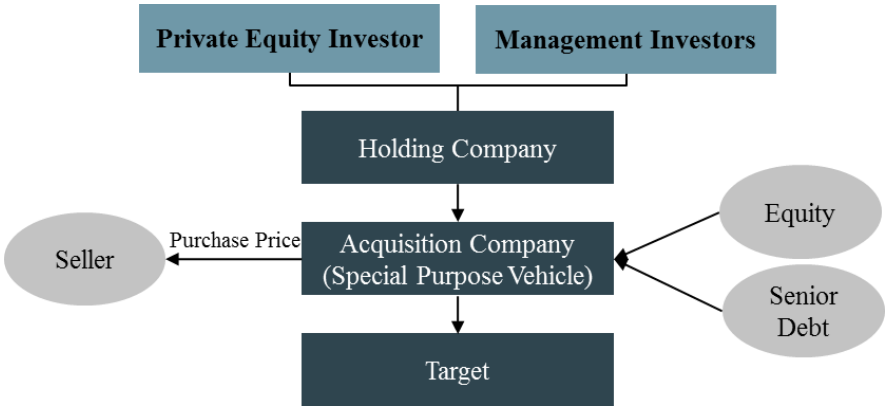


Figure 4: Overview of a typical buyout
Source: Own depiction on the basis of Kirschner (2017)

2.2.3. The Holding Period and the Exit Phase

A dominant characteristic of private equity investments is the focus on active ownership. Active ownership entails actively monitoring and advising the portfolio company, but typically no operating role of the general partner in the portfolio company (Achleitner, Braun, Lutz, & Tappeiner, 2017). The length of the holding period and the exit route are predominantly determined by financial objectives. The main measure of financial return in the private equity industry is the internal rate of return (IRR) over the lifetime of the investment (Invest Europe, 2015). Existing literature has found IRR to be a function of time, implying that as time passes the IRR decreases (Acharya, Gottschalg, Hahn, & Kehoe, 2013). To realize a required IRR of 20-25%, necessitates to sale the portfolio company within three to seven years. After the holding period, the company is sold to a strategic buyer, another private equity fund, or an initial public offering is conducted. Exiting the investment is an integral part of the investment process, since the fund has a fixed

contractual lifetime. Globally, the most common exit route is a sale to a strategic buyer, followed by a sale to another private equity fund. Initial public offerings occur rarely (Kaplan & Strömberg, 2009).

2.3. The Private Equity Market in Germany and Characteristics of German Firms

In order to draw inferences from the analysis of the German private equity market an understanding of the development of the private equity industry and specific characteristics of potential buyouts targets in Germany is indispensable. Therefore, we investigate the development of the private equity industry in Germany for the period of interest and identify important drivers of the private equity investmetns in Germany. Additionally, we elaborate on specific firm characteristics, such as the capital structure, the investment behavior, and labor specific legislations, which potentially influence the deployment of operational value creation activities of private equity firms in Germany.

2.3.1. Development of the Private Equity Industry in Germany

The following section describes the development of the private equity industry in Germany between 2009 and 2013 compared to the European market.

Including venture capital activities, Germany's private equity market is the third largest in Europe after the UK and France. For the period between 2009 and 2013, on average the UK market is 80% and the French market 20% larger than the German market (see Figure 6). In relation to GDP, the private equity market in Germany is not developed as strongly as in the rest of the EU. Deal value in relation to GDP was 0.18% in 2013 in Germany, whereas in the UK it was 0.50% and on European average 0.25% (European Private Equity & Venture Capital Association, 2014). Prompted by the effects of the financial crisis, 2009 marked a historic low for the private equity industry in Germany with the investment level being 70% lower than the previous year, excluding venture capital investments. The uncertain economic environment elicited strong concerns for institutional investors with respect to private equity investments, and thus resulted in postponed investments (Bundesverband Deutscher Kapitalbeteiligungsgesellschaften, 2010). Nonetheless, the industry quickly recovered in the following years until 2013. In 2009, the total volume of buyouts, measured in deal value, reached a low of 1.17 billion euro, whereas in 2013 the deal value quadrupled compared to 2009 and reached 4.8 billion euro (see Figure 6). Buyouts (majority

holdings) account for 82% of total private equity capital invested (excluding venture capital) in Germany, which is in line with the European average. On average 100 buyouts per year were realized between 2009 and 2013 (see Figure 5). The remaining 18% encompass minority investments, such as growth and replacement capital, yet 78% of all companies that received private equity financing were minority investments. Measured in the numbers of companies, the German buyout market is primarily dominated by investments in the small and medium market segment (€ 0 – 150m) (see Figure 5), in line with European average accounting for 95% of all companies invested in on average in the period from 2009 to 2013. When considering deal value most of the investments are channeled towards companies in the medium and large market segment.

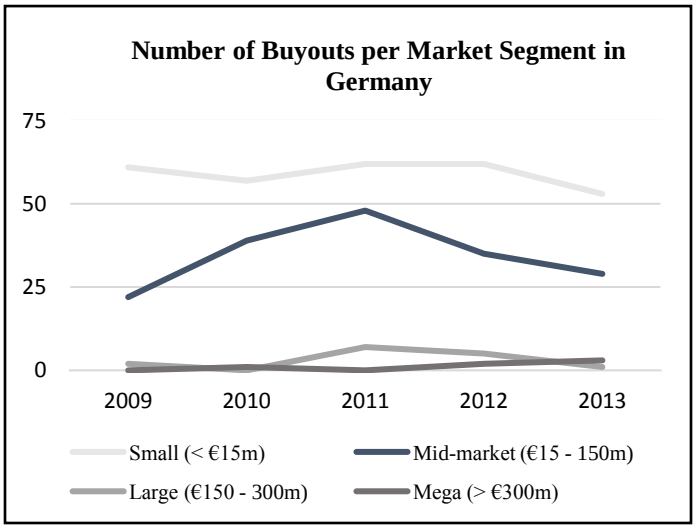


Figure 6: Number of buyouts per segment in Germany
Source: Own depiction on the basis of Bundesverband Deutscher Kapitalbeteiligungsgesellschaften (2018)

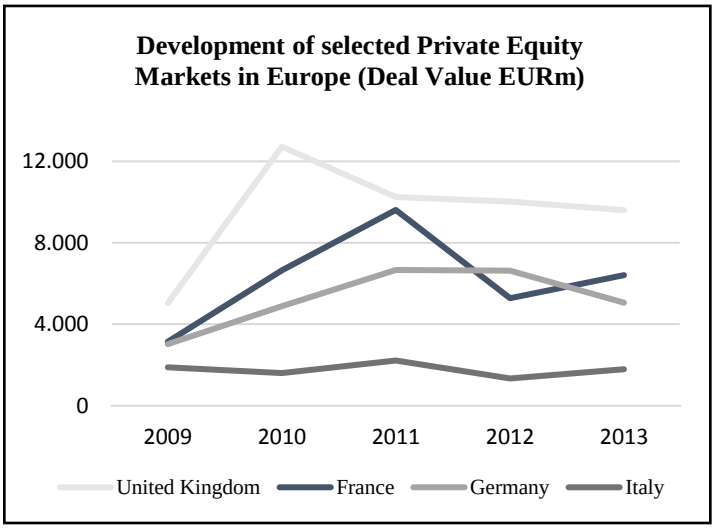


Figure 5: Development of selected private equity markets in Europe
Source: Own depiction on the basis of Bundesverband Deutscher Kapitalbeteiligungsgesellschaften (2018)

2.3.2. Current Drivers of the Private Equity Market in Germany

Changing macro-economic conditions since the financial crisis have provoked reduced gearing in private equity buyouts and a greater focus on operational value creation of private equity funds by embracing active ownership in portfolio companies (Roberts, 2014). Senior debt, with which most of the deals were financed before the financial crisis, has become restricted due to important loan providers exiting the senior debt market and correspondingly has led to lower gearing in buyouts

(Bauer, Eckl, & Bernau, 2015). In addition, the attractiveness of other means of deal finance deteriorated (Bauer et al., 2015).

As discussed earlier, gearing constitutes an important component of the return to private equity investors. Therefore, it is not surprising that in order to compensate for lower returns due to less gearing private equity firms emphasize on other metrics to generate sufficiently high returns, such as operational value improvements and buy & build strategies (Roberts, 2014). When asked what changed the most since the financial crisis private equity fund managers responded that they focus on greater active portfolio management as well as using less leverage in their deals (Roberts, 2014). To conclude, impaired access to the senior debt market and correspondingly lower leverage require PE investors to embrace other sources of value creation, such as growth and operational improvements.

2.3.3. Characteristics of German Firms

The above analysis has demonstrated that buyouts in Germany are concentrated in the small and medium buyout segment and that the focus of private equity shifted towards operation value creation in the period of interest. Therefore, we deem it crucial to elucidate important characteristics of firms in that segment and to elaborate on regulatory changes that affect their structure and behavior. We start by shedding light on the financial structure and the investment behavior of German firms, as well as the impact of changing regulations. In a second step, we touch upon labor legislations in Germany, since they partly frame the deployment of operational value creation drivers.

Capital Structure of German Firms

In general, the capital structure of German firms and especially SMEs is determined by low equity ratios. In 2011, the average equity ratio for German companies was 20 %, compared to a European average of 35% (European private equity and venture capital association, 2014). Furthermore, Table 1 shows that low equity ratios are especially concentrated in smaller firms and grow with company size. In general, equity ratios above 30% are perceived as healthy, which most of German SMEs do not achieve (Creditreform Wirtschaftsforschung, 2016). While there is data regarding equity ratios of German companies, they need to be interpreted with caution, since the reported

equity ratios are likely to be deflated due to undisclosed reserves that result from the undervaluation of certain assets, which is permitted by German accounting standards.

A factor potentially explaining low equity ratios is that relationship lending, in which loans are provisioned rather on personal relationship than on financial facts, was common in Germany before the introduction of the Basel II regulations in 2008 (Behn et. al., 2016; Memmel, Schmieder, Stein, 2007). Prior to Basel II firms were more likely to obtain additional debt financing even if they were not necessarily deemed financially healthy. Debt favoring regulations also contributed to the preference of firms to finance their operations with debt, since interest expenses as opposed to dividends are tax deductible. Yet, low equity ratios are associated with certain risks for firms and especially smaller firms. In times of economic turmoil, the risk of bankruptcy amplifies due to the high likelihood of the firm not being able to serve interest payments. Moreover, the access to additional debt financing during economic recessions may deteriorate, restricting the firm's ability to finance important investments.

The development of higher equity ratios between 2009 and 2015 demonstrates that German firms have adapted to the changing environment (see Table 1). Hence, the trend towards higher equity ratios in Germany may be a result of more strict banking regulations that discourages providing loans based on personal relationships (Pahnke, Schroeder, Leonhardt, & Wiedemann, 2015). A more granular analysis of the impact of the Basel regulations on the financing behavior of German companies, and especially SMEs, follows in the next section.

Financial Structure of German Companies (Median)

Displayed as the % from total assets

	2006	2009	2013	2015
Large companies[1)]				
Equity	27,5	28,3	31,5	32,5
Liabilities	71,9	71,7	70,2	67,5
Sum Passiva	**100,0**	**100,0**	**100,0**	**100,0**
SMEs[2)]				
Equity	11,2	15,0	22,3	25,6
Liabilities	88,8	85	77,7	74,4
Sum Passiva	**100,0**	**100,0**	**100,0**	**100,0**

1) Large Companies: Yearly Revenue EUR >50 Mio, 2) SMEs: Yearly Revenue EUR <50Mio

Table 1: Financial structure of German companies
Source: Deutsche Bundesbank, 2015; Institut der deutschen Wirtschaft Köln, Diagnose Mittelstand

Development in Banking Regulations

The Basel II regulations appear to have had major implications on the financing opportunities of SMEs in Germany, profoundly changing the way firms and banks do business with each other. With the introduction of Basel II in 2008, banks were required to back-up loans with substantially higher regulatory equity, curtailing the amount of loans a bank can provide. The necessary amount of regulatory equity to be posted by financial institutions is contingent on risk weights, referring to the likelihood of the default of loans. This implicates that banks may be reluctant to provide loans to less creditworthy firms, since the corresponding risk weights increase, thereby requiring the bank to post more regulatory capital.

Moreover, rendering the provision of loans contingent on prudent risk assessments curbs the feasibility of bank managers to give out loans solely on the basis of personal relationships and by neglecting financial facts. A premise of provisioning loans in the context of the Basel II regulations is that firms are required to possess sufficient collateral as an insurance in case they default (Creditreform Wirtschaftsforschung, 2016). While larger firms with sufficient equity on their balance and collateral are not largely affected by this change, smaller firms prone to low equity levels are likely to struggle to provide the necessary collateral, and hence to get access to financing (Pahnke et al., 2015). Additionally, low credit assessments due to low equity ratios result in unfavorable credit conditions in terms of interest expenses since banks want to compensate the higher regulatory capital needs with higher interest payments.

Basel II also requires companies to disclose more financial and strategic information towards financial institutions, which potentially discourages companies to receive financing from banks and causes them to revert to other forms of financing. Bendel et al. (2016) show that banks conform to regulatory standards partly by giving out fewer loans to companies in Germany.

The constraints outlined in this section are further amplified with the introduction of Basel III in 2013, because the requirements are even stricter. The question remains how low equity ratios and the new regulatory environment effectively affect the investment behavior of German firms, and especially SMEs. In the following, we shed light on how German companies finance investments and innovations.

Investment Behavior of German Firms

Low equity ratios in combination with limited access to bank loans depicts a picture of German SMEs having difficulties in financing their investments or innovations. A panel conducted in 2013 supports this view, since financing difficulties was highlighted as the second most prevalent factor for postponing or downscaling investments (Abel-Koch et al., 2015).

Imperfect capital market due to prevalent informational asymmetries between the lender and borrower might partly explain the obstacle of firms to obtain financing, since banks face restrictions in their ability to validate the information about investment opportunities provided by their clients. The high dependence of German SMEs on banks, reflected by 50% of German SMEs relying on external financing to finance their investment, magnifies the issue of informational asymmetries (Abel-Koch et al., 2015). The issue exacerbates when considering the financing rationale of SMEs when pursuing innovations. The lack of collateral and uncertainty regarding the success of the project deters banks to provide necessary loans, which result in SMEs not being able to keep up with the investment level of innovations of larger companies in Germany (Zimmermann, 2014). In general, smaller firms utilize internally generated cash flow to advance with innovations. Yet, in times of recessions, the available cash flow might deteriorate rendering investments in innovations unlikely.

Hence, German SMEs seem to be dependent on external financing or forego investment opportunities because of informational asymmetries. The issue especially prevails for firms with low equity ratios since banks may be reluctant to provide loans due the lack of collateral.

Labor Legislations and Unions

In general, German law protects employees substantially stronger than other OECD countries (Haves, Wilke, Meixner, Reich, & Vitols, 2015). The "employment protection act" provides comprehensive protection to employees by prohibiting employers to terminate a contract without proving a justified cause (Haves et al., 2015). Another burden for firms is that high compensation payments are mandatory in case of lay-offs. Moreover, at a certain size of the firm employees are legally required (co-determination law) to elect representatives for the supervisory board which steers the company. These representatives enable employees to influence decision-making processes.

Collective labor agreements negotiated by labor unions reinforce the protection of employees and restrict labor costs reductions through decreasing wages. Hence, high bargaining power associated with unions and favorable labor legislations for employees render lay-offs and wage reductions in Germany difficult (Haves et al., 2015).

2.3.4. Key Findings

To conclude, the key findings from the development of private equity investments in Germany and firm specific characteristics, is first, that the majority of investments go towards small and medium sized enterprises. Second, a greater focus of private equity fund manager on operational value creation since the financial crisis. Third, German SMEs tend to be dependent on banks when financing their operations reflected by low equity ratios. Fourth, the Basel II regulations further impair the ability of externally financially dependent firms to get access to bank loans to realize growth investments. Fifth, strong labor legislations and unions make layoffs difficult in Germany.

3. Value Creation Drivers in Private Equity Buyouts

Within the following section, we provide a general overview of the previous research and their main findings concerning theories of value creation in private equity. Private equity funds essentially have two ways of generating returns for their investors. They either create value within their target company by improving their operations or they develop returns by buying under-valued companies, increasing the leverage and extending the earnings multiples over the holding period (Wright, Gilligan, & Amess, 2009). The focus will be on arguments about a PE fund's capabilities to improve the operating factors of their target companies. Operational elements consist of expanded margins, improved efficiency, strategic transformation and realized growth opportunities. Researchers have found positive, albeit in its scope and scale different effects of Private equity ownership on the operating performance of a target company throughout many different studies. Early research from the 1980s has found significant increases of the performance but mostly focused on the effect of the public-to-private transaction in the US (Kaplan, 1989; Lichtenberg & Siegel, 1990; Smith, 1990). However, due to the fast-paced changes within the private equity industry as well as within industries of potential target companies the mechanisms how firms can create value has most likely changed (Guo, Hotchkiss, & Song, 2011). Despite those

changes in target firm characteristics, the nature of transactions, and potentially different value creation mechanisms, research that is more recent indicates that private equity ownership remains to have a significant positive effect on the operating performance, albeit with more ambiguous results. While Boucly, Sraer, & Thesmar (2011), Davis et al., (2014), Harris, Siegel, & Wright (2005), Acharya, Gottschalg, Hahn, & Kehoe (2013) all find significant improvements, Cohn, Mills, & Towery (2014) and Guo et al. (2011) find moderately positive but insignificant differences when comparing the performance to peers. Nevertheless, Guo et al. (2011) claim that improved operating performance generally has become the main value creation driver in private equity transactions. However, due to the fast-paced changes within the landscape of the private Equity market, it is worth mentioning that most of the abovementioned studies did not differentiate between different buyout types, i.e., public-to-private, private-to-private, divisional or secondary buyouts. To identify the value drivers of operating performance improvements, we follow the logic of Berg & Gottschalg (2005). They have divided levers with a direct impact on value creation into three primary categories, namely operational effectiveness, strategic distinctiveness, financial engineering, and into a secondary lever not influencing the value creation directly, namely agency theory.

3.1. Operational Effectiveness and Governance Engineering

Operating effectiveness relates to measures that have a positive impact on the asset side of the balance sheet, as well as on improved cash flow and expanded margins and consequently the productivity and effectiveness of a company. Hence, its focus lies on the enhancement of utilization of different resources, which is not to be confused with a strategic repositioning (Berg & Gottschalg, 2005). As discussed, evidence indicates that operational improvements are implemented during the period of a PE ownership. The means for this development are manifold. In the early stages of the private equity research, (Kaplan, 1989) defined improvements in operating performance as measures that ultimately increase cash flow, i.e., improved margins, a reduction of capital requirements, or sales growth. Adding to this classification Berg & Gottschalg (2005) identified enhanced governance mechanisms to remove managerial inefficiencies as another non-mutually exclusive intervention.

3.1.1. Expansion of Margins and Improved Capital Efficiency

One way to streamline an operation and ultimately improve margins is through changes in procedures and through cost management with the objective to lower production cost, increase utilization and productivity (Berg & Gottschalg, 2005; Harris et al., 2005). The early stream of literature argues that after an acquisition a PE tightens the control on corporate spending through cost reduction programs, the sale of assets for higher productivity and the cutting down of investment while trying to maintain sales levels (Kaplan, 1989; Lichtenberg & Siegel, 1990; Muscarella & Vetsuypens, 1990). They further claim that PE ownership leads to lower wages and more layoffs. However, more recently published studies take a more differentiated approach on the potential destruction of jobs and cost reduction programs. Researchers argue that based on the buyout characteristics and pre-buyout ownership they find different results. Amess & Wright (2007) find no substantial changes in employment in cases of management buy-ins (MBI), but in cases of management buyouts (MBO), they observe greater employment growth. Adding to this research Boucly et al. (2011) shows that depending on the pre-buyout ownership type there is also substantial evidence for not only employment growth but also increased investments while operating margins are still increasing. The development towards value creation through growth and increased margins, rather than through bottom line reductions indicates that PE investors have the ability to add value by using their operational expertise. Most of the PE companies are more and more utilizing external or internal specialists to streamline the efficiency of companies (Kaplan & Stromberg, 2009). Nowadays, this streamlining process does not necessarily include layoffs or the sale of assets, but also encompasses using the available resources more efficiently and increasing the capital efficiency (Guo et al., 2011). These measures include higher scrutiny of inventory items and accounts receivable management leading to a professionalized handling of the working capital (Berg & Gottschalg, 2005). Furthermore, a company might adopt stricter regimes with regards to capital expenditures to reduce undesirable investments. While there is some evidence of a reduction in capital expenditures when looking at PE ownership without any differentiation of the characteristics of the underlying deal (Magowan, 1989; Phan & Hill, 1995), in more recent research the results are mixed (Amess & Wright, 2007; Boucly et al., 2011). It seems that with the development of a more differentiated and specialized private equity market, there is also some

room for operational improvements by means of growth, that is by nature accompanied by higher capital expenditures (Boucly et al., 2011).

3.1.2. Growth

This notion of growth as a somewhat newly established source of operational value creation is supported by Achleitner, Braun, Engel, Figge, & Tappeiner, (2010). They state that while in larger transactions, there is a tendency of operational value creation through margin expansion, in smaller deals, growth seems to be the primary source of operational performance improvements. When discriminating on pre-buyout ownership, Boucly et al. (2011) find that within France companies that are credit-constrained can gain more efficient access to capital through PE ownership, which enables them to exploit growth opportunities. They find that besides statistically significant increases in the target company's profitability, the PE ownership is also the source of substantial growth in employment, assets and sales growth compared to an adequate control group. The recently upcoming trend towards the increasing importance of growth as a source for value creation is not only supported by academic research and industry experts. In 2012 the Boston Consulting Group published a report where they emphasized that a PE's ability to generate operational value will increasingly rely on the ability to improve the top line and support growth of its portfolio companies (Brigl et al., 2012). They claim that all companies have globally increased their focus on cost cutting initiatives as a response to the global recession, which leads to fewer companies where 'low-hanging fruits' for bottom line improvements are available for PE funds. As a consequence, PE entities are forced to improve the top line, namely enhance revenue growth, in order to generate a high enough IRR (Brigl et al., 2012).

3.1.3. Governance

With their investment in a portfolio company, most of the PE funds actively interfere in strategic or even managerial decisions. They do this by assuming board seats and setting a contractual framework with management (Wilson, Wright, Siegel, & Scholes, 2012). By changing the composition of the board, a PE company improves its ability to monitor and control their portfolio company. A new contractual framework typically includes that the management of private equity owned companies receives a considerable equity upside in forms of stocks or options but they are also required to invest a meaningful amount of their own money to ensure that they are affected by

potential downsides as well (Kaplan & Stromberg, 2009). This step incentivizes the management, and aligns the PE funds interests with the ones of the management. A further measure is the full replacement of poorly performing management (Wilson et al., 2012). According to Acharya et al. (2013), 30% of the CEOs are replaced within the first 100 days of a PE ownership. This combination of intrinsic and extrinsic factors can lead to an increased operational effectiveness (Berg & Gottschalg, 2005).

3.2. Financial Engineering

Financial engineering is a widely acknowledged lever for PE investors to create value that relates to the optimization of the capital structure, i.e., the right side of the balance sheet. Its objective is ultimately the minimization of cost of capital, mostly achieved through an increase in leverage of the target firm (Berg & Gottschalg, 2005). The specific knowledge of the new equity owners helps a company to find the optimal mix of debt and equity. Furthermore, through their extensive network within the financial community, PE companies can assist portfolio companies in negotiations to receive external funding through bank loans or other sources of the capital market (Magowan, 1989). The repeated interaction with banks and the capital market enables PE companies to reduce the marginal agency cost of debt financing as it reduces the incentive for the borrower (i.e., the new equity owner) to appropriate wealth from the lenders (Berg & Gottschalg, 2005). In cases where a portfolio company experiences difficulties in servicing its financial or trading obligations, a PE fund may also mitigate the likelihood of bankruptcy through a timely intervention by restructuring the target company's operations or capital structure (Pawlina, 2010).

3.3. Strategic Distinctiveness

The new equity owners often initiate strategic initiatives to refocus on the portfolio's core capabilities, competitive advantages, and their primary markets. By doing so, they attempt to reduce the complexity of the economic environment (Berg & Gottschalg, 2005). In cases of a high diversification, this strategic transformation often comes along with the divestment or outsourcing of non-core activities (Muscarella & Vetsuypens, 1990; Wilson et al., 2012). In contrast to divestitures, portfolio firms could also benefit from the PE's experience in strategic considerations and consequently identify exploitable opportunities for growth (Wilson et al., 2012).

The abovementioned points soundly explain what levers a Private Equity company could use to improve the operational performance of its portfolio companies. What remains to be answered is why an intervention of a new equity owner was necessary in the first place. What underlying mechanisms have prevented the portfolio company from incorporating those measures themselves? This question is addressed in the following section, where we will discuss what Berg & Gottschalg (2005) have defined as a secondary lever of buyouts, namely the reduction of agency costs.

3.4. Agency Theory

Agency theory has historically been the fundamental and predominant theoretical framework to study private equity buyouts, and the accompanying superior performance of PE managed companies (Harris et al., 2005; Meuleman, Amess, Wright, & Scholes, 2009). It is worth mentioning that the reduction of agency costs as such has no direct impact on the profitability of a company but instead can support the abovementioned levers, hence the classification as a secondary lever (Berg & Gottschalg, 2005). The agency problem originates from a misalignment of interests between the agent (manager) and the principal (owner) in cases of separation of control and ownership and asymmetric information (Hendrikse, 2003). It is assumed that the agent's primary objective to maximize his utility, whereas the principal's objective is to increase his pay-outs, i.e., increase the shareholder value (Jensen, 1986). To avoid the abuse of this asymmetric information through the agent, for instance in the form of excessive perks or non-profitable investments, a principal is required to introduce costly monitoring measures or take mitigating measures to converge the agent´s interests towards his own. Berg & Gottschalg (2005) summarize the measures towards this harmonization of interests by three categories; *(1)* reduction of free-cash-flow agency costs, *(2)* incentive alignment, and *(3)* controlling and monitoring.

3.4.1. Reducing Agency Cost of FCF

As elaborated above, the change of a company's underlying capital structure after a buyout is mostly accompanied by an increased debt ratio. Higher leverage increases the external pressure on the management of a target company. They will need to serve higher interests and debt payments, which consequently increases the pressure on the executive management and prevents them from investing in non-value adding projects (Berg & Gottschalg, 2005). This measure, therefore, mitigates the 'free cash flow' issues of Jensen's (1986) seminal paper. Since bankruptcy is also

costly for the management, the higher burden of debt also extrinsically incentivizes management to run an efficient operation that can service the interest and principal payments (Hendrikse, 2003). On the other hand, disproportionately high levels of debts may lead to an adverse effect in cases where the management has risk-averse tendencies and consequently foregoes riskier but net present value-positive projects (Kaplan & Stromberg, 2009).

3.4.2. Incentive Alignments

Alignment of interests between the management and the new owners through changes in the incentive structure is a crucial mechanism to mitigate agency costs. As discussed above, by providing the management with equity ownership and requiring them to invest a substantial amount of their own money into the PE managed company, the owners are automatically incentivized to increase operational effectiveness and make better investment decisions (Berg & Gottschalg, 2005).

3.4.3. Controlling and Monitoring

With an active approach of managerial ownership, PE entities are increasing their ability to monitor and control strategies and sometimes even day-to-day decisions of their portfolio companies (Hendrikse, 2003). As PE entities are active professional investors, they have a comparative advantage to other investors, when it comes to monitoring and controlling their portfolio company (Berg & Gottschalg, 2005).

The results of previous research indicates that the reduction of agency costs is a leading contributor to the superior performance of PE managed companies compared to peers (Harris et al., 2005). In a review of the literature on private equity buyouts, Cumming, Siegel, & Wright (2007) summarize that the optimization of incentives provided to management, the commitment to service debt and better governance mechanism to increase monitoring are the main contributors to the high return of portfolio companies. Nevertheless, it is worth mentioning that most of the research presented above is based on research from the US focusing on public-to-private transactions (Strömberg, 2008). This implicates potential issues when drawing conclusions concerning value creation mechanisms of German private equity buyouts. Within the German market, public-to-private transactions constitute a negligible fraction of the total number of buyout deals with private-to-private and secondary buyouts being the most common type of transactions

(*ibid.).* While agency costs are high in deals with dispersed ownership in the pre-buyout phase, the reduction of these are likely not the primary drivers within private-to-private nor secondary buyouts. The heterogeneous nature of contemporary buyouts in Germany, therefore, calls for a more differentiated view of value creation mechanisms, for instance by analyzing pre-buyout ownership structures in isolation. This discussion will take place in the following sections.

3.5. Private Buyouts

We define private buyouts (PBO) as transactions, where a private equity firm acquires the majority equity stake in a target company that previously was privately owned. In the context of the German market, a pre-buyout privately owned company is almost in all cases a family-owned business. Current estimates are that 94% of the 3.6 Mio. operating companies in Germany are family-owned and in large part small and medium-sized enterprises (Kay, Suprinovic, Schlömer-Laufen, & Rauch, 2018). These statistics are the reason why we will not further differentiate between family- or privately-owned companies going forward. Not only in Germany but on a global scale, SME's can be seen as the backbone of the economy (Croce & Martí, 2016). The challenge to find a suitable successor is a global phenomenon, and it leads to significant macroeconomic implications. For instance, between the years 2018-2022 approximately 150'000 privately held German companies employing around 2.4 Mio persons, will seek a transfer of ownership (Kay et al., 2018). Ways to ensure succession are over transfers within the family, company-internal sales, or external sales, for instance, to private equity funds. According to Kay et al. (2018), approximately 29% of all companies seeking a successor are selling it to external investors. Privately owned companies – especially in Germany – are therefore an attractive target for PE entities, which is also confirmed by our data sample, where they account for 37% of our deals. Therefore, the question arises, what differentiates PBOs from other buyouts types concerning their characteristics as well as if and how PE entities can add value to private buyouts. In the next sections we will first describe the most commonly mentioned theories about how PE entities can add value to previously privately-owned companies and then summarize the empirical findings of the most recent research on this topic.

3.5.1. Theories and Empirical Evidence on the Value Creation Potential of Private Buyouts

Privately held companies have distinct characteristics compared to other ownership types, e.g., publicly traded companies. In previous research, the reduction of agency costs of free cash flow

(Jensen, 1986) has been highlighted as a reason for the superior performance of PE-backed companies, mostly in connection with public-to-private or divisional buyouts (Chung, 2011; Meuleman et al., 2009). However, PBOs are distinctively different from public-to-private buyouts or divisional buyouts as they involve significantly lower agency costs (Meuleman et al., 2009). Typically, in privately held companies, ownership is highly concentrated, and there is no separation of ownership and control and consequently less potential for enhanced control mechanisms leading to improved operating performance (Alperovych et al., 2013). Therefore, private companies are likely not to suffer from the same kind of agency problems than other ownership types (Chung, 2011). However, in cases of more dispersed ownership of privately held companies, there is a consensus that limited agency issues might arise (Meuleman et al., 2009).

Privately held companies have other characteristics and challenges that offer room for operational improvements. For instance, the owners might pursue not only economic goals but also affective needs, that guide the company's actions and strategies (Berrone, Cruz, Gomez-Mejia, & Larraza-Kintana, 2010). An example for an affective need could be the sponsorship of the local football club out of pride for the local community and without any economic reasoning. In combination with specific and often throughout the history developed resources and capabilities, this can lead to challenges in the face of a changing environment (Eddleston, Kellermanns, & Sarathy, 2008). Generally research has identified three overarching characteristics of privately held companies, that can be addressed through a PE ownership, namely managerial shortcomings attitudes towards risk and time, and access to external finance (Ahlers, Hack, & Kellermanns, 2014; Alperovych et al., 2013; Boucly et al., 2011; Chung, 2011; Croce & Martí, 2016; Scellato & Ughetto, 2013).

Managerial Shortcomings

The owner-managers of a privately held company have most likely monitored the financial situation of his company closely. However, often there is a need to professionalize control systems, especially in companies that have outgrown a certain critical size (Alperovych et al., 2013). Managers might be subject to a certain rigidity in their decision making and might not be able to identify nor access the capabilities that are needed to sustain a competitive advantage, react to changes, or to grow (Chung, 2011). This lack of managerial expertise can be mitigated through PE

ownership. A PE-backed buyout might provide an opportunity to professionalize operations, to import advanced management skills, industry knowledge and introduce the portfolio company to regional networks (Ahlers et al., 2014).

Attitude towards Time and Risk

Privately held companies with concentrated ownership, e.g., in families, mostly hold a substantial amount of their wealth in the company. This lack of diversification leads to a situation where managers might avoid risky, but NPV-positive investments and consequently miss out on growth opportunities (Ahlers et al., 2014). A more risk-neutral PE owner might address this issue of underinvestment and hence exploit growth opportunities (Meuleman et al., 2009). Furthermore, while owner-managers are dependent on dividends in order to consume, several factors incentivize PE companies not to pay out as many dividends. First, the nature of their set-up leads to a rather long investment horizon, where PE funds might be more willing to reinvest the free cash flow into the company or to serve the principal debt, rather than pay it out immediately. Second, since dividend payments are typically taxed higher than capital gains, PE funds do have a tax-incentive to reinvest (Boucly et al., 2011). Boucly et al. (2011) and Chung (2011) argue that these effects are likely facilitating investments in growth and thus increase the firm value.

Access to External Financing

Most recent research on PBOs has identified access to external resources as a principal factor of how PE entities can add value to a portfolio company (Ahlers et al., 2014; Boucly et al., 2011; Chung, 2011). A significant factor is the lack of financial resources that potentially prevents privately held companies from investing in unexploited growth opportunities. This credit-constraint is likely to occur in private companies before a PBO (Boucly et al., 2011). PE funds might be able to alleviate those investment constraints and hence capitalize on those growth opportunities by helping their portfolio firms to become borrowers that are more acceptable. Boucly et al. (2011) claim that a portfolio company owned by a PE fund becomes more attractive for banks or other external financiers. Their higher ability to monitor the underlying business decisions closely while being residual claimants, adds to the attractiveness as a borrower. Additionally, the new owner is likely to introduce management members that have highly

specialized knowledge in financial matters, leading to another reassurance for creditors (Boucly et al., 2011).

By addressing these challenges, research theorizes that the operating performance of PBOs is likely to increase (Chung, 2011; Croce & Martí, 2016). While there is some potential for efficiency increases, the main contributor is thought to be growth (Alperovych et al., 2013; Boucly et al., 2011).

3.5.2. Empirical Evidence on Private Buyouts

Table 2 summarizes the empirical evidence on PBOs concerning the operating performance measures that are relevant to this paper. It highlights only evidence from recent research (between 2011-2016), as we argue, the landscape of Private Equity buyouts have reasonably changed when comparing it to the early years of 1980. The evidence presented mostly confirms the suggestions of the abovementioned rationales for value creation mechanisms. The most common result seems to confirm that PE ownership leads to an alleviation of an investment constraint and consequently facilitated growth. The growth of the target company is characterized in an increase of total assets, employment, and sales, accompanied by an increase of debt financing and capital expenditures (Boucly et al., 2011; Chung, 2011; Scellato & Ughetto, 2013). Research finds ambiguous results with regards to profitability measures, which might be closely related to the abnormally high growth compared to peers. Although Boucly et al. (2011) find overall increased profitability after a buyout, they acknowledge that a short-term negative relationship between growth and increasing profitability is likely. Growth requires investments and the outcome of those investments might not be of immediate nature. The notion of a trade-off between profitability is reinforced by the ambiguous results of other studies when looking at profitability increases. Chung (2011) finds no statistically significant differences in profitability measures when comparing PE-owned companies to non-PE backed peers and Scellato & Ughetto (2013) even find a negative development of their profitability measures. When it comes to efficiency measures, research finds an increase in productivity measured as multifactor productivity and increases in efficiency measured in value-added (annual revenue minus costs) (Croce & Martí, 2016). It is worth mentioning that the results obtained by both papers were applying a different methodology, not directly comparing it to peers in a multivariate panel-data analysis.

