

Nathusius, Eva; Achleitner, Ann-Kristin

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## Angels or demons? Evidence on the impact of private equity firms on employment

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# ANGELS OR DEMONS? EVIDENCE ON THE IMPACT OF PRIVATE EQUITY FIRMS ON EMPLOYMENT

Eva Lutz and Ann-Kristin Achleitner

## Abstract

- The impact of private equity firms on employment in their portfolio companies is a controversial topic widely discussed in academia and in practice in recent years.
- A large body of research has resulted from this debate. The studies are focused on different aspects of employment and are based on a variety of methodologies as well as samples representing e.g. different types of buyouts and geographies.
- The aim of this paper is to provide access to and enhance the understanding of the highly fragmented literature by way of a systematic review and to discuss areas for future research.
- We review evidence on employment growth, financial and non-financial indicators of employment in a total of 49 studies. The analysis of similarities and differences of the studies revealed manifold consequences of private equity on employment. Our review reveals that the impact varies across different employment indicators and between geographies.
- We conclude that it is not possible to label private equity firms either positively or negatively – as “angels or demons” – as this would not take account of their complex and heterogeneous effects on employees post-buyout.

Dr. Eva Lutz, KfW-Stiftungslehrstuhl für Entrepreneurial Finance & Center for Entrepreneurial and Financial Studies (CEFS), TUM Business School, Technische Universität München, Arcisstr. 21, D-80333 München, [eva.lutz@wi.tum.de](mailto:eva.lutz@wi.tum.de), [www.wi.tum.de/ef](http://www.wi.tum.de/ef), research focus: venture capital and private equity, financing of family firms, company valuation, IP management, IP valuation

Prof. Dr. Dr. Ann-Kristin Achleitner, KfW-Stiftungslehrstuhl für Entrepreneurial Finance & Center for Entrepreneurial and Financial Studies (CEFS), TUM Business School, Technische Universität München, Arcisstr. 21, D-80333 München, [ann-kristin.achleitner@wi.tum.de](mailto:ann-kristin.achleitner@wi.tum.de), [www.wi.tum.de/ef](http://www.wi.tum.de/ef), research focus: venture capital and private equity, financing of small- and medium-sized companies, financing of family firms, social entrepreneurship

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JEL-Codes: G24, L26, J63

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## 1 Introduction

In the late 1980s, the U.S. buyout market experienced its first major upswing in the U.S. (Kaplan/Strömberg 2008) and, as a result, a number of academic studies were undertaken to analyse the impact of private equity on employment in subsequent years. After this first wave of publications, there was less interest in this topic with only very few published studies up until 2001. However, a new discussion was started in recent years as the economic importance of private equity around the globe grew and the impact of private equity firms became more important for practitioners and policy makers alike. In 2005, a harsh public debate on private equity – the so-called locust debate – had its roots in Germany with the legendary quote from Franz Müntefering, a leading Social Democrat who later held the position of Germany's vice chancellor: "Some of these investors do not waste a thought on people whose jobs they destroy. They remain anonymous, faceless, descend like swarms of locusts on companies, devour them and move on. It is this kind of capitalism we are fighting". This prompted a broad discussion between academia, the industry, media and unions in Germany. The so-called locust debate quickly spread to the U.K. and other European countries and evolved around the accusation that private equity firms achieve exceptional rates of returns through brutal cost reductions and at the expense of employees (Davis et al. 2008). A large body of literature on the topic emerged in recent years in order to shed light on these accusations.

Theoretical explanations of the impact of private equity fall into two main categories: value transfer and value creation. The value transfer perspective explains changes post-buyout primarily based on a value shift from stakeholders of the company to new shareholders. Employees are one group of stakeholders from which a value transfer can take place (Fox/Marcus 1992; Thompson/Wright 1995). The theory is based on Shleifer/Summers 1988 who argue that value is redistributed in takeovers from employees to new equity holders as they allow to renege ex-post on implicit contracts. Their theory can be applied to buyouts as they also provide for the opportunity to renegotiate implicit contracts with employees and, thereby, to reduce high levels of employment and wages (Ippolito/James 1992). Following value transfer theory, private equity firms are expected to have a negative impact on employment as layoffs and renegotiations of wages are expected, and, in the long run, this could lead to a deterioration of trust between employees and shareholders.

Under the value creation perspective, financial, governance or operational engineering are given in the literature as main explanation for increasing company value post-buyout. In regard to financial engineering, equity is usually substituted by debt in a buyout which reduces the agency cost of free cash flow by decreasing the cash flow available for management to spend on corporate assets with zero or negative net present values or to waste it through organizational inefficiencies. The high leverage forces managers to pursue focused strategies, increase efficiencies and divest unprofitable units to generate funds to retire debt (Jensen 1986; Heinkel/Zechner 1990) which leads to an expected negative employment growth post-buyout. Governance engineering relates to activities with which private equity firms control their portfolio companies. Due to less dispersed ownership in LBOs compared to public corporations, management is monitored more closely and encouraged to maximise firm value (Jensen 1989). Operational engineering refers to initiatives to operating improvements, e.g. to improve productivity, to increase organic growth or to pursue acquisition opportunities. The external equity provided by private equity firms can be the prerequisite to pursue growth options in the portfolio company. In addition, non-financial support from private equity firms, e.g. through their industry and/or operating expertise, can help to identify growth potential or operational improvements (Kaplan/Strömberg 2008). Furthermore, operational progress can take place in a buyout through a cognitive shift to an entrepreneurial mindset and to pursue company renewal leading to revitalization and strategic innovation (Wright et al. 2001;

Wright et al. 2000; Zahra 1995; Bull 1989). From a theoretical perspective, it remains unclear whether governance and operational engineering have a positive or negative impact on employment post-buyout. In the case private equity mainly enhances the opportunity to realize operational growth an increase in employment can be expected. However, in case the governance and operational engineering is targeted more towards restructuring, a negative impact on employment is likely. It is therefore not possible to draw a consistent conclusion on the impact of private equity on employment from value creation theory.

In addition to the attempts to explain the impact of private equity from a theoretical point of view, many empirical studies were undertaken on this subject. The resulting body of literature is highly fragmented as it is based on different methodologies, samples, geographies and time frames. This makes it difficult to draw common conclusions on the question of whether or not private equity firms can be labelled either positively or negatively – as “angels or demons” – when it comes down to their impact on employment-related aspects such as employment growth and other financial and non-financial indicators of employment. We want to fill this research gap by systematically reviewing evidence and, thereby, we attain a level of understanding which goes beyond that achieved in any individual study.

To our knowledge, our study is the first comprehensive review of empirical studies on the employment impact of private equity firms. There exists one systematic review by Wright et al. 2009 but it has a broader focus on the overall economic impact of private equity. In their analysis, the impact on productivity and the impact on employment and wages are two of a total of nine headings. In these two employment related sections, they outline only briefly key evidence and only take into consideration a total of 18 studies mainly from the U.S. and U.K. buyout market. Their aim is to give insights on important results without further analysing the underlying methodologies. Therefore, they do not attain our level of detail required to judge the methodologies and to understand the underlying context of different results on a variety of employment-related aspects.

Our literature review is focused on private equity investments in later stage companies, so-called buyouts. We include both private-to-private and public-to-private transactions in our analysis. To provide for a homogenous subject matter, we disregard venture capital as early stage investments in high-growth start-ups. The business model of later stage buyout funds differs fundamentally from venture capital funds, as portfolio companies of the latter are still in an early stage of their company lifecycle and, in case of survivorship, are expected to experience fast company growth leading also to high employment growth.

## **2 Review Framework**

As described below, our systematic review of existing research follows a clear three step approach in order to allow for completeness and rigour (Tranfield et al. 2003).

### **Step 1: Definition of review framework**

In our review framework, we cover a broad range of aspects related to the impact of private equity on employment. The impact of private equity on (I.) employment growth is investigated and includes overall growth, growth by region, net vs. gross growth and organic vs. non-organic growth. Other aspects of employment which we analyse include (II.) financial indicators and (III.) non-financial indicators. Financial indicators are wages, other forms of employee compensation and labour productivity. Non-financial indicators of employment include changes in employment structure (e.g. change from full time to part time employment), employee development and other qualitative factors influencing the work environment.

