# Handelshøyskolen BI

## GRA 19703 Master Thesis

Thesis Master of Science 100% - W

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### Informasjon fra deltaker

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### Gruppe

**Gruppenavn:** (Anonymisert)

**Gruppenummer:** 259

**Andre medlemmer i gruppen:**

# CEO Dismissals - A Financial Analysis

**Andreas Stensøe and Maxim Tsoi**

**Supervisors: Janicke Rasmussen & Jan Ketil Arnulf**

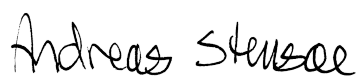Master Thesis In Business - Major in Accounting & Business Control

## i. Preface

This thesis is part of our Master of Science degree at the Norwegian Business School BI and concludes our educational journey for now. By majoring in Accounting and Business Control it has been complementary to work with financial and accounting data to investigate CEO dismissals and its effect.

The thesis has been an enriching experience for both of us and yet exciting to work on. It has been compelling to apply accumulated knowledge from our studies as well as expanding our comprehension. We have established a new outlook on how organisations are managed and the ongoing dynamics between stakeholders and the CEO. Additionally, recognised the importance of financial data in corporate governance.

We wish to acknowledge and appreciate the outstanding support and guidance from our supervisors, Janicke Rasmussen and Jan Ketil Arnulf. Throughout this academic journey they have been excellent in creating engaging conversations and perspectives for us to participate in and learn. The contributions have been crucial for the finalisation of this thesis and the year long process. At all times they have shown warmth and hospitality, outside the consultative roles as well.

Oslo 2022,

Andreas Stensøe

Maxim Tsoi

## ii.  Table of Contents

### iii. Abstract

This thesis investigates the relationship between financial reporting data and the board's decision to dismiss a CEO. The analysis was performed on a sample of 30 CEO dismissals from S&P 1500 companies in the year of 2019. The financial data of interest are proposed variables and ratios from companies' income statements and balance sheets, designed to give a deeper understanding of the phenomenon of CEO dismissals. Variables were analysed in depth, seeing how they changed in a period of five years leading up to the dismissal. Following the results from t-tests, we found five significant variables, indicating that boards use these actively to evaluate a CEO's performance. Two of these, *ROA* and *GPA*, are traditional performance measurements commonly brought up by research. The three remaining significant variables, *Current Ratio, Working Capital / Total Assets,* and *Cash Balance / Total Liabilities,* are all liquidity ratios. These indicate that boards find liquidity as a valuable trait when assessing the overall health of a company, arguably more important than the other traditional measurements of performance. This is an important contributor to the already existing literature on the topic, and gives a better overall understanding of how boards use financial reporting data in their evaluation of CEO performance.

## 1.0 Introduction

Dismissal of the CEO is becoming a widespread activity. The CEO must meet certain expectations and responsibilities set by the stakeholders, and if these are not met, a dismissal is often the necessary response by the board. The expectations are often tied to growth potential or challenges faced by the firm. The purpose of a dismissal is then to foster a CEO with the required skills and experience in order to overcome the obstacles, capitalise on opportunities and stimulate a disruptive and innovative environment for the firm (Roberts, 2004).

