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Private Equity firms ability to generate value in an economic downturn – an empirical study of Danish portfolio companies' profitability in a recession

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Executive Summary

The main objective of this thesis was to investigate the profitability and value creation of Danish companies under private equity ownership. Furthermore, we investigate to what extent the methods applied by the private equity firms affects the bankruptcy risk of their portfolio companies. There have been conducted several studies on how PE-funds perform in general but few of those relate to the performance of their specific portfolio companies. Furthermore, this thesis conducts its analysis with a specific macroeconomic period in mind, namely the recession, thereby contributing to the literature with a new and interesting aspect. Recent years have seen a significant increase in private equity activity in Denmark with both small and major Danish companies being acquired by various private equity firms. The increasing activity has drawn massive attention from the Danish media and public with the PE-firms being portrayed as greedy and value creating for only themselves. PE-firms apply several value-creating tools in their pursuit of high returns.

Our analysis will be based on a comparison between the portfolio companies and a reference group. The investigation will be based on three different analysis; a profitability analysis, an EVA analysis and an analysis on the risk of bankruptcy.
We find that in a recession specially two of the value creating tools are of high value, namely active ownership and operational improvements. The recession and its impact on the companies required fast decision making which the PE-firms exerted through active ownership. Furthermore, an economic downturn demands for timely operational efficiency improvements. Our analysis revealed that the profitability of the portfolio companies during the recession outperformed the reference group on the majority of the profitability measures. The EVA analysis revealed that the reference group averaged a higher EVA-value if measured over the entire period. However, the portfolio companies performed slightly better in 2010 indicating the PE-firms' ability to guide companies through economic downturn periods. Furthermore, the EVA-analysis revealed that the foreign PE-firms are performing better than their Danish counterparts. Lastly, the bankruptcy risk revealed that the portfolio companies operated with greater bankruptcy risk, however as the PE-firms are willing to add additional capital if needed their bankruptcy risk is mitigated.

Indholdsfortegnelse

1. Introduction

In the pursuit of abnormal returns, it is a necessity with rethinking and innovative investment opportunities thus leading to increased activity in Private equity funds. After the first wave of acquisitions in the USA in the 80's and the rising activity in the late 90's in Europe the number of international studies on Private equity funds, PE-funds henceforth, have been rapidly increasing. This is a consequence of the PE-firm model and their value-creating tools proclaimed to be far more superior than other forms of ownership regarding profitability, growth and value-creation.

Although PE-funds acquire companies depending on the specific PE-firms understanding, focus area and competencies, most of them follow the same principles regarding the overall strategies, governance structure and financial approach (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 9). These principles are some of the most important tools in the PE-firms attempt to generate value in the acquired companies. Most US studies have shown that PE-fund acquired companies experience a greater increase in profitability compared to peers. However, previous studies are yet to agree on a definitive conclusion.

In Denmark the awareness of PE-funds in the broader population emanated from the acquisition of the two renowned firms TDC and ISS. According to DVCA's buyout list, 722 firms have been acquired by PE-firms in the period of 1986-2018. From 2006-2010 216 firms were acquired which exceeding the number of acquired firms in Denmark throughout the period 1986-2005. (DVCA Buyout list, 2018) However, special emphasis was paid to the apparently negative aspects caused by PE-fund ownership from the media and various politicians (Politiken, 2014)

From politicians and media, particular attention was paid to the prejudiced negative aspects that PE-fund ownership caused. The PE-funds were accused and regarded as being opaque and a tool for capitalists to earn a narrow profit. The critique was often directed towards fewer tax payments, massive job cuts, excessive debt and a short-term bottom-line focus (Rasmussen, 2007, s. 34). This led to the introduction of a new tax proposal in 2007 with the

purpose of limiting the PE-funds' large tax shield arising from the excessive debt. (Skatteudvalget, 2007)

Up until the new tax proposal PE-funds had perfect conditions to acquire and operate in due to the historically low interest rates and an abundance of risk-seeking capital. However, in mid-2007 capital markets around the world started to experience the consequences of the financial crisis. This started to spread to the real economy during 2008 resulting in the entire western world facing a recession. In Denmark, GDP fell by 5.2% in 2009, the annual number of bankruptcy was tripled from 2006 to 2009, and stock prices lost more than 50% in value. (Statistik, 2010)

The recession had a clear effect on the PE-funds' willingness to acquire and operate, as it became more difficult to raise capital and the potential profit gained by reselling acquired firms disappeared. However, the large amount of already acquired firms demanded extra attention due to the drastically changed conditions regarding the real economy. The firms had been acquired in a period with an economic boom and an anticipation of a continued upswing, casting doubt over whether PE-firms were able to achieve the results they had hoped, even though they were now in the midst of a recession? And with the accusations that PE- funds inflicted too much debt on their acquired firms, could they survive a recession or would they go bankrupt?

The recession provides a unique opportunity to conduct a different study with new aspects regarding the PE-firms' ability to generate profitability in their portfolio companies. How does the PE-fund's ownership model perform during a recession, compared with other forms of ownership?

1.1 Problematization

PE-funds are no different to other firms; they are interested in making money. Whether it be a production firm, service company or a trading company, all of them attempt to generate positive numbers on the bottom line and a positive return for investors and owners. In regard to PE-funds, they generate positive return for investors by acquiring firms and selling them again after 3-7 years expecting a value that provides a satisfactory return to the fund's

investors. During the ownership period, the PE-firms' use several value-creating tools. The big question over the past 30 years has been whether the tools applied have resulted in PE-fund acquired firms (also referred to as portfolio companies) being more profitable than their peers. However, there is not yet a definitive answer as different studies have resulted in divergent conclusions. A majority of US studies have shown that portfolio companies have experienced positive growth in profitability compared to their peers, whilst Danish studies have in most occasions shown negative profitability for portfolio companies.

The former Social Democratic Danish Prime Minister Poul Nyrup Rasmussen is the author of a critical book on PE-firms. The book is a response to the negative results pointing out that value creation in the acquired portfolio companies is not beneficial to anyone other than the PE-funds themselves (Rasmussen, 2007, s. 27).

Following the financial crisis, these attitudes have been intensified especially regarding PE-funds' impact on social growth, employment and capital market efficiency. In this context, various media have highlighted the negative impact of the PE-funds on the stock market, as the funds have repeatedly "taken investors with their pants down," thus increasing their caution (Ritzau, 2013).

However, no study has attempted to describe how portfolio companies' profitability develops under different macroeconomic circumstances. Previous studies have focused on profitability in general over a period, thus making it highly relevant to contribute to the empirical studies of PE-firms by addressing their value creation or lack of in a specific real economic period. As much of the criticism of PE-firms has regarded their use of high debt and reduction in tax payments in the attempt of creating value and improving profitability it will be interesting to investigate the value creation in a recession, as especially high debt can be extremely harmful. For the PE-fund model to have its justification in a recession, our analysis must show that PE-firms apply tools such as streamlining the operational level to withstand lower demands and still be superior and outcompete peers.

However, it may turn out that during a recession portfolio companies cannot cope with the high gearing and that the PE-firms' value-creating tools in fact do not create value. If true, one

must consider the usefulness of the PE-fund model, as it may only work during periods of upswing.

The motivation in this thesis is found in the contribution we as authors can give to the already existing literature by examining this topic in a specific macroeconomic period. The recession in 2007-2010 provides a unique opportunity for this, as it has been one of the most powerful recessions in history influencing all industries and markets. Furthermore, studies on PE-funds in Denmark is relatively new and limited. There is therefore potential for relevant and interesting contributions to the existing literature.

1.2 Problem definition

In relation to the above stated problematizations, the purpose of this thesis will be to examine the following problem definition:

Is the PE-firm model able to outperform a group of reference companies based on profitability and economic profit during a recession and to what extend are their methods applied affecting their risk of bankruptcy?

The main questions that can bring the authors to a conclusion on the problem definition are:

- What is a PE-firm and how does it operate?
- How does a recession affect the profitability of portfolio companies compared to a group of reference companies?
- Can PE-firms' create economic profit in their Danish portfolio companies during a recession?
- What influence does the PE-firm ownership have on portfolio companies' risk of bankruptcy?

These questions will be attempted to be answered both through a theoretical discussion and a thorough empirical study.

1.3 Structure

The thesis is structured in a manner that allows the authors to elucidate the problem definition from the PE-firms' perspective allowing the analysis and discussion to portray the PE-firms' own approaches regarding their structure and working methods. This point of view allows the authors to go in detail with the essence of the PE-firms' purposes. Examining the value creation based on the PE-firms' underlying strategies at the time of the acquisitions, ensures an in-depth approach, making the viewpoint from the PE-firms' perspective a logical choice.

The descriptive part act as the building blocks of the thesis with the purpose of being the foundation by providing an overall understanding of PE-firms and their model. This is accomplished by a brief description of what a PE-firms is, how they are structured, what characteristics the acquired companies have, and how PE-firms have developed historically. This is followed by a description of the PE-firms value-creating tools, focusing on the initiatives that the PE-firms take whilst operating portfolio companies to optimize operations and results. This connects the descriptive part with the theoretical part, as the value-creating tools utilized by the PE-firms are further analysed and discussed allowing a flow in the structure of the thesis.

The theoretical part continues by identifying and examining previous studies. Not only will previous studies serve as a guidance for our thesis' analysis and methodological choices, but will also allow us to compare our results with theirs giving basis for forming thoughts and applying it into a discussion.

As the thesis focuses on value creation in a recession it is a necessity to describe the period leading up to the recession and the recession itself. This paves the way for a theoretical discussion on how the PE-firm model and value-creating tools are impacted by the recession and the change in the Danish real economy.

Economic Value Added, EVA, has a central role in this thesis in regard to answering the problem definition. As a result, we have calculated EVA for both the portfolio companies and

the reference group. A review of EVA and a description of its various components will follow in section 7.2.1.

A discussion of bankruptcies and bankruptcy risk will end the theoretical section. Describing how bankruptcies arise and how they can be avoided will lead to a discussion as to whether portfolio companies have lesser risk of going bankrupt compared to the reference group. The theoretical part thus lays a foundation for the empirical analysis.

The empirical part consists of various analysis but starts off with a thorough explanation of the methodological considerations and choices that the authors have taken. The empirical study will be conducted at company level and not on fund level, as it is the value creation in the portfolio companies that is of interest in relation to the problem definition. The empirical study will start off with a profitability analysis of the 25 portfolio companies, that were owned by a PE-fund during the entire period from 2006-2010, as discussed in section 1.5. After the calculation of the different components in the profitability analysis we will calculate the EVA for each portfolio company. Using reformulated accounting data, the results of our analysis will be compared to a specific selected group of reference companies to assess how portfolio companies' profitability is affected by a recession. Finally, the bankruptcy aspect will be investigated empirically.

All previous studies have been based on data from various databases. We have decided to use a different approach, as there is an indispensable knowledge lost in not self-reviewing the individual income statements. Extraordinary items are often aggregated without considering their nature, operational leasing obligations are ignored, several items are aggregated so Invested Capital is not possible to calculate, etc. Therefore, we have manually typed in every single data from the income statements of each analysed firm.

1.4 Purpose and target group

The purpose of this thesis is to contribute to already existing studies on PE-firm value-creation by focusing on a specific macroeconomic period. By examining the value creation in a recession, this thesis can act as a complement to existing studies. As there is not yet a

definitive answer to whether PE-firms generate more value than other ownership forms, our analysis can provide interesting points to further enlighten the discussions.
The thesis is primarily aimed at people with a relation to and an interest in PE- funds, including media, researchers, the industry association DVCA, politicians and the PE-firms themselves. As the thesis is based on technical accounting methods when reformulating each financial income statement providing a description of thoughts and methods to do so, people interested in accounting analysis might find this thesis interesting. Thus, our methods are set up to create the most accurate picture of a company's profitability thus creating comparability over years and companies. However, as these parts will be dealt with based on accounting and financial theories, it is expected that the reader has a knowledge of finance theory, accounting and financial statement analysis equivalent to the curriculum of Cand. Merc. FIN.

1.5 Delimitation

In the analysis of portfolio companies' value creation in a recession, the focus will be on PE-firms that are active in Denmark and Danish companies. Therefore, foreign PE-firms that do not own Danish companies and Danish PE-firms that own foreign portfolio companies will not be treated further. The delimitation of geographical ownership is a result of obtaining a valid comparison basis as (Spliid, Kapitalfondens metoder og kompetencer, 2014) argues that there are different legal framework for portfolio companies in different countries, which may affect potential for efficiency, thus affecting value creation.

Cendrowski et al., defines PE-funds and their investments in portfolio companies as: *"Private equity is a medium or long-term equity investment that is not publicly traded on an exchange. PE includes venture capital and buyout transactions as well as investments in hedge funds, Fund of Funds, PIPEs, distressed debt, and other securities"* (Cendrowski, Petro, & Martin, 2008)

This definition covers a number of different investment funds with different risk profiles and expected return. To make a comparable and reasonable analysis the authors will solely deal with buyout transactions, which are acquisitions of already established companies.

The focus of the thesis will be on value created in portfolio companies during the ownership period, thus value creation for the PE-firms in general and the returns that the PE-firms

generate for their investors will not be examined. Although these are some important aspects of a PE-firm, the essence of this thesis is the value creation of portfolio companies and not the gain that the later exit could potentially provide. Reason being, that PE-firms can create value by buying cheap if they, for example, have insider knowledge about a company or by selling expensive if the multiples to which companies are traded has risen. However, it is the operational value creation in the companies that we as authors investigate.

Our focus is solely on the period from 2006 to 2010, as this includes the period of the recession. The classification of the investigation period covering the entire recession will be discussed in section 4. The empirical dataset will thus include Danish portfolio companies owned in the entire period of 2006-2010. We will not investigate other periods even though the world economy has experienced other recessions, as these have not been of the same magnitude in the years PE-firms have operated in Denmark.

In addition, the thesis will not focus on competition, business and employment law matters. We are aware that PE-funds' and their acquisitions are influenced by the Danish legal system, but the legal aspects will be outside the scope of this thesis. In addition, company law issues such as corporate structure, liability procedures and the like are referred to peripherally in the relevant sections, but not subject to further analysis.

This delimitation is thus created to maintain the focus of the thesis on operational value creation in the PE-firm owned portfolio companies. Thus, there will be no discussion or examination of value creation for employees or the society. In this way, a more thorough analysis is created that contributes to concrete and well-documented arguments in the subsequent discussions.

1.6 Critique of sources

The data and sources gathered for use in the analysis comes primarily from the portfolio companies' annual reports and from DVCA, thus a critical approach is utilised when processing data to obtain as much objectivity as possible. This ensures that the data and the processing of them are in line with the thesis problem definition, as unnecessary data is sorted out. In particular, the DVCA reports and some of the literature used may contain

opinions and attitudes with biased tendencies and used with a critical approach allows for different perspectives regarding the area of focus for this thesis.

It has been possible to obtain a large part of data directly from the annual reports with accounting specifications making it easier to put special items and restructuring costs into their right categories. The data processing is also subject to a critical approach as common sense adjustments and normalizations are made resulting in a more objective analysis. Furthermore, reservations must be made for errors in the companies' accounts and annual reports which may affect the final results.

The thesis draws on a number of previous empirical studies. These sources have been used to substantiate and strengthen our findings, but at the same time we have tried to use these sources critically.

1.7 Scientific theory

The thesis takes outset in an explanation of the theoretical point of view as "*our way of understanding the world and answering the following questions that constitute the paradigm's content have a major influence on our everyday lives and how we act in it because we act in the world as we understand it*" (Haug & Heldbjerg, 2009). The choice of paradigm thus has an impact on the approach, choice of method and conclusions of the thesis.

A paradigm is an abstract concept of different definitions, based on the Guba paradigm definition: "A simple set of values that controls our actions - both everyday dealing and actions associated with discouraged studies." (Guba, 1990). The answer to the paradigm approached is based on the following questions:

Table 1: Elements of the scientific paradigm

The Paradigm's component	The question
Ontology	What is reality?
Epistemology	How do we know that we know?
Methodology	How is reality investigated?

Source: Darmer and Nygaard, 2005 and Authors' creation.

The ontology is the most fundamental question as it determines the point of view of the other two questions as the way we as authors recognize and examine reality depends on what we perceive as reality. The authors' approach to the thesis is based on the paradigm of

neopositivism, as our ontological position is critical and objective, allowing the world to be independent of people's perception thus a definite truth is obtainable. However, we as authors, are limited in our perception to understand the entire ultimate truth hence the truth is not be understood in total.

The epistemology thus plays a role as a modified lens. The Neopositivistic paradigm has a subjective paradigm as there is a use of both qualitative and quantitative studies resulting in the thesis being based on assumptions that reality actually exists out there. However, we as authors are limited to perceive the real contexts, thus not necessarily covering the final truth. In addition, the results of the thesis can be influenced by method choices and limitations in data access, whilst attempting to maintain an objective approach to data and results. This objective approach relies on traditional neoclassical economic science theory, as the studies of the capital funds' structure, strategies and operational performance are based on the basic assumptions of profit, utility maximization and cost minimization.

This thesis has both an inductive and deductive approach. The first part of the thesis analysis seeks to analyse the value creation in the individual portfolio companies, aiming to provide a general conclusion as to whether more or less value is created in portfolio companies compared to peer companies with other forms of ownership. This is done through several empirical analysis of historical data, gathered from public annual reports. An objective analysis basis is being sought in order for us to calculate value creation in both portfolio companies and reference companies. The inductive approach thus bases itself on some observations to reach broader generalizations. The following part consists of a deductive approach, based on existing literature and the results of qualitative analysis, hypotheses for value creation, after which observations relating to the hypotheses are gathered, in order to last or reject the theory. Access is by nature more quantitative, where the inductive approach is more qualitative. In the final part of the dissertation, there is thus a structured transition from theory to data, which characterizes the deductive approach (Bryman & Bell, 2011).

In addition, the new institutional economic theory of science will also be involved, as transaction costs, asymmetric information and opportunism will affect, in particular, the discussions about the interaction between the capital funds and the market for business

control. This means that this thesis will involve two different paradigms from the theory of economic science.

2. Introduction to Private Equity Funds

Private equity funds, are funds that invest money in firms, whether they are matured business or firms that find themselves in the start-up phase still far from generating a positive cash flow stream (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 9). The focus of this thesis are private equity funds, that with the use of borrowed funds has acquired a matured business through a leveraged buyout (LBO). The acquisition is a result of thorough analyses suggesting that the PE-Fund has resources available to affect some value-creating factors that will make the acquired company more profitable and sellable with a profit after typically 3-7 years.

2.1 Funding

The funding backing the acquisition comes from three primary sources; Banks that contribute with senior debt, mezzanine investors contributing with subordinated debt and limited partners contributing with their own equity (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 31). As these groups have different risk appetites the expected returns are different. Private equity funds prefer and attempt to contribute as little equity as possible, as this is the most expensive form of funding for them.

As banks often are the biggest contributor of the funding, they require most collateral. The PE-fund and the bank agree on so-called covenants, which are risk figures and numbers that the PE-fund cannot exceed. If these are outdone, the bank may require the loan repaid immediately, leaving the PE-fund bankrupt. However, before it goes as far as bankruptcy, the bank and the private equity fund mutually agree on renegotiation of the loan terms with and requirements for either additional equity deposits from the PE-fund, an increase of the loan interest margin or a reduction of the loan, perhaps through a divestment of assets (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 30). In rare circumstances the bank will take over the fund and operate it themself. This has never happened in Denmark before, but has been seen many times in Sweden (Børsen, 2008).

2.2 History of Private Equity funds

The history of Private Equity investments can be summarized in three phases (CEBR, 2008, s. 4). The first phase mostly took place in the States and is characterized by the PE-funds acquisitions of conglomerates with the intention of selling divisions without synergy effects. The first PE-funds specializing in buyouts were created in the late 1970's in the United States of America. However, it was first in the 1980's the concept really took off. By late 1980's PE-funds had close to $15 billion under management and due to regulated policies, it improved the PE-funds ability to attract risk-willing capital. The increasing capital available for PE-funds increased the activity in Private Equity deals. As the typical deal in late 1980's was heavily debt financed (up to 95%!) the capital under management in the funds could engage in acquisitions for nearly 300 billion. In 1988 the total value of Private Equity transaction amounted to $185 billion. At this time European PE-funds were created but the activity was limited to few countries (DVCA, 2008, s. 24).

Through 1990's there were stagnation in the Private Equity market in the States. This phase is characterized by its low activity in Private Equity investments. The significant drop in activity was caused specifically by two factors which both made it difficult to raise risk-wiling capital. The first being the collapse of the most risky corporate bonds market the so-called junk bonds. Secondly the general recession in the States limited the risk willingness of the investors (DVCA, 2008, s. 25).

Developments in PE-funds' activity level have risen during the 2000's not least in Europe largely caused by the macroeconomic development where the economy was booming and the interest rates historically low making it possible to raise capital once again (DVCA, 2008, s. 25). Unsurprisingly the industry suffered a setback triggered by the global financial crises in 2007. From the period 2003-2007, known as the "golden age" of the PE industry, the industry raised capital as never before from investors in search of high yield (Rizzi, 2009, s. 1). When the crises hit the markets, it became difficult to raise capital as will be explained in section 4.

In Denmark most of the PE-funds' activity happened in the phase after the turn of the millennium. The first Danish Private Equity fund was established in 1990 named NPEP founded by the businessman Leif Jensen. The fund managed to obtain capital of 165 million

DKK from various investors, a rather large amount at its time for an unproven concept in the Nordics (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 100). The following years saw an increase in Danish Private Equity funds with the birth of Axcel in 1994 and Polaris in 1998 (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 112-113).

PE funds are often described as short-term investors who pursue the highest return in the shortest possible time. However, this does not differ from other investors that all assumingly desire a high return from their investment in the shortest possible time. When PE-funds have obtained such a reputation it is rather because they have been able to achieve high return in short time (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 17). Still, PE-funds are described as greedy and return oriented and only value creating for the fund itself (Rasmussen, 2007, s. 27). PE-funds do not view the acquired firm as an independent, positive workplace that has to be secured for the future. Instead they view it as a "financial product" wherein the plan is always to sell the acquired firm within few years. In short term this would obviously result in the acquired firms showing great results. On the longer term it leaves the firms weakened with little to no equity left to survive when the economic cycles changes as they evidently did in the spring of 2007 (Rasmussen, 2007, s. 34-35).

Ownership structure plays a crucial role in relation to management and control over a firm's profitability as owners have the last say regarding the implementation of fundamental choices and changes. This is true whether the firm is established as a family business or limited company. In the major public limited companies this right is exercised through the general board meetings after which the management and board of directors shall exercise the rightful management in relation the interest of the shareholders'. In family owned businesses the management is often passed through generations so the company can continue as the original founder envisioned. There is not any evidence to support that family owned businesses in general are managed worse than other forms of ownership. However, family owned businesses are doing its best when the company is of a manageable size and as long as the family is able to deliver the necessary leadership on operational level or board level (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 14). As long as the firm is operating efficiently and optimally there is no need to question the ownership however if this were not the case there would certainly be justification to consider changes in ownership.

Ownership changes are caused by various reasons and as soon as family interests are not aligned with the company's long-term financial interests the ownership should see a change. (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 15) provides five possibilities for changes in ownership; transfer ownership to a foundation, sell to a member of the family, IPO, sell to an industrial investor or sell to a financial investor such as a PE-firm.

In many instances the financial sale to a PE-fund is preferable as the main purpose of private equity funds is to develop the company with the intention of selling it again. With a limited period of ownership, the PE-firms ensures the development of the firm happens with a goal oriented and focused approach. PE-firms are willing to make the necessary adjustments and accept the financial risks that comes with the task of improving their portfolio companies market position. This is what differs PE-firms from other companies, as they make the necessary changes to the cost structure which the family or the industrial investor are unwilling to make.

For this reason, PE-firms have taken an important role in solving succession and generational problems in Danish companies (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 16).

To understand this role, it is important to gain insights in how PE-firms operate.

2.3 Acquisition strategies

The PE-firms that have entered the Danish market vary in nature not only on the firms' own size but also on their strategy in regard to which portfolio companies to target and focus on (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 49) For this reason, it is improbable to cover all of the underlying strategies behind the acquisitions. The two Danish PE-firms, Axcel and Polaris, typically focus on companies with an enterprise value between 50-200 million euro. In contrast the Swedish PE-firm, EQT, focuses on companies with an enterprise value between 300-2,000 million euro with their biggest Danish acquisition being that of the facility service company, ISS (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 50).

The PE-funds typically acquire and hold their portfolio for 3-7 years before exiting, but the PE industry has experienced a shift in the average holding period. In 2006 the average holding period was 4.5 years, which has increased to 5.8 years for companies sold in 2016. The change is reflective of a number of dynamics. Firstly, the recession pushed back the potentially positive exit opportunities for the entire industry by 2-3 years. Secondly, there was less pressure from the investors for a quick exit in the aftermath of the recession. Thirdly, just before the recession the upswing resulted in a high valuation environment causing many PE-firms to pay high multiples for portfolio firms. Value creation through long term operational improvements has become essential (EY, 2017).

Given this trend holding periods of more than 5.5 years could become the norm rather than the exception. PE-firms will always look for opportunities to sell their portfolio companies but it is uncommon for PE-firms to have a clear exit strategy regarding whom to sell to and when. Often PE-firms hold on to their investment for a longer period as they are awaiting the right buyer.

The PE-firms' main strategy is to acquire firms that have growth potential and can be sold with a profit. The PE-firms target firms that are not managed optimally thus leaving room for possible optimization of operations through business actions. Through the years the funds have typically targeted the small to mid-segment, as these firms presumably have a greater development potential than large established firms, but in the later years there have been a tendency to target larger firms. Specifically, firms such as the before mentioned ISS but also large firms such as Pandora, Chr. Hansen A/S and TDC have been under private equity ownership. For such reasons there are no industrial, structural or size criteria in regard to what type of portfolio companies the PE-firms target. Danish PE-firms focus on smaller firms compared to their foreign counterparts due to the fact that they have less capital under management (DVCA, 2008, s. 28).

Comparing the difference between Denmark and Sweden we observe that the largest firms in the respective countries, Axcel and EQT, have significantly different investment focus. While Axcel have capital commitments of 14 billion DKK and focus on firm with enterprise value of

0.5-4 billion DKK, EQT have capital commitments of approximately 135 billion DKK and invest in firms with enterprise value of 2.5-10 billion DKK (DVCA, 2008, s. 28).

Despite the different focus areas regarding the investments the PE firms often have a clear strategy regarding what targets needs to be met before exiting when acquiring the portfolio companies. The holding period as mentioned has been in an upward trend. During the holding period the PE fund needs to ensure the strategic and commercial actions, that are going to lead to an optimization of the firm, are implemented. These actions often concern the operations including revenue growth, increasing profit margin and or reducing the debt.

Revenue growth can be obtained both organically or through acquisitions, but often a combination of these components is the most common. Organic growth is when the firm manages to sell more while the acquired growth is obtained through acquisitions of smaller and operationally relatable firms, contributing to larger revenue.

An increase of the profit margins is a result of a relative improvement between the revenue and the EBITDA-dependable costs. The focus is on the operating profit. By undergoing efficiency improvements of the costs, the portfolio companies will see a larger operating profit thus potentially affecting the cash flow positively.

The positive effect on cash flow can be used to reduce the debt as these cash flows are used as debt payments. Reducing the debt will result in an increase in the owners share of the total value of the firm. Other than improvements of the profit margins, positive cash flows can be obtained through operational actions such as a reduction of working capital or capital expenditures.

The above-mentioned approaches are often part of the PE-firms acquisitions strategies but as previously mentioned the strategies often vary between the different PE firms. For a discussion of the main value creating tools applied by the PE firms please refer to section 2.6. The following section will focus on the typical characteristics of target firms.

2.4 Characteristics of targeted portfolio companies

PE-firms target and acquire portfolio companies independent of the portfolio companies previous background and form of ownership. In other words, PE-firms acquire family owned companies, other PE-fund owned portfolio companies, government owned companies or by delisting publicly listed companies. However, it is often a requirement that PE-funds obtain the majority stake in the company otherwise making it difficult to implement all the desired changes. However, when delisting a publicly listed company the PE-firms must obtain at least 90% ownership stake, as this is a requirement from stock exchanges when delisting companies. (Wright, Gilligan, & & Amess, 2009)

The portfolio companies that the PE-firms target have several characteristics, but cash flows is the most important one. PE-firms are typically interested in portfolio companies with a stable cash flow as this allows for a higher gearing at a lower rate when acquiring the company. It is preferable that the target firm has a low debt to equity ratio as the PE-firms will not have to provide a large amount of equity as collateral for the increased gearing they are about to undertake. In the 1970's PE-firms main focus was on the targeted company's cash flows as these cash flows had to cover the interest payments and pay off the entire debt within 5-7 years (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 47).

Today however, main characteristics include experienced management as this increases the creditors' confidence in the firm's ability to pay off the debt. Additionally, PE-firms examine the strategic opportunities and possible operation optimizing improvements such as international expansion or increased expenditure control. Target companies that are market leaders or former market leaders are trait PE-firms prefer. (CEBR, 2008, s. 31-32)
Lastly, PE-firms are interested in target companies with relatively large amount of assets that can be divested. (Cendrowski, Petro, & Martin, 2008, s. 110)

2.5 The structure of Private Equity funds:

PE-firms raises capital through a PE-fund by convincing investors to commit their capital in the PE-fund for investments in portfolio companies. In other words, PE-funds are funds that are formed and managed by the PE-firms. The aim of the PE-firm is to reimburse the investors and provide them profits against receiving management fees as the PE-firm manages the

funds of the investors of the PE-fund. The PE-fund acquires and owns the portfolio companies whilst the PE-firm manages and operates the portfolio companies. The PE-firm are typically referred to as general partners whilst the investors in the PE-fund are referred to as limited partners. The actual structure of a PE-firm and the process can be seen in figure 4. As the focus point of this thesis is on PE-firm's ability to create value it is deemed necessary to review the other participants in order for us to gain a deeper insight into the Private Equity process.