To summarize the results, there seems to be a consensus within recent research, that PE firms mostly create value in PBOs through facilitating growth by alleviating investment constraints. The underlying rationales for this are that PE funds create better access to external resources, are risk-neutral and have an incentive to invest free cash flow (Boucly et al., 2011).

Variable / Effect	+	-	no significant differences
Margin Expansion	***Boucly, Sraer, & Thesmar (2011):*** Targets generally have higher margins independent of pre-buyout ownership.	***Scellato, Ughetto (2013):*** They find that PBOs have a lower profitability margins than their peers 3 years after the buyout.	***Chung (2011):*** There are no observable statistically significant improvements in operating margins.
Capital Efficiency	***Croce, Martí, (2016):*** There is a positive impact of PE involvment on performance, i.e. productivity of capital employed. ***Alperovvych, Amess, Wright (2013):*** They find an increase in post-buyout efficency over time for PBOs. The improvement is higher for PBOs and divisional buyouts than for the average.	n/a	n/a
Growth	***Scellato, Ughetto (2013):*** Compared to peers privately held companies are growing in their total assets and employment in the years after a PE buyout. ***Boucly, Sraer, Thesmar (2011):*** Private-to-private buyouts are subject to growth in assets, employment and sales. They issue additional debts and increase capital expenditures to do so. ***Chung (2011):*** Target companies with private pre-buyout ownership are growing in size and increase debt financing. PE firms facilitate their target's growth by alleviating their investment constraints. ***Croce, Martí (2016):*** PBOs that are in need of financing growth are accessing PE investors.	n/a	n/a

Table 2: Empirical evidence on private buyouts published between 2011 and 2016

3.6. Divisional Buyouts

A divisional buyout (DBO) entails the divestiture of a division or subsidiary of the parent organization and is often initiated by the incumbent management of the division (Meuleman, Amess, Wright, & Scholes, 2009). Occasionally, a new management team replaces the incumbent if deemed necessary by the private equity firm. Following the buyout, the division will operate as

a standalone company. Even though divisional buyouts are among the most common type of buyouts they have historically been studied scarcely compared to existing literature on other private equity buyouts (Alperovych, Amess, & Wright, 2013; Kaplan & Strömberg, 2009; Meuleman et al., 2009). However, research relating to divisional buyouts has risen during the last decade and has found evidence that divisional create operational enhancements, yet some controversy prevails where the value creation stems from. Most of the debate relates to whether divisional buyouts entail efficiency enhancements or lead primarily to the realization of growth opportunities. Most of the findings have been on European buyouts. Boucly et al. (2011) study the French buyout market, Alperovych et al. (2013) and Meuleman et al. (2009) the buyout market in the UK, Goossens, Manigart, & Meuleman (2008) the Belgian buyout market.

3.6.1. Sources of Value Creation in Divisional Buyouts

In this section, we touch upon on the theories developed concerning value creation mechanisms in divisional buyouts. Afterward, we present the empirical findings of the existing literature. We categorize the sources of value creation of divisional buyouts identified in the existing literature into two dimensions. The first dimension relates to specific characteristics of the divisions and the second to organizational attributes of conglomerates.

Characteristics leading to potential Value Creation in Divisional Buyouts

Characteristics of divisions raising the likelihood to be a candidate for value creation encompass being peripheral to the parent's core operations, having the capacity to spur growth, or having managers who lack the necessary expertise. Part of the research defines the peripheral position to the core operations of the parent to be a pre-requisite for value creation (Bruining, Verwaal, & Wright, 2013; Meuleman et al., 2009; Wright, Hoskisson, & Busenitz, 2001). Being peripheral to the core operations in term of geography and products, a division most likely does not receive the required attention from the parent concerning human capital and other resources to exploit growth opportunities and is likely detrimentally positioned in internal capital markets, which we discuss more in detail later (Wright et al., 2001). The distance between parent and division may result in a lack of the understanding of the operations of the division. Hence, it is problematic for the parent organization to assess the validity of growth opportunities in the division (Alperovych et al., 2013). With a divisional buyout, private equity firms may resolve this issue by dedicating sufficient human

and capital resources to the management, so that it can exploit value-adding opportunities (Wright et al., 2001).

Divisions that have the capacity to catch-up with innovations to spur further growth, either in the form of un-fulfilled tacit knowledge of the incumbent management or due to attractive market conditions, are candidates for value creation in buyouts (Meuleman et al., 2009). In case the current management of the division lacks expertise and foresight to identify growth opportunities or to control costs efficiently, a buyout with new management may also lead to efficiency or growth enhancements (Meuleman et al., 2009).

Potential Problems solved through Buyout

Organizational characteristics within conglomerates that inhibit either growth or efficiency ex-ante buyout in divisions include inappropriate control and remuneration mechanisms imposed by the parent, common agency issues, inefficient internal capital markets, and substantial allocation of group overhead to the division. Control mechanisms imposed by the parent may not fit the context of the division or undermines the entrepreneurial spirit of its managers (Bruining et al., 2013). The larger a conglomerate is the more challenging is the development of control mechanisms that take into account the variety of operations the organization entails. The outcome is typically more bureaucratic processes, rigorous policies, procedures, and organizational structures that emphasize clearly defined decision-making responsibilities. Divisions whose innovative potential is not easily quantifiable may be disadvantaged, and the problem further exacerbates when the division is not core to the parent's operations (Meuleman et al., 2009; Wright et al., 2001). The problem stated above is especially prevalent when growth opportunities rely on subjective information, and the tacit knowledge of the incumbent management is not sufficient to persuade the parental organization (Wright et al., 2001). By introducing control mechanisms fitting the context of the former division and by removing the dependence on parental decision-making processes, private equity firms may enable efficiency improvements (Alperovych et al., 2013).

Another problem that curbs efficiency enhancements and the realization of growth opportunities is a remuneration system by the parent that does not incentivize and rewards entrepreneurial spirit (Boucly, Sraer, & Thesmar, 2011). Inefficient remuneration systems could be an essential part of agency costs in conglomerates or larger organizations. Agency costs are

commonly associated with the distance between owners of the company and managers performing the operations in publicly listed companies. However, even if the parent or the division is itself not publicly listed, agency costs prevail, as the managers of the distant peripheral division usually do not possess any equity ownership in the company. If remuneration systems are not designed to stimulate the divisional manager's entrepreneurial spirit, severe agency costs may arise (Bruining et al., 2013; Meuleman et al., 2009). The problem amplifies when the division generates substantial cash flows, and the financial resources are channelled towards non-value adding projects. In a so-called management buy-out or buy-in, in which the future management of the formerly division acquires equity along with the private equity firm, most of the agency issues discussed beforehand are resolved. Participating the management in the buy-out mitigates the likelihood of shirking, improves the monitoring of the firm and most likely enhances efforts to foster innovation and growth (Meuleman et al., 2009). In relation to margin enhancements, following the buyout, the managers involved in the transaction dedicate resources to projects with the highest cash flow and cut off inefficient and not profit generating activities (Bruining et al., 2013). Additionally, it is likely that post-buyout fewer management layers reduce cost and ameliorate the speed of decision-making. The focus on creating value in the post-buyout period may lead to either growth enhancements through realizing growth opportunities or margin improvements accompanied with a downsizing of the activities due to refocusing on highest cash-flow activities (Bruining et al., 2013).

Some authors discuss the inefficient internal capital market for drivers of potential value creation in buyouts. Being reliant on internal capital markets to advance with investments deemed crucial by the division and not having access to external capital markets, the division is dependent on the financial condition of its parent and its willingness to allocate capital to the division. Two major problems arise with the functioning of internal capital markets. First, if the parental organizations are cash constrained, it does not have the financial resources to foster growth in its divisional companies. Second, if peripheral to the core operations of the parental organizations' resources may be misallocated towards operations that are closer to the parent. Both scenarios result in the underinvestment of the division in question (Goossens et al., 2008; Meuleman et al., 2009; Wright et al., 2001). With the buyout the former division becomes independent from internal capital markets, thus investments are henceforth at the discretion of the management team and the

owner and may be more appropriately evaluated. Goossens, Manigart, & Meuleman (2008) further argue that substantial overhead costs may mitigate the financial performance of divisions. If the overhead costs for a division are lower as a standalone company value creation is possible through a buyout.

3.6.2. Empirical Evidence on Divisional Buyouts

As mentioned earlier, there is evidence corroborating the notion that divisional buyouts improve the operating performance ex-post. However, the literature shows no consensus on whether divisional buyouts are associated with efficiency improvements or the exploitation of growth opportunities.

In their studies Alperovych et al. (2013) and Boucly et al. (2011) emphasize on value creation through efficiency enhancements in divisional buyouts. Boucly et al. (2011) put forward the argument that firms that are not exposed to credit constraints in the period before the buyout do not grow after the buyout has been initiated. The central premise behind this argument is that divisions benefit from internal capital markets. Imperfections in internal capital markets are not discussed in their study. Alperovych et al. (2013) discuss improved corporate governance and monitoring mechanisms but do not negate potential exploitations of growth opportunities. The empirical results of both studies show increases in efficiency. In addition Boucly et al. (2011) demonstrate that growth in divisional buyouts is not statistically significant different from peers.

Variable / Effect	+	-	no significant differences
Margin Expansion	***Alperovych, Amess, Wright (2013), Meuleman, Amess, Wright, Scholes, (2009), Boucly, Srear, Thesmar, 2011:*** Divisional buyouts lead to efficiency enhancements because of inefficient organizational structures in large companies		***Goossens, Manigart, Meuleman, 2008:*** *There is no strong evidence for high profitability improvements in divisional buyouts*
Capital Efficiency			***Goossens, Manigart, Meuleman, 2008:*** *There is no strong evidence for efficiency improvements in divisional buyouts*
Growth	***Meuleman, Amess, Wright, Scholes, (2009):*** *Divisional buyouts grow fast than other types of buyouts due to inefficient internal capital markets*	***Boucly, Srear, Thesmar, 2011:*** *Growth in divisional buyouts is not a source of value creation since divsions are not credit constraint in the pre-buyout phase*	***Goossens, Manigart, Meuleman, 2008:*** *There is no strong evidence for high growth rates in divisional buyouts*

Table 3: Empirical evidence on divisonal buyouts published between 2008 and 2016

Meuleman et al. (2009) who put forward the claim that divisional buyouts experience efficiency improvements and higher growth rates after the buyout, find significant statistically significant evidence for both. In both dimensions, divisional buyouts perform better than other buyout types (private-to-private and secondary buyouts). Yet, profitability is not statistically different from peers. On the other hand Goossens et al. (2008) find some evidence for growth in divisional buyouts, however, this growth is not significant. The same applies to efficiency and profitability improvements. The study does not detect any significant increase when the buyout is initiated and implemented by a private equity firm.

To sum up, with the exception of Goossens et al. (2008) current research finds evidence for efficiency improvements following the buyout (Alperovych et al., 2013; Boucly et al., 2011; Meuleman et al., 2009), whereas only (Meuleman et al., 2009) indicates evidence for growth and (Boucly et al., 2011) not statistically significant higher growth rates for divisional buyouts.

3.7. Secondary Buyouts

Secondary Buyouts (SBO) are mostly leveraged transactions in which both the buyer and the seller of the target company are private equity firms. The acquirer provides a new ownership structure and the original financiers and possibly the executive management exit (Cumming et al., 2007). In the early stage of the private equity market, SBOs have taken place virtually exclusively in cases of distressed companies (Bonini, 2015). However, several recent studies have found a sharp increase of SBOs in the beginning of the 21st century (Bonini, 2015; Cumming et al., 2007; Degeorge, Martin, & Phalippou, 2016; Meuleman et al., 2009; Strömberg, 2008). Bonini (2015) found that while in 2000 SBOs only constituted for less than 3% of all PE transactions, the portion increased to an average of 30% in the following ten years. This statistic coincides with our dataset, where SBOs represent 39% of the deals between 2009 and 2013. Such an increase in the number of secondary buyout transactions has challenged the established theories on value creation of private equity investors (Bonini, 2015). Motivated by this development several recently published studies have turned their attention to the value creation mechanisms of SBOs, however with ambiguous outcomes (Achleitner & Figge, 2014; Bonini, 2015; Degeorge et al., 2016; Wang, 2012). A common examined concern in these studies is that SBO transactions can not create value for either the target company nor the investors, but potentially even destroy value (Degeorge et al.,

2016). Given that PE organizations manage a substantial amount of funds and large portions of these funds are used for SBOs it is critical to further investigate on the empirical findings on the potential of value creation or value destruction of such transaction.

3.7.1. Theories, Skepticism and Empirical Evidence on the Value Creation Potential of SBOs

In the following section, we will in a start by summarizing the most common theories and raised skepticisms about the rationales and operational value creation mechanisms of SBOs to then examine the empirical evidence of those. The conventional wisdom within research draws a skeptical picture of SBO transactions due to several rationales. The current opinion is that SBOs have a limited focus on operational improvements but are instead motivated by financial returns created through advantageous market conditions such as attractive debt conditions or tax shields (Achleitner & Figge, 2014; Bonini, 2015).

Operational Value Creation Potential

With regards to *operational value creation*, critics argue that in secondary transactions the potential is scarce as the primary PE has likely already identified and implemented all apparent improvement actions (Achleitner & Figge, 2014). According to Cumming & MacIntosh (2003), a private equity investor will only sell their target company once the expected marginal return on their investment is lower than the expected marginal cost to implement improvements. Under the assumption that the first PE investor has been mitigating the prevalent agency costs effectively through enhanced governance mechanisms, implemented restructuring and incentive programs and PE investors operate with similar toolboxes and strategies, the secondary buyer has little potential to accomplish a positive return (Bonini, 2015). In line with this argumentation Bergström, Grubb, & Jonsson (2007) state that the impact of further similar improvement measures will have a smaller effect in a secondary transaction.

In contrast, several authors claim that complementary skill sets amongst the seller and the buyer of a target company may allow for different value creation strategies (Achleitner & Figge, 2014; Degeorge et al., 2016; Wang, 2012). Through this differing skill sets along dimensions such as the funds' size, their geographic reach, the industry specialization or their functional expertise the secondary buyer may have more margin for operational value creation than initially expected (Degeorge et al., 2016). Furthermore, the argumentation against value creation of SBOs does not

take the heterogeneity of the private equity investors into account. It is unclear whether an SBO transaction has the same objectives as the first buyout. While the first buyout may have focused on the growth of the target company, an secondary buyer could subsequently optimize the efficiency of the target's operations. Bonini (2015) highlights that there is anecdotal evidence of SBOs where the objective of the buyer is to implement a growth strategy within the target company, in the form of international expansion, industry consolidation, employing changes in strategy, and new investments.

Other Motives to engage in a Secondary Buyout

Other motives besides the operational value creation of the target companies for the increased number of SBO transactions can be drawn from the *perspective of financial returns* for the PE fund.

First, pressure to invest floating money, earn management fees, and sustain the fund's reputation and a pressure to exit their investments are considered principal motivations of SBOs. A PE fund is generally launched with a predetermined investment and divestment horizon, which imposes a certain *pressure to exit* their investments. Other reasons for a forced exit might be found in the fact that a PE fund tries to achieve a stable cash flow profile (Strömberg, 2008), or to achieve a solid track record (Wang, 2012). Additionally, a PE fund relies heavily on the performance records of their previous investments to obtain future funds from investors. This performance history includes scrutiny on whether a PE fund was failing *to invest floating money* – so-called dry powder – as it reduces the returns of a fund and sends bad signals to potential limited partners, decreasing the likelihood of further fundraising.

Bonini (2015) claims that the pressure to exit and an additional pressure to invest floating money combined with the fact that PE funds are repeated players may lead to a reciprocal behavior between different funds. In one situation a fund might need to sell where the other needs to invest floating money and in another situation it might be vice versa (Bonini, 2015). In the same spirit, Degeorge et al., (2016) are examining the allegation that SBOs are just 'pass-the-parcel' deals that are ultimately 'burning money'. Due to the finite nature of an investment, general partners are facing a dilemma at the end of an investment period, since at that time they normally earn management fees only on the invested capital (Degeorge et al., 2016). They are therefore

incentivized to spend capital with the main motivation to collect fees, regardless of the quality of the investment. This situation can be classified as a typical agency conflict between general and limited partners (Axelson, Jenkinson, Strömberg, & Weisbach, 2013). A PE fund could generally also invest in primary buyouts, but such a process implies high search costs, adverse selection costs and combined with the limited availability of time renders this option impractical. Therefore, SBO transactions can be seen as a viable option for a fund that is pressured to spend capital at the end of an investment period, as the search costs of identifying a potential target are lower and there is a lower adverse selection problem (Degeorge et al., 2016). Theses late investments in the form of SBOs are not only attributed to being a burning money device, but limited partners might suffer an additional loss through these transactions. Many of the limited partners are having capital invested in several private equity funds and may, therefore, be part of the selling as well as of the buying side of this transaction. This double-investment means that while the asset they are owning might stay the same, they are subject to substantial transaction costs (Degeorge et al., 2016).

Second, there is a tax-shield incentive that can lead to repeated transactions. According to Bonini (2015), the normally high leverage of buyout transactions and consequently the higher tax-deductible interest payments may lead to a significant tax-shield that may motivate repeated buyouts. Overall, the prevailing opinion is that SBOs have limited impact on operational improvements, but are rather motivated by abovementioned investor-specific considerations (Achleitner & Figge, 2014; Bonini, 2015; Degeorge et al., 2016).

3.7.2. Empirical Evidence on Secondary Buyouts

The empirical evidence published between 2012 and 2016 on the *operational value creation* potential for target firms that are subject to an SBO and potential other motivations are summarized in Table 4. The evidence draws a rather bleak picture for SBO transactions. Even though Achleitner & Figge (2014) find no evidence that SBOs generate a lower operational value creation potential compared to other buyouts, there is a tendency of research results that leans towards seeing no contribution of an SBO to the operational performance of a target firm (Bonini, 2015; Wang, 2012). Bonini (2015) finds that while SBOs do not underperform their peers, they show significantly lower improvements in operating performance compared to primary buyouts.

When looking at *financial returns to investors,* Degeorge et al. (2016) interestingly note, that SBOs transaction conducted in the early phase of the investment period perform on the same level as other buyouts but transactions in the later stage underperform. To our knowledge, they are the first researchers that additionally differentiate between the skill sets of the private equity funds involved in an SBO and their results suggest that in cases of a complementary skill set between buyer and seller there is, in fact, a potential for value creation within the target company. This nuanced finding contradicts the conventional wisdom that SBOs are just money-burning devices and mitigates the prevailing opinion of the notion that SBOs are mainly motivated by financial considerations of a PE fund. Furthermore, they find that due to this value creation potential a limited partner does not incur extra transaction costs, if he is invested in two PE funds that are in possession of

Variable / Effect	+	-	no significant differences
Margin Expansion	n/a	***Bonini (2015):*** SBOs substantially underperform primary buyouts in terms of profitability margin changes. ***Wang (2012):*** SBOs do not improve the profitability of the target companies (EBITDA margin).	***Bonini (2015):*** There are no observable statistically significant improvements in EBITDA margins or Return on Assets when comparing it to non PE-backed peers. ***Achleitner & Figge (2014):*** No evidence that SBO have a lower improvement potential in profitability (EBITDA margin) compared to other buyouts.
Capital Efficiency	n/a	***Wang (2012):*** SBOs do not improve the efficiency of the target companies. ***Alperovvych, Amess, Wright (2013):*** SBOs show lower efficiency improvements than other types of buyouts.	n/a
Growth	n/a	n/a	***Achleitner & Figge (2014):*** No evidence that SBO have lower growth than (EBITDA growth, sales growth) other buyout types.

Table 4: Empirical evidence on secondary buyouts between 2012 and 2018

complementary capabilities. The overall opinion however remains that SBOs are primarily driven by adverse incentives and external pressure to invest.

3.8 Concluding Remarks on the Literature Review

Since the emergence of private equity and buyout transactions, the market has experienced phases of growth, decline and adaptations to the macroeconomic environment (D. Cumming et al., 2007; Wright et al., 2009). As discussed in the previous sections, the research concerning PE buyouts has adapted to these market changes of the PE market accordingly. While initially academic research was almost exclusively directed towards public-to-private transactions in the US market, the focus has later shifted towards private buyouts. This increased focus has been amplified by the growing importance of the European buyout market where private buyouts have been the norm (Boucly et al., 2011; Wright et al., 2009).

Industry experts and researchers in the field of private equity suggest that in recent years the PE market has shifted away from deploying high leverage and multiple arbitrage towards operational value creation within their target firms (Boucly et al., 2011; Brigl et al., 2012; Croce & Martí, 2016; Scellato & Ughetto, 2013). Operational improvements on cost and revenue side ultimately leading to growth in profits seems to be the primary source of added economic value for some years now. Brigl et al. (2012) claim in their report that they have identified this trend from 2008 onwards and substantiate this transformation by the significant changes of the market conditions in the aftermath of the global recession:

First, they argue that due to the crisis the availability of debt and consequently the possibility of raising outside capital has decreased drastically. Hence, value creation through a leveraged buyout has diminished to be a viable strategy.

Second, during this period PE investors have not been able to invest a considerable amount of their funds, due to potentially lower private sector lending and fewer feasible investment opportunities. This increase of the so-called "dry powder" has inflated the premiums PE companies need to pay to acquire a target company. Therefore, realizing returns driven by multiples arbitrage have become even more challenging.

Thus, the only sure source of returns for PE investors lies in the improvement of the fundamental of a target company, namely in profit growth (Brigl et al., 2012). The opportunity to

spur growth is evidently dependent on the characteristics of the target company and the environment it operates in. In the previous sections, we have shown that the potential and means for operational value creation can vary for instance dependent on the pre-buyout ownership. However, when looking at the three buyout types (private, secondary and divisional) and their operational value creation drivers, the common denominator appears to be growth concerning revenue, employment, and total assets. While this effect is most evident in private buyouts, recent research has found some growth effects in divisional buyouts as well (Achleitner et al., 2010; Alperovych et al., 2013; Boucly et al., 2011; Chung, 2011). This market development is a reliable indicator that the private equity industry has devised the facilitation of growth as a source of value creation.

3.8.1 Operational Value Creation Drivers

Based on the review of the available literature on drivers to create operational value, we have identified and defined three levers that we suggest to be most important for the improvement of a

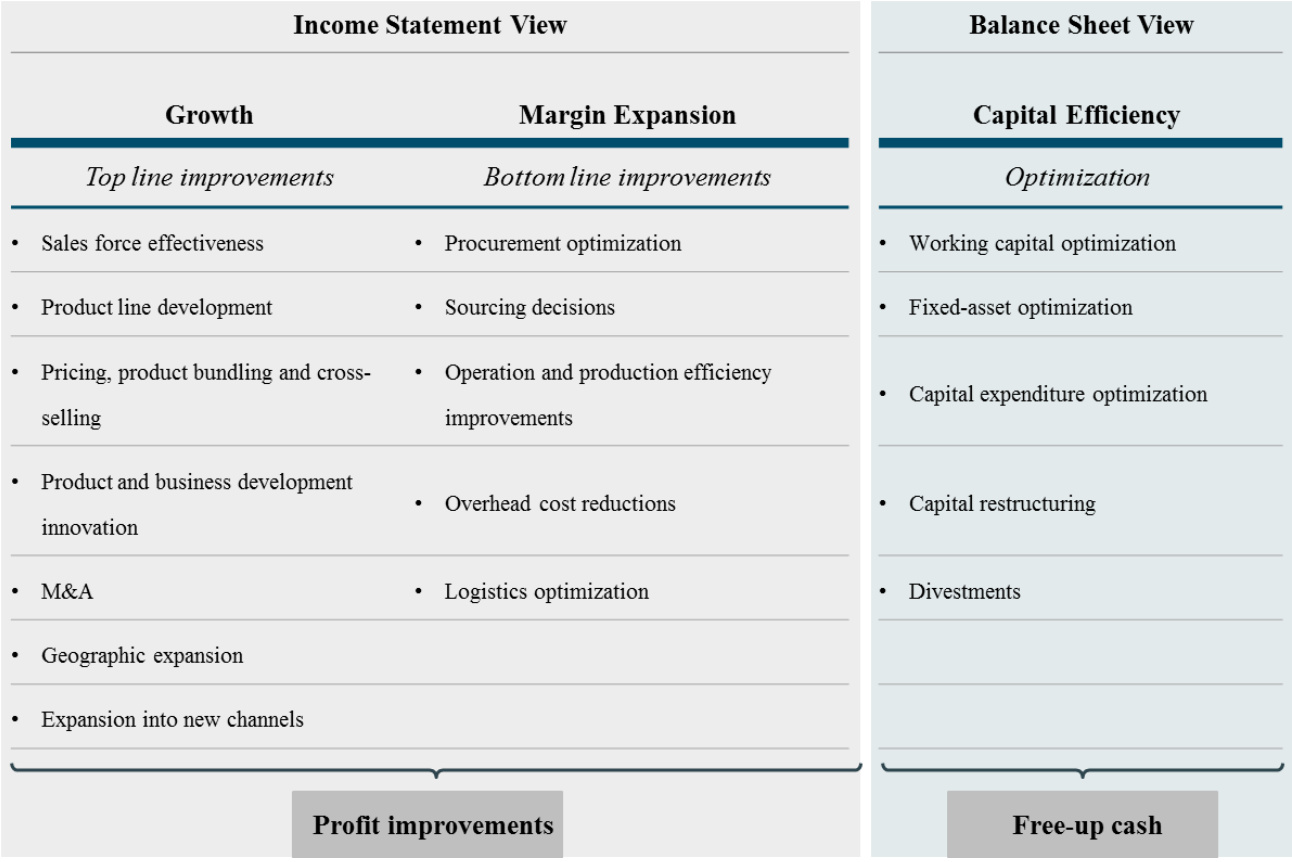


Figure 7: Operating value creation levers
Source: Own depiction

firm's fundamentals. Figure 7 depicts these three levers and the means how to achieve an improvement in the operating performance. We differentiate between an income statement view where growth or margin expansions can lead to an increase in profits, i.e., EBITDA growth, and a balance sheet view where the efficiency of the employed capital can be optimized ultimately leading to freed-up cash.

Income Statement View

Companies can mainly achieve margin expansion through bottom line improvements. Means to achieve cost reductions is to optimize their procurement, e.g., negotiate cost savings with their suppliers, enhance the management of their logistics, e.g., improve order handling, increase operation and production efficiency, or reduce overhead costs. On the other hand, through growth of the top-line, profit can be expanded as well. One way to achieve this is to grow organically by, e.g., revising the incentives of a company's salesforce, continuously improving the quality of their products, expanding geographically or into new sales channels and fostering product innovation. Another option is to grow non-organically through mergers or acquisitions. The pre-requisite to realizing these measures is that potential growth opportunities are identified and subsequently pursued. In cases where a company faces an investment constraint, the management needs to ensure that enough capital is available to exploit these opportunities.

Balance Sheet View

Increased capital efficiency can ultimately lead to a reduced cash conversion-cycle and consequently to more cash being freed-up for other uses such as investing in growth opportunities or paying dividends. Capital efficiency can be achieved through the professionalization of the following aspects:

- *Working capital management:* namely the closer monitoring of inventory, accounts receivables and payables.
- *Fixed-asset optimization:* capacity and utilization improvements, leasing and financing decisions
- *Capital expenditure optimization*: postponement or avoidance of investments
- *Divestments:* sale of non-core assets

To summarize the private equity industry has progressively emphasized its efforts to improve the operational performance of their portfolio companies by different means. While efficiency improvements remain a standard lever, PE firms increasingly rely on the ability to facilitate growth in the portfolio companies to generate the aspired returns (Brigl et al., 2012). This finding and Figure 7 provide the basis for our upcoming hypothesis development concerning the value creation mechanisms of PE-backed buyouts in Germany.

4. Hypothesis Development

As discussed, recent literature and industry experts have identified growth to be a significant source of value creation in private equity buyouts (Achleitner et al., 2010; Boucly et al., 2011; Brigl et al., 2012; Chung, 2011; Meuleman et al., 2009). Firm specific characteristics, macro-economic conditions, and potential changes in the underlying business model of private equity entities in Germany further support this view.

1.) Firm Specific Characteristics and Macro-Economic Conditions in Germany

Recent research has identified that deal size is a good predictor of value creation mechanism that is deployed by a PE company. Achleitner et al. (2010) claim that in smaller buyouts the target companies are more likely to grow, whereas in bigger deals the focus seems to lie in margin expansion. Since the German buyout market is dominated by investments in SMEs we expect that PE firms will emphasize on growth as a value creation mechanism in their target companies.

Furthermore, German companies and specifically SMEs tend to be dependent on external financing, which is demonstrated by low equity ratios and the importance of bank financing when exploiting growth opportunities. Due to changes in regulations, the dependence on external financing might be accompanied by higher financial constraints, e.g. investment constraints in Germany. The introduction of the Basel II regulations hampered access to financial resources for SMEs, since banks provide fewer loans and require higher equity ratios from its customers as a basis for collateral (KFW, 2011). Therefore, given the new regulatory context low equity ratios may hinder companies from assuming additional leverage to finance growth opportunities. Furthermore, low equity ratios indicate that companies may not have sufficient

equity resources for growth investments. A survey conducted in 2013 confirms that getting access to external finance is among the main issues in pursuing growth opportunities (KFW, 2011).

With their access to capital and capabilities, private equity firms may be well equipped to alleviate these constraints. First, through repeated interactions with banks, their capabilities, and available collateral private equity firms may be able to negotiate favourable debt conditions and to extend the target firm's debt capacity. Second, in addition to the purchase price private equity firms may inject further capital into the target. During the period of interest, it is evident that equity ratios of German SMEs have significantly increased pointing towards greater awareness of the importance of higher equity ratios.

2.) Changes in the Business Model of PE Entities

An additional factor increasing the likelihood of growth in German buyouts is that private equity firms tend to emphasize on operational value improvements and growth in their buyout targets since the financial crisis. Brigl et al. (2012) claim that lower gearing in buyouts and fewer opportunities for multiple arbitrage have shifted the focus towards top and bottom line improvements as a way to increase the return to the fund.

Therefore, given the market conditions, specific target firm characteristics, and potentially transformed business models of PE funds, we argue that growth is the prevalent driver of value creation in German buyouts. The first hypothesis reads as follows:

H1a: *In Germany, buyouts targets grow relative to peers after they have been acquired by a private-equity entity.*

By focusing on enabling growth in their portfolio companies, private equity firms most likely forego on capital efficiency improvements, as there is trade-off between growth and capital efficiency. In the pursuit of future sales growth, investments in working capital and fixed assets are necessary, often leading to capital efficiency decreases in the short-term.

H1b*: German buyouts experience decreasing capital efficiency following a buyout relative to peers.*

Most of the previous research has confirmed that private equity create value through improving profit margins. Theory support this argument due to improved monitoring and parenting effects. Moreover, surveys found evidence for a greater focus on operational improvement enhancements in Germany. Therefore, we also expect an effect on profit margins in German buyouts.

***H1c**: German buyouts enhance their profit margin in the post-buyout period when measured relative to peers.*

The heterogeneous nature of contemporary buyouts in Germany requires to take a more differentiated view on potential value creation mechanisms. Specific characteristics of the target firm arguably have an essential influence on what strategy for operational value creation a PE company will primarily deploy, namely a profit improvement or a capital efficiency improvement. One way to look at the characteristics is to discriminate between the pre-buyout ownership of target companies, namely PBOs, SBOs and DBOs. In the following, we will elaborate upon our expectations on what the main operational value drivers in buyouts are contingent on their pre-buyout ownership.

When looking at *private buyouts* in Germany we have established that SMEs constitute for the majority of the deals and that those SMEs are almost exclusively family-owned businesses (Kay et al., 2018). The theory and empirical evidence suggests that family businesses do not suffer from the same agency costs as other buyouts due to their concentrated ownership prior to the buyout (Alperovych et al., 2013; Chung, 2011). However, we have identified other characteristics of privately held SMEs, as well as macro-economic conditions in Germany, that are likely to have an impact on the way such a business can operate. In particular three factors are posing challenges for a privately held company with opportunities to grow, namely the more complicated access to external financing, potential managerial shortcomings of owner-managers, and their attitude towards risk and time. These three characteristics potentially lead to what we call growth constraints in SMEs.

First, as argued above, German SMEs tend to have difficulties to access external financing but are generally dependent on this channel to pursue potential growth opportunities.

Consequently, we argue that SMEs tend to be exposed to a certain investment constraint when planning expansion strategies.

Second, privately held companies sometimes lack the managerial and financial expertise needed to identify and take advantage of all growth opportunities (Bloom & Van Reenen, 2007). Even in cases where they have spotted a potential to grow, their potential lack of expertise can lead to a situation where their firm cannot be financed only through retained earnings.

Third, this situation is amplified by the fact that owner-managers usually already have a substantial fraction of their wealth tied up in the company and therefore rely on a stable dividend pay-out (Ahlers et al., 2014). In cases where the owner-managers already have invested a large part of their wealth into the company, they are also more likely reluctant or unable to rise more equity from their own pocket to pursue growth opportunities. Furthermore, due to the substantial undiversified investment, their attitude towards risk might restrict them to invest into risky, but NPV positive projects (Chung, 2011).

In line with the prevailing research opinion, we argue that private equity entities can mitigate growth constraints for companies that have growth potential. They do this by giving the target company a better access to financial markets, potentially increasing the equity base and providing managerial and financial expertise. Our second hypothesis reads as follows:

H2a: *Relative to their peers, German companies subject to a PBO will experience higher growth in the post buyout period.*

As mentioned above one important factor of growth constraints in PBOs are external financing constraints. Private companies may face difficulties in persuading external capital providers of the viability of their investments. Especially, when private firms are dependent on external finance the problem exacerbates since a pre-requisite for pursuing investments is to resolve informational asymmetries between the capital provider and the firm. Specifically, this entails the internal cash flow generated in the firm is not sufficient to cover investment expenses. Hence, when they are dependent on external finance, private companies might not go forward with viable investment opportunities even if top-management recognizes them. Through the buyout, the PE fund might facilitate access to external finance and therefore we hypothesize that target companies that are

financially dependent on external capital sources will be subject to abnormal growth in the post-buyout period.

H2b: *Relative to their peers, growth in the post buyout period will be concentrated in German PBOs subject to external financing constraints.*

When studying divisional buyouts, the same argumentation as for PBOs does not hold due to various reasons. Before the buyout, divisions are more dependent on internal capital markets, than they are on external capital markets. Furthermore, larger organizations have in general better access to external capital markets and agency issues are more likely to prevail. These differences have significant implications for the sources of operational value creation in divisional buyouts. Large organizations usually adopt internal capital markets to allocate resources within the organization (Alperovych et al., 2013). In theory, internal capital markets are superior to external capital markets when they are better at mitigating informational asymmetries and therefore lead to better investment decisions (Williamson, 1979). The organization is likely to be effective at monitoring as it possesses the residual control rights for its divisions and reaps the benefits of doing so. Yet, large organizations and correspondingly internal capital markets have some critical limitations. As previously discussed, internal capital markets misallocate capital when it operates with inefficient remuneration systems and inappropriate control mechanisms. Internal market capital misallocation is likely to exacerbate when the division is peripheral to the core operations of the parent, concerning products and geography since manager struggle to persuade top-management of the parent to pursue worthwhile investments. If internal capital markets malfunction, the managers of divisions face difficulties in receiving adequate financial resources to exploit growth opportunities. The malfunctioning of internal capital markets implies that top-management in the parent organization does not have the resources or is not willing to assess promising growth opportunities. Hence, informational asymmetries restrain growth opportunities from being achieved. When the internal cash flow of the company is not sufficient to cover investment expenses, the firm faces financing constraints. The malfunctioning of capital markets due to informational asymmetries may provoke a scenario of underinvestment in divisions in the pre-buyout phase.

