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Cultural Differences in Buy-and-Build Situations

Author: B.S. Smit

Student number: 385456

Thesis supervisor: Dr. J.J.G. Lemmen

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PREFACE AND ACKNOWLEDGEMENTS

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ABSTRACT

This study looks at the effects of inter versus intra industry buy-and-build deals on key value drivers. An inter industry deal is expected to have more cultural differences than an intra industry deal. The study finds that inter industry deals have positive effect on the Return on Equity when compared to intra industry deals. No evidence is found for a positive effect on other value drivers.

Keywords: Buy-and-build, corporate finance, financial economics, inter industry

JEL Classification: G32, G34, H13, M14

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1 Introduction

The world of Mergers and Acquisitions (M&As) seems to change a lot. Disappointing figures in the first half of the M&A year 2017 were accompanied by a shift toward private equity. In the first half of 2017 the PE market in the Netherlands skyrocketed compared to the same first half in 2016. The amount of private equity (PE) backed deals has tripled (Oosten, 2017). This growth in PE is seen worldwide. The worldwide PE market grew in 2016 to a record $2.48 trillion in assets managed and a record 319 new PE firms where launched (Hammoud, Brigl, Johan, Bronstein, & Carter, 2017). The forward-looking numbers for 2018 are very good as well. Private equity firms are investing more than $1 billion and 29 percent expect to make more deals than the year before (Deloitte, 2018). This immense growth in PE backed deals shows the growing importance of the kind of deals they are making. And even within the PE there are shifts in the strategies being used by PE firms. After the recession PE firms adapted to the circumstances. The lower company valuations, the lack of competition from strategic buyers and with companies struggling to get public market finance all contributed to the new growing PE strategy: the buy-and-build strategy (B&B). With a downturn in the IPO market as a result of the findings listed above, the environment for add-on acquisitions came to life (Bunder & Rogers, 2014). In 2016, 7 years after the financial crisis, the B&B activity by European companies reached its highest levels since the start of the recording of data (Capital, 2016), but still there hasn't been done a lot of scientific research to this kind of transactions. Hence, this paper will try to contribute to the research done on B&B deals. The main research question will be as follows:

Do cultural differences between the platform company and the add-ons lead to positive effects on key value drivers of a B&B deal?

This study will compare B&B deals that are performed within the same industry (intra B&B deals) and B&B deals that are performed in a different industry (inter B&B deals). The current literature on the topic of cultural differences within M&A deals mainly looks at two kind of differences: inter industry and cross-border deals. This study will discuss the current position on both of these topics, the scope of this paper will be inter industry. The majority of the research on cultural differences within M&A deals, and not PE deals, looks very explicit at where the cultural differences are in a merger and how to minimize the consequences. This paper will have a different contribution to the existing literature. In this paper, cultural differences are presumed to be present if a deal is inter industry. Another difference to the existing literature is the kind of deal the paper focusses on. The paper will only focus on buy and build deals. This combination of deal type and application of cultural differences is, to my knowledge, new in this field of research.

The study finds no evidence for an effect for most of the value drivers chosen in this study, except for one. The performance the Return on Equity of inter versus intra industry deals are positive and statistically significant. To come to this conclusion this study will first summarize the literature already written on this topic and then discus the framework in which the study will operate. In §2.2 the definition used for a buy-and-build deal is given and a distinction between operational and financial value creation is made (§2.2.1). In the next section the value drivers that will be used in this study are discussed. From the 7 value drivers of Rappaport the value drivers used in this study will be derived (§2.3.1). After this part of the framework is set, cultural differences in M&A deals will be discussed. In section §2.4.1 the influence of cross-border deals will be discussed. In section §2.4.2 the paper will discuss cultural differences in inter and intra industry deals. This explanation for cultural differences is what this study focusses on. This completes the theoretical framework and from there the study will move on to its data set and will discuss the DuPont identity. The latter is needed for computing the Return on Equity of the deals in de data set. In the next section the methodology and results will be discussed (§4). In the last section a conclusion will be given (§5.1) and some recommendations for further research will be given (§5.2).

2   Literature review

2.1   Introduction

This literature review will give an inside in the theory and thought process behind this study. To start, it will give a general view of the PE market and the buy-and-build strategy within the PE sector. It will discuss how a B&B is performed, build and sold. It will describe where the added value comes from and why it is being performed more and more often by PE firms. Secondly, the research on cultural differences and its influence on M&A will be discussed. After this, the theory will be more specified on the research. The 7 value drivers of Rappaport (1986) will be the leading instrument of this research. They are widely used to describe the financial status of a company.

The 7 value drivers of Rappaport will be used to break down the performance of a company, but it doesn't give a full interpretation of a company. To fully understand how a B&B creates it value for the equity holders/investors we must look to the Return on Equity (ROE), but this brings curtain difficulties. The most important one is the fact that PE firms aren't listed and data about their equity and investments is impossible to get for a large group of PE firms (that is why they are private companies). In order to deal with this, the ROE of a company will be calculated via the DuPont-Formula.