A study conducted by Hjersing, S.W. & Berner, T.M.H. (2018) shows that public exits of leaders in Norway, covered by the media, have been an increasing phenomenon from 1945 until today.
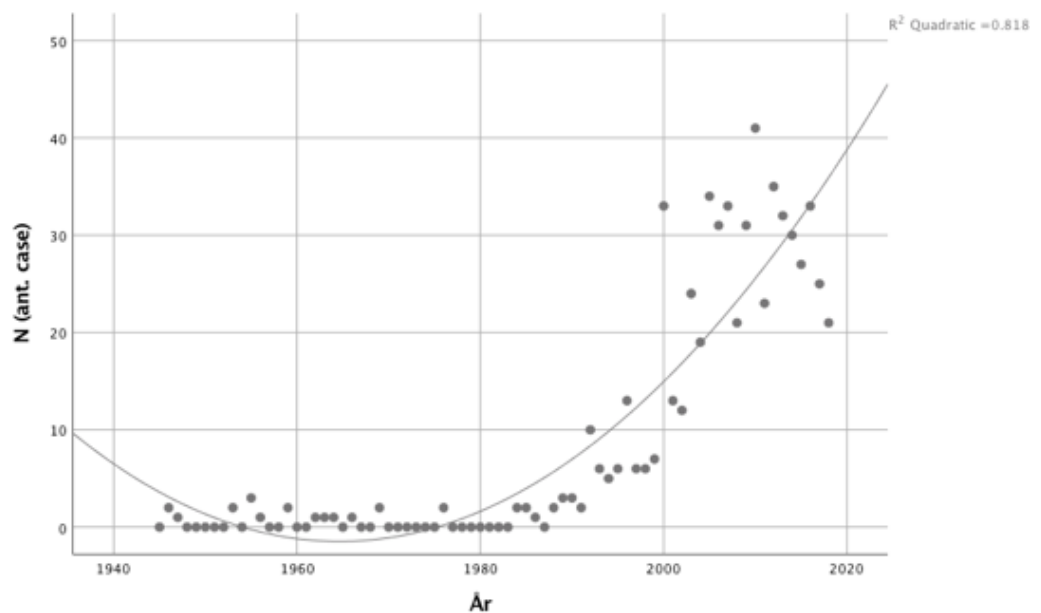


Their conclusion was that exiting leaders have become a practice of its own.

Corporate governance has had an increasingly active role in businesses over the past few decades, as it allows managers to make better decisions to deal with challenges of balancing the interests of stakeholders involved in a company (Chen, 2021). This increase of involvement from various stakeholders has made their interests and level of satisfaction as important, meaning that the pressure on leading positions in businesses are higher than ever before. All this pressure is

being carried on one person's shoulders, being the link between the board of directors and operating business, the CEO.

We found the relationship between financial data and CEO dismissals quite interesting in particular, because we believe there can be a driving financial factor motivating the board of directors to act upon. Whether it is financial performance over time, an unexpected financial burden, or maybe some key financial indicators based on the balance sheet. By researching this in depth we hope to get a better understanding of why the board decides to dismiss the CEO.

When reviewing literature we found several studies researching the relationship between CEO turnover and financial performance, most of which found little to no evidence that there is a positive correlation between the two. How come this practice has evolved when study shows no evidence that it improves financial performance of a company? Therefore, our objective of this thesis is to address this period of pre-CEO dismissal, and hopefully bring some sense to this increasing practice.

This is where we want to bring our expertise by analysing key-numbers in the income statement, balance sheet, and other significant factors, leading up to the dismissals. Are there any recurring themes amongst the businesses, and if so, what could indicate an upcoming dismissal? This brings us to the objective of our thesis, where we want to shed light and get a better understanding of the overall question:

*Do financial reporting data indicate CEO dismissals?*

Research shows that key-numbers like ROA (return on assets), revenue, and financial ratios are the most common when measuring financial performance of a company (Herciu et al., 2018). These will be referred to as *efficiency measures* as they capture how efficient a business is able to utilise their resources and transform them into value. We will use these as a starting point for our analysis.

Based on our experience and the theory presented in chapter 2, we also believe liquidity ratios and capital structure can be of significance for a boards' decision

to fire a CEO. Therefore, we have broken down the overall question into three smaller research questions to help us towards obtaining a better and deeper understanding of the area. We argue that these questions will guide us and provide a good foundation, layout, and a structural approach to the overall research process.

*RQ1: Do boards use liquidity measures to decide an upcoming CEO dismissal?*
*RQ2: Do boards use efficiency measures to decide an upcoming CEO dismissal?*
*RQ3: Does capital structure matter when deciding an upcoming CEO dismissal?*

When assessing liquidity measures, we will look at working capital, cash balance, and current assets, as we argue these capture the most important aspects of a business' liquidity. As theory has presented us with common efficiency measures we will use the same in our analysis, being ROA, ROE (return on equity), gross profit, and EBITDA (earnings before interest, taxes, depreciation, and amortisation). Finally, the capital structure will be analysed through capital expenditures, and changes in assets and liabilities.

## 2.0 Literature Review

The following part of the paper will outline and highlight some of the relevant literature associated with CEO turnover. It's an extensive and broad field, thus making it crucial for us to restrict the research to only the most suitable material for our paper.