***H3a**: Relative to their peers, German DBOs subject to financing constraints will grow in the post-buyout period.*

In light of prevailing agency issues in the pre-buyout phase, we also expect margin enhancements to be a significant driver of operational value creation in divisional buyouts. Even if the parent is, in theory, effective at monitoring, it is less able or willing to do so when it does not entirely understand the operations of the division and when the division is peripheral to the core operation of the parent. Moreover, monitoring does not wholly solve the agency issues prevalent in large organizations, which lead to fewer incentives for the management to control costs. Participating the future management in the buyout resolves the problem of the distance between owner and managers and incentives management to increase the return. Additionally, in the post-buyout period, private equity firms are likely to introduce more appropriate control mechanisms more apt with the company's operations. The diminishment of allocated overhead costs by the parent might also constitute a crucial value driver in case the divisions as an individual entity would incur lower overhead costs.

We expect margin and efficiency improvements to be concentrated in DBOs that were not subject to external financing constraints in the pre-buyout period, since they are less likely to have unexploited growth opportunities, thus the focus is on margin expansion. Hence, our hypothesis reads as follows:

***H3b**: Relative to their peers, German DBOs that have not faced financial constraints in the pre-buyout phase will improve their margin and capital efficiency in the post-buyout period*

When analyzing SBOs in our sample, we have to acknowledge the heterogeneity of those deals regarding the antecedents of the target company and the characteristics as well as the motivations of the buying PE entity. The potential for further operational improvement within a target company is contingent not only upon the general environment in which this firm is operating but also highly dependent on the history of the first buyout. As previously discussed, PE entities most likely face the short- to middle term trade-off between decisions to foster growth or optimizing capital efficiency. Given this trade-off and assuming for instance that the first buyout was fostering growth

opportunities by exploiting unrealized expansion opportunities, it is evident that there are opportunities to optimize capital efficiency in the period after the SBO. On the other hand, in cases when the primary buyout was focusing on margin improvement through minimizing the bottom line, a SBO might have the opportunity to follow a strategy to expand the top line through expansion of the target company's business.

It is also of paramount importance to take the motivations and characteristics of a PE company engaging in a SBO into consideration. As elaborated in section 3.7. Secondary Buyouts, recent research has highlighted that complementary capabilities between the primary and the secondary PE firm can unfold operational improvement possibilities in the secondary buyout (Degeorge et al., 2016). However, operational improvements might not always be the reason for a PE fund to engage in a SBO. In fact, we have seen that several reasons lead the majority of literature to believe that investor-specific considerations are the primary motivation for a secondary buyout (Achleitner & Figge, 2014; Bonini, 2015). Such factors could be to commit their funds to receive management fees and the external pressure to invest floating money.

The dependency of the outcome of an SBO on the motivations and consequently the strategy a PE company pursues, as well as on the history of the target company highlights the heterogeneity of such transactions. We argue that without further differentiation between those factors, it is highly unlikely to hypothesize a specific effect on the operational performance in secondary buyouts. While operational improvements might be possible, we expect that the value creation driver (i.e. growth, margin expansion or capital efficiency) differ due to the heterogeneous nature of those buyouts. Furthermore, we argue that an important motivation of a SBO rests in investor-specific considerations. Therefore, we suggest that:

H4: *SBOs do not experience a specific operational improvement compared to their peers in the years following the buyout.*

5. Methodology

5.1. Sample Selection

The analysis investigates private equity buyouts that occurred in the period from and containing 2009 to 2013 in Germany. Choosing the German market for the scope of the analysis has several reasons. First of all, quantitative research on buyouts and their implications in Germany is scarce, even though it has the third largest private equity market in (European private equity and venture capital association, 2014) and the largest economy in Europe (OECD, 2016). Second, German legislation requires limited companies and limited commercial partnership (KG) consisting of a general partner (GmbH) and a limited partner (members of the GmbH) to disclose financial information to the public. The legal forms addressed by this legislation are among the most common in Germany. In most instances, assembling a data set on private buyouts is problematic as in most countries private companies are not subject to the same obligations as public companies regarding financial disclosure resulting in scare information. Hence, the current legislation is beneficial for the analysis as it raises the likelihood of finding suitable data. For our analysis, we look at financial statements for three years before and three years after the buyout. We do not take into the account of the year of the buyout, since financial statements might be affected by buyout specific accounting practices in the buyout year. To be eligible for the analysis, private equity-backed buyouts have to meet the following criteria:

- *First*, the buyout has to occur between 2009 and 2013 in Germany. A preliminary screening indicates that it is unlikely to find viable financial data before 2007. Moreover, limiting the period of interest alleviates the influence of altering macroeconomic factors.
- *Second*, the private equity entity's stake after the buyout has to be at least 50%.
- *Third*, financial information for three years before and after the buyout, acquirer name, type of buyout and seller ownership data has to be available.

5.2. Data Gathering

The following section provides a comprehensive review on how we construct our data sample of the buyouts deals and subsequently how we gather the respective financial information.

5.2.1. Selection of Deals

The identification of private equity-backed buyout deals evolves over several phases. In the first stage, all buyout deals categorized as private equity-backed with the target being incorporated in Germany between 2009 and 2013 are retrieved from the database Bloomberg. For each deal, we obtain the name of the acquirer, the name of the selling entity, the owner of the selling entity, a deal description and the transaction type. The first screening results in 288 deals. To improve our coverage and to cross-check for validation of the data, we extract additional data from the databases Zephyr and Mergr. Applying the same filters as for the Bloomberg database results in 184 additional deals. The final deal list of private equity-backed buyouts contains 472 observations.

Information regarding the transaction type is not always available and not segmented into divisional, private-to-private, and secondary buyouts as required for this analysis. To circumvent this issue, we analyse each deal and the ownership type of the seller individually. All transactions in which the selling entity is a private equity firm, we label as a secondary buyout. When a division, subsidiary or business unit is divested from the parent, and the parent itself not owned by a private equity entity with significant influence (more than 25% of the shares) the deal is classified as a divisional buyout. To correctly identify divisional buyouts we first look at the ownership structure of the selling entity, as well as of the owner of the selling entity. The remaining deals are classified private-to-private buyouts. To ensure the deal type to be correctly classified, we individually check every transaction by cross validating public statements of the deal in journals and newspaper articles.

5.2.2. Retrieving Financial Information

We derive financial data mainly from two databases; Orbis provided by Bureau van Dijk and the "Bundesanzeiger". "Orbis" is a commercial database providing accounting data with an emphasis on private company information. The "Bundesanzeiger" is an official publication platform published by the German department of Justice for legally mandated announcements by the private sector. On this platform, companies applicable to the "§ 325 HGB Offenlegung" law are obliged to publish annual reports in hard copies (pdf format). However, the degree of disclosure varies across companies. When extracting financial data from "Orbis" and "Bundesanzeiger", we proceed as follows:

- *First,* we collect pre- and post-buyout financial data from the Orbis database for those companies, where data is available for three years before and three years after the buyout.
- *Second,* we investigate whether the financial information is available in "Bundesanzeiger" for the remaining companies.

Retrieving data from the "Bundesanzeiger" is associated with some challenges, as the database does not provide the functionality of extracting data for a list of companies over a chosen period. Hence, we look up every company for each specific year individually. Additionally, income statement and balance sheet items are provided in hard copy (pdf annual reports), and a lot of the necessary information is found in the running text of the annual report. Revenue and employment figures, for instance, are in some instances not provided in table format but we look them up manually by skimming through the text (an example can be found in Appendix B in Figure 17). Gathering high quality and extensive financial information poses some further significant challenges since various issues occur concerning the availability and usability of financial statements.

In the following section and in Table 5, we elaborate on the potential problems we have faced while gathering data, the mitigating actions we have taken and the implications it has on our analysis.

5.2.3. Availability of Accounting Data

Non-Availability of Pre-Buyout Financials for Small and Non-Independent Legal Entities

Companies classified as small companies according to "HGB" (German commercial law) are only obliged to publish balance sheets but no income statements. Companies are classified as small (Section 267 (1) HGB), when either total assets is smaller than EUR 6,000,000 or, sales is below EUR 12,000,000, or the annual average of employees is lower than 50. Small corporations may exceed one of the above (Section 268 (3) HGB). Therefore, our dataset omits small companies according to the definition above. Another concern is that in case the target company is not an independent legal entity before divestiture financial information for the pre-buyouts phase is not accessible. Therefore, we also drop those buyouts.

Amalgamations of various Companies at Buyout

In some cases, a buyout involves the amalgamation of various companies into a newly formed company. At the buyout of Krauss-Maffei, for instance, various companies of the conglomerate were regrouped into a new legal entity. For those different legal entities, financial information for the pre-buyout phase is not accessible, thus inhibiting us from comparing the pre-buyout and post-buyout phase. Therefore, we drop companies from the sample that were formed by the merger of several companies.

Change of Name or Legal Entity after the Buyout

It is common practice that a new legal entity is established after a buyout, or in more rare cases the name of the company is altered (Boucly et al., 2011; Freelink & Volosovych, 2012; Hoffmann, 2008; Jakoby, 2000). Whenever possible, we deal with this issue by collecting financial data for two different entities in the databases for the pre-buyout and the post-buyout period respectively and subsequently manually match the two entities for the final sample.

Implication of Availability Issues on our Analysis

Neglecting small companies, divisional buyouts, and amalgamations potentially leads to a skewed data set. Yet, when looking at the distribution of the pre-buyout ownership, we can partially reduce this concern, as the allocation between the different buyout types seems to be representative (see section 5.5. Final Data Sample). This is comforting, since this differentiation between different buyout types is one of the main points we investigate in our analysis.

5.2.4. Consolidated vs. Unconsolidated Financial Statements

In the existing literature, there is no consistent approach whether to use consolidated or unconsolidated financial statements and most literature seems to ignore this distinction. Nonetheless, the usage of either consolidated or unconsolidated financial statements has some critical implications and drawbacks concerning the interpretation of the data. Consolidated financial statements may include non-core operational activities, whereas unconsolidated statements may not take into account essential operations of subsidiaries. Most of the companies in our data are exempt from reporting consolidated annual statements either due to their size (§ 293 HGB) or due to them not exerting full control over their subsidiaries (§ 296 HGB). Thus, to ensure

consistency in the accounting treatment among all the firms in our sample the whole dataset contains only unconsolidated annuals statements. When selecting the unconsolidated legal entity, we follow the approach of Boucly et al. (2011) and choose the entity which reflects most of the operational activity of the firm. Yet, problematic is that companies often report consolidated balance sheets in combination with unconsolidated income statements, causing potential irregularities when studying profitability measures, such as the return on operating assets (ROOA). When unconsolidated, the revenue generated by affiliates is not reported in the parent's income statement; whereas the balance sheet generally incorporates the assets of the affiliate as part of fixed assets under the term shares in affiliated companies ("Anteile an verbundenen Unternehmen"). Without making any adjustments, any profitability measure incorporating the balance sheet would understate the true profitability of the selected legal entity. In light of this discrepancy, we subtract shares in affiliated companies from fixed assets ("Anlagevermögen") (see example in Figure 18 of Appendix B). The same logic applies to the calculation of current assets. The German accounting standard distinguishes between trade accounts receivables ("Forderungen aus Lieferungen und Leistungen") and accounts receivable from seller or seller's affiliates ("Forderungen gegen verbundenen Unternehmen"). The size of accounts receivable from seller or seller's affiliates ("Forderungen gegen verbundenen Unternehmen") is dependent on inter-firm policy and can be easily manipulated, and we, therefore, exclude these receivables from current assets (see example in Figure 18 of Appendix B).

5.2.5. Purchase Price Allocation Method

An issue eliciting concerns for the correct development of balance sheet items is the requirement by the German accounting standard (HGB and IFRS 3) to apply the purchase price allocation method for M&A transactions (DRS 4). The purchase price allocation (PPA) method requires the acquirer to allocate the difference between the purchase price and the book value of the target's equity capital into the assets and liabilities obtained from the transaction (Klamar, 2018). The method implicates a re-evaluation of the target company's assets and liabilities (IFRS 3.36) and is hence an adjustment of the book value to the fair market value at the time of the purchase. Applying the method may result in asset write-ups, asset write-downs, or the recognition of goodwill. A write up of assets is associated to an increase in the book value of the company to fair market value and

occurs in circumstances when the book value of an asset is lower compared to similar assets in the market. The remaining difference or "premium" between the assets and liabilities evaluated at fair market value and the purchase price is generally reported as goodwill, and it encompasses intangible items, such as brand name, customer loyalty, or skilled labor. On the equity and liability side of the balance sheet, the adjustment to fair market value results in an increase in "undisclosed reserves".

The sample containing the firms subject to private equity buyouts are all prone to purchase price allocation re-evaluations, whereas the control firms are not likely to experience adjustments of their balance sheet over the selected period. This introduces a serious bias since an increase of the target company's assets at buyout would deflate any balance sheet based profitability measures of the target companyies post-buyout compared to the companies in the control group.

We address this problem by examining the deals for abnormal inflations of the assets. Abnormal changes are defined as a change in the asset base of 30% from the last pre-buyout year to the buyout year. Each deal falling into this category is investigated individually to identify whether the changes stem from asset write-ups, asset write-downs, recognition of goodwill or the purchase of additional assets by the investor with the objective to help the target company to grow. Gabo Systemtechnik's balance sheet for instance (see example in Figure 19 of Appendix B), is subject to an artificial increase of the assets due to the recognition of goodwill following the buyout. To adjust for artificial increases in the balance sheet occurring with the buyout, we subtract any changes in goodwill from the company's assets in the post-buyout period.

To assign changes in the company's assets to asset write-ups or write-downs in the tangible assets section is problematic, since they can also be the result of capital expenditures. In some circumstances, the annual statement in "Bundesanzeiger" provides the necessary information; however, when it is not evident where the change in the asset base stems we do not perform any adjustments. For instance, Erpo Moebelwerke identified in its annual statement that part of its tangible asset growth is related to asset write-ups following the asset deal (see example in Figure 20 of Appendix B).

By investigating each deal with abnormal alterations in its financial fundamentals, we ensure greater granularity among the firms and ascertain that only operating performance is

measured. Our approach to this problem is similar to that of Guo et al. (2011) and Kaplan (1989) who also re-compute the actual value of assets by adding back asset write ups to the asset base in the pre-buyout period.

5.2.6. Usability of Accounting Data

An essential problem with using accounting data is that it does not necessarily represent the true operational value created. According to Boucly et al. (2011) the data can be manipulated in manifold ways. First, a company can smoothen their revenue streams through exceptional items at the year-end. Second, through optimizing the depreciation schedule and the valuation of inventories a company can influence the perception of their financial status. Finally, some smaller companies might underreport sales in the years before a buyout to avoid corporate tax on income. Since this is an illegal practice, the underreporting is likely to stop in the years after the buyout. These problems are extremely difficult to address or to test, as increases or decreases in depreciation, inventory or sales are contingent on several unobserved influences. The second concern we are confronted with is that potential changes in the legislation of accounting standards might influence the reported data during our research period. To mitigate this problem, we have decided to focus on buyout deals from 2009 onwards. In 2009 the "modernization of the accounting law act" was almost fully implemented. The so-called "Bilanzrechtsmodernisierungsgesetz" (BilMoG) lead to some substantial changes in the accounting standards of SMEs to increase the informative value of the annual reports (Bundesanzeiger Verlag, 2010). With the implementation of this law more firms were subject to disclosure requirements, thereby facilitating easier access to financial data. Lastly, as we had to gather most of our data manually it is likely that we are constraint by some human errors. To address this problem, we have made sure to validate our data with extensive crosschecks.

Final Sample of Buyouts

Having checked for data availability, validating quality in both databases, and performing necessary adjustments the final sample consists of 102 companies. In light of potential criticism regarding the application of two databases for the collection of financial data, we ensure that where applicable only one database is used. However, if this is not possible, we control whether the gathered data aligns with the two sources. To ensure transparency and quality in the data set, data

that was retrieved from "Orbis" is crosschecked with data that is provided in "Bundesanzeiger". In case of doubts, we used data provided in "Bundesanzeiger".

Summary of Problem Mitigation Measures

Potential Problem	Mitigation measure	Conclusion
Usability of accounting data:		
• Potential manipulation of balance sheet or income statement items	• No mitigation measure possible	• Raised awareness that accounting data might not fully represent the real operational results
• Changes in accounting standards during research period	• Choosing deals from 2009 onwards	
• Manual gathering process – human errors	• Multiple validation of data	
Availability of accounting data:		
• Dropped deals due to data availability issues	• Retrieving data from two different databases	• Potentially skewed data sample
• Categorical omission of small companies	• No mitigation measure possible	• Final data sample suggests to be representative
• No independent legal entity before buyout	• No mitigation measure possible	
• Change of name or legal entity after buyout	• If possible, gathering and merging data of both entities	
• Amalgamation of various companies at buyout	• Exclusion of post-buyout merged companies	
Consolidated vs. unconsolidated accounting data		
• Group structure potentially leads to subsidiaries that report their results independently	• Selection of the entity that reflects the most operational activity – manual process	• Selected legal entity might not represent true operational activity of the firm
• Consolidated balance sheet vs. unconsolidated income statement	• Exclusion of shares in affiliated companies from the asset base to match Income statement and Balance sheet	• Better reflects the true capital efficiency of the selected legal entity
Purchase price allocation at buyout		
• Recognition of goodwill, asset write-ups and asset write-downs	• Examination of data for abnormal inflation of assets and manual adjustments of goodwill	• The effect of mechanical increases of the balance sheet is controlled for, yet not all mechanical changes might be taken into account

Table 5: Summary of problem mitigation measures

5.3. Operational Variables

As previously discussed, the scope of this paper is to investigate the impact of buyouts on the operating performance of portfolio companies of private equity funds. To test this effect, we employ operating variables that reflect the ability of private equity firms to improve margins, enable growth and to ameliorate capital efficiency of the target firm. Margin improvements and

growth will lead to absolute increases in profitability (EBITDA), whereas ameliorated capital efficiency frees up cash tied up in the company's operations and fixed asset.

5.3.1. Margin Expansion Measures

Margin expansion defines the expansion of the income statement profitability of a firm. It is a measure that reflects how much profit remains in relation to certain costs that appear on the income statement, such as variable costs, fixed costs, interest expenses, and taxes. Income statement profitability may be defined differently based on the point of view a stakeholder is interested in. A manager within the company might for example, emphasize another profitability measure than an outside investor. While shareholders are potentially more interested in the profit margin, a manager might consider a more comprehensive point of view, e.g., also be interested in the EBITDA[1] margin. The investor might be more interested in the profit margin, since profits are the money that is left over for shareholders after all costs (including taxes and interest expenses) have been paid. On the opposite, EBITDA and EBIT reflect earnings generated before either equity or debtholders have been remunerated. Hagel, Brown, & Davison, (2010) have performed a study on which profitability measures were used most commonly within the relevant research field and found that EBIT, EBITDA, operating cash flows, net income, and market values were the predominant measures. They concluded that a reasonable profitability measure has to be persistent regarding the sustainability over time, predictable with regards to the ability to forecast it and smooth, i.e., not too volatile.

We opt for the EBITDA margin in our study since this measure is superior to other measures for the following reasons. First, EBITDA margin better reflects firm-level performance as this measure takes the earnings available for distribution to equity and debt capital providers into account (Damodaran & School, 2007). Hence, the EBITDA margin allows comparison among the firms in our data sample regardless of their capital structure, i.e. varying interest expenses. Second, EBITDA is less prone to accounting practices of the firm. Depreciation costs are sensitive to accounting practices, which most likely differ among the firms in our sample. Moreover, a buyout is accompanied by a revaluation of the assets, leading to likely changes in depreciation schedules. Therefore, to ascertain comparability among the firms and to mitigate negative effects

[1] EBITDA = Earnings before interests Taxes Depreciation & Amortization

from accounting practise we employ the EBITDA margin. However, it is crucial to be aware that the EBITDA margin might be manipulated by divesting less profitable divisions or units, leading to mechanical increases of the measures that are not associated with real changes or improvements in the target company's operations. One might also criticise that EBITDA overstates the true profitability of firms in asset intensive industries by excluding depreciation. Enhancing the EBITDA margin, all else equal, leads to higher profitability in absolute terms (EBITDA).

5.3.2. Growth Measures

In the following section, we define and explain our growth measurers, namely change in fixed assets, capital expenditures (CAPEX), sales growth, and employment growth.

CAPEX and Changes in Fixed Assets

Private equity entities may enable growth by investing in machinery, equipment, software, etc. Yet, these investments may not result immediately in profit or sales growth, but still capture the potential objective of the private equity firm to enable growth in its portfolio companies. With CAPEX, we seek to capture the investment intensity of the firm following the buyout (for a definition see Figure 8). Fixed assets is used as a proxy for firm size, which is captured by its respective change over the years. We define fixed assets, as intangible plus tangible assets; excluding shares in affiliated companies, as extensively discussed above (see Figure 8).

Sales and Employment Growth

To capture the entrepreneurial activity of the target firm we analyse sales and employment growth for the respective companies (see Figure 8). Sales and employment growth are common indicators of entrepreneurial activity and growth (Delmar, Davidsson, & Gartner, 2003). Sales growth may be the result of investments in assets and employment, and is therefore correlated to the other selected measures. Sales growth, else equal, leads to higher profitability in absolute terms (EBITDA), thus creates value for the target firm. Considering employment growth enables us to capture how firms grow (Meuleman et al., 2009). If no efficiency improvements are observed in terms of labour resources, sales growth leads most likely to a contemporaneous growth in employees. However, a firm might also grow by generating more sales or profits per employee,

implying no growth in the number of employees. In addition, employment growth is as an indicator of size and thus used as a proxy for company size

As a final remark, all growth measures may not only grow organically but also due to inorganic add-on acquisitions (Delmar et al., 2003). In this study, even though interesting, we do not differentiate between organic and inorganic growth, as the sources of growth are not in the scope of this paper.

5.3.3. Capital Efficiency

To assess improvements in the capital efficiency of the target firm we follow a top down approach, in which we first measure the return on operating assets (ROOA). Subsequently, we look at working capital turnover and fixed asset turnover of the target company. The last two metrics measure how much sales is generated from capital being tied up in short term and long-term investments.

Return on Operating Assets

We define ROOA as EBITDA divided by operating assets (see Figure 8). Operating assets is defined as fixed assets plus working capital. We adjust fixed assets for shares in affiliated companies, as extensively discussed above. When calculating working capital we follow the definition of "Bureau van Dijk" ("Orbis," 2018). In "Orbis" working capital is defined as trade accounts receivables ("Forderungen aus Lieferungen und Leistungen") plus stock ("Vorräte") minus creditors ("Verbindlichkeiten aus Lieferungen und Leistungen").

This definition excludes cash as businesses hold cash for reasons not always attributable to operational purposes. Besides operational purposes, companies hold cash for precautionary motives, strategic cash holdings and management interests (Damodaran, 2005). Additionally, the risk and return profile from cash is distinct compared to operating assets, such as tangible or intangible assets and should therefore no be included (Damodaran & School, 2007).
Our approach is similar to Boucly et al. (2011) who consider fixed assets plus working capital as operating assets.

A limitation of the capital efficiency measure ROOA is that it is associated with some inconsistencies when compared across companies, since EBITDA disregards depreciation, whereas operating assets include it (Damodaran & School, 2007). To clarify this issue, the effects of

depreciation on the balance sheet and the income statement need to be elaborated. On the one hand, accumulated depreciation diminishes the value of operating assets on the balance sheet as it is subtracted from the assets. On the other hand, depreciation is added back to the income measure when using EBITDA. The result is that the balance sheet items take account of depreciation costs, whereas EBITDA does not. The result is an overstated return, and this effect amplifies the higher the proportion of depreciation is in the EBITDA equation (Damodaran & School, 2007).

Working Capital Efficiency

To measure operational efficiency as a secondary lever of capital efficiency, we employ the working capital turnover ratio (see Figure 8). We define the working capital turnover ratio as sales divided by working capital. Working capital is a suitable measure for operational efficiency since wealth creation in private equity buyouts is partly facilitated through more efficient inventory systems and faster payments by customers, which together reduces the capital tied up in operational activities and enables channelling the firm's cash to more productive opportunities (Chung, 2011). Sales are divided by net working capital to remove increases in working capital resulting from

Operating Variables defined

Driver	*First Lever*	Second Lever	
Growth	$Sales\ Growth = \frac{Revenue_{i,t}}{Revenue_{i,t-1}}$	$Employment\ Growth = \frac{Employees_{i,t}}{Employees_{i,t-1}}$	**Profit improvements**
Margin expansion	$EBITDA\ margin_{i,t} = \frac{EBITDA_{i,t}}{Revenue_{i,t}}$	$CAPEX = \frac{FA_{i,t} - FA_{i,t-1} + Depreciation_{i,t}}{Employees_{i,t-1}}$ $Asset\ Growth = \frac{Operating\ Assets_{i,t}}{Operating\ Assets_{i,t-1}}$	
Capital Efficiency	$ROOA_{i,t} = \frac{EBITDA_{i,t}}{Fixed\ Assets_{i,t}^{1} + Working\ Capital_{i,t}^{2}}$	$WC\ Turnover_{i,t} = \frac{Sales_{i,t}}{Working\ Capital_{i,t}^{2}}$ $FA\ Turnover_{i,t} = \frac{Sales_{i,t}}{Fixed\ Assets_{i,t}^{1}}$	**Free-up cash**

1: excludes shares in affiliated companies, asset write ups, asset write downs and recognition of goodwill at buyout

2; excludes receivables and payables to and from affiliated companies

Figure 8: Operating variables defined
Source: Own depiction

higher sales. A high turnover ratio implies optimizations in day-to-day operations, whereas the opposite implies impairments.

Fixed Asset Utilization Efficiency

We employ fixed asset utilization to complement the working capital turnover as secondary lever of capital efficiency. We define the fixed asset turnover ratio as sales divided by fixed assets. Fixed asset turnover is a measure of the firm's ability to efficiently utilize its fixed assets to generate sales. As above, we define fixed assets as tangible plus intangible assets cleaned for noise resulting from recognition of goodwill, as well as asset write-ups and downs (see Figure 8). The two measures complement each other since working capital allows us to draw inferences from the capital invested in current assets, fixed asset turnover on the opposite considers capital tied up in long-term assets (Petersen, Plenborg, & Kinserdal, 2017).

5.3.4. Measuring Financial Constraints

The correct way of establishing a measure for financial constraints is a widely discussed topic in the literature and various ways have been adopted so far (Eppinger & Neugebauer, 2017). Predominant measures are credit risk assessments developed by banks and measures that relate to financial statements of firms. A widely used measure incorporating balance sheet and income statement items in the existing literature has been developed by Rajan & Zingales (1998), which we also adopt for our paper. We use this measure to identify external financial dependence at the firm level.

Definition of the Measure

Financial dependency is calculated as follows. For each firm we calculate the difference between CAPEX and operating cash flow to the firm normalized by CAPEX, in the years following the buyout. We then take the median of the three years before the buyouts. A negative value entails that the firm is not able to cover its investments expenses with internally generated cash flow, and hence is externally financially dependent. If the value is positive, the firm is less restricted in pursuing investment opportunities and not externally dependent. The corresponding definitions of CAPEX and cash flow from operations (CFO) to the firm can be seen in Figure 9. A potential

concern is that the three years before the buyout are not sufficient to classify the firm as being financial dependent or not, since CAPEX investments typically do not follow a linear pattern.

The Relationship between Financial Dependence and Financial Constraints

In theory, we would expect firms that are dependent on external finance to be more financially constrained than firms that largely support their investments with internally generated cash flow due to prevalent agency issues between the lender and the borrower. If the internal cash flow is sufficient to cover all investment expenses firms can freely dispose of these resources and pursue investments they deem worthwhile (Manova, 2013; Rajan & Zingales, 1998). However, if firms are dependent on externals, such as banks, to realize investments, they need to overcome information asymmetries, since firms usually know more about the likelihood of the investment to succeed. Risk preferences between the lender and the borrower may deviate amplifying the issue of information asymmetries. Moreover, external credit supply shocks prompted by a financial crisis or tighter Basel II/III regulations impact external financially dependent firms the most and may lead to underinvestment scenarios (Manova, 2013).

5.4. Construction of Control Group:

The intention of constructing the control group is to enable the derivation of comprehensive inferences from the analysis of private equity buyouts. This objective necessitates to compare the

Measure of Financial Dependence

Measure	*Definition*
CFO to the firm	$CFO\ to\ the\ Firm\ = EBIT_{i,t} - Taxes_{i,t-1} + Depreciation_{i,t} - (WC_{i,t} - WC_{i,t-1})$
CAPEX	$CAPEX = FA_{i,t} - FA_{i,t-1} + Depreciation_{i,t}$
Financial Dependence	$Financial\ Dependence\ = \frac{CAPEX - CFO\ to\ the\ firm}{CAPEX}$

Figure 9: Measure of financial dependency
Source: Own depiction

targets of private equity buyouts to companies that did not go through a buyout, but are similar in their characteristics and are exposed to the same environmental factors. In this study, we follow a similar approach used in the existing literature (Alperovych et al., 2013; Boucly et al., 2011; Meuleman et al., 2009).

We identify the control group through a matching process, which takes into account size, profitability, and the industry as the decisive factors for the selection of control firms. We measure size in terms of employees, profitability as EBITDA margin, and the industry with the European NACE code. Hence, to qualify as a matching company a company has to meet the three following criteria:

- The *first* criterion requires the control firm to belong to the same two-digit NACE industry code. The limitation of using the two-digit industry code is its relatively broad scope. The criterion is a trade-off between the number of observations and the similarity of the control firms and private equity-backed companies.
- The *second* criterion is that the control firm's EBITDA margin has to be within in the 50 – 150% range of the PE-backed firm one year before the buyout.
- *Third*, the number of employees is within in the 50 – 150% range of the PE-backed firm one year before the buyout.

Using the EBITDA margin slightly deviates from the approach in previous literature, as most employ a measure containing assets, such as return on assets (Boucly et al., 2011). However, in light of the limitation of employing a measure containing assets we decide to use a measure that provides better comparability across firms.

The data for control firms is retrieved solely from "Orbis". In a first step we retrieve financial data filtered by industry, and in a subsequent step, we remove all companies whose global ultimate owner is a private equity firm. This rigorous selection criterion ensures that the control group does not contain any firms being subject to similar value creation mechanisms as private equity-owned firms. In the next step, we exclude all firms for which data is not available for the entire period needed.

The objective of the control group is to have at least three but not more than five control firms per PE-backed entity. In case the matching process results in more than four companies, we

filter for the closest four-digit industry NACE code. The overall goal of constructing the control group and its imposed criteria is to identify firms, which closely resembles the development the target company would have gone through if it had not been subject to a buyout by a private equity firm.

5.5. Final Data Sample

Our final data sample consists of 102 German companies that have experienced a private equity buyout between 2009 and 2013 conducted by 72 different PE funds. Table 6 depicts the descriptive summary of the deals by buyout type and their distribution over the respective years. In our sample, we do not have any public to private deals. They accounted for less than 1% of our original set of deals. The fact that in Germany public-to-private deals are accounting for an insignificant fraction of all PE buyouts highlights the importance of research in the area of pre-buyout ownership. When looking at private, secondary and divisional buyouts, we find that the distribution of the deal types coincides with what has been observed on the global and European market. Gilligan & Wright (2014) state that while traditionally the most significant source of deal numbers within Europe involved buyouts of private firms, secondary buyouts have recently taken over the top position. In

	2009	2010	2011	2012	2013	Total
Private (%)	0%	41%	57%	36%	37%	37%
Number of deals	*0*	*9*	*13*	*9*	*7*	*38*
Secondary (%)	62%	36%	17%	48%	42%	39%
Number of deals	*8*	*8*	*4*	*12*	*8*	*40*
Divisional	38%	23%	26%	16%	21%	24%
Number of deals	*5*	*5*	*6*	*4*	*4*	*24*
Total (%)	13%	22%	23%	25%	19%	100%
Number of deals	*13*	*22*	*23*	*25*	*19*	*102*

Table 6: Percentage distribution of buyouts over years and types

an older study, Strömberg (2008) has found the global distribution of deals to be dominated by private buyouts (52.2%), followed by divisional buyouts (26.1%) and secondary buyouts with the lowest fraction of the three (13.5%). However, as the market of Private Equity buyouts has evolved over the past ten years, there has been a shift towards a higher fraction of secondary buyouts (Bonini, 2015; Boucly, Sraer, & Thesmar, 2011; Degeorge et al., 2016; John Gilligan & Wright, 2014). In our sample, SBO deals constitute to 39% of the deals between 2009 – 2013. According

to Bonini (2015), this proportion is consistent with the global market, where SBOs represent above 30% of the deals between 2005 and 2015. Private (37%) and divisional buyouts (24%) are at a percentage level similar to what has been reported in the abovementioned studies. Based on the report from the Bundesverband Deutscher Kapitalbeteiligungsgesellschaften (2018), our sample covers approximately 20% of all private equity deals conducted in the relevant timeframe. However, due to the scarcity of research and available data on the subject of German-based buyouts, it is difficult to draw an inference whether the gathered sample is representative for the German market in terms of the buyout type distribution. Nevertheless, given the similar characteristics between the European and the German private equity market (see section *2.3. The Private Equity Market in Germany and Characteristics of German Firms*), we assume our sample to be representative regarding the pre-buyout ownership type.

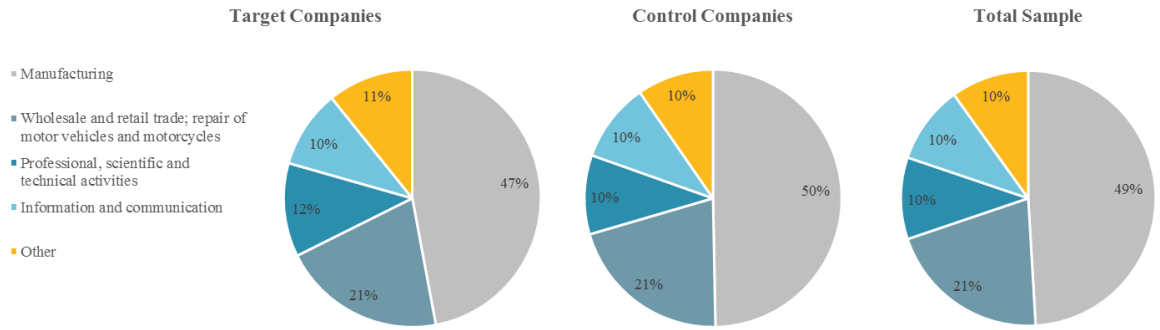


Figure 10: Industry distribution of target firms, control firms and the total sample

The matching methodology described earlier allowes us to identify 332 control firms for our sample, i.e., on average 3.25 comparable companies per target company with at least three comparable firms per target firm. Hence, our total sample consists of 434 companies, where we have gathered accounting data for seven years for each company. Following the two digit NACE industry code Figure 10 shows that around 50% of the firms in our sample is within Manufacturing, and the rest is distributed amongst Wholesale and Retail (10%), Professional, Scientific and Technical Activities (10%), Information and Communication (10%) and Other[2] (10%). It is evident that the sample of target firms, the control firms and consequently the total sample has the same

[2] Other consists out of 1) Administrative and support service activities (n=4), 2) Arts, entertainment and recreation (n=1), 3) Transportation and storage (n=2), 4) Financial and insurance activities (n=2), 5) Construction (n=1), 6) Electricity, gas, steam and air conditioning supply (n=1). The matching was executed on individual industry level as described here.