With some modification, we will be able to calculate the ROE's for a large set of PE B&B deals and herewith the performance of a B&B deal will be reviewed in the light of different industries.

2.2   PE Buy-and-Build strategy

The B&B strategy is a strategy more and more PE companies turn to nowadays. From 2000 to 2012 PE backed B&B grew from 20% in 2000 to 52% in 2012 (The Boston Consulting Group, 2016). This shows that the practice is exploring the advantages of the B&B strategy, but interestingly the academic research to PE backed B&B deals does stay behind. A B&B deal consists of three stages: the first is buying the so called *"platform company"*, the second stage is buying and adding the so called *"add-ons"* (Borell & Heger, 2013) and the last stage is selling the new combined company.

A platform company is usually chosen by a PE firm due to a specific characteristic. In most cases the platform company is the biggest company of the companies used in the B&B strategy. The add-ons in the deal are smaller but have special assets that can be added to the platform company, e.g. new technology, new markets, new products (Smit, 2001). Smit also shows in his paper that most of the B&B acquisitions are done horizontal. Meaning that the add-ons are not being used to diversify and not being used to control a larger part of the production chain. The synergy focus for the B&B deals is on

economies of scale, and not on economies of scope. This means that most of the add-ons will be done in the same industry, but add a new market, technology or complementary products.

2.2.1 Operational and financial value creation

Value creation for M&A and B&B deals can be split up in two different types: operational and financial value creation. For this study we will focus on the operational value creation, but both should be discussed in this thesis. Financial value creation for B&B deals is mainly found in the tax shield. Most deals done by PE are highly leveraged with debt which results in a big tax shield for the deal. Also, these debt payments reduce the amount of cash available to managers with the firm and therefore forcing them to invest only in the most profitable projects. This is less measurable than the tax shield but should be named for a complete view of the situation. This is how PE firms reduce the agency cost in a company (Jensen, 1989). In a study performed by Achleitner, et al. (2010) they specify this. In their research it's found that of the value created by the PE firm in a LBO one third is the result of the leverage effect and two third is the result of improving operating value creation.

For this thesis we won't look at the financial value creation, simply because there isn't enough data available for us. Still, this thesis will take it into account somehow. This will be described in the methodology part of the thesis. It will be considered by unlevering the financial risk for the B&B deals in the sample.

For this paper we will look at operational value creation. The operational value creation can be broken down into two main categories: value adding aspects and cost reducing aspects. The above-mentioned economies of scale fit in the operational value creation. We will break these operational aspects down using value drivers. We will choose specific value drivers for this thesis. This will be done in the next chapter.

2.3 The value drivers

Whereas most studies have looked at shareholders returns in the form of CARs, this study is going to break down these returns. Not only are there no stock returns for private companies (at least not available), but it will tell us more about how a B&B creates its value. This breakdown will be done through looking to curtain key value drivers. A key value driver is a metric from which you can determine how a company is really performing. Theoretically a value driver is an economic variable that is critical to revenue and cost functions of a company. A good example: think of a patient visiting the doctor. He is feeling fine, but he is overweighed. His weight is above a curtain target level (BMI) and will probably lead to future problems. So, he has to act now, when he is feeling fine, to prevent future diseases. This is exactly what key value drivers can do for a company. By looking at them and

researching how they are behaving over time, you can check whether a company is really healthy and building future value, or it's creating a high present value at the cost of future value (short-term performance before long-term).

The creation of value in a company can be seen as a tree of value drivers (Koller, Goedhart, & Wessels, 2015). In one of the leading books, the valuation, it's shown like this for a manufacturing company:
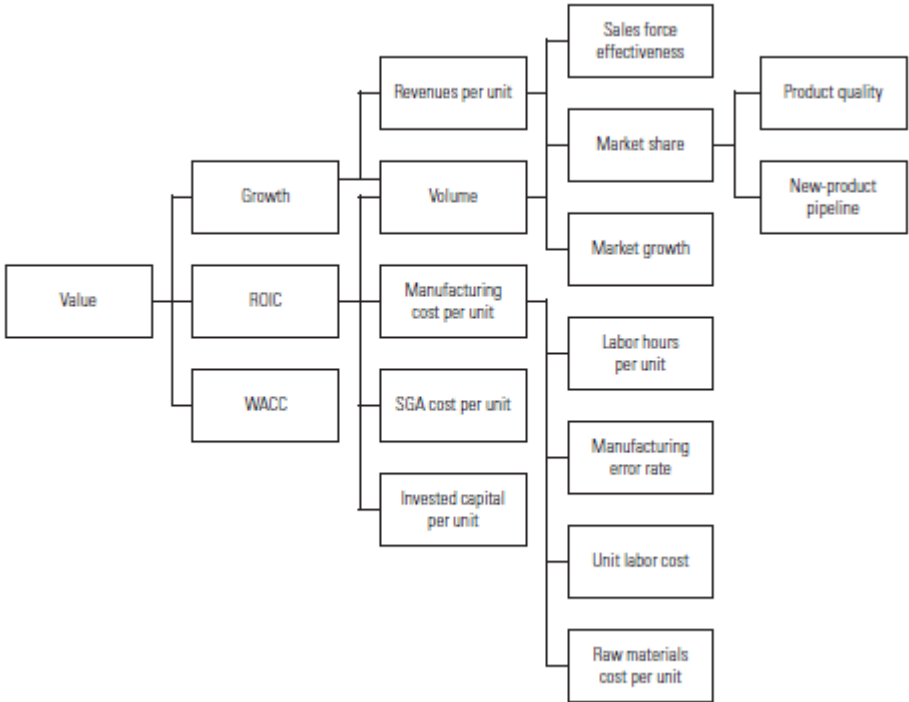
Figure 1 - Value Creation Tree