### **Step 2: Collection of publications**

Our aim was to ensure a comprehensive, unbiased search for evidence based studies. In a first step, we used a number of keywords for an internet based search for publications. We used EBSCO Host via the Business Source Premier database, Science Direct, SSRN and Google Scholar as internet based databases for scholarly publications. We also made sure to identify publications by non-academic institutions such as national and international industry associations, auditing/consulting firms or national and international trade union organisations by screening their websites and through general web searches using Google. In addition, we found references iteratively using references cited in the already identified publications. A total number of 120 publications were identified in this step.

Our references are likely to be biased towards literature published in English, German and French due to the language skills of the authors. We cannot rule out the risk of not including publications from emerging markets, e.g. in Asia, written in native languages. However, we assume that important studies from emerging markets would have been published in English.

#### Step 3: Evaluation of material

The following exclusion criteria were defined in order to decide on the inclusion of the references in our review: First, publications with a focus on early stage venture capital deals (19 publications), on mergers & acquisitions in general (3 publications) and publications that did not differentiate between early and later stage investments (15 publications) were not included. Second, publications which were not based on original empirical studies such as theoretical papers (6 publications), position papers by unions (4 publications) or other descriptive publications (12 publications) were excluded. Finally, publications were excluded which do not entail detailed evidence (8 publications) or which do not offer sufficient clarity to judge the applied methodology (4 publications). This selection process led to a total of 49 publications being included in our analysis.

### **3 Descriptive Analysis of the Body of Literature**

The 49 evidence based studies analyzed in our systematic review were published between 1983 and 2009. As shown in Fig. 1, the number of studies published over time mirrors the growth in the global buyout market. The first academic studies were undertaken in the mid-1980s when the industry was still in its infancy. The first buyout boom in the late 1980s, with the USD 25 billion leveraged buyout of RJR Nabisco (Burrough/Helyar 2004) marking its peak in 1988, led to growing interest from academia in subsequent years with seminal papers such as Jensen 1989, Rappaport 1990 and Kaplan 1991 shaping the debate on buyouts as new corporate organizational form. This period of increasing academic debate manifested itself in a first wave of academic studies on the employment impact of private equity between 1989 and 1992 (Fig. 1).

However, the bulk of studies were undertaken in a second wave, with over 70% being published post 2000. At that time, the market for buyouts experienced rapid growth both in the number and value of deals (Stromberg 2008). As Fig. 1 shows, the growth of leveraged buyouts paralleled with the second wave of publications on the employment impact of private equity. In the period 2000 to 2004, a total of six studies were undertaken with the primary focus on employment and wage growth effects. All studies published in this period were focused on European countries mirroring an upswing of buyout activity in Europe and the start of a political debate on private equity in continental Europe. The upcoming interest in the subject in continental Europe is not surprising as these countries are generally characterised by a more stakeholder oriented culture as opposed to the shareholder value approach mainly followed in the U.S. or the U.K.. The main initiators of the first studies in this second wave were European private equity associations as well as auditing and consulting firms active in

the private equity market. Unions also began to compile their own fact based evidence on private equity and published studies in 2006 and 2007. In recent years, academia has shown growing interest in the employment topic. While academic studies only accounted for 25% of publications in 2003 to 2004, this figure rose to over 85% in 2008.

Fig. 1: Evidence based studies on employment and private equity over time

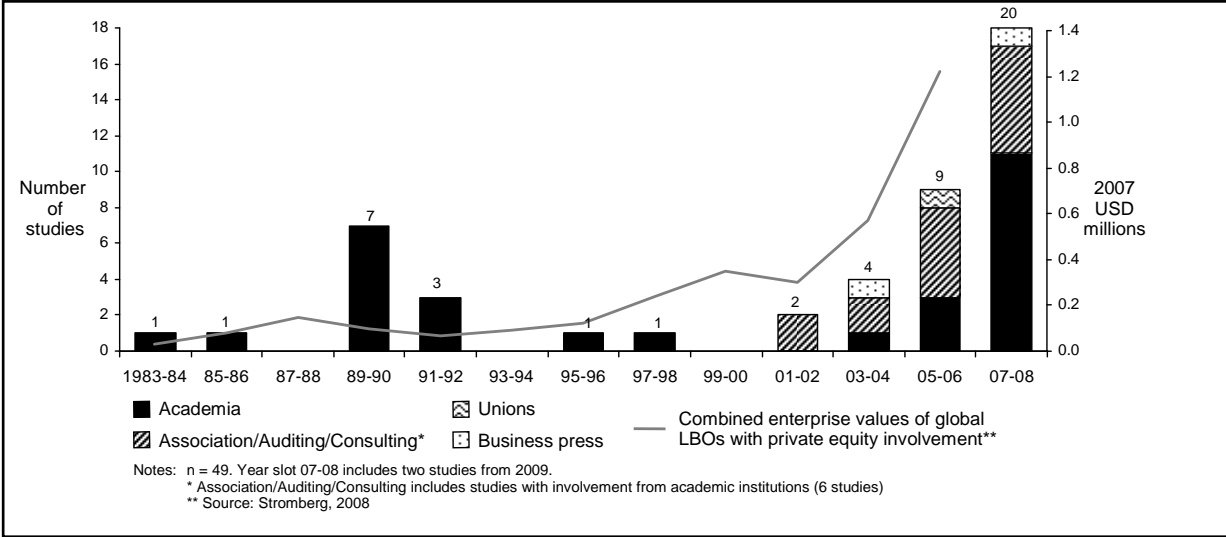
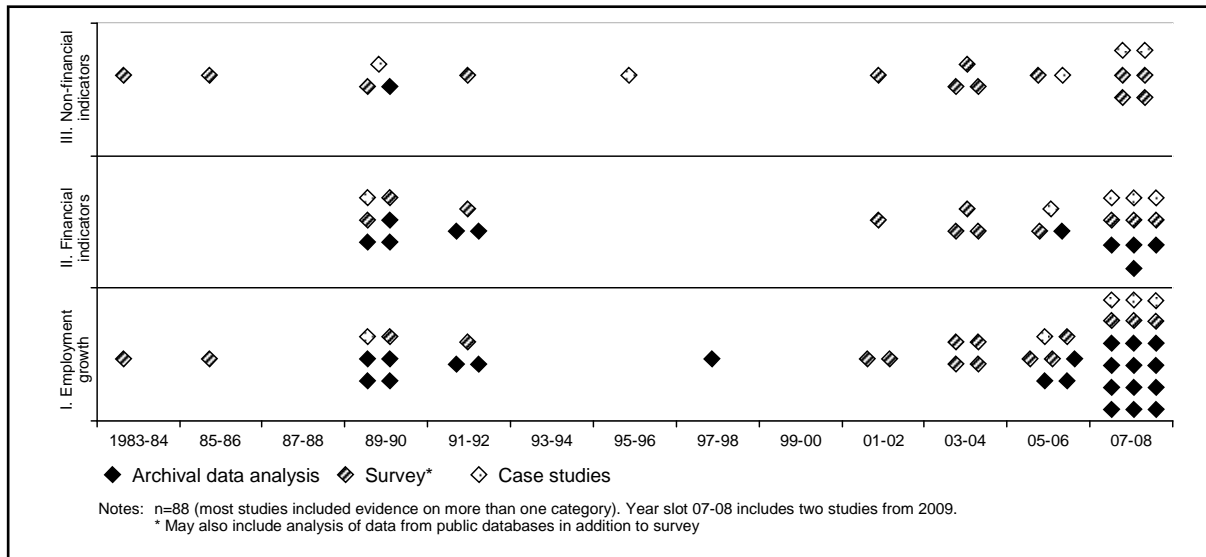


Fig. 2 shows how the content and methodology of publications evolved over time. After initial survey based studies in the mid 1980s, the first wave of empirical studies between 1989 and 1992 used a wide range of methodologies and covered issues in all three categories of employment aspects. The second wave of publications post 2001 again started off with studies based on surveys which were often criticized by unions and the media for small sample sizes and biases (see e.g. Hall 2007). First, questionnaire based studies suffer from a bias as only existing companies can take part in the survey leaving out unsuccessful cases of liquidated companies (survivorship bias). In addition, primarily companies with positive employment growth may participate in surveys (self-selection bias) or the numbers may be projected as more positive than they actually are (response bias). However, as we will show in the thematic analysis of the evidence in section 4, they still offer interesting insights on comparisons across different types of buyouts and on specific aspects for which no other evidence exists.