Variable	Median	Mean	S.D.	Q1	Q3	Number of Deals
Panel A: Targets						
Sales (m€)	40,6	90,3	116,1	22,0	88,0	102
Employment	197	566	1.486	111	396	102
Sales growth	6,6%	10,2%	22,2%	-1,9%	21,1%	102
Employment growth	2,0%	4,1%	14,4%	-1,9%	8,3%	102
Operating Assets growth	-1,0%	4,4%	36,7%	-10,4%	17,6%	102
EBITDA margin	7,8%	9,1%	13,3%	2,1%	16,7%	102
ROOA	20,8%	26,0%	50,4%	7,5%	43,6%	102
NWC turnover	7,6	11,5	10,7	5,1	12,6	102
Fixed Asset turnover	5,4	15,7	22,4	2,7	18,8	102
Panel A: Control Firms						
Sales (m€)	56,7	142,6	246,3	27,2	120,4	332
Employment	189	383	868	103	365	332
Sales growth	4,7%	5,9%	22,5%	-5,2%	16,7%	332
Employment growth	1,5%	3,0%	13,3%	-2,6%	7,3%	332
Operating Assets growth	2,5%	5,5%	32,7%	-9,7%	14,9%	332
EBITDA margin	6,6%	7,5%	9,9%	2,7%	11,5%	332
ROOA	19,6%	27,2%	40,1%	9,7%	39,3%	332
NWC turnover	6,7	11,8	12,3	4,2	12,9	332
Fixed Asset turnover	7,8	20,7	27,3	3,8	23,4	332

Table 7: Pre-buyout descriptive statistics for target and control group

distribution. Marginal differences arise since some industries have a higher average of comparable companies than others, i.e., "Manufacturing" averages 3.4 control firms per target, whereas "Professional, scientific and technical activities" only averages 3.0 control firms per target company. The fact that one line of industry accounts for 50% of the gathered data is not a big concern for us, as we firstly do not intend to compartmentalize the different industries into cohorts for our analysis and secondly have matched our control firms based on the same industry. By construction, the target and control group are within similar ranges in the years before the buyout concerning many financial metrics, as seen in Table 7. The relative median differences between the two groups are within a range of [-3.5%, 4.0%] for all measures, except for sales and fixed asset turnover. The median differences of the fixed asset turnover ratio can be explained by the high standard deviation in both groups, as the capital structure of different companies can vary considerably. For example, the host of the Leipziger Trade Fair is inherent to its business very heavily invested in fixed assets, while not having many current assets, whereas a distributor of clothing is more heavily invested in to current assets (stock) and less in fixed assets. The significant delta in median sales is of less concern for us, as we can see only a small deviation within the profitability, i.e., median EBITDA margin. Even though we did not match our control sample based

on all of the variables in Table 7, it is quite comforting that the trends of the target and control group seem to be quite similar before the transaction.

5.6. Methodology and Empirical Estimations

In the following, we present the approaches and methodology to test our hypotheses. Our methodology follows the approach of Boucly et al. (2011) since the sample design is similar and the adaption of their methodology is therefore appropriate. Figure 11 gives a conceptual overview of our sample, consisting of accounting data for seven years per observation, where we have data on three years preceding the buyout, the buyout year and three years following the buyout.

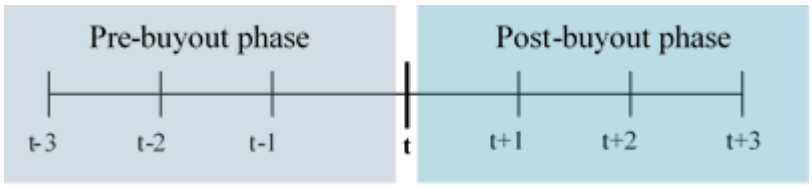


Figure 11: Conceptual overview of our sample

5.6.1. Mean adjusted Change of an Operating Performance Variable

To complement our empirical estimations, we visually describe the impact of PE buyouts on the target firms in our total sample when comparing it to their target firms. To do so we follow the approach introduced by Kaplan (1989) and later adopted by Boucly et al. (2011) who have applied a method to depict the mean-adjusted increase in the respective variable around the time of the buyout. For each target company we first compute the difference between t-3 and t[3]. In a next step, we compute the mean for its respective control firms in each year and similarly calculate the difference between t-3 and each other year. We then take the difference between the change of the variable in the target company and the mean change of the variable of the control firms. This measure depicts an excess change of target firms in the respective variable compared to their control firms. By depicting this adjusted change of the respective variable we try to isolate if and when a PE buyout has an extraordinary effect on the target company compared to their control firms.

[3] Let t denote the number of years since the buyout.

5.6.2. Difference-in-Differences Estimation

To formalize our statistical tests on the post-buyout operational impact of PE ownership we use a difference-in-differences (DD) estimation performing the following regression on our dependent variables of interest:

$$(1) \qquad Y_{jt} = \propto_j + \partial_t + Post_{jt} + Post_{jt}PE_j + ln(Index_{jt}) + \varepsilon_{jt} \,,$$

where j is a firm index, t a year index and Y_{jt} is the respective performance variable. $Post_{jt}$ is a dummy set to equal 1 the post-buyout phase, and 0 in the pre-buyout phase for both, the treatment group and the control group. PE_j is a dummy variable that equals 1 if company j is subject to a PE buyout and 0 if it is a control firm. $Post_{jt}PE_j$ is a variable set to equal 0 in the pre-buyout phase, and to equal 1 after the pre-buyout phase for the treatment group and set to equal 0 for all control groups. Hence, $Post_{jt}PE_j$ reflects the DD estimator of interest. $Ln(Index_{jt})$ is the natural logarithm of an index that comprises the total industry revenue development for each respective company in the respective period. The industry is matched with the company based on the two-digit NACE code and the data for the industry revenue is retrieved from the official statistical office of the EU (Eurostat, 2018). Following Boucly et al. (2011) we include firm (α_j) and time (δ_t) fixed effects and robust standard errors, clustered at firm level in all regressions. The robust standard errors clustered at a firm level account for heteroscedasticity as well as for autocorrelation (Hoechle, 2007).

We choose a DD model for our empirical analysis, as we perceive it as the most appropriate approach in an attempt to draw inferences from a PE treatment on target groups concerning their operational value creation potential. Since the introduction of the model by Ashenfelter & Card (1984) the principle of a DD estimation has become a popular and wide-spread way to estimate causal relationships (Bertrand, Duflo, & Mullainathan, 2004). The principle of DD requires observed outcomes for two groups over two periods that are separated by a specific intervention or treatment. One of the group, i.e. the treatment group is affected by the intervention in the second period but not in the first, while the other group, i.e. control group, is not affected in either period. To identify the effect of the treatment on the variable in question, the difference between the average gain/loss of the treatment group compared to the average gain/loss is calculated in each time period (Bertrand et al., 2004). In the case of our sample, we define the PE-

buyout as an intervention for the treatment group, i.e. the target companies, and hence the DD estimator as follows:

$$DD\ estimator = (Y_{PE}Post - Y_{PE}Pre) - (Y_{Control}Post - Y_{Control}Pre) \quad (2)$$

Figure 12 depicts the *DD estimator* in a conceptual identification and explains the principle of a DD model intuitively. The advantage of using a DD estimation stems from its simplicity to understand the model and its potential to mitigate many endogeneity problems that normally arise

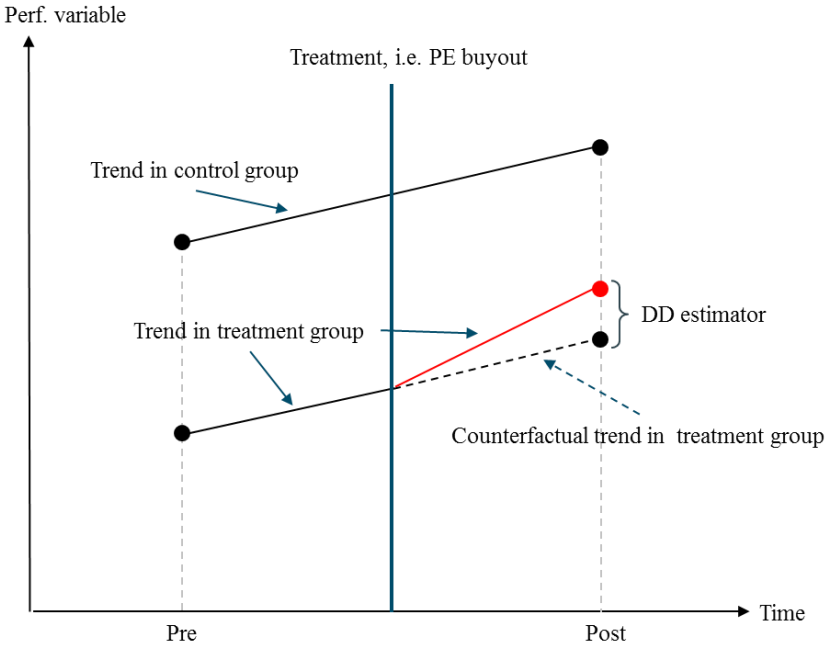


Figure 12: Conceptual depiction of the differences-in-differences model

if heterogeneous individuals are compared (Bertrand et al., 2004). It removes biases that might result from permanent differences between the groups when comparing the treatment group and the control group in the second period. It also removes potential biases that are resulting from trends over time (Imbens & Wooldridge, 2007). Another advantage is the intuitive interpretation of its results and if the assumptions of the model hold its ability to obtain causal effects.

Key Assumptions of the Difference-in-Differences Model

In order to obtain causal effects from observational data the following assumptions need to hold true:

- ***Parallel trend assumption:*** One of the key assumptions of a difference-in-differences estimator is the so-called parallel paths assumption. The parallel path assumes that the treatment group would follow the same trend as the control group if it was not treated (Mora & Reggio, 2012). This assumption is depicted in Figure 12 as the "counterfactual trend in the treatment group". While the counterfactual level can be different, the time-variation, i.e. the trend should be similar. As there is no statistical estimation to test this assumption, we follow Boucly et al. (2011) by comparing the pre-buyout trends of the two groups in the final data sample description (see Table 7 on page 66). The results show a similar trend in the pre-buyout phase between the treatment and the control group.

- ***Intervention unrelated to Baseline:*** A difference-in-differences estimation is appropriate in cases where the intervention is randomly chosen, conditional on time and firm fixed effects (Bertrand et al., 2004). In the case of a PE buyout however, we can safely assume that this intervention is not random. A PE fund undergoes an extensive screening and due diligence process before deciding upon a buyout, rather than randomly choosing a company out of a pool of available firms. It is therefore highly likely that our sample suffers from an endogeneity bias, which will potentially skew our DD estimator. This bias is inherent to the nature of a study on the impact of a PE company on the operating performance of a target company and can only be partly addressed. Boucly et al. (2011) suggest using a robustness check, which we will shortly introduce in the next paragraph.

5.6.3. Robustness Check

To control whether a PE fund simply chose targets that have been growing already in the pre-buyout phase, we are introducing an interaction term $post_{jt}\, GR_{j.}$ We run the regression for each dependent variable with the following alteration and control for differences in the results:

$$Y_{jt} = \propto_j + \partial_t + post_{jt} + post_{jt} PE_j + post_{jt} GR_j + l\,n\big(Index_{jt}\big) + \varepsilon_{jt}\,, \tag{3}$$

where GR_j is the mean sales growth for each company in the three years of the pre-buyout and the interaction term $post_{jt}\, GR_j$ captures the fact that target companies may initially grow stronger than

their control groups in the years preceding the buyout (Boucly et al., 2011). The remaining independent variables carry on being the same as in formula (1).

5.6.4. Different Cohorts

As introduced in our hypothesis development we test different assumptions based on different cohorts, such as the pre-buyout ownership or the financial dependency of a target company. Figure 13 visually summarizes the different cohorts used for our regressions.

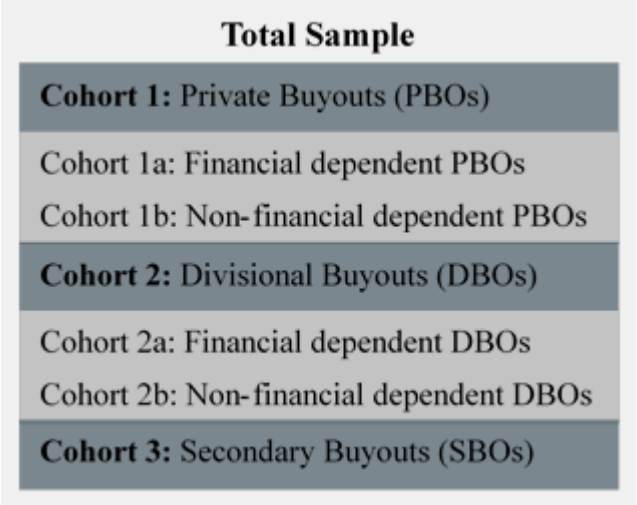


Figure 13: Depiction of cohort groups

6. Results and Discussion

In the following section, we report the regression results of our tests whether there is a statistically significant treatment effect of private equity buyouts on the operating performance of the target companies. Columns (2), (3), (4), and (5) of Table 8 show the regression results for the overall sample testing our hypotheses. The dependent variables are EBITDA, EBITDA margin, ROOA, WC turnover, FA turnover, and the logarithm of sales, fixed assets, and CAPEX. To complement and illustrate our regression results and findings for the overall sample we use the mean average changes for selected dependent variables. The mean average changes display the difference between the selected dependent variable and the median of the selected variable of the control firms in the same year. For each year we calculate the mean change compared to year t-3. The difference is the excess in the selected dependent variable compared to the control firms. After having discussed the findings of the total sample, we will report the results for the different pre-buyout

ownership types and their respective hypotheses. To finalize this section we provide a general discussion in order to set the individual results into a broader context.

6.1. Overall Sample: Hypothesis 1

In the beginning of this paper, we have put forward the argument that private equity firms emphasize on growth as a value creation driver in Germany (*H1a*). In Germany, growth is likely to be a crucial value creation mechanism due to various reasons. First, reduced gearing in buyouts has led to a greater focus on top line improvements in portfolio firms among private equity firms in Germany to compensate for the foregone return resulting from lower applied leverage. Second, growth appears to be of greater importance in SMEs, which dominate the buyout market in Germany in terms of number of deals. Third, the issue of low equity ratios in combination with the introduction of the Basel II regulations may constitute an environment in which SMEs face obstacles in receiving credits to finance investments and growth opportunities. We have argued that private equity firms are well equipped to alleviate the problems to access to finance, hence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed.Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
POSTPE	0.893	0.00183	0.173***	0.123***	0.148***	-0.0758	-0.00876	1.359**	0.112
	(0.673)	(0.00529)	(0.0223)	(0.0184)	(0.0475)	(0.102)	(0.0248)	(0.605)	(0.812)
DD	1.481**	0.0136**	0.0356	0.0510***	0.153***	0.318***	0.0356	0.144	-2.257**
	(0.596)	(0.00594)	(0.0241)	(0.0178)	(0.0508)	(0.0904)	(0.0315)	(0.572)	(0.980)
lnIndex	3.095	0.00849	0.324***	0.0943	0.172	1.491***	0.0955	-1.423	-0.325
	(2.176)	(0.0191)	(0.0832)	(0.0604)	(0.168)	(0.457)	(0.0862)	(1.904)	(2.907)
Constant	-35.04	-0.0375	13.40***	4.053***	13.28***	-6.442	-1.028	30.88	23.98
	(29.67)	(0.261)	(1.135)	(0.823)	(2.290)	(6.230)	(1.177)	(25.89)	(39.73)
Observations	2,604	2,604	2,604	2,604	2,604	2,050	2,604	2,604	2,604
R-squared	0.770	0.758	0.962	0.970	0.930	0.786	0.580	0.778	0.890
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Regression results for total sample
Sample of PE targets and their control firms for the period between 2006-2016 estimating the treatment impact (DD) of a PE on the operating performance of a target compared to their peers. All regressions include firm and year fixed effects and error terms clustered at firm level. Let t be the buyout year, then POST is a dummy, that equals 1 for the 3 years following a buyout (t-3 to t-1) and 0 for the three years before buyout (t+1 to t+3). DD is a dummy that equals 0 for the control firms in all periods, 0 for the target companies in the pre-buyout phase and 1 in the years after the buyout. EBITDAm is EBITDA scaled by Sales. ROOA is EBITDA scaled by operating assets. WC turnover is defined as Sales/Working Capital. FA turnover is defined as Sales/Fixed Assets. All other variables are self-explanatory (see text for details).

help portfolio firms to grow. Next, we have claimed that there is trade-off between enabling growth in target companies in terms of investments and capital efficiency (*H1b*). The underlying argument is that investments in assets do not simultaneously result in the same percentage increase in sales or profits causing capital efficiency to decrease. We argue for a lagged effect between the time of the investments and the realization of sales growth or profits. Lastly, we expect to see margin expansions in target firms in the post-buyout ownership period, since this type of value creation mechanism has been widely recognized by previous research *(H1c)*. The following section will provide the evidence and a discussion of these hypotheses concerning margin, expansion, growth and capital efficiency.

6.1.1 Regression Results for the Overall Sample

Profit Enhancements and Margin Expansion

In column (1) in Table 8, we see that for the overall sample profitability in terms of absolute EBITDA is statistically significant larger in the post-buyout period for firms backed by a private equity entity. This result is not surprising since buyouts are expected to create value during the course of ownership. Nonetheless, this does not clarify whether improved profitability stems from a growth or a margin expansion strategy, or whether both levers work simultaneously.

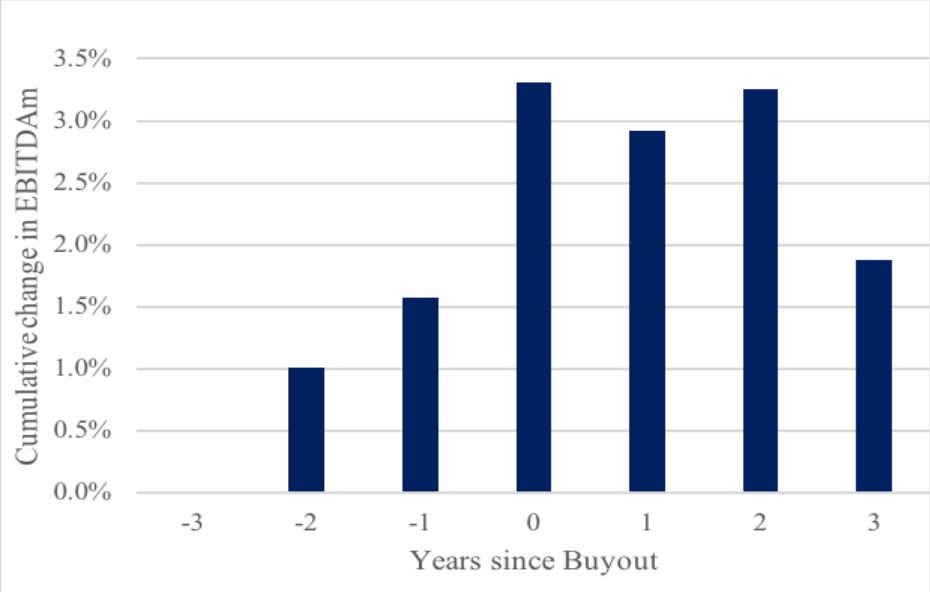


Figure 14: Mean adjusted increase of the profitability in the years of interest
We first compute the change in EBITDAm between t-3 and the respective t. For each target firm we then take the respective control firms and calculate the mean change between t-3 and t. We then take the difference between the EBITDA change of the target and the mean change of their control firms. The figure depicts the average adjusted change in EBITDAm for t= -2, -1 ,0, 1, 2, 3 across all targets in our sample.

When looking at the EBITDA margin in column (2) we can see that private equity owned firms are statistically significant better at generating profits for a given level of sales compared to peers in the post-buyout period. The mean changes in Figure 14 illustrate this effect, where the average deal improves its operating profitability around 3% in the years after the buyout. The evident margin improvements at the time of the buyout suggests that there is an effect at the time of the buyout. Therefore, a primary finding is that PE firms create value by margin expansion mechanisms compared to peers, thus the results support our hypothesis *(1c)*.

Growth

As an illustration of whether target companies grow after a buyout, we graphically depict the timing of job creation, increases in fixed assets, as well as sales in Figure 15. The computation follows the same principle as in Figure 14, and depicts the average of "excess growth" in employment, fixed assets, and sales when comparing it to the control groups. We find strong indications that employment and fixed assets are growing substantially in the years after the buyout, whereas there seems to be no clear effect on sales growth.

To complement and confirm this graphical evidence we examine the results of our regression analysis. When we look at Table 8 in column (3) – (6) displaying the growth measures; sales growth (3), firm size (employment (4) and fixed assets (5)), and CAPEX (6) we need to take a more nuanced view. We find that CAPEX of target companies increases by 31.8% more than their control firms, which leads to a growth of 15.3 % in fixed assets, and 5.1 % in employment compared to peers. The results suggest that PE entities enable companies to grow following a

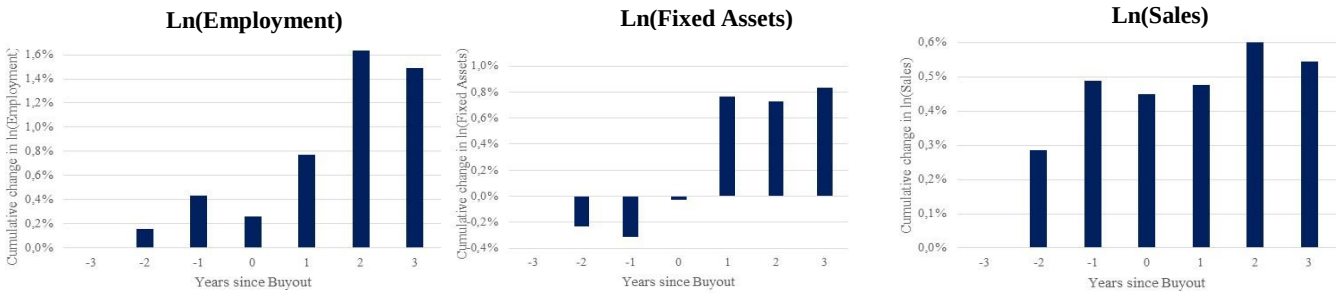


Figure 15: Mean adjusted increase of growth measures in the years of interest
We first compute the change in the respective variable between t-3 and the respective t. For each target firm, we then take the respective control firms and calculate the mean change between t-3 and t. We then take the difference between the change of the target and the mean change of their control firms. The figure depicts the average adjusted change in the respective variable for t= -2, -1 ,0, 1, 2, 3 across all targets in our sample.

buyout in terms of assets and employees. However, the non- significant increase in sales growth (column (3)) implies that the companies had not yet been able to exploit growth opportunities. The results largely support our *hypothesis 1a* that private equity firms in Germany facilitate growth in their portfolio companies.

Capital Efficiency

In column (7) to (9) of Table 8 we look at measures for capital efficiency, namely ROOA, NWC turnover, and FA turnover. As expected in *hypothesis 1b* we do not see any improvements in relation to peers in ROOA in PE-owned companies. As previously discussed, ROOA is driven by EBITDA in the nominator and operating assets (FA + Working Capital) in the denominator. The increase in absolute EBITDA, theoretically improving ROOA, seems to be offset by investments in operating assets. This is amplified by a deterioration of the fixed asset turnover implying that the investments in assets had not yet resulted in higher sales for the PE-owned firms. Furthermore, PE-owned firm were not able to improve their net working capital turnover statistically significant.

6.1.2. Discussion on Results of the Overall Sample

Overall, the results indicate that private equity entities employ both growth and margin expansion levers in German buyouts. Improved EBITDA margin in the post-buyout period, relative to peers, point towards better cost management in PE-backed firms. Our finding is in line with most previous research that has found evidence for a positive margin development in the post-buyout phase.
Moreover, investments into assets and employees demonstrate that private equity also follow a growth strategy in German buyouts. However, these investments are not accompanied by statistically significant higher growth rates in sales. This finding implicates that it might take time for investments to result in higher sales levels. When considering a longer period we might be able to see statistically significant increased sales because of investments into assets and labor forces. Another explanation might be that investments are necessary to maintain current sales levels in case the former owner did no pursue important investments in assets and staff, rendering it necessary for the PE entity to catch up with crucial investment in the post buyout period.

Even if the results mainly support our first three hypotheses, they reveal some interesting and potentially contradictory findings. It is surprising that in the absence from statistically significant higher sales growth rates and in presence of statistically significant employment growth

PE backed firms have a better EBITDA margin compared to peers. All else equal, non-significant sales growth in combination with statistically significantly higher employment would theoretically lead to a lower EBITDA margin, since wage costs would increase. Yet, it seems that there is not a strong corerlation between employment increases and costs, compared to peers. This may indicate that in case of non-significant sales growth employing more labor forces does not affect the EBITDA margin, pointing again towards better cost management in terms of wages, material cost, and other operating expenses in PE-backed firms. Additionally, this effect might be partly mitigated, since the sales of PE-owned firms do grow, but just not statistically significant from their peers. The analysis indicates that a more granular view of the income statement items are indispensable in order to be able to draw explicit conclusions from the findings.

As mentioned initially the results demonstrate the private equity firms appear to improve margins and enable growth in their portfolio firms. Our results support the argumentation of recent reports that private equity firms emphasize on top line as well as bottom line improvements (Brigl, Nowotnik, Pelisari, Rose, & Zwillenberg, 2012; Roberts, 2014). The findings also entail that private equity firms may not have one specific way of improving their portfolio companies but employ various mechanisms. For the overall sample we find similar results as Boucly, Sraer, & Thesmar (2011), namely increases in margin and growth. These findings are in sharp contrast to most of the existing research that focus on UK and US buyouts. Research on US and UK buyouts state that PE firms rather emphasize on downsizing and efficiency enhancement mechanisms (Alperovych, Amess, & Wright, 2013). The differences of the findings between buyouts that have occurred in the US as well as in the UK to buyouts in Europe raises the question whether distinct legal systems have an impact on operational value creation in private equity buyouts. For instance, common law (UK and US) is usually regarded as being more investor friendly, whereas the opposite is true for civil law (Germany, France). Stronger labour protection in Germany compared to Anglo-Saxon countries are another factor that might influence the mechanisms deployed by PE companies (Haves et al., 2015).

Overall, the findings are a rebuttal to the point of view that private equity firms strip companies of their assets and correspondingly destroy value for their own enrichment. However, we would like to mention that in this initial analysis and discussion we have not tested for the

selection bias that buyouts are prone to, meaning that private equity companies tend to select firms that already growe. We discuss this issue in the following section.

6.1.3. Robustness Check

The magnitude of the treatment effect especially when looking at CAPEX and fixed assets raises reservations regarding the validity of this treatment effect. One concern of our research paper is the potential endogeneity bias that is inherent in the analysis of PE buyouts as a treatment effect. One could argue that PE firms are already select companies that grow faster than their peers in the period before the buyout. As discussed previously, we do have valid reasons to assume that the PE decision may be dependent on some unobserved factors, hence correlated with the error term. As

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
POST	0.650	0.00173	0.127***	0.0893***	0.105**	-0.0387	-0.00950	1.456**	0.152
	(0.713)	(0.00517)	(0.0206)	(0.0180)	(0.0467)	(0.105)	(0.0247)	(0.600)	(0.848)
DD	1.315**	0.0136**	0.00396	0.0278	0.123**	0.335***	0.0350	0.210	-2.230**
	(0.588)	(0.00603)	(0.0233)	(0.0171)	(0.0519)	(0.0924)	(0.0315)	(0.564)	(0.988)
POSTGR	3.660**	0.00145	0.698***	0.512***	0.656***	-0.389	0.0111	-1.459	-0.597
	(1.784)	(0.0180)	(0.0808)	(0.0559)	(0.164)	(0.312)	(0.0836)	(1.895)	(2.730)
lnIndex	3.119	0.00850	0.329***	0.0976*	0.176	1.435***	0.0956	-1.433	-0.329
	(2.168)	(0.0191)	(0.0797)	(0.0584)	(0.168)	(0.458)	(0.0862)	(1.903)	(2.910)
Constant	-35.37	-0.0376	13.33***	4.007***	13.22***	-5.684	-1.029	31.01	24.03
	(29.56)	(0.260)	(1.087)	(0.795)	(2.285)	(6.242)	(1.177)	(25.88)	(39.76)
Observations	2,604	2,604	2,604	2,604	2,604	2,050	2,604	2,604	2,604
R-squared	0.771	0.758	0.965	0.972	0.931	0.786	0.580	0.778	0.890
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Regression results for the overall sample incl. interaction term for pre-buyout growth
Sample of PE targets and their control firms for the period between 2006-2016 estimating the treatment impact (DD) of a PE on the operating performance of a target compared to their peers. All regressions include firm and year fixed effects and error terms clustered at firm level. Let t be the buyout year, then POST is a dummy, that equals 1 for the 3 years following a buyout (t-3 to t-1) and 0 for the three years before buyout (t+1 to t+3). DD is a dummy that equals 0 for the control firms in all periods, 0 for the target companies in the pre-buyout phase and 1 in the years after the buyout. POSTGR is an interaction term between pre-buyout sales growth and the POST dummy. EBITDAm is EBITDA scaled by Sales. ROOA is EBITDA scaled by operating assets. WC turnover is defined as Sales/Working Capital. FA turnover is defined as Sales/Fixed Assets. All other variables are self-explanatory (see text for details).

introduced in the methodology and similar to Boucly et al. (2011) we address this objection by introducing an interaction term that is designed to control for pre-buyout growth. With the additional explanatory variable $post_{jt}$ GR_j we test whether the target companies grow faster than their control firms in the phase preceding the buyout. Table 9 presents the results of the regressions run for each dependent variable. When looking at the growth and firm size measures in column (3) – (6) we can confirm that pre-buyout sales growth is a strong predictor of post-buyout growth. Nevertheless, except for employment growth it does not affect the initial estimates. In large part this result confirms what has been described in the descriptive statistics in Table 7 on page 66, namely that our target firms and control firms follow a similar growth trend. However, we have to acknowledge that the employment growth seems to be affected strongly by the interaction term. This means we need to be wary of this potential influence on employment growth. A comforting result is achieved when conducting this robustness checks in the cohorts of pre-buyout ownership (see Appendix A for all results). The results indicate that when our sample is differentiated into the three cohorts of interest, the $post_{jt}$ GR_j remains a strong indicator but does not change the significance of any of the estimates.

6.2. Private Buyouts: Hypothesis 2

After having analysed the effect of PE entities on target companies for our overall sample, it is crucial to take a more nuanced view upon different types of buyouts. In this section we provide the results of our analysis concerning private buyouts. Based upon previous research regarding characteristics of privately held companies and the impact of PE ownership on their operational behavior changes as well as the idiosyncratic economic situations of German SMEs, we have developed an expectation that private buyouts are especially prone to grow after a PE buyout. We have argued that privately held SMEs are subject to growth constraints, elicited by restrained access to external capital, managerial shortcomings, as well as some potentially adverse attitudes toward risk and time. Furthermore, the socio-economic wealth of an owner manager might not solely be defined by economically profitable decisions, but also through affective needs (Ahlers, Hack, & Kellermanns, 2014). We have hypothesized that the main value creation driver in PBOs is the ability of a PE company to foster growth by resolving growth constraints (*H2a*). We have furthermore put forward the notion of growth being especially prevalent in firms having faced

financial constraints in the pre-buyout period (*H2b*). In the following, we present the results and discuss its implications in relation to the current view upon PBOs.

6.2.1. Regression Results for Private Buyouts: Hypothesis 2a

For our analysis we have identified a primary lever (i.e. sales) and three secondary levers (i.e. employment, fixed assets and CAPEX) as indicators of growth that ultimately lead to profit improvements. To test our hypothesis *H2a*, we have to look at the four abovementioned indicators that are summarized in Table 10:

- ***Sales (column (3)):*** We find that in PBOs sales increase substantially more than their control firms. The primary lever of growth is improving by 14.2% relative to their peers in the period after the buyout and the result is statistically significant at the 1% confidence level. The magnitude of this effect again raises a concern of a selective bias, but controlling for pre-

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
POSTPE	1.318	0.00737	0.131***	0.103**	0.0357	-0.0574	-0.00158	0.712	3.575**
	(1.111)	(0.0109)	(0.0454)	(0.0407)	(0.104)	(0.213)	(0.0408)	(1.125)	(1.658)
DD	1.579	0.0156*	0.142***	0.120***	0.305***	0.156	0.0932**	-0.202	-5.869***
	(1.168)	(0.00947)	(0.0326)	(0.0299)	(0.0948)	(0.143)	(0.0457)	(0.995)	(1.746)
lnIndex	1.427	-0.00187	0.304*	0.0537	0.215	0.950	0.0292	-2.506	-9.164
	(3.451)	(0.0366)	(0.155)	(0.141)	(0.369)	(0.972)	(0.165)	(3.536)	(6.379)
Constant	-10.85	0.0904	13.90***	4.696**	12.86***	1.277	-0.169	44.78	144.2*
	(46.24)	(0.489)	(2.075)	(1.881)	(4.934)	(13.02)	(2.209)	(47.13)	(85.50)
Observations	978	978	978	978	978	766	978	978	978
R-squared	0.839	0.764	0.970	0.969	0.940	0.800	0.651	0.778	0.914
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Regression results for private buyouts
Sample of PE targets and their control firms for the period between 2006-2016 estimating the treatment impact (DD) of a PE on the operating performance of a target compared to their peers. All regressions include firm and year fixed effects and error terms clustered at firm level. Let t be the buyout year, then POST is a dummy, that equals 1 for the 3 years following a buyout (t-3 to t-1) and 0 for the three years before buyout (t+1 to t+3). DD is a dummy that equals 0 for the control firms in all periods, 0 for the target companies in the pre-buyout phase and 1 in the years after the buyout. EBITDAm is EBITDA scaled by Sales. ROOA is EBITDA scaled by operating assets. WC turnover is defined as Sales/Working Capital. FA turnover is defined as Sales/Fixed Assets. All other variables are self-explanatory (see text for details).

buyout sales growth, the results remain at the same significance level albeit with smaller coefficient (for details see Table 17 in Appendix A).

- ***Company Size Proxies: Employment & Fixed Assets (column (4) and (5)):*** Growth is also prevalent when considering the other two metrics for firm size, with statistically significant relative growth of 30.5% and 12.0% in fixed assets and respectively in employment.
- ***Capital Expenditures (column (6)):*** Interestingly, we do not see a statistically significant increase of CAPEX compared to their peers, which is rather counter-intuitive considering that we would expect that most of the increases in fixed assets are financed by capital expenditures.

To summarize, the results of all PBOs support the notion that PE ownership fosters growth within their target companies and hence we can confirm our hypothesis *H2a*.

Other Findings

We furthermore find that PE companies have a positive effect on the EBITDA margin (2) and target firms on average increase their margin with 1.56% more than their control group, and although not statistically significant, we can also find a positive trend regarding the absolute EBITDA (1) development. This finding suggests that PE firms are able to implement some immediate improvement actions, most likely leading to a relative reduction of the bottom line in a target company.

When looking at capital efficiency we find that associated with the increase of operating assets, the fixed assets base seems to increase proportionally higher than sales, leading to a reduction of the FA turnover (9) compared to peers. Interestingly, despite the significant increase of fixed assets, and the non-significant increase of absolute EBITDA we find that ROOA increases statistically significant compared to peers. These results raise some questions that will be addressed in the discussion below.