The figure above shows how the value of a company can be broken down to measurable value drivers. This example shows how a value creating process can be broken down into separate parts which can be viewed and examined separately.

For this paper, the specific value drivers will be chosen out of the seven value drivers of Rappaport. These are one of the most used value drivers for assessing how well a company is performing and will continue performing.

2.3.1 The seven value drivers of Rappaport

The seven value drivers of Rappaport are value drivers designed by Alfred Rappaport (add publication year). They are described in his book: Creating Shareholder Value: The new standard for business performance. The value drivers he describes are: revenue/sales, operating margin, cash tax rate, incremental capital expenditure, investment in working capital, cost of capital and competitive advantage period. In a figure these financial value drivers complement each other in de following way:

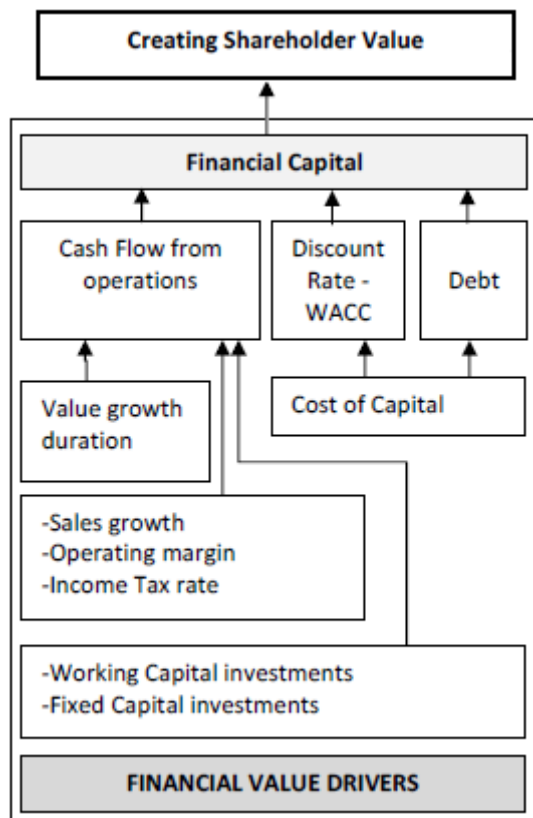*Figure 2 - 7 Value drivers of Rappaport*

For this study, we will not consider all the 7 value drivers of Rappaport, but we will look at the following: revenue growth, operating margin and working capital.

2.3.1.1 Revenue growth

By analysing the growth in revenue, you can assess the potential for growth in the future (Koller, Goedhart, & Wessels, 2015). The growth in revenue gives a good view of how a company is developing as a whole and how the market segment wherein it operates is performing. This study will look if there are differences in revenue growth developing between inter and intra B&B. This gives us an inside in how a cultural difference influences a company's performance as a whole.

2.3.1.2 Operating margin

The operating margin is a profitability margin that show how much a company earns before taxes and interest for each dollar of sales/revenue. By comparing operating margins of different firms, you can assess the relative productivity of a firm. Normally, operating margins are compared within the same industry to show how efficient firms are relative to each other, comparing outside industries are like comparing apples with pears: it will tell you nothing (Berk & DeMarzo, 2016). Still, we will look at this, not to compare the actual operating margins to each other, but to compare the growth over a period

of time of the companies in our data set. This will show if intra or inter B&B are getting more efficient after a merger. This will show the impact the cultural difference has on the mergers performance and if an intra B&B deal is better in getting its operating margin down than an inter B&B (or the different way around).

For the operating margin, we will look at two different variables: EBIT margin and EBITDA margin. The difference between the two are depreciation and amortization. These are two non-cash expenses. These can be affected in many ways and therefore we will look at EBITDA as well. EBITDA is much less influenced by accounting principles and therefore will give a better picture of how a company is performing. If there is a big difference between the EBIT and EBITDA this can hint if PE firms are manipulating their books to give better results.

2.3.1.3 *Working capital*

Last of the Rappaport value drivers we will assess is working capital. Working Capital shows both a company's efficiency and its short-term financial health. First of the financial health of the company. If a company has a negative working capital it may not be able to pay its short-term debts. Another, more important for this study, is a declining working capital ratio. This shows a discrepancy in the firm's usage of assets and liabilities. Second is the operational efficiency of the company that the working capital tells. If there is too much money tied up in the company, then these funds can't be used somewhere else in the firm. This will show up as an increase in working capital over time.