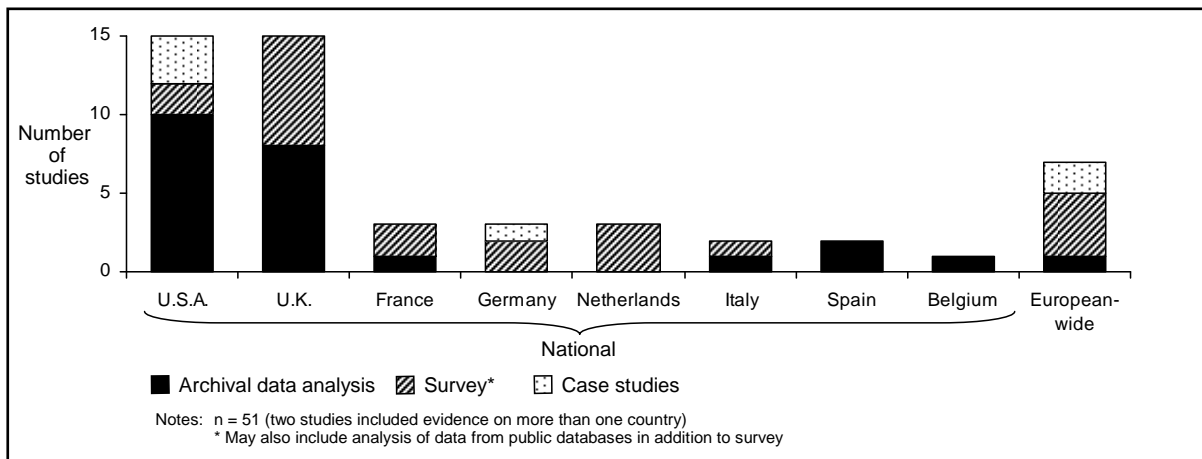
Fig. 2: Evidence based studies in each framework category over time



By the time period 2007 to 2008, the type of methodologies applied as well as the units of analysis became more diverse. Whereas in 2004 none of the publications were based on archival data analysis, this methodology has grown in importance and was used in 50% of studies in 2007 and over 65% in 2008. In the past two years, studies based on archival data analysis were undertaken with large samples of buyouts from the U.S. and U.K. going down to plant-level analysis of changes in employment. The increasing number of studies based on archival data analysis in recent years is linked to the increasing interest of academia in this subject. Post 2006, ten empirical studies based on archival data were undertaken with the involvement of academia, three by associations, auditing and/or consulting firms and one by the business press.

The distribution of empirical studies across different geographies is shown in Fig. 3. The bulk of studies analyze the U.S. and U.K. private equity market with studies of the U.S. and U.K. market combined amounting to 59%. For studies based on archival data analysis, the combined dominance of the two countries is even more pronounced, at 75%. This can in part be explained by data availability problems. In major continental European countries, it is not possible to obtain reliable employment data for a large sample of privately held companies from public databases. The studies on most continental European markets therefore had to be based on questionnaires.

Fig. 3: Evidence based studies per region



## 4 Thematic Analysis of Empirical Evidence

### 4.1 Evidence on Employment Growth

We identified 22 archival data based studies which show evidence on employment growth. In addition, a total of 16 survey based studies entail results on employment growth and related aspects. Furthermore, a number of case studies also offer in-depth analysis of different aspects of employment growth.

Private equity firms go through an intensive selection process in order to identify investment targets which are likely to surpass their hurdle rate of return. Portfolio companies are not chosen at random but according to their potential sources for operational or financial efficiency gains and/or growth. Therefore, the endogeneity of the investment decision has to be taken into consideration when analyzing the effect of private equity on employment (Amess et al. 2008). Evidence on changes in employment after a buyout is more meaningful if it is compared to an appropriate counterfactual.

**Evidence in archival data based studies.** There are different approaches in trying to take account of this endogeneity and to mirror the counterfactual in archival data based studies. First, the investment decision can be treated as endogenous dummy variable in modelling the demand for labour equation. Second, different matching algorithms, e.g. based on industry, size, productivity or company age, can be applied to construct a matched control sample. Third, an industry adjustment approach can be followed e.g. through benchmarking against industry averages or adjusting for industry effects. In reviewing our archival data based studies, we found that differing results between studies can be explained by the applied methodology to mirror the counterfactual and the underlying sample. Therefore, we grouped the archival data based studies according to their underlying methodology and we then further analyse reasons for differing results (see Tab. 1).

In the first group, we identified two studies which account for endogeneity by treating the decision to undertake a buyout as endogenous variable when estimating the demand for labour equation (Amess/Wright 2007a; Amess/Wright 2007b). Both of these studies find no significant effect of buyouts on employment from the transaction year to up to five years post transaction. In Amess/Wright 2007a, similar levels of employment growth are found in private equity-backed LBOs and in controls from the deal date to up to five years thereafter. Amess/Wright 2007b also find an insignificant impact on employment growth when controlling for endogeneity in their group of 1,350 U.K. LBOs which includes private equity-backed and other buyouts. They show significant differences for management buyouts (MBOs) and management buyins (MBIs) with MBOs having a higher average employment growth and MBIs having a lower employment growth compared to controls. The study does not yield specific findings for private equity-backed buyouts but it underlines the importance of differentiating between buyout types such as MBIs and MBOs when analyzing the impact on employment. Overall, both studies show the necessity to account for endogeneity of the buyout decision.

The second group of archival data based studies entails six studies which apply a matching strategy to construct a control sample (Amess et al. 2008; Davis et al. 2008; Cressy et al. 2008; Liebeskind et al. 1992; Marti Pellon et al. 2007; Toubeau 2006). Amess et al. 2008 use propensity matching methodology and control for pre-buyout employment growth, wages, productivity and age to construct a counterfactual control sample for 232 U.K. buyouts. They find no evidence for a significant impact of private equity-backed buyouts on organic growth of employment but show a significant negative impact on organic employment growth for



buyouts without private equity sponsorship and for mergers & acquisitions compared to controls. A key difference between this study and the other studies within this group is the inclusion of pre-buyout employment growth in the matching algorithm. In other words, compared to companies with a similar employment growth prior to the transaction date, no significant impact of private equity on employment is found in portfolio companies. In case the matching algorithm does not include pre-employment growth, a significant impact of private equity can be shown. It has to be noted that the similar results of Amess/Wright 2007b, Amess/Wright 2007a and Amess et al. 2008 can potentially be an indicator of an overlap of the samples as they are all based on U.K. buyouts listed in similar databases. However, the underlying time-frame differs in these studies and, therefore, the overlap is likely to not be substantial.

Four papers find a negative impact of private equity on employment in the wake of a buyout compared to controls matched by industry, size and other factors. First, Cressy et al. 2008 analyze 57 U.K. buyouts which are matched by controls based on industry and size. Relative to controls, buyouts show 7% lower employment in the year after the transaction and higher decreases in employment up to the fourth year post-transaction. In the fifth year post-buyout, they find that relative to controls buyouts show 2% higher employment growth.

Second, Davis et al. 2008 base their matching strategy on industry, age, size and an indicator for single vs. multi-plant firms and analyze 11,000 buyouts and 300,000 plants of U.S. buyouts. Relative to controls, plants of buyouts show on average 7% higher cumulative decreases in employment two years post-buyout. Two years pre-buyout, buyout plants also have higher cumulative decreases in employment of 4% which is an indication of the endogeneity of the buyout decision. Private equity firms seem to invest in companies which have already experienced declining employment numbers in the wake of the buyout and which offer potential for further increases of operational efficiencies post-buyout. They also reveal differences depending on the industry of the investment target. Portfolio companies in retail, service, finance, insurance and real estate show a significant decline in employment whereas no significant difference was found for companies in the manufacturing sector.