6.2.2. Discussion of Private Buyouts

Some of the results of our difference-in-differences estimations for private buyouts raise some questions with regards to its interpretation as they appear to be counter-intuitive at first sight. It seems that while fixed assets grow significantly compared to peers, CAPEX does not increase in

relative terms. This result questions how a target company increases its fixed assets if not through increased capital expenditures. Additionally, the absolute EBITDA development does not increase, while the relative improvement of sales is significant. This would bring forward the expectation that both EBITDA margin (= EBITDA/Sales) as well as ROOA (= EBITDA/Operating Assets) should not increase significantly, which is not what we can observe. These rather contradictory results highlight the difficulty to develop interaction inferences between various independent regressions when applying a difference-in-differences estimation. Furthermore, these findings emphasize that a more granular view of the income statement items might be necessary to draw more nuanced conclusions upon the measures a PE company is employing to strengthen the operating performance of a target company. Nevertheless, we can state that the results of our estimations strongly indicate that growth is a major value creation driver of PE entities in the German market. Our findings are in line with contemporary research on private buyouts stating that one of the main operational value creation drivers for PEs is to foster growth. Boucly, Sraer, & Thesmar (2011) and Scellato & Ughetto (2013) find that PBOs lead to growth in assets, employment, and sales. Our findings support the theories put forward by those authors, that a PE owner can achieve this growth by introducing a more risk neutral decision-making process, increasing managerial and financial expertise and providing better access to external financing, leading to an alleviation of growth constraints. We have hypothesized that the mitigation of financial constraints is a major driver to foster growth, especially in companies that are dependent on external financing to achieve their growth opportunities (*H2b*). In the next section, we will discuss the results of financial dependent companies that were subject to a private buyout.

6.2.3. Regression Results for Financial Dependent Private Buyouts: Hypothesis 2b

Table 11 depicts the results of the estimation on the treatment effect of a PE buyout on previously privately held companies. While Panel A presents the results for companies that were dependent on external financing to achieve growth investments, Panel B shows the result for target companies that were not financially dependent in the pre-buyout phase. When looking at the growth indicators of Panel A and Panel B we find the following:

- ***Sales (column (3)):*** For previously financially dependent companies (Panel A) sales increases with 17.0% in comparison to the control group. This finding is significant at the

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
Panel A: Financial dependent private buyouts									
POST	0.784	0.0181	0.170***	0.114**	0.0391	-0.206	-0.0116	0.170	5.389**
	(1.746)	(0.0167)	(0.0639)	(0.0561)	(0.149)	(0.314)	(0.0650)	(1.844)	(2.512)
DD	2.382	0.0569***	0.291***	0.270***	0.564***	0.0958	0.284***	0.198	-6.599*
	(1.793)	(0.0200)	(0.0510)	(0.0550)	(0.124)	(0.280)	(0.100)	(2.397)	(3.607)
lnIndex	3.729	-0.0271	0.144	-0.124	-0.0490	0.483	-0.145	-1.557	-7.999
	(6.191)	(0.0540)	(0.227)	(0.205)	(0.511)	(1.513)	(0.281)	(5.828)	(10.21)
Constant	-42.11	0.397	16.09***	7.076**	16.50**	7.816	2.087	32.79	127.6
	(83.33)	(0.723)	(3.052)	(2.755)	(6.850)	(20.31)	(3.790)	(77.85)	(137.4)
Observations	510	510	510	510	510	396	510	510	510
R-squared	0.808	0.740	0.966	0.959	0.939	0.825	0.522	0.731	0.893
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Panel B: Non-financial dependent private buyouts									
POST	1.696	-0.0105	0.0813	0.0955	0.0493	0.181	0.000399	1.560	0.842
	(1.348)	(0.0119)	(0.0627)	(0.0586)	(0.143)	(0.285)	(0.0443)	(1.168)	(2.158)
DD	1.424	0.00196	0.0686*	0.0233	0.127	0.103	-0.00623	-0.828	-4.146**
	(1.425)	(0.00949)	(0.0397)	(0.0342)	(0.125)	(0.184)	(0.0466)	(0.954)	(1.962)
lnIndex	-0.225	0.0466	0.515**	0.253	0.495	1.177	0.273	-4.057	-8.806
	(3.400)	(0.0447)	(0.212)	(0.194)	(0.538)	(1.221)	(0.170)	(3.857)	(8.180)
Constant	11.55	-0.520	11.05***	2.052	9.023	-2.036	-3.324	64.62	140.4
	(45.12)	(0.595)	(2.811)	(2.577)	(7.164)	(16.32)	(2.278)	(51.42)	(109.2)
Observations	468	468	468	468	468	370	468	468	468
R-squared	0.884	0.790	0.976	0.981	0.941	0.772	0.753	0.840	0.935
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11: Regression results for financial and non-financially dependent private buyouts
Sample of PE targets and their control firms for the period between 2006-2016 estimating the treatment impact (DD) of a PE on the operating performance of a target compared to their peers. All regressions include firm and year fixed effects and error terms clustered at firm level. Let t be the buyout year, then POST is a dummy, that equals 1 for the 3 years following a buyout (t-3 to t-1) and 0 for the three years before buyout (t+1 to t+3). DD is a dummy that equals 0 for the control firms in all periods, 0 for the target companies in the pre-buyout phase and 1 in the years after the buyout. EBITDAm is EBITDA scaled by Sales. ROOA is EBITDA scaled by operating assets. WC turnover is defined as Sales/Working Capital. FA turnover is defined as Sales/Fixed Assets. All other variables are self-explanatory (see text for details). Panel A represents the sample that was financialyl dependent preceding the buyout. Panel B depicts the results for non-financially dependent companies.

- 1% confidence level. In comparison, target firms that were not financially constraint (Panel B) in the period preceding the buyout do also have a higher relative increase of sales of 6.9%. However, the magnitude of the effect is not as big as in Panel A or the total PBO sample and is only significant at the 10% confidence level.
- ***Company Size Proxies: Employment & Fixed Assets (column (4) and (5)):*** For Panel A, the results for the secondary levers also clearly point towards a positive treatment effect of PE companies on the growth of their targets. Both employment (27.0%) and fixed assets (29.1%) increase at the 1% confidence level compared to their peers. On the other hand, the results of Panel B do not show any statistically significant treatment effect on the company size proxies. The difference between the size proxies show that financial dependency is a strong predictor of the value creation mechanisms a PE company will be deploying after a buyout. This will be further analyzed in the discussion below.
- ***Capital Expenditures (column (6)):*** Again, there seems to be no statistically significant increase of CAPEX in either of the Panels.

To conclude, when connecting these results with our *hypothesis H2b* we can clearly find evidence that growth is concentrated among the financially dependent companies and are therefore able to confirm this hypothesis.

Other Findings

There is again a clear distinction between Panel A and Panel B concerning margin expansion, i.e. EBITDA margin. In Panel A we can see a clear increase of the margin, whereas the buyout seems to have no effect on the margin development in Panel B. With regards to capital efficiency, the ROOA (= EBITDA/Operating Assets) increases in Panel A, whereas in Panel B it does not. Fixed asset turnover decreases significantly in both panels. This negative development of fixed asset turnover supports the view of a transitory trade-off between growth and capital efficiency.

6.2.4. Discussion of Financially Dependent and Non-Financially Dependent Private Buyouts

In the sample of financially dependent companies (Panel A), we can clearly see that sales growth increases for the treatment but also for the control group in the post-buyout period (i.e. $POST_{jt}$ estimator). This might imply that unobserved macro-economic factors facilitate sales growth in the

post-buyout period. Nevertheless, there is a clear indication that PE owned companies outperform their control groups with regards to growth. When comparing these results with the non- financially dependent sample (Panel B) we can argue that the alleviation of financial constraints is a major driver in operational value creation. PE entities may do this by providing financially dependent companies better access to external finance, thereby enabling them to pursue previously unexploited growth opportunities. However, the buyouts in Panel B also experience statistically significant sales growth. One interpretation of this growth in Panel B could be that PE entities deploy other measures to foster growth, for instance a different governance structure that leads to a higher sales effectiveness. This would support the view that the alleviation of financial constraints is not the only influencing factor for value creation, but that the managerial expertise and the different attitude towards risk and time also plays a role in the value creation mechanisms a PE entity deploys. However, the differences between the two panels regarding the secondary levers of growth show that there is a clear distinction between financially dependent and non-financially dependent companies when it comes to growth initiatives. This supports the notion that despite other influencing factors, the alleviation of financial constraints may be the primary driver of operational value creation. We argue that growth, as a value driver, is not likely in non- financially constraint companies (Panel B) as those firms are likely to pursue growth investments as soon as they arise with internally generated cash flow. Our findings are in line with what has been confirmed by Boucly et al. (2011) in a similar study conducted for France. Furthermore, Chung (2011) observed that growth in target companies is especially apparent in companies that have been subject to investment constraints and Croce & Martí, (2016) found that firms facing growth constraints are more likely to be targeted by PE investors. To summarize we can see a clear and distinct effect of growth in financially dependent PBOs relative to their control groups, whereas it seems that growth as a value creation driver has less weight in non- financially dependent companies. It seems that non- financially dependent PBOs are generally not subject to a stark operational value creation mechanism. This is an interesting finding as it contrasts the notion that all PBOs are subject to abnormal operational value creation. However, these results need to be interpreted with caution as they might also be attributable to the rather small sample sizes of our estimations that occur when we differentiate PBOs into financially and non- financially dependent cohorts. Nonetheless, we can state that financial dependency seems to be a strong predictor of

whether a target firm grows after the buyout or not and we accredit this to the ability of a PE to alleviate the arising investment constraints.

6.3. Divisional Buyouts: Hypothesis 3

Previously, we have argued that DBOs may occur when internal capital markets in larger organizations do not function properly and the control mechanisms may not fit the context of the division anymore and lead correspondingly to unexploited growth opportunities or the pursuance of inefficient activities. We postulated that growth is more likely in divisions that have faced financial dependency in the pre-buyout phase, as the malfunctioning of internal capital markets may lead to a misallocation of capital, thus unexploited growth opportunities *(H3a).* Furthermore, we have put forward the argument that divisions not having been dependent on external financing in the pre-buyout phase when financing their investments are more likely to improve their margins and capital efficiency in the post-buyout phase *(H3b).* Growth opportunities may be limited in these divisions as they are more likely to have put their cash flow to growth opportunities already in the pre-buyout phase. Therefore, we inferred that in non-financially dependent divisional buyouts private equity entities will focus on efficiency and margin expansion mechanisms, through alleviating agency costs, reducing overhead and stimulating the management to pursue worthwhile investments and cut-off inefficient ones. In this section, we will look at the overall statistical results of DBOs and study the impact of external financial dependence in the pre-buyout phase, e.g. financial constraints, on growth, margin expansion and capital efficiency in the post-buyout phase.

6.3.1. Regression Results for Divisional Buyouts: Hypothesis 3a

- ***Sales and Company Size Proxies (column (4), (5), and (6)):*** From Table 12 we see strong significant evidence that DBOs who have been financially constrained in the pre-buyout phase downsize when measured relative to their peers. Looking at indicators for firm size such as employment and fixed assets we see that they shrink by 9.4% and 21.8% respectively in the post buyout period compared to peers. The effect in sales is even stronger with reduced sales by 32.5%. However, interesting is the increase of CAPEX in the post-buyout period, which suggests that even though the former division seems to downsize it still pursues a higher level of investments than peers.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
Panel A: Financial dependent divisional buyouts									
POST	1.857	-0.00334	0.232**	0.231***	0.409***	-0.400	-0.0510	0.508	-5.106
	(4.034)	(0.0167)	(0.0910)	(0.0786)	(0.127)	(0.370)	(0.0946)	(2.298)	(3.183)
DD	1.681	0.0635***	-0.325***	-0.0938**	-0.218**	0.490*	0.106	-0.120	-0.895
	(2.264)	(0.0206)	(0.119)	(0.0452)	(0.105)	(0.292)	(0.0845)	(1.943)	(2.852)
lnIndex	5.150	-0.0219	-0.00561	-0.184	-0.411	2.839*	0.0392	9.600	12.92
	(14.38)	(0.0814)	(0.448)	(0.258)	(0.436)	(1.663)	(0.325)	(7.941)	(11.91)
Constant	-63.78	0.365	18.15***	7.882**	21.31***	-25.08	-0.274	-120.4	-158.3
	(197.8)	(1.128)	(6.207)	(3.542)	(5.993)	(22.96)	(4.478)	(109.1)	(163.6)
Observations	264	264	264	264	264	204	264	264	264
R-squared	0.638	0.603	0.931	0.980	0.955	0.708	0.450	0.709	0.803
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Panel B: Non-financial dependent divisional buyouts									
POST	-3.046	-0.00249	0.101**	0.0832**	0.131	-0.271	-0.00257	3.711***	-1.598
	(2.016)	(0.0171)	(0.0498)	(0.0380)	(0.0987)	(0.260)	(0.0615)	(1.255)	(1.781)
DD	1.992	-0.0206	0.0348	-0.0182	-0.223	0.0942	0.0360	2.758**	5.072**
	(1.462)	(0.0159)	(0.0444)	(0.0780)	(0.156)	(0.313)	(0.0858)	(1.275)	(1.964)
lnIndex	1.022	0.0280	0.967***	0.532***	0.469	2.755**	0.169	-10.44**	15.08**
	(7.749)	(0.0715)	(0.245)	(0.161)	(0.399)	(1.153)	(0.249)	(4.413)	(7.101)
Constant	-6.465	-0.302	4.151	-2.217	9.046	-24.73	-2.021	156.9**	-195.0*
	(108.2)	(0.993)	(3.410)	(2.234)	(5.583)	(15.99)	(3.484)	(61.20)	(99.15)
Observations	354	354	354	354	354	279	354	354	354
R-squared	0.552	0.549	0.961	0.955	0.871	0.767	0.424	0.850	0.894
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12: Regression results for financial and non-financially dependent divisional buyouts
Sample of PE targets and their control firms for the period between 2006-2016 estimating the treatment impact (DD) of a PE on the operating performance of a target compared to their peers. All regressions include firm and year fixed effects and error terms clustered at firm level. Let t be the buyout year, then POST is a dummy, that equals 1 for the 3 years following a buyout (t-3 to t-1) and 0 for the three years before buyout (t+1 to t+3). DD is a dummy that equals 0 for the control firms in all periods, 0 for the target companies in the pre-buyout phase and 1 in the years after the buyout. EBITDAm is EBITDA scaled by Sales. ROOA is EBITDA scaled by operating assets. WC turnover is defined as Sales/Working Capital. FA turnover is defined as Sales/Fixed Assets. All other variables are self-explanatory (see text for details).

- ***Capital Efficiency (column (7), (8), and (9)):*** Measurements for capital efficiency are all not statistically significant, which implies that downsizing is not accompanied by efficiency improvements in the utilization of assets. This may be due to the fact that sales decrease faster than the fixed assets measure, 32.5% vs. 21.8%.

The evidence outlined above opposes the argument that previously financially constrained DBOs will grow after their buyout. Therefore, we have to reject hypothesis *(3a)*. The statistically significant increase in EBITDA margin of 6.4% following the buyout compared to peers suggests that margin improvements in financially constrained DBOs are a value driver.

6.3.2. Regression Results Divisional Buyouts: Hypothesis 3b

- ***Capital Efficiency (column (7), (8), and (9)):*** When looking at DBOs not having faced financial constraints in the pre-buyout period, we can see in Table 12 that turnover efficiency statistically significantly increases relative to peers when measured in NWC turnover and FA turnover. However, the increases in the turnover measures do not result in a statistically significantly higher ROOA.
- ***Margin Expansion (column (2)):*** For the EBITDA margin, we see a negative but a non-statistically significant coefficient.

Hence, we can only partly confirm hypothesis *(H3b)*, since only measurements for asset turnover improve compared to peers, whereas we do not find a statistically significant result for the EBITDA margin. Therefore, private equity entities seem to focus on utilizing assets of former divisions more efficiently and thereby trying to free up cash. Growth measures for DBOs not having faced financial constraints are all not statistically significant.

6.3.3. Discussion of Findings for Hypothesis H3a and H3b

The results demonstrate that DBOs having been subject to external financial constraints in the pre-buyout phase downsize in the post-buyout period. This result is very surprising and contradictory to our first hypothesis, that those firms are likely to grow when owned by a private equity entity. The higher EBITDA margin indicates that cost management is a primary value driver for private equity entities in these firms. Hence, private equity entities seem to focus on other value creation mechanisms, which result in improvements in the EBITDA margin and absolute EBITDA. They

might achieve this by increasing productivity, lowering wages, or lowering material costs. Unfortunately, there seems to be no solid theoretical argument why especially financially constrained firms downsize limiting our ability to interpret the results above. The results for non-financially dependent DBOs appear to be more intuitive and support our hypothesis that DBOs not having faced financial constraints focus on efficiency enhancements in the post-buyout period.

When comparing both groups the findings are in contrast to what we expected, inhibiting us from explaining the results with the theory brought forward in the beginning of the paper. A reason for the contradictory findings may relate to the small sample size when we differentiate between financially dependency. Moreover, the point of departure for arguing in our hypothesis that inefficient internal capital markets may fail was the peripheral position of the division to the parent company in the pre-buyout phase. Hence, we perceived a company as financially constraint when it is external financially dependent as well as peripheral to the operations of the parental organization. Yet, in our regessions we were not able to complement our financial dependency measure with a measure for the location of the division in the network of the parental organization. Therefore, the measure for financial constraints that we used may not be sufficient to test our hypothesis in the context of DBOs. Additionally, DBOs in our sample are subject to biased selection due to availability issues.

Nonetheless, the results appear to indicate a clear trend of DBOs downsizing in the post-buyout-period. Therefore, to derive inferences of the effect of pre-buyout ownership and to test whether downsizing, efficiency and margin expansion enhancements is a general phenomenon in DBOs we look in the following section on the overall sample of DBOs.

6.3.4. Findings for the Overall Sample

Overall DBOs support the notion of former divisions scaling down their operations following a buyout:

- ***Sales and Company Size Proxies (column (4), (5), and (6)):*** Sales and fixed assets are statistically significantly lower compared to peers in the post-buyout period.
- ***Margin Expansion and Capital Efficiency (column (2), (7), (8), and (9)):*** EBITDA margin on the opposite is 2.5 % statistically significantly higher than that of peers. The coefficients of capital efficiency measures are all positive, which also points to efficiency improvements

even if not statistically significant. Surprising again is the positive coefficient for CAPEX suggesting that in the presence of downsizing DBOs still pursue more investments than peers.

The findings for the overall sample are all robust and do not change when we control for the pre-buyout development of the dependent variables, as can be seen in Table 18 of Appendix A.

VARIABLES	(1) EBITDA	(2) EBITDAm	(3) ln(Sales)	(4) ln(Empl)	(5) ln(Fixed Assets)	(6) ln(CAPEX)	(7) ROOA	(8) NWC turnover	(9) FA turnover
POSTPE	-1.124	-0.00295	0.132***	0.129***	0.222***	-0.298	-0.0221	2.759**	-3.012*
	(1.872)	(0.0128)	(0.0463)	(0.0371)	(0.0765)	(0.211)	(0.0515)	(1.207)	(1.584)
DD	2.259*	0.0250*	-0.150**	-0.0443	-0.203**	0.276	0.0791	1.186	1.688
	(1.285)	(0.0138)	(0.0690)	(0.0420)	(0.0932)	(0.208)	(0.0601)	(1.237)	(1.847)
lnIndex	3.769	0.00280	0.657***	0.286**	0.221	2.663***	0.0808	-3.664	13.54**
	(6.359)	(0.0562)	(0.248)	(0.134)	(0.281)	(0.945)	(0.187)	(4.162)	(6.125)
Constant	-44.71	0.0381	8.685**	1.288	12.53***	-23.11*	-0.819	62.72	-170.6**
	(88.09)	(0.778)	(3.447)	(1.846)	(3.902)	(13.08)	(2.604)	(57.41)	(84.83)
Observations	618	618	618	618	618	483	618	618	618
R-squared	0.595	0.570	0.945	0.970	0.913	0.748	0.444	0.792	0.860
Company FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13: Regression results for divisional buyouts
Sample of PE targets and their control firms for the period between 2006-2016 estimating the treatment impact (DD) of a PE on the operating performance of a target compared to their peers. All regressions include firm and year fixed effects and error terms clustered at firm level. Let t be the buyout year, then POST is a dummy, that equals 1 for the 3 years following a buyout (t-3 to t-1) and 0 for the three years before buyout (t+1 to t+3). DD is a dummy that equals 0 for the control firms in all periods, 0 for the target companies in the pre-buyout phase and 1 in the years after the buyout. EBITDAm is EBITDA scaled by Sales. ROOA is EBITDA scaled by operating assets. WC turnover is defined as Sales/Working Capital. FA turnover is defined as Sales/Fixed Assets. All other variables are self-explanatory (see text for details).

6.3.5. Discussion of Results for Divisional Buyouts

The primary finding seems to be that DBOs in general do not experience any statistically significant growth in the post-buyout period when measured in terms of employment, fixed assets, and sales. The results strongly suggest that DBOs do not necessarily face growth limitations in in the pre-buyouts phase caused by inefficient internal capital markets or inappropriate control mechanisms in large organizations. We seem to have clearly overstated the effect private equity firms may have on the exploitation of growth opportunities in DBOs. Our findings contrast those of Meuleman, Amess, Wright, & Scholes (2009), who find evidence for growth in DBOs. Our results are rather

more in line with Boucly et al. (2011), who find that DBOs downsize in the post-buyout period and Alperovych, Amess, & Wright (2013) who find improved efficiency in DBOs. Boucly et al. (2011) support their findings by arguing for DBOs having access to internal capital markets in the pre-buyout period relieving them from growth constraints. Alperovych, Amess, & Wright, (2013) emphasize on agency costs in the pre-buyout phase and existing opportunities for PE entities to resolve them. Our findings also suggest that the focus for private equity firms to create value in DBOs lies in reshaping the former division by cutting-off certain activities. Lower fixed assets, sales, and higher CAPEX and higher EBITDA margin support this notion. One could hypothesize that the increase in absolute EBITDA and the EBITDA margin is the result of discontinuing costly and inefficient operations. Moreover, the higher CAPEX could indicate that private equity firms seek to revamp the remaining operations of the firm.

6.3. Secondary Buyouts: Hypothesis 4

Previously, we have argued that the antecedents of SBOs are ambiguous and therefore theoretical inferences for corresponding operational value creation remain unclear. Private equity investors might invest into SBOs because they are under pressure to invest dry powder in order to receive management fees. Hence, their primary selection criteria might not be to identify targets in which operational value creation is feasible. Moreover, the strategy of the former private equity owner influences the remaining opportunities of value creation for the secondary investor. If the former investor focuses on exploiting growth opportunities, the secondary investor might be able to create value by improving efficiency and margin expansion. If the primary investor emphasizes on efficiency enhancements the secondary investor might seek to create value by realizing growth opportunities. In the context of the three main value drivers that we have identified, namely growth, margin expansion, and capital efficiency improvement we do not expect one driver to be prevalent. Hence, we have hypothesized not to find a specific operational improvement in secondary buyouts compared to their control group (*H4*).

6.4.1. Regression Results for Secondary Buyouts: Hypothesis 4

- ***Margin Expansion (column (1) and (2)):*** Table 14 shows that there are no statistically significant improvements in absolute EBITDA and EBITDA margin in secondary buyouts compared to peers.

- ***Sales, Employment & Fixed Assets and CAPEX (column (3), (4), (5) and (6)):*** When looking at sales in Table 14 the primary lever of growth, no statistically significant enhancements are evident in SBOs relative to peers. However, the secondary levers, such as employment, fixed assets, and CAPEX, are all statistically significantly higher than peers. Employment growth is 4.3%, fixed assets is 22.1%, and CAPEX is 50.1% higher than that of peers.
- ***Capital Efficiency (column (7), (8), and (9)):*** We do not see any significant differences when it comes to capital efficiency improvements after the buyout when comparing SBOs to a relatable control group.

With the evidence provided by our regression estimates, we have to reject our hypothesis (*4*) that we do not see a specific driver of value creation in SBOs. While we do not see any margin expansion or improvement of capital efficiency we can observe a clear tendency of growth through employment, fixed assets and CAPEX. The implications of these findings are discussed further in the next section.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
POSTPE	2.050***	0.00170	0.234***	0.140***	0.197***	0.0255	0.00673	1.224	-0.212
	(0.674)	(0.00628)	(0.0300)	(0.0243)	(0.0726)	(0.143)	(0.0406)	(0.921)	(1.194)
DD	0.919	0.00499	0.0468	0.0431*	0.221***	0.501***	-0.0449	-0.167	-1.107
	(0.683)	(0.00891)	(0.0315)	(0.0238)	(0.0729)	(0.139)	(0.0573)	(0.831)	(1.484)
lnIndex	2.469	0.00795	0.204**	0.0498	0.213	1.538**	0.0841	0.590	-4.487
	(2.407)	(0.0218)	(0.0889)	(0.0726)	(0.253)	(0.636)	(0.120)	(2.749)	(3.749)
Constant	-28.09	-0.0179	14.87***	4.633***	12.60***	-7.281	-0.847	3.347	80.41
	(33.16)	(0.301)	(1.220)	(0.999)	(3.475)	(8.713)	(1.649)	(37.74)	(51.78)
Observations	1,008	1,008	1,008	1,008	1,008	801	1,008	1,008	1,008
R-squared	0.756	0.825	0.964	0.972	0.926	0.793	0.582	0.772	0.872
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14: Regression results for secondary buyouts
Sample of PE targets and their control firms for the period between 2006-2016 estimating the treatment impact (DD) of a PE on the operating performance of a target compared to their peers. All regressions include firm and year fixed effects and error terms clustered at firm level. Let t be the buyout year, then POST is a dummy, that equals 1 for the 3 years following a buyout (t-3 to t-1) and 0 for the three years before buyout (t+1 to t+3). DD is a dummy that equals 0 for the control firms in all periods, 0 for the target companies in the pre-buyout phase and 1 in the years after the buyout. EBITDAm is EBITDA scaled by Sales. ROOA is EBITDA scaled by operating assets. WC turnover is defined as Sales/Working Capital. FA turnover is defined as Sales/Fixed Assets. All other variables are self-explanatory (see text for details).

6.4.2. Discussion Secondary Buyouts

We do not see any statistically significant improvements when it comes to absolute EBITDA improvements, EBITDA margin enhancements or increased capital efficiency. These are all measures that from an investors point of view would lead to an increase in the valuation of the firm. Hence, these results point towards the direction that within our sample of SBOs the motivation for a PE to conduct a buyout might lie not in operational value creation but rather in investor-specific considerations.

On the other hand, we can observe that PE companies engaging in a secondary buyout seem to invest in their portfolio companies by increasing the number of employees and by growing the balance sheet of the firm. The increase in fixed assets and CAPEX may be the result of mechanical adjustments of the balance sheet originating from accounting practices. A primary concern is still that the increase of balance sheet items is the result of undetected recognition of goodwill and asset write-ups, which we could not clean for. As extensively discussed earlier, we tried to detect asset write-ups when gathering the data, yet we have most likely not been able to exclude all of them, since not all firms clearly state when their asset increases are the result of asset write-ups. However, according to Bonini (2015) this problem might not be as prevalent in SBOs, because most of the assets of the target company are already evaluated at market value through the primary buyout. Therefore, most likely there is no liquidation of hidden reserves in a secondary buyout. Hence, we conclude that the observed growth of fixed assets and CAPEX in SBOs is robust and that PE firms seem to follow some kind of expansion strategy. We have argued before, that the effect of such an expansion strategy on sales growth might only be visible after a longer period. The experienced growth in secondary buyouts may be interpreted with changes in the underlying business model of private equity firms or the value creation mechanisms employed by the primary investor. Surveys conducted after the financial crisis indicate that private equity firms use less gearing in their transactions since the financial crisis and correspondingly emphasize more on growth and on operational value creation mechanisms (Roberts, 2014). As initially mentioned, gearing heavily amplifies the return for private equity investor (Goedhart, Levy, & Morgan, 2015). To compensate for lower return stemming from lower gearing, private equity entities need to find other ways of ameliorating their returns, such as growth or efficiency improvements. Another

explanation for growth in secondary buyouts might correspond to the primary investor focusing on margin improvements and efficiency enhancements to free-up cash.

It is imperative to mention that within our sample of SBOs conclusions or inferences are highly challenging, due to the heterogeneity of these buyouts. First, we do not have information on what mechanisms have been applied in the primary buyout, and hence we cannot test whether complementary capabilities lead to an operational improvement as it was suggested by Degeorge, Martin, & Phalippou (2016). Second, it would be highly interesting to test whether the timing of a SBO in relation to the phase of the investment period of the PE fund has an effect upon the operational value creation, as Degeorge et al. (2016) found that buyouts conducted in the later stage of the investment phase underperformed buyouts from the earlier stage.

Despite the generic nature of our results with regards to SBOs we can state that our findings contrasts the evidence of similar studies conducted in other countries, who all find no significant evidence that secondary buyouts tend to grow (Achleitner & Figge, 2014; Bonini, 2015; Boucly et al., 2011). However, when looking at efficiency and margin expansion our results do not deviate from previous research. Overall the results on SBOs are quite surprising and show a potential for further investigation.

Remark on Financially Dependent SBOs

We do not test companies that are financially dependent prior to a secondary buyout as we argue that financial dependency is not a primary problem for companies that are already owned by a PE firm. By monitoring prudently and claiming seats on the board, private equity owners can assess the likelihood of the success of growth opportunities and might consequently provide the necessary financial resources. If PE entities are not willing to finance the entire investment themselves, they are likely to be able to raise the necessary capital from banks for their target companies due to their experience and repeated interactions with banks. Hence, even if the internal cash flow does not entirely suffice to go forward with necessary investments, external financial dependence does not imply that growth opportunities are not exploited in the pre-buyout phase of SBOs.

6.5. Concluding Discussion

Our results and previous discussions highlight that growth among target firms in the German market appears to be a primary driver of operational value enhancement. The results have confirmed our hypothesis that overall, German buyouts grow, improve their margins and experience decreasing capital efficiency following a buyout (see Table 15). Yet, the results have

Hypothesis		Confirmed?
H1a	*In Germany, buyouts targets grow after they have been acquired by a private-equity entity relative to peers.*	***Yes***
H1b	*German buyouts experience decreasing capital efficiency following a buyout relative to peers.*	***Yes***
H1c	*German buyouts enhance their profit margin in the post-buyout period when measured relative to peers*	***Yes***
H2a	*Relative to their peers, German companies subject to a PBO will experience higher growth in the post buyout period.*	***Yes***
H2b	*Relative to their peers, growth in the post buyout period will be concentrated in German PBOs subject to external financing constraints.*	***Yes***
H3a	*Relative to their peers, German DBOs subject to financing constraints will grow in the post-buyout period.*	***No***
H3b	*Relative to their peers, German DBOs that have not faced financial constraints in the pre-buyout phase will improve their margin and capital efficiency in the post-buyout period.*	***Partly***
H4	*SBOs do not experience a specific operational improvement compared to their peers in the years following the buyout.*	***No***

Table 15: Summary of hypotheses

also demonstrated that the importance and the magnitude of the respective value drivers differs contingent on the pre-buyout ownership type. PBOs appear to be the buyout type in which value creation is most likely, since we could determine statistically significant effects for all three value drivers, namely margin expansion, growth, and capital efficiency (see Table 16). It is also the group in which we find the highest statistical significance of the respective growth measures corroborating the notion that growth is especially prevalent in PBOs. Moreover, the results suggest operational value creation to be concentrated in PBOs having faced financial constraints because of external financial dependence in the pre-buyout phase. Hence, the mitigation of financial constraints by providing the necessary capital to portfolio companies is likely to be a crucial source of value creation in PBOs.

Interestingly, when testing the impact of financial dependency on the value creation mechanisms of DBOs the results appear to be inconclusive, as we struggle to devise a solid

	Margin Expansion	Growth				Capital Efficiency		
	EBITDAm	**Sales**	*Empl*	*Op. Assets*	*CAPEX*	**ROOA**	*WC turnover*	*FA turnover*
Total Sample	++	n/a	+++	+++	+++	n/a	n/a	--
PBO	+	+++	+++	+++	n/a	++	n/a	---
PBO FD	+++	+++	+++	+++	n/a	+++	n/a	-
PBO Non-FD	n/a	+	n/a	n/a	n/a	n/a	n/a	--
DBO	+	--	n/a	--	n/a	n/a	n/a	n/a
DBO FD	+++	---	--	--	+	n/a	n/a	n/a
DBO Non-FD	n/a	n/a	n/a	n/a	n/a	n/a	++	++
SBO	n/a	n/a	+	+++	+++	n/a	n/a	n/a

Table 16: Summary of results
+++ or --- p<0.01, ++ or -- p<0.05, + or - p<0.1

theoretical framework to explain the results. As discussed earlier, this may be due to the limited meaningfulness of the financial dependency measure in isolation, since according to our hypothesis external financial dependency in combination with a peripheral location constitutes financial constraints for divisions in the pre-buyout phase.

When disregarding financial constraints and looking at the overall sample, we see clear evidence of divisions downsizing and improving their margins in the post-buyout period. On these grounds, we can question the relevance of growth constraints and correspondingly inefficient internal capital markets in large organizations as a source of value creation in the post-buyout period of DBOs. Therefore, the results support the notion of private equity entities enabling operational value creation in DBOs by resolving agency issues and incentivizing management to pursue worthwhile projects and getting rid of unprofitable activities.

For SBOs the results, surprisingly, provide confirmatory evidence of growth in the post-buyout period. Except for sales, all measures of growth are statistically significant, which may be partly explained by the primary investor focusing mostly on margin expansion and efficiency enhancement mechanisms. With this in mind, the results indicate that the antecedents of the buyout, such as capabilities and resources of the primary investor, may be significant in explaining how secondary investors create operational value in buyouts. Even though interesting, the scope of this study is not to study the effects of varying resources and capabilities on operational value creation in buyouts. Future research may put more emphasis on the characteristics of private equity investors.

Overall, the results suggest that pre-buyout ownership plays a role in the value creation mechanisms applied in buyouts. Yet, we are aware that the separation of the sample into pre-buyout ownership types is not exclusive and in the proceeding section, we discuss potentially other factors affecting how private equity entities create value in their portfolio firms.

Size and Operational Value Creation

For instance, certain characteristics that we have used to develop our argumentation, such as the small size of buyout firms, is not constrained to one specific buyout type. Therefore, in addition to the previously discussed regression we have tested whether size in our sample affects operational value creation. To test for size in our sample, we have computed the median of employment in our sample and then we assigned the respective buyouts the dummy small or big depending on whether they were below or above the median. The results for this sub-test confirm the evidence of Achleitner & Figge (2014) that smaller firms tend to grow significantly more than larger firms (for details see Table 20 in Appendix A). This test does not necessarily invalidate our research, but acknowledges that other factors are crucial in operational value creation in buyouts as well and should be studied in future research.

Period Analyzed

Initially, we highlighted that profound changes in the private equity industry in general and specifically in Germany have occurred since the financial crisis. These changes towards more operational value creation in target firms may be contingent on the macro-economic environment and the period of 2009 to 2013. Hence, the findings in our analysis may hold only true for the selected period and may differ in another macro-economic environment and time context. Therefore, to draw general inferences about the German buyout market and its development over the years it would be very interesting to analyze the German market over a longer period of time.

Further Interesting Studies

Another interesting scope of analysis is to study operational value creation regarding pre-buyout ownership type on a more granular level. For instance, our scope allows us to detect margin improvements, but does not provide a storyline on how this improvement is achieved. Hence, studying the different cost pools, such as wages, material costs and other operating expenses could

provide useful insights to understand what drives improvements in the EBITDA margin. Unfortunately, limited data availability has restrained us from conducting analyses that are more granular.

Additionally, in the realm of financial constraints it would have been interesting to test whether debt capacity in terms of long-term debt and shareholder equity increases are evident after the buyout for firms being financially constrained in the pre-buyout phase. Unfortunately, data availability has prevented us from doing so, and taking proxies such as total liabilities or total equity would have been inaccurate due to the following reasons. First, total liabilities is composed of metrics such as current liabilities, provisions, short-term debt and other balance sheet items inhibiting us to attribute changes in total liabilities to alterations in long term debt, or increases in the debt capacity of the firm. The same logic holds for shareholders equity, as the overall total equity contains many metrics among them retained earnings, share capital, and hidden reserves.