Figure 1: The Private Equity Process

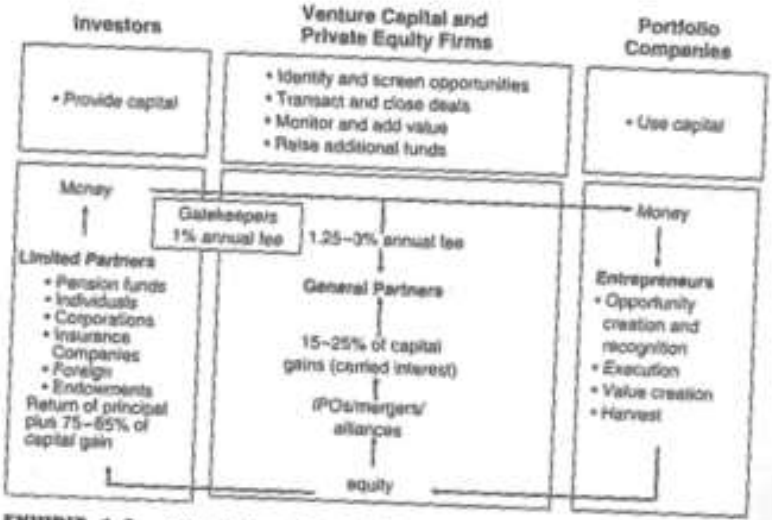


EXHIBIT 1.2 The Private Equity Process

Source: Cendrowski

2.5.1 Investors

The investors act as limited partners by providing the necessary capital to acquire portfolio companies against a limited liability and unlimited gains. As limited partners, the investors can only lose the sum of their capital contribution (Cendrowski, Petro, & Martin, 2008, s. 5)

The biggest limited partners typically include institutional investors such as banks, pension funds, insurance companies and wealthy individuals (Kaplan & Strömberg, 2009).

The limited partners investments in the PE-funds can happen either as an indirect investment or as direct investment. The indirect investment is the capital committed into the PE-fund which is controlled by the PE-firm. If the investors, as in most cases, invests indirectly in a

portfolio company, the investors are relying on capital calls made by the PE-firm throughout the life of the fund. The direct investment involves that the limited partner invests directly in the portfolio company thus obtaining a minority share in agreement with the PE-firm (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007, s. 17). The purpose either way for the investors is to generate higher returns than they could obtain from alternative investments.

The capital commitment that the limited partners make to the PE-fund when joining is neither immediately taken nor invested. The PE-firm first need to scout the market for the best available deals once the fund-raising period is over. For this reasoning the general partners often wait before making requests to the investors for the pledged capital until they have located attractive investments opportunities. However, capital calls need not to happen event based as some funds might have pre-specified dates when to draw capital from the investors (Cendrowski, Petro, & Martin, 2008).

This process of capital calls in PE-funds varies significantly from other investment funds such as hedge funds. In such funds the investors must pay the whole investment capital at once in the beginning making the entire capital available from day one for the general partners. However, this presents a great pressure on the general partners to locate a suitable investment opportunity. As long as the full amount of capital is not invested it only yields returns according to the money market interest rate (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007).

PE-firms need not to worry about receiving capital from investors as the capital commitment agreements are legally binding thus the investors cannot renounce their commitment if they disagree upon the chosen investments (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007).

At the end of a PE-funds lifecycle is the “disinvestment period”. During this period the focus of the general partners is to realize returns. Some investments will yield high returns whilst other investments will not (Cendrowski, Petro, & Martin, 2008).
As the portfolio companies are sold the investors’ money are returned accordingly. The PE-fund thus only has the investors’ money available when they can be put to good use. This

evidently optimizes the total return for the investors as it eliminates the time period with no investment activity (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007) The investment in private equity is a long term and relatively illiquid investment for the investors (DVCA, 2008). Typically, the money is invested inside the first five years as it takes time to prepare the acquired companies for sale. The liquidity process from the investors' point of view is typically described with the "J-curve effect" (Spliid, Kapitalfonde - Rå pengemagt eller aktivt ejerskab, 2007).

2.5.2 The Private Equity Fund

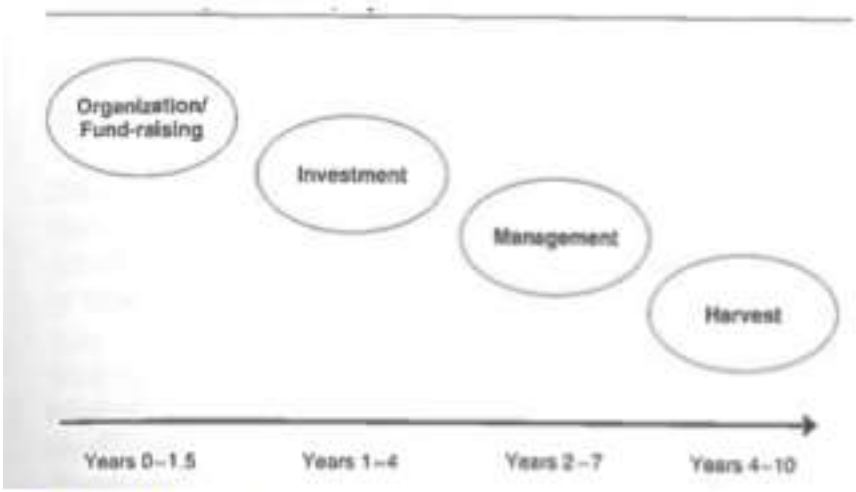
The PE fund is the actual entity that acquires and owns the portfolio companies (Spliid, 2007: 40). These funds are formed and managed by the PE firms (Cendrowski, et al, 2008: 5). In Denmark the actual fund is typically organized as limited partnership companies which consists of the limited partners, the investors, and the general partners, the PE-firm. The 2 entities are legally independent as the funds acquires and owns the portfolio companies while the management company's sole purpose is to manage the investment fund (Spliid, 2007: 40). This structure of the Danish PE-funds widely resembles foreign PE-funds making the international investors more comfortable investing in them (DVCA, 2008: 14).

Legally the limited partners are not permitted to influence the day-to-day operations of the PE-funds as this may revoke their limited liability status (Cendrowski, et al., 2008: 5). Management of the Fund solely relies on the general partners.

PE-funds are limited life entities with a lifespan of roughly ten years. During these years the fund will normally pass four different stages: organization/fund-raising, investment, management and harvest.
The first stage involves recruitment of investors for the fund. The second stage involves the general partners scouting the market for possible lucrative investments. The third stage involves managing the acquired companies. In some instances, the general partners will replace the existing management team and replace them with professionals from inside the firm. In other instances, the management team may remain as it is.
The fourth and last stage involves realizing the gains from the investments. Due to the time value of money the funds attempt to realize their investments as soon as possible. In some

cases, if the realization of returns occurs significantly before the fund is liquidated some of the capital might be invested again in new portfolio companies instead of the capital being returned to the investors. (Cendrowski, et al., 2008; 10-12)

Figure 2: The 4 stages



Source: Cendrowski

2.5.3 The Private Equity firm

The PE-firm is the team that manages and provides consulting in regard to investments and administration of the PE-funds capital (DVCA, 2008: 14). As payment for their services the management typically receives a fee, the so-called management fee. This fee is used to pay for the salaries and costs associated with transactions such as due diligence costs to external advisors. (Spliid, 2007: 39).

This fee typically depends on the fund's size. Standardly a management fee lies between 1.25% and 3% per annum of the committed capital in the fund. The management fee is independent of the performance of the fund (Cendrowski, et al., 2008: 7).
The investors in the PE-fund wish to secure that there are shared financial interests between the management of the portfolio companies, the employees of the PE-firm and the investors. To do so the management of the portfolio company and the employees of the PE-firm co-invest in the portfolio company and the compensation follows the value creation and thus the return generated for the investors. In the PE-fund this compensation program is known as the carried interest also simply known as the carry (DVCA, 2008: 16). The carry denotes the portion of the profits the PE-firm will retain in exchange of their management of the funds

capital. The carry is standardly 20% of the fund's profits although a carried interest between 15%-25% is not unheard of. This compensation is performance based and thus aligns the interests of all participants as it incentives the management of the PE fund to generate strong returns (Cendrowski, et al, 2008: 8). However, the management only receives the compensation after returning all contributed capital from the investors in addition to a previously agreed upon minimum acceptable rate of return known as the hurdle rate. In private equity the customary hurdle rate is 8% (Spliid, 2007: 39). If the management generate returns lower than the hurdle rate they will not retain any portion of the profits. Carried interest is thus only distributed to the managers upon a successful exit. The hurdle rate thus provides extra incentives for all parties involved in the carried interest program. The distribution of the carry largely depends on the partners and employees' seniority and rank in the firm.

PE-firms largely depend on their ability to attract talented people, as it is the people in the management company, the PE-firm, and the historical returns generated by them that are the primary reason for investors to invest their money in their specific PE fund. One can thus conclude that it is the management company that is the real value creator in this process whilst the investment fund itself is just a legal entity where the capital flows through (DVCA, 2008: 14).

It is the management company's ability to generate returns that attracts investors to provide capital and not solely the firms historic performance. For instance, when the Swede, Harold Mix, left Industri Kapital in 2001 in favour of founding Altor in 2003 it had major consequences on Industri Kapital's fundraising while the opposite was the case for Altor (Spliid, 2007: 41).

2.5.4 Portfolio companies

Portfolio companies are the companies that the PE-funds acquire and add to their portfolio depending on the specific PE-funds focus area and competencies. The purpose is to develop and optimize the portfolio company thus harvesting the profit gains when the portfolio company is divested. In a leveraged buyout transaction, the PE-firm typically acquires majority control of an already established company, as this is a requirement to exert active

ownership and have the decision power in relation to a possible exit. Active ownership entails implementing the strategic actions needed to create value.

PE-firms can operate alone or with other PE-firms to form a consortium if the transaction is too large for one fund to handle. However, in such cases it is necessary that there is a clear business strategy that everyone agrees upon in the beginning. It is of high importance that there are agreements between the different PE-firms in the consortium in regard to the steps that needs to be taken in terms of making the portfolio company mature for exit (Kaplan & Strömberg, 2009, Spliid, 2007; 20, DVCA, 2008; 14).

The underlying strategies in terms of acquiring the portfolio companies vary significantly but still have many common features. Section 2.4 provided a thorough review of the typical characteristics of the target firms. The investments are financed with debt and equity. The ratio of debt to equity varies but depends on the portfolio companies' ability to generate cash flows. A more thorough review of the capital structure is available in section 2.6.2. (DVCA, 2008: 14)

2.6 Private equity firms' value creating tools

In answering the thesis statement, it is essential to understand the value creating tools applied by the PE firms. There are three different phases of a buyout in regard to value creation: The acquisition phase, the holding period and the divestment phase (Berg, Gottschalg, & Oliver, 2003).

The acquisitions phase involves scouting potential targets, negotiation, due diligence and valuation. The holding period involves implementing the organizational, operational and strategic changes needed to create value. The last phase constitutes the end of the buyout with the exit either through IPO or a sale to a strategic or financial buyer. This thesis will focus on the value creation in the second phase, the holding period, as we are investigating PE-firms' ability to improve profitability and create value during this period.

The following section aims to provide an overview of the value creating techniques on portfolio level. The techniques can be divided into some overall categories: governance engineering, financial engineering and operational engineering (Klier, 2009).

2.6.1 Governance Engineering

The first technique for creating value is an improvement of governance through the reduction of principal agent conflicts as outlined by (Jensen, Eclipse of the Public Corporation, 1989). These conflicts arise when the agents are motivated to act in their own best interest conflicting with the interests of the principal. In a PE-firm owned portfolio company the agent is the management of the portfolio company whilst the principal is the management of the PE-firm and the investors of the PE-fund. The conflict inflicts various agency costs as the principals are forced to control and manage the agents' actions. The principal-agent problem can be mitigated either through active ownership or trough incentive schemes. Both methods reduce the need for monitoring and thus reduce the costs.

2.6.1.1 Active ownership

A PE-firm exerts active and focused ownership to create value in the portfolio firm thereby generating positive returns for its investors (DVCA, 2008: 15). The concentrated ownership is of high importance whenever PE funds acquire portfolio companies. With active ownership the PE-firm actively corporates with the management of the portfolio company and the board in regard to the future development of the portfolio company.

Although the PE-fund acquires the majority of the shares in the portfolio company, the management of the portfolio company is often given the possibility to acquire a minority share as incitement for hard work. (Spliid, 2007: 20).

The concentrated and active ownership applied by PE-firms has multiple advantages. The first step taken in regard to the active interest in the portfolio company is to monitor and remove board members of the portfolio companies that lack the necessary experience or knowledge. They are replaced with people from the PE-firm all of whom have experience in the matter of turning a business around (Spliid 2007, 21).

The board of a portfolio company tends to be smaller with a stronger involvement in comparison with the boards of publicly listed companies (Klier, 2009: 75). The PE-firm makes sure that the board of their portfolio companies meet more frequently in order to discuss further actions needed to be taken (Kaplan and Strömberg, 2009: 131). An active board tends to act faster and more efficiently resulting in a faster decision-making process especially in cases with underperforming daily management in the portfolio companies. Additionally, the management of the portfolio company must send in monthly reports to PE-firm and be prepared to withstand critical questions if the company is underperforming (Spliid, 2007: 21).

A concentrated and ownership reduces the problems in regard to rather large perk benefits the management team of the portfolio has been given themselves as there is an increased control with the portfolio company's managements' expenses. With scattered ownership, as is the case for publicly listed companies, the incitement of each shareholder to monitor the management is limited due to it being a time-consuming activity associated with large costs. In publicly listed companies the possible gains from monitoring and questioning the management team is small, as it needs to be shared with other shareholders. As a result, it is unprofitable for the minor shareholder to get actively involved as the passive shareholders reap the gains as well. This problem is commonly known as the free rider problem (Møller & Nielsen, 2004). The solution to the free rider problem is a greater ownership concentration as is the case with portfolio companies. Active ownership secures that the management team have financial interests in taking ownership responsibility (Møller & Nielsen, 2004).

2.6.1.2 Managements co ownership and incentive

The PE-firm can minimize the need for monitoring by securing an alignment of interest between the PE-firm and the management of the portfolio company. This alignment of interests is characteristics for the private equity industry. It is secured through the implementation of a performance based incentive structure and a high degree of leverage (Klier, 2009: 218). PE-firms can require of the management of the portfolio company to make a meaningful investment in the company. This secures that the management of the portfolio company has a significant upside as well as a significant downside if the firm value decreases (Kaplan and Strömberg, 2009). Ceteris paribus, the management of the portfolio company will have greater motivation in making rational decisions as they have equity stakes in the firm.

These stakes should be of a value that will impact the managements personal economy significantly should they fail to meet the expectations. On the other hand, they should be handsomely rewarded if proven successful. In portfolio companies the performance is generally measured with a focus ranging from 3-5 years. This range allows the management to run the business with a clear strategic objective while at the same time invest in growth opportunities if such opportunities are discovered. However, the long-term focus does not entail that the PE firms do not react to significantly underperforming management teams. The active ownership often leads to the replacing of entire top management if found necessary.

The incentive scheme applied by PE-firms vary significantly for that of publicly listed companies. First and foremost, the performance of portfolio companies is measured with a mid to long-term focus whilst the management of publicly listed companies are forced to meet short-term earnings targets (Klier, 2009: 219).

Where the incentive scheme of the portfolio companies entails that the management share both upside as well as downside value creation, the management of publicly listed companies are given share option incentive schemes were they only share the upside value creation. There is no downside as a share price increase involves financial gains for the management while the loss from a share price fall is limited to the option becoming worthless. This may in turn provide incentive for risk taking which increases the potential upside, however, on the behalf of an increased potential downside from the shareholders point of view. The most basic way to do so is by increased gearing (Møller and Nielsen, 2004: 165).

An alignment of interest between the portfolio company management and the PE-firm also arises from the illiquidity of the management's equity stake due to the company being private. As such the management's incentive to reduce short-term performance is limited as the management can only sell its equity stake when the company's value creation is proved by an exit transaction (Kaplan and Strömberg, 2009).

As stated, financial leverage creates further alignments of interests as well as reducing agency costs and turning agents into principals (Klier, 2009: 219). This will be discussed further in the following section.

2.6.2 Financial Engineering

A key factor in value creation is financial engineering where capital structural changes inflicted by the use of financial gearing is the main focus point. The high uses of debt in financing the acquisitions have two effects on the portfolio companies. The first one being of pure financial nature as a larger gearing can optimize the capital structure and consequently reduce the tax payable income (Spiild, 2007: 24). Secondly, the relatively higher debt burden reduces the agency costs associated with having large free cash flow (Jensen, Agency Cost of Free Cash Flow, Corporate Finance, and Takeovers, 1986). Both of these effects in value generation will be discussed in this section.

When a PE-fund acquires a portfolio company the majority of the acquisition is financed through debt. This leads to a significant rise in the portfolio company's leverage. However, much of the criticism regarding PE-firms is a consequence of the use of leverage. The critique is directed on PE-firms using debt as mean to acquire portfolio companies to drain their profits and sell them. However, one must remember that there is a significantly difference in gearing a company as part of optimizing the capital structure and gearing the company due to negative operating profits (Spliid, 2007: 24).

2.6.2.1 Agency costs of free cash flow

(Jensen, 1986) argues for the rise of agency costs when there is a significant amount of free cash flow in a company. Free cash flow in this context is defined as *"cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital" (Jensen, 1986: 323)*.

The number of attractive investment opportunities to reinvest earnings for management becomes scarce for mature businesses in contrast to still at early stage firms where the management of such firms has a wide array of opportunities. However instead of returning the free cash flow to the owners the management would rather pursue potentially unprofitable investments. This phenomenon is known as the free cash flow problem. It is argued that the management is more interested in empire-building rather than the future growth prospect of the firm. Often management teams invest in potentially unprofitable

projects in order for them to increase their influence and prestige both internally in the company and in public (Klier, 2009: 16).

The problem then becomes how to motivate managers to distribute the available cash to owners rather than spending it inefficiently, that is investing it below the cost of capital. The free cash flow should go to the shareholders as dividends but the management often have great incentive to keep the cash in the firm. The primary reason being the dependency of the capital markets. Pay-outs to shareholder reduce the cash and thus the resources under the management's' control. In turn the firm will most likely incur monitoring of the capital markets when the management will opt of seeking new capital. This could be avoided if new projects are financed internally. Additionally, in internally financed projects the firm avoids the possibility that new funds are only available at greater costs or not available at all (Jensen, 1989: 323).

The higher burden of debt and the obligation to pay back the debt creates further alignment between management and owners. There are various benefits of higher debt such as reducing the possibility of the management engaging in potentially value destroying investments as a larger portion of the cash is being used to service the debt holders. As such debt reduces agency costs of free cash flow by simply reducing the available cash (Klier, 2009: 219).

However, as the amount of leverage increases the risk of bankruptcy increases as well (Jensen, 1986; 324) This aspect will be investigated in further detail in a later section.

2.6.2.2 Tax payments

A company's main focus is to optimize and increase the return to its owners. This can be accomplished by reducing payments to another party, namely the government. Increasing leverage potentially increases the firm value through the tax deductibility of interest (Kaplan and Strömberg, 2009). The increased leverage used in financing the acquisition of the portfolio companies is transferred into the portfolio company creating a tax shield. The tax shield is valuable due to it reducing the governments' claim making owners better of (Koed and Nielsen, 2013: 178, Brealey et. al, 2014).

Miller & Modigliani derived an equation for the value of a firm. According to them the value of a leveraged firm is equal to the value of the unlevered firm and the value of the tax shield. Due to the tax benefits of debt it can be derived from the equation that the value of a firm will be linearly continuously increasing with increasing debt. Due to the imposed risk of financial distress such a relationship is unthinkable as an increased gearing in turn increases the likelihood of bankruptcy (Koed and Nielsen, 2013: 178-179). The ratio of debt should thus be the one that maximizes firm value when the marginal cost of debt just offset the marginal benefits (Jensen, 1986: 324).

PE-funds can thus either create value if the portfolio company is not at the optimal ratio of debt or if the portfolio company have an optimal ratio, which includes more debt than those of other business entities.

2.6.3 Operational engineering

While the value creation techniques discussed above are to this day very important the increased competition in the search for attractive business opportunities has forced the PE-firms to engage in operational engineering. During the increase in the number of buyouts the focus was on the value creating tools, governance and financial engineering. As these tools became increasingly commoditized, it was deemed necessary for buyout specialist to get involved in operational improvements both for creating value but also to generate enough cash flows to service the debt. Today PE-firms focus on operational engineering with its two undercatogories, operational improvements and strategic growth initiatives, as key elements in value creation (Klier: 2009: 73).

2.6.3.1 Operational improvement

Operational improvements involve improving operational performance. One particular instrument is to focus on the core business of the portfolio company, in which they may own a competitive advantage and optimizing this. Another way is to downsize the company's overhead costs. Studies have shown that PE-firms target companies with a higher level of organizational slack that they typically after the LBO reduce by increasing overhead efficiency. Additionally, realization of efficiency gains in the use of corporate assets is another way to improve operational performance. In the latter case the management of working capital is of primary focus of such improvements including reducing the inventory and

accelerating collection of receivables (Klier, 2009: 77-78). Our analysis investigates how PE-firms handle working capital.

2.6.3.2 Strategic growth

Delivering strategic growth to create value and to obtain an attractive exit price is of high importance, as simple cost reduction will not provide the required returns. To generate growth, it is required that management develops business plans that will push the company in a positive direction. Strategic growth can be obtained through the "buy-and-build" strategies. Such strategies involve engaging in "*add-on acquisitions of either new lines of business, expansion of the target firm's business scope in areas with distinctive competencies and resources, or – most typical – in comparable firms to increase market power in a fragmented and/or subscale market and realize economies of scale"* (Klier, 2009: 80).

When following the "buy-and-build" strategies, PE-firms could supply the portfolio company with sufficient funding for additional acquisitions purposes. Alternatively, the PE-firm can merge two portfolio companies they have acquired. In the latter cases, PE-firms help in the consolidation of industries. One particular study showed that the "buy-and-build" strategies carried out during the holding period had a positive influence on the probability of positive return (Klier, 2009: 79-80). As it pertains to such strategies the value creating factors are thus margin improvements through weaker competition, economies of scales advantages, revenue growth from new products and new markets and possibility of synergy benefits.

There has been a clear shift in the tools PE-firms apply in the aim of creating value. A study conducted by the Boston Consulting Group and the IESE Business School agreed with this belief. The study showed that operational improvements had gathered a continually larger role as the key source of value creation. In the 1980's leverage was the main source of value creation creating more than 50% of the value. In 2010 it accounted for merely 10-15%. In contrast operational improvements accounted for under 20% in the 1980's and forecasted in 2008 to be more than 50% in 2010. (Rose, et al., 2008: 10.)

3. Previous empirical studies on PE-funds value creation

As previous sections of the thesis have reviewed the most important value-creating factors, it is adjacent to investigate previous empirical studies on the subject of PE-funds' ability to create value. The focus will primarily be on existing literature in the form of previous related studies and findings that are relevant to the problem definition we attempt to answer in this thesis.

Our thesis differs from previous studies as our focus is on a specific macroeconomic period, namely the latest financial recession. Other empirical studies have either been focusing on returns on fund level or profitability development at portfolio company level. In relation to our thesis and problem definition, the investigation requires analysis on portfolio company level. However, a brief review of fund level studies will clarify what conclusions have previously been made on PE-funds.

3.1 Studies at fund level

At fund level it is assessed how return for a specific fund during its lifespan has developed relative to the return that can be expected from an alternative investment with same risk levels. There are two main issues in these types of studies; how is the actual return for the fund measured and how is the overall risk of investing in the fund assessed? As PE-funds' are very sparse at publishing information it is difficult to obtain enough relevant insight into how the fund has actually performed and at what risk. Furthermore, the lack of published data may biase our study obtaining non-representative and unobjective results. The biases arise, as the funds achieving the highest returns are those who are most willing to share information, hence funds with a poor return will most likely not be included in the studies.
Studies on fund level requires that the return is measured over the entire lifecycle of the fund, thus funds must be done operating in order for the correct return to be determined.

Kaplan and Schoar (2005) examined 542 PE-funds that had been established between the years 1980 and 1999, based on data from Venture Economics. In their study, only 169 out of the 542 PE-funds where included in the analysis, as they were either officially liquidated, had a return that remained unchanged at least the last six months, or had an unrealized value which was less than 10% of the invested capital. The findings showed that the return, after

remuneration of the general partners in the PE-fund, was approximately 18%. Compared to the market it was a slight underperformance. However, their findings also showed that, before remuneration of the general partners, the funds had actually generated a higher return.

Phalippou & Gottschlag (2007) argued in their study that the conclusion drawn by Kaplan & Schoar (2005) were biased in a positive direction as several PE-funds from Venture Economics data where shown as active without showing any actual activity for a long period of time. As a result, per Kaplan & Schoar's methodology these PE-funds should have been included in their study as liquidated PE-funds, and the poor return of these PE-funds would have reduced the average returns. On the basis of these sequiters, Phalippou & Gottschlag (2007) conducted their own study. Their study included 238 PE-funds using mostly the same set of data as Kaplan & Schoar (2005), focusing on correcting for net asset value that had not yet been fully depreciated, giving a positive performance bias. Their findings showed an even greater underperformance compared to the market than the findings of Kaplan & Schoar (2005). After remunerating the general partners of the PE-fund, the return was 3% lower than the S&P500.

Taking these two studies into consideration we find obvious biases with data consisting of Danish PE-funds, as the amount of data is deficient. Therefore, it makes sense that no Danish studies have been made on PE-fund level. However, Kasper Meisner Nielsen (2006) tackled the study on PE-funds' returns from a different angle as he in his study examined the return obtained by pension funds on their investments in unlisted shares. He found that in the period spanning from 1996-2004 these investments yielded an annual return of approximately 5.3% less than investments in listed shares. Furthermore, based on his findings he concluded that the risk level were similar for listed and unlisted shares. However, there are certain biases in his study as well as the data included both venture capitalists and PE-fund investments and values were based on book values, which may vary significantly from realized values.

Puche, Braun & Archleitner (2013) examined the value created in the period from 1984-2013. They analyzed the impact that different geographies, industry and transaction size and timing had on value-creation in three categories, namely financial, market and operational contributions. Their findings showed that 48% of the value created was due to operational

improvements in portfolio companies and 31% of value creation was a result of changes in capital structure among others. These findings correlate well with the findings of Boston Consulting Group as per section 2.6.3.2. Additionally, their findings indicated that a relatively high leverage created more value, best exemplified by the fact that most value was created in industrial and consumer service companies and least value in technology companies, due to a higher debt ratio in the first mentioned industries. A relevant finding in their study was the effect of the time of exit. PE-funds exiting their portfolio companies between 2001 and 2008 created almost a third more value than PE-funds exiting after 2008 thus proving a point in relation to the differences in obtainable returns during an upswing and a recession.

3.2 Studies on portfolio company level

Studies that examine the operational value creation at portfolio company level are the most relevant in regards to the focus of the thesis and the problem definition. The many conducted studies have varied both in methodology and in focus area in regards to value creation as cash flow, profitability, productivity, working capital, growth, employment and tax payments have all been investigated. The methods applied in previous studies in relation to the choice of benchmark, relevant key figures and the length of the investigation period have all been discussed. However, all studies have in common that the data used has been based on publicly available accounting data from a database.

3.2.1 International studies:

One of the first to examine the operational development and value creation in portfolio companies was Kaplan (1989b). In the period of 1980-1986 he investigated 76 American companies that went from being publicly listed companies to being under PE-fund ownership. The method he applied in his study required to examine the development in operating earnings (EBITDA) and cash flow from one year before the acquisition to three years after the acquisition, thereby excluding the year of the actual acquisition. Kaplan applied the Wilcoxon Signed Rank Test for statistical examination. He corrected for industrial effects by subtracting the industry median (from companies with the same SIC Industrial Code) from each company. The findings showed that operating earnings after industrial correction were almost unchanged in the first two years after the acquisition, while it for year three showed an increase of 24%. In regard to changes in cash flow the findings showed a positive effect of 23%, 42% and 81% for the three years respectively. Kaplan also examined profitability

targets such as EBITDA divided by revenue and assets respectively and found increases in these measures that were approximately 20% higher than the industry average.

Smith (1990b) investigated 58 acquisitions in the period 1977-1986. More than half of these acquisitions were made in 1986. All examined companies were listed on the stock exchange and were acquired via a management buyout, meaning the company's management had initiated the acquisition. Throughout the examined time period a total of 215 management buyouts occurred, however, the data was only available for 58 of the acquisitions. Smith examined the change in operating cash flow divided by operating assets, which on average were approximately 24% the year before acquisition. This measure increased significantly by approximately 6%-points a year after the acquisition had occurred and by 10%-points two years after the acquisition. Adjusting for industry averages the increases were approximately 4.5% and 6% points respectively. Smith concluded on the basis of his findings that strict management of working capital was a major tool for value creation and was not obtained by a decline in number of employees or in the investment budget.

In 1992 Opler investigated 44 US companies that had previously been listed on a stock exchange but delisted by a PE-fund in the period from 1985-1989. The time period investigated was the peak of a bubble, where the number of acquisitions and the size of the trades were huge. In Opler's study group 18 of the 20 largest acquisitions during the 1980's were included as they occurred during the investigated time period. Opler's study is in many ways extremely relevant to our investigation as the post-1989 period is somewhat comparable to the recession the problem definition focuses on. However, Opler measured only profitability for the first and second year after a portfolio company was acquired therefore not obtaining the full effect of the recession. However, 75% of the companies in the study group had been acquired in either 1988 or 1989, therefore experiencing the impacts of the recession. Opler's results were very similar to Kaplan and Smiths. After adjusting for industry average, Operating profit divided by revenue increased by 11.6% from one year before the acquisition occurred to two years after the acquisition. Operating profit divided by employee and cash flow increased even more. Furthermore, the results showed that an acquisition reduced investments and tax payments significantly for PE-funds.