As gross job creation on firm-level is equal in buyouts and controls in Davis et al. 2008, more layoffs take place in buyout firms in the wake of the transaction. The firm-level analysis also reveals that greenfield job creation is higher in buyouts, with greenfield jobs accounting for 15% of total employment, than in controls with 9% two years post-transaction. In addition, buyouts are found to be more involved in acquisitions and divestitures. Therefore, Davis et al. 2008 conclude that private equity firms are catalysts for creative destruction and accelerate contraction of less efficient activities as well as growth in new, higher value business lines.

Third, Liebeskind et al. 1992 apply matching based on industry, size and level of diversification and show that employment declined in LBOs and grew in control firms. In addition, they find LBOs to divest more business lines compared to controls and, thereby, give further evidence of private equity firms promoting creative destruction. Fourth, Acharya/Kehoe 2008 show for a sample of 66 U.K. buyouts a lower annual growth rate in number of employees compared to quoted peers in the same industry. However, the difference in employment growth is statistically insignificant.

In contrast to these four studies, we identified three additional papers based on similar methodologies but which show a positive impact of private equity on employment. These three papers use samples of buyouts in France (Boucly et al. 2009), Spain (Marti Pellon et al. 2007) and in Belgium (Toubeau 2006). Boucly et al. 2009 analyse 830 French buyouts which were closed between 1994 and 2004 and apply a matching strategy based on industry and size to construct a control sample. They show a strong increase in employment from the transaction date to four years thereafter. The employment growth in buyouts is 13% higher than in their control group. Marti Pellon et al. 2007 find average annual growth in employees in the three years post buyouts of 6.2% and an annual growth of matched controls based on location, in-

dustry and size of 2.2%. Toubeau 2006 finds significant higher increases in number of employees in buyouts compared to controls in similar industries and sizes.

The differing results of these three studies compared to the U.S. and U.K. based studies described above may be an indication that the employment impact differs depending on the institutional context, e.g. the development stage of the credit and stock markets and/or the maturity of the buyout market. Both U.S.A. and U.K. have a long history of buyout activities and can be considered to have well developed public capital market. In contrast, France, Spain and Belgium have less mature capital markets and less history in buyout activities. In these countries, private equity firms may have the role of complementing the public capital market by giving companies access to external growth finance which would otherwise be capital constrained. In more mature capital markets, companies may have better opportunities to receive growth finance from other external financing sources and, therefore, private equity firms may invest proportionally more often in companies which offer the potential of operational efficiencies rather than growth opportunities (Boucly et al. 2009). In addition, private equity firms may have more flexibility to cut employment in more shareholder value oriented cultures like the U.S. or the U.K. than in countries with a traditionally higher commitment to employees due to a more stakeholder oriented approach. This could then explain why private equity firms were found to alleviate employment growth compared to controls in countries like France, Spain or Belgium and to have a negative impact on employment in the U.S. and U.K. market.

Paper in the third group follow an industry adjustment approach in their methodology and are all based on the U.S. or U.K. market (Chaplinsky et al. 1998; Weir et al. 2008; Kaplan 1989). All of them show decreases in number of employees in buyouts relative to the industry. Chaplinsky et al. 1998 show in a study of 180 U.S. buyouts industry-adjusted mean decreases of employment of 1.8% three years and 1.7% five years post-buyout for MBOs. In analyzing 122 public-to-private transactions in the U.K., Weir et al. 2008 also find significant employment decreases in relation to industry averages in the first year post-buyout in private equity-backed companies. Kaplan 1989 separates buyouts involved in acquisitions and divestitures in his analysis of a total of 76 U.S. public-to-private transactions. In his subsample excluding companies with acquisitions and divestitures, he finds that private equity-backed buyouts reduce employment relative to the industry by 6.2% between one year prior to the transaction and one year thereafter, but his results are not significant. For the whole sample, including companies with non-organic growth, he shows significant employment decreases of 12% over the same time period relative to the industry. Smith 1990 finds significant industry adjusted reductions in employment from one year prior to the buyout to one year thereafter only for companies which have sold major parts of their assets after the transaction. The results of Kaplan 1989 and Smith 1990 stress the relevance of divestitures for changes in number of employees post buyout.

As fourth group, we found two U.S. based empirical studies which compare buyouts to randomly selected samples and, consistent with other U.S. based studies described above, both of them found higher decreases in employment in buyouts than in controls. First, Lichtenberg/Siegel 1990 analyze the employment impact on plant-level and thus measure organic employment growth only. Between one year prior to the transaction and two years thereafter, they show a cumulative decline in non-production worker employment of 8.5% in buyout plants compared to non-buyout plants. Production worker employment also declines, but less than white collar employment and not significantly so (see section 4.3). Second, Muscarella/Vetsuypens 1990 find that 92% of the random sample showed higher employment growth compared to buyouts. However, in comparison with buyouts with no acquisition and divestiture activities only 15% of the random sample showed higher employment growth.

**Evidence from survey based studies.** A number of survey based studies offer additional evidence on employment growth (see Tab. 2). They yield interesting insights, particularly for European countries for which archival data analysis cannot be undertaken due to the lack of data. The different studies share some common results. Many of them reveal that of the sample analyzed, between 20 and 25% of companies show a decrease in employment post-buyout (AFIC/Constantin/L.E.K. 2003; Bacon et al. 2004; CMBOR 2008; CMBOR 2004; Hanney 1986; Malone 1989; Wright et al. 1992). As mentioned above, survey based studies are likely to suffer from survivorship, self-selection and/or response bias, potentially leading to overly optimistic results in terms of employment changes. However, the results in archival data analysis based studies do not consistently show higher percentages of companies in their sample with decreases in employment compared to surveys. In terms of the average employment growth per year, the results are less consistent across different studies with a range of +2% to +13% and are likely to reveal different context factors such as geography, industry mix or time period and different backgrounds of buyouts in the sample. For instance, in the study by PWC/BVK 2005, turnarounds are excluded in the calculation of average annual employment growth of buyouts, whereas in most other studies turnarounds are included in the main sample. All of them show positive average growth rates per year across the sample that are higher than broad benchmark growth rates such as national averages or averages from comparable public companies (see Tab. 2). The results of these studies should be seen with caution not only because of the limitations due to potential biases but also because most of them originate from non peer reviewed publications.

However, insights on employment growth in different types of buyouts are revealed. Achleitner/Klößner 2005 find the highest average annual employment growth in family firm buyouts (7.1%) compared to secondary buyouts (3.4%), going private buyouts (2.8%) as well as spin-off buyouts (1.6%) and negative average annual employment growth only in turnaround buyouts, at -3.8%. Their findings highlight the importance of the buyout background for the employment impact of private equity which could help explain the differences in results between mature and less mature capital markets as described above. It could be that in less mature capital markets private equity firms more often fulfil the role of providing external growth finance and, hence, invest more often in companies with higher employment growth than in more mature markets as these companies may be more restricted to other sources of external growth financing.

In regard to employment growth by region, a common accusation against private equity firms is that they close local entities and move them to countries with lower employment costs. Only few studies analyse the employment growth post-buyout in different regions. AFIC/Constantin 2007 reveal that 78% of all new jobs created in French buyout companies are located in France, their home country. CMBOR 2008 show that local employment increased in 26%, decreased in 7% and stayed the same in 67% of buyout companies.

**Case study evidence.** Case study evidence also reveals interesting findings on employment growth-related aspects. In terms of total employment growth, results are mixed and highlight the importance of the individual context of a buyout, e.g. the industry or the buyout background, for employment policies. It seems that the different case studies can broadly be divided into two groups with fundamentally different investment rationales. In one group of buyouts, the private equity firms follow a restructuring plan aiming at efficiency gains which leads to reductions in employment at least in the initial years post-buyout (examples include Messer Griesheim (Achleitner et al. 2008a), AA, Gate Gourmet, Märklin (PSE 2007), Hertz, KB Toys, Warner Music, Zeus (SEIU 2007) and Premiere (Faber 2006)). In the second group of buyouts, the investment story is based on company growth potential which is discharged post-transaction and which manifests itself in employment growth (examples are Picard, Frans Bonhomme (PSE 2007), New Look (Achleitner et al. 2008b), Onex (SEIU 2007)).