In our study, we have addressed characteristics of target companies, but we have neglected characteristics of the buyer. To broaden the scope of the analysis, further studies might include the impact of private equity entity characteristics on value creation, such as the degree of specialization, private equity syndication, and experience.

6.6. Limitations

Before we finally conclude on our findings and their implications, it is crucial to discuss the limitations that come along with this research paper. To structure this discussion, we have divided the potential shortcomings into four categories, namely *(1) data limitations, (2) financial accounting data as performance measures, (3) concerns about our methodology*, and *(4) macroeconomic and regulatory idiosyncrasies*.

6.6.1. Data Limitations

We have already extensively discussed the drawbacks of our data sample and our attempts to mitigate them in section *5.2. Data Gathering* (see summary in Table 5 on page 56). The main points that are potentially influencing our estimations are:

- ***Usability of Accounting Data:*** The utilization of accounting data was accompanied by certain concerns regarding the validity of the reported numbers due to potential

manipulations of the income statement or the balance sheet. Furthermore, diverse and over time varying accounting standards might also influence the reported data.

- ***Availability of Accounting Data:*** The limited availability of accounting data has posed a major challenge on our sampling process. For instance, we had to categorically omit very small companies, as well as entities that merged into a conglomerate as a result of the buyout.

- ***Consolidated vs. Unconsolidated Accounting Data:*** In certain cases, the published financial statements included shares in affiliated companies in the asset base but the income statement did not reflect the revenue of those affiliated companies.

- ***Purchase Price Allocation at Buyout:*** The fact that an entity is obliged to re-evaluate its asset base at market value after a buyout led to potential asset write-ups or asset write-downs, as well as an introduction of goodwill.

To address these issues we have performed rigorous control mechanisms, that included an individual inspection of all the data gathered in our target companies, manual gathering of data sets, exclusion of shares in affiliated companies from the asset base, examination of data for abnormal inflation of assets due to write-ups and adjustments of goodwill where possible. However, despite these control mechanisms we still face some concerns that our data sample might potentially be skewed.

6.6.2. Usage of Financial Accounting Data as Performance Measures

While the abovementioned considerations all focus on the validity of the gathered data in our sample, we also need to consider whether the usage of the selected financial accounting data appropriately represents the operating performance of a target company.

- ***Selected Financial Accounting Data:*** We have chosen to classify the operating performance drivers into margin expansion, growth and capital efficiency. Within these

categories we chose EBITDA margin, sales growth and ROOA as main drivers, and added complementary measures for growth (employment, fixed assets and CAPEX) and capital efficiency (FA and WC turnover). With this selection and classification we have followed the prevalent research (Acharya, Gottschalg, Hahn, & Kehoe, 2013; Alperovych, Amess, & Wright, 2013; Berg & Gottschalg, 2005; Boucly, Sraer, & Thesmar, 2011). While our selection of operating variables was based on sound rationales, we have to acknowledge that these measures do not necessarily represent the whole picture of the operating performance within a company. As put forward in the discussion (section 6.5. Concluding Discussion on page 94) it would have been highly interesting to examine our data at a more granular level with the objective to identify the specific measures that lead to operating improvements. Furthermore, due to data availability issues it was not possible to look at other interesting measures, such as capital structure changes resulting from a buyout.

- ***Non-Financial Indicators of Operational Value Creation:*** Our focus on financial performance indicators might not always be the best predictor nor represent the true operational value creation. This limitation is confirmed as some researchers argue that non-financial measures are a better predictor of long-term financial and operating performance. For example Banker, Potter, & Srinivasan (2000) find that measures such as *customer satisfaction, market share development* or *product quality* are significantly correlated to financial performance and contain additional information that are not reflected in financial measures. Other measures that would potentially influence and contain valuable information about the operating performance of a company are its *innovation capability*, *competitive advantag*e or the *reputation of the company*.

6.3.3. Potential Drawbacks of our Methodology

While the difference-in-differences estimation is highly useful to measure the treatment effect of a PE buyout, we have identified important limitations that need to be discussed further when it comes to the assumptions of this model:

- ***Parallel Trends:*** As discussed in the methodology in section *5.6. Methodology and Empirical Estimations,* one of the key assumptions is that the average change in the control

group represents the counterfactual change in the treatment group in case of no treatment (Mora & Reggio, 2012). Similar to Boucly et al. (2011) we have tested this assumption by comparing the pre-buyout trends of the two groups. However, Mora & Reggio (2012) raise the concern that this method might not be sufficient to test the parallel paths assumption. According to Angrist & Pischke (2008) there is no statistically robust test for this assumption. They suggest that a visual inspection of the trends only tends to make sense in cases where a sample has observations over many time points at its disposal. As our pre-buyout period only consists of three years, it does not offer the possibility to meaningfully test the parallel trend assumption visually. Therefore, our sample is possibly leading to a biased estimation of a causal effect due to potential violations of the parallel trend.

- ***Construction of Control Group:*** In light of the discussion about the parallel trend assumption, the importance of the construction of our control group is highlighted again. We have defined a matching process that to the best of our knowledge represents an appropriate control group and was used by Boucly et al. (2011). Nevertheless, the definition that a control company has to fulfill the conditions to operate in the same industry and lie in the range of +/-50% of the two defined matching variables (employment, EBITDA margin) in the year before the buyout has its own limitations. First, we have matched the industry based on the rather generic two-digit NACE code, whereas the four-digit NACE code would have been more granular and hence more correct. Second, the +/-50% bracket for our two matching variables is quite broadly defined. Nevertheless, the design of the matching process was deliberately chosen after having faced the trade-off between a suitable sample size and a more accurate control group. Overall, the limitation remains that a difference-in-differences estimation would ideally require a natural experimental design with the most identical control and treatment groups possible (Abadie, 2005).

- ***Endogeneity Bias:*** Potentially the most important limitation that we face in this study design is based on the fact that buyout transactions are not exogenous events. The difference-in-differences model is most appropriate in cases where the intervention is

random, conditional on time and firm fixed effects (Bertrand, Duflo, & Mullainathan, 2004). This means that the allocation of an intervention within a group should be unrelated to the outcome, i.e. characteristics of a treatment group (Angrist & Pischke, 2008). In case of a buyout, it seems likely that the decision of a PE to engage in a buyout (i.e. intervention) was determined by the outcome (i.e. pre-buyout performance). We have to acknowledge that a private equity buyout in itself is not an exogenous event, but that private equity firms engage heavily in screening potential investments and then select those that match their objectives. For example, a PE fund could identify a company with managerial issues but a good core product that after the resolution of the managerial problems promises a high return. Without a source of exogenous variation in the probability to be involved in a buyout, our results might be subject to an endogeneity bias (Boucly et al., 2011). Although similar pre-bouyout trends were identified between the two control groups in section *5.5. Final Data Sample* and we could visually see a treatment effect in Figure 14 on page 73, this potential endogeneity bias remains and hence our results should be interpreted rather descriptive than causal.

Despite the abovementioned considerations, we have assessed the difference-in-difference estimation to be the most appropriate model to measure the effect of PE ownership on their target companies. Additionally to limitations that are accompanied by the chosen model to estimate the effect of PE ownership on the operating performance of their target companies, we have located four other aspects that might have influenced the results of our estimations:

- ***Omission of Year 0*:** As discussed, we have omitted the year of the buyout in our analysis as we have argued that the financial reporting might be affected strongly by a change of ownership. While this exclusion of the buyout year is the appropriate measure in most of the cases and follows the methodology of Boucly et al. (2011), the depiction of the excess returns in Figure 14 on page 73 show a clear effect of the PE buyout starting from year 0. One line of argument would support the approach to include the year of the buyout into the post-buyout period as there is no reason for a PE not to immediately engage in measures to improve operating performance. For instance, if necessary the PE company will initiate

higher investments in cases of unexploited growth opportunities as soon as possible. However, as we have not differentiated at what point in the year the buyout was happening, we have decided to omit the buyout year fully. To substantiate this decision, we have run the regressions where we included the buyout year for the overall sample as well as for the pre-buyout ownership cohorts. The results do not deviate strongly from our initial results and if anything only support the interpretation of our results (see Table 21 in Appendix A for the results of this regression).

- ***Period:*** The chosen timeframe to measure the treatment effect has its implications on the results as well. To limit the observation of the effect of a PE ownership on a target company to 3 years after the buyout might not necessarily depict the whole picture of improvement effects. It is possible that some measures have a lagged effect that goes beyond our observed period. For instance, an investment might not have an immediate effect on sales. However, the limited availability of accounting data prevented us from investigating a longer time horizon.

- ***Sample Size of Cohorts:*** Our overall sample consists of 102 buyout deals and 332 control firms with six observation per company leading to 2604 observations in total. When dividing the total sample into the three different cohorts of pre-buyout ownership this size is reduced substantially, which may lead to non-representative estimations. A further differentiation has been made in PBOs and DBOs where we have differentiated the subsamples by financial dependency, reducing the sample size once more. Therefore, it is of high importance to highlight that these estimations might be biased by outliers and further research with a bigger sample size is needed to confirm our findings.

- **Survivorship Bias:** Our sample is likely subject to a survivorship bias, since we do not take any bankrupt companies into account (Ljungqvist & Richardson, 2003). This might lead to an overestimation of the effect of PE ownership on a target company, as we only report on successful buyout transactions. This bias is partially mitigated by the fact, that we have designed our control group with the same bias. However, we do not know whether

the fraction of PE backed companies that dissolved due to insolvency is at the same level as other companies with similar characteristics, e.g. industry or size.

6.3.4. Macroeconomic and Regulatory Idiosyncrasies

The selection of an appropriate control group and our index of the sales development in the different industries in Germany are measures to account for macroeconomic trends and potential structural breaks in our analysis. Additionally, we have tried to identify the most important regulatory and legal changes that might affect the reporting of accounting data in the period of interest and account for those. Nonetheless, there are a few considerations that need to be taken into account when discussing our results:

- ***Not captured Macroeconomic Trends**:* There is a possibility that we have not captured idiosyncratic shocks or even macroeconomic structural breaks appropriately. However, we assessed our rigorous matching process of the control firms and the introduction of a sales index to account for industry and macroeconomic trends to be sufficient to this analysis.

- ***Varying Legal Systems between Countries:*** When comparing the results of our study to the prevailing research, we did not take varying legal between countries into account. For instance, research conducted in Anglo-Saxon countries such as the USA or the UK might not be as comparable to our study as research that was done in France. For instance investor protection is stronger in common law (UK, US) than in civil law (France, Germany) (Sarkar, 2011). Therefore, it might not be possible to draw comparison between the different studies, as the regulatory differences might affect the outcome strongly. For example, civil law countries (France and Germany) may be more rigid concerning labor laws, which might affect our results (Boucly et al., 2011). Since it is more difficult to release personnel in these countries, our data might be positively skewed towards the fact that we cannot see lay-offs as a cost-cutting measure, whereas in countries such as the US and the UK this has been observed. This is one reason why we have relied heavily upon the paper published by Boucly et al. (2011) based on the French PE market when drawing comparisons and choosing the methodology.

- ***Overlooked Regulatory Changes:*** Although we have given great attention to crucial changes in the regulatory framework between 2006-2016 in Germany, we cannot eliminate the possibility that we might have overlooked changes that potentially affect our results.

To summarize, we have identified several potential limitations and whenever possible attempted to mitigate those. In cases where a mitigation was not possible we have clearly stated the limitation within the discussion of our results and highlighted the impact it had on our analysis. It is imperative to highlight that given abovementioned limitations our results should be interpreted rather more descriptive than casual. We are convinced that the results contribute to the current research about value creation mechanisms in PE buyouts, especially with relation to the German buyout market.

7. Conclusion

Although there is a controversial public discussion about the consequences of private equity investments in Germany, empirical findings of the effects of private equity ownership in Germany remain scarce. With this in mind, the purpose of this thesis was to shed light on the impact of private equity ownership on German portfolio companies. We especially aimed to answer whether pre-buyout ownership of a target company is a good predictor of the precedingly deployed value creation mechanisms of a PE company. To derive a comprehensive understanding about the German buyout market, we investigated whether there is an effect of private equity ownership on portfolio companies and if this effect differs contingent on the pre-buyout ownership type of the target firm. The analysis contained a thorough investigation of crucial target firm characteristics for value creation, notable changes in the private equity industry, a review of the most recent literature, as well as an aggregation of operational value drivers into margin expansion, growth, and capital efficiency. Figure 16 presents a conceptual summary of this study.

The analysis provides confirmatory evidence of private equity firms creating value in their portfolio firms and operational value enhancements being contingent on the pre-buyout ownership type. Overall, in the three years following a buyout, targets expand their margins; grow in assets and in employment compared to a carefully selected peer group in Germany. This finding is consistent

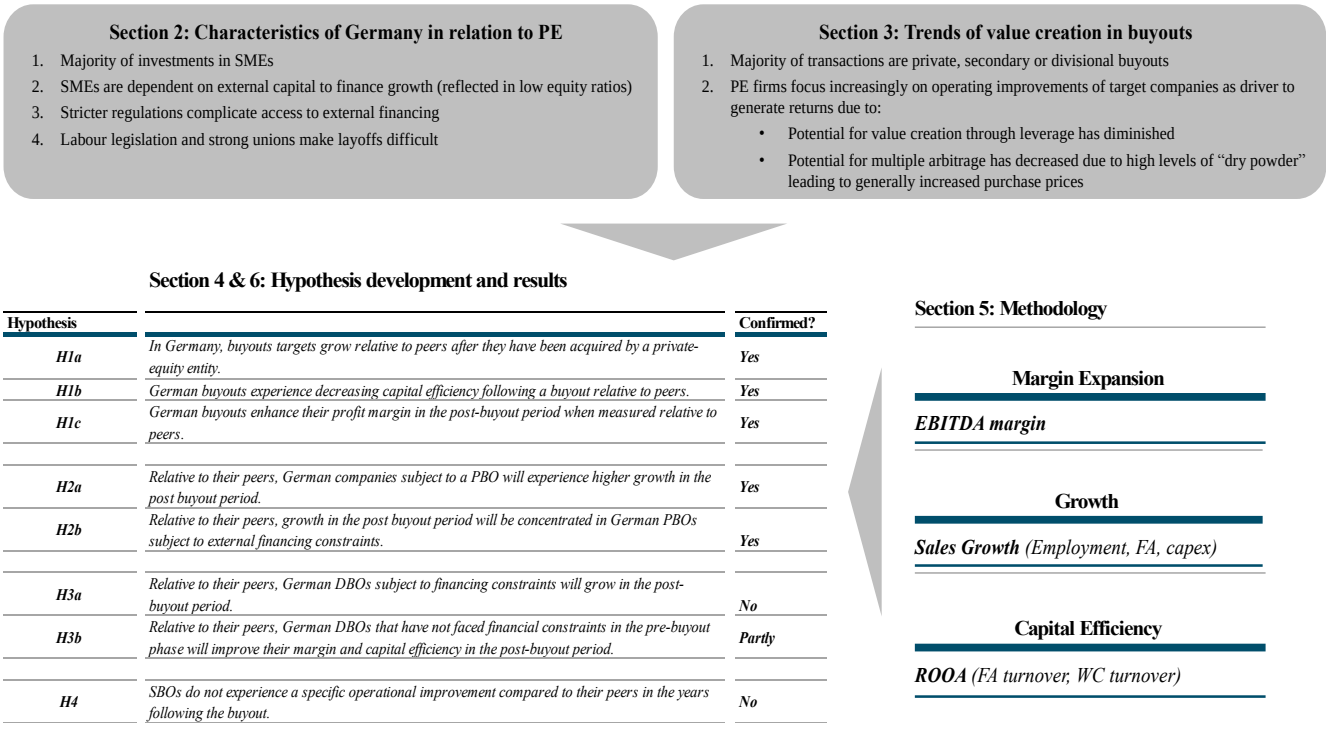


Figure 16: Simplified conceptual depiction of our paper

with our overall expectation that private equity firms create value by emphasizing on the top line and bottom line improvements as well as by mitigating growth constraints in their target companies in Germany.

Our findings also suggest that value creation and especially growth is concentrated in private-to-private buyouts. Moreover, growth seems to be even more prevalent in private companies having faced financial constraints in the pre-buyout ownership period supporting our hypothesis of private equity firms enabling value creation by specifically alleviating financial and investment constraint in the post-buyout period.

Surprisingly, secondary buyouts, also experience higher growth and capital expenditures, indicating contrary to our expectation that secondary buyouts do provide opportunities for value creation. The finding highlights that the heterogeneity of the antecedents of secondary buyouts requires a better understanding. Potential crucial antecedents encompass distinct resources and capabilities of the primary investor and correspondingly a focus on other value creation mechanisms than the secondary investor.

Our finding of divisions downsizing and enhancing their margins in the post-buyout period support the notion of private equity firms reducing agency costs in the post-buyout period through incentive alignments. Growth opportunities because of inefficient internal capital markets and inefficient organizational structures do not seem to prevail.

The evidence highlights the heterogeneity of value creation mechanisms in the different buyout types and provides a nuanced view of how private equity firms create operational value. Overall, the findings have significant implications for the public, companies and private equity fund managers. The analysis of the German buyout market suggests that private equity entities function as engines of growth by alleviating certain growth constraints of German companies and invalidates the argument of private equity firms stripping companies of their assets and exploiting them until nothing remains. This result implies that private equity firms may be valuable partners for companies that seek to expand. Additionally, the concentration of value creation in private-to-private transactions may indicate that formerly privately owned firm is the most valuable source of deals for private equity firms.

We contribute to the existing literature in two ways. First, with our analysis, we further close the gap of limited empirical research on the German private equity market. Second, recent research has highlighted the importance of pre-buyout ownership in the deployment of value creation mechanisms. With our analysis, we support this research and demonstrate that drawing general inferences from analyzing individual buyouts types, such as public-to-private buyouts may not be appropriate.

Despite our findings, we identified limitations to our study. The limitations encompass the selection of our data sample, the limited interpretability of accounting data, and the consideration of a three-year post-buyout period only. Moreover, the relatively short time frame chosen inhibits us from drawing inferences for private equity in general in Germany. Therefore, we would like to call future research to analyze a longer time-period. Providing a more granular explanation of how private equity firms achieve cost enhancements in their portfolio companies would also be highly beneficial. Additionally, even though we have provided a more nuanced view of target firm characteristics in our study, we have not taken the heterogeneity of investor characteristics into account. We think an analysis emphasizing on investor characteristics would complement our research.

8. Bibliography

Abadie, A. (2005). Semiparametric difference-in-differences estimators. *The Review of Economic Studies*, *72*(1), 1–19.

Abel-Koch, J., del Bufalo, G., Fernandez, M., Gerstenberger, J., Lo, V., Navarro, B., & Thornary, B. (2015). *SME investment and innovation: France, Germany, Italy, and Spain* (p. 128). Bpifrance (BPI).

Acharya, V. V., Gottschalg, O. F., Hahn, M., & Kehoe, C. (2013). Corporate governance and value creation: Evidence from private equity. *The Review of Financial Studies*, *26*(2), 368–402.

Achleitner, A.-K., Braun, R., Engel, N., Figge, C., & Tappeiner, F. (2010). Value creation drivers in private equity buyouts: Empirical evidence from Europe. *The Journal of Private Equity*, 17–27.

Achleitner, A.-K., Braun, R., Lutz, E., & Tappeiner, F. (2017). Private equity group reputation and financing structures in German leveraged buyouts. *Journal of Business Economics*, 1–30.

Achleitner, A.-K., & Figge, C. (2014). Private equity lemons? Evidence on value creation in secondary buyouts. *European Financial Management*, *20*(2), 406–433.

Ahlers, O., Hack, A., & Kellermanns, F. W. (2014). "Stepping into the buyers' shoes": Looking at the value of family firms through the eyes of private equity investors. *Journal of Family Business Strategy*, *5*(4), 384–396.

Alperovych, Y., Amess, K., & Wright, M. (2013). Private equity firm experience and buyout vendor source: What is their impact on efficiency? *European Journal of Operational Research*, *228*(3), 601–611. https://doi.org/10.1016/j.ejor.2013.01.019

Amess, K., & Wright, M. (2007). The wage and employment effects of leveraged buyouts in the UK. *International Journal of the Economics of Business*, *14*(2), 179–195.

Angrist, J. D., & Pischke, J.-S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press.

Ashenfelter, O. C., & Card, D. (1984). *Using the longitudinal structure of earnings to estimate the effect of training programs*. National Bureau of Economic Research Cambridge, Mass., USA.

Axelson, U., Jenkinson, T., Strömberg, P., & Weisbach, M. S. (2013). Borrow cheap, buy high? The determinants of leverage and pricing in buyouts. *The Journal of Finance*, *68*(6), 2223–2267.

Banker, R. D., Potter, G., & Srinivasan, D. (2000). An empirical investigation of an incentive plan that includes nonfinancial performance measures. *The Accounting Review*, *75*(1), 65–92.

Bauer, A., Eckl, P., & Bernau, T. (2015). *Private equity in Germany: market and regulatory overview*. GSK Stockmann + Kollegen. Retrieved from: https://uk.practicallaw.thomsonreuters.com/5-501-0906?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1

Bendel, D., Demary, M., & Voigtländer, M. (2016). *Entwicklung der Unternehmensfinanzierung in Deutschland* (IW-Trends No. 1). Institut der deutschen Wirtschaft Köln. Retrieved from: https://www.iwkoeln.de/studien/iw-trends.html

Behn, M., Haselmann, R., & Wachtel, P. (2016). Procyclical capital regulation and lending. The Journal of Finance, 71(2), 919-956.

Berg, A., & Gottschalg, O. F. (2005). Understanding value generation in buyouts. *Journal of Restructuring Finance*, *2*(01), 9–37.

Bergström, C., Grubb, M., & Jonsson, S. (2007). The operating impact of buyouts in Sweden: A study of value creation. *The Journal of Private Equity*, 22–39.

Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M. (2010). Socioemotional wealth and corporate responses to institutional pressures: Do family-controlled firms pollute less? *Administrative Science Quarterly*, *55*(1), 82–113.

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differences-in-differences estimates? *The Quarterly Journal of Economics*, *119*(1), 249–275.

Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics*, *122*(4), 1351–1408.

Bonini, S. (2015). Secondary buyouts: Operating performance and investment determinants. *Financial Management*, *44*(2), 431–470.

Boucly, Q., Sraer, D., & Thesmar, D. (2011). Growth LBOs. *Journal of Financial Economics*, *102*(2), 432–453.

Brigl, M., Nowotnik, P., Pelisari, K., Rose, J., & Zwillenberg, P. (2012). *Engaging for growth* (Private Equity No. 2012). The Boston Consulting Group. Retrieved from: https://www.bcg.com/documents/file95414.pdf

Bruining, H., Verwaal, E., & Wright, M. (2013). Private equity and entrepreneurial management in management buy-outs. *Small Business Economics*, *40*(3), 591–605.

Bundesanzeiger Verlag. (2010). BilMoG: Die wichtigsten Änderungen im Überblick. Retrieved from:

https://www.bundesanzeiger-verlag.de/betrifft-unternehmen/steuern-finanzen/aktuelles/news-details-fachbeitraege-finanzen/artikel/bilmog-die-wichtigsten-aenderungen-im-ueberblick-1697.html

Bundesverband Deutscher Kapitalbeteilgungsgesellschaften. (2018). *Das Jahr in Zahlen 2017* (Statistics). Germany. Retrieved from: https://www.bvkap.de/sites/default/files/page/2017_bvk-statistik_2010-2017_26022018.xlsx

Bundesverband Deutscher Kapitalbeteiligungsgesellschaften. (2010). *BVK jahresstatistik. Das Jahr 2009 in Zahlen*. Retrieved from: https://www.bvkap.de/sites/default/files/page/20090308_bvk_jahresstatistik_2009_final.pdf

Büschemann, K.-H. (2013, September 27). Heuschrecken sind herzlich willkommen. *sueddeutsche.de*. Retrieved from: http://www.sueddeutsche.de/wirtschaft/private-equity-investoren-heuschrecken-sind-herzlich-willkommen-1.1781810

Chung, J.-W. (2011). Leveraged buyouts of private companies.

Cohn, J. B., Mills, L. F., & Towery, E. M. (2014). The evolution of capital structure and operating performance after leveraged buyouts: Evidence from US corporate tax returns. *Journal of Financial Economics*, *111*(2), 469–494.

Creditreform Wirtschaftsforschung. (2016). *Analyse Wirtschaftslage und Finanzierung im Mittelstand Herbst 2016*.

Croce, A., & Martí, J. (2016). Productivity growth in private-equity–backed family firms. *Entrepreneurship Theory and Practice*, *40*(3), 657–683.

Cumming, D. J., & MacIntosh, J. G. (2003). Venture-capital exits in Canada and the United States. *The University of Toronto Law Journal*, *53*(2), 101–199.

Cumming, D., Siegel, D. S., & Wright, M. (2007). Private equity, leveraged buyouts and governance. *Journal of Corporate Finance*, *13*(4), 439–460.

Damodaran, A. (2005). Dealing with cash, cross holdings and other non-operating assets: approaches and implications.

Damodaran, A., (2007). Return on Capital (ROC), Return on Invested Capital (ROIC) and Return on Equity (ROE): Measurement and Implications, 69.

Davis, S. J., Haltiwanger, J. C., Jarmin, R. S., Lerner, J., & Miranda, J. (2011). *Private equity and employment*. National Bureau of Economic Research.

Davis, S. J., Haltiwanger, J., Handley, K., Jarmin, R., Lerner, J., & Miranda, J. (2014). Private equity, jobs, and productivity. *American Economic Review*, *104*(12), 3956–90.

Degeorge, F., Martin, J., & Phalippou, L. (2016). On secondary buyouts. *Journal of Financial Economics*, *120*(1), 124–145.

Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, *18*(2), 189–216. https://doi.org/10.1016/S0883-9026(02)00080-0

Eddleston, K. A., Kellermanns, F. W., & Sarathy, R. (2008). Resource configuration in family firms: Linking resources, strategic planning and technological opportunities to performance. *Journal of Management Studies*, *45*(1), 26–50.

Eppinger, P. S., & Neugebauer, K. (2017). External Financial Dependence and Firms' Crisis Performance across Europe. *Systemic Risk Centre*, (SRC Discussion Paper No 65).

European Private Equity & Venture Capital Association (EVCA). (2014). *Central and Eastern Europe Statistics 2013*. Retrieved from: https://www.investeurope.eu/research/about-research/european-data-cooperative/

European private equity and venture capital association. (2014, January). *European mid-market private equity: Delivering the Goods*. Retrieved from: https://www.investeurope.eu/media/25500/Delivering_the_goods.pdf

Eurostat. (2018). Eurostat - Tables, graphs and maps interface. Retrieved March 22, 2018, from http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tin00149

Freelink, S., & Volosovych, V. (2012). *Do Secondary Buyouts Create Value? Evidence from the United Kingdom*. Working Paper.

Gilligan, J., & Wright, M. (2014). *Private equity demystified: An explanatory guide*. Corporate Finance Faculty.

Goedhart, M., Levy, C., & Morgan, P. (2015). A better way to understand internal rate of return. *McKinsey*. Retrieved from: https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/a-better-way-to-understand-internal-rate-of-return

Gompers, P., & Lerner, J. (2001). The Venture Capital Revolution. *Journal of Economic Perspectives*, *15*(2), 145–168.

Goossens, L., Manigart, S., & Meuleman, M. (2008). The Change in Ownership After a Buyout: Impact on Performance. *The Journal of Private Equity*, *12*(1), 31–41.

Guo, S., Hotchkiss, E. S., & Song, W. (2011). Do buyouts (still) create value? *The Journal of Finance*, *66*(2), 479–517.

Handelsblatt. (2018, February 26). Private Equity: Finanzinvestoren kaufen in Deutschland so viel wie nie zuvor. Retrieved from: http://www.handelsblatt.com/finanzen/anlagestrategie/trends/private-equity-finanzinvestoren-kaufen-in-deutschland-so-viel-wie-nie-zuvor/21005200.html

Harris, R., Siegel, D. S., & Wright, M. (2005). Assessing the impact of management buyouts on economic efficiency: Plant-level evidence from the United Kingdom. *Review of Economics and Statistics*, *87*(1), 148–153.

Haves, J., Wilke, P., Meixner, M., Reich, E., & Vitols, S. (2015). Private equity and labour in Europe: Did the crisis change the perception and role of private equity? *Hans-Böckler-Stiftung*.

Hendrikse, G. (2003). *Economics and management of organizations: co-ordination, motivation and strategy*. McGraw-Hill.

Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, *7*(3), 281.

Hoffmann, N. (2008). *German buyouts adopting a buy and build strategy: key characteristics, value creation and success factors* (1. Aufl). Wiesbaden: Gabler.

Imbens, G., & Wooldridge, J. (2007). *Difference-in-differences estimation*. National Bureau of Economic Research.

Invest Europe. (2015). *Professional Standards Handbook*. Retrieved from: https://www.investeurope.eu/media/431779/Invest-Europe-Professional-Standards-Handbook-2015.pdf

Jakoby, S. (2000). Erfolgsfaktoren von Management Buyouts in Deutschland.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, *76*(2), 323–329.

John Gilligan, & Wright, M. (2014). *Private equity demystified: An explanatory guide*. Corporate Finance Faculty.

Kaplan, S. (1989). The effects of management buyouts on operating performance and value. *Journal of Financial Economics*, *24*(2), 217–254.

Kaplan, S., & Strömberg, P. (2009). Leveraged buyouts and private equity. *Journal of Economic Perspectives*, *23*(1), 121–46.

Kay, R., Suprinovic, O., Schlömer-Laufen, N., & Rauch, A. (2018). *Unternehmensnachfolgen in Deutschland 2018 bis 2022* (Daten und Fakten No. Nr. 18). Institut für Mittelstandsforschung Bonn. Retrieved from: https://www.ifm-bonn.org/statistiken/unternehmensuebertragungen-und-nachfolgen/#accordion=0&tab=1

KFW. (2011). *KFW Mittelstandspanel*.

Kirschner, M. (2017, April 11). Die Finanzierung von Private Equity Transaktionen. Retrieved from: https://www.cmshs-bloggt.de/private-equity/finanzierung-private-equity-transaktionen/

Klamar, N. (2018). Purchase Price Allocation. Retrieved from https://www.fas-ag.de/valuation-transaction/purchase-price-allocation

Lerner, J., Hardymon, F., & Leamon, A. (2011). Note on Private Equity Partnership Agreements

Lichtenberg, F. R., & Siegel, D. (1990). The effects of leveraged buyouts on productivity and related aspects of firm behavior. *Journal of Financial Economics*, *27*(1), 165–194.

Liebeskind, J., Wiersema, M., & Hansen, G. (1992). LBOs, corporate restructuring, and the incentive-intensity hypothesis. *Financial Management*, 73–88.

Magowan, P. A. (1989). The case for LBOs: The safeway experience. *California Management Review*, *32*(1), 9–18.

Manova, K. (2013). Credit Constraints, Heterogeneous Firms, and International Trade. *The Review of Economic Studies*, *80*(2), 711–744.

Mekouar, R. (2016). *PE Investing: The long term investor journey* (Economy & Finance). Luxembourg Private Equity & Venture Association. Retrieved from https://www.slideshare.net/RajaaMekouar/fuchs-associes-lpea-private-equity-the-long-term-investor-journey

Memmel, C., Schmieder, C., & Stein, I. (2007). Relationship lending: empirical evidence for Germany.

Meuleman, M., Amess, K., Wright, M., & Scholes, L. (2009). Agency, strategic entrepreneurship, and the performance of private equity-backed buyouts. *Entrepreneurship Theory and Practice*, *33*(1), 213–239.

Mora, R., & Reggio, I. (2012). Treatment effect identification using alternative parallel assumptions. *Working Paper*

Muscarella, C. J., & Vetsuypens, M. R. (1990). Efficiency and organizational structure: A study of reverse LBOs. *The Journal of Finance*, *45*(5), 1389–1413.

OECD. (2016). Gross Domestic Product. Retrieved from: https://data.oecd.org/gdp/gross-domestic-product-gdp.htm#indicator-chart

Orbis. (2018). Retrieved from: https://www.bvdinfo.com/en-gb/our-products/data/international/orbis

Pahnke, A., Schroeder, C., Leonhardt, F., & Wiedemann, A. (2015). *Finanzierungsstrukturen und -strategien kleiner und mittlerer Unternehmen: Eine Bestandsaufnahme* (Nr. 242) (p. 69). Institut fuer Mittelstandforschung Bonn.

Pawlina, G. (2010). Underinvestment, capital structure and strategic debt restructuring. *Journal of Corporate Finance*, *16*(5), 679–702.

Petersen, C. V., Plenborg, T., & Kinserdal, F. (2017). *Financial Statement Analysis: Valuation-Credit Analysis-Performance Evaluation*. Fagbokforlaget Vigmostad og Bjørke.

Phan, P. H., & Hill, C. W. (1995). Organizational restructuring and economic performance in leveraged buyouts: An ex post study. *Academy of Management Journal*, *38*(3), 704–739.

PwC. (2017). *Private Equity in Familienunternehmen - Der Beginn einer wunderbaren Freundschaft?* Retrieved from: https://www.bvkap.de/sites/default/files/study/pwc_private-equity-in-familienunternehmen_2017.pdf

Rajan, R., & Zingales, L. (1998). Financial Dependence and Growth. *American Economic Review*, *88*(3), 559–586.

Roberts, S. (2014). *Private equity report 2014: An Indusry rediscovering optimism* (Private Equity report Germany). PriceWaterCoopers AG. Retrieved from: https://www.pwc.de/de/finanzinvestoren/assets/private-equity-trend-report-2014.pdf

Sarkar, P. (2011). Common Law vs. Civil Law: Which system provides more protection to shareholders and promotes financial development. *Journal of Advanced Research in Law and Economics*, *2*(2 (4)), 143.

Scellato, G., & Ughetto, E. (2013). Real effects of private equity investments: Evidence from European buyouts. *Journal of Business Research*, *66*(12), 2642–2649.

Schawalder, A. T., Gantenbein, D. P., & Grüner, D. A. (2010). der Universität St. Gallen, Hochschule für Wirtschafts-, Rechts- und Sozialwissenschaften (HSG) zur Erlangung der Würde eines Doktors der Wirtschaftswissenschaften, 252.

Serrao, M. F. (2015, July 3). Wir können euch kaufen. *sueddeutsche.de*. Retrieved from: http://www.sueddeutsche.de/wirtschaft/private-equity-firmen-wir-koennen-euch-kaufen-1.2547691

Smith, A. (1990). The effects of leveraged buyouts. *Business Economics*, 19–25.

Strömberg, P. (2008). The new demography of private equity. *Working Paper*.

Wang, Y. (2012). Secondary buyouts: Why buy and at what price? *Journal of Corporate Finance*, *18*(5), 1306–1325.

Williamson, O. E. (1979). Transaction-cost economics: The governance of contractual relations. *The Journal of Law and Economics*, *22*(2), 233–261.

Wilson, N., Wright, M., Siegel, D. S., & Scholes, L. (2012). Private equity portfolio company performance during the global recession. *Journal of Corporate Finance*, *18*(1), 193–205.

Wright, M., Gilligan, J., & Amess, K. (2009). The economic impact of private equity: what we know and what we would like to know. *Venture Capital*, *11*(1), 1–21.

Wright, M., Hoskisson, R. E., & Busenitz, L. W. (2001). Firm rebirth: Buyouts as facilitators of strategic growth and entrepreneurship. *Academy of Management Perspectives*, *15*(1), 111–125.

Zimmermann, V. (2014). *KfW SME Panel 2013: How German SMEs finance their innovations*. KFW Economic Research.