Long & Ravenscraft (1993) investigated acquisitions by 257 US based PE-fund in the period of 1978 to 1989. These were matched to 37,628 reference companies that were divided into 35 industries. Similar for all investigated reference companies was that they had over $ 25 million worth in assets. Their study focused on EBITDA divided by revenue. Extraordinary items were subtracted from EBITDA. Their findings revealed that the portfolio companies increased by 15% more than the compared reference group from the year before the acquisition occurred to one year after. The revealed improvements were similar when measured three years before the acquisition occurred to three years after. Although their findings where positive they also showed that when measured from one year before the acquisition to four or five years after, the improvement in the investigated profitability measures were not significantly different for the two groups. However, the results still provided clear evidence that the portfolio companies had performed better than the reference group during the examined time period. A conclusion made from the study was that tax payments were reduced by half the amount from the year before the acquisition to one year after. The lower tax payments continued in the following years. Long & Ravenscraft however, found no indications of portfolio companies' ability of managing working capital were any better. Likewise, it had no effect whether the management was the initiator of the acquisition or if the portfolio company had been under increased supervision from banks. On the other hand, it appeared that companies with a relatively high level of leverage performed better than companies with lower levels of leverage.

In a more recent study from the UK, Cressy, Munari and Malipiero (2007) surveyed 122 portfolio companies that were acquired in the period from 1995-2002. During the examined time period a total of 588 acquisitions took place. Due to lack of available financial data and sources the study group only consisted of the 122 surveyed portfolio companies. The study found a reference group consisting of 122 companies matching the 122 portfolio companies in industry and size of revenue. Accounting data was collected from the database FAME. The study focused on the operating profitability measure EBIT divided by total assets and on revenue growth in general. The results revealed that the portfolio companies had an average operating profitability measure of approximately 9% three years after the acquisition, whilst the reference group had an average of approximately 4.7%. In the year of the acquisition, the average operating profitability was 8.5% for portfolio companies versus 6.2% for the

reference group. It is important to highlight the fact that the portfolio companies had increased profitability, whilst the reference group had experienced a decrease. Furthermore, portfolio companies experienced average revenue growth over the three years of 14% compared to the reference group's 7%.

In 2007 Guo, Hotchkiss & Song investigated 94 US portfolio companies acquired between 1990 and 2006. Their focus was on the development in EBITDA divided by revenue and the free cash flow divided by revenue. However, different from other studies, they adjusted their data in two different ways. They started out in the same manner as Kaplan (1989b) and Smith (1990) by adjusting each company with an industrial median. This was followed by adjusting each portfolio company with the average of five specific companies that had similar characteristics a year before the acquisition on the parameters of profitability, change in profitability and market-to-book ratio. Furthermore, they measured data up to three years after the acquisition. After adjusting for the industrial median, almost all changes were negative in the years after the acquisition. However, the company-specific adjustments showed significant improvement, even though it being far less than Kaplan's findings. Although their findings drew the same conclusions as Long & Ravenscraft (1993) in regard to a positive effect of a high level of gearing, it also presented that the size of the management's ownership stake in the company had no explanatory effect on profitability. Furthermore, a change in leadership had a positive effect but this effect was cancelled out if the director of the firm functioned as the chairman of the board as well. Surprisingly, the results indicated that the number of board seats held by the PE-fund had a negative effect on profitability. A possible explanation might be that the PE-fund only needs to play an active role when the portfolio company is struggling (Guo, Hotchkiss & Song 2007).

3.2.2 Danish studies

The number of Danish studies conducted is sparse. Only three relevant studies of PE-funds in Denmark have been published. The first is conducted by the Ministry of Economic and Business Affairs (2006) the other is an academic study of Frederik Vinten (2008) in his PhD dissertation. The last study is conducted by Achleitner & Lichtner (2011).

In 2006 the Ministry of Economic and Business Affairs studied 108 PE-funded portfolio companies and compared them to a reference group. They analyzed the development in revenue, investments, capital intensity, productivity and growth in employment. The reference group consisted of companies with more than 120 employees. This meant that no industries or smaller companies were considered, which may be a weakness of this study. Among other things, the study concluded that employment and revenue grew more in portfolio companies compared to the reference group. This study thus indicated that portfolio companies experienced a positive impact when acquired by a PE-fund.

Frederik Vinten (2008) examined 73 Danish portfolio companies in the period from 1991-2004. These portfolio companies were compared to 545 reference companies in regards to the development in different profitability measures, such as ROE, asset turnover, revenue growth, invested capital and EBITDA divided by shares. For each portfolio company the Vinten machted 5 reference companies on the basis of industry and size of assets. The study concluded that on almost all profitability measures, the portfolio companies performed worse in the three-year period after the acquisition compared to the reference group. Furthermore, they performed worse compared to themselves in the period prior to the acquisition. Among other measures, sales growth was 4%, EBITDA divided by shares 10% and return on invested capital 2% lower than the reference group.

In contrast to previous studies and the study from the Ministry of Economic and Business, Vinten's results disclosed that PE-firms were unable to create more value in their portfolio companies. The study focused on whether PE-firms could create value through changes in governance and financial engineering. The results presented that portfolio companies that had an increase in ownership concentration experienced a positive but insignificant effect on profitability. For companies with a decline in ownership concentration the opposite was true. This indicated that a reduction of agency costs led to better profitability as discussed per section 2.6.2.1. Furthermore, the consequence of larger gearing was examined to test whether Jensen's free cash flow theory was applicable. Contrary to previous studies and our discussion as per section 7.1.1, the findings revealed that highly leverage companies did not perform better than companies with lower leverage, thus not proving Jensen's free cash flow theory.

The last study reviewed is from 2011 by Achleitner & Lichtner in collaboration with Capital Dynamics. They conducted a study on value creation at exits in 44 Danish portfolio companies. The reference group consisted of publicly listed companies. Their methods laid foundation for the study of Puche, Braun & Archleitner (2013). Requirements for portfolio companies and the reference group were similar in relation to ICB sector codes, minimum deviation in EBITDA and sales at the time of investment. However, in contrast to the two other Danish studies, this study did not include Danish control companies. This study's analysis was based on the Internal Rate of Return and showed a higher IRR for portfolio companies. This study differs from our problem definition and focus. This results in a smaller comparability basis compared to the two aforementioned studies. Nevertheless, this study is a good indication of the various angles that have previously been investigated. (Achleitner & Lichtner, 2011).

4. The recession 2007-2010 and its impact on PE-firms.

As we are examining PE-firms' ability to create value in their portfolio companies during a recession, it is adjacent to discuss how the recession impacted the PE-fund model and their value-creating tools.

There is a broad consensus among economists worldwide as to when the recession started. However, it is debatable as to when the recession ended. Some believe that the recession saw its last moments when the G20 agreed on a global stimulus package worth $5tn on the 2nd of April 2009. (The Guardian; August 2012)

Others believe that the recession ended with the introduction of The Dodd–Frank Wall Street Reform and Consumer Protection Act in July 2010. This act was implemented in the United States. The intention was to stimulate financial stability by improving answerability and transparency in the financial sector. This was followed by international regulations in form of the Basel III framework introduced in December 2010. (Financial Stability Board)

Other financial analysts believe the recession ended with the stock market bottoming in October 2011 resulting in stocks outperforming gold again. (Business Insider, December 2013),

According to a report published by the "Rangvid-udvalget", for the Danish Ministry of Economic affairs the recession ended in the fall of 2010 in Denmark (Erhvervsministeriet; 2013). As our problem definition focuses on the impact on PE-firms value-creating ability during a recession in Denmark, we base our analysis investigation period on the results of these findings.

4.1 The start of the recession

The first glimpses of the recession were concentrated in the financial sectors around the world. However, it quickly spread to the real economy and its impact virtually affected all industries. Due to large losses on subprime loans discovered in banks around the world the recession unfolded in August 2007 in the United States. This resulted in great uncertainty regarding the entire banking system essentially closing the interbank lending market due to.

According to Subrahmanyam, 2009, the banks were the primary reason for the recession. In the US especially, the banks eagerly provided favourable mortgage loans. These loans were often interest-only loans variable to changes in the interest rate. Individuals with poor personal economies were granted these loans, as banks started to show increasingly risk willingness as a consequence of years with low interest rates. The loans provided were pooled together by the banks in a so-called CDO, a Collateralized Debt Obligation. These CDOs were sold to other banks around the world.

However, the American Central bank started to increase the interest rates continuously from July 2004 to July 2006 making the interest payments more expensive. As the supply outpaced the demand on the housing market, the housing prices decreased. Millions of house owners who bought their houses on the basis of the interest-only loans were unable to meet the interest payments after the increase in the interest rate. Furthermore, the inability to refinance their loans resulted in a large increase in foreclosures consequently leading to great

losses for the banks. This culminated in the bankruptcy of Lehman Brothers in 2008. (The Gurdian, December 2011)

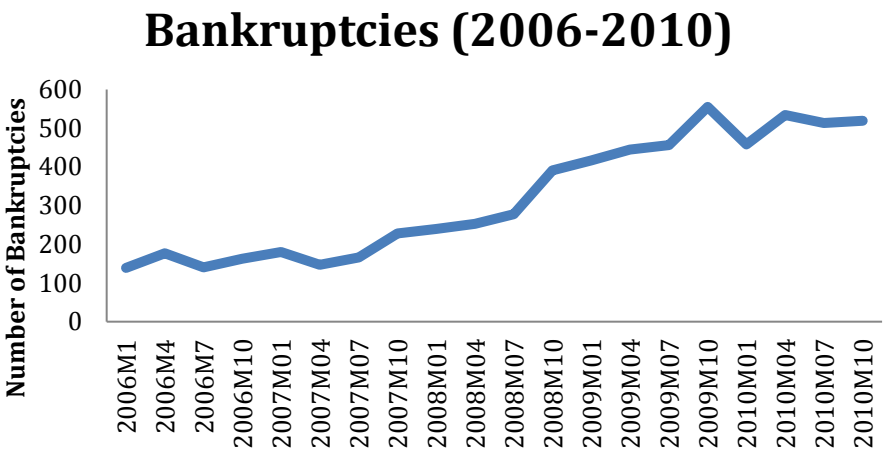
The U.S. government took control over the two largest mortgage issuer, Fannie Mae and Freddie Mac after the bankruptcy of Lehman Brothers. This was to avoid bankruptcy but also to try and stabilize the market (Lewis, Kay, Kelso, Larson 2010).

4.1.1 The impact of the recession on the Danish economy

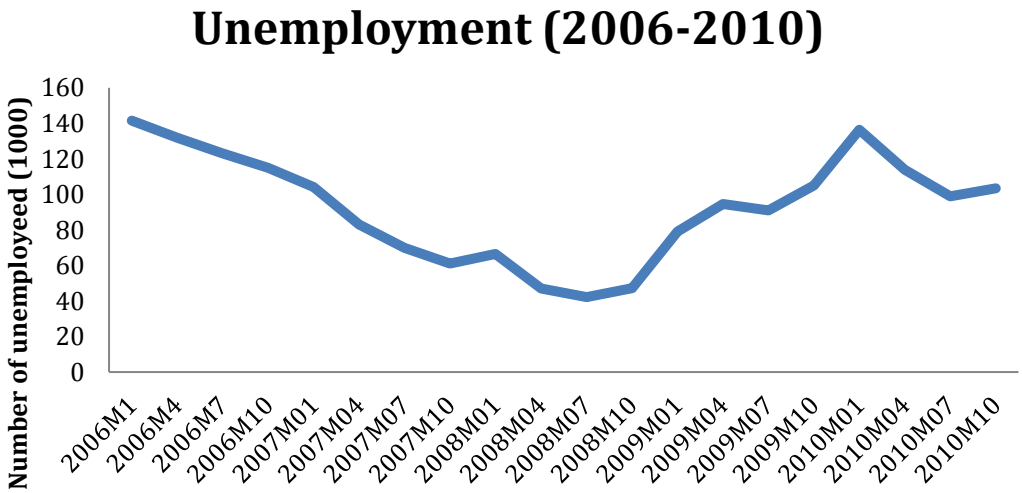
In 2006 inter lending between banks around the world was at an all-time high. Similar to banks around the world, the banks in Denmark had bought CDOs from US banks as well, where the individual loan takers now were unable to serve the interest payments. Consequently, the Danish banks experienced similar historical losses as the US. banks. Several banks went bankrupt, best exemplified with Roskilde Bank. However, the Danish government took control over Roskilde Bank, as was the case for Fionia Bank, Gudme Raaschou, EBH Bank and Løkken Sparekasse. Additionally, large banks such as Forstædernes Bank and Skælskør Bank were acquired by other banks. (Børsen, 26. March 2010).

Observing the GDP from 2006 and onwards the macroeconomic effects of the recession were evident. The GDP decreased by 1.1% in 2008 and 5.2% in 2009. In contrast GDP increased by 1.6% in 2007 and 3.4% in 2006 (Nationalregnskab (november-version) 2004-2009)

In regard to the housing market in Denmark, the amount of foreclosures went from 1,231 in 2006 to 2,840 in 2008 and 4,140 in 2009. Furthermore, the number of bankrupt companies increased significantly as well during the recession. In 2006, there were 1,987 bankruptcies, increasing to a staggering all time high of 5,913 in 2009 as depicted in the figure below. (Danmarks Statistik).



The increase in bankruptcies resulted in the increase in the unemployment rate. 38,888 individuals were unemployed as per July 2008 increasing to 108,796 by the end of 2009 corresponding to a percentage increase of 150%. (Danmarks Statistik).



From the figures listed above it is evident that the recession impacted Denmark significantly around mid-2008. This correlates well with the Danish stock Market. The Danish C20 Index was at its top at index 517 the 11th of October 2007. The 6th of October 2008 the Index experienced a historical decrease of 11% with fluctuations hereafter. On March 6, 2009 the Index was at its lowest in the investigation period 213. At the end of investigation period, the 30th of December 2010, the index closed at 457. (Yahoo Finance)

4.1.2 Impact on the PE-model

The PE-fund model is impacted in several ways by a recession. Firstly, the actual fund and its strategy in regard to what portfolio companies to acquire was affected by the recession. Furthermore, the impacts in the real economy affected the portfolio companies' ability to sustain revenue and keep control of costs.

The low interest rates in the years prior to the recession resulted in relatively cheap funding opportunities in regard to acquiring portfolio companies. As banks required a higher interest rate to lend money the driving force behind the acquisition boom disappeared. Furthermore, as the banks required more collateral, the cost of capital increased for the PE-funds consequently reducing the potential upside in relation to exits.

As the uncertainty in the overall market increased, relatively riskier and more illiquid investments such as PE-funds experienced difficulties in attracting investors. However, we find that large amount of capital was already raised in the years prior to the recession (Finans, 2016). As we examine portfolio companies acquired a year prior to the recessions beginning the PE-funds ability to attract investors during the recession is not a pressing issue.

Although capital became harder to obtain, the PE-funds had opportunities to invest in potentially attractive portfolio companies. Large drops in share prices meant cheaper acquisitions of publicly listed companies. Furthermore, private companies were forced to sell relatively cheaper as they could not expect the same high multiples as in the period with upswing. The recession therefore provided the PE-funds the opportunity to acquire companies at reasonable rates. Furthermore, studies have shown that acquisitions undertaken during the lowest point of a recession have yielded the highest returns (Gell, Kengelbach, Ross 2009).

Nevertheless, the decreasing share prices and multiples negatively affect the PE-funds ability to exit their respective portfolio company. An IPO is not an option when the stock market is at the bottom resulting in investors being risk adverse and cautious. Other PE-funds and strategic buyers are struggling due to the recession as well and therefore have a lower appetite for new acquisitions. Positively exiting the market during the recession is however

only a concern for those companies that have been owned by a PE-fund for several years and therefore are relatively closer to being ready for an exit.

4.1.3 Impact on the PE-firms value creating tools

Through our empirical study we investigate whether or not portfolio companies perform better during a recession. Therefore, it is essential to discuss how the tools that are applied by PE-firms in regards to optimizing their portfolio companies are affected by the recession.

Active and concentrated ownership: A recession will presumably not influence the extent and the quality of the active ownership applied by a PE-firm. Contrary, the active ownership can prove to be beneficial during a recession. Active ownership involves faster decision-making, a requirement needed in regards to adjusting the portfolio company's strategy, thereby preparing it to cope in the new economic conditions. However, these adjustments must be analysed and reviewed thoroughly before being applied, as these adjustments can prove damaging otherwise.

In a situation were the entire management needs to be replaced due to the implementation of a new strategy it is faster and easier with an active board and a concentrated ownership. Therefore, from a theoretical standpoint, companies with active ownership will have better opportunities to lead their company safely through a recession.

Incitement and compensation: The recession effects how the incentive schemes are constructed. During a recession it can be unattainable to reach certain financial targets, therefore eliminating the positive effect of incentive schemes based on bonuses provided when these financial targets are met. As the total value of the firm has potentially been affected negatively by the recession the ownership share of the management of the portfolio firm, if required to own a share, will have decreased in value proportionally. Consequently, this will provide an incentive for the management team to optimize the company and aim to create more value. In regards to incentive schemes related to stock options in publicly listed companies, these will be so far out-of-the-money that the incentive factor may have disappeared.

Leverage: In relation to the value-creating tools applied by PE-firms, the use of leverage is undoubtedly the tool that is most affected by a recession. PE-firms use leverage when acquiring companies. The leverage is pushed down into the portfolio company and applied to construct the capital structure as such that the debt and the interest payment hereof can be paid by the generated cash flows. However, a recession may negatively impact the ability to generate cash flow. Consequently, this will create implications in regards to meeting debt payment requirements. Indirect financial distress cost will increase dramatically and the portfolio company will lose much of its flexibility in relation to new investment and growth as will be explained in section 7.5.

Thus the PE-firm may need to raise new capital, potentially at a costly rate. The management will be pressured to optimize the operations and thereby generate the necessary cash flows. However, the pressure might be so overwhelming that it in turn reduces the management's motivation. The increased pressure could also have a positive effect as some management teams may find the pressure to be the driving force needed to guide the company through the uncertain economic period.

Portfolio companies will experience reduction in the proposed benefits of the tax shield. This benefit only occurs when the company generates a large enough profit to deduct the interest from. Should the company operate with a negative or decreasing EBIT the tax advantage will consequently be reduced.

From a theoretical standpoint it must therefore be considered negative to have a large debt in a recession.

Operational improvements: A recession gives an incentive to every company to focus on operational improvements and efficiency. In relation to PE-firms a recession provides an opportunity for even larger focus on operational improvements. PE-firms' ability to reduce cost and optimize the working capital is of even higher importance during this period (Smith, 1990b).
Companies with other ownership forms than portfolio companies may potentially initiate operational improvements, consequently reducing the PE-firms comparative advantage.

However, these companies may not possess the required skillsets as the PE-firms, thereby unable to impose the necessary changes.

Operational improvements in relation to generating revenue can prove difficult to implement. Customer demands are significantly reduced due to increased unemployment thereby decreasing the customer's purchasing power. As such, many of the improvements expected by the PE-firm may be postponed to a point in time when the market is stabilized.
Portfolio companies may acquire additional companies with the aim of increasing their revenues, as other companies may be cheaper to acquire given the economic conditions. However, this strategy can prove to be difficult due to lack of liquidity.

It is difficult to assess how the recession impacts a PE-firm's ability to implement operational improvements. Nevertheless, we expect that the opportunities to implement changes that involve the use of liquidity are reduced. Consequently, the ability to create efficiency improvements is even more important.
This section has provided several thoughts, discussion and aspects that are interesting to investigate in our empirical study.

5. Method

We have chosen our data and methods based on the knowledge gathered from the strengths and weaknesses of the previous studies. Additionally, we have taken our theoretical review of the PE-firms and their value-creating tools and approaches into consideration. Our methodological angle differs from previous studies as we investigate the development in profitability and value creation in a specific macroeconomic time period. The economic downturn experienced during the recession from 2007-2010 provides a unique opportunity to investigate whether the Private Equity model is superior in a recession compared with other forms of ownership.

Study	Country	Year	Companies	Benchmark	Profitability measure	Results
Kaplan & Stein	USA	1960-1966	76	Industry	Growth in EBITDA and Cash flow	Positive
Smith	USA	1977-1986	58	Industry	Cash flow / Operating Assets	Positive
Opler	USA	1965-1989	44	Industry	EBIT/Revenue and EBIT/Employees	Positive
Long & Ravenscraft	USA	1978-1989	257	37628 reference companies	EBITDA/Revenue	Positive
Cressy	UK	1995-2002	122	122 reference companies	EBIT/Assets	Positive
Guo	USA	1990-2006	94	Industry and 470 ref. Comp.	EBITDA/revenue and Cash flow/Reveneu	Mixed
Ministry	Denmark	1995-2004	120	Industry	Growth in employees, revenue, investment	Positive
Vinten	Denmark	1991-2004	73	545 reference companies	EBITDA/Assets and ROIC	Negative

Figure 3: Results of previous studies

Previous studies have used different approaches in regard to finding reference companies for the portfolio companies. Cressy et al. (2007) used industry and company size (measured on revenue) and Vinten (2008) used industry and company size (measured on total assets). Since it has not been possible to collect information about revenue for all examined companies, we as authors have chosen to use industry and total assets as a measure of size and comparability.

For previous studies it has been common to use reported accounting figures, thus value creation and development in portfolio companies has not been examined on the basis of reformulated and revised accounting figures. Hence, a direct measurement of operational value creation has not been done. Furthermore, as EVA is a measure of economic value added, we find that it is a good measure to assess the value creation of portfolio companies, and thus how PE-firms manage to create value, positive as negative.

Furthermore, previous studies have made some nonoptimal methodological choices. With a new study, we as authors can contribute to the existing empiri both with a new angle and with a more correct methodological approach. These methodological improvements and the mindset behind will be reviewed in the following section, along with a review of our collected data.

5.1 Investigation period

The focus of this thesis is to examine whether portfolio companies perform better than a group of reference companies during a recession based on various parameters, such as profitability, growth, EVA and bankruptcy risk.
As per our problem definition, it is essential that we as authors choose a correct time period reflecting the entire period that meets the conditions of a recession. Additionally, we must select the proper key figures that provides the right assessment basis for the profitability

analysis of the portfolio companies and the reference companies as, discussed in section 4, problems in the financial market that led to the recession started to appear in August 2007, whilst it forced into the real economy in mid-2008. As the "Ragnvid Udvalget" concluded that the recession ended in Denmark in the fall of 2010, we have based our investigation period accordingly.

Our study will include companies that have been owned by a PE-fund throughout the period of the recession from 2007-2010. However, it is essential that the PE-firm have had time to implement changes in the organisation and operations of the portfolio company before the start of the recession. As a result and drawing upon the methodology of Achleitner & Lichtner (2013), we have chosen to include all portfolio companies that have been acquired before August 2006. This allows at least one year for the PE-firm to introduce and implement changes before any signs of the recession appeared. This gives the PE-firms at least half a year to impact the profitability of 2007 in their respective portfolio companies. One could have required a longer ownership period before any signs of the recession, allowing for more time to implement changes. However, that would affect the number of included companies as the majority of acquisitions were made in 2006. Another scenario includes companies that were acquired after August 2006, but that would leave the PE-firms with limited time to implement changes. Consequently, the profitability in 2007 would not be attributed solely to the PE-firm, but also the previous owners. Therefore, our believe is that the chosen cut-off point provides the best balance between the number of included companies and the degree of value creation that can be related to the PE-firm.

5.2 Study Group

The study group is selected on the basis of DVCA's database. This database provides an overview of all PE-fund acquisitions in Denmark. As per August 2006, 41 portfolio companies were owned by a PE-fund. For the full list please refer to appendix 1. For all the conducted analysis the data is available in the dropbox link provided in the bibliography. As we examine the profitability and other measures throughout the entire recession we have sorted and included portfolio companies on the basis of the following criteria:

1) The portfolio company must have been acquired by a PE-fund before August 2006.

2) The PE-fund must have exited the portfolio company the 1th of January 2011 at the earliest.
3) The acquisition must have been performed by a single PE-fund only.
4) The portfolio company cannot be formed through a merger with other companies.
5) The acquiring PE-fund must be the main shareholder in the portfolio company.
6) Consolidated accounts with same accounting data.

1) As argued in previous section, drawing upon the methodology of Achleitner & Lichtner (2013), we have chosen to include all portfolio companies that have been acquired before August 2006, allowing at least one year for the PE-firm to introduce and implement changes before any signs of the recession appeared.

2) The portfolio companies that we analyse must not have been listed or sold before the 1th of January 2011. There are companies in DVCA's list that are indicated as "N / A" in regards to the year the company has been sold. These have been excluded as these companies most likely have been sold before the end date, even though no date is specified. We are aware that this could lead to a negative bias, as companies that are being sold are most likely the ones that have performed best during the recession. Furthermore 34 companies have been sold during the investigation period. 5 companies were sold out during the rest of 2006 and 9 were sold out in 2007. It is highly unlikely that these firms have been impacted by the recession and therefore irrelevant to our study. Another 6 were sold in 2008. 7 were sold in 2009 whilst one went bankrupt. Last but not least 5 divestments were made in 2010 with 1 bankruptcy, all of them in the second half-year. This clearly shows how a recession affects the exit possibilities of the PE-fund during a recession, as the number of divestments decreases. It is a possible negative bias that we have excluded the 3 portfolio companies sold in 2010, as one must expect that these companies were sold as a result of them surviving the recession very well. On the other hand, there is a positive bias from the fact that two companies went bankrupt during the investigation period, as Hammel Møbelfabrik went bankrupt in 2009 and SMEF Group in 2010. As a result of this, these companies are not included in the analysis as accounting data is not available for the entire period. Not including the two bankrupt companies is a positive bias as these two companies have most likely experienced a negative value creation during the recession. It is therefore our believe that the positive and negative

biases that are identified, will neutralize each other to a certain extent. However, we will include SMEF Group in the analysis of the Z-score to see if anything can be interpreted from this measure the year before their bankruptcy. Furthermore, Scanvogn A/S went bankrupt in 2011, and by examining their Z-score and deposits from owners, we would see if one could have predicted this bankruptcy.

3) The portfolio companies must have been acquired by a single PE-fund. This excludes companies such as TDC, Icopal, Falck, etc. from the analysis. This criterion is a result of the fact that the thesis wants to substantiate between different PE-firms' strategies. Our focus is on portfolio companies that are acquired with a single PE-firm's strategy in mind and thus only this respective PE-firm's active ownership. In continuation thereof, criteria 3 must be seen in relation to criteria 5, as the analysis will only examine companies where the PE-funds have a controlling influence. A consortium of PE-funds will often have the controlling influence of their portfolio companies, but our analysis requires the individual PE-fund to own more than 50% of the shares in the portfolio companies, as per the methodology of Frederik Vinten (2008). As a consequence, portfolio companies acquired by more than one PE-fund has been excluded.

4) There are 2 reasoning's behind excluding companies that are formed through mergers with other acquired companies. First of all, as our focus is on Danish portfolio companies, we have naturally excluded companies that are formed by merging with a foreign company. In addition, companies that have merged with other of the PE-funds portfolio companies are also excluded. This is a consequence of the lack of continuity in accounting data as companies that in the beginning were self-employed, but later in the ownership period has been consolidated into other companies have had changes in their accounting data.

5) As addressed under criterion 3 the PE-funds must be main shareholders in their respective acquired portfolio companies. Portfolio companies with PE-funds owning less than 50% of the shares, have been excluded as a consequence of the PE-funds lack of controlling influence and ability to implement changes. This sorting is based on the statement in the DVCA list as to whether the PE-fund is the main shareholder or not. Furthermore, shareholder specification listed as "N / A" have also been excluded.

6) In order to analyse and compare across the different portfolio companies, it is essential that the accounting standard is the same (Petersen & Plenborg 2012). Furthermore, it is also essential that we use consolidated accounts. If the portfolio company is a subsidiary, there is a possibility of problems in regard to transfer pricing between subsidiary and parent company, resulting in incorrect earnings figures. Furthermore, the debt can be invested or transferred to other subsidiaries, thus not presenting the correct depiction of the debt ratio of the specific portfolio company.
For all the conducted analysis the data is available in the dropbox link provided in the bibliography. After sorting the portfolio companies according to our criteria we end up with a final study group consisting of 25 portfolio companies as presented in appendix 2.

5.3 Reference group

In order for us to assess whether portfolio companies perform better during a recession we need to identify a suitable group reference companies. Previous studies have most commonly used the specific industry benchmark that the portfolio company operate in as comparison, however more recent studies indicate this method is biased. In a paper from 2001 Ghosh criticized other studies regarding value creation. Although his critique was related to companies involved in M&A deals, the reasoning behind is applicable to PE-fund acquisitions as well. Ghosh argued that previous studies disclosed that merged companies performed better than two average industrial companies that were not merged. This leads to a positive bias, as companies acquiring and merging often are larger companies who are able to obtain economies of scale thus affecting profitability more than the average company. Thus, it is suggested to match portfolio companies on the basis of size instead of using an industry average as benchmark.

More relatable to our investigation is the methods applied by Frederik Vinten (2008). He matched portfolio companies with reference companies on the basis of same industry and the size of the assets of the companies. However, Vinten used an average of 5 companies as reference group per portfolio company based on his criterias. This however is a problem in regards to finding enough comparable companies for some portfolio companies. We will in our study instead focus on finding 1-2 companies that are completely comparable to the portfolio company. Furthermore, a criticisable flaw with Vintens method was the yearly

change in reference company, as the development and comparison of profitability during the recession would be dependent on other factors than the performance and development of the specific reference company.

We believe that a more accurate and complete comparison would be obtained if the reference company and the portfolio company were as similar as possible at time 0. This will allow for comparison of their development hereafter in the investigation period. Thus, our study group of reference companies will consist of companies that per their 2006 financial statements matched our study group of portfolio companies by industry and the size of their assets.

The reference companies for each portfolio company have been identified by actively reviewing each company, starting out by finding companies in a specific industry on CVR's register and then selecting the respective companies on the basis of information on LinkedIn and their annual statements. In regard to the size of assets, previous studies, Smith (1990), Gosh (2001) and Vinten (2008) have on average used a spread in size of the assets of the reference company between 25% and 200% compared to the portfolio companies. This will serve as the guideline for our thesis as well, however we have in some cases exceeded this spread as the specific reference company has been the best comparable company in relation to our respective portfolio company.