## 4.2 Evidence on Financial Indicators of Employment

We searched for evidence on changes in financial indicators of employment after a buyout and focused our search on changes in (1) wages and other forms of compensation, (2) employee share ownership and employee share option schemes, and (3) employee productivity. Compared to employment growth, financial indicators of employment are less frequently analyzed in the literature. We identified a total of 21 large sample studies (see Tab. 3 and Tab. 4) and a number of case studies revealing evidence on financial indicators of employment.

In terms of changes in wages and other forms of compensation, the value transfer hypothesis suggests that renegotiation of employment contracts is likely to take place post-buyout resulting in a decrease of compensation for employees. In this context, it is again important to compare wage changes in private equity backed buyouts with an appropriate counterfactual. There are only three archival data based studies which take this into account (Amess/Wright 2007b; Amess et al. 2008; Lichtenberg/Siegel 1990). Overall, they give a neutral picture in terms of the impact of private equity on wages. First, Amess/Wright 2007b control for endogeneity of the investment decision and find that buyouts lead to an increase in wages but that the increase was slightly lower compared to wage increases in their matched control sample. However, they do not differentiate between private equity backed and other buyouts. Amess et al. 2008 find that private equity-backed LBOs have no significant impact on wages, whereas buyouts without private equity sponsorship show an increase in wages in comparison with a matched control sample based on pre-buyout employment growth, pre-buyout wage growth, productivity and age. As noted above, it is likely that these two studies are partly based on the same sample but as they cover different timeframes, the overlap is expected to not be substantial. Lichtenberg/Siegel 1990 reveal a decrease in compensation for non-production workers and an increase for production workers compared to a random sample of non buyout plants. Between one year prior to the buyout and two years thereafter, annual and hourly compensation for blue-collar employees increase by 3.6% and 2.3% respectively.

In contrast to these archival data based studies, we identified a number of survey based studies which reveal a more positive view on the impact of buyouts on wages and find for the companies in their sample only a small share in which wages were reduced. As explained before, this evidence has to be viewed with caution due to potential biases in surveys. Bruining et al. 2005 analyze 145 buyouts in the U.K. and 45 buyouts in the Netherlands and find a positive impact on pay levels in both countries post-buyout. Interestingly, they do not find different impacts for the U.K. and the Netherlands. Bacon et al. 2004 find that compensation for non-managerial employees increased in 55% of buyouts in their sample of 148 U.K. buyouts, decreased in 2% and stayed the same in 43%. The studies by Bruining et al. 2005 and Bacon et al. 2004 do not distinguish between private equity-backed and other buyouts in their analysis. However, Bacon et al. 2004 acknowledge that in their survey the involvement of private equity investors lead to downward pressure on wages. It is important to notice that the U.K. survey used in Bruining et al. 2005 seems to be the same survey used in Bacon et al. 2004.

In other survey based studies, only a small percentage of private equity-backed buyouts of around 5% show a decrease in wages and about 70% have not changed compensation post-buyout (CMBOR 2008; CMBOR 2004). In an earlier study of 56 smaller company buyouts in the U.S., Malone 1989 reveals that employment contracts were renegotiated in 12% of his sample, and no change took place in 88% of his sample.

Agency theory predicts an increase in the importance of performance related pay after a buyout because the private equity firm aims to align the interests of employees with their own, i.e. with company value increases. Such a shift in types of compensation was found consistently

in a number of studies. Bruining et al. 2005 show an increase in the number of staff receiving merit pay and in the number of staff whose performance is evaluated on an annual or bi-annual basis, and similar results can be found in Malone 1989, CMBOR 2001 and CMBOR/EVCA 2008. The shift to performance based forms of compensation indicates a policy change in buyouts towards increasing responsibilities of employees for their jobs and increasing pressures on employees to enhance productivity. In addition, a number of studies show an increase in other commitment-orientated employment policies such as employee share ownership or employee share option schemes. Bruining et al. 2005 and Bacon et al. 2004 find an increase in non-managerial employees owning shares in the company post-buyout. Wright et al. 1992 reveal an increase in the use of employee share option schemes with 10% of the sample introducing a scheme post-buyout and another 27% of the sample planning to introduce one. The increase in commitment-orientated employment policies could be interpreted as a shift towards a corporate culture based on an entrepreneurial mindset as it puts more emphasis on self-responsibility rather than supervision.

As described above, agency theory predicts that post-buyout efficiency gains take place in a buyout which should lead to increasing productivity. We found evidence on changes in labour productivity post-buyout in eight large sample studies and four case studies which yield consistent results and all support the hypothesis of a productivity increase (see Tab. 4). Large sample studies show increasing sales per employee (Liebeskind et al. 1992; Muscarella/Vetsuypens 1990), sales growth per employee (Deutsche Beteiligungs AG/FINANCE 2004), profits per employee (Acharya/Kehoe 2008; Weir et al. 2008; Opler 1992; Smith 1990) and an increase in total factor productivity (Harris et al. 2005; Lichtenberg/Siegel 1990) post-buyout. Consistent results on the increase in productivity were found in a number of case studies (Faber 2006; PSE 2007; Achleitner et al. 2008a; Achleitner et al. 2008b). Weir et al. 2008 also show that private equity-backed LBOs have significantly higher profits per employee post-buyout than buyouts without private equity sponsorship.

However, two studies found productivity increases in line with benchmark groups (Deutsche Beteiligungs AG/FINANCE 2004; Liebeskind et al. 1992). The different results in these studies are likely to be due to differences in the sample mix. Deutsche Beteiligungs AG/FINANCE 2004 show that for sub samples of manufacturing companies private equity backed companies show higher increases in productivity compared to the control group. Private equity funded automobile supplier companies show sales growth per employee between 1998 and 2003 of 6.7% which is higher than the increase in the control sample of 2.5%. It seems that the equivalent productivity increases in private equity backed companies and controls are due to a large proportion of service based companies in their sample. Liebeskind et al. 1992 use a sample of 33 large U.S. buyouts which were closed between 1980 and 1984. This relatively small sample of large buyouts is compared to a closely matched sample of companies with similar size, industry focus and level of diversification. Overall, productivity increases are shown in both the buyout and the control sample.

#### *4.3 Evidence On Non-Financial Indicators of Employment*

Our review also investigates evidence on non-financial indicators of employment such as changes in employee development, employment structure and other factors influencing the work environment to take account of the complexity of impacts private equity firms might have on employees. There exists only limited evidence on these indicators and we only found a total of 14 large sample studies (see Tab. 5) and a number of case studies which shed some light on changes of qualitative aspects of employment post-buyout.

Following value transfer theories, decreases in resources devoted to employees are expected post-buyout. In contrast, evidence in a number of large sample studies reveal a policy shift

towards higher investments in long term employee development. Bruining et al. 2005 find an increase in investments in high commitment human resources policies and practices, suggesting that buyouts release upside growth potential rather than protecting downside risk. They reveal an increase in resources devoted to managing employees and in the amount of employee training post-buyout, but, as mentioned above, they do not distinguish between private equity-backed buyouts and other buyouts (Bruining et al. 2005). Bacon et al. 2004 show similar findings, with 55% of buyouts increasing the amount of training employees receive and only 6% showing a decrease but, as mentioned above, this study is likely to be based on the same U.K. sample as Bruining et al. 2005. Other survey based studies also reveal an increase in training expenditure post-buyout (AFIC/Constantin 2007; AFIC/Constantin/L.E.K. 2003; CMBOR 2008; CMBOR 2004; CMBOR 2001; CMBOR/EVCA 2008).