After determining which value drivers are going to be used, this paper will zoom in on how cultural differences effect M&A deals. This will form the framework in which this paper will work.

2.4   Cultural differences in M&A

First of all, the definition of culture should be described, and this has been done in several other papers. It is described as the set of important (unstated) assumptions that members of a community share in common. That unique culture shared by every member of the community (a group, but also a company) is formed over years due to shared history and experiences. These shared history and experiences affect almost all aspects of the community its way of thinking, its handling and its interaction between members within the community. Consequently, these cultures in communities aren't easily modified (Weber, 1996) .

This is the starting point of every research done on cultural differences in M&A. In the M&A studies on cultural differences two major streams of research have been done: on the one hand cross-border M&A and on the other hand inter industry M&A. Both the topics of research satisfy the above described

definition of culture (differences) and presume a difference in the way the two communities act, but they approach it another way.

2.4.1 Cross-border

The first of the two categories of type of deals are the cross-border deals. A lot of research has been done to this type of deals. Most of the research on this topic looks on how big the cultural differences are between the two companies merging and how often certain mergers are performed. To put this into perspective; a big study published in the Journal of Financial Economics looks at three key dimensions of national culture (trust, hierarchy and individualism) and they control it with other cultural values such as Hofstede's cultural measures (Hofstede, 2003). With these measures for cultural differences they look how likely it is that more cultural distant countries to perform mergers with each other. The findings of the study are that the volume of cross-border mergers is lower when countries are more cultural distant.

The same study also looks to how the returns of cross-border returns versus domestic returns are. The findings on the combined returns are higher for cross-border mergers than for domestic mergers. The researcher thinks that the potential synergies in de cross-border deals are large enough to overcome the big difference in cultural barriers (Ahern, Daminelli, & Fracassi, 2015). Most of the studies done on the subject of cultural differences concentrate on how big cultural differences between countries are and then look on how many mergers there are done between more culturally different countries. All most all of these studies find that there are less cross-border deals with more cultural distant countries, but they don't know the exact effects of the mergers on returns.

In a study of Chakrabarti et al. (2009) the effect of cultural distance on long-term and short-term performance of cross-border M&A is examined. The cultural differences are again established with Hofstede's measures and those are used to look at the cumulative abnormal returns (CARs). The results are, what they call: "contradicting the general perception created by media reports of culture clashes impeding M&A integration". This study comes to very interesting results. The study shows that in the long-term and short-term the opposite is happening. For the short-term the CARs are higher for culturally closer cross-border M&As when looking at both Hofstede's distance and their language dummy. But their data also show the interesting results that the CARs for culturally more distant M&A are higher in the long-run. They attribute these benefits for the acquirer to higher synergies and organizational strengths. In the beginning of the M&A process the cultural more different companies will have more challenges integrating with each other, but after their integration process the results show that the synergies and, probably, other organisational aspects outweigh the initial difficulties (Chakrabarti, Gupta-Mukherjee, & Jayaraman, 2009). This shows the great variety in how cultural differences can affect performance.

The influence of this research on this study is that the time horizon should be chosen carefully. But a big difference between the studies described above and this study is the PE versus normal M&A. For this study we will use a relative short timeframe. The average holding time of a PE firm is 4.7 years (Kaserer, 2011), (Achleiter, Braun, & Engel, 2011), (Puche, Achleitner, & Braun, 2015). Resulting in a time horizon of 4-5 years used in this thesis.

2.4.2 Inter industry

Cross-border is one way to look at cultural differences in a merger, but inter industry is another. Most of the cultural problems are imbedded in the organisational structure of the company. It follows the lines of culture in an industry and country. It can be seen as follows: the organizational cultures of a bank can be very comparable to another bank, but very different to an organization in the seashore industry (Olie, 1990). This is why not only the country where the companies are situated is important, but the industry is as well. It's even better to see the country that a company is located is only contributing to a curtain corporate culture, but how it's imbedded in the industry as a whole is far more important. So not the country where the company is situated is leading, but the industry it's operating in. A tech company will be far more comparable to another tech company than to a company operating in the oil industry.

Several studies have proven that inter industry mergers have a great impact on the performance of the two merging firms. Most of the studies look to the CARs as well and control for inter industry with firm specific questionnaires. Most of the studies come to the same conclusion: mergers with high cultural differences are more likely to have negative CARs than positive CARs. The other way around is true as well: the mergers with lower cultural differences tend to have positive CARs (Chatterjee, Lubatkin, Schweiger, & Weber, 1992).

For this study, we will assume that with inter industry there will always be some form of cultural differences and when a B&B s performed intra industry there will not be any cultural difference between the platform and the add-on. In the majority of the studies the research has been done only to CARs and not to other operational value drivers. Therefore, this study will look beyond only CARs and will look how certain value drivers will behave after a PE firm buys an add-on for its platform company. This leads to the first hypothesis:

Hypothesis 1: An inter industry buy and build deal has a positive effect on the value drivers described above for the holding period of the deal compared to an intra industry deal

2.5   Return on Equity

The last metric we will look upon will be Return on Equity (ROE). The ROE is a metric used to show a company's operating returns. Analysts often use the ROE to assess the returns of an investment relative to its income (Berk & DeMarzo, 2016). It shows a company's ability to generate profits from its shareholders investment. Simple: looking at de ROE of a company you can see how much profit each dollar of shareholders invested equity returns.