Several problems arise in the pursuit of finding the most comparable reference companies. First of all, the reference company must not have skewed accounting data, as this would affect the comparability in regard to the same period of time. For some companies however, this can be circumvented if the reference company is listed and has half-year reports.
Further on, some companies that seemed a good match as a reference company were unfortunately a subsidiary for a larger company, and in most cases a larger foreign company. As their annual accounts are not consolidated, their scale advantages and their access to debt from their mother company, they have been excluded.

As Denmark is a small country with few companies, it has been difficult to find perfect matches. Although the possibility of using foreign companies was adjacent and present, the foreign accounting standards would be difficult to analyse on and compare to the Danish

portfolio companies. Furthermore, as the recession impacted countries with different magnitude, a direct comparability is not applicable.
In some cases, an optimal reference company was identified, but due to their bankruptcy during the recession they have been excluded. This is best exemplified with GPV industries that went bankrupt in 2009, who otherwise would have been an optimal reference to BB Electronics.

We are aware of the possible biases and uncertainties that can arise when reference companies are identified on the basis of certain criteria. The performance of the reference company and the results we obtain from these may be affected by company specific risk rather than the influence of their respective ownership form. To avoid this, we have in cases when possible, used 2 reference companies as this will reduce the unsystematic risk. More companies would be beneficial, but it proved difficult to identify a minimum of 2 similar Danish companies. We believe that 1-2 complete comparable companies will give us the most accurate results. Furthermore, typing in and reformulating all annual statements for each and every company is time consuming and will leave less time to interpret the analysed results. To make the analysis and comparisons as fair as possible, we have not included companie for the purpose of including, meaning in cases where only one reference company is identified as a proper match, we have gone with that one company only. Furthermore, we were not able to identify suitable matching companies for some portfolio companies, as was the case for Københavns Lufthavne, Legoland and Scanvogn. The list of reference companies can be found in appendix 3. The group of reference companies have an average of 102,8% of the assets of the portfolio companies, which is very close to a 100% match.

5.4 Data collection and data consistency

Our study differs from previous studies in our processing and interpretation of the collected data. Previous studies have gathered accounting data from databases where the accounting data is aggregated for all companies. This aggregation lacks in transparency as to how items are aggregated and what changes have actually occurred in each portfolio company. By reviewing each company's accounting data and financial statements we obtain an essential knowledge about different accounting measures in regard to extraordinary items, goodwill, impairments, leasing and the structure of debt, which is not obtainable from the aggregated

databases. These measures must be identified from the notes in the annual statements. As a result, each annual statement from the year 2005 to 2010 both included has been scrutinized for each of the 25 portfolio companies and the 30 reference companies. These annual statements have been collected from the CVR register and have been manually entered into working sheet.

We have typed in all relevant items from all companies in the same manner to ensure that the data and the analysis are comparable across the different companies. As a result, it is of our opinion that the collected and processed data provides a more accurate picture than one would have been able to collect from a database. We believe, that by reformulating and reviewing each company's accounts we have obtained a pool of data that will form the basis of a more fair and accurate analysis compared to previous studies.

6. Analysis 1: Profitability during a recession

Previous studies have put emphasis on various profitability measures in their analysis. In regard to our empirical study it is important that we choose the relevant profitability measures and key ratios that will provide the best results in relation to our problem definition. The focus must be on profitability measures related to the examined companies' operational level. Therefore, it is essential to analyse key ratios that are not affected by interest rate effects due to the PE-funds use of a relatively higher leverage. As the focus of this thesis is on operating performance it is adjacent to focus on EBIDTA as the key profitability measure. Furthermore, EBITDA has been a commonly used profitability measure in previous studies. EBITDA is a measure for the Earnings before Interest, Taxes, Depreciation and Amortization and reflects a company's operating profit before depreciation of operating assets and goodwill impairment losses. (Petersen & Plenborg, 2012; 460)

In some instances, the depreciations are not visible directly from the companies' income statements and in such cases, they have been obtained in the *notes* from the annual statements. EBITDA is one of the most essential indicators in relation to companies' operating profitability. As depreciation and amortization, which are *non-cash items,* are added to the operating profit a metric comparable to the cash flow from operation is obtained. Therefore

EBITDA is of high importance for the PE firms as it provide concrete insights to the earnings potential of a business and how much money is left to service the debt (Spliid 2007: 21)

EBIT could arguably be applied as the key profitability measure, as was the case in the studies from Long & Ravenscraft (1993) and Cressy et al. (2007). However, our believe is that EBIT will not provide the best measure for operating profitability due to possible differences in depreciation methods and the size of assets for the examined companies.

EBITDA can be measured either before or after extraordinary items. In our process of reviewing the different financial statements, we have adjusted for these extraordinary items in order to obtain a clear depiction of the operating profitability. The EBITDA in the reformulated financial statements provides a more accurate picture of a company's operational performance.

Scaling EBITDA by a company's total assets to assess how well the company has utilized the assets to generate returns has been commonly applied in previous studies. However, we believe that a major difference in the assessment of these returns can occur depending on whether the company has just acquired the assets or has depreciated the majority of them. However, as we investigate the development during the recession, the starting level is not of high importance.

Due to the classification of assets the use of total assets as the profitability measure is not optimal (Petersen & Plenborg, 2012; 68). In relation to the scope of our problem definition it is beneficial to separate operating items from financing items. This is due to the fact that a company's operations are the primary force behind value creation. In our reformulation of the balance sheet of each firm we have separated such that all operating items are classified as part of net operating assets and all financing activities are classified as part of liabilities.

Appendix 4 provides an analytical income statement and balance sheet for Anhydro. Every item classified as part of operations have been marked *O* while every item classified as being part of financing have been marked *F*. While most of the items are straightforward to classify

the questionable items that can be either part of operations or financing have been classified in accordance with (Petersen & Plenborg, 2012: 74-79).

The combined investment in a company's operating assets is expressed as Invested Capital. Invested Capital is defined as *"the amount a firm has invested in its operating activities and which requires a return" (Petersen & Plenborg, 2012: 74*). In other words it is a measure of what a specific firm has invested in their operations and how these investments are financed. Invested capital can be calculated as Operating assets – Operating liabilities *or* Equity + NIBD. Therefore, Invested Capital can be calculated from both operations and from financing activities. (Petersen & Plenborg 2012; 74).

On the basis of invested capital the profitability measure ROIC can be calculated. ROIC is the Return on Invested Capital and is an important measure of the return of a company. It is widely used industry profitability measure when calculating return for investors (Petersen & Plenborg 2012; 94). However, none of the previous studies have focused on ROIC in their empirical analysis. As such, this presents an opportunity to explore new aspects in relation to assessing companies' profitability.
ROIC can be computed as follows (Petersen & Plenborg, 2012: 94).

$$ROIC = \frac{Net\ operating\ profit\ after\ tax\ (NOPAT)}{Invested\ Capital}$$

The calculation of ROIC for the examined companies is presented in Appendix 5

For computation of ROIC the operating profit after tax, also known as NOPAT, is needed as well. NOPAT is calculated based on the companies' effective tax rate, which is the tax amount pay divided by earnings before tax. However there have been made a *common-sense* adjustment regarding the tax rate. If the companies have had an effective tax rate lesser than 10% or above 40% they have been normalized to the Danish corporate tax rate. The reasons being many companies can have deferred tax or other tax related circumstances recognized in a given fiscal year. As these unusual are not recurring they have been normalized to provide a better analytical framework.

As analysed by previous studies our empirical study will include the return of the total assets as well. Furthermore, several of the previous studies have also focused on EBITDA divided by revenue as a measure of profitability. As such our analysis will examine this profitability ratio. This ratio is of importance as it shows the development in the margin of a company presenting evidence of a company's ability to control operating costs.

PE-firms use generated cash flows to service the debt obligations of their portfolio companies. Therefore, their ability to create these cash flows is a relevant factor to investigate. Free cash flow is defined as NOPAT + Depreciations $\pm\Delta$ Working Capital $\pm\Delta$ Investments.
Working capital is calculated on the basis of the reformulated balance sheet as current assets minus current liabilities. Net investment is calculated as the total of tangible and intangible assets in year t_{n-1} subtracted from the total of tangible and intangible assets in year t_n. (Petersen & Plenborg, 2012; 51)

Smith (1990b) concluded that strict and efficient management of working capital is one of the greatest capabilities of the PE-funds in order for them to create value. As such, it is a highly relevant measure to investigate, especially during a recession. A recession requires even greater focus on managing working capital efficiently as liquidity becomes particularly important, and a reduction of working capital will consequently lead to an increase in free cash flows.

To attain a greater understanding of how well the examined companies have coped with the recession it is interesting to look at the development in various items and key figures such as revenue, assets, leverage and number of employees.

6.1 Examination method

It is essential to investigate the difference in the development over the period 2006-2010 for the two groups of examined companies. The method applied is consistent with previous studies. In order to understand this method please refer to the below mentioned example.

Portfolio company		
	2006	2007
EBITDA/Assets	20,0%	25,0%

Reference company		
	2006	2007
EBITDA/Assets	10,0%	15,0%

As illustrated in the example the %-point difference in the development in the profitability measure is 25% in favour of the reference group. The development in the examined profitability measures and the difference in the development are both applied in our investigation.

Applying this method can however, create issues when the respective key measure either changes from positive to negative or vice versa. Exemplifying this, imagine a key figure that develops from -1% to 10%. This will result in an increase of 1100%, but if the key rate develops from -10% to 10%, the increase will only amount to 200%. We have manually reviewed the results and adjusted for outliers. Consequently, extreme values will have less of an impact.

7. Empirical analysis

In the following sections the empirical analysis will be conducted with the aim of providing us the necessary findings in relation to drawing conclusion upon our problem definition.
The empirical study is divided into three sections. The first is a profitability analysis, followed by an EVA analysis, whilst the bankruptcy analysis serves as the culmination to the empirical study.

7.1 Analysis 1: Value creation through a recession

The aim of this section is to analyse the two examined groups' ability to deliver positive profitability measures during a recession. As explained in the section with previous studies different profitability targets are examined leading to an identification of the potential differences and their explanations.

7.1.1 Profitability analysis

On the following page the figure shows the development in the most relevant profitability measures and cash flow for both of the investigated groups of companies.

	Portfolio companies					Reference companies					Change portfolio companies				Change reference companies				Difference i change (%-point)			
EBITDA / Assets	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	7,3%	14,5%	14,5%	10,9%	14,5%	17,9%	19,4%	14,8%	7,0%	12,9%	197,87	197,41	148,19	197,21	108,11	82,48	39,25	72,25	89,75	114,93	108,94	124,96
Median	9,8%	12,8%	11,1%	8,0%	11,0%	17,2%	17,5%	15,3%	8,0%	10,5%	130,40	112,86	81,13	112,15	101,74	88,81	46,59	61,17	28,66	24,06	34,54	50,99
Std. Dev.	22,4%	16,8%	20,8%	25,5%	19,9%	13,6%	10,9%	15,7%	13,5%	10,3%	75,01	92,95	113,66	88,61	80,06	115,46	99,73	75,62	-5,05	-22,51	13,93	12,99
EBITDA / revenue	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	10,0%	59,3%	24,2%	17,3%	6,6%	17,7%	21,6%	14,5%	5,9%	12,6%	592,88	242,06	173,49	65,89	121,70	81,58	33,47	71,00	471,19	160,47	140,02	-5,11
Median	8,5%	12,6%	7,1%	7,1%	8,7%	13,2%	16,6%	13,7%	6,8%	9,7%	148,76	83,26	83,13	102,83	125,91	104,03	51,80	73,57	22,86	-20,77	31,33	29,27
Std. Dev.	34,3%	212,2%	57,0%	72,0%	123,8%	16,1%	26,2%	19,8%	16,1%	12,1%	618,99	166,37	210,14	361,16	162,47	122,74	99,91	75,30	456,52	43,63	110,24	285,85
EBITDA / Inv. Capital	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	20,4%	23,2%	30,6%	25,9%	35,9%	41,7%	40,9%	32,8%	11,9%	26,7%	113,73	149,92	127,16	176,15	98,05	78,65	28,46	64,05	15,68	71,27	98,70	112,10
Median	19,0%	23,1%	19,4%	9,0%	15,8%	27,1%	33,1%	29,0%	11,9%	15,0%	122,00	102,37	47,34	83,47	121,83	106,75	43,88	55,13	0,17	-4,38	3,46	28,34
Std. Dev.	66,9%	78,7%	53,1%	74,5%	68,1%	64,1%	32,0%	44,2%	36,8%	28,0%	117,69	79,35	111,35	101,82	49,90	68,91	57,49	43,63	67,78	10,44	53,86	58,19
ROIC	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	-0,1%	32,5%	8,5%	-1,1%	7,5%	21,1%	19,5%	12,8%	-2,6%	10,7%	514,64	135,03	-17,31	118,14	92,61	60,86	-122,01	50,80	422,02	74,17	104,71	67,34
Median	10,3%	12,6%	8,8%	1,8%	7,7%	14,4%	17,3%	12,8%	3,9%	7,3%	121,30	84,80	17,86	74,80	120,18	88,84	26,81	50,45	1,12	-4,04	-8,96	24,35
Std. Dev.	73,9%	110,5%	27,3%	23,5%	25,2%	37,5%	21,0%	26,6%	25,9%	12,8%	149,51	36,92	31,76	34,10	56,09	70,98	68,89	34,19	93,42	-34,06	-37,14	-0,10
FCF / assets	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	-2,5%	-8,3%	-3,6%	-3,1%	-0,5%	6,7%	0,8%	-0,5%	-7,6%	3,9%	-333,36	-142,02	-125,25	20,04	11,42	-7,25	-112,82	57,96	-344,78	-134,76	-12,43	-37,92
Median	0,5%	-0,8%	-2,3%	-0,3%	0,9%	1,5%	4,9%	-0,4%	-3,6%	0,3%	-183,51	-496,30	-54,09	196,89	318,86	-25,17	-232,49	21,33	-502,37	-471,13	178,40	175,56
Std. Dev.	32,8%	52,2%	20,7%	32,1%	29,9%	21,0%	18,3%	18,9%	23,2%	12,5%	159,21	63,10	97,88	91,33	87,21	89,84	110,09	59,37	72,00	-26,73	-12,20	31,96
FCF / Inv. Capital	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	-36,8%	-90,6%	-4,5%	-5,6%	4,5%	27,0%	-0,1%	2,7%	-6,0%	2,4%	-246,29	-12,24	-15,20	122,87	-0,24	10,03	-22,31	8,74	-246,06	-22,27	7,11	114,13
Median	1,0%	7,8%	6,5%	-10,6%	2,0%	3,4%	8,4%	7,5%	-1,1%	1,3%	782,43	649,06	-1058,76	200,39	248,03	222,59	-32,57	38,15	534,40	426,47	-1026,19	162,24
Std. Dev.	242,3%	444,1%	43,0%	40,7%	34,9%	129,6%	56,0%	30,3%	29,9%	12,5%	183,32	17,75	16,80	14,39	43,20	23,42	23,05	9,65	140,12	-5,67	-6,25	4,73

We observe an overall finding in our analysis. The majority of the various examined profitability measures top in 2007 for both the portfolio companies and the reference companies. Therefore, on the basis of these findings 2007 can be categorized as the last year before the recession outburst. The following year saw decreases in the investigated profitability measures as they were negatively affected by the recession. In general, the reference companies are performing relatively better based on the examined profitability measures in the period 2006-2008 but are outperformed by the portfolio companies in 2009 and 2010. The portfolio companies experienced decreases in profitability in 2008 and 2009. Nevertheless, in most cases the portfolio companies managed to return to similar levels or better in 2010. In relation the reference companies, they experienced significant decreases in the same period, while also experiencing increases in 2010. Contrary to the portfolio companies, they did not manage to return to or exceed the levels of 2006.

In regard to the profitability measure EBITDA/Assets we observe for the portfolio companies that for the first three years this measure had an average of 7.3%, 14.52% and 14.5% respectively. In the same period the reference group delivered averages of 17.9%, 19.4% and 14.8%. For this observed period, we find that the reference companies are superior in regards to this profitability measure.
However, in 2009 the portfolio companies started to outperform the reference companies. The portfolio companies recorded an average of 10.9%, whilst the reference companies delivered an average of 7%.
Observing the median for both groups of companies we find the same pattern. Furthermore, interesting points can be drawn from the standard deviations. For the portfolio companies the standard deviation is significantly higher in 2009 compared to the other years, indicating a big spread in the performance of the companies.

Although the findings indicate a certain pattern the actual numbers are not of particular interest. In relation to our problem definition it is the development in the profitability measures that are of relevance. As such the development for the two groups are calculated with 2006 as index 100. In other words, the number in 2009 shows the development in 2009 from 2006. Furthermore, the table illustrates the difference in the development of the two groups. From 2006 to 2007 EBITDA/Assets increased by 97.7% for the portfolio companies.

In the same period the reference group experienced an increase of 8.1%. In 2008 and 2009 the impact of the recession is evident. The portfolio companies experienced no decrease in 2008 but a significant decrease in 2009. As for the reference group, they recorded a decrease in value to index 82,48 in 2008 and a decrease to index 39,25 in 2009. The decrease is largely a consequence of Kontrapunkt's negative performance. They recorded an EBITDA/Assets of -39%, mostly due to a decrease of 87% in receivables causing the assets to lose half of their value.

In 2010, both groups experienced increasing measures. For the portfolio companies we find an increase to index 197.2 in 2010 resulting in the ratio returning back to similar levels as before the recession. From 2009 to 2010 the reference group increased by 84.1% to an index level of 72.25. We find that the portfolio companies have succeeded in returning to a positive development in profitability. Although the reference group experienced a positive development in 2010 they were not able to return to the previous levels recorded before the recession.

Observing ROIC in we find that the ratio decreases in 2008 and 2009 for both groups. The portfolio companies recorded negative ROIC in 2006 and in 2009 whilst the reference companies only recording a negative ROIC in 2009 of -2.6%. Both groups experienced a significant increase from 2009 to 2010, consequently resulting in the portfolio companies delivering a ROIC exceeding the levels before the recession. Interestingly, our results indicate that the ROIC is relatively more stable for the reference group throughout the period but the development is superior for the portfolio companies. The reasoning behind the fluctuations in ROIC will be investigated further in the decomposition of EVA.

Investigating further we find that goodwill plays a crucial role as to why the profitability is generally lower in the portfolio companies especially in regard to the measures containing assets. As the portfolio companies' assets contain a relatively larger amount of goodwill excluding these will provide significantly different results. In the period 2006-2009 goodwill accounted for approximately 15% of the portfolio companies' assets. As for the reference group goodwill only accounted for 4-5% of the assets. Goodwill is a difficult measure to assess

and presumably arises when PE-firms acquire portfolio companies, therefore increasing the total assets. (Petersen & Plenborg, 2012)

Subtracting goodwill from the profitability measure EBITDA/Assets for both groups, it is apparent that this profitability ratio is at more similar levels. Goodwill is therefore a major factor as EBITDA/Assets excl. goodwill has increased relatively more for the portfolio companies. Comparing the two tables in year 2007 we find that the measure incl. goodwill records an average of 14.5%, whilst the average is 16% excluding goodwill.

	Portfolio companies					Reference companies					Change portfolio companies				Change reference companies			
EBITDA/Asset excl. G	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	7,4%	16,0%	15,6%	12,0%	15,2%	18,2%	20,3%	15,8%	7,7%	13,5%	216,78	212,20	162,64	206,33	111,36	86,61	42,49	73,95
Median	11,2%	14,1%	11,1%	10,0%	12,0%	17,3%	17,8%	16,9%	8,8%	11,0%	126,30	99,57	89,91	107,96	103,35	97,90	51,12	63,95

We can thus conclude that the portfolio companies are not as profitable as the reference companies in regard to achieving high return. However, the significant difference is somewhat diminished when goodwill excluded. This difference might potentially indicate that the PE-funds have overpaid for the portfolio companies, as profitability incl. goodwill is significantly lower than the profitability of the reference group.

We find for both groups, that the cash flow ratios fluctuate significantly throughout the period. At the same time, the standard deviation is relatively high for both groups, indicating a big spread between the ability to generate cash flow for the examined companies. As expected both groups were unable to increase the cash flows during the recession. However, they were able to keep cash flow ratios at relatively stable levels. Our findings suggest divergent results as to whether the portfolio companies managed better than the reference companies. On the basis of our findings it is adjacent to perform a decomposition of the various profitability measures subcomponents.

7.1.1.1 Analysis of the profitability measures subcomponents

Breaking down the profitability and cash flow measures into their individual components provides an in-depth knowledge as to what drives these measures.
The figure on the following page presents the average figures and the development in EBITDA, revenue, assets, invested capital and free cash flow.

Portfolio companies						Reference companies					Change portfolio companies				Change reference companies				Difference i change (%-point)			
EBITDA	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	57.831	77.972	65.233	45.063	56.900	71.885	82.538	77.165	50.822	67.231	134,83	112,80	77,92	98,39	114,82	107,34	70,70	93,53	20,01	5,45	7,22	4,86
Median	47.020	34.894	38.412	25.770	29.647	39.900	49.394	26.932	21.028	29.291	74,21	81,69	54,81	63,05	123,79	67,50	52,70	73,41	-49,58	14,20	2,11	-10,36
Assets	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	544.866	592.151	575.909	539.657	529.274	425.899	468.329	488.271	448.037	477.377	108,68	105,70	99,04	97,14	109,96	114,64	105,20	112,09	-1,28	-8,95	-6,15	-14,95
Median	478.098	480.031	485.017	498.349	395.376	243.966	228.704	207.798	204.540	231.744	100,40	101,45	104,24	82,70	93,74	85,17	83,84	94,99	6,66	16,27	20,40	-12,29
Inv. Capital	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	375.798	321.887	314.331	294.549	294.539	277.637	274.061	283.443	282.956	294.883	85,65	83,64	78,38	78,38	98,71	102,09	101,92	106,21	-13,06	-18,45	-23,54	-27,84
Median	248.022	229.089	197.855	183.958	204.687	115.873	83.610	87.854	103.129	101.381	92,37	79,77	74,17	82,53	72,16	75,82	89,00	87,49	20,21	3,95	-14,83	-4,97
FCF	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	28.966	-6.323	13.399	23.297	8.198	31.665	-13.776	-2.460	-32.876	2.496	-21,83	46,26	80,43	28,30	-43,51	-7,77	-103,83	7,88	21,68	54,03	184,25	20,42
Median	-2.188	-4.852	-2.812	-1.806	6.676	891	3.815	-702	-2.407	-220	221,72	128,52	82,54	-305,09	428,29	-78,80	-270,20	-24,72	-206,57	207,32	352,73	-280,37
Revenue	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	679.161	727.319	760.924	652.343	640.755	581.728	644.756	667.754	573.221	618.782	107,09	112,04	96,05	94,35	110,83	114,79	98,54	106,37	-3,74	-2,75	-2,49	-12,02
Median	549.576	524.824	565.652	440.580	415.514	276.177	341.445	317.899	245.659	227.207	95,50	102,93	80,17	75,61	123,63	115,11	88,95	82,27	-28,14	-12,18	-8,78	-6,66

An increase in the profitability measures EBITDA/Assets, EBITDA/revenue and EBITDA/invested capital can either be a result of an increase in EBITDA or a decrease in the denominator. Furthermore, it can be a result of EBITDA increasing more than the denominator or decreasing less than it.

Based on these findings it is evident that the increase in EBITDA is a major reason for the improvement in profitability measures for the portfolio companies. From 2006 to 2007 the portfolio companies experienced an increase in EBITDA of 34.83%. In 2009 the portfolio companies recorded a significant decline to index 77.92 corresponding to a decrease of approximately 57%-points from 2007. However, in 2010 the portfolio companies almost managed to increase EBITDA back to the level of 2006.

As for the reference group the development in EBITDA follows the same pattern, although in a lesser extent. However, in 2009 the EBITDA decreases drastically to index 70.7. While EBITDA increases for the reference companies, the difference in the development between the two groups is in favour of the portfolio companies. Consequently, providing evidence as to why the profitability measures of the portfolio companies outperform those of the reference companies in 2009 and 2010.

Observing the difference in the development of the two groups, we find that except for EBITDA and free cash flow the reference group is doing relatively better than the portfolio companies. Our findings suggest that the reference group is keeping invested capital at a relatively more constant level. Although the portfolio companies invested capital is decreasing, this needs not to be negative. The increase in ROIC experienced in 2007 especially by the portfolio companies is a result of the relatively high increase in EBITDA, consequently an increase in NOPAT as well, combined with a relatively high decrease in invested capital.

An increase in EBITDA is a consequence of either higher revenues or better cost control. Our findings suggest that both group of companies have been relatively good at keeping revenues constant, although the reference group recording increases every year except 2009. As EBITDA increases more than the increase in revenue for the portfolio companies this must imply that they are managing and reducing their operating costs. This is likely a consequence

of the operational improvements applied by the PE-firms as discussed in in the section of governance engineering. The portfolio companies are better at optimizing their operational level than the reference. As for the reference group we find that EBITDA is increasing less than revenue implying an increase in operational costs. Cost optimizations are essential during a recession. It is evident that the PE-firms are quicker at adjusting their cost accordingly to the activity level. As discussed earlier active ownership involves faster decision-making in regard to adjusting the portfolio company's strategy to the economic situation faced. This appears to be the case for our examined portfolio companies.

For the development in cash flows our findings indicate a big difference in favour of the portfolio companies. The reference companies generate negative cash flows in 2007, 2008 and 2009 and a slightly positive cash flow in 2010 at index 7.88. Contrary, the portfolio companies generate positive cash flows throughout the entire investigation period except for 2007. No distinctive conclusion can be drawn in regard to the negative free cash flow in 2007. A further decomposition will provide insights as to whether the fluctuations in the cash flows are a result of the portfolio companies efficiently managing working capital as concluded by Smith (1990b) or a consequence of not being well prepared for the recession.

7.1.1.2 Underlying reasons for the differences in profitability development

Based on the findings from the previous parts of the profitability analysis an interesting question arises. How is it possible for the portfolio companies to generate positive cash flow throughout the recession where one would suppose the cash flows decreased? To find answers to the question we will examine additional relevant financial statements data. Items that might explain the underlying reasons for the difference in both groups examined. These are presented on the following page.

Portfolio companies						Reference companies					Change portfolio companies				Change reference companies				Difference i change (%-point)			
Workers	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	386	396	412	356	344	286	308	329	310	321	102,49	106,53	92,16	88,94	107,84	115,09	108,36	112,20	-5,34	-8,56	-16,20	-23,26
Median	236	237	220	217	197	78	82	77	73	75	100,42	93,22	91,95	83,47	104,49	98,08	93,59	95,51	-4,06	-4,86	-1,64	-12,04
Mngement changes	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010												
Amount of changes		6	9	3	7		2	4	2	3												
Extraordinary items	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010												
Average	0	-997	-440	-462	-1.600	348	-7.108	823	-434	0												
Median	0	0	0	0	0	0	0	0	0	0												
Working Capital	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2.007	2.008	2.009	2.010
Average	93.623	68.094	53.616	23.093	23.781	510	-5.607	-5.280	20.425	26.923	72,73	57,27	24,67	25,40	-1.098,71	-1.034,58	4.002,46	5.275,68	1.171,44	1.091,85	######	-5.250,28
Median	9.014	13.828	13.553	-425	-3.791	1.049	9.101	6.356	10.137	10.514	153,40	150,35	-4,71	-42,06	867,51	605,86	966,32	1.002,18	-714,11	-455,51	-971,04	-1.044,24
Corporate tax	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2.007	2.008	2.009	2.010
Average	-12.934	-13.449	-15.277	-2.829	-10.869	-16.747	-23.230	-12.118	-6.224	-8.896	103,98	118,11	21,87	84,04	138,71	72,36	37,17	53,12	-34,72	45,75	-15,30	30,92
Median	-4.820	-4.492	-3.175	-2.425	-4.852	-3.493	-5.793	-2.768	-1.133	-1.531	93,19	65,87	50,31	100,66	165,85	79,25	32,42	43,83	-72,65	-13,38	17,89	56,83
Sum	-323.348	-336.233	-381.922	-70.716	-271.727	-502.408	-696.888	-363.543	-186.721	-266.880	103,98	118,11	21,87	84,04	138,71	72,36	37,17	53,12	-34,72	45,75	-15,30	30,92
Effective tax rate	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2.007	2.008	2.009	2.010
Average	25,92%	24,18%	23,25%	25,25%	26,10%	26,90%	25,18%	25,74%	25,33%	24,66%	93,30	89,69	97,42	100,71	93,59	95,69	94,16	91,67	-0,29	-6,00	3,26	9,04
Median	26,23%	25,00%	25,00%	25,00%	25,00%	28,02%	25,00%	25,07%	25,00%	25,00%	95,30	95,30	95,30	95,30	89,23	89,47	89,23	89,23	6,07	5,83	6,07	6,07
Net Investment	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2.007	2.008	2.009	2.010
Average	16.436	-24.757	-11.842	4.070	13.226	132	-19.226	-12.264	675	3.857	-150,62	-72,05	24,76	80,47	-14.612,57	-9.320,99	513,25	2.931,69	14.461,95	9.248,94	-488,48	-2.851,22
Median	-1.890	439	308	2.430	4.308	-150	371	31	1.653	2.907	-23,23	-16,30	-128,58	-227,99	-247,14	-20,57	-1.102,54	-1.938,87	223,91	4,27	973,96	1.710,88

As discussed in section 4 the unemployment rate increased significantly during the recession. Companies experiencing pressures on their margins due to increased costs often fire employees as a cost reduction action. However, our findings suggest that the number of workers is relatively stable throughout the recession. With the exception of portfolio companies experiencing a relatively large decrease in 2009 no major changes occurred. As for the reference companies they findings surprisingly depict an upward trend in the number of employees. As such, it seems as if the examined companies were not prone to mass layoffs in contrast to the general trend.

Although the portfolio companies' workforce being relatively constant, the difference in the development compared to the reference companies, surprisingly indicates that the portfolio companies have been firing more employees. Nevertheless, the firings could be a consequence of operational improvements imposed by the PE-firms. These findings contradict the findings of Smith (1990b), which suggested that value creation was not obtained at the expense of the employees.