We found evidence on different aspects relating to changes in the overall employment structure in buyout companies such as part-time vs. full-time employees. Based on the value transfer hypotheses, renegotiation of employment contracts to more favourable terms for shareholders are expected which could imply a shift from full-time to part-time employment. Bruining et al. 2005 find an increase in temporary workers for their U.K. sample, whereas a decrease was revealed for their Dutch sample. These differences between the U.K. and the Netherlands can potentially be explained by the different institutional context. In the U.K., a more shareholder oriented approach may lead to lower commitment to employees compared to the stakeholder oriented approach traditionally followed in the Netherlands. The institutional context in the Netherlands is characterised by a stakeholder-oriented culture as well as strong labour legislation, high degree of trade union influence and involvement of employees through a required work council in companies with more than 50 employees. A shift towards temporary workers is therefore more difficult to pursue in countries like the Netherlands. In an earlier U.K. study, Wright et al. 1990 also find an increasing level of part-time employment post-buyout.

Other results on the overall employment structure include findings on the ratio of skilled vs. unskilled employees. Amess et al. 2007 reveal a skill-biased organisational change in favour of craft and skilled service employees after a buyout. In addition, evidence on an increase in R&D intensity post-transaction can be found in Zahra 1995 and Liebeskind et al. 1992 indicating a shift towards R&D intensive labour in buyouts.

Private equity is likely to have an impact on soft, qualitative factors of employment regarding the general work environment such as the amount of employee discretion or changes in the general working atmosphere. In a number of studies, higher employee involvement was found post-buyout. Amess et al. 2007 found an increase in employee discretion through a reduction of hierarchical tiers and supervisory staff. Lichtenberg/Siegel 1990 identify a decline in the ratio of non-production to production workers post-buyout and higher compensation of production workers which suggest a substitution of direct monitoring by higher responsibility of blue-collar employees. Bruining et al. 2005 and Bacon et al. 2004 reveal an increase in employee involvement, task flexibility and workers' responsibility after a buyout. In addition, they find an increase in the number of employees working in teams.

As explained above, consistent evidence was found on the increase in labour productivity in buyout companies. Furthermore, an increase in performance-related pay and employee share-ownership was detected in different studies. In addition to the increase in employee involvement and responsibility, these factors may imply a negative impact on the perceived work environment, as employees may feel increasing pressures to perform. We did not find a lot of evidence on changes in the work environment post-buyout. AFIC/Constantin 2007 identify an average decline in absenteeism and turnover rates but this could be interpreted both positively as a sign of increasing motivation or, at least for decreasing absenteeism, negatively as a result of increasing pressures. PSE 2007 identify an increase in working hours per week and a

less positive atmosphere between work council and management. Hanney 1986 finds, at 6%, a low proportion of buyout companies that withdrew trade union recognition post-buyout and, thereby, is consistent with similar findings in other studies (Wright et al. 1990; Wright et al. 1984; CMBOR/EVCA 2008).

In addition, there is some evidence indicating changes in terms of communication policies with employees after a private equity transaction. CMBOR 2004 and CMBOR/EVCA 2008 find an increase in communication between management and employees. In the study of 50 buyouts in France by AFIC/Constantin/L.E.K. 2003, the impact on communication with employees was perceived to have changed favourably by 31% of managers, unfavourably by 8% and to have remained unchanged by 60%. However, it would be important to also investigate the opinion of employees on changes in communication as they could perceive it differently, possibly in a more negative way, compared to the managers.

## **5 Summary and conclusion**

The aim of our paper was to systematically review evidence based research on the employment impact of private equity firms and, thereby, to increase common knowledge on the subject. We identified 49 evidence based studies and showed how the research became more sophisticated in recent years covering a broad range of methodologies and offering insights on diverse aspects of employment. Academia has become more interested in the topic and dominated the outlet of publications in the last two years. Studies are mainly focused on more mature buyout markets like the U.S. and the U.K., partly due to easier access to employment data.

In regard to employment growth, 22 archival data based studies, 16 survey based studies and 5 case studies were reviewed. At first sight, results seem to paint an inconsistent picture across the different publications. However, when the underlying methodologies and samples are analysed, the reasons for discrepancies can be explained. Papers controlling for endogeneity of the investment decision do not find a significant impact of private equity on employment. In comparison to a matched sample but not controlling for pre-buyout employment growth, studies based on the U.S.A. and the U.K. consistently find decreasing number of employees in buyouts compared to controls. Three papers which look at less mature capital markets – France, Spain and Belgium – find increasing employment post buyout compared to matched samples. This gives an indication of the importance of institutional backgrounds for the employment impact. It could be that in less mature markets private equity firms give companies access to external growth financing which would otherwise be capital constrained. In addition, different labour legislation and a stakeholder vs. shareholder oriented culture is likely to lead to different results on the impact of private equity on employment across geographies. Another important overall result on employment growth is that private equity-backed companies are found to create more greenfield jobs and are seen to be more active in acquisitions and divestitures.

In terms of financial indicators of employment, increasing labour productivity is consistently shown in different evidence based studies. The impact of private equity on wages is not extensively researched yet but the current evidence suggests a neutral role. Additional research taking account of the endogeneity of the investment decision and comparing buyouts to an appropriate counterfactual is required to better judge the impact of private equity on wages. A shift towards higher performance-related compensation and higher employee share ownership is shown which goes hand in hand with a shift towards higher employee discretion, higher employee involvement and worker responsibility post-buyout. A primarily positive impact on other non-financial indicators is shown in a number of studies with increasing funding of em-

ployee development and long term investments in the R&D size and capability. However, some qualitative indicators of employment such as the work environment have not yet been investigated enough to draw common conclusions.

In sum, our systematic review of the evidence revealed complex consequences of private equity on different aspects of employment. It would not only oversimplify the topic but would also be incorrect to view private equity firms either negatively or positively – as “angels or demons” – in terms of their impact on employment, even though enough individual studies exist to support either view for some indicators of employment. This underlines the relevance of our paper in comparing and synthesizing findings across the whole body of literature and across different indicators of employment.

Although considerable progress has been made in empirical research on the employment impact of private equity, we still see a number of research gaps. Many large sample studies as well as case study research reveal fundamental differences between types of buyouts. Although some seminal papers exist that differentiate between MBOs and MBIs, future empirical research could go beyond this and also distinguish buyouts with different backgrounds e.g. public-to-private transactions vs. private-to-private transactions. It would also be interesting to analyze more specific types of private equity investments such as buyouts of family firms or divisions of large conglomerates and their impact on employment. In addition, further research on our proposed differentiation based on the investment rationale in restructuring and growth buyouts could analyze whether dominance of either form exists.