The ROE is an indication of how well the management is performing as well. It shows how well management uses its equity available. This is where it gets interesting for this study. When looking at the development, one can see how well the equity is invested in investment opportunities. This is very interesting in the case of B&Bs. Every B&B is done with the same purpose: build a more profitable company than the companies as parts. Looking at the ROE we can see how well the integration process is going in the B&B. In the ROE, the cultural differences will most likely play the biggest role. Datta (1991) finds in his study to post-acquisition effects on performance that different cultures in top management have a negative influence on the financial performance of the merging companies. The ROE can show the same for us in the inter vs intra B&B situation, because it shows how well the management is returning on its investments in the company.

The normal ROE is calculated as follows:

$$Return\ on\ Equity = \frac{Net\ income}{Book\ Value\ of\ Equity}$$

Equation 1 - Return on Equity

When looking at this formula a big problem arises: we need to have a book value of the equity in the company. In this study we research the performance of private companies, so there is little to no information on the equity in the company. To resolve this problem a different approach to calculating the ROE is needed. This is found in the DuPont Identity (Berk & DeMarzo, 2016).

A very important thing to mention here is how the PE firm influences the value creating process in a B&B. PE firms are repeat players on the acquisition market as investors who create value in their portfolios. In a B&B deal a PE firm can execute this even more, in this case it's repeating on the same firm, on the platform. PE investors tend to pick more profitable companies for B&B deals. But more important for the PE firm is that the platform company realizes a sufficient revenue growth and the add-on companies are usually slow growing firms (Borell & Heger, 2013). The slow growing add-on companies are added to the more efficient platform. This platform company can use the assets of the

slow growing firm more efficiently than the add-on company itself. This leads to the second hypothesis that will be tested in this thesis:

Hypothesis 2: An inter industry buy and build deal will have a positive effect on the Return on Equity for the holding period of the deal compared to an intra industry deal

3 Data

In this chapter the data set used in this thesis will be described. After that the DuPont Identity will be discussed that leads to the first part of the research. After that the setup for the research on the value drivers will be discussed.

3.1 Data set

The data that has been used in this thesis comes primarily from the database Zephyr. This database has information on M&A, IPO, PE and VC. In this program we selected only B&B deals for the period between 2009-2016. This has been done in the following way; Firstly, no filter definite filter was made for primary deal type, because this keeps the search as wide as possible. After that the sub-deal type "Build-up" was chosen. This function filters out all the non-B&B deals. After that we filtered on deals that had data for the holding period. The data focussed on, are the value drivers described in the previous section of the thesis and data on which we can compute the ROE. How this will be done is discussed in the next section. The dataset from Zephyr needed to be complemented, because it had a few gaps in the data. The added data was handpicked from two different databases: Bloomberg and Thomson. After this still not all the data is complete for every deal, that is why the number of observations per variable varies. In the table below a detailed overview per value driver for the holding period is given. This resulted in a database with ±500 B&B deals. All the deals are made in western countries and all deals are denominated in Euros. Adjustments for currency effects aren't necessary.

	Observations	Mean	Median	Standard deviation	Min	Max
$\Delta EBIT$	363	3.17	0.51	28.65	(156.12)	268.41
$\Delta EBITDA$	360	24.38	3.68	80.35	(32.98)	447.27
$\Delta Operating\ margin$	356	0.25	(0.00)	3.45	(1.64)	63.80
$\Delta Revenue$	359	93.10	6.90	452.03	(792.85)	2782.66
$\Delta Working\ Capital$	353	9.01	0.22	47.83	(134.88)	259.52
$\Delta Return\ on\ Equity$	282	(2.91)	(0.60)	15.37	-87.91	60.93
Inter	496	0.17	0	0.38	0	1
Small	496	0.52	1	0.50	0	1

The first two variables have been discussed in section 2.3.1.1 for the operating margin. EBIT and EBITDA show the profit generated by a company its operations. By ignoring the burden of tax and interest expenses it shows the ability of a company to generate earnings independent of capital structure and tax. These variables are very common to use in PE deals, because of the high leverage in those kinds of deals. The difference, as mentioned before, is depreciation and amortization. Capital expensive

companies tend to have a high depreciation cost for depreciating their fixed assets. Capital inexpensive companies tend to have high amortization cost because of the amortization over their intangible assets. Depreciation and amortization are both accounting principles and can be affected by the company, for instance writing off more in the holding period. The paper will have a look at both metrics to see if there is a difference between them and the effect of an inter industry deal. EBIT has respective 360 observations, meaning for 360 deals the difference over the holding period of the deal. The mean of these observations is €3.17 million, with a standard deviation of €28.65 million. This seems big, but this is logical, because the size and nature of buy and build deals varies greatly. This explains the big variation for EBITDA and revenue as well. t explains the big deviation for working capital and operating margin as well. As mentioned in section 2.2 add-on companies are added to the platform company chosen for specific characteristics. For instance, in some deals large investments in working capital is needed for the platform company with add-on to function and grow, leading to very negative working capital over the 5-year holding period. For other companies this can be the opposite, after the deal there can be too much working capital needed and therefore shrinking the investments in working capital. Resulting in a very positive working capital over 5 years.