Our findings provide other interesting aspects as to why portfolio companies restore profitability quicker during the recession. We observe the number of changes in the management team and the size of the extraordinary items. The portfolio companies experience considerably more management changes, presumably as a consequence of the active ownership of the PE-firms. In 2007 and 2008, the active ownership of the portfolio companies resulted in a combined total of 15 management changes. This corresponds to more than one in two companies having changed the management in just two years. For the 32 reference companies, only 6 management changes occurred in the same period.

The changes in management in 2007 and 2008 have presumably been a consequence of a change in strategy. The new management brought in have most likely had a cost optimising strategy, correlating well with our findings in regard to the reduction in costs experienced by the portfolio companies. The PE-funds have responded to the changed economic conditions and consistently changed the CEO if the expected results are not delivered. In 2010 we observe an increase in the number of management changes again. This coincides with the end

of the recession. Consequently, the PE-firms have possibly changed strategy to focus on growth. This provides evidence in regard to the PE-firms' active ownership.

Observing the extraordinary items, we find that for the last 3 years of the investigation period, the portfolio companies have had larger averages. Whilst examining the individual financial statements of the examined companies, we found that the majority of the extraordinary items covered restructuring costs. This was the case for Brdr. Hartmann in 2007, recording restructuring costs of 198.5 MDKK, explaining the significantly higher average for the reference companies this year.

The higher restructuring costs are presumably a consequence of the many changes in management for the portfolio companies. The new management has presumably reorganized the companies to position them better during the recession.

7.1.1.3 Underlying reasons for the development in cash flow

The previous studies of Smith (1990b) and Frederik Vinten (2008) concluded that efficient management of working capital was a major factor in value creation. Our findings suggest a significant difference in the development for the two groups is observed. The portfolio companies' experienced decreases in working capital every year during the recession except for 2010. As for the reference group negative working capital was recorded in the years 2007 and 2008 before an enormous increase in 2009 correlating with the years with negative free cash flows.

For the portfolio companies the decrease in working capital resulted in positive free cash flow. According to our findings it seems that Smith's (1990b) conclusions were correct; PE-firms knowingly apply efficient management of working capital to improve value creation. The corporate tax payments show that except for 2008 and 2010, the reference companies pay relatively more tax on average than the portfolio companies. This was to be expected due to the PE-firms use of relatively more leverage. During the investigation period the portfolio companies' recorded tax payments of 1,383.8 MDKK compared to the 2,016.4 MDKK in tax payments for the reference companies. This somewhat illustrates the effect of the tax shield from the higher debt financing. However, the value of the tax payment is affected by the

portfolio companies' lower average EBITDA. The lower tax payment strengthens the portfolio companies' cash flows.

Examining the average effective tax rate presented in table, taking our constraints into consideration it is difficult to conclude anything. Observing the median, we find for both groups that the effective tax rate is approximately 25% in all years. However, the reference companies had an effective tax rate median of 28% in 2006.

The last factor affecting the cash flow is investments. We observe in table that there is no significant difference in the pattern of the development between the two groups. The negative net investments in 2007 and 2008 indicate that productive capacity is decreasing or divestments have occurred. The examined companies increased their investments in 2009 and 2010. The recession thus affected the investments made by both groups of examined companies, most likely in order to keep the cash flow at positive levels. Same is true for the reference group, however their 2010 level is 29 times higher than that of 2006.

The results of the profitability showed that the portfolio companies had a significantly better development in profitability during the recession. The profitability of both groups increased in 2007, decreased in 2008, but in 2009 portfolio companies again experience growth in profitability, while the reference companies in most of the examined profitability measures continued to experience decreases. The profitability of portfolio companies were in 2010 at similar levels as of 2006, whilst the reference companies had turned things around but yet to make up some ground.

7.2 Economic value creation

PE-firms acquire portfolio companies with the aim of generating positive returns for their investors. These positive returns can be obtained by improvements in profitability resulting in economic value generation. The created economic value satisfies the expected return of investors increasing the likelihood of future capital commitments. PE-firms apply various value creating techniques in their attempt to generate value. The following section will provide a thorough review and an analysis of the economic value added for both examined groups of companies.

7.2.1 Economic Value Added

Economic value added, EVA henceforth, is a recognized financial performance measure. It is an estimate of a company's economic profit in a given period taking the cost of capital both from debt and equity into consideration. (Brealy et al, 2014)

EVA is synonymous with above normal profit, economic profit or super profit (Petersen & Plenborg, 2012; 95). The equation for EVA can be written as:

$$EVA = NOPAT - Cost\ of\ Capital\ \cdot Invested\ Capital$$

Alternatively, EVA can be calculated based on the profitability measure ROIC and the cost of capital (WACC). The spread between ROIC and WACC multiplied by invested capital shows excess return generated by the firm as stated in the following equation:

$$EVA = (ROIC - WACC)\ \cdot Invested\ Capital$$

Our empirical study will base its analysis of EVA on equation. The equation provides us with a measure of Economic profit as well as the opportunity to conduct thorough analysis on ROIC and WACC. A company creates economic value when the return on invested capital exceeds the average cost of capital to equity holders and debt holders (ROIC > WACC). If a company's EVA is negative, (ROIC < WACC) it indicates that the company is not generating value from the funds invested into the business.
From the investors in the PE-funds' perspective it means that growth is only of interest if EVA is positive and increasing (Petersen & Plenborg, 2012; 132-135). EVA increases when

1) Operating profits improve without tying up any more capital
2) Additional capital is invested in projects that return more than the charge for additional capital
3) Capital is liquidated from, or further investment is curtailed in, substandard operations where earned returns are inadequate (Stewart 1991; 137)

7.2.1.1 Pros and cons of EVA

There are various advantages and disadvantages associated with EVA as a performance measure. Advantages include EVA being consistent with value creation. An increase in EVA culminates in a higher firm value per definition. This creates a direct link between EVA and value creation. Consequently, EVA is claimed to be the best predictor of future share price performance.

Positive economic profit is only obtained after all capital providers have been compensated, therefore positive increases in EVA is preferred by all stakeholders. If a company's increase in earnings cannot cover the cost of capital the firm should not invest further. As such the cost of capital becomes a visible target for the management to exceed. Additionally, the model is simple to communicate allowing for a general applicability in companies.
From a theoretical point of view EVA appears to be one of the best performance measures in regard to assessing a company's ability to create economic value. However, EVA as a performance measure is not perfect and has its disadvantages.

EVA is based on historical earnings and does not take future performance into consideration. This phenomenon is also known as the "horizon problem". EVA does not take single- vs multiple-period performance measures into consideration and is solely based on the company's performance on the current years financial statements. Therefore, EVA cannot accurately reflect the impact of decisions that possibly have implications over several periods. Furthermore, EVA is affected by accounting entries and chosen accounting policies, which can vary from each firm. In other words, items might be classified different depending on the managements' chosen accounting policy.

Our empirical study has attempted to account for the potential issues regarding applying EVA as a performance measure. Firstly, we have in our reviews of each financial statement in the processing of our reformulation adjusted accounting items. As these adjustments are based on normalization throughout the entire investigation period the issue in regard to the horizon problem has been attempted minimized. Secondly, our adjustments have provided classification of all items into operating and financing activities.

7.2.1.2 The EVA components

The computation of EVA requires an understanding of invested capital, ROIC and WACC. In the profitability analysis a thorough review of invested capital and ROIC is already provided and hence the following section will focus on the last component, namely WACC.

7.2.1.3 WACC

In financial theory the *weighted average cost of capital* is one the most fundamental concepts. It is a weighted average of the required rate of return for equity and debt holders based on a company's capital structure. The formula for WACC is stated in the following equation: (Petersen & Plenborg, 2012; 246)

$$WACC = \frac{NIBD}{NIBD + Equity} \cdot r_d(1 - t) + \frac{Equity}{NIBD + Equity} \cdot r_e$$

In the equation following acronyms apply.

$Rd = Required\ rate\ of\ return\ on\ NIBD$

$Re = Required\ rate\ of\ return\ on\ equity$

$E = Equity$

$NIBD = Net\ interest\ bearing\ debt$

$t = Corporate\ tax\ rate$

7.2.1.4 Capital structure

The first step in calculating WACC is to determine the capital structure. The proportion of equity and debt is obtained from the reformulated statements as $\frac{NIBD}{NIBD+Equity}$ and $\frac{Equity}{NIBD+Equity}$. However, adjustments were needed as discussed in the following section.

7.2.1.5 Adjustment for NIBD and equity

The analytical financial statements provide the classification of operating and financing activities. Through the analytical balance sheets NIBD and equity are obtained for all examined companies. This allows us to compute the debt/equity ratio needed in the estimation of the beta and consequently the WACC. To strengthen our empirical analysis, it has been deemed necessary to make some *common-sense* adjustment to negative NIBD and

equity values. Negative NIBD values are in most cases a consequence of companies with large amounts of liquid assets. A negative NIBD leads to a negative gearing potentially distorting the analysis. Furthermore, some companies recorded a negative equity, causing the same issues in regard to a negative gearing. The adjustments are based on a yearly average leverage ratio for companies with positive NIBD and equity values. These averages are computed for both the portfolio companies and the reference group. The yearly average gearing ratio is multiplied to the equity of companies with negative NIBD and the reciprocal value multiplied to the NIBD of companies with negative equity.

7.2.1.6 Estimation of the interest rate on debt

The required rate of return can be derived in several ways. In practice the PE-firms often apply the effective interest rate expected from the transaction (Petersen et al., 2006; 166). However, in our empirical study we are unable to obtain this rate, as PE-firms are not publishing these transaction rates in the annual statements of the portfolio companies.

Instead, our analysis applies the Indian economist Aswath Damodaran's estimate of the required rate of return for different industries. (Damodaran)
On an online database Damodaran provides yearly updates on a variety of financial data including the required rate of return on debt. Damodaran estimates these rates by adding a default spread to the risk free rate. This spread is based on the standard deviation for the stock prices of the companies in respective industries. A large standard deviation will consequently result in a higher spread. Damodaran's data is collected from various economic databases including Bloomberg, Morningstar, Capital IQ and Compustat all of which are viewed as valid and reliable data sources. As Damodaran's estimates are based on the American stock market applying these in empirical study undoubtedly causes some uncertainties. American credit terms and bankruptcy rules varies from that of the Danish.

However, a number of underlying assumptions validate the use of Damodaran's data in our empirical analysis. The American and Danish stock markets are quite similar in nature. Furthermore, as the credit rating of both Denmark and The United States of America are identical, Aaa (Moodys) applying the American industry spreads have been estimated as a

good proxy for Danish companies in similar industries. The after-tax rate is used in computing WACC. This is due to the tax shield associated with higher leverage.

7.2.1.7 Estimation of the investors' required rate of return

Investors who inject capital in companies expect compensation. This compensation is denoted as the investors' required rate of return. In the required return investors incorporate the risk their contributed capital is subjected to. Most financial theory suggests applying the Capital Asset Pricing Model (CAPM) when estimating this return. CAPM provides an estimate for the required rate of return in a diversified portfolio and it describes the relationship between systematic risk and expected return. The risk free interest rate is a part of CAPM and expresses the return an investor could have earned without incurring any risk. Assumingly, investors require a higher return if they invest in risky assets. As such CAPM includes a risk premium component, known as the market risk premium. This risk premium is the return in excess of the risk free interest rate. It expresses the investors' compensation that are willing to tolerate the extra risk.

The last component of the model is the risk on equity, expressed as Beta. Specifically, Beta is the systematic risk, affecting the entire market and not just a particular company. (Petersen & Plenborg, 2012; 249)

In practice CAPM is considered as the most useful model in estimating investors' required rate of return. This applies for both independent financial advisors and PE-firms (Petersen et al., 2006; 164)
CAPM describes the relationship between systematic risk and expected return. However, as our empirical study relies on historical data the expected returns are replaced by realized returns. Accordingly, CAPM is defined in the following equation as: (Petersen & Plenborg, 2012; 249)

$$r_e = r_f + \beta_e \cdot (r_m - r_f)$$
$$r_f = Risk\ free\ interest\ rate$$
$$\beta_e = Systematic\ risk\ on\ equity$$
$$r_m = Return\ on\ market\ portfolio$$

CAPM can be graphically illustrated by the security market line (SML) and is depicted below in the section with estimation of beta. CAPM shows that the investors' required return is dependent on three different factors. The time value of money represented by the risk free rate, the reward for bearing systematic risk measured by the market risk premium and the systematic risk represented by β. (Ross et al., 2006; 418)

7.2.1.8 The risk free interest rate

Theoretically, the risk free interest rate is the rate of return an investor can expect from an investment with zero risk. In practice however, even the safest investment carries some risk albeit very small. (Petersen & Plenborg, 2012; 249)

Usually a government bond is considered a good estimate for the risk free rate but even government bonds can be subject to risk. Government bonds of ailing economies are considered more risky than the bonds of well-developed countries. Our analysis assumes that a 10-year Danish government bond is associated with such risk that it can be considered risk-free. This is recommended by FSR and SKAT (SKAT).

Furthermore, as Denmark has a credit rating of Aaa it justifies the use of this government bond as a proxy for the risk free rate. This rate is obtained from Danmarks Statistik.

7.2.1.9 Market risk premium

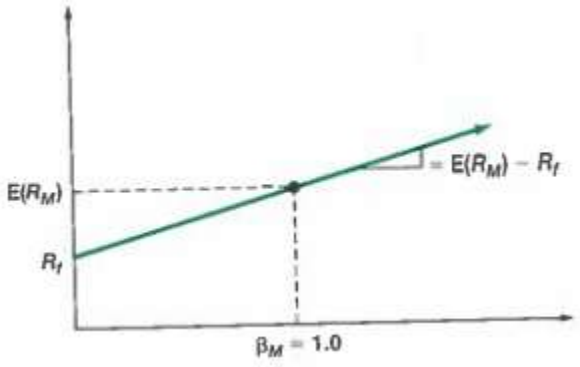
The market risk premium is the return in excess of the risk-free rate required by investors for increased risk taking. Although, there is difficulties in estimating the true level of the market risk premium the consensus in Denmark is to apply an estimate between 4-5%. Petersen, Plenborg and Schøler, 2006, investigated the valuation of unquoted companies and concluded that in practice analysts applied an average risk premium of 4.5% on the Danish market.

Our empirical study will base its estimates of the market risk premium on the findings of PWC's valuation study (2016). PWC examined risk premiums for Danish market participant and found for all years markets risk premium in the interval 4%-5%.

The participants in the study initially believed the market risk premium to be a constant factor that needed not to increase due to the recession. However, the majority of these participants have reevaluated their estimate of the market risk premium. As such the period after the recession recorded market risk premiums in excess of 5% and even reached 6% in the year 2014. Our study focuses on the actual period of the recession and not the following period. We have applied estimates between 4%-5% in the entire investigation period as per the findings of PWC.

7.2.1.10 Estimation of beta

Theoretically beta indicates the relative risk of a company in regards to the market portfolio (Petersen & Plenborg, 2012; 249). The β value can therefore be interpreted as the sensitivity of the investment in relation to the market. A key lesson from observing the SML figure is that the investors's required rate of return increases if β increases. If the β value is above 1, the return of the investment is more sensitive to changes in the market compared to the average asset. Consequently a β value below 1 indicates a lesser degree of sensitivity. A β value equal to 1 indicates that the expected return equals the expected market return while a β value of 0 indicates a risk free investment as illustrated in by the SML-line (Petersen & Plenborg, 2012; 251)



Rose, et al., 2006

Beta is undoubtedly the most uncertain parameter in relation to estimating the investors' required rate of return. As the portfolio companies in our study group consist of unlisted companies a beta value cannot be directly derived from historical stock returns. Instead the β must be estimated from a number of parameters consequently creating uncertainties.

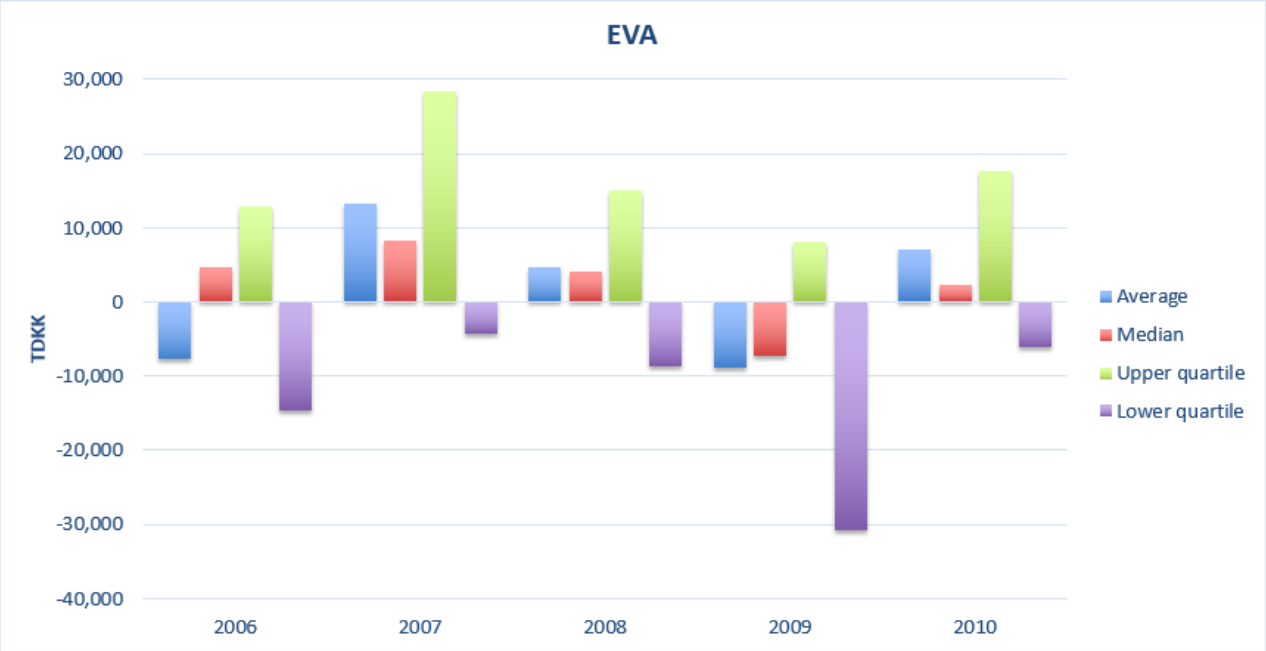
Our study will apply β-values based on Damodoran's industry overview of unlevered β. However unlevered β removes the financial effects of leverage. The validation of applying Damodarans has already been discussed. It is the equity beta (levered beta) that is needed in the computation of WACC. The unlevered beta is therefore adjusted to obtain the levered beta. This adjustment relies upon Harris and Pringles β-relation for estimating the levered beta as seen in the following equation (Petersen, Plenborg and Schøler, 2006: 165).

$$\beta_{levered} = \beta_{unlevered} \cdot (1 + \frac{NIBD}{Equity})$$

7.3 EVA analysis

Appendix presents the EVA values for all examined companies. Digging into the numbers we find that the average EVA was negative the first year of the investigation period. Although the trend reversed with positive EVA in 2007 and 2008 the positive impact was short felt as the companies experienced negative EVA in 2009 with an average of -8.8 MDKK. The negative average EVA in 2009 coincides with the relatively poor performance of the portfolio companies in the same year as concluded per the profitability analysis. This negative development in 2009 is presumably a consequence of the recession's impact after the bankruptcy of Lehman Brothers in 2008. From 2009 to 2010 the average EVA increased by 16.0 MDKK to a value 7.1 MDKK. The increase in 2010 indicates that the majority of the portfolio companies returning to profitable operations correlating well with the findings of the profitability analysis.

Surprisingly in 2006 the portfolio companies experienced negative economic value of 7.7 MDKK on average. 2007 saw in increase in EVA of 21 MDKK to 13.3 MDKK. Although the portfolio companies managed to generate economic profit in 2008 the average EVA decreased by 65% from 2007 to a value of 4.7 MDKK. In the entire investigation period the portfolio companies generated economic value of 215.3 MDKK. This corresponds to each portfolio firm



on average generating 1.7 MDKK of economic value added every year in the investigation period.

We observe a positive median for all years except 2009. This means that more than 50% of the portfolio companies created economic value in those years. Furthermore, we find that for the years 2007 and 2010 the median is relatively lower than the average indicating few companies pulling the average. In 2007 Logstor was the main contributor to the large spread in average and the median as they experienced an EVA of 102,3 MDKK. This was mainly a result of a significant increase in NOPAT. The difference in average and median in 2010 was to a large degree caused by Ferrosan. They experienced an increase in ROIC of 17%-points consequently resulting in more than a 100% increase in EVA to a value of 126.3 MDKK.

The lower and upper quartile illustrates the 25% worst and best performing portfolio companies respectively. The lower quartile is less negative in 2010 compared to 2009 while the upper quartile performed significantly better in 2010 indicating that the portfolio companies are returning back to profitable operations. In 2009 the EVA of the lower quartile was −31.1 MDKK compared to only −6.1 MDKK in 2010. The upper quartile performed 117% better in 2010 compared to 2009.

7.3.1 EVA based on PE-firms' country of origin

The 15 PE-firms included in the analysis originate from 7 countries; Denmark, England, Finland, Germany, The Netherlands, Sweden and the US. Observing the distribution of the average EVA based on the PE-firms' country of origin our findings reveal that the 16 portfolio companies owned by a Danish PE-firm on average generated EVA of -7.4 MDKK throughout the investigation period. In comparison the 9 Danish portfolio companies owned by foreign PE-firms on average generated EVA of 17.9 MDKK.

TDKK	Average EVA per portfolio company based on PE-firm's country of origin							
	PE-firms	#Portfolio firms	2006	2007	2008	2009	2010	Average
Denmark	6	16	-7.864,7	2.117,9	-8.950,8	-21.390,2	-958,9	-7.409,3
England	1	1	21.794,9	102.261,1	32.481,2	-2.199,0	17.685,1	34.404,7
Finland	1	1	14.397,4	2.203,8	-6.897,0	-52.791,9	-12.962,5	-11.210,0
Germany	1	1	15.141,5	59.595,5	109.576,2	138.948,8	47.942,7	74.240,9
Netherlands	1	1	33.950,4	116,9	15.061,7	-11.884,1	7.117,2	8.872,4
Sweden	4	4	-25.518,1	42.109,7	34.906,9	14.534,6	34.939,9	20.194,6
US	1	1	-50.780,2	-34.202,9	-29.557,9	-7.333,0	-5.532,8	-25.481,4

In 2006 the Danish PE-firm owned portfolio companies generated average EVA of -7.9 MDKK. We observe that 2007 is the only year that the Danish PE-firm owned portfolio firms generate positive average EVA. This is a result of Novenco experiencing increases of 503%. The EVA increased to a value of 63.5 MDKK from 10.5 MDKK.

As discussed earlier an increase in EVA can be obtained in 3 ways. In the case of Novenco we observe a significant increase in NOPAT combined with a substantial increase in invested capital. The increase in the invested capital is a result of a considerable increase in NIBD. We find in the 2007 annual account of Novenco an announcement from the management stating that the company experienced a significant increase in demand (Novenco annual statement, 2007; 9). As such the company initiated new projects requiring large amounts of additional capital, hence the increase in NIBD. Our findings suggest that the additional capital has been invested in profitable projects. This is validated by the fact that ROIC increased by 25%-points in 2007.

Although, we observe negative average EVA every year from 2008 to 2010 for the Danish PE-firm owned portfolio companies, we find an interesting turnaround in 2010. The average EVA had increased to -958.9 TDKK compared to -21.4 MDKKK in 2009. A part of the reason for this improvement is BB Electronics ability to turn a negative EVA of 8.6 MDKK to a positive EVA of 23.6 MDKK. BB Electronics managed to generate the highest EVA among the Danish owned

portfolio firms. Furthermore, we observe that Georg Jensen went from negative 125.6 MDKK to a negative value of 11.4 MDKK. As with the case of BB Electronics 2010 served as a stabilizing year for many of the examined portfolio companies. 12 out of the 16 Danish companies performed better in 2010 compared to 2009. This coincides well with the findings in the profitability analysis where we observed that the portfolio companies managed to get their profitability measures back to similar levels as to before the recession.

The Danish portfolio companies owned by Swedish PE-firms generated an average EVA of 20.2 MDKK throughout the investigation period. The Swedish PE-firm owned Danish portfolio companies experienced positive average EVA's all years except for 2006. In that particular year BTX Group generated a negative EVA of 176.4 MDKK pulling the overall average significantly down. Reviewing the analytical statement of BTX Group's we observe that due to relatively large operating costs NOPAT is relatively small in 2006. BTX Group was acquired in 2005 and although revenue was at similar levels as the year before, the performance in 2006 was below managements' expectations (BTX Group annual statement, 2006; 13). From the annual statements in 2006 the management announced that the focus in the future would be on initiating growth strategies by introducing new brands. However, as the recession outburst we observe in the 2007 management statement that focus had changed to operational efficiency improvements by streamlining internal processes. (BTX Group annual statement, 2007; 9). We observe that revenue is continuously decreasing throughout the recession. However, the EBITDA/revenue ratio is at a higher level all years compared to 2006. This indicates that the management of BTX group has succeeded in operational improvements. As discussed earlier operational improvements in relation to generating revenue can be difficult to implement. Consequently, the focus of the operational improvements must be on costs and operational efficiency, exemplified in the case of BTX group. Furthermore, the trend in BTX Group follows the overall pattern of EBITDA/revenue ratio from the profitability analysis.

Our study group consists of a single portfolio company (FiberVision) owned by an American PE-firm. Although FiberVision generated negative EVA throughout the entire recession, they managed to create positive yearly developments. Our findings suggest that the foreign PE firms are superior in generating economic profit compared to the Danish PE-firms. This can

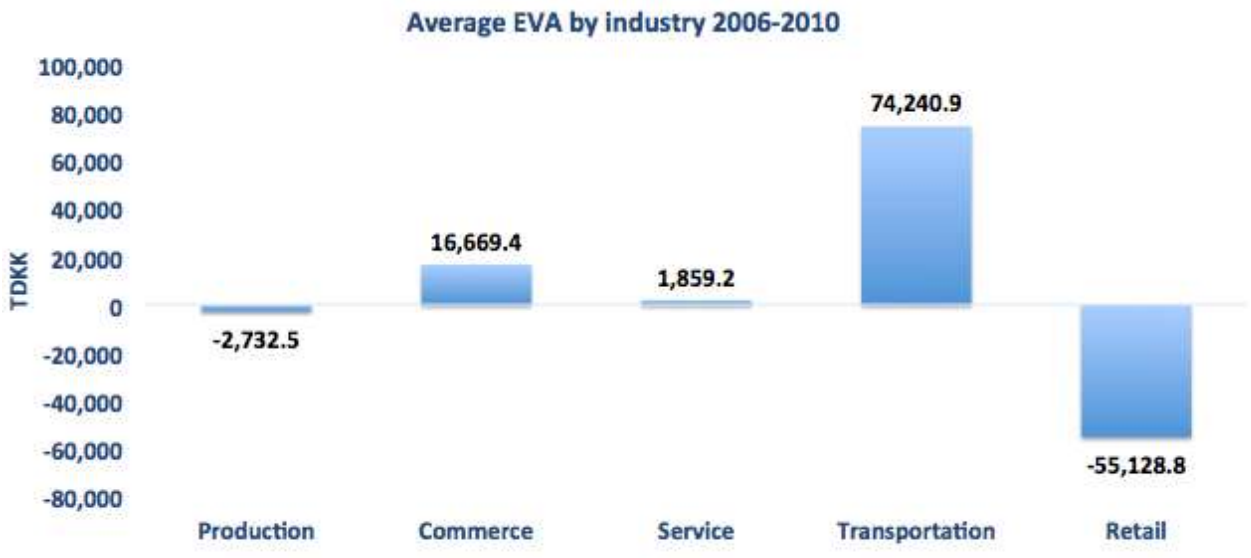
be interpreted as the foreign PE-firms having greater experience with guiding companies through global recession periods, as many of the Danish PE-firms are relatively new.

7.3.2 EVA by industries

This section aims to divide the calculated EVA into the 5 industries our examined portfolio companies are represented in. The portfolio companies are divided into their respective industries based on the definitions in DVCA's buy-out list and the companies' annual statements. From the table below it is evident that the majority of the portfolio companies operate in the production/manufacturing industry. The rest are either in the commerce or service industry while there is one portfolio company each in the retail and transportation industry respectively.

Industries:	Production	Commerce	Service	Transportation	Retail
#Portfolio companies	17	4	2	1	1

We observe that three out of the five industries are able to generate positive economic profit. The service, commerce and transportation industry generate average economic profits of 1.9 MDKK, 16.7 MDKK and 74.2 MDKK respectively.



The commerce industry and especially the transportation industry are performing significantly better than the other industries. However, the transportation industry consists of a single company (DSVM Group). Therefore, the transportation industry's EVA is solely due to DSVM Group's performance. We observe from the analytical statement that DSVM Group has a

significantly higher invested capital than the average of the portfolio companies, consequently resulting in a high EVA as ROIC exceeds WACC all years.

The commerce industry's relatively high EVA is largely a consequence of the before mentioned performance of BTX Group.