The CEO is responsible for decision-making within the organisation and operates on behalf of the shareholders. With this responsibility certain problems can occur which are addressed by the so-called agency theory. The theory assumes that both the principal (shareholders) and the agent (CEO) are utility maximisers with different interests, and therefore the agent will not act in the best interest of the principal (Tan, 2014). Jensen & Meckling (1976) propose a solution to this by establishing rules for better monitoring of the agent's actions, and contracts that align both the principal's and agent's interests, often in terms of economic benefits. This is where the board of directors come in, by working as a controlling entity on behalf of the shareholders, to monitor the CEO to make sure he acts in their best-interest. However, more often than not, the agent has access to different information than the board and shareholders regarding business operations. This gives him better insight in the company performance, which could be different than what is shown in the financial statements. Theory argues that this distinction between the shareholders and managers is not healthy as it ignores much of the complexity of a firm (Eisenhardt, 1989) and thereby also creates information asymmetry, which could result in a CEO sacrifice.

A practical example of this information asymmetry is presented in a study by Wiersema (2002) that shows all instances of CEO turnovers in the 500 largest public companies in the US during 1997-1998. 83 cases were studied closely, and they were compared in terms of results before and after dismissal, and by industry averages. The results showed little to no evidence that the CEO turnover gave improved results, on the contrary, as the process of hiring a new CEO is both costly and time consuming. She pointed out that the board lacks strategic understanding of the business and therefore tends to make sub-bar decisions to please the investors. Even worse, the board themselves does not have the required insight, information, and time to select a new and "better" CEO, and tend to rely

on a third-party for the hiring process. Further, the board does not know the proper qualifications required for a new CEO and therefore does not provide enough details to the third-party to make them hire a proper replacement. This downward spiral is what leads to many unnecessary CEO turnovers and could inflict a lot of self-damage.

In particular there is research highlighting the influence of external factors on the board's decisions, such as industry performance and market participants. A study conducted in the 80's illustrated that the board's collective decisions were not to be influenced in a great capacity by externalities. They argue that when externalities are chaotic, it is less clear whether the firm is making mistakes, or what the mistakes are, when the whole industry is suffering. With these uncertainties, most boards would be reluctant to blame the CEO for the firm's performance (Morck et al., 1989). However, there seems to be findings to counter this notion of the board's ability to not be influenced by externalities in their decision making. It has been reported that CEO's are frequently let go due to market and industry performance - elements that the management cannot control or regulate. The lack in the board's ability to make neutral decisions seems to penalise CEO's for aspects and responsibilities out of their general operational scope (Jenter & Kanaan, 2015). There are various factors as to why boards are heavily influenced by externalities. One common denominator is the escalating demand from shareholders to take direct measures in order to correct poor business performance. Which in turn, results in a drastic change of management and CEO's without any sound reasoning (Fisman et al., 2014).

Poor performance and results may highlight and accentuate a CEO's conduct in greater detail, by bringing his capabilities to the forefront and under examination by the shareholders. This can in turn impact and guide the decision making of the board and advocate for a lay off of the given management in charge of the operational activities (Jenter & Kanaan, 2015). Furthermore, downturns or deficient returns can be signs of existing issues that are attributable to the competence or expertise of the management in charge. Consequently, this can lead to a lay off based on the lack of adaptiveness and the required competence of the CEO to operate optimally in the current market or industry conditions. Highlighting the fact that the board makes decisions based on the performance of

the management rather than the external factors that are currently present (Eisfeldt & Kuhnen, 2013).

Organisational performance is a broad term and there hasn't been a consensus among the researchers on what the defining aspects are. Richard et al (2009) presents a fairly accepted view that organisational performance commonly embodies three different areas - financial performance (financial ratios), product market performance (sales, market share) and shareholder return (market performance, valuations and value creation). The relationship between firm performance and CEO turnover is an important aspect and it has been documented that approximately 45% of turnovers are performance induced, whereas financial performance and shareholder return were the determining factors (Jenter & Kanaan, 2021).