The lower number of observations for the Return on Equity variable comes from the lack of complete date over the whole 5-year holding period. Only for half of the deals in the data set enough data was available for computing the DuPont formula, but this still gives 282 observations.

For each of the deals in the data set the industry of the platform company is compared with the industry of the add-on company. This leads to the dummy variable inter, shown in the 7th row. 17% of the deals in the data set are inter industry. Another differentiation has been made in company size. The data set has been split in small companies, below €100M in sales, and large companies, over €100M in sales. This gives the dummy variable small and about 50% of the deals can be seen as small deals.

3.2 DuPont identity

The DuPont Identity calculates the ROE in terms of firm's profitability, asset efficiency and leverage. The formula uses the most important company performance value drivers; namely: leverage, multiple growth, sales growth, margin growth and the free cash flow effect (Rhijn, 2016). The rest of the DuPont Identity will be explained in the Methodology part of this paper. This is where the value drivers come together in a formula. The normal Dupont Formula looks like this (Loos, 2005):

$$ROE = \left(\frac{NI}{Rev}\right) * \left(\frac{Rev}{A}\right) * \left(\frac{A}{E}\right)$$

Equation 2 - DuPont formula

This formula contains three different parts. The first part of the formula is the firm's profitability or profit margin. By dividing the net income of a company by its revenue it shows how much a company keeps out of every revenue it makes. This shows how well a company is managing its cost for each sale it makes and thereby showing how efficient a company is operating. The second part of the formula is the asset turnover. This metric shows how well the assets of a company are being used. If a company has a low assets turnover, the company creates very little revenue per asset. Capital turnover differs per industry. In industries which are capital inexpensive, such as retail, the asset turnover tends to be high. Whereas in industries that are capital expensive, such as energy companies, tend to have lower asset turnover. The capital expensive industries need constant investments in its capital. This results in high investments, which in turn results in high working capital. This is one of the value drivers we will measure and see if it influences the ROE. The last part of the formula consists of the equity multiplier. This metric calculates the financial leverage of the company. Researching the leverage effect won't be the scope of this study. This would be to extensive and almost impossible to collect the data without working with a private equity firm.

For this study we will keep the A/E-ratio constant. To do this we are using an unlevered average A/E-ratio from another study performed on private equity deals. We will unlever the A/E-ratio, so the ROE will not be affected by the financial risk of an investment. The formula for unlevering risk is as follows:

$$r_u = \frac{r_l + r_d * \left(\frac{D}{E}\right)}{1 + \left(\frac{D}{E}\right)}$$

Equation 3 - Unlevering

This formula contains several new variables that need to be explained. R_u is the unlevered risk of an investment. This unlevered risk can be obtained from the levered risk (r_l) of the investment. The levered risk is the financial risk of an investment given the amount of debt in the investment. R_d is the return debt investors want to have for providing the company from new leverage. As said before, this thesis

will not have an extensive look at how the leverage affects the ROE of an investment, but it will compare inter and intra industry B&B and the performance of those. Therefor we will take the average unlevered A/E from another PE study which provides a good substitution. *We will work with an average A/E-ratio of 0.98* (Rhijn, 2016). This is the last piece of the puzzle to complete equation 2 and compute the ROE for all of the B&B deals.

4   Methodology

The next section will describe the methods used in this study to show the effects of an inter industry deal on the value drivers chosen in de previous sections and the ROE. After computing all of the separate datasets, an OLS regression is run to show the effects of an inter industry deal.

4.1   The influence on value drivers

The first part of this research wants to see how curtain value drivers develop overtime in the holding period after the B&B deal is performed. This will be done by looking at the exit and entry height of the value driver over the holding period. This will be calculated as follows (revenue as example):

$$\Delta Revenue = Revenue_{Exit} - Revenue_{Entry}$$

Equation 4 - Delta Exit/Entry

This will show the development of the value driver over the holding period. Following the calculation of Δ an OLS regression will be performed. The regression will show the effect of the inter industry deal and the size of the company. The equation shows delta revenue of deal *i,* with holding time *t*. The size effect is captured in a dummy variable. The same is done for the inter industry deal. In an equation:

$$\Delta Revenue_{i,t} = \beta_0 + \beta_1 Inter_{i,t} + \beta_2 Size_{i,t} + \epsilon_{i,t}$$

Equation 5 - OLS regression

This regression will test the first hypothesis for the different value drivers described previously in this thesis. The first hypothesis looks of inter industry deals have a positive effect on the value driver in place (in the example revenue). The regression will test this hypothesis as follows: *H₀:*

$$H_0: \beta_1 Inter > 0$$

Equation 6 - Statistical hypothesis 1

This will test whether there is evidence of a positive effect of an inter industry deal on the performance of the chosen value drivers.