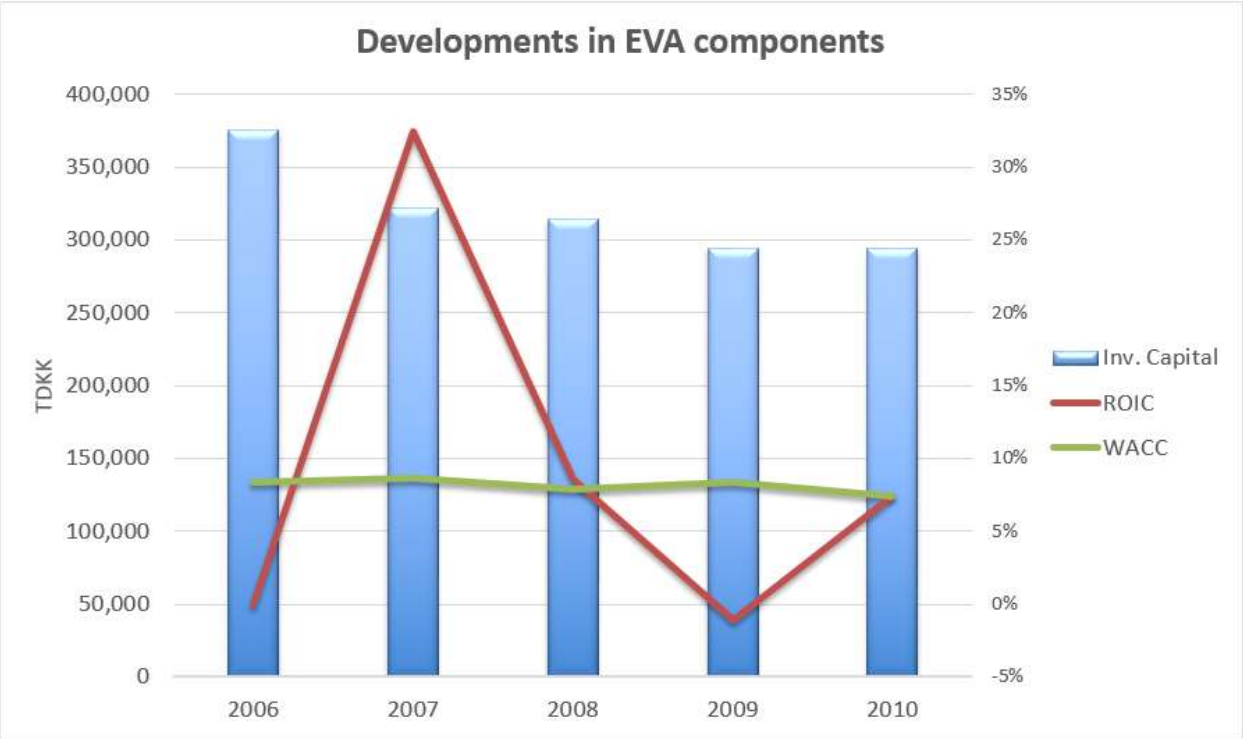
The poor performance of the retail industry is a representation of Georg Jensen inability to create economic profit. This makes sense as the retail industry was significantly affected by the economic recession. Demands were decreasing and consumers did not have the same disposable income.

Ten of the portfolio companies in the production industry are owned by Danish PE-firms. The remaining seven are owned by foreign PE-firms. Although the overall EVA average for this industry is -2.7 MDKK the average including the companies owned by foreign PE-firms is 560.9 TDKK. Contrary, the average for the Danish counterpart is of -5.0 MDKK. In the commerce industry the average EVA for the Danish PE-firm owned portfolio companies is -8.8 MDKK. In comparison the companies owned by foreign PE firms averaged EVA of 42.2 MDKK.

The analysis of EVA by industry unsurprisingly aligns with the EVA analysis based on the PE-firms' country of origin. Portfolio companies owned by foreign PE-firms are performing better and pulling the averages up illustrating their ability to manage companies through an economic recession period.

7.3.3 Decomposition of EVA

This section aims to conduct a decomposition of the EVA value drivers. EVA is computed based on a number of assumptions. As such it is relevant to investigate which of the three-value drivers, invested capital, WACC and ROIC that are decisive for the computed average EVA values. The values of the EVA components are presented in appendix 5.



From the figure we observe that the average invested capital had a downward trend and was at its highest in 2006. The WACC topped in 2007 but is generally at consistent level throughout the investigation period.

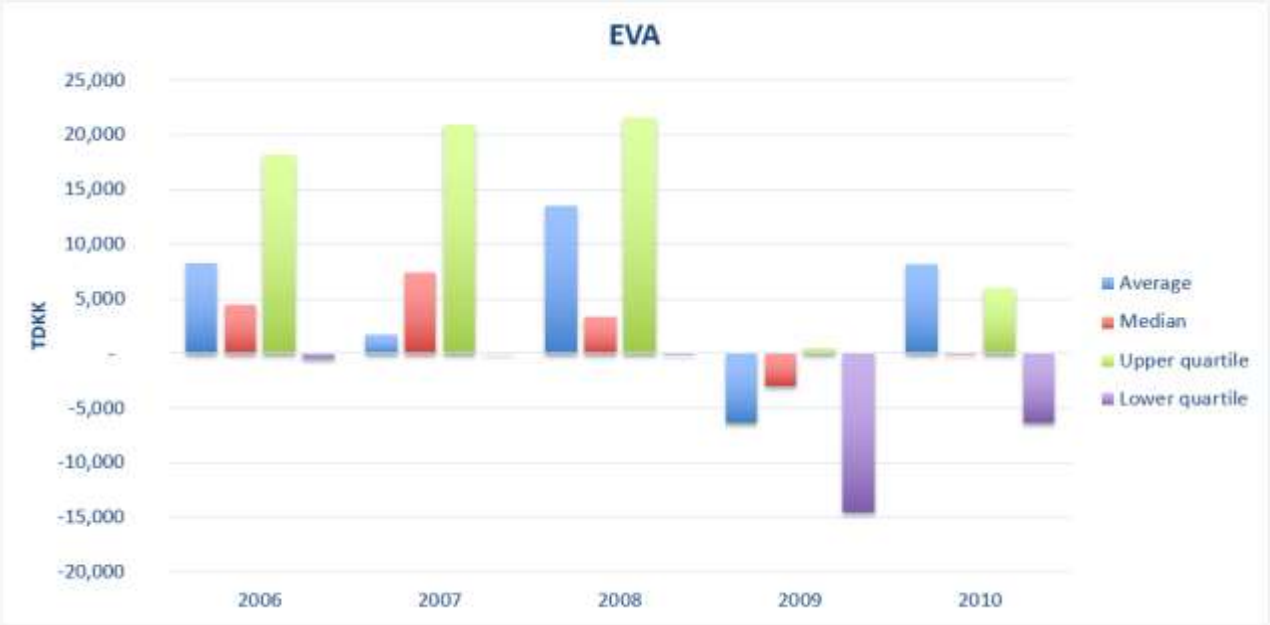
ROIC on the other hand demonstrates larger fluctuations as was concluded in the profitability analysis as well. The negative ROIC value in 2006 a result of Reson's ROIC of -327%. In this specific year Reson recorded a negative NOPAT due to large operational costs. However, we observe that Reson were capable of implementing operational improvements their EBITDA/revenue ratio increased significantly the following years. The unusually high ROIC in 2007 was mostly a result of Scanvogn experiencing a ROIC of 122.4%. This level of ROIC was achieved through an improved operational performance. Our analytical statement demonstrates a significant improvement in NOPAT of 119% to a value of 14,6 MDKK. Furthermore their invested capital increased by approximately 2.0 MDKK. Although receivables increased by 11.7 MDKK the increase invested capital was canceled out by a similar increase in operating liabilities. The decreasing ROIC in the following year was not a result of any specific company but rather the macroeconomic conditions. From the profitability analysis we observed that the median in 2009 was positive, demonstrating that more than 50% of the companies having a positive ROIC. However 12 of the portfolio

companies experienced negative ROIC with an average of -20.1%, therefore pulling the total average ROIC down to a value of -1.1%.

The developments in the examined components help explain the observed development in EVA. The large EVA experienced in 2007 was a result of the largest spread between ROIC and WACC in the investigation period. Furthermore, we observed a relatively high invested capital this specific year. The negative ROIC in 2006 and 2009 result in negative EVA these years. The positive EVA values generated in the investigation period are therefore a result of ROIC exceeding WACC. However, there should be caution for extreme values affecting the overall picture.

7.3.4 Reference companies

The reference group consists of 30 companies. In order to obtain a more accurate comparison basis in relation to the value creation experienced in the two groups of examined companies, EVA is computed on the basis of same methodology as for the portfolio companies. The reference companies and the overall findings are presented in appendix 5.



EVA for the reference group is depicted above. Illustrated in this figure is the average, the median and lower and upper quartile. From the figure it is observed that the reference

experience positive average EVA every year throughout the investigation period except for 2009. The reference companies generated a total EVA value of 762.7 MDKK corresponding to an average EVA per company of 5.1 MDKK. This is significantly greater than the average EVA per portfolio company of 1.7 MDKK.

Just as the case was with the portfolio companies, the average EVA was negative in 2009. However, in contrast to the portfolio companies, the average EVA was positive in 2006. The major contributor for the high EVA in this specific year is IC Companys with an EVA of 117.3 MDKK while averaging 146.3 MDKK for the entire investigation period.

The negative EVA in 2009 can presumably be explained by the recession as the majority of reference companies performed negatively this year. In 2009 the reference companies experienced an average EVA of -6.3 MDKK and a lower quartile of -14.5 MDKK. Both of these values were less negative than those of the portfolio companies. In other words, the 25% worst performing reference companies are performing better than the 25% worst performing portfolio companies. However, there is a significant difference in regards to the upper quartile observed in 2009. The portfolio companies' upper quartile demonstrated a value of 8.1 MDKK whilst the 25% best performing reference companies managed to create 569.2 TDKK. These findings demonstrate that although the worst performing portfolio companies are generating more negative EVA values, the number of reference companies generating negative EVA is higher.

The average median over the entire period is 2.5 MDKK for the reference group. However, no significant difference is observed, as the average median of the portfolio companies is 2.4 MDKK. This indicates that more than 50% of all the examined companies are generating economic value of more approximately 2.5 MDKK.

7.3.5 EVA by Industry

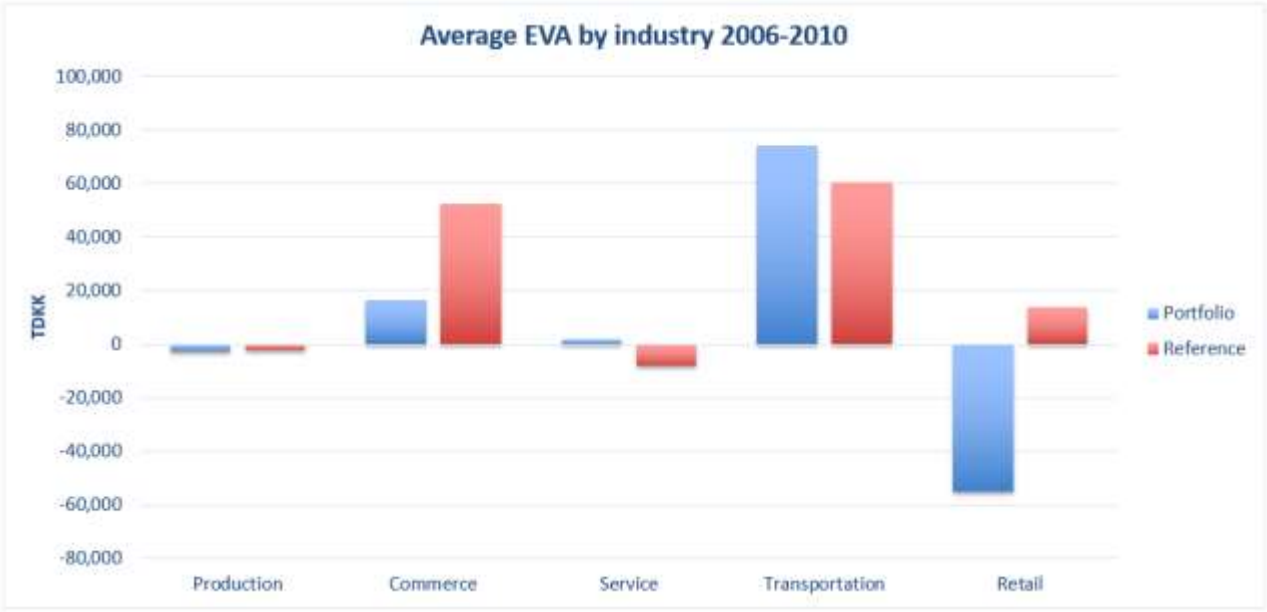
In order for us to obtain a valid and fair comparison basis we have in the following section divided the examined reference companies into the same five industries as we did with the portfolio companies. This provides clear evidence as to which of the industries that are

generating economic value. Furthermore, these findings will demonstrate whether positive economic value is industry specific rather than ownership specific.

The number of reference companies in each industry is illustrated in the following table.

Industries:	Production	Commerce	Service	Transportation	Retail
#Portfolio companies	17	3	7	1	2

In the figure below the average EVA values for the reference companies in the different industries are depicted. Additionally, the figure shows the values for the portfolio companies as a basis for comparison.



We observe that it is the same industries that are generating economic value. However, an exception is the retail industry. As was observed for the portfolio companies, the majority of the EVA generated by the reference group stems from the transportation industry. However, based on our study group a single company represents the transportation industry. The commerce industry generated an average EVA of 52.4 MDKK. This industry generated 35.7 MDKK more in economic value compared to that of the portfolio companies. The largest contributor to the high EVA value in the commerce industry is IC Companys. Without IC Companys the commerce industry generated an average EVA of 5.4 MDKK. There is no particular explanation as to why IC Companys performs so well other than them being financially healthy and stable company. They do not experience any significant fluctuations in any of the examined financial measures.

Contrary to the findings of the portfolio companies, the service industry generated negative average EVA. Fortum Waste Solutions A/S's poor performance averaging -64.6 MDKK over the entire investigation period pulled the average of the entire industry down.

Fritz Hansen and Rosendahl Design Group A/S, generating positive average EVA of 13.9 MDKK, represented the retail industry. The positive EVA is surprising, as it is a great outperformance of the portfolio company in the same industry.

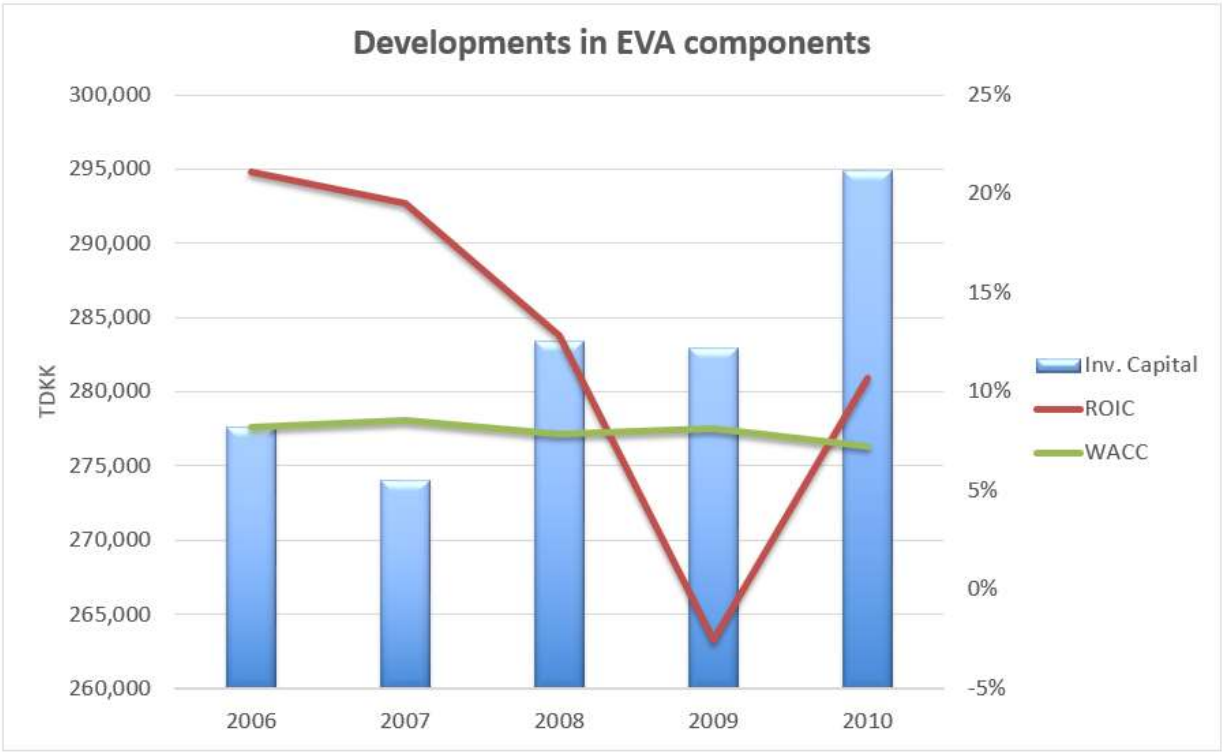
The production industry generated a negative EVA of -2.1 MDKK. Although the reference companies generating slightly less negative values than that generated by the portfolio companies it seems as if the industry as a whole have been largely affected by the recession. The reference companies' negative EVA is a result of Brdr. Hartmann A/S's performance. They experienced an average EVA of – 87.6 MDKK over the entire period. Excluding Brdr. Hartmann A/S from the analysis would have provided an average EVA of 3.2 MDKK for the production industry throughout the investigation period. However, Brdr. Hartmann A/S experienced significant improvements in their ability to generate positive EVA in the years following 2007. From their 2008 annual statement we find that the company initiated substantial efficiency improvements. Furthermore, the significant increase in EVA experienced in 2008 was a result of capital being liquidated from operations where earned returns were inadequate. (Brdr. Hartmann A/S annual statement, 2008; 4) This was one of methods to increase EVA.

7.3.6 Decomposition of EVA components

As we have provided a thorough review of the EVA components for the portfolio companies it is adjacent to carry out an investigation of the same components for the reference group. The values for the EVA components are presented in appendix 5.

The figure below depicts the developments in the three components throughout the entire investigation period. Comparing this figure with figure from section , we observe several similarities in regards to the trend and the development of the components, namely in

relation to ROIC and WACC. This may indicate that the two groups of examined companies have a strong comparability basis.



Nevertheless, significant differences are observed in regards to the trend in invested capital and the starting point of ROIC. Throughout the investigation period the reference groups' invested capital is increasing. The opposite is true for the portfolio companies as they had an average invested capital of approximately 375 MDKK in 2006 and of approximately 295 MDKK in 2010. In comparison the reference group had an average invested capital close to 280 MDKK in 2006 and close to 295 MDKK in 2010. We observe that the invested capital for the two groups almost converges in 2010.

Based on the findings in our profitability analysis we can conclude for the portfolio companies that the decrease in invested capital correlates with the decrease in working capital. As for the reference group, apart from the negative values in 2007 and 2008, the working capital increased especially in 2010. Ceteris paribus, a decrease in invested capital leads to an increase in EVA. Consequently, the portfolio companies experience an increase in the average value of EVA of 14.9 MDDK from 2006 to 2010. In comparison the reference groups experience a slight decrease in the average EVA.

The weighted average cost of capital (WACC) is relative steady for the reference companies. The average WACC lies between 7.2-8.5% in the investigation period. This is approximately the same as the average WACC between 7.4-8.7% for the portfolio companies. The relatively identical WACC for the examined groups is a result of many identical assumptions in the computation of WACC.

ROIC is again the most volatile component. The development and trend in ROIC are showing the same fluctuations for both groups. However, a significant difference is to be observed in regard to the starting point. The reference group managed a ROIC of 21.1% in 2006. The portfolio companies experienced a negative ROIC in the same year. The reference groups higher ROIC values are a result of fewer companies experiencing negative ROIC. Although extreme values are observed among the companies both positive and negative, they more or less cancel each other out. For instance, Kontrapunkt managed a negative ROIC of -115.8% due to bad financial performance resulting in a negative NOPAT. On the other hand STB Byg experienced a ROIC of 198% as a result of a relatively high NOPAT compared to a small invested capital.

Hence the development in the components discussed above can contribute in explaining the development in EVA for the reference group. For instance, from analyzing the components it becomes evident that the negative EVA in 2009 is a result of a large decrease in ROIC.

7.4 Bankruptcy risk in PE-funded companies

PE-firms apply leverage as a value-creating tool. The average debt/equity ratios for the two examined groups are illustrated in the figure below. As discussed earlier the debt/equity ratio should be of a value that maximizes firm value when the marginal costs of debt just offsets the marginal benefits. Thus, one could wonder why other companies not apply higher level? Possible causes must be related to the shadow side of high gearing, namely the risk of bankruptcy.

	Portfolio companies					Reference companies				
D/E ratio	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Average	208,4%	115,5%	102,7%	96,0%	98,8%	71,5%	48,0%	39,8%	42,8%	42,4%

Two possible scenarios can be thought of. Firstly, PE-funds can create value by adding leverage if their portfolio companies are not at an optimal debt/equity ratio. In continuation heroff, the portfolio companies are able to bear and handle more debt before the risk of bankruptcy occurs. Secondly, other companies might rather prefer to be "on the safe side" and therefore not absorb the amount of debt that would be optimal. However, during a recession, it is particularly interesting to examine whether portfolio companies are more vulnerable due to their high level of debt or if other aspects neutralize the greater bankruptcy risk.

7.4.1 Theories of bankruptcy

Leverage can increase the value of a company, as firms can gain from tax deductibility of the interest payment, referred to as the interest tax shield. Theoretically, the optimal capital structure should be 100% debt. However, this changes when bankruptcy risk is included in the equation. The risk of bankruptcy becomes greater the more debt the company has. With bankruptcy risk, both direct and indirect bankruptcy costs will outweigh the benefit of the tax shield that the debt creates (Brealey, Myers & Allen 2006).

Kim (1973) and Merton (1962) argued that the probability of bankruptcy is an increasing function of leverage. In addition, Baxter (1967) argued that the relationship between bankruptcy and leverage is exponential, as the probability of bankruptcy is very low at smaller levels of leverage, while it can be very high at greater levels of leverage. Therefore, the higher debt of portfolio companies will, ceteris paribus, make them more vulnerable to bankruptcies than other business entities. This aligns with Vinten's (2008) findings that showed that highly geared companies did not outperform companies with lower gearing. However, Baxter (1967) also argued that the probability of bankruptcy depended on the volatility of the company's cash flows as these are used to service the debt. The optimal gearing is therefore lower in companies with volatile cash flows, which is well in line with the fact that PE-funds aim to acquire companies with stable cash flows as they can leverage them more.

7.4.2 The cost of bankruptcy

There are several costs involved when a company faces bankruptcy. These costs associated with bankruptcies must be considered when companies decide on the choice of capital structure. Bankruptcy, in short, is simply a shift in the ownership of the company from equity

holders to debt holders. However, a bankruptcy is not that simple, as it is a long and complicated process. There are two types of bankruptcy costs; the direct costs that arise when the company goes bankrupt and the indirect costs that arise when the company is in danger of bankruptcy. (Berk & Demarzo, 2014; 538)

Direct bankruptcy costs: The direct costs are the costs that the debt holders or the creditors face when they overtake a company after bankruptcy (Berk & Demarzo, 2014; 540). These costs include administrative costs, costs for lawyers and the loss that occurs if assets are sold in liquidation for less than what they are worth.

Indirect bankruptcy costs: Indirect costs are difficult to measure. They include the loss of revenue that occurs when customers are concerned about supply and guarantees of receiving their product. These losses of revenue arise if the customers are aware of the company's risk of going bankrupt. The unstable financial situation will lead to increased costs because employees may resign and favourable agreements with suppliers may vanish. Furthermore, management teams of companies facing bankruptcies, tend to fire sale their assets at values below their market value in an attempt to avoid the bankruptcy. (Berk & Demarzo, 2014; 544).

7.4.3 Methods to avoid bankruptcy

According to Altman & Hotchkiss, 2006, the lack of liquidity is the primary reason for a company going bankrupt. Companies lacking liquidity will be unable to service their debt. Furthermore, it is often seen that the management and the member of the board surrender their company to creditors if they estimate that they are not able to achieve a satisfactory return of the assets.

Companies lacking liquidity, can apply three methods to avoid bankruptcy (Berk and DeMarzo, 2014).

1. Add additional equity
2. Add additional debt
3. Divestment of assets

A discussion of these aspects is relevant especially in assessing whether PE-firms have an advantage over companies with other forms of ownership.

Add additional equity: A company on the verge of a potential bankruptcy finds itself facing a conflict of interest between shareholders and creditors. Shareholders are disinterested in the value of the remnants of the company if it goes bankrupt, as they will not receive anything. Contrary, the creditors wish to be repaid for their provided loan and as such desire as much value as possible. Shareholders have less willingness to inject additional capital, especially if the probability of going bankrupt is significant. They would rather prefer the company to go bankrupt immediately, so the creditors won't benefit from their additional capital deposit (Brealey, Myers & Allen 2008).

However, applying this thought to the PE-firms another conflict of interest arises. Banks and creditors are less willing to lend money to a PE-firm for future purposes if they have allowed a portfolio company to go bankrupt without attempting to save it by injecting additional capital. Thus, for the sake of future operations, PE-firms will attempt to avoid the bankruptcy of a portfolio company. This problematization is intriguing. If a PE-firm is committed to sustain a good relationship with the banks, it may result in fewer bankruptcies.

If the injection of additional capital is a positive NPV investment, it is easier for PE-firms than for shareholders in listed companies to raise additional capital. For listed companies it applies that they prepare a prospectus for all shareholders and provide them a sufficient amount of time to review and consider whether they will participate in the capital expansion. This is a time consuming process and can take several months. To attract shareholders to participate in the capital expansion shares must be sold at a discount (Spliid 2007). Shareholders may prefer not to participate in the capital expansion. Consequently, the desired capital gain becomes unattainable resulting in financially stable companies going bankrupt.

The PE-fund is the sole owner of their portfolio company. As such the faster decision-making process of the active ownership simplifies the process of injecting additional capital. PE-funds often have an extra amount of fund available to deposit.

Asymmetric information plays an important part in whether or not the owner will add additional capital. As it is the management that provides information to the shareholder of the publicly listed companies, a principal-agent problem can occur. However, this problem is mitigated as the PE-firm is closer to and has more information about the daily operations of their portfolio company. A portfolio company is 100% dependent on their one shareholder, namely the PE-fund, and its willingness to raise capital (Spliid 2007).

Add additional debt: A firm facing a potential bankruptcy with owners unwilling to provide additional capital can obtain the desired amount from the bank. However, a company in financial distress may only obtain additional capital from the bank if the banks are compensated for the additional risk they incur. The PE-firms may have an advantage in obtaining additional debt as a result of their presumed close relationship with the banks. As a result the PE-firms raised debt on extremely advantageous terms during the upswing years prior to the recession. These terms were attractive as they included very few or no covenants and low interest rates.

The relationship between the PE-firms and the banks is favourable for the portfolio companies. Their probability of going bankrupt is lower, as their loans have fewer covenants than other companies. Therefore, the portfolio companies have must experience relatively severe conditions before the banks demand the debt settled. As a result, the portfolio companies can easily survive short-term downs in demand. Furthermore, the PE-funds' reserve capital is a collateral for the banks.

Divestment of assets: A Company in the search of liquidity can divest its assets. However, the company will be unable to divest intangible and company-specific assets that are worthless for other companies. Furthermore, companies in urgent need of liquidity may be forced to divest their assets well below their market value. PE-firms may have a small advantage compared to other business entities, due to their relatively larger network. Consequently, it is easier for them to locate buyers for the specific assets they are divesting.

Overall, we find that there are several arguments as to why PE-firm owned portfolio companies are able to absorb a larger amount of debt than other companies. Our study aims to provide empirical evidence to support the theoretical discussions.

7.5 Analysis 3: Bankruptcy risk

This part of the analysis aims to investigate bankruptcy risk, specifically if portfolio companies are more prone to the risk of bankruptcy than other companies. The theory suggests that in regard to the portfolio companies' risk of bankruptcy two component were applicable. Firstly, the relatively higher leverage increases the risk of bankruptcy. Secondly, the active ownership provided faster decision-making and an easier access to additional capital, consequently lowering the risk of bankruptcy. It is interesting to observe if these theories hold in practice by analysing our two groups of examined companies.

This analysis is based on the same accounting data as for the previous analysis. This analysis will apply the Altman Z-score, a predictor of bankruptcy risk. Altman (1968) concluded on the basis of his empirical study that companies obtaining a Z-score below 1.23 would have a high probability of going bankrupt. On the other hand, companies with a Z-score above 2.99 would have a low probability of going bankrupt. Companies with a Z-score in between 1.23 and 2.9 were in a grey area, and therefore needed to be analysed further. (Petersen & Plenborg, 2012; 294)

7.5.1 Explanation of the Altman z-score

In 1968, Edward I. Altman developed a formula for predicting bankruptcies. Based on accounting data, his formula would calculate a value for each company, and that value would predict the probability of the specific company going bankrupt. The formula has been developed and adjusted several times over the years for listed companies. On the basis of the adjusted formula Altman developed a bankruptcy risk predictor for non-listed companies as well. According to Altman, this formula has been found to be 80-90% accurate (Altman 2006).

It may be interesting to apply Altman's Z-score on the examined groups of companies to see if there is a significant difference in this key figure and hence in their probability of bankruptcy.

The formula consists of five elements, all of which have an affect on the bankruptcy risk. These are weighted according to their affect. The five components are:

X1: (Current assets – current liabilities) / Total Assets. This component measures the amount of liquid assets a company has in relation to it total assets. The more liquid assets the lower the bankruptcy risk.
X2: Retained earnings / Assets. This indicates how much of the total assets are financed through obtained equity as opposed to debt.
X3: EBIT / Assets. This is a profitability ratio, and the more profitable the company is, the less is the risk of bankruptcy.
X4: Equity / Liabilities. This is a measure of leverage in a company. The higher the equity the lower the leverage and thus the bankruptcy risk.
X5: Revenue / Assets. This is an indication of a company's efficiency, ie how effective a company is in deploying its assets to generate revenue.

The weighting of each component is determined from empirical data, and the final formula for non-listed companies is as follows:

$$Z = 0.717X1 + 0.847X2 + 3{,}107X3 + 0.420X4 + 0.998X5$$

However, Altman's data was based on US companies. Different from Danish companies, US companies have the so-called Chapter 11 solution. This allows a company to avoid immediate bankruptcy providing time to reorganize itself. Therefore, the chapter 11 is commonly applied. The amount of chapter 11 solutions are greater than that of the amount of bankruptcies in Denmark. Therefore, one should expect that the Z-score values of Danish companies would be significantly lower if a similar solution was applicable.
Furthermore, there may be differences in how individual items are calculated in the US compared to Danish accounts. Consequently, the lower limit of 1.23 and the upper limit of 2.9 are not completely comparable. The Altman Z-score however, still serves as the best estimate for predicting bankruptcies.