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# Appendix

Tab. 1: Selected<sup>1</sup> archival data based studies on employment growth

Authors, Year	Peer reviewed?	Journal	Sample	Geogr	Time	Benchmark/Matching	Analysis	Major Findings on Employment Growth	Reg. growth	Gross growth	Organic growth
<b>Category 1: Papers controlling for endogeneity of investment decision</b>											
Amess/Wright 2007b	✓	International Journal of Economics in Business	1,350 buyouts (MBI, MBO) <sup>2</sup>	U.K.	1999-2004	Matching based on industry and size, treating investment decision as endogenous	Simult. equation modelling	Controlling for endogeneity, insignificant effect on employment growth of LBOs (MBO & MBIs combined) Controlling for endogeneity, higher average employment growth for MBOs & lower for MBIs compared to controls	✗	✗	✗ <sup>3</sup>
Amess/Wright 2007a	Not yet	Working paper	533 buyouts <sup>2</sup>	U.K.	1993-2004	Matching based on industry and size, treating investment decision as endogenous	Dyn. derived demand for labour equat.	Controlling for endogeneity, no significantly different levels of employment in pe & non-pe-backed LBOs than in controls	✗	✗	✗ <sup>3</sup>
<b>Category 2: Papers with matching strategy</b>											
Acharya/Kehoe 2008	Not yet	Working paper	66 buyouts	U.K.	1996-2004	Matching with quoted peers based on industry	Difference in means and median	Buyouts grow employment at 1.6% CAGR compared to 2.7% in quoted peers, difference is statistically insignificant	✗	✗	✗
Amess et al. 2008	Not yet	Working paper	232 buyouts <sup>2</sup>	U.K.	1996-2006	Propensity matching controlling for pre-buyout employment, wages, productivity, age	Multinomial probit regression	No evidence for significant impact of pe-backed LBOs on employment in t+1 or t+2 Non-pe-backed LBOs: 11% lower employment in t+1 M&A transactions: 16% lower employment in t+1, 22% lower employment in t+2	✗	✗	✓
Boucly et al. 2009	Not yet	Working paper	830 buyouts	France	1994-2004	Matching based on industry and size	Difference in means	Significant increase in number of employees between t and t+3, 13% higher employment growth in buyouts compared to controls	✗	✗	✗
Cressy et al. 2008	Not yet	Working paper	57 buyouts	U.K.	1995-2002	Matching based on industry and size	Loglinear employment regressions	Relative to controls, 7% lower employment in buyouts in t+1, cumulating to 23% lower employment in t+4; in t+5 increase by 2%	✗	✗	✗
Davis et al. 2008	Not yet	Working paper	11,000 buyouts; 300,000 plants	U.S.A.	1980-2005	Plant matching based on industry, age, size and indicator for multi-plant firm	Event study and regression analysis	7% (4%) average cumulative decrease in targets relative to controls two years post-buyout (two years pre-buyout) No employment differences between targets and controls in manufacturing sector, significant decline in targets in retail, services & finance, insurance & real estate Gross job creation equal in targets & controls; greater job destruction in targets Greenfield job creation: 15% in buyouts, 9% in controls; Acquisition (divestiture) rate: 7.3% (5.7%) in buyouts, 4.7% (2.9%) in controls	(✓)	✓	✓
Liebeskind et al. 1992	✓	Financial Management	33 public to privates	U.S.A.	1980-1984	Matching based on industry, size and level of diversification	Difference in means	Mean number of employees declined in LBOs and grew in control firms, resulting in significant differences between the samples Mean number of plants declined in LBOs and grew in control firms, resulting in significant differences between the samples	✗	✗	✗
Marti Pellon et al. 2007	✗	ASCI Research Paper	100 buyouts	Spain	1993-2004	Matching based on location, industry and size	Difference in means	In LBOs, average annual growth in employees from t to t+3 of 6.2%; in controls, average annual growth in employees from t to t+3 of 2.2%	✗	✗	✗
Toubeau 2006	✗	Doctoral thesis	53 buyouts	Belgium	1995-2005	Matching based on industry and size	Logistic regression	Significant higher increase in number of employees in buyouts compared to controls between t and t+2	✗	✗	✗
<b>Category 3: Papers with industry adjustment approach</b>											
Chaplinsky et al. 1998	✓	Journal of Financial Economics	180 buyouts (EBO, MBO)	U.S.A.	1980-1994	Adjustment for industry effects	Difference in means and median	Relative to their industry, EBOs and MBOs reduce employment after the buyout; Industry adjusted mean decrease: In t+3: -9.6% for EBOs, -1.8% for MBOs; In t+5: -10.8% for EBOs, -1.7% for MBOs	✗	✗	✗
Kaplan 1989	✓	Journal of Financial Economics	76 public to privates	U.S.A.	1980-1986	Benchmarking against industry averages	Difference in median	Total sample: Relative to their industry, MBOs reduce employment between t-1 and t+1 at -12.0%; 30.9% of sample reduce employment Excluding companies with divestitures & acquisitions: Relative to their industry, MBOs reduce employment between t-1 to t+1 at -6.2%, but results are not significant; 38.5% of sample reduce employment	✗	✗	✓
Smith 1990	✓	Journal of Financial	58 public to privates	U.S.A.	1977-1986	Adjustments for industry effects	Difference in median	Relative to industry, number of employees decreases from t-1 to t+1, but insignificant Relative to industry, asset-sale sample shows significant median reductions in employ-	✗	✗	(✓)

		Economics						ment from t-1 to t+1			
Weir et al. 2008	Not yet	Working paper	122 public to privates	U.K.	1998-2004	Benchmarking against industry average	Difference in median	Relative to industry average, significant decrease in employment in pe-backed LBOs in t+1; further decreases in t+2 to t+5 but no significant differences to industry average Significant decrease in employment in non-pe-backed LBOs in t+1, increase in employment in subsequent years relative to industry average	✘	✘	✘
<b>Category 4: Other papers with control samples</b>											
Lichtenberg/Siegel 1990	✓	Journal of Financial Economics	1,132 buyout plants	U.S.A.	1983-1986	Comparison of buyout & non-buyout plants	Difference in means	Between t-1 & t+2, significant reductions in non-production worker employment, cumulative decline of 8.5% Production worker employment declines, but less and not significant	(✓)	✘	✓
Muscarella/Vetsuypens 1990	✓	Journal of Finance	72 public to privates	U.S.A.	1976-1987	Comparison with random sample	Difference in means	For all LBOs: Median reduction in employment between LBO and IPO -0.6%; 92% of random sample showed higher employment growth For LBOs with no acquisition/divestiture: Median increase in employment between LBO and IPO 17%; 15% of random sample showed higher employment growth	✘	✘	✓

Note: <sup>1</sup>The table does not include archival data based studies which do not follow a matching strategy, an industry adjustment approach or other forms of control samples (e.g. in Shapiro/Pham 2008, Taylor/Bryant 2007, Ernst & Young 2007, PWC/AIFI 2006, Marti Pellon et al. 2005). <sup>2</sup> Likely to be based in part on the same sample. <sup>3</sup>In control sample, no companies included with increases in total assets >100%. ✓ = included in analysis, (✓) = partly included in analysis, ✘ = not included in analysis. LBO = leveraged buyout, EBO = employee buyout, MBO = management buyout, MBI = management buyin.

Tab. 2: Survey based studies on employment growth

Authors, Year	Peer reviewed?	Sample	Geogr.	Time	Employment Growth			Other Major Findings on Employment Growth
					Decrease in % of Sample	Average Growth in sample	Benchmark Growth	
Achleitner/Klößner 2005	✗	99 buyouts	Europe	1997-2004	33%	2.4% p.a.	0.7% (EU25); 0.1% (DJ 600) p.a.	Buyouts outgrew listed comp. in 6 of 10 industries; Growth p.a.: 7.1% in family firms, 3.4% in secondaries, 2.8% in going privates, 1.6% in spin-offs, -3.8% in turnarounds
AFIC/Constantin 2007	✗	94 buyouts	France	2003-2005		4.1% p.a.	0.6% p.a.	78% of all new jobs created in French buyouts are located in France
AFIC/Constantin/L.E.K. 2003	✗	50 buyouts	France	1999-2003	20%	8.7% p.a.	2.7% p.a. (corporate labour force)	
AIFI 2001	✗	101 buyouts	Italy	1988-2000		1.6% p.a.	-1.5% p.a. (SME sample)	Employment increase prior to buyout: 1.0% p.a.; on average, 1% of employees were laid off leading to a gross growth of 2.6%
Bacon et al. 2004	✓	148 buyouts	U.K.	1998-1999	21%			
Chapman/Klein 2009	Not yet	288 buyouts	U.S.A.	1984-2006		13.4% p.a. (from t to exit)		
CMBOR 2008	✗	70 buyouts	Netherlands	1992-2005	22%			Local employment increased in 26%, decreased in 7% and stayed the same in 67% of companies
CMBOR 2005	✗	117 family buyouts	Europe	1994-2003		7.0% p.a. (from t-2 to t+2)		
CMBOR 2004	✗	46 buyouts	Netherlands	1992-2002	23%			
CMBOR 2001	✗	300 buyouts	Europe	2000	26%	Average: 47.5% (from to to exit)		
Deutsche Beteiligungs AG/FINANCE 2004	✗	70 buyouts	Germany	1999-2003		4.5% p.a.	2.2% p.a. (control sample)	Job cuts in market downturns less severe than in control sample
Hanney 1986	✓	57 buyouts	U.K.	1980-1983	24%			
Malone 1989	✓	56 buyouts	U.S.A.	1981-1987	25%			Change in regard to elimination of rank-and-file workers post-buyout: 68% no change, 7% less, 20% more, 5% far greater emphasis
PWC/BVK 2005	✗	128 buyouts	Germany	2000-2004	5%	Median: 4.4% excl. turnar. (2000-2004)		Median decrease in turnaround buyouts: -28.6% (2000-2004)
Wright et al. 1992	✓	182 buyouts	U.K.	1986	25%	6.3% in t		In t+1, employment increased at 1.9%
Wright et al. 1984	✓	111 buyouts	U.K.	1983	44%	18.1% in t		