4.2   The influence on Return on Equity

In section 3.2 the DuPont formula is discussed for computing the ROE. This section will compute an OLS regression for the ROE using the value drivers in the DuPont equation and the two dummy variables for inter industry deals and small companies. The regression will look as follows:

$$\Delta ROE_{i,t} = \beta_0 + \beta_1 \Delta Operating Revenue_{i,t} + \beta_2 \Delta Profit Margin_{i,t} + \beta_3 \Delta Working\ Capital_{i,t}$$
$$+ \beta_4 Inter_{i,t} + \beta_5 Size_{i,t} + \epsilon_{i,t}$$

Equation 7 - Return on Equity Regression

This equation looks a lot like the one used for the value drivers, but a bit more complicated. In equation 7 the effects of the value drivers chosen for this thesis is measured as well. The most important variable for this study is, again, the inter industry variable. This regression will answer the second hypothesis. Statistically the study will look at:

$$H_0: \beta_4 Inter > 0$$

Equation 8 - Statistical hypothesis 2

In the next section the results of these regressions are shown and discussed.

5 Results

In section 5.1 the results of the regressions on the chosen value drivers is discussed. It shows no conclusive evidence for a difference in the performance of inter versus intra industry deals. In section 5.2 the regression of the relative return on equity performance for the deals in the data set is discussed. Statistical evidence is found better performing inter industry deals.

5.1 Value drivers

For every value driver a pooled OLS regression has been performed. This type of regression was chosen over a robust regression, because the outliers in the data are not too big and a large variation in B&B deals can be explained. Private equity deals tend to be more volatile than normal M&A deals, therefor this paper will keep the (semi-)outliers in the data.

All together the effect of an inter- versus intra industry deal can be seen. The results are listed in the following tables.

$\Delta EBIT$	Coefficient	P-value
Inter	(12.32)	0.86
Small	107.50	0.04**
Constant	(48.76)	0.23
N=363	F=0.11	R^2=0.01

Table 1 - EBIT

$\Delta EBITDA$	Coefficient	P-value
Inter	19.35	0.89
Small	175.26	0.09*
Constant	-120.27	0.14
N=360	F=0.23	R^2=0.01

Table 2 – EBITDA

$\Delta Op.\ margin$	Coefficient	P-value
Inter	(1.38)	0.67
Small	(2.74)	0.26
Constant	(0.06)	0.973
N=356	F=0.47	R^2=0.00

Table 3 - Operating Margin

$\Delta Revenue$	Coefficient	P-value
Inter	(19.11)	0.29
Small	27.86	0.04**
Constant	3.62	0.73
N=356	F=0.06	R^2=0.02

Table 4 – Revenue

$\Delta Work.\ Cap.$	Coefficient	P-value
Inter	44.15	0.68
Small	92.07	0.25
Constant	(99.32)	0.12
N=348	F=0.47	R^2=0.00

Table 5 - Working Capital

These results show no difference in the performance of inter versus intra industry deals. None of the above coefficients give a statistically significant outcome. That is why none of the results are interpretable and nothing can be said about a positive or negative influence of a inter versus intra deal on the value drivers chosen in de previous sections. Therefore, we can already conclude that we can't confirm hypothesis 1, because no statistical evidence can be found for a positive influence on the performance of the value drivers when inter and intra industry deals are compared.

As expected, and therefore taken into consideration, size has significant impact on the performance of EBIT, EBITDA and Revenue. For EBIT and Revenue, the effect is statistically significant on a 5% level and EBITDA is statistically significant on a 10% level. All have an upward effect, meaning that a company under the € 100 M has a positive effect on these three value drivers.

5.2 Return on Equity

The result for the regression on the return on equity can be found in the table below:

ΔROE	Coefficient	P-value
ΔRevenue	0.27	0.00**
ΔProf Marg.	0.76	0.00**
ΔWC	0.01	0.97
Inter	1.17	0.02**
Small	1.00	0.01**
Constant	(1.04)	0.00**
N=279	F=0.00	R^2=0.93

Table 6 - Results Return on Equity regression

Table 6

These results are very significant and tell us quite a lot. The value drivers , Revenue and Profit Margin are statistically significant on a 5% level. The DuPont formula consist out of these variables, what explains their high explanatory power. On the contrary, working capital is not statistically significant, although this has a close relation to the assets of a company. The lack of statistically significant power for the change on working capital shows us that no conclusions can be derived from this coefficient.

Next up is the dummy variable compensating for small versus large companies. In this study, as expected, the difference in size has a statistically significant effect on the performance of the Return on Equity. The size variable is also significant on a 5% level. Lastly our most important variable for this study: the inter industry variable. This variable shows a difference in performance of the Return on Equity between inter and intra industry deals. With a p-value of 0.02 it is statistically significant on a 5% level as well. Our results show that a inter industry B&B deal has an upward effect on the performance of the ROE. In this thesis all the deltas are shown as percentages (relative change). This means that a inter industry deal almost adds 1.17% to the Return on Equity. To put this into perspective, in table 7 the statistical summary of delta ROE is shown.