7.5.2 Analysis of risk ratios

We concluded in the profitability analysis, that portfolio companies were much quicker at restoring the profitability during and after a recession. The PE-firms were better at adapting their portfolio companies to the lower level of activity indicates that active ownership assist in reducing the risk of bankruptcy.

In order for us to conclude on the risk of bankruptcy, it essential for us to analyse the relevant risk key measures. As mentioned, when offering loans to companies the banks make use of covenants on the basis of different parameters, one of these being the relationship between the bank and the borrower. Consequently, we argued that the portfolio companies have lesser bankruptcy risk due to the PE-firms' relationship with the banks. This relationship results more attractive loan terms with favourable covenants. If a covenant is breached, the banks can demand the loan redeemed with immediate effect. In such cases, portfolio companies may have a greater bankruptcy risk, as banks may be reluctant to lend to PE-firm owned companies. This is a result of the expected higher bankruptcy risk as a consequence of the higher gearing. The banks' perception of the borrowing PE-firm is very interesting, however it is very difficult to investigate this perception, as banks do not comment on specific customer relationships. It is impossible to know exactly which covenants they set up for the specific loans. Additionally, the various medias critique of PE-firms may have influenced banks to have stricter requirements for PE-funded companies. Nevertheless, we will try to estimate and obtain what is possible about this relationship based on the accounting data of the portfolio companies and the reference group.

The following table illustrates the relevant key risk figures in order for us to examine the risk of bankruptcy in the companies. The covenant banks often apply is Interest-bearing debt/EBITDA (Hanson, Kashyap & Stein, 2011; 3-28).

	Portfolio companies					Reference companies					Change portfolio companies				Change reference companies				Difference i change (%-point)			
Int. bearing debt	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	260.099	299.303	328.684	310.788	304.001	65.984	59.949	56.842	61.829	63.568	115,1	126,4	119,5	116,9	90,9	86,1	93,7	96,3	24,2	40,2	25,8	20,5
Median	41.376	61.322	98.522	58.383	67.320	30.738	32.903	32.795	31.136	30.004	148,2	238,1	141,1	162,7	107,0	106,7	101,3	97,6	41,2	131,4	39,8	65,1
Int. bearing debt/EBITDA	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	2,95	2,58	-1,86	5,28	2,76	1,10	0,94	0,97	0,15	0,37	87,5	-63,1	179,0	93,5	85,1	88,5	13,4	34,0	2,3	-151,7	165,5	59,5
Median	0,66	1,20	0,38	0,23	0,86	0,85	0,57	0,39	0,51	0,60	182,0	57,9	35,5	130,4	67,8	45,5	60,7	70,3	114,2	12,4	-25,3	60,1
Std. Dev.	5,64	3,53	17,88	18,51	5,90	1,18	1,21	1,23	3,37	4,83	62,5	317,1	328,2	104,6	102,2	104,1	285,8	409,6	-39,7	213,0	42,4	-305,0
Current ratio	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	1,52	1,54	1,82	2,50	2,00	1,48	1,47	1,42	1,28	1,27	101,7	120,5	165,2	132,1	99,4	96,0	86,1	85,5	2,3	24,5	79,1	46,6
Median	1,01	1,12	1,05	0,95	1,10	1,17	1,21	1,20	1,19	1,21	110,6	103,6	93,4	108,1	103,6	102,2	101,4	103,4	6,9	1,4	-8,0	4,7
Std. Dev.	1,25	1,15	1,51	4,18	2,68	1,26	1,18	1,08	0,62	0,45	91,9	120,2	333,7	213,7	94,0	86,1	48,9	35,6	-2,1	34,1	284,9	178,1
Quick Ratio	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	1,08	1,08	1,27	2,06	1,64	1,09	1,07	1,01	0,86	0,86	100,2	117,1	190,5	151,3	98,2	92,9	78,8	78,9	2,1	24,2	111,7	72,4
Median	0,70	0,63	0,72	0,57	0,62	0,78	0,83	0,79	0,68	0,75	89,4	101,8	81,1	88,2	106,3	101,9	87,5	96,2	-17,0	-0,1	-6,4	-8,1
Std. Dev.	1,31	1,17	1,41	4,29	2,77	1,30	1,22	1,10	0,52	0,34	89,1	107,5	327,0	211,8	94,2	84,8	39,7	26,3	-5,1	22,7	287,4	185,5
Solvency ratio	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	0,26	0,27	0,30	0,34	0,36	0,37	0,37	0,39	0,41	0,40	102,5	115,2	128,1	136,4	100,9	106,3	110,0	106,8	1,6	8,9	18,1	29,6
Median	0,25	0,24	0,27	0,28	0,35	0,34	0,34	0,36	0,41	0,41	96,2	108,2	111,6	140,8	99,6	106,8	119,5	121,5	-3,4	1,4	-8,0	19,2
Std. Dev.	0,24	0,21	0,24	0,19	0,20	0,18	0,17	0,17	0,15	0,13	87,1	100,7	79,6	84,1	93,9	95,0	84,9	73,3	-6,8	5,7	-5,3	10,8
Altman Z-score	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	1,76	1,84	2,09	1,88	1,95	2,33	2,37	2,30	1,92	2,02	104,6	119,0	107,2	111,2	101,4	98,6	82,2	86,5	3,2	20,5	25,0	24,7
Median	1,96	1,68	1,70	1,39	1,65	2,27	2,17	2,18	1,87	2,07	85,9	87,1	70,9	84,3	95,6	96,2	82,5	91,2	-9,7	-9,1	-11,6	-6,9
Std. Dev.	1,25	1,00	1,61	1,77	1,53	1,26	1,00	1,04	1,10	0,89	79,8	128,7	141,4	122,2	79,5	82,6	87,0	70,8	0,4	46,0	54,4	51,4
Total Equity	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Average	378.403	1.082.322	1.294.475	1.070.847	1.026.734	173.015	189.137	203.830	188.008	206.091	286,0	342,1	283,0	271,3	109,3	117,8	108,7	119,1	176,7	224,3	174,3	152,2
Median	117.100	110.902	90.367	98.600	102.499	57.442	54.269	69.947	62.791	73.216	94,7	77,2	84,2	87,5	94,5	121,8	109,3	127,5	0,2	-44,6	-25,1	-39,9

Examining these key ratios, we observe that interest-bearing debt/EBITDA are higher for portfolio companies throughout the entire investigation period except for 2010. The ratio measures a company's ability to pay off its incurred debt. As we observe higher ratios for the portfolio companies its suggest that they may not be able to service their debt. The majority of the portfolio companies have presumably been granted attractive covenant terms allowing for the higher ratio. In 2008, the portfolio companies recorded a lower interest-bearing debt/EBITDA ratio than that of the reference group. This was solely due to Wiking Gulve experiencing a ratio of -87.1. Excluding Wiking Gulve would have resulted in an average ratio for the portfolio companies of 1.69, significantly higher than that of the reference group. Wiking Gulves ratio is due to a financially rough year. They experienced negative EBITDA combined with a relatively high interest-bearing debt.

As for the reference group we observe a decreasing interest-bearing debt/EBITDA throughout the investigation period with values below 1. Banks were anxious during the recession in regard to getting their provided loans repaid. The significant decrease in year 2009 to index 13.4 was a consequence of some reference firms most likely breaching their agreed covenants.

Observing the interest-bearing debt in for the two examined groups we find a significant difference. The portfolio companies increased their interest-bearing debt to index 116.9 in 2010. This may be a consequence of the financial engineering. The portfolio companies have most likely taken more debt in order for them to optimize their capital structure. For the reference companies we observe a decrease to index 96.3 in 2010. This is relatively constant compared to the level of 2006.

Companies often experience lack liquidity in the short-term. Consequently, we have examined the to short-term liquidity risk measures; the current ratio and the quick ratio. The Current ratio is a measure that indicates whether a firm has enough current assets to cover short-term liabilities. The Quick ratio is a more conservative measure of liquidity risk, as it only includes current assets such as cash and cash equivalents and receivables (Petersen & Plenborg 2012). For both ratios a high measure indicates a smaller liquidity risk. The measures should

preferably be above 1. From our results we find that the reference companies are operating at greater risk. This is contrast to the findings on the longer horizon.

In regard to the current ratio, we see that the average in 2006 and 2007 were almost identical for the two groups, both with key ratios above 1. In 2008 however, the current ratio increases dramatically for the portfolio companies, whilst it decreases for the reference companies. This is most likely due to a result of the active ownership from the PE-funds.
One could assume that the PE-firms have knowingly focused on keeping the short-term ratios at relatively high levels. Consequently, this provides them the opportunity to focus on long-term operational improvements as they in financially pressured situations have enough short-term assets to cover their short-term liabilities.

In regard to the quick ratio, the average values showed no difference between the two groups in 2006 and 2007, just as the case was with the current ratio. However, both groups had ratios just above 1. Hereafter a significant difference is observed. As the quick ratio is lower than the current ratio, it indicates that the companies rely relatively more on inventory or other assets in order for them to meet short-term liability requirements. Therefore, the quick ratios for the reference group below 1 in 2009 and 2010, does not necessarily mean that they are facing a bankruptcy.

These findings suggest that in the overall picture, the short-term liquidity risk was greater for the reference group. It is positive to see that the ratios are increasing for the portfolio companies. Despite the recession, the portfolio companies hold liquidity risk down.

On a longer-term one can measure the solvency ratio. It measures cash flow by including depreciation to assess a company's ability to stay solvent. Different from the two previous measures, the solvency ratio measures the cash flow in relation to all liabilities, instead of only the short-term debt, resulting in an assessment of company's long-term health. (Investopedia)

As a general rule of thumb companies with solvency ratios greater than 20% are considered to be financially healthy. However, one must take into consideration that solvency ratios vary

from industry to industry, thus a specific company's solvency ratio is only comparable with its competitors in the same industry (Petersen & Plenborg, 2012; 161).

In our case we see that the solvency ratio is greater than 20% for both groups in all years. This indicates that none of the examined companies are struggling on a medium-term. They are healthy and financially stable companies. In all years the reference companies have a higher solvency ratio, but in 2009 and 2010 the portfolio companies catch up with them consequently decreasing the difference between the two groups.

7.5.3 Altman z-score

A clear difference is to be observed in the two examined groups Z-score. In 2006, the Z-score was 1.76 for the portfolio companies, while reference group experienced a Z-score value of 2.29. Ceteris paribus the portfolio companies have a higher probability of bankruptcy on average, although both groups are in the "grey-zone." The portfolio companies never experience a superior Z-score. For both groups of companies, we observe that they are consistently in the "grey-zone." The portfolio companies as a result of their lower Z-scores had a greater risk of bankruptcy. However, they experienced an increase in their Z-score from 2006 compared to 2010 to an index value of 111.2.

Portfolio companies that were in a greater risk of bankruptcy in 2009 were Elite Gaming with a Z-score of 0.44, Qubica with 0.20 and Scanvogn with -0.18. Scanvogn went bankrupt in 2011 and will be investigated further later in this section. Although the Z-scores indicate a greater probability of bankruptcy the PE-fund model works with the portfolio companies to operate with larger debt thus giving them lower Z-scores without having a greater risk of bankruptcy. In the year 2006 with upswing, the Z-scores were at their lowest point for the portfolio companies but the majority of the portfolio companies were far from bankruptcy. From the profitability analysis we concluded that active ownership makes it easier for companies to manage through a recession. The second essential theory in referred to the easier access of additional capital for portfolio companies. It is possible that portfolio companies will be allowed by banks to operate with higher gearing and lower Z-scores due to these two elements. Therefore, we will examine the hypothesis that portfolio companies have easier access to capital and that the PE-firms are willing to inject this capital.

7.5.4 Willingness to add new capital

All companies are obligated to declare in their cash flow statements whether they have received additional capital from their owners. The additional capital and the withdrawal of dividends can be seen in the following table.

	Portfolio companies					Reference companies				
Deposits from owners	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Average	20.595	67.369	56.237	72.959	40.300	75.000	60.000	30.100	0	0
Median	20.595	7.500	82.597	48.553	40.300	75.000	60.000	30.100	0	0
Companies	1	7	5	9	1	1	1	2	0	0
% of companies	4%	28%	20%	36%	4%	7%	7%	10%	0%	0%
Total Value	20.595	471.580	281.185	656.628	40.300	75.000	60.000	60.200	0	0
Dividends paid	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Average	62.758	8.445	13.900	5.050	16.709	20.450	47.953	32.277	44.109	44.531
Median	18.500	7.500	7.000	5.000	9.000	6.250	20.000	9.800	15.000	6.000
Companies	5	4	7	3	7	17	16	18	17	12
% of companies	20%	16%	28%	12%	28%	57%	53%	60%	57%	40%
Total Value	313.788	33.780	97.300	15.150	116.960	347.648	767.250	580.983	749.859	534.371

The criticism of PE-firms has often been directed towards their greediness. Surprisingly, our findings suggest otherwise. PE-firms were adding much more additional capital to their portfolio companies during the recession. The financially toughest year for companies, 2009, 9 PE-firms added capital to their companies out of the 25 examined. For the reference companies only 1-2 owners added additional capital. However, no reference company received additional capital from their owners in 2009 and 2010.

As concluded earlier, the portfolio companies were operating with a greater risk of bankruptcy during the recession. However, we observe from our findings that PE-firms are more willing to add additional capital. This correlates well with our theoretical review as to why the banks were confident in lending more capital to the PE-firms, as they were aware that the PE-firms would add capital to prevent bankruptcy. Adding additional capital provides the PE-firms the ability to circumvent problems regarding liquidity or excessive gearing as we found in our analysis of short-term liquidity risk. Although these findings are positive, we must consider the fact that the PE-firms must have additional capital ready for them to be able to add capital if needed. This represents an opportunity cost that affects the potential return in the PE-firm negatively. For the individual portfolio company, the financial backing means they can leverage more aggressively thus obtaining a larger tax shield. They are aware that a negative trend in profitability and a requirement from the banks can be covered by additional capital from the PE-fund owners.

A similar pattern was to be seen during the recession in regard to the dividends paid out to owners. In all of the examined years, there are far less portfolio companies paying out dividends to their owners. Furthermore, we observe in the case of the reference group that almost half of them paid out dividends even though the profitability was in a negative trend.

Our findings are interesting, as they strongly contradict with the general perception of PE-firms. Our findings suggest that the criticism regarding PE-firms' greediness seems exaggerated. Dividend payments have been extremely limited in portfolio companies. Instead we find that the PE-firms are willing to add new capital to their companies if needed especially during the recession. We observe that 2009 was the year the PE-firms injected the most capital into their portfolio companies. This might be an explanation as to why the portfolio companies managed to return their profitability measures back similar levels of those before the recession.

Additionally, our findings suggest a different aspect for further investigation. The question arising is; why do PE-firms inject additional capital so willingly? Is it do to their perception of the additional capital being beneficial from an economic point of view or is it to sustain a good relationship with banks for potential future negotiations and investments?

We can conclude on the basis of our findings that there is a contradiction in different factors. Portfolio companies are operating with greater risk of bankruptcy because of the higher leverage, but due to the PE-firms willingness to invest additional capital to sustain and restore profitability the risk of bankruptcy decrease. However, it is difficult to measure which effect is more forceful. According to our findings, PE-firms are willing to add additional capital, but one could imagine a situation where the fund was in lack of liquidity or had other attractive investment opportunities it wanted to pursue. This would undoubtedly put the portfolio companies in a greater risk of bankruptcy compared to the reference companies, due to the larger financial gearing.

7.5.4 Bankrupt companies

Even though our findings suggest portfolio companies have a lesser probability of bankruptcy, our analysis does not contain the two companies Hammel Møbelfabrik and SMEF Group.

These companies went bankrupt in 2009 and 2010 respectively. Both of them were portfolio companies, but to obtain an in-depth insight we have investigated the circumstances surrounding their bankruptcies.

In 2005, Hammel Møbelfabrik, a company in the highly cyclical furniture production industry was acquired by Dania Capital. In 2008 Hammel Møbelfabrik experienced losses of 17.6 MDKK. The PE-firm acted upon these circumstances by inserting a new director in 2008, initiating strategies to promote operational efficiency, and by adding additional capital of 15 MDKK in January 2009. However, in October 2009, the Board deemed that the company's future profitable prospects were non-existing. As a consequence, the firm declared bankruptcy (Børsen, 15 Oktober 2009).

Capman acquired SMEF Group, a subcontractor to the furniture industry, in 2001. After the acquisition of SMEF Group the revenue decreased significantly. SMEF Group delivered one operating loss after another. Capman changed the whole management team in 2009 and even brought in a new director but saw the revenues decreasing dramatically. Observing their Z-score, it is evident that the company was in severe danger of bankruptcy.

	SMEF GROUP					Scanvogn				
	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Z-score	0,97	1,03	0,59	-32,81		1,60	1,67	-0,68	-0,18	-0,17

Observing the Z-scores for Scanvogn, the bankruptcy in 2011 comes as no surprise. From 2008 and onwards the company consistently delivered Z-score values below the lower limit of 1.23.

8. The validity and reliability of the investigation

This section provides a discussion of the validity and reliability of our applied methods in relation to the data collection and empirical study.

Firstly, our data is primarily obtained from the annual statements published by the examined companies. Majority of the examined companies are privately owned and as such some of the annual statements provided limited information. Furthermore, companies might have manipulated with accounting data in the annual statements to depict a healthier picture of the company's performance. However, this should only be possible to a relatively small extent as independent auditors review the annual statements.
Nevertheless, if this proved to be the case it would influence both groups of examined companies thereby cancelling the possible effect. To circumvent possible issues we have thoroughly reviewed all of the notes in the annual statements and adjusted for items that have been categorized different than for other companies. Therefore, we believe that we have obtained the best possible data basis.

Our empirical study consists of 25 portfolio companies. This number of portfolio companies does only account for a small part of the total population of portfolio companies in Denmark. If it was possible to include additional companies the findings might have shown different results.

In relation to our reference group it is probable that including other companies would have resulted in a more accurate comparability basis for some companies. Nevertheless, the companies were assessed and chosen to the best of our ability. We believe that the chosen companies have been similarly affected by the recession. Including other companies might have shown different results.

In our empirical study we adjusted for outliers. We believe excluding outliers mitigated possible issues in relation to noise in the data. Companies considered outliers include Københavns Lufthave, Legoland and Nycomed for the portfolio companies. Outliers for the reference group include Novo Nordisk and Leo Pharma. The results were significantly affected

by these companies and as such we believe excluding them provides the most accurate analysis.

In relation to the EVA-analysis it would have been desirable to include more companies, specifically in regard to the EVA analysis based on the PE-firms' country of origin and the portfolio companies industries. Several of the foreign PE-firms only owned one portfolio company. Additionally, many industries only consist of one company providing difficulties to draw any concrete conclusion.

Nevertheless, we believe our empirical study provides a respectable and accurate depiction of the examined companies' performance in a recession when combining all of the conducted analysis.

9. Conclusion

The purpose of this thesis was to investigate whether the private equity model outperformed a group of reference companies based on profitability and economic profit. Furthermore, we investigated to what extent the methods applied by PE-firms affected their portfolio companies' risk of bankruptcy. This is attempted answered both through a theoretical discussion and an in depth empirical study.

Our empirical analysis was based on a study group consisting of 25 portfolio companies and 30 reference companies. The empirical study was performed on the basis of three analyses. Firstly, a profitability analysis was conducted followed by an EVA analysis and lastly concluding with an analysis of bankruptcy risk.

The findings of the profitability analysis revealed that the portfolio companies managed to return their profitability measures to similar levels as of before the recession after experiencing decreases in profitability in 2008 and 2009. The reference group experienced significant decreases in the same period. However, their increasing profitability measures in 2010 were of lesser magnitude. The portfolio companies' superior performance was a result of their PE-firm's active ownership. The portfolio companies changed their management

teams more frequently, adjusted their strategy according to the macroeconomic situation faced and had additional capital deposited.

Our EVA analysis provided interesting results. Our findings indicated positive economic value might be industry specific rather than ownership specific, as the EVA for the 5 industries provided somewhat similar results for the two groups of examined companies. However, as we had limited amount of companies in majority of the industries, we were unable to conclude anything concrete upon these findings. Nevertheless, by combining the profitability analysis and the EVA analysis, we could conclude that efficient management of working capital was a primary value driver as this affected invested capital positively. Consequently, the portfolio companies experienced an increase in the average value of EVA of 14.9 MDDK from 2006 to 2010. This indicates evidence of the ability of the PE-firms to manage and guide companies in recession periods. In comparison the reference groups experienced a slight decrease in the average EVA, although their EVA were higher. An interesting finding however, was that the foreign PE-firms performed significantly better than their Danish counterparts. This is presumably a result of the foreign PE-firms' experience in managing portfolio companies efficiently. The Danish PE-firm owned portfolio companies generated EVA of -7.4 MDKK throughout the investigation period. In comparison the 9 Danish portfolio companies owned by foreign PE-firms on average generated EVA of 17.9 MDKK.

The theoretical discussion of a recession' influence on the PE-firms' value creating tools produced several fascinating aspects. Two opposing effects were brought to life. The portfolio companies' relatively higher leverage imposed them to a greater risk of bankruptcy. In theory the portfolio companies would have experienced difficulties managing through a recession due to the greater risk of bankruptcy. However, our findings suggest that the active ownership exerted by the PE-firms is a clear advantage. This is a result of faster decision-making allowing for initiation and implementation of the strategic changes needed to perform given the macro economic situation.

In our theoretical discussion regarding bankruptcy it was evident that to create value a company needed to be at an optimal level of financial leverage. The PE-firm model allows portfolio companies to operate at a higher debt level than other companies thus giving them

lower Z-scores. However, the portfolio companies needed more stable cash flow, easier access to additional capital or being able to divest asset easier and at higher prices. Arguments demonstrated that PE-firm provide a possible advantage in all of these aspects. In the year 2006 with upswing, the Z-scores were at their lowest point for the portfolio companies but the majority of the portfolio companies were far from bankruptcy.

Our findings suggested that the portfolio companies were operating with greater risk on a long-term horizon. However, on a shorter horizon we found the opposite. PE-firms have knowingly focused on keeping the short-term ratios at lower risk levels. Consequently, this provides them the opportunity to focus on long-term operational improvements. In financially pressured situations their portfolio companies have enough short-term assets to cover their short-term liabilities, thus the PE-firms' good relationship with the banks can be sustained.

To sum up, our findings demonstrate that the PE-firm model is outperforming companies with other forms of ownership during the recession if measured in the development during the recession. Their portfolio companies quickly regained profitability and created economic profit. Although the portfolio companies are operating with larger leverage their risk of bankruptcy is not significant. Active ownership appears to be the most valuable tool of the PE-firm during a recession

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Dropbox link for Data file.
https://www.dropbox.com/s/yx17i0hq4gzctrb/Data.xlsx?dl=0

11. Appendix

11.1 Appendix 1

Acquiring year	Acquiring month	Exit year	Exit month	Name	Acquiring PE-firm
2004	2	2011	-	Anhydro A/S	Capman
1998	3	2016	2	BB Electronics	Axcel
2005	6	2013	3	Brandtex (BTX Group)	EQT
2005	7	2010	6	Chr. Hansen	PAI Partners
2004	2	2015	1	DSVM Group (DSV Miljø)	Triton
2006	2	2012	12	Elite Gaming A/S	Erhvervsinvest
2005	9	2011	1	ESKO-Graphics (nu EskoArtwork)	Axcel
2004	12	2011	7	Falck	Nordic Capital
2005	2	2011	12	Ferrosan	Altor
2006	3	2012	1	FiberVisions LLC	Snow, Phipps & Guggenheim LP
2005	3	2011	7	Glud & Marstrand	AAC Capital
2006	3	2011	10	Green House of Scandinavia	BwB Partners (tidl. Odin Equity Partners)
2006	4	2012	1	Haarslev	BwB Partners (tidl. Odin Equity Partners)
2005	5	2014	3	ISS	EQT
2004	3	2014	8	Junckers Industrier A/S	Axcel
2005	3	2014	3	Kompan	Nordic Capital
2005	11	2013	2	Krøger A/S	Erhvervsinvest
2005	12	2015	4	Kwintet	IK Investment Partners
2005	10	2017	9	Københavns Lufthavne	Macquarie Airports
2005	7	2013	11	Legoland (nu en del af Merlin Entertainment Group)	Blackstone
2006	5	2013	6	Logstor	Montagu
1996	11	2010	6	ME-FA	DKA Capital (Ledet af Gro Capital A/S)
2004	4	Afsluttet	-	Norlax	Glitnir Total Capital
2006	6	2012	11	Novenco Fire Fighting	Dania Capital
2006	2	2013	7	Novenco Group (før York Novenco Group)	Dania Capital
2005	3	2011	9	Nycomed	Nordic Capital
2004	2	2012	-	Ordyhna Holding	Capman
2006	3	-	-	Qubiqa (tidl. Nordplan + Seelen)	BwB Partners (tidl. Odin Equity Partners)
2005	12	2011	12	R82	Maj Invest Equity
2006	1	2013	6	Reson	Maj Invest Equity
2001	2	2012	12	Georg Jensen	Axcel
2006	5	2011	9	Scanvogn	Dansk Generationsskifte
2006	1	2016	8	SFK Leblanc	Maj Invest Equity
2001	5	2011	-	SMEF Group	Capman
1999	11	2011	2	Superfos	IK Investment Partners
2006	2	2013	3	TDC	KKR
2005	11	N/A	-	TDC Forlag (nu en del af European Directories)	Macquarie Capital Alliance Group
2006	6	2017	8	Tytex A/S	Maj Invest Equity
2000	4	2014	6	Vital Petfood Group	Axcel
2005	12	2012	7	Wiking Gulve	Dania Capital
2001	2	N/A	-	Wolfking	UBS
Source: DVCA buyout list 2018					

11.2 Apendix 2

Acquiring year	Acquiring month	Exit year	Exit month	Name	Acquiring PE-firm
2004	2	2010	-	Anhydro A/S	Capman
1998	3	2016	2	BB Electronics	Axcel
2005	6	2013	3	Brandtex (BTX Group)	EQT
2004	2	2015	1	DSVM Group (DSV Miljø)	Triton
2006	2	2012	12	Elite Gaming A/S	Erhvervsinvest
2005	9	2011	1	ESKO-Graphics (nu EskoArtwork)	Axcel
2005	2	2011	12	Ferrosan	Altor
2006	3	2012	1	FiberVisions LLC	Snow, Phipps & Guggenheim LP
2001	2	2012	12	Georg Jensen	Axcel
2005	3	2011	7	Glud & Marstrand	AAC Capital
2006	4	2012	1	Haarslev	BwB Partners (tidl. Odin Equity Partners)
2004	3	2014	8	Junckers Industrier A/S	Axcel
2005	3	2014	3	Kompan	Nordic Capital
2005	11	2013	2	Krøger A/S	Erhvervsinvest
2005	12	2015	4	Kwintet	IK Investment Partners
2006	5	2013	6	Logstor	Montagu
2006	2	2013	7	Novenco Group (før York Novenco Group)	Dania Capital
2004	2	2012	-	Ordyhna Holding	Capman
2006	3	-	-	Qubiqa (tidl. Nordplan + Seelen)	BwB Partners (tidl. Odin Equity Partners)
2005	12	2011	12	R82	Maj Invest Equity
2006	1	2013	6	Reson	Maj Invest Equity
2006	5	2011	9	Scanvogn	Dansk Generationsskifte
2006	1	2016	8	SFK Leblanc	Maj Invest Equity
2006	6	2017	8	Tytex A/S	Maj Invest Equity
2000	4	2014	6	Vital Petfood Group	Axcel
2005	12	2012	7	Wiking Gulve	Dania Capital
Source: DVCA buyout list 2018					

11.3 Appendix 3

Portfolio Firms	Benchmark	Assets 2006 (000 DKK)	Assets % compared to portfolio firm
Anhydro A/S	GEA Process Engineering A/S	1.633.600	208%
BB Electronics	RM Rich. Müller A/S	502.874	112%
Brandtex (BTX Group)	IC Companys	1.665.300	106%
DSVM Group (DSV Miljø)	Fortum Waste Solutions A/S	999.056	97%
	HCS A/S Transport og Spedition	544.954	53%
ESKO-Graphics (nu EskoArtwork)	Kontrapunkt	13.850	62%
	1508.DK A/S	11.325	51%
FiberVisions LLC	R. Færch Plast A/S	671.710	108%
Georg Jensen	Rosendahl Design Group A/S	308.724	34%
	Fritz Hansen	447.395	49%
Glud & Marstrand	Brdr. Hartmann A/S	1.438.000	106%
Haarslev	Gram Equipment A/S	211.297	52%
	Cabinplant A/S	194.828	48%
Junckers Industrier A/S	Kronospan	401.541	58%
Kompan	Virklund Sport A/S	428.442	88%
Krøger A/S	HUJ A/S	40.419	81%
	STB Byg A/S	26.742	53%
Kwintet	Mascot A/S	327.768	36%
Logstor	Brødrene Dahl	1.108.784	190%
Novenco Group (før York Novenco Group)	Ib Andresen Industri A/S	559.000	115%
	Sondex	390.665	81%
Qubiqa (tidl. Nordplan + Seelen)			
	Duba-B8 A/S	151.299	82%
R82	Zealand Care	276.127	213%
Reson	Brüel & Kjaer Sound & Vibration measurement A/S	693.660	198%
SFK Leblanc	KJ Industries	212.971	118%
	Almas Agro A/S	113.466	76%
Tytex A/S			
	Niras	274.961	116%
Vital Petfood Group	Rode & Rode A/S	149.625	31%
Wiking Gulve	Timberman Denmark A/S	52.096	125%
	Charles Christensen A/S	17.665	42%