Appendix A: Additional Tables and Figures

1. Robustness Checks on Pre-Buyout Growth

Private Buyouts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
POSTPE	1.223	0.00772	0.0852**	0.0621	-0.00450	-0.0324	0.00781	0.694	3.479**
	(1.162)	(0.0107)	(0.0414)	(0.0387)	(0.101)	(0.215)	(0.0405)	(1.074)	(1.717)
DD	1.488	0.0159	0.0981***	0.0810***	0.266***	0.169	0.102**	-0.219	-5.960***
	(1.174)	(0.00974)	(0.0319)	(0.0286)	(0.0990)	(0.152)	(0.0472)	(0.998)	(1.765)
POSTGR	1.545	-0.00579	0.747***	0.661***	0.655**	-0.234	-0.153	0.292	1.566
	(2.666)	(0.0315)	(0.130)	(0.107)	(0.311)	(0.572)	(0.140)	(3.269)	(4.025)
lnIndex	1.426	-0.00186	0.304**	0.0531	0.214	0.906	0.0293	-2.506	-9.165
	(3.448)	(0.0366)	(0.139)	(0.130)	(0.363)	(0.975)	(0.165)	(3.536)	(6.392)
Constant	-10.84	0.0904	13.91***	4.704***	12.87***	1.866	-0.171	44.78	144.2*
	(46.19)	(0.489)	(1.863)	(1.737)	(4.846)	(13.06)	(2.212)	(47.14)	(85.67)
Observations	978	978	978	978	978	766	978	978	978
R-squared	0.839	0.764	0.973	0.972	0.941	0.800	0.652	0.778	0.914
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 17: Private buyouts pre-buyout growth robustness check

Divisional Buyouts

VARIABLES	(1) EBITDA	(2) EBITDAm	(3) ln(Sales)	(4) ln(Empl)	(5) ln(Fixed Assets)	(6) ln(CAPEX)	(7) ROOA	(8) NWC turnover	(9) FA turnover
POSTPE	-1.661	-0.00289	0.0979**	0.109***	0.212***	-0.229	-0.0228	2.724**	-3.842**
	(2.010)	(0.0119)	(0.0420)	(0.0352)	(0.0797)	(0.225)	(0.0500)	(1.214)	(1.666)
DD	2.157*	0.0250*	-0.157**	-0.0480	-0.205**	0.278	0.0789	1.179	1.531
	(1.266)	(0.0138)	(0.0682)	(0.0425)	(0.0920)	(0.206)	(0.0603)	(1.232)	(1.870)
POSTGR	10.47*	-0.00113	0.666***	0.384***	0.181	-0.946	0.0144	0.682	16.18**
	(5.437)	(0.0502)	(0.200)	(0.0964)	(0.284)	(0.660)	(0.196)	(3.634)	(6.385)
lnIndex	3.671	0.00281	0.651***	0.282**	0.219	2.561***	0.0806	-3.671	13.38**
	(6.348)	(0.0564)	(0.249)	(0.132)	(0.281)	(0.952)	(0.188)	(4.170)	(6.147)
Constant	-43.36	0.0380	8.771**	1.338	12.55***	-21.70	-0.818	62.81	-168.5**
	(87.95)	(0.782)	(3.468)	(1.824)	(3.908)	(13.17)	(2.612)	(57.53)	(85.13)
Observations	618	618	618	618	618	483	618	618	618
R-squared	0.599	0.570	0.947	0.971	0.913	0.750	0.444	0.792	0.863
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 18: Divisional buyouts pre-buyout growth robustness check

Secondary Buyouts

VARIABLES	(1) EBITDA	(2) EBITDAm	(3) ln(Sales)	(4) ln(Empl)	(5) ln(Fixed Assets)	(6) ln(CAPEX)	(7) ROOA	(8) NWC turnover	(9) FA turnover
POSTPE	1.908***	0.000466	0.186***	0.109***	0.130*	0.0561	-0.0107	1.535	0.681
	(0.654)	(0.00661)	(0.0284)	(0.0238)	(0.0684)	(0.145)	(0.0409)	(0.948)	(1.184)
DD	0.823	0.00415	0.0141	0.0220	0.176**	0.516***	-0.0566	0.0430	-0.506
	(0.719)	(0.00911)	(0.0285)	(0.0223)	(0.0770)	(0.142)	(0.0561)	(0.788)	(1.537)
POSTGR	1.777	0.0154	0.608***	0.392***	0.833***	-0.294	0.218*	-3.894	-11.16***
	(2.074)	(0.0202)	(0.113)	(0.0701)	(0.203)	(0.362)	(0.120)	(2.885)	(4.102)
lnIndex	2.502	0.00823	0.216**	0.0570	0.228	1.494**	0.0881	0.518	-4.693
	(2.390)	(0.0218)	(0.0839)	(0.0712)	(0.253)	(0.636)	(0.120)	(2.742)	(3.768)
Constant	-28.54	-0.0218	14.72***	4.533***	12.39***	-6.668	-0.903	4.336	83.24
	(32.93)	(0.301)	(1.151)	(0.981)	(3.481)	(8.719)	(1.646)	(37.64)	(52.04)
Observations	1,008	1,008	1,008	1,008	1,008	801	1,008	1,008	1,008
R-squared	0.757	0.825	0.967	0.973	0.928	0.793	0.584	0.773	0.873
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 19: Secondary buyouts pre-buyout growth robustness check

2. Regression testing on Size Effect

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
Panel A: Small size									
POST	1.398***	0.00772	0.218***	0.153***	0.222***	-0.127	-0.0233	1.562*	0.0831
	(0.332)	(0.00862)	(0.0344)	(0.0250)	(0.0669)	(0.136)	(0.0415)	(0.838)	(1.266)
DD	0.839**	0.0273***	0.0357	0.107***	0.235***	0.341***	0.0825	-0.714	-1.468
	(0.354)	(0.00997)	(0.0409)	(0.0239)	(0.0787)	(0.131)	(0.0539)	(0.805)	(1.498)
lnIndex	-1.070	-0.0174	0.275*	-0.0775	-0.393*	1.682***	0.0321	0.143	11.85***
	(1.171)	(0.0335)	(0.146)	(0.0807)	(0.231)	(0.626)	(0.146)	(2.839)	(4.411)
Constant	17.73	0.319	13.43***	5.621***	20.21***	-9.703	-0.111	10.17	-139.8**
	(16.01)	(0.456)	(1.990)	(1.099)	(3.147)	(8.527)	(1.988)	(38.62)	(60.02)
Observations	1,284	1,284	1,284	1,284	1,284	1,015	1,284	1,284	1,284
R-squared	0.799	0.758	0.926	0.887	0.901	0.736	0.560	0.782	0.902
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Panel B: Big Size									
POST	0.336	-0.00440	0.127***	0.0917***	0.0685	-0.0219	0.00780	1.204	0.0791
	(1.330)	(0.00597)	(0.0280)	(0.0268)	(0.0665)	(0.156)	(0.0268)	(0.875)	(0.997)
DD	2.051*	0.000956	0.0372	-0.00131	0.0736	0.296**	-0.00897	0.964	-2.863**
	(1.112)	(0.00658)	(0.0268)	(0.0255)	(0.0646)	(0.125)	(0.0343)	(0.813)	(1.251)
lnIndex	7.033*	0.0333	0.379***	0.260***	0.700***	1.305*	0.135	-3.046	-10.31***
	(4.075)	(0.0203)	(0.0902)	(0.0884)	(0.242)	(0.685)	(0.0994)	(2.603)	(3.731)
Constant	-84.86	-0.380	13.27***	2.547**	6.807**	-3.254	-1.614	52.39	158.0***
	(55.54)	(0.277)	(1.230)	(1.205)	(3.307)	(9.339)	(1.361)	(35.39)	(51.22)
Observations	1,320	1,320	1,320	1,320	1,320	1,035	1,320	1,320	1,320
R-squared	0.748	0.758	0.961	0.947	0.925	0.754	0.612	0.774	0.870
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 20: Test on size effect

3. Regression including Year 0 in Post-Buyout Period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	EBITDA	EBITDAm	ln(Sales)	ln(Empl)	ln(Fixed Assets)	ln(CAPEX)	ROOA	NWC turnover	FA turnover
POST	1.483	0.00884	0.134***	0.111***	0.0480	-0.0188	0.0125	0.583	3.004*
	(1.092)	(0.0104)	(0.0444)	(0.0394)	(0.101)	(0.201)	(0.0402)	(1.085)	(1.616)
DD incl. 0	1.615	0.0162*	0.122***	0.102***	0.288***	0.183	0.0851*	-0.420	-5.773***
	(1.124)	(0.00861)	(0.0294)	(0.0271)	(0.0862)	(0.143)	(0.0435)	(0.953)	(1.617)
lnIndex	0.488	-0.0106	0.315**	0.0292	0.169	0.736	-0.0368	-1.530	-6.189
	(3.247)	(0.0338)	(0.147)	(0.132)	(0.349)	(0.897)	(0.160)	(3.420)	(5.986)
Constant	1.699	0.207	13.76***	5.023***	13.48***	4.147	0.713	31.74	104.4
	(43.48)	(0.451)	(1.962)	(1.759)	(4.663)	(12.01)	(2.150)	(45.62)	(80.26)
Observations	2,604	2,604	2,604	2,604	2,604	2,050	2,604	2,604	2,604
R-squared	0.844	0.767	0.973	0.972	0.945	0.790	0.642	0.772	0.920
Company FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 21: Test including year 0 in post-buyout period

Appendix B: Examples of Data Sample

1. Example of missing Revenue found in Running Text

Ertragslage

Muttergesellschaft ist die Erpo Holding GmbH. Bei der Erpo Holding GmbH handelt es sich um eine reine Beteiligungsgesellschaft. Sie betreibt ke… Erpo Möbelwerk GmbH keine Geschäftsbeziehung.

Revenue figures are manually found in the running text

Die Erpo M… 2011 Umsätze in Höhe von Mio. € 22,3 (Vorjahr: Mio. € 20,0).
Bestandsv…gen Erzeugnissen belaufen sich auf T€ -68 (Vorjahr: T€ 30). Die aktivierten Eigenleistungen betragen T€ 63 (Vorjahr: T€ 165). Die sonstigen betriebliche Erträge belaufen sich auf T€ 271 (Vorjahr: T€ 219). In den sonstigen betrieblichen Erträgen sind im Wesentlichen Mieteinnahmen in Höhe von T€ 82 (Vorjahr: T€ 48), Erträge aus Sachbezügen von T€ 42 (Vorjahr: T€ 34) und Erträge aus Auflösung von Rückstellungen von T€ 42 (Vorjahr: T€ 1) zu nennen.

Die Materialaufwendungen beliefen sich 2011 auf Mio. € 11,0 (Vorjahr: Mio. € 9,7). Die Materialaufwandsquote beträgt 47,6 % und ist gegenüber dem Vorjahr (48,5 %) leicht gesunken.

Die Personalaufwendungen betrugen im Geschäftsjahr 2011 Mio. € 5,3 (Vorjahr Mio. € 5,0), die Personalaufwandsquote 23,8 % (Vorjahr: 24,8 %). Die Reduzierung lässt sich durch den gestiegenen Umsatz erklären.

Die sonstigen betrieblichen Aufwendungen in Höhe von Mio. € 4,3 (Vorjahr: Mio. € 4,0) betreffen mit T€ 463 (Vorjahr: T€ 549) Betriebsaufwendungen, Verwaltungsaufwendungen von T€ 1.241 (Vorjahr: T€ 1.201) sowie Vertriebsaufwendungen von T€ 2.540 (Vorjahr: T€ 2.214). Die planmäßigen Abschreibungen beliefen sich in 2011 auf T€ 598 (Vorjahr: T€ 578).

Dadurch ergab sich ein Jahresüberschuss von T€ 787 (Vorjahr: Jahresüberschuss T€ 482). Die Geschäftsführung wird der Gesellschafterversammlung vorschlagen, den Jahresüberschuss auf neue Rechnung vorzutragen.

Gewinn- und Verlustrechnung für das Geschäftsjahr vom 01. Januar bis 31. Dezember 2011

	2011 EUR	EUR	Vorjahr EUR
1. Rohergebnis		11.557.085,07	10.736.881,31
2. Personalaufwand			
a) Löhne und Gehälter	(4.395.291,49)		(4.083.451,18)
b) soziale Abgaben und Aufwendungen für Alter… 21) Unterstützung			(891.789,04)
- davon für Altersversorgung: EUR 5.280,43 (Vj…			
		(5.305.945,70)	(4.975.240,22)
3. Abschreibungen			
Abschreibungen auf immaterielle Vermögensgegenstände des Anlagevermögens und Sachanlagen		(598.092,35)	(578.404,16)
4. sonstige betriebliche Aufwendungen		(4.302.953,99)	(4.010.390,52)
5. sonstige Zinsen und ähnliche Erträge		603,46	1.002,14
6. Zinsen und ähnliche Aufwendungen		(249.565,63)	(191.709,47)
		(248.962,17)	(190.707,33)
7. Ergebnis der gewöhnlichen Geschäftstätigkeit		1.101.130,86	982.139,08
8. außerordentliche Aufwendungen		0,00	(278.206,71)
9. Steuern vom Einkommen und vom Ertrag		(284.343,10)	(192.723,59)
10. sonstige Steuern		(29.647,10)	(29.647,10)
11. Jahresüberschuss		787.140,66	481.561,68

Income statement does not display the **revenue** but only the **gross margin**

Figure 17: Example of revenue found in text
Source: Bundesanzeiger, annual statement 2011, Erpo Möbelwerke GmbH

2. Example Deduction of Shares in Affiliated Companies

Norafin Industries GmbH

Aktiva	**2009**	**2010**	**2011**
A. Anlagevermögen	2.751.001,79	4.151.608,47	4.328.242,76
I. Immaterielle Vermögensgegenstände	45.145,35	31.126,35	27.030,48
II. Sachanlagen	2.705.856,44	3.058.877,84	3.716.563,56
1. Grundstücke	1.149.0		9
2. Technische Anlagen und Maschinen	814.5		4
3. Andere Anlagen	215.0		3
5. Anlagen im Bau	527.29		
III. Finanzanlagen		1.061.[illegible]4,28	584.648,72
1. Anteile an verbundenen Unternehmen*		1.061.604,28	584.648,72
B. Umlaufvermögen	4.842.283,50	3.506.986,99	5.397.720,07
I. Vorräte	1.784.383,28	1.335.727,01	1.630.655,11
1. Roh-, Hilfs- und Betriebsstoffe	1.204.7		
4. Unfertige Erzeugnisse	100.3		
5. Fertige Erzeugnisse	479.2		
III. Forderungen	3.044.34		12
1. Forderungen aus Lieferungen und Leistungen	2.782.313,41	2.011.[illegible]2,81	3.230.550,25
2. Forderungen gegen verbundene Unternehmen*	127.529,94	126.183,28	67.025,99
3. Sonstige Vermögensgegenstände	134.500,83	22.235,83	68.601,88
IV. Kassenbestand	13.556,04	11.398,06	410.886,84
Aktiva Gesamt	7633942,08	7707308,1	9758467,62
Passiva			
A. Eigenkapital	2335662,79	4510458,31	6714685,39
I. Gezeichnetes Kapital	100.000,00	100.000,00	100.000,00
II. Kapitalrücklage	1.500.000,00	2.561.604,28	2.561.604,28
III. Bilanzgewinn/Bilanzverlust	735.662,79	1.848.854,03	4.053.081,11
1. Gewinnvortrag/Verlustvortrag	495.456,64	735.662,79	1.848.854,03
2. Jahresüberschuß/Jahresfehlbetrag	240.20		08
B. Rückstellungen	182.7		5
II. Sonstige Rückstellungen	182.7		
C. Verbindlichkeiten	5115		4
I. Verbindlichkeiten gegenüber Kreditinstituten	2.522.42		0
II. Verbindlichkeiten aus Lieferungen und Leistungen	1.252.946,67	355.[illegible]1,02	613.163,28
III. Verbindlichkeiten gegenüber verb. Unternehmen*	1.240.743,79	1.243.158,63	530.362,90
IV. Sonstige Verbindlichkeiten	99.451,07	181.673,05	325.340,86
Passiva Gesamt	7.633.942,08	7.707.308,10	9.758.467,62

*=shares in affiliated companies

Deduction of EUR 1m from fixed assets in 2010

*=receivables from affiliated companies

No considered in working capital

*=payables to affiliated companies

No considered in working capital

Figure 18: Example shares in affiliated companies
Source: Bundesanzeiger, annual statement 2011, Norafin Industries GmbH

3. Example of Recognition of Goodwill

Gabo Systemtechnik GmbH

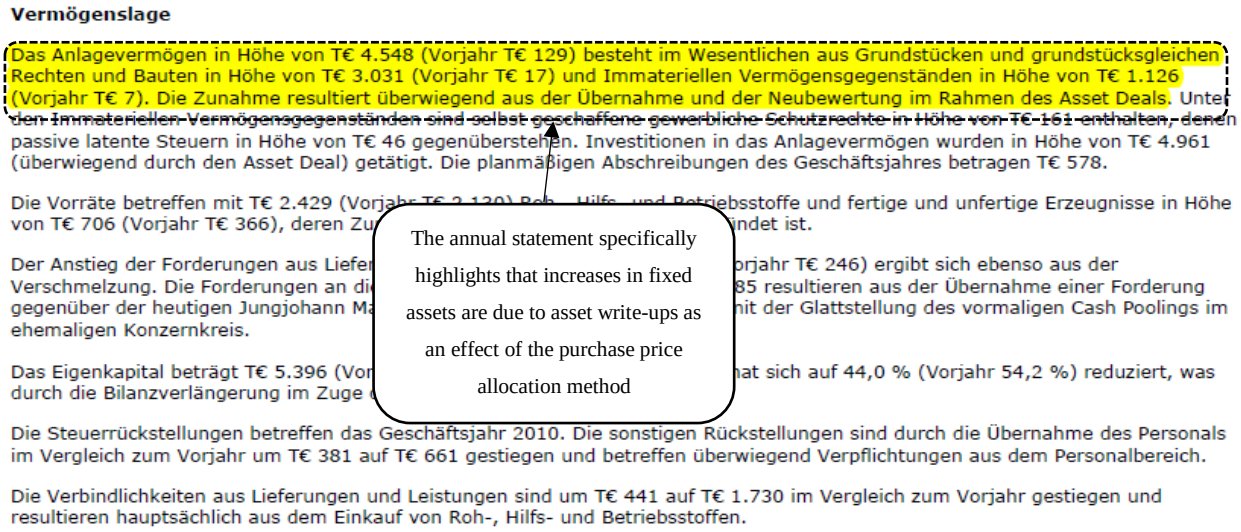
Aktiva	**2009**	**2010**	**2011**
A. Anlagevermögen	4.992.348,08	38.362.464,83	32.862.554,47
I. Immaterielle Vermögensgegenstände	25.159,20	31.726.195,03	24.701.307,00
5. Entgeltlich erworbene Konzessionen		6.506.798,15	5.791.503,00
6. Geschäfts- oder Firmenwert*		25.219.396,88	18.909.804,00
II. Sachanlagen	4.967.188,88	6.580.86	8.136.014,93
1. Grundstücke	3.495.654,28	4.150.217	
2. Technische Anlagen und Maschinen	735.971,69	845.325	
3. Andere Anlagen, Betriebs- und Geschäfts	711.074,39	654.443	
4. Geleistete Anzahlungen und Anlagen im	24.488,52	930.879	
B. Umlaufvermögen	7.476.627,05	7.926.771	
I. Vorräte	3.067.760,60	31.781.598,	
1. Roh-, Hilfs- und Betriebsstoffe	551.343,09	737.873,72	1.320.999,59
2. Unfertige Erzeugnisse, unfertige Leistung	650.474,27	557.262,75	587.670,75
3. Fertige Erzeugnisse und Waren	1.865.943,24	1.810.215,12	3.632.781,12
4. Geleistete Anzahlungen für Vorräte	0	55.403,75	25.232,54
II. Forderungen und sonstige Vermögensgege	2.252.338,66	3.240.717,51	3.080.650,17
1. Forderungen aus Lieferungen und Leistur	2.162.542,76	3.197.275,82	2.817.571,11
4. Sonstige Vermögensgegenstände	79.303,58	43.441,69	258.227,72
III. Kassenbestand, Guthaben bei Kreditinstit	2.156.527,79	1.563.602,30	5.566.458,33
C. Aktive Rechnungsabgrenzungsposten	3.656,82	1.045.875,53	860.601,80
Total Assets	12.472.631,95	47.335.111,76	47.948.966,23

*=goodwill

EUR 25m recogniton of goodwill in the buyout year 2010

Figure 19: Example of a goodwill recognition
Source: Bundesanzeiger, annual statement 2011, Gabo Systemtechnik GmbH

4. Example of an Asset Write-Up



Vermögenslage

Das Anlagevermögen in Höhe von T€ 4.548 (Vorjahr T€ 129) besteht im Wesentlichen aus Grundstücken und grundstücksgleichen Rechten und Bauten in Höhe von T€ 3.031 (Vorjahr T€ 17) und Immateriellen Vermögensgegenständen in Höhe von T€ 1.126 (Vorjahr T€ 7). Die Zunahme resultiert überwiegend aus der Übernahme und der Neubewertung im Rahmen des Asset Deals. Unter den Immateriellen Vermögensgegenständen sind selbst geschaffene gewerbliche Schutzrechte in Höhe von T€ 161 enthalten, denen passive latente Steuern in Höhe von T€ 46 gegenüberstehen. Investitionen in das Anlagevermögen wurden in Höhe von T€ 4.961 (überwiegend durch den Asset Deal) getätigt. Die planmäßigen Abschreibungen des Geschäftsjahres betragen T€ 578.

Die Vorräte betreffen mit T€ 2.429 (Vorjahr T€ 2.120) Roh-, Hilfs- und Betriebsstoffe und fertige und unfertige Erzeugnisse in Höhe von T€ 706 (Vorjahr T€ 366), deren Zu ndet ist.

Der Anstieg der Forderungen aus Liefer orjahr T€ 246) ergibt sich ebenso aus der Verschmelzung. Die Forderungen an di 85 resultieren aus der Übernahme einer Forderung gegenüber der heutigen Jungjohann Ma it der Glattstellung des vormaligen Cash Poolings im ehemaligen Konzernkreis.

Das Eigenkapital beträgt T€ 5.396 (Vor at sich auf 44,0 % (Vorjahr 54,2 %) reduziert, was durch die Bilanzverlängerung im Zuge

Die Steuerrückstellungen betreffen das Geschäftsjahr 2010. Die sonstigen Rückstellungen sind durch die Übernahme des Personals im Vergleich zum Vorjahr um T€ 381 auf T€ 661 gestiegen und betreffen überwiegend Verpflichtungen aus dem Personalbereich.

Die Verbindlichkeiten aus Lieferungen und Leistungen sind um T€ 441 auf T€ 1.730 im Vergleich zum Vorjahr gestiegen und resultieren hauptsächlich aus dem Einkauf von Roh-, Hilfs- und Betriebsstoffen.

The annual statement specifically highlights that increases in fixed assets are due to asset write-ups as an effect of the purchase price allocation method

Figure 20: Example of an asset write-up
Source: Bundesanzeiger, annual statement 2011, Erpo Möbelwerke GmbH

5. Excerpt of Data used for Analysis

UID	Company Name	Deal year	Year	time	EBIT	Operating Revenue	Total Assets	Fixed Assets	Working Cap	Stock	Debtors	Creditors	Depreciation	Operating Assets	Industry	Bygoet Typ	EBITDA
62	CDA GMBH	2009	2009	-2	710.605	25.812.373	12.541.567	3.665.613	3.829.235	1.300.650	3.558.586	1.030.000	-2.563.435	7.494.847	1	1	
62	CDA GMBH	2010	2010	-1	2.804.682	26.737.948	12.831.873	4.343.481	3.875.823	1.341.596	3.822.227	1.288.000	-1.943.653	8.819.302	1	1	
62	CDA GMBH	2011	2011	0	2.685.367	30.443.916	13.462.583	4.008.550	4.122.823	1.593.744	3.313.217	784.133	-1.806.204	8.131.377	1	1	
62	CDA GMBH	2012	2012	1	2.013.185	27.750.454	13.146.212	3.073.085	3.161.964	1.632.410	3.842.760	2.753.206	-1.480.236	6.261.047	1	1	
62	CDA GMBH	2013	2013	2	3.388.709	33.688.167	15.505.965	5.728.317	4.473.306	3.134.125	3.650.233	2.311.051	-1.530.625	10.191.624	1	1	
62	CDA GMBH	2014	2014	3	2.223.502	38.397.691	15.575.708	4.325.164	4.568.281	2.365.835	4.538.676	2.397.290	-1.325.635	8.883.466	1	1	
63	LIBERTY DANEMMO	2008	2008	-3	-2.434.733	27.412.000	6.513.327	3.596.222	1.252.127	1.252.127	0,1	0	-609.124	4.447.379	3	2	
63	LIBERTY DANEMMO	2009	2009	-2	100.000	25.257.000	9.060.272	2.195.000	957.000	957.000	0,1	0	-954.567	3.193.936	3	2	
63	LIBERTY DANEMMO	2010	2010	-1	3.088.818	23.628.000	10.017.414	1.673.223	942.398	942.398	0,1	0	-304.284	2.804.376	3	2	
63	LIBERTY DANEMMO	2011	2011	0	4.751.143	26.786.000	10.444.148	1.724.160	1.215.662	1.215.662	0,1	0	-293.856	2.938.542	3	2	
63	LIBERTY DANEMMO	2012	2012	1	4.393.103	30.186.244	8.804.293	3.055.055	841.647	1.419.532	183.211	761.096	-307.030	2.759.865	3	2	
63	LIBERTY DANEMMO	2013	2013	2	3.664.932	33.405.051	9.073.534	2.656.354	1.594.345	1.594.345	343.854	1.548.417	-348.664	3.045.835	3	2	
63	LIBERTY DANEMMO	2014	2014	3	4.894.497	39.102.434	10.544.222	3.426.525	994.046	2.606.683	424.364	2.037.001	-484.279	4.420.270	3	2	
64	ROMACO PHARMAT	2008	2008	-3	3.398.285	38.814.494	30.641.728	10.417.074	7.155.198	2.530.839	7.196.442	2.572.084	-573.582	8.748.563	1	3	
64	ROMACO PHARMAT	2009	2009	-2	1.475.015	36.660.808	26.804.868	6.488.843	3.020.424	4.415.896	7.140.784	3.126.257	-670.041	10.396.347	1	3	
64	ROMACO PHARMAT	2010	2010	-1	186.306	32.234.056	27.078.257	6.624.606	7.015.985	4.718.338	6.208.320	3.907.733	-750.092	8.521.671	1	3	
64	ROMACO PHARMAT	2011	2011	0	-1.240.501	35.944.410	48.636.235	24.798.435	11.532.663	6.514.885	7.763.936	2.752.251	-594.749	15.365.836	1	3	
64	ROMACO PHARMAT	2012	2012	1	5.557.059	45.825.820	53.141.986	25.875.878	8.476.696	7.276.229	4.557.003	462.550	3.615.116				
64	ROMACO PHARMAT	2013	2013	2	1.021.550	35.944.410	50.319.342	25.376.639	10.673.023	3.339.784	5.267.281	3.934.052	-392.678	11.285.264	1	3	
64	ROMACO PHARMAT	2014	2014	3	3.127.742	36.743.722	75.649.146	40.938.195	12.004.085	10.846.365	4.529.736	3.372.076	-197.795	12.328.479	1	3	
65	FRANZ ZIENER GMB	2008	2008	-3	3.655.729	24.039.026	8.214.840	272.310	3.165.073	1.369.404	2.145.028	951.359	-107.786	3.435.963	2	2	
65	FRANZ ZIENER GMB	2003	2003	-2	4.417.713	28.315.576	10.682.467	232.411	3.965.843	1.690.843	3.403.321	1.128.328	-94.783	4.258.253	2	2	
65	FRANZ ZIENER GMB	2010	2010	-1	6.365.617	31.900.978	11.830.403	212.343	6.784.260	1.911.770	4.511.770	1.696.374	-102.352	7.067.193	2	2	
65	FRANZ ZIENER GMB	2011	2011	0	4.628.626	35.665.306	10.842.622	243.200	1.816.644	1.816.644	4.665.343	1.456.363	-106.870	8.125.843	2	2	
65	FRANZ ZIENER GMB	2012	2012	1	2.614.360	31.370.535	6.393.421	236.763	6.823.353	3.151.316	4.361.377	696.442	-106.870	6.950.122	2	2	
65	FRANZ ZIENER GMB	2013	2013	2	2.551.287	32.312.639	3.763.758	234.339	7.530.229	4.435.595	4.155.020	1.060.486	-76.486	7.764.568	2	2	
65	FRANZ ZIENER GMB	2014	2014	3	2.043.617	29.546.723	10.006.967	223.391	7.868.585	4.305.973	4.655.441	672.823	-68.735	8.112.576	2	2	
66	ADA COSMETICS INT	2008	2008	-3	1.616.607	23.528.000	23.333.176	17.033.883	44.904	44.904	0,1	0	-1.737.343	7.447.603	2	2	
66	ADA COSMETICS INT	2009	2009	-2	1.454.387	22.669.000	23.440.085	17.880.068	1.548.655	68.655	2.071.000	591.000	-1.325.563	8.058.592	2	2	
66	ADA COSMETICS INT	2010	2010	-1	1.473.332	24.151.345	23.377.269	17.206.034	1.623.886	94.576	2.176.804	447.494	-1.339.310	7.275.357	2	2	
66	ADA COSMETICS INT	2011	2011	0	1.363.436	23.716.316	24.640.023	17.515.153	1.725.084	123.836	2.008.037	406.788	-823.780	5.643.000	2	2	
66	ADA COSMETICS INT	2012	2012	1	3.123.786	24.128.361	27.854.523	17.368.020	1.767.448	118.700	2.056.263	407.515	-640.074	5.545.314	2	2	
66	ADA COSMETICS INT	2013	2013	2	5.384.886	26.837.652	29.836.145	16.864.987	1.774.018	127.204	2.114.875	468.060	-667.134	5.273.893	2	2	
66	ADA COSMETICS INT	2014	2014	3	5.618.013	28.041.525	36.902.357	16.461.359	1.635.282	193.097	1.960.796	438.612	-719.565	4.634.001	2	2	
67	GOLDECK SUESSWAI	2008	2008	-3	5.142.063	26.682.582	17.487.939	7.243.155	6.396.792	1.851.792	5.145.000	0	-631.723	14.233.946	1	2	
67	GOLDECK SUESSWAI	2009	2009	-2	5.179.332	28.297.312	15.451.954	6.735.105	5.788.020	1.337.771	5.364.793	314.544	-580.348	12.593.124	1	2	
67	GOLDECK SUESSWAI	2010	2010	-1	3.760.215	27.318.888	16.378.029	6.581.608	6.397.121	1.903.760	5.205.191	717.631	-550.223	12.378.123	1	2	
67	GOLDECK SUESSWAI	2011	2011	0	4.442.706	28.346.923	23.393.667	9.431.639	1.163.787	2.341.361	5.750.436	922.000	-561.124	16.501.436	1	2	
67	GOLDECK SUESSWAI	2012	2012	1	3.461.485	28.184.879	26.398.781	8.445.165	7.314.893	2.341.577	7.505.657	1.406.350	-1.039.036	21.850.252	1	2	
67	GOLDECK SUESSWAI	2013	2013	2	1.463.477	23.756.467	12.634.205	7.314.893	2.493.591	7.164.750	1.743.446	-1.214.074	20.539.098	1	2		
67	GOLDECK SUESSWAI	2014	2014	3	771.041	25.902.390	21.785.321	12.209.438	2.066.533	5.991.514	649.783	-1.216.645	19.623.701	1	2		
68	UNITED INITIATORS (	2008	2008	-3	2.167.219	35.523.003	77.366.626	41.055.232	732.025	13.603.401	4.515.214	17.386.590	-7.698.565	33.160.324	1	1	
68	UNITED INITIATORS (	2009	2009	-2	-3.003.119	111.028.107	100.342.619	56.458.500	19.451.166	17.055.267	8.561.892	6.165.932	-8.475.473	75.781.230	1	1	
68	UNITED INITIATORS (	2010	2010	-1	9.393.634	157.703.235	95.083.150	44.151.097	22.301.830	17.361.030	11.434.152	7.118.352	-7.602.603	66.308.774	1	1	
68	UNITED INITIATORS (	2011	2011	0	16.555.342	161.066.516	101.393.451	41.121.982	25.743.863	21.223.960	12.300.302	7.780.936	-7.846.208	66.725.428	1	1	
68	UNITED INITIATORS (	2012	2012	1	3.931.338	180.408.022	130.316.304	71.807.608	35.666.020	25.697.343	17.823.210	8.061.133	-9.411.277	107.336.416	1	1	
68	UNITED INITIATORS (	2013	2013	2	14.147.793	191.571.916	153.385.368	80.626.027	22.791.177	28.867.663	15.032.160	10.173.466	-10.294.351	108.201.223	1	1	
68	UNITED INITIATORS (	2014	2014	3	19.211.864	212.965.664	147.062.342	80.195.688	33.942.715	25.697.343	20.247.737	9.172.686	-11.066.106	120.006.143	1	1	
69	LOSBERGER GMBH	2008	2008	-3	4.131.283	65.232.000	64.343.439	21.854.786	11.141.477	7.871.230	5.457.428	2.187.180	-6.086.348	32.396.263	2	5	
69	LOSBERGER GMBH	2009	2009	-2	1.375.544	42.438.361	55.496.672	18.227.766	5.800.967	4.831.976	2.701.135	1.792.144	-6.210.559	24.028.733	2	5	
69	LOSBERGER GMBH	2010	2010	-1	2.742.000	45.239.000	53.562.115	16.035.361	5.537.511	4.938.940	3.103.962	2.445.331	-6.337.305	21.612.872	2	5	
69	LOSBERGER GMBH	2011	2011	0	2.355.000	50.369.000	44.928.667	15.142.425	3.894.874	6.438.700	3.456.174	0	-6.466.638	25.037.239	2	5	
69	LOSBERGER GMBH	2012	2012	1	2.483.000	55.467.000	50.136.106	16.263.301	8.784.547	6.541.000	5.904.663	3.251.336	-7.614.645	25.056.446	2	5	
69	LOSBERGER GMBH	2013	2013	2	2.333.000	50.112.000	63.383.432	19.211.753	3.587.395	3.587.395	4.941.396	6.639.609	-9.864.309	22.759.146	2	5	
69	LOSBERGER GMBH	2014	2014	3	4.016.000	60.588.000	78.661.275	17.794.201	3.638.106	4.078.153	13.253.195	7.692.212	-10.441.208	27.433.337	2	5	
70	STRAUSS INNOVATIC	2008	2008	-3	-14.184.461	135.904.020	21.557.701	12.417.191	12.417.191	13.555.140	24.232	1.162.180	-1.463.663	16.295.598	2	1	
70	STRAUSS INNOVATIC	2009	2009	-2	-7.878.446	125.092.614	20.854.542	3.723.628	8.744.504	9.856.639	14.841	1.127.036	-1.375.752	12.474.152	2	1	
70	STRAUSS INNOVATIC	2010	2010	-1	-1.892.462	118.276.736	16.980.230	1.730.303	9.178.255	10.354.488	161.556	1.331.789	-803.238	10.908.559	2	1	
70	STRAUSS INNOVATIC	2011	2011	0	-3.043.160	118.202.666	16.105.742	1.523.010	9.332.362	10.876.104	208.846	1.752.618	-639.762	10.855.372	2	1	
70	STRAUSS INNOVATIC	2012	2012	1	-5.328.897	171.391.295	37.422.957	5.316.718	7.690.873	23.448.117	1.157.284	16.314.529	-1.255.967	12.607.841	2	1	
70	STRAUSS INNOVATIC	2013	2013	2	-14.081.602	164.883.175	37.563.520	5.777.421	3.074.263	26.328.938	132.654	17.387.329	-1.403.040	14.751.664	2	1	
70	STRAUSS INNOVATIC	2014	2014	3	-9.824.000	35.263.000	56.538.145	4.193.306	4.796.598	23.321.125	421.000	19.545.527	-1.157.304	3.016.808	2	1	

Table 22: Excerpt of data sample used for analysis

6. Example of a Typical Annual Statement retrieved from Bundesanzeiger

Figure 21: Excerpt of a typical annual statement
Source: Bundesanzeiger, retrieved 07/05/2018 from: https://www.bundesanzeiger.de/ebanzwww/wexsservlet

Hinterlegte Jahresabschlüsse (Bilanzen) stehen im Unternehmensregister zur Beauskunftung zur Verfügung.