ΔROE	Observations	Mean	Std. Dev.	Min	Max
	282	0,03	11,64	(87,47)	131,14

Table 7 - Summary Return on Equity

With a mean around zero, an additional 1% to ROE from performing an inter industry deal can be very welcoming and make a big difference. Another statistical variable that is immediately appealing is the R^2. With a R^2 of 93.68% (adjusted R^2=93,56%) this regression has a very high explanatory power. This makes sense, because the ROE is computed out of the DuPont formula which almost consist out of all the value drivers regressed against. But, regressing the ROE without the dummies small and inter and with only missing the inter dummy variable gives us less explanatory power. This can be seen in the tables below

ΔROE	Coefficient	P-value
ΔRevenue	0.27	0.00**
ΔProf Marg.	0.76	0.00**
ΔWC	0.01	0.71
Constant	(0.29)	0.12
N=279	F=0.00	R^2=0.9338

Table 8 - ROE regression without Inter and Small

ΔROE	Coefficient	P-value
ΔRevenue	0.27	0.00**
ΔProf Marg.	0.76	0.00**
ΔWC	0.01	0.97
Small	0.96	0.01**
Constant	(0.83)	0.00**
N=279	F=0.00	R^2=0.9345

Table 9 - ROE regression without Inter

These results confirm our second hypothesis: an inter industry deal has a positive effect on the performance of Return on Equity in a 5-year holding period.

6   Conclusion and discussion

6.1   Conclusion

The worldwide growth of PE markets was leading for this thesis. With a new record in 2016 for assets under management and a record of new PE firms (Hammoud, Brigl, Johan, Bronstein, & Carter, 2017), the question keeps arising: what are the best investments for PE? This question doesn't have a right answer, now it differs for different kind of PE and PE type of deals.

This paper zooms in on a particular part of a deal, cultural differences, within a particular kind of deal, the Buy-and-Build deal. Cultural differences are described as the set of important assumptions that members of a community share in common. This culture within a community is formed over a long period of time and is imbedded in a community. As a consequence, when two different communities are trying to be united as one, this can lead to conflict. Research differs in whether these cultural differences have a positive or negative effect on the performance in M&A deals. In a study, the effects of cultural distance on long-term and short-term performance is examined. In this cross-border study a difference in performance is shown in the long- and short-term performance. In the short-term, the cultural more closer deals outperform the cultural more distant deals. This seems logical, because the cultural closer companies don't have to overcome as much obstacles as the more cultural distant companies. More interesting, this study shows that cultural more distant companies outperform cultural close company mergers in the long run. The study assigns it to higher synergies and organizational strengths (Chakrabarti, Gupta-Mukherjee, & Jayaraman, 2009). Other studies have looked at the impact of inter industry mergers on the performance of the two merging companies. In a study of Chatterjee et al. (1992) the opposite is concluded compared to the study mentioned above. Chatterjee et al. conclude that mergers with higher cultural differences perform less than cultural more close mergers.

This study has looked at performance of 500 Buy-and-Build deals over a period of 5 years (holding period). The first part of this study looks at important key variables that capture the performance of a company. The 7 value drivers of Rappaport are taken as a starting point and therefrom the most important for this study are discussed. In this study the entry and exit value of the value driver are compared to each other. No statistically valid evidence is found for a difference in performance between inter and intra industry deals. This can probably be attributed to the focus of the add-on. In a buy-and-build deal an add-on is added for its special assets and fit with the platform company. Therefor the PE holding the platform company will look for the best match between add-on and platform company. Thus, filtering most of the effects of cultural differences by choosing companies that complement each other well.

The second part of this study looks at the Return on Equity for the same 500 deals. The Return on Equity cannot be derived in a simple way, now we are looking at private companies, thus should be computed differently. This study computes the ROE's for the 500 deals with the DuPont formula. After the ROE's are calculated for every deal, the entry and exit value is compared again. In this study statistical evidence is found for inter industry deals out performing intra industry deals. Therefor side with the study of Chakrabarti et al. (2009). An inter industry deal has a positive effect on the ROE of the B&B deal.

Concluding for this study and answering the question asked in the beginning of this paper:
Do cultural differences between the platform company and the add-ons lead to positive effects on the key value drivers of a B&B deal?

This study has shown that not for all the value drivers chosen there is an effect attributable to the cultural differences between the platform company and the add-ons in a B&B deal. Only for the ROE of the deal an effect of inter industry can be seen. In accordance with the main question, the cultural differences have a positive connect effect on the ROE of the B&B deal.

6.2   Discussion

There are a few limitations to this study. Starting with the limitations in the data set. The data set used in this study is mostly derived from Zephyr, but not all. There had to be some data complemented with other databases. This can cause problems as databases differ in their measurements. To have less noise in the data base it would be better to derive all the data from one source.

The biggest shortcoming of this study, and with that the best recommendation for a next study, is the time frame. It would be extremely interesting to see what how the companies in this study will perform in the long run. Is there a short term versus long term effect as is shown in the study of Chakrabarti et al. (2009)? This is a very interesting topic for follow-up research.

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