11.4 Appendix 4

Income statement (000 DKK)	**2006**	**2007**	**2008**	**2009**	**2010**
Revenue	1.317.828	1.528.826	1.575.805	879.511	415.514
Other operating income	788	2.892	1.346	1.456	529
Cost of Sales	-891.229	-1.038.523	-1.097.028	-529.380	-274.047
Other external costs	-136.968	-144.274	-179.549	-111.162	-86.332
Gross Profit	**290.419**	**348.921**	**300.574**	**240.425**	**55.664**
Staff costs	-211.149	-242.399	-248.429	-218.368	-110.696
EBIDTA	**79.270**	**106.522**	**52.145**	**22.057**	**-55.032**
Depreciation Tangible assets	-11.038	-11.726	-10.294	-9.529	-8.076
Depreciation Intangible assets	-15.370	-17.872	-18.484	-19.714	-117.641
Other operating costs	-	-6.740	-10.369	-27.779	-5.037
EBIT	**52.862**	**70.184**	**12.998**	**-34.965**	**-185.786**
Earnings in Subsidiaries After tax	-	-	-	-	-
Loss on sale of subsidiary	-3.695	-569	-	-	-
Gain from sales of activities	-	-	-	-	
Results of associates	-	-	-	-	321.146
Financial income	8.128	17.142	6.245	13.354	4.050
Financial expenses	-17.935	-24.718	-39.610	-23.565	-10.688
Profit before tax	**39.360**	**62.039**	**-20.367**	**-45.176**	**128.722**
Tax	-15.999	-48.033	-10.482	-2.601	-46.215
Consolidated profit	**23.361**	**14.006**	**-30.849**	**-47.777**	**82.507**
Dividend	-	-	-	-	-
Workers	406	485	520	484	197

ASSETS	2005	2006	2007	2008	2009	2010
Non-current assets						
Intangible assets						
Finished development projects	5.256	3.833	15.875	22.029	18.695	8.856
Patents and licenses	1.247	880	1.321	1.018	3.433	407
Goodwill	274.284	244.740	224.907	213.086	197.022	0
Intangible assets under development	4.199	9.609	5.810	3.021	5.308	1.888
Intangible assets total	284.986	259.062	247.913	239.154	224.458	11.151
Tangible assets						
Property and Plants	31.266	9.321	8.264	8.066	5.947	5.610
Production plants and machinery	49.926	40.593	39.828	37.287	33.246	578
Other plants, equipment and inventory	13.279	11.769	9.518	9.682	9.218	4.394
Tangible assets under development	7.835	6.761	6.790	6.807	4.461	0
Tangible assets total	102.306	68.444	64.400	61.842	52.872	10.582
Financial assets						
Holdings in susidiaries	0	0	0	0	0	0
Receivables in associates	910	912	0	0	0	0
Receivables in subsidiaries	0	0	0	0	0	0
Deposited liquid assets	0	0	0	0	0	221.233
Other holdings	0	12.842	9.849	5.849	5.849	5.849
Deposits	6.429	6.553	6.835	7.146	7.348	0
Pension funds	4.868	4.917	0	0	0	0
Long-term receivables	0	0	5.783	2.564	1.723	0
Deffered tax assets	41.626	49.116	46.103	62.285	65.177	15.492
Financial assets total	53.833	74.340	68.570	77.844	80.097	242.574
Non-current assets Total	**441.125**	**401.846**	**380.883**	**378.840**	**357.427**	**264.307**
Current assets						
Inventory						
Raw materials	19.592	13.255	18.138	23.422	18.770	13.304
Manufactured goods	13.945	12.011	20.894	36.962	34.602	5.671
Inventory total	33.537	25.266	39.032	60.384	53.372	18.975
Receivables						
Receivables from sales and services	136.228	174.391	200.736	198.856	99.930	25.923
Ongoing work for foreign bills	48.440	154.833	145.238	228.044	64.015	11.373
Receivables in subsidiaries	0	0	0	0	0	0
Other receivables	8.086	35.290	26.831	43.775	49.613	30.011
Corporate tax	4.286	0	0	1.580	3.720	5.316
Prepayments	7.700	5.228	5.880	4.744	2.300	752
Receivables total	204.740	369.742	378.685	476.999	219.578	73.375
Liquid assets	22.462	48.984	59.286	34.676	36.769	38.719
Total Current Assets	260.739	443.992	477.003	572.059	309.719	131.069
Total assets	**701.864**	**845.838**	**857.886**	**950.899**	**667.146**	**395.376**

EQUITY AND LIABILITIES						
Equity						
Share capital	48.672	50.448	50.448	50.448	97.587	97.587
Retained earnings	121.386	142.396	137.021	105.587	60.299	142.994
Total Equity	**170.058**	**192.844**	**187.469**	**156.035**	**157.886**	**240.581**
Provisions						
Deferred Tax	5.859	1.619	0	5.208	5.857	0
Other provision liabilities	15.753	22.419	13.492	31.994	31.492	35.990
Provisions Total	**21.612**	**24.038**	**13.492**	**37.202**	**37.349**	**35.990**
Liabilities						
Long-term liabilities						
Creditinstitutes	161.664	79.213	47.910	0	0	0
Other debt	77.544	77.444	77.691	77.868	78.018	0
Financial leasing	2.545	2.177	2.061	1.770	62	62
Long-term liabilities total	241.753	158.834	127.662	79.638	78.080	62
Short-term liabilities						
Short-term portion of long-term debt	14.820	39.388	32.323	48.793	49.170	55.483
Creditinstititues	4.709	0	48.848	55.514	69.699	0
Billing on account	62.055	169.922	181.683	238.683	113.054	13.924
Supplier of goods or services	125.159	192.797	181.765	250.652	72.552	24.433
Debt to subsidiaries	0	0	0	0	0	0
Tax payable	0	2.174	10.730	980	6.222	0
Other debt	61.698	65.841	73.914	83.402	83.134	24.903
Short-term liabilities Total	268.441	470.122	529.263	678.024	393.831	118.743
Total Liabilties	510.194	628.956	656.925	757.662	471.911	118.805
Total liabilities and Equity	**701.864**	**845.838**	**857.886**	**950.899**	**667.146**	**395.376**

Reformulated statement (000 DKK)	2006	2007	2008	2009	2010
Revenue	1.317.828	1.528.826	1.575.805	879.511	415.514
Cost of sales	-891.229	-1.038.523	-1.097.028	-529.380	-274.047
Gross Profit	**426.599**	**490.303**	**478.777**	**350.131**	**141.467**
Distribution cost	0	0	0	0	0
Administration expenses	0	0	0	0	0
Other operating income	788	2.892	1.346	1.456	529
Other operating costs	0	-6.740	-10.369	-27.779	-5.037
Staff costs	-211.149	-242.399	-248.429	-218.368	-110.696
Other external costs	-136.968	-144.274	-179.549	-111.162	-86.332
EBIDTA	**79.270**	**99.782**	**41.776**	**-5.722**	**-60.069**
Depreciation	-26.408	-29.598	-28.778	-29.243	-125.717
EBIT	**52.862**	**70.184**	**12.998**	**-34.965**	**-185.786**
EBIT-marginal	4,01%	4,59%	0,82%	-3,98%	-44,71%
Tax	-15.999	-48.033	-10.482	-2.601	-46.215
Tax shield	2.452	1.894	8.341	2.553	2.383
Tax rate	25%	25%	25%	25%	36%
NOPAT	**39.315**	**24.045**	**10.857**	**-35.013**	**-229.618**
Financial income	8.128	17.142	6.245	13.354	4.050
Financial expenses	-17.935	-24.718	-39.610	-23.565	-10.688
Net financial costs	-9.807	-7.576	-33.365	-10.211	-6.638
Tax shield	2.452	1.894	8.341	2.553	2.383
Minority share	0	0	0	0	0
	0	0	0	0	0
Net profit	**31.960**	**18.363**	**-14.167**	**-42.672**	**-233.873**

	2005	2006	2007	2008	2009	2010
Non-current assets						
Intangible assets total	284.986	259.062	247.913	239.154	224.458	11.151
Tangible assets total	102.306	68.444	64.400	61.842	52.872	10.582
Financial assets total	53.833	74.340	68.570	77.844	80.097	242.574
Total non-current assets	**441.125**	**401.846**	**380.883**	**378.840**	**357.427**	**264.307**
Current assets						
Inventory total	33.537	25.266	39.032	60.384	53.372	18.975
Receivables total	204.740	369.742	378.685	476.999	219.578	73.375
Total current assets	**238.277**	**395.008**	**417.717**	**537.383**	**272.950**	**92.350**
Non interest bearing debt						
Short-term liabilities Total	268.441	470.122	529.263	678.024	393.831	118.743
Total Non interest bearing debt	**268441**	**470122**	**529263**	**678024**	**393831**	**118743**
Invested capital (net operating assets)	**410.961**	**326.732**	**269.337**	**238.199**	**236.546**	**237.914**
Total Equity	**170.058**	**192.844**	**187.469**	**156.035**	**157.886**	**240.581**
Minority share	**2.545**	**2.177**	**2.061**	**1.770**	**62**	**62**
Net interest bearing debt						
Provisions total	21.612	24.038	13.492	37.202	37.349	35.990
Long-term liabilities total	241.753	158.834	127.662	79.638	78.080	62
Interest bearing debt	**263.365**	**182.872**	**141.154**	**116.840**	**115.429**	**36.052**
Liquid assets	**22.462**	**48.984**	**59.286**	**34.676**	**36.769**	**38.719**
NIBD	**240.903**	**133.888**	**81.868**	**82.164**	**78.660**	**-2.667**
Invested Capital	**410.961**	**326.732**	**269.337**	**238.199**	**236.546**	**237.914**

11.5 Appendix 5 ROIC, Inv. Capital, EVA, WACC

ROIC

Portfolio company	-1,6%	812,2%	213,1%	-27,3%	186,4%
Anhydro A/S	10,7%	8,1%	4,3%	-14,8%	2,7%
BB Electronics	20,9%	31,8%	48,3%	-3,1%	37,7%
Brandtex (BTX Group)	0,1%	12,6%	17,3%	19,7%	36,5%
DSVM Group (DSV Miljø)	11,5%	14,3%	15,6%	18,6%	11,4%
Elite Gaming A/S	51,6%	58,6%	63,5%	44,9%	33,2%
ESKO-Graphics	110,1%	521,9%	2,3%	-1,1%	-4,7%
Ferrosan	16,8%	18,3%	23,8%	17,3%	34,6%
FiberVisions LLC	2,0%	2,5%	2,6%	7,4%	6,8%
Georg Jensen	-0,5%	6,3%	1,7%	-19,2%	6,3%
Glud & Marstrand	10,3%	7,7%	8,8%	5,4%	7,7%
Haarslev	9,4%	27,1%	24,2%	6,8%	13,2%
Junckers Industrier A/S	8,8%	9,3%	-9,6%	-6,5%	-1,2%
Kompan	22,8%	26,0%	18,2%	24,5%	17,8%
Krøger A/S	17,6%	15,2%	43,1%	28,9%	45,8%
Kwintet	2,5%	11,8%	4,4%	1,8%	-2,7%
Logstor	18,3%	45,0%	19,2%	8,1%	14,3%
Novenco Group	10,4%	35,2%	-31,0%	-19,8%	-12,4%
Qubiqa (tidl. Nordplan + Seelen)	-47,8%	-123,9%	-6,7%	-37,0%	7,7%
R82	21,1%	20,9%	21,5%	18,6%	20,5%
Reson	-327,7%	-75,5%	29,0%	-61,8%	-85,2%
Scanvogn	50,6%	122,4%	-77,5%	-28,8%	-10,1%
SFK Leblanc	-1,2%	11,4%	-18,3%	-7,9%	4,6%
Tytex A/S	7,4%	8,5%	11,1%	-28,9%	10,7%
Vital Petfood Group	4,8%	-3,3%	4,2%	11,5%	8,1%
Wiking Gulve	-32,3%	0,2%	-7,0%	-11,9%	-16,8%

Reference	633,2%	586,4%	385,4%	-77,3%	321,6%
1508.DK A/S	51,4%	43,2%	28,2%	24,0%	4,6%
Almas Agro A/S	14,4%	13,6%	12,1%	4,2%	8,0%
Brdr. Hartmann A/S	-5,4%	-36,1%	13,0%	8,8%	8,5%
Brødrene Dahl	25,1%	-4,9%	10,1%	5,4%	7,0%
Brüel & Kjaer	13,4%	14,5%	12,6%	-4,9%	29,8%
Cabinplant A/S	13,1%	41,4%	3,3%	1,9%	7,6%
Charles Christensen A/S	2,5%	22,8%	16,2%	-19,2%	3,8%
Duba-B8 A/S	43,6%	38,7%	20,5%	12,0%	4,3%
Fortum Waste Solutions A/S	2,5%	2,2%	1,3%	1,1%	0,7%
Fritz Hansen	27,1%	23,2%	32,9%	3,5%	5,0%
GEA Process Engineering A/S	-2,4%	6,5%	19,5%	10,8%	2,4%
Gram Equipment A/S	-1,2%	5,8%	9,6%	9,7%	34,0%
HCS A/S Transport og Spedition	30,3%	24,0%	27,3%	21,5%	26,6%
HUJ A/S	5,3%	12,9%	33,6%	-7,0%	-0,4%
Ib Andresen Industri A/S	16,0%	18,1%	17,0%	0,1%	0,6%
IC Companys	20,0%	42,4%	35,2%	20,7%	32,4%
KJ Industries	-37,0%	3,0%	-56,3%	-12,1%	-1,8%
Kontrapunkt	16,4%	-10,8%	-78,4%	-115,8%	3,6%
Kronospan	9,8%	16,4%	7,1%	-9,4%	-1,7%
Mascot A/S	24,8%	26,8%	11,4%	13,4%	26,3%
Niras	21,0%	18,2%	14,8%	-32,4%	25,1%
R. Færch Plast A/S	14,6%	15,5%	5,4%	12,2%	15,4%
RM Rich. Müller A/S	13,5%	16,5%	8,4%	-18,1%	1,1%
Rode & Rode A/S	8,4%	19,7%	20,8%	21,1%	21,8%
Rosendahl Design Group A/S	14,5%	15,7%	6,5%	6,0%	3,6%
Sondex	22,0%	28,4%	20,5%	8,0%	9,2%
STB Byg A/S	197,9%	87,9%	65,5%	-29,0%	38,3%
Timberman Denmark A/S	52,3%	36,5%	58,5%	-20,0%	-15,7%
Virklund Sport A/S	5,3%	27,9%	8,5%	5,0%	9,8%
Zealand Care	13,8%	16,3%	0,3%	1,2%	11,9%

Anhydro A/S	6,8%	7,3%	7,0%	7,5%	6,4%
BB Electronics	10,0%	9,9%	8,7%	9,1%	8,3%
Brandtex (BTX Group)	10,1%	10,0%	8,7%	8,6%	8,3%
DSVM Group (DSV Miljø)	10,2%	9,9%	8,5%	9,5%	8,2%
Elite Gaming A/S	6,5%	7,3%	7,3%	7,6%	6,4%
ESKO-Graphics	7,0%	7,3%	6,9%	7,7%	6,6%
Ferrosan	6,6%	7,2%	6,8%	8,0%	6,4%
FiberVisions LLC	10,4%	10,1%	9,2%	9,1%	8,2%
Georg Jensen	11,1%	10,3%	9,3%	8,6%	8,4%
Glud & Marstrand	6,6%	7,7%	6,9%	7,3%	6,3%
Haarslev	10,1%	10,0%	8,9%	10,2%	8,9%
Junckers Industrier A/S	6,7%	7,4%	7,0%	7,3%	6,5%
Kompan	6,9%	7,4%	7,2%	8,0%	6,5%
Krøger A/S	10,3%	10,1%	8,8%	9,3%	8,4%
Kwintet	6,5%	7,3%	7,1%	7,6%	6,6%
Logstor	10,0%	10,1%	8,8%	8,8%	8,1%
Novenco Group	6,7%	7,4%	7,2%	7,7%	6,4%
Qubiqa (tidl. Nordplan + Seelen)	6,7%	7,3%	7,1%	7,7%	6,5%
R82	10,0%	9,9%	8,7%	8,7%	7,9%
Reson	10,4%	10,2%	8,9%	9,3%	8,8%
Scanvogn	10,1%	10,1%	9,3%	9,8%	8,5%
SFK Leblanc	6,8%	7,3%	6,9%	8,5%	6,8%
Tytex A/S	10,7%	10,6%	8,9%	8,4%	8,9%
Vital Petfood Group	6,7%	7,3%	6,8%	7,9%	6,5%
Wiking Gulve	6,7%	7,3%	7,0%	7,5%	6,5%

1508.DK A/S	9,7%	9,9%	8,7%	8,9%	8,0%
Almas Agro A/S	6,8%	7,6%	6,8%	7,9%	6,7%
Brdr. Hartmann A/S	10,1%	10,1%	8,8%	9,0%	7,9%
Brødrene Dahl	10,1%	9,9%	8,8%	8,8%	8,0%
Brüel & Kjaer	6,7%	7,3%	7,2%	7,2%	6,3%
Cabinplant A/S	6,6%	7,3%	7,2%	8,0%	6,6%
Charles Christensen A/S	6,6%	7,3%	7,2%	7,6%	6,4%
Duba-B8 A/S	6,6%	7,3%	7,2%	7,1%	6,4%
Fortum Waste Solutions A/S	6,9%	7,4%	7,0%	7,4%	6,5%
Fritz Hansen	9,8%	9,7%	8,7%	9,0%	8,2%
GEA Process Engineering A/S	9,9%	9,8%	8,8%	8,3%	8,7%
Gram Equipment A/S	10,2%	9,6%	8,9%	8,8%	8,1%
HCS A/S Transport og Spedition	10,1%	9,9%	8,8%	8,9%	8,1%
HUJ A/S	10,2%	10,2%	8,9%	8,4%	7,8%
Ib Andresen Industri A/S	10,0%	10,0%	8,8%	9,2%	8,3%
IC Companys	9,8%	9,7%	8,6%	8,7%	7,9%
KJ Industries	6,7%	7,3%	7,0%	7,4%	6,5%
Kontrapunkt	10,1%	9,9%	8,8%	8,9%	8,0%
Kronospan	6,6%	7,4%	7,1%	7,2%	6,4%
Mascot A/S	6,7%	7,3%	6,8%	7,3%	6,4%
Niras	6,6%	7,3%	7,0%	7,4%	6,4%
R. Færch Plast A/S	6,7%	7,3%	6,9%	7,6%	6,7%
RM Rich. Müller A/S	7,1%	7,3%	6,9%	7,6%	6,5%
Rode & Rode A/S	6,7%	7,3%	7,0%	7,4%	6,5%
Rosendahl Design Group A/S	6,6%	7,3%	7,2%	7,3%	6,5%
Sondex	10,0%	10,0%	8,8%	9,4%	8,5%
STB Byg A/S	6,7%	7,4%	7,2%	7,5%	6,5%
Timberman Denmark A/S	10,0%	9,7%	8,7%	8,8%	7,9%
Virklund Sport A/S	10,0%	10,0%	8,7%	8,4%	7,6%
Zealand Care	6,8%	7,4%	6,9%	7,9%	6,6%

Sum af Inv. Capital	Kolonnenavne				
Rækkenavne	2006	2007	2008	2009	2010
Portfolio company	8.057.878,35	8.036.449,45	7.680.111,15	7.047.321,53	7.679.628,81
Anhydro A/S	326.732,00	269.337,00	238.199,00	236.546,00	478.317,40
BB Electronics	120.733,00	46.119,00	69.887,00	69.917,04	90.585,28
Brandtex (BTX Group)	816.885,00	287.569,00	379.777,00	189.308,00	322.961,32
DSVM Group (DSV Miljø)	1.211.419,00	1.512.427,00	1.576.249,00	1.471.330,00	1.502.557,00
Elite Gaming A/S	14.304,00	19.905,00	13.925,00	29.669,32	14.986,00
ESKO-Graphics	- 26.045,50	24.394,33	24.847,02	24.447,74	23.915,77
Ferrosan	707.722,00	821.600,00	576.306,00	443.779,00	452.286,00
FiberVisions LLC	455.693,00	440.751,00	451.185,00	412.336,00	398.825,00
Georg Jensen	652.400,00	536.000,00	538.600,00	363.600,00	708.784,79
Glud & Marstrand	884.916,00	915.745,00	731.071,00	511.639,00	510.378,00
Haarslev	131.843,00	201.019,00	490.461,00	447.402,00	386.717,00
Junckers Industrier A/S	392.843,00	446.422,00	397.946,00	326.832,00	306.806,00
Kompan	191.855,00	168.219,00	101.148,00	266.767,10	299.731,00
Krøger A/S	129.182,29	29.006,38	39.767,52	24.042,01	28.343,08
Kwintet	777.831,00	849.647,00	813.810,00	976.016,00	990.122,00
Logstor	258.885,00	326.700,00	296.829,00	289.464,00	279.540,00
Novenco Group	201.096,00	257.082,00	132.517,00	229.106,65	123.905,00
Qubiqa (tidl. Nordplan + Seelen)	39.942,00	24.695,96	74.914,00	63.173,00	105.996,00
R82	82.641,87	83.747,00	96.740,90	111.689,00	83.146,06
Reson	15.303,00	31.270,60	9.584,63	6.677,00	6.242,00
Scanvogn	14.194,90	9.702,00	10.080,97	9.076,00	12.038,36
SFK Leblanc	55.256,00	217.213,00	152.527,00	188.206,00	190.323,00
Tytex A/S	333.245,79	218.163,18	177.546,44	77.388,00	168.778,26
Vital Petfood Group	259.333,00	265.783,00	242.637,00	245.010,00	164.364,00
Wiking Gulve	9.668,01	33.932,01	43.555,68	33.900,68	29.980,49
Reference	8.058.498,43	8.385.152,91	8.621.419,80	8.355.918,51	9.337.073,31
1508.DK A/S	7.546,20	12.162,91	14.014,58	15.739,21	12.665,97
Almas Agro A/S	57.327,30	56.309,27	59.045,56	53.748,79	60.199,66
Brdr. Hartmann A/S	830.900,00	557.000,00	786.100,00	827.200,00	659.300,00
Brødrene Dahl	734.403,28	1.419.200,02	1.367.058,01	1.363.415,98	1.594.496,42
Brüel & Kjaer	778.336,76	514.044,48	314.016,00	253.451,00	327.104,00
Cabinplant A/S	44.648,00	57.320,00	52.060,00	69.569,00	73.104,00
Charles Christensen A/S	11.327,40	12.063,54	9.634,14	11.742,21	10.622,01
Duba-B8 A/S	39.195,00	32.233,00	33.438,00	35.324,00	34.210,00
Fortum Waste Solutions A/S	1.500.296,43	1.375.421,95	1.352.624,95	870.683,24	360.697,00
Fritz Hansen	305.045,00	237.993,00	233.062,00	343.718,77	367.904,04
GEA Process Engineering A/S	557.200,00	483.000,00	614.600,00	573.800,00	1.542.228,23
Gram Equipment A/S	95.358,18	67.533,11	78.665,10	90.240,74	116.416,94
HCS A/S Transport og Spedition	343.082,91	369.947,12	349.604,02	357.060,99	355.984,62
HUJ A/S	12.601,49	20.068,53	24.318,10	11.629,97	13.882,62
Ib Andresen Industri A/S	310.954,00	416.975,00	490.096,00	519.823,00	470.993,00
IC Companys	632.900,00	616.700,00	551.600,00	636.200,00	858.000,00
KJ Industries	74.219,00	58.146,00	131.870,64	111.740,10	78.379,27
Kontrapunkt	7.873,18	5.529,97	1.522,88	3.292,10	3.269,14
Kronospan	239.232,00	250.894,00	257.576,00	208.339,00	197.231,00
Mascot A/S	160,91	251,54	260,51	189,18	221,81
Niras	101.715,51	57.974,00	81.168,00	81.802,67	120.344,16
R. Færch Plast A/S	500.848,00	523.208,00	547.943,00	582.662,00	628.470,00
RM Rich. Müller A/S	39.024,00	39.861,00	38.033,00	35.158,00	32.082,00
Rode & Rode A/S	66.805,81	68.511,00	77.799,00	88.227,30	94.015,86
Rosendahl Design Group A/S	215.061,46	217.396,00	197.250,00	268.882,00	272.100,98
Sondex	288.024,52	617.905,68	746.394,35	781.165,31	909.697,95
STB Byg A/S	865,13	7.239,13	5.742,27	5.227,80	9.670,88
Timberman Denmark A/S	28.793,66	19.309,55	16.288,71	11.802,14	5.030,76
Virklund Sport A/S	50.793,30	120.756,13	40.644,00	33.719,00	35.737,00
Zealand Care	183.960,00	150.199,00	148.991,00	110.365,00	93.014,00

Sum af EVA	Kolonnenavne				
Rækkenavne	2006	2007	2008	2009	2010
Portfolio company	- 193.404,14	332.300,28	117.079,27	- 219.364,13	178.667,37
Anhydro A/S	14.397,40	2.203,84	- 6.897,02	- 52.791,93	- 12.962,52
BB Electronics	12.826,52	18.278,21	22.972,49	- 8.569,99	23.569,00
Brandtex (BTX Group)	- 176.357,53	14.045,38	28.415,58	31.596,66	72.322,25
DSVM Group (DSV Miljø)	15.141,53	59.595,49	109.576,20	138.948,82	47.942,71
Elite Gaming A/S	5.416,28	8.764,65	9.512,45	8.138,40	5.986,05
ESKO-Graphics	- 8.930,27	- 4.248,05	- 1.118,74	- 2.188,34	- 2.740,56
Ferrosan	74.082,27	84.755,96	118.868,95	47.657,07	126.328,43
FiberVisions LLC	- 50.780,21	- 34.202,91	- 29.557,87	- 7.332,99	- 5.532,80
Georg Jensen	- 73.707,20	- 23.875,66	- 40.956,64	- 125.664,14	- 11.440,27
Glud & Marstrand	33.950,36	116,93	15.061,72	- 11.884,11	7.117,22
Haarslev	- 1.429,86	28.421,83	52.915,27	- 15.866,35	17.920,41
Junckers Industrier A/S	7.940,85	8.196,67	- 70.170,84	- 50.296,70	- 24.373,91
Kompan	30.528,19	33.582,91	14.855,06	30.465,99	31.896,29
Krøger A/S	4.680,79	4.060,45	11.775,35	6.235,85	9.788,48
Kwintet	- 30.325,26	36.054,62	- 22.511,81	- 51.581,19	- 90.787,55
Logstor	21.794,89	102.261,09	32.481,25	- 2.198,95	17.685,14
Novenco Group	10.533,44	63.548,41	- 74.320,98	- 49.722,73	- 33.231,79
Qubiqa (tidl. Nordplan + Seelen)	- 26.298,45	- 42.396,84	- 6.863,44	- 30.851,86	961,19
R82	8.654,79	9.191,47	11.576,65	10.374,97	12.251,59
Reson	- 42.567,81	- 19.940,24	4.123,79	- 5.781,95	- 6.073,42
Scanvogn	5.345,29	13.425,20	- 8.589,37	- 3.691,00	- 1.964,93
SFK Leblanc	- 5.203,60	5.518,10	- 46.529,53	- 27.890,23	- 4.060,40
Tytex A/S	- 14.559,47	- 5.639,90	4.436,76	- 47.578,87	2.282,44
Vital Petfood Group	- 4.671,82	- 27.883,17	- 6.543,77	8.603,54	3.226,99
Wiking Gulve	- 3.865,25	- 1.534,17	- 5.432,22	- 7.494,09	- 7.442,69
Reference	249.862,81	51.857,44	406.760,59	- 189.773,64	243.982,74
1508.DK A/S	3.673,67	3.281,03	2.546,82	2.245,32	- 482,26
Almas Agro A/S	3.922,26	3.450,48	3.033,23	- 2.095,12	725,28
Brdr. Hartmann A/S	- 148.322,16	- 320.456,31	28.162,37	- 1.884,52	4.667,49
Brødrene Dahl	101.781,78	- 159.127,37	18.991,22	- 46.502,52	- 15.953,24
Brüel & Kjaer	39.258,92	47.046,72	22.466,17	- 34.357,84	67.994,87
Cabinplant A/S	3.377,07	17.350,50	- 2.149,87	- 3.678,82	725,17
Charles Christensen A/S	- 687,51	1.806,79	973,49	- 2.863,11	- 290,45
Duba-B8 A/S	13.080,04	11.184,47	4.385,14	1.698,60	- 729,31
Fortum Waste Solutions A/S	- 63.869,58	- 74.956,05	- 78.354,16	- 70.017,52	- 36.042,76
Fritz Hansen	49.071,03	36.737,27	57.103,33	- 15.831,41	- 11.431,20
GEA Process Engineering A/S	- 59.297,62	- 17.134,66	58.807,84	15.091,90	- 66.038,33
Gram Equipment A/S	- 17.009,36	- 3.106,51	566,67	754,30	26.836,69
HCS A/S Transport og Spedition	73.789,14	50.355,33	66.597,04	44.566,94	66.095,06
HUJ A/S	- 569,16	447,21	5.483,80	- 2.758,07	- 1.045,01
Ib Andresen Industri A/S	18.642,85	29.487,41	37.399,28	- 46.104,32	- 38.309,51
IC Companys	117.312,46	204.289,64	155.485,96	71.567,93	183.045,78
KJ Industries	- 25.441,12	- 2.877,76	- 60.213,05	- 23.849,77	- 7.921,04
Kontrapunkt	623,41	- 1.384,42	- 3.074,07	- 3.003,18	- 145,01
Kronospan	7.524,61	21.933,91	45,54	- 38.618,21	- 16.343,06
Mascot A/S	27,07	40,32	11,86	13,73	40,85
Niras	11.846,70	8.668,66	5.477,80	- 32.454,18	18.840,07
R. Færch Plast A/S	39.222,60	41.874,58	- 8.477,16	25.878,32	52.577,34
RM Rich. Müller A/S	2.511,37	3.623,64	584,60	- 9.435,10	- 1.814,72
Rode & Rode A/S	1.100,40	8.360,60	10.066,78	11.342,74	13.977,49
Rosendahl Design Group A/S	17.073,94	18.173,96	- 1.531,23	- 3.084,82	- 7.775,00
Sondex	36.626,37	83.068,56	79.737,19	- 10.401,43	6.224,25
STB Byg A/S	5.054,64	3.264,76	3.786,49	- 1.999,37	2.366,47
Timberman Denmark A/S	9.036,33	6.448,46	8.860,62	- 4.043,84	- 1.983,05
Virklund Sport A/S	- 2.417,68	15.274,41	- 114,74	- 1.259,50	771,46
Zealand Care	12.920,36	14.731,81	- 9.898,35	- 8.690,78	5.398,41