*Tab. 3: Evidence on change in compensation*

Authors, Year	Peer reviewed?	Sample	Geogr.	Method.	Time	Findings on change in compensation
Amess/Wright 2007b	✓	1,350 LBOs <sup>1</sup>	U.K.	ADA	1999-2004	Wage increase, but lower in all LBOs and in MBIs than in controls
Amess et al. 2008	Not yet	232 LBOs <sup>1</sup>	U.K.	ADA	1996-2006	No impact on wages in pe-backed LBOs, wage increase in non-pe-backed LBOs
Lichtenberg/Siegel 1990	✓	1,132 plants	U.S.A.	ADA	1983-1986	Wage increase for production employees between t-1 and t+2 at 3.5% (2.3%) annual (hourly) compensation, decrease for non-production workers
AFIC/Constantin 2007	×	94 buyouts	France	Survey	2003-2005	Wage increase of average 3.3% p.a.
Bacon et al. 2004	✓	148 buyouts <sup>2</sup>	U.K.	Survey	1994-1997	Wage increase (decrease) in 55% (2%) of all buyouts, involvement of pe investors resulted in downward pressure on wages Increase in commitment-orientated employment policies with performance-related pay and employee share ownership
Bruining et al. 2005	✓	190 buyouts <sup>2</sup>	UK, Netherlands	Survey	1992-1998	Increase in compensation of non-managerial employees Increase in performance-related compensation No change in non-managerial employees owning shares
CMBOR 2008	×	70 buyouts	Netherlands	Survey	1992-2005	Wage increase (decrease) in 25% (3%) of sample
CMBOR 2004	×	46 buyouts	Netherlands	Survey	1992-2002	Wage increase (decrease) in 25% (5%) of sample
CMBOR 2001	×	300 buyouts	Europe	Survey	2000	Increase in performance-related compensation in 28% of sample
CMBOR/EVCA 2008	×	190 buyouts	Europe	Survey	2008	Wage increase (decrease) in 51% (3%) of sample Increase in performance-related compensation post buyout
Malone 1989	✓	56 buyouts	U.S.A.	Survey	1981-1987	Renegotiating employment contracts in 12% of sample, no change in 88% Shift to performance-related pay in 41% of sample
Wright et al. 1992	✓	182 buyouts	U.K.	Survey	1986	Increase in use of share option scheme, 10% of sample introduced one post-buyout, 27% planned to introduce one

Note: ADA = archival data analysis. <sup>1</sup> Likely to be based in part on the same sample. <sup>2</sup> U.K. sample likely to be identical in both studies.

Tab. 4: Evidence on change in labor productivity

Authors, Year	Peer reviewed?	Sample	Geogr.	Method.	Time	Findings on change in productivity
Acharya/Kehoe 2008	Not yet	66 buyouts	U.K.	ADA	1996-2004	11.6% CAGR in EBITDA per employee vs. 5.9% in controls
Deutsche Beteiligungs AG/FINANCE 2004	×	70 buyouts	Germany	Survey	1999-2003	Average increase in sales growth per employee at 3.0% p.a. vs. 3.4% for benchmark group Average increase in sales growth per employee p.a. in sub samples of manufacturing companies higher than in benchmark group
Harris et al. 2005	✓	979 buyouts, 4,877 plants	U.K.	ADA	1994-1998	-1.6% (-2.0%) lower total factor productivity of MBOs in the short term (long term) prior to buyout +70.5% (+90.3%) higher total factor productivity of MBOs in the short term (long term) post-buyout
Lichtenberg/Siegel 1990	✓	1,132 plants	U.S.A.	ADA	1983-1986	Increase in total factor productivity of plants from 2.0% above industry mean three years pre-buyout to 8.3% above industry in three years post-buyout
Liebeskind et al. 1992	✓	33 public to privates	U.S.A.	ADA	1980-1984	Significant increase in sales per employees in buyouts and controls between t and t+3
Muscarella/Vetsuyens 1990	✓	72 public to privates	U.S.A.	ADA	1976-1987	Median increase in sales per employee of 3.1%,
Opler 1992	✓	44 public to privates	U.S.A.	ADA	1985-1989	Average increase in operating profit per employee of 31.8% from t-1 to t+2; after industry adjustment: 40.3%
Smith 1990	✓	58 public to privates	U.S.A.	ADA	1977-1986	Median increase in operating profit per employee of 41% from t-1 to t+1; after industry adjustment: 71% Median increase in operating profit per employee from t-1 to t+2 insignificant before and after industry adjustment
Weir et al. 2008	Not yet	122 public to privates	U.K.	ADA	1998-2004	Relative to t+1, significant increases in profit per employee in years t+2 and t+5 in pe-backed LBOs; Relative to industry average, significant higher profit per employees in each post-deal year; Pre- and post-buyout, significantly better profit per employee in pe-backed LBOs than non-pe-backed LBOs

Note: ADA = archival data analysis.



Tab. 5: Evidence on non-financial indicators of employment

Authors, Year	Peer reviewed?	Sample	Geogr.	Time	Employment structure	Employee development	Work environment
<b>Studies based on archival data analysis</b>							
Lichtenberg/Siegel 1990	✓	1,132 plants	U.S.A.	1983-1986	Decline in ratio of nonproduction to production workers by 7%		
Liebeskind et al. 1992	✓	33 public to privates	U.S.A.	1980-1984	Less increase in R&D intensity in buyouts		
<b>Survey based studies</b>							
AFIC/Constantin 2007	×	94 buyouts	France	2003-2005		Increase in training expenditure by 10% (as % of total payroll)	Average decline in absenteeism and turnover rates
AFIC/Constantin/L.E.K. 2003	×	50 buyouts	France	1999-2003		Impact on training: 26% favourable, 74% neutral	Impact on relations with employees : 31% favourable, 60% neutral, 8% unfavourable
Amess et al. 2007	✓	1959 firms, 27263 employees	U.K.	1998	Skill biased organisational change in favour of craft and skilled service employees		Reduction in hierarchical tiers and supervisory staff leading to higher employee discretion
Bacon et al. 2004	✓	148 buyouts <sup>1</sup>	U.K.	1998-1999		Increase (decrease) in amount of employee training in 55% (6%) of sample; Low impact of private equity firms on human resources policies	Increase in employee involvement and task flexibility; Low impact of private equity firms on human resource policies
Bruining et al. 2005	✓	190 buyouts <sup>1</sup>	UK, Neherlands	1992-1998	Change in the use of temporary workers: increase in UK, decrease in Netherlands	Increase in resources devoted to managing employees and in amount of employee training	Increase in employee involvement and workers responsibility; increase in total number of employees working in teams
CMBOR 2008	×	70 buyouts	Netherlands	1992-2005		Increase in funding for training by 31% (as % of sales)	
CMBOR 2004	×	46 buyouts	Netherlands	1992-2002		Increase in funding for training by 46% (as % of sales)	Increase in communication between management and employees
CMBOR 2001	×	300 buyouts	Europe	2000		Increase in funding for training by 54% (as % of sales)	High importance of promoting employee involvement post-buyout
CMBOR/EVCA 2008	×	190 buyouts	Europe	2008		Impact on amount spend for training : 45% of sample increase, 3% decrease	Attitude towards union remained unchanged Increase in employee commitment through greater employee engagement, regular team briefings and harmonised terms and conditions between management and non-management
Hanney 1986	✓	57 buyouts	U.K.	1980-1983			6% of sample withdrew trade union recognition post-buyout
Wright et al. 1990	✓	182 buyouts	U.K.	1983-1986	Increasing level of part-time employment		No evidence of explicit attempt by management to remove trade unions; no declared incidence of opposition from trade unions against buyout
Wright et al. 1984	✓	111 buyouts	U.K.	1983			Low level of loss of trade union recognition Low opposition from unions towards buyout

Note: <sup>1</sup> U.K. sample likely to be identical in both studies.