Name	Bereich	Information	V.-Datum	Relevanz
Erpo Möbelwerk GmbH Ertingen	Rechnungslegung/Finanzberichte	Jahresabschluss zum Geschäftsjahr vom 01.01.2011 bis zum 31.12.2011	11.03.2013	95%

Erpo Möbelwerk GmbH

Ertingen

Jahresabschluss zum Geschäftsjahr vom 01.01.2011 bis zum 31.12.2011

Bilanz zum 31. Dezember 2011

AKTIVSEITE

	31.12.2011 EUR	EUR	Vorjahr EUR
A. ANLAGEVERMÖGEN			
I. Immaterielle Vermögensgegenstände			
1. Selbst geschaffene gewerbliche Schutzrechte und ähnliche Rechte und Werte	183.098,00		160.992,62
2. Entgeltlich erworbene Konzessionen, gewerbliche Schutzrechte und ähnliche Rechte und Werte sowie Lizenzen an solchen Rechten und Werten	722.604,00		965.571,00
		905.702,00	1.126.563,62
II. Sachanlagen			
1. Grundstücke, grundstücksgleiche Rechte und Bauten einschließlich der Bauten auf fremden Grundstücken	2.870.476,25		3.030.862,25
2. technische Anlagen und Maschinen	96.682,75		87.201,75
3. andere Anlagen, Betriebs- und Geschäftsausstattung	295.525,00		303.467,00
		3.262.684,00	3.421.531,00
		4.168.386,00	4.548.094,62
B. UMLAUFVERMÖGEN			
I. Vorräte			
1. Roh-, Hilfs- und Betriebsstoffe	2.199.349,25		2.428.785,32
2. unfertige Erzeugnisse	327.072,36		355.804,10
3. fertige Erzeugnisse und Waren	328.965,54		350.135,32
		2.855.387,15	3.134.724,74
II. Forderungen und sonstige Vermögensgegenstände			
1. Forderungen aus Lieferungen und Leistungen	2.623.644,48		2.663.291,70
2. Forderungen gegen Gesellschafter	785.770,05		985.770,05
3. sonstige Vermögensgegenstände	18.346,76		20.014,08
		3.427.761,29	3.669.075,83
III. Kassenbestand und Guthaben bei Kreditinstituten		1.441.974,78	769.681,68
		7.725.123,22	7.573.482,25
C. RECHNUNGSABGRENZUNGSPOSTEN		258.443,31	132.934,47
		12.151.952,53	12.254.511,34

PASSIVSEITE

	31.12.2011 EUR	EUR	Vorjahr EUR
	31.12.2011 EUR	EUR	Vorjahr EUR
A. EIGENKAPITAL			
I. Gezeichnetes Kapital		26.000,00	26.000,00
II. Kapitalrücklage		5.208.610,49	5.208.610,49
III. Gewinnvortrag / Verlustvortrag		161.618,97	(319.942,71)
IV. Jahresüberschuss		787.140,66	481.561,68
		6.183.370,12	5.396.229,46
B. RÜCKSTELLUNGEN			
1. Steuerrückstellungen	422.830,26		146.911,57
2. sonstige Rückstellungen	766.609,45		660.601,60
		1.189.439,71	807.513,17
C. VERBINDLICHKEITEN			
1. Verbindlichkeiten gegenüber Kreditinstituten	3.120.000,00		3.900.000,00
2. Verbindlichkeiten aus Lieferungen und Leistungen	1.189.357,12		1.729.588,60
3. sonstige Verbindlichkeiten	415.549,15		375.368,09
		4.724.906,27	6.004.956,69
D. PASSIVE LATENTE STEUERN		54.236,43	45.812,02
		12.151.952,53	12.254.511,34

Gewinn- und Verlustrechnung für das Geschäftsjahr vom 01. Januar bis 31. Dezember 2011

	2011 EUR	EUR	Vorjahr EUR
1. Rohergebnis		11.557.085,07	10.736.881,31
2. Personalaufwand			
a) Löhne und Gehälter	(4.395.291,49)		(4.083.451,18)
b) soziale Abgaben und Aufwendungen für Altersversorgung und für Unterstützung	(910.654,21)		(891.789,04)
- davon für Altersversorgung: EUR 5.280,43 (Vj.: EUR 553,17)			
		(5.305.945,70)	(4.975.240,22)
3. Abschreibungen			
Abschreibungen auf immaterielle Vermögensgegenstände des Anlagevermögens und Sachanlagen		(598.092,35)	(578.404,16)
4. sonstige betriebliche Aufwendungen		(4.302.953,99)	(4.010.390,52)
5. sonstige Zinsen und ähnliche Erträge		603,46	1.002,14
6. Zinsen und ähnliche Aufwendungen		(249.565,63)	(191.709,47)
		(248.962,17)	(190.707,33)
7. Ergebnis der gewöhnlichen Geschäftstätigkeit		1.101.130,86	982.139,08
8. außerordentliche Aufwendungen		0,00	(278.206,71)
9. Steuern vom Einkommen und vom Ertrag		(284.343,10)	(192.723,59)
10. sonstige Steuern		(29.647,10)	(29.647,10)
11. Jahresüberschuss		787.140,66	481.561,68

Anhang für das Geschäftsjahr 2011

Allgemeine Angaben

Die Gesellschaft ist eine mittelgroße Kapitalgesellschaft i. S. d. § 267 Abs. 2 HGB.

Der Jahresabschluss der Erpo Möbelwerk GmbH, Ertingen, ist nach den Vorschriften des HGB und des GmbHG erstellt. Die Gliederung der Bilanz erfolgt nach den Vorschriften der §§ 266 ff. HGB, die der Gewinn- und Verlustrechnung nach dem Gesamtkostenverfahren gemäß § 275 Abs. 2 HGB.

Rechnungslegungsgrundsätze

Gemäß § 248 Abs. 2 HGB wurde vom Wahlrecht zur Aktivierung von Eigenleistungen gebrauch gemacht.

Immaterielle Vermögensgegenstände und Gegenstände des Sachanlagevermögens, deren Nutzung zeitlich begrenzt ist, werden zu Anschaffungskosten, vermindert um planmäßige Abschreibungen, entsprechend der voraussichtlichen Nutzungsdauer ausgewiesen. Die Abschreibungen erfolgen seit dem 1. Januar 2008 ausschließlich nach der linearen Methode. Geringwertige Anlagegüter mit Anschaffungskosten von EUR 150,00 bis EUR 1.000,00 werden zum Zeitpunkt des Zugangs als Sammelposten geführt und im Wirtschaftsjahr der Bildung und den folgenden vier Wirtschaftsjahren um jeweils ein Fünftel aufgelöst.

Die planmäßigen Abschreibungen werden auf Basis folgender Nutzungsdauern vorgenommen:

Immaterielle Vermögensgegenstände 3 bis 7 Jahre,

Gebäude und andere Räumlichkeiten 10 bis 40 Jahre,

Technische Anlagen und Maschinen 5 bis 10 Jahre,

Betriebs- und Geschäftsausstattung von 3 bis 10 Jahre.

Die Bewertung der Roh-, Hilfs- und Betriebsstoffe erfolgt zu Anschaffungskosten bzw. mit dem niedrigeren beizulegenden Wert. Die unfertigen Erzeugnisse und fertigen Erzeugnisse sind mit ihren Herstellungskosten angesetzt. Diese umfassen Fertigungsmaterial und Fertigungslöhne sowie die Fertigungs- und Materialgemeinkosten. Auf die unfertigen Erzeugnisse wurde wie im Vorjahr ein Zuschlag zur Berücksichtigung der anteiligen Fertigungs- und Materialgemeinkosten vorgenommen. Dieser betrug per 31.12.2011 TEUR 42 (Vorjahr TEUR73).

Die Forderungen und sonstigen Vermögensgegenstände werden mit ihren Nominalwerten abzüglich angemessener Wertberichtigungen bilanziert.

Die flüssigen Mittel und Rechnungsabgrenzungsposten sind mit ihren Nominalwerten ausgewiesen.

Die Rückstellungen erfassen alle dem Grunde nach bestehenden ungewissen Verbindlichkeiten. Sie sind mit ihrem Erfüllungsbetrag bewertet. Rückstellungen mit einer Restlaufzeit von mehr als einem Jahr wurden mit dem ihrer Restlaufzeit entsprechenden durchschnittlichen Marktzinssatz der vergangenen sieben Geschäftsjahre abgezinst.

Die Verbindlichkeiten sind mit ihren Rückzahlungsbeträgen bilanziert.

Erläuterungen zum Jahresabschluss

Anlagevermögen

Die Zusammensetzung und die Entwicklung des Anlagevermögens sowie die Abschreibungen des Geschäftsjahres sind dem als Anlage zum Anhang beigefügten Anlagespiegel zu entnehmen.

Unter den immateriellen Vermögensgegenständen werden in 2011 Eigenleistungen in Höhe von TEUR 63 aktiviert (Vorjahr TEUR 165). Der Gesamtbetrag der Forschungs- und Entwicklungskosten beträgt TEUR 332 (Vorjahr TEUR 226).

Forderungen gegen Gesellschafter

Die Forderungen gegen Gesellschafter betreffen mit TEUR 786 (i. Vj. TEUR 986) die Gesellschafterin Erpo Holding GmbH.

Rechnungsabgrenzungsposten

Die Rechnungsabgrenzungsposten enthalten hauptsächlich Vorauszahlungen für Messekosten in Höhe von TEUR 75 (Vorjahr TEUR 63) und ein Disagio in Höhe von TEUR 120 (Vorjahr TEUR 0)

Eigenkapital

Das gezeichnete Kapital der Erpo Möbelwerk GmbH beträgt TEUR 26.

Sonstige Rückstellungen

Die sonstigen Rückstellungen betreffen im Wesentlichen Verpflichtungen aus Ansparzeit in Höhe von TEUR 292, (i. Vj. TEUR 156), Urlaubsansprüche in Höhe von TEUR 212, (i. Vj. TEUR 153) sowie Altersteilzeit in Höhe von TEUR 182, (i. Vj. TEUR 175). Die Rückstellung für Altersteilzeit wurde mit den dazugehörigen Rückdeckungsversicherungen in Höhe von TEUR 144 saldiert. Des Weiteren betreffen die sonstigen Rückstellungen Garantieverpflichtungen in Höhe von TEUR 48 (i. Vj. TEUR 53), Verpflichtungen aus Werbekostenzuschüssen in Höhe von TEUR 20 (i. Vj. TEUR 19), Provisionen und Prämien in Höhe von TEUR 24 (i. Vj. TEUR 15).

Steuerrückstellungen

In 2011 wurden Steuerrückstellungen in Höhe von TEUR 276 gebildet. Davon sind Körperschaftssteuer TEUR 168, Gewerbesteuer TEUR 99, Solidaritätszuschlag TEUR 9. Die restlichen Steuerrückstellungen betreffen das Vorjahr.

Verbindlichkeiten

Für die Verbindlichkeiten gegenüber Kreditinstituten wurde ein Zinsbegrenzungsgeschäft in Form einer Höchstsatzvereinbarung („Cap") abgeschlossen. Die Verbindlichkeiten gegenüber Kreditinstituten haben eine Restlaufzeit von 4 Jahren.

Alle anderen Verbindlichkeiten sind unbesichert und innerhalb eines Jahres fällig.

In den sonstigen Verbindlichkeiten sind Verbindlichkeiten im Rahmen der sozialen Sicherheit in Höhe von TEUR 20 (i. Vj. TEUR 20) enthalten sowie TEUR 136 (i. Vj. TEUR 97) aus Steuern.

Passive latente Steuern

Die Aktivierung von Eigenleistungen führen zu passiven latenten Steuern in Höhe von TEUR 54 (i. Vj. TEUR 46).

Haftungsverhältnisse

Für die Verbindlichkeiten gegenüber Kreditinstituten der Erpo Möbelwerk GmbH in Höhe von EUR 3,1 Mio. aus dem Darlehensvertrag haftet die Erpo Möbelwerk GmbH selbstschuldnerisch.

Ausschüttungsgesperrte Beträge

Selbst geschaffene Werte:	TEUR 183 (Vj. TEUR 161)
Passive latente Steuern:	TEUR – 54 (Vj. TEUR - 46)
Saldo ausschüttungsgesperrter Beträge	TEUR 129 (Vj. TEUR 115)

Verpflichtungen aus Miet- und Leasingverträgen

Für Miet- und Leasingverträge bestehen folgende Verpflichtungen:

	Restlaufzeiten			Gesamtbetrag
	bis 1 Jahr TEUR	1 bis 5 Jahre TEUR	über 5 Jahre TEUR	31.12.2011 TEUR
Leasingverträge	74	45	0	119
Mietverträge	63	44	0	107
	137	89	0	226

Personalaufwand / Beschäftigte

Im Personalaufwand sind TEUR 5 (i. Vj. TEUR 1) Aufwendungen für Altersversorgung enthalten.

Die jahresdurchschnittliche Anzahl der Mitarbeiter betrug:

	2011	2010
Angestellte	43	38
Gewerbliche Arbeitnehmer	102	104
	145	142

Steuern vom Einkommen und Ertrag

In den Steuern von Einkommen und Ertrag sind latente Steuern in Höhe von TEUR 8 enthalten.

Konzernzugehörigkeit

Die Erpo Möbelwerk GmbH ist eine 100 %-ige Tochtergesellschaft der Erpo Holding GmbH, Ertingen. Diese ist gem. § 293 Abs. 1 HGB von der Aufstellung eines Konzernabschlusses befreit.

Geschäftsführung

Geschäftsführer der Gesellschaft sind:

Herr Klaus Oevermann, Neufra, Geschäftsführer Produktion

Herr Jürgen Sollner, Ehingen, kaufmännischer Geschäftsführer

Herr Stefan Bornemann, Bad Oeynhausen, Geschäftsführer Vertrieb

Die Schutzklausel nach § 286 Abs. 4 HGB wird in Anspruch genommen.

Ergebnisverwendungsvorschlag

Die Geschäftsführung wird der Gesellschafterversammlung vorschlagen, den Jahresüberschuss auf neue Rechnung vorzutragen.

Ertingen, 24. Februar 2012

Jürgen Sollner, Geschäftsführer

Klaus Oevermann, Geschäftsführer

Stefan Bornemann, Geschäftsführer

	Anschaffungs- und Herstellungskosten			
	Stand am 01.01.2011 EUR	Zugänge EUR	Abgänge EUR	Stand am 31.12.2011 EUR
I. Immaterielle Vermögensgegenstände				
1. Selbst geschaffene gewerbliche Schutzrechte und ähnliche Rechte und Werte	165.237,21	62.544,33	8.280,22	219.501,32

	Anschaffungs- und Herstellungskosten			
	Stand am 01.01.2011 EUR	Zugänge EUR	Abgänge EUR	Stand am 31.12.2011 EUR
2. Entgeltlich erworbene Konzessionen, gewerbliche Schutzrechte und ähnliche Rechte und Werte sowie Lizenzen an solchen Rechten und Werten	1.279.820,53	26.679,00	0,00	1.306.499,53
	1.445.057,74	89.223,33	8.280,22	1.526.000,85
II. Sachanlagen				
1. Grundstücke, grundstücksgleiche Rechte und Bauten einschließlich der Bauten auf fremden Grundstücken	5.232.762,20	0,00	0,00	5.232.762,20
2. technische Anlagen und Maschinen	1.302.656,85	37.353,96	0,00	1.340.010,81
3. andere Anlagen, Betriebs- und Geschäftsausstattung	1.751.625,74	101.161,66	6.062,77	1.846.724,63
	8.287.044,79	138.515,62	6.062,77	8.419.497,64
	9.732.102,53	227.738,95	14.342,99	9.945.498,49

	Abschreibungen			
	Stand am 01.01.2011 EUR	Zugänge EUR	Abgänge EUR	Stand am 31.12.2011 EUR
I. Immaterielle Vermögensgegenstände				
1. Selbst geschaffene gewerbliche Schutzrechte und ähnliche Rechte und Werte	4.244,59	32.158,73	0,00	36.403,32
2. Entgeltlich erworbene Konzessionen, gewerbliche Schutzrechte und ähnliche Rechte und Werte sowie Lizenzen an solchen Rechten und Werten	314.249,53	269.646,00	0,00	583.895,53
	318.494,12	301.804,73	0,00	620.298,85
II. Sachanlagen				
1. Grundstücke, grundstücksgleiche Rechte und Bauten einschließlich der Bauten auf fremden Grundstücken	2.201.899,95	160.386,00	0,00	2.362.285,95
2. technische Anlagen und Maschinen	1.215.455,10	27.872,96	0,00	1.243.328,06
3. andere Anlagen, Betriebs- und Geschäftsausstattung	1.448.158,74	108.028,66	4.987,77	1.551.199,63
	4.865.513,79	296.287,62	4.987,77	5.156.813,64
	5.184.007,91	598.092,35	4.987,77	5.777.112,49

	Buchwerte	
	Stand am 31.12.2011 EUR	Stand am 31.12.2010 EUR
I. Immaterielle Vermögensgegenstände		
1. Selbst geschaffene gewerbliche Schutzrechte und ähnliche Rechte und Werte	183.098,00	160.992,62
2. Entgeltlich erworbene Konzessionen, gewerbliche Schutzrechte und ähnliche Rechte und Werte sowie Lizenzen an solchen Rechten und Werten	722.604,00	965.571,00
	905.702,00	1.126.563,62
II. Sachanlagen		
1. Grundstücke, grundstücksgleiche Rechte und Bauten einschließlich der Bauten auf fremden Grundstücken	2.870.476,25	3.030.862,25
2. technische Anlagen und Maschinen	96.682,75	87.201,75
3. andere Anlagen, Betriebs- und Geschäftsausstattung	295.525,00	303.467,00
	3.262.684,00	3.421.531,00
	4.168.386,00	4.548.094,62

Lagebericht für das Geschäftsjahr 2011

der Erpo Möbelwerk GmbH

Geschäftsverlauf

Die Erpo Möbelwerk GmbH, Ertingen, produziert hochwertige Polstermöbel, die unter dem Markennamen Erpo im Möbelfachhandel in Deutschland, Österreich, Schweiz, Belgien, Niederlande, weiteren europäischen Märkten sowie in Asien vertrieben werden. Erpo-Polstermöbel gehören zum Luxus- bzw. Premiumsegment. Darüber hinaus bestehen Verträge zur Auftragsfertigung für andere Möbelhersteller, auch im Objektbereich. Die Gesellschaft betreibt die beiden Standorte Ertingen (Produktion und Verwaltung) und Donzdorf (Ausstellung und Vertrieb).

Insgesamt hat sich die wirtschaftliche Lage der Möbelindustrie in 2011 leicht gebessert. Die Branche profitiert von einem stabilen Wachstum und der positiven Stimmung der Verbraucher. Der Konsument investiert vermehrt in hochwertige und langlebige Sachgüter. Das Segment der Polstermöbel weist nach der Statistik des Verbandes der deutschen Polstermöbelindustrie im Inland einen Anstieg von 5% auf. Der Umsatz der Erpo Möbelwerk GmbH konnte zum Vorjahr um 11% gesteigert werden. Der Erpo Marktanteil konnte im Premiumsegment wie im Vorjahr weiter wachsen und sich sehr positiv ausweiten. Erpo wird die eingeschlagene Strategie „Made in Germany" konsequent fortsetzen. Unser Qualitätsanspruch, neue Produkte, Neuentwicklungen in neu angelegten Sparten und die Verfolgung des Außenauftritts im Handel wurden mit steigenden Auftragseingängen in 2011 honoriert. Insbesondere auf der Beschaffungsseite konnten Vorteile erzielt werden.

Die Entwicklung der Produkte erfolgt ausschließlich durch die Erpo Möbelwerk GmbH, teilweise unter Einsatz von externen Designern.

Die Erpo Möbelwerk GmbH vermarktet Ihre Produkte überwiegend in den beiden Kollektionen „Erpo Classics" (Zeitlose Polstermöbel im modernen Design) und „Erpo Collection" (komfortorientierte Polstermöbel mit Funktionen). Beide Bereiche werden vom Produktsortiment und von Bezugsmaterialien her permanent gepflegt. Effizient ausgerichtete Produktionsbedingungen ermöglichen einen hohen Qualitätsstandard und sind unabdingbare Voraussetzungen für unsere qualitätsorientierte Strategie „Made in Germany".

Eine straff organisierte, interne Abwicklung und eine einzelauftragsbezogene Fertigung gewährleisten alle Voraussetzungen, um den differenzierten Bedürfnissen und der Individualität der Käufer im oberen Marktsegment auch zukünftig weiter gerecht zu werden.

Beschaffungsmarkt

Die Beschaffung von Materialien und zugelieferten Baugruppen ist durch kompetente Zulieferer auf der Basis von längerfristigen Rahmenvereinbarungen gesichert, die auch in schwierigen Zeiten die Verfügbarkeit, von Vorprodukten, auch auftragsbezogen, gewährleisten. Bei der Beschaffung von Bezugsmaterialien, insbesondere bei Leder, ist es uns gelungen, die Materialpreise entgegen dem Markttrend zu halten, was sich positiv auf die Ertragssituation auswirkt.

Absatz-, Auftrags- und Umsatzentwicklung

Im Geschäftsjahr hat die Erpo Möbelwerk GmbH einen Gesamtumsatz von Mio. € 22,3 (Vorjahr Mio. € 20,0) realisiert. Damit sind die bestehenden Produktionskapazitäten gut ausgelastet.

Der Auftragsbestand ist branchentypisch in der Regel kurzfristig und beläuft sich zum Ende des Geschäftsjahres auf ca. 6 Wochen.

Mitarbeiter

Zum Jahresende 2011 wurden in der Erpo Möbelwerk GmbH 145 (Vorjahr: 148) Mitarbeiter beschäftigt. Im Jahresdurchschnitt waren davon 43 Angestellte (Vorjahr: 38) und 102 (Vorjahr: 104) gewerbliche Mitarbeiter.

Risikomanagementsystem

Das Risikomanagement wurde in 2011 durch die Erpo Möbelwerk GmbH ausgeübt. Wesentliche Grundlage ist hier ein ERP-System, welches mit wenig Schnittstellen und einem großen Maß an Transparenz die logistische Wertschöpfungskette darstellt. Buchhalterische Prozesse und internes Controlling haben damit eine Datenbasis, schnell und effizient, betriebliche Veränderungen und aktuelle Sachverhalte aufzuzeigen, um entscheidungssicher reagieren zu können.

Lage der Gesellschaft

Ertragslage

Muttergesellschaft ist die Erpo Holding GmbH. Bei der Erpo Holding GmbH handelt es sich um eine reine Beteiligungsgesellschaft. Sie betreibt kein eigenes Geschäft und hat mit der Erpo Möbelwerk GmbH keine Geschäftsbeziehung.

Die Erpo Möbelwerk GmbH erzielte im Geschäftsjahr 2011 Umsätze in Höhe von Mio. € 22,3 (Vorjahr: Mio. € 20,0). Bestandsveränderungen an fertigen und unfertigen Erzeugnissen belaufen sich auf T€ -68 (Vorjahr: T€ 30). Die aktivierten Eigenleistungen betragen T€ 63 (Vorjahr: T€ 165). Die sonstigen betriebliche Erträge belaufen sich auf T€ 271 (Vorjahr: T€ 219). In den sonstigen betrieblichen Erträgen sind im Wesentlichen Mieteinnahmen in Höhe von T€ 82 (Vorjahr: T€ 48), Erträge aus Sachbezügen von T€ 42 (Vorjahr: T€ 34) und Erträge aus Auflösung von Rückstellungen von T€ 42 (Vorjahr: T€ 1) zu nennen.

Die Materialaufwendungen beliefen sich 2011 auf Mio. € 11,0 (Vorjahr: Mio. € 9,7). Die Materialaufwandsquote beträgt 47,6 % und ist gegenüber dem Vorjahr (48,5 %) leicht gesunken.

Die Personalaufwendungen betrugen im Geschäftsjahr 2011 Mio. € 5,3 (Vorjahr Mio. € 5,0), die Personalaufwandsquote 23,8 % (Vorjahr: 24,8 %). Die Reduzierung lässt sich durch den gestiegenen Umsatz erklären.

Die sonstigen betrieblichen Aufwendungen in Höhe von Mio. € 4,3 (Vorjahr: Mio. € 4,0) betreffen mit T€ 463 (Vorjahr: T€ 549) Betriebsaufwendungen, Verwaltungsaufwendungen von T€ 1.241 (Vorjahr: T€ 1.201) sowie Vertriebsaufwendungen von T€ 2.540 (Vorjahr: T€ 2.214). Die planmäßigen Abschreibungen beliefen sich in 2011 auf T€ 598 (Vorjahr: T€ 578).

Dadurch ergab sich ein Jahresüberschuss von T€ 787 (Vorjahr: Jahresüberschuss T€ 482). Die Geschäftsführung wird der Gesellschafterversammlung vorschlagen, den Jahresüberschuss auf neue Rechnung vorzutragen.

Finanzlage

Für das Geschäftsjahr 2011 ergibt sich ein Cash Flow aus laufender Geschäftstätigkeit in Höhe von T€ 1.680 (Vorjahr: T€ 1.409) sowie ein Cash Flow aus Investitionstätigkeit in Höhe von T€ -228 (Vorjahr: T€ -4.959). Darin waren im Vorjahr T€ 4.531 enthalten für den Kaufpreis der im Zuge des Asset Deals übernommenen Grundstücke, Markenrechte, IT-Ausstattung usw. Der Cash Flow aus Finanzierungstätigkeit beläuft sich auf T€ -780 (Vorjahr: T€ 3.892). Im Vorjahr enthalten ist die Zuführung von Fremdkapital zur Finanzierung des Kaufpreises aus dem Asset Deal. Dieses Fremdkapital wird über eine Restlaufzeit von 5 Jahren planmäßig getilgt.

Vermögenslage

Das Anlagevermögen in Höhe von T€ 4.168 (Vorjahr T€ 4.548) besteht im Wesentlichen aus Grundstücken und grundstücksgleichen Rechten und Bauten in Höhe von T€ 2.870 (Vorjahr T€ 3.031) und Immateriellen Vermögensgegenständen in Höhe von T€ 906 (Vorjahr T€ 1.127). Unter den Immateriellen Vermögensgegenständen sind selbst geschaffene gewerbliche Schutzrechte in Höhe von T€ 183 (Vorjahr T€ 161) enthalten, denen passive latente Steuern in Höhe von T€ 54 (Vorjahr T€ 46) gegenüberstehen. Investitionen in das Anlagevermögen wurden in Höhe von T€ 228 (Vorjahr T€ 4.961) getätigt. Die planmäßigen Abschreibungen des Geschäftsjahres betragen T€ 598 (Vorjahr: 578).

Die Vorräte betreffen mit T€ 2.199 (Vorjahr T€ 2.429) Roh-, Hilfs- und Betriebsstoffe und fertige und unfertige Erzeugnisse in Höhe von T€ 656 (Vorjahr T€ 706).

Die Forderungen aus Lieferungen und Leistungen betragen T€ 2.624 (Vorjahr T€ 2.663). Die Forderungen an die Erpo Holding GmbH in Höhe von T€ 786 (Vorjahr T€ 986) resultieren aus der Übernahme einer Forderungen gegenüber der Jungjohann Management GmbH im Zusammenhang mit dem Unternehmenskauf.

Das Eigenkapital beträgt T€ 6.183 (Vorjahr T€ 5.396). Die Eigenkapitalquote ist auf 50,9 % (Vorjahr 44,0 %) gestiegen.

Die Steuerrückstellungen betreffen die Geschäftsjahre 2010 und 2011. Die sonstigen Rückstellungen in Höhe von T€ 767 (Vorjahr T€ 661) sind dem Grunde nach Verpflichtungen aus dem Personalbereich: Ansparzeit T€ 292 (Vorjahr T€ 156), Urlaub T€ 212 (Vorjahr T€ 153) und Altersteilzeit in Höhe von T€ 182 (Vorjahr T€ 175). Die Zunahme der Ansparzeit begründet sich in den geleisteten Stunden der einzelnen Mitarbeiter.

Die Verbindlichkeiten aus Lieferungen und Leistungen sind auf T€ 1.189 (Vorjahr T€ 1.730) gesunken und resultieren hauptsächlich aus dem Einkauf von Roh-, Hilfs- und Betriebsstoffen.

Nachtragsbericht

Nach Schluss des Geschäftsjahres sind keine weiteren Vorgänge eingetreten, die von besonderer Bedeutung für die Ertrags-, Finanz- und Vermögenslage sind.

Risiken und Chancen der zukünftigen Entwicklung

Die Erpo Möbelwerk GmbH auf eine solide Basis zu stellen, hat sich organisatorisch als auch kostentechnisch bereits in 2011 bewährt. Es ist uns gelungen, die in 2010 begonnene einheitliche Außendarstellung im Markt weiter auszubauen und in 2011 eine große Anzahl von Neukunden zu gewinnen. Durch den konsequenten Aufbau der Showrooms im Handel und die intensive Betreuung unserer Partner am „Point-of-Sale", konnte Erpo zusätzliche Marktanteile gewinnen. Neue begehrliche Modelle in beiden Kollektionsbereichen Erpo Classics als auch Erpo Collection wurden von unseren Kunden sehr positiv bewertet. Neue zusätzliche Lederqualitäten runden die Erpo Lederkompetenz ab. Die außerordentliche positive Resonanz unserer Handelspartner spiegelt sich im Ergebnis der internationalen Möbelmesse in Köln 2011 wider.

Die Fertigung von Objektmöbeln hat sich in 2011 weiter durchgesetzt und wird in 2012 die Umsatzentwicklung zusätzlich unterstützen. Abhängigkeiten von Vorlieferanten bestehen nicht. Die Eurokrise ist momentan nicht spürbar. Die Verbraucher investieren in werthaltige und langlebige Sachgüter. Grundsätzlich ist jedoch zu erwähnen, dass es konjunkturelle Abhängigkeiten hinsichtlich der Nachfragesituation gibt. Vor diesem Hintergrund können sich Risiken für die Gesellschaft aus einer negativen wirtschaftlichen Entwicklung in Deutschland, Europa und anderen Absatzmärkten ergeben.

Die Planung für 2012 und die zielgerichtete Ausrichtung der Gesellschaft ermöglicht auch zukünftig eine gesicherte Finanzierung und Liquidität. Alle erforderlichen Ersatz- und Erweiterungsinvestitionen sind in 2012 durchführbar. Es bestehen keinerlei Investitionsverpflichtungen.

Prognosebericht

Unter der Voraussetzung, dass keine unvorhersehbaren Veränderungen stattfinden, wird sich die positive Umsatzentwicklung nach Ansicht der Geschäftsleitung durch neue Produktentwicklungen in beiden Kollektionen (Classics und Collection) fortsetzen. Ein weiterer Produktbereich wurde bereits auf der IMM Cologne 2012 vorgestellt, was die Umsatzentwicklung zusätzlich unterstützen wird. Die Investitionen im Bereich Marketing und Vertrieb werden das Umsatzwachstum stärken. Für 2012 und 2013 wird durch die bereits eingeleiteten Maßnahmen ein positives Ergebnis angestrebt. Für die Jahre 2012 und 2013 gehen wir derzeit von Umsatzsteigerungen im einstelligen Prozentbereich aus.

Der Personalstamm wird entsprechend der Ertragslage in den verschiedenen Bereichen im Jahr 2012 und 2013 angepasst.

Ertingen, 24. Februar 2012

Jürgen Sollner, Geschäftsführer

Klaus Oevermann, Geschäftsführer

Stefan Bornemann, Geschäftsführer

6.1.6 Bestätigungsvermerk

Bestätigungsvermerk des Abschlussprüfers

Wir haben den Jahresabschluss - bestehend aus Bilanz, Gewinn- und Verlustrechnung sowie Anhang - unter Einbeziehung der Buchführung und den Lagebericht der Erpo Möbelwerk GmbH, Ertingen, für das Geschäftsjahr vom 1. Januar bis 31. Dezember 2011 geprüft. Die Buchführung und die Aufstellung von Jahresabschluss und Lagebericht nach den deutschen handelsrechtlichen

Vorschriften liegen in der Verantwortung der gesetzlichen Vertreter der Gesellschaft. Unsere Aufgabe ist es, auf der Grundlage der von uns durchgeführten Prüfung eine Beurteilung über den Jahresabschluss unter Einbeziehung der Buchführung und über den Lagebericht abzugeben.

Wir haben unsere Jahresabschlussprüfung nach § 317 HGB unter Beachtung der vom Institut der Wirtschaftsprüfer (IDW) festgestellten deutschen Grundsätze ordnungsmäßiger Abschlussprüfung vorgenommen. Danach ist die Prüfung so zu planen und durchzuführen, dass Unrichtigkeiten und Verstöße, die sich auf die Darstellung des durch den Jahresabschluss unter Beachtung der Grundsätze ordnungsmäßiger Buchführung und durch den Lagebericht vermittelten Bildes der Vermögens-, Finanz- und Ertragslage wesentlich auswirken, mit hinreichender Sicherheit erkannt werden. Bei der Festlegung der Prüfungshandlungen werden die Kenntnisse über die Geschäftstätigkeit und über das wirtschaftliche und rechtliche Umfeld der Gesellschaft sowie die Erwartungen über mögliche Fehler berücksichtigt. Im Rahmen der Prüfung werden die Wirksamkeit des rechnungslegungsbezogenen internen Kontrollsystems sowie Nachweise für die Angaben in Buchführung, Jahresabschluss und Lagebericht überwiegend auf der Basis von Stichproben beurteilt. Die Prüfung umfasst die Beurteilung der angewandten Bilanzierungsgrundsätze und der wesentlichen Einschätzungen der gesetzlichen Vertreter sowie die Würdigung der Gesamtdarstellung des Jahresabschlusses und des Lageberichts. Wir sind der Auffassung, dass unsere Prüfung eine hinreichend sichere Grundlage für unsere Beurteilung bildet.

Unsere Prüfung hat zu keinen Einwendungen geführt.

Nach unserer Beurteilung aufgrund der bei der Prüfung gewonnenen Erkenntnisse entspricht der Jahresabschluss den gesetzlichen Vorschriften und vermittelt unter Beachtung der Grundsätze ordnungsmäßiger Buchführung ein den tatsächlichen Verhältnissen entsprechendes Bild der Vermögens-, Finanz- und Ertragslage der Gesellschaft. Der Lagebericht steht in Einklang mit dem Jahresabschluss, vermittelt insgesamt ein zutreffendes Bild von der Lage der Gesellschaft und stellt die Chancen und Risiken der zukünftigen Entwicklung zutreffend dar.

München, 24. Februar 2012

Rödl & Partner GmbH
Wirtschaftsprüfungsgesellschaft
Steuerberatungsgesellschaft

Längle, Wirtschaftsprüfer

Hager, Wirtschaftsprüfer

Appendix C: Code of Conduct

We, the authors, hereby declare:

- that we individually have written and completed this assignment.
- that we have indicated all quotes with quotation-marks and provided references to their sources.
- that the assignment complies with all regulations stated above regarding size and form.

Date:	Name + your Study No. (DEno.)	Signature:
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