Herciu & Serban (2018) has summarised past literature on what is considered focal aspects of firm performance.

| | |
|---|---|
| Guo, Wang & Wei (2018) | R&D spending, strategic position |
| Artz, Norman, Hatfield & Cardinal (2010) | R&D, patents, product innovation |
| Bharadwaj (2000) | ROA, Sales,Tobin`s q |
| Tippins & Sohi (2003) | IT competency |
| Klassen & McLaughlin (1996) | Environmental management |
| Lang & Stulz (1994) | Tobin's q and firm diversification |
| Wernerfelt & Montgomery (1988) | Tobin`s q |
| Crook, Todd, Combs, Woehr & Ketchen (2011) | ROA |
| Anderson & Reeb (2003) | ROA, Tobin`s q |
| Wu, Wu, Zhou & Wu (2012) | ROA, Tobin`s q |
| Richard, Devinney, Yip & Johnson (2009) | ROA, ROI, TSR |
| Dess & Robinson Jr (1984) | ROA, Sales |
| Bhagat & Bolton (2008) | Corporate governance |
| Gu & Lev (2011) | Intangible assets |
| St-Pierre & Audet (2011) | Intangible assets |
| Delen, Kuzey & Uyar (2013) | Financial ratios |

*Table 1 - Firm Performance Indicators found in literature*

Financial performance and ratios is a dominant trait amongst the literature, where ROA is a commonality. However, this is simply demonstrating viable measurements for organisation performance and not necessarily the influential factors for the stake- and shareholders. The "perceived" abilities of the CEO

appears to be a vital aspect for stake- and shareholders, which is demonstrated through accrual earnings such as income and stock returns. For a majority of shareholders a diminishing trend in income can be more taxing than a hidden ratio. Leading to an increased pressure on the board to force a change (Hermaling & Weisbach, 1998).

Consequently, executives have the incentives to skew financial data in their favour in order to increase compensation, stock ownership, security and control (Hazarika, 2009). An opportunistic CEO may exploit this notion to avoid or postpone a dismissal by increasing or stabilising its earnings. Deliberately exercising favourable accounting choices can "signal" healthy financials during periods of suboptimal performance (Guan et al., 2005). As a consequence, it is tempting to commence procedures that yield short-term results at the expense of the more beneficial and long-term play (Meo, 2017).

## 3.0 Methodology

### 3.1 Research Method

The goal of our thesis is to find any connections between company performance indicators and CEO dismissals. As we found limited research on the pre-dismissal phase, this is where we want to focus our analysis. Research presented us common measures of operational performance, therefore we wanted to include the same measures in our analysis to see if they are consistent with our study. Additionally, we wanted to add other non-traditional performance measurements which we argue would complement the already existing literature. These additional measurements are variables directed towards company fundamentals in the balance sheet, as opposed to the more operational measurements from the income statement. Based on this, we developed the three research questions used in our study which are presented more in-depth below.

### 3.2 Research Design

The purpose of the research design is to demonstrate the relationship between the empirical data in our paper, our general approach and key steps to account for in the thesis moving forward. By observing the link between financial data over time and CEO-dismissals it is thought to exhibit indicators that can predicate or indicate potential motives for a dismissal. The following process for accomplishing this consists of three vital steps in order to expand on and understand the mechanisms of the underlying empirical data (Figure 1 below).

1. *CEO Turnover Database*

The first step of our research process was to access a relevant dataset with quality data to be applicable for research purposes. We found a dataset containing an overview of companies that have fired their CEO based on poor financial performance. Additionally, we wanted the most updated and recent accounting numbers available, however, prior to the pandemic as we believed this could provide biassed results. Based on this, we set our dismissal year of interest to 2019.

## 2. Research Questions

Once we had access to a proper dataset we started the cleaning process and applied it in whatever way we saw fit. We wanted to divide the data into three separate categories, being liquidity measurements, efficiency measurements, and capital structure. We argue that this distinction is beneficial as it would allow us to get a deeper insight into the businesses and acquire a greater understanding of their overall performance. Only looking at the operational performance measurements from the income statement would not provide sufficient information, as argued by Richard et al. (2009). Therefore, we want to include more non-traditional performance measurements from the balance sheets.

## 3. CEO Dismissal

Finally, we wanted to analyse our selected data. This was done by researching how financial data changes in the period prior to the dismissal. More specifically, we computed the mean for a given variable five years in advance of the dismissal, then compared the same variable in the years closest to the dismissal date. Once we knew how data changes over the period, we could determine which data is relevant for the dismissal. Based on the results we would know which data to further investigate to improve our knowledge on the topic.

*Figure 1 - Research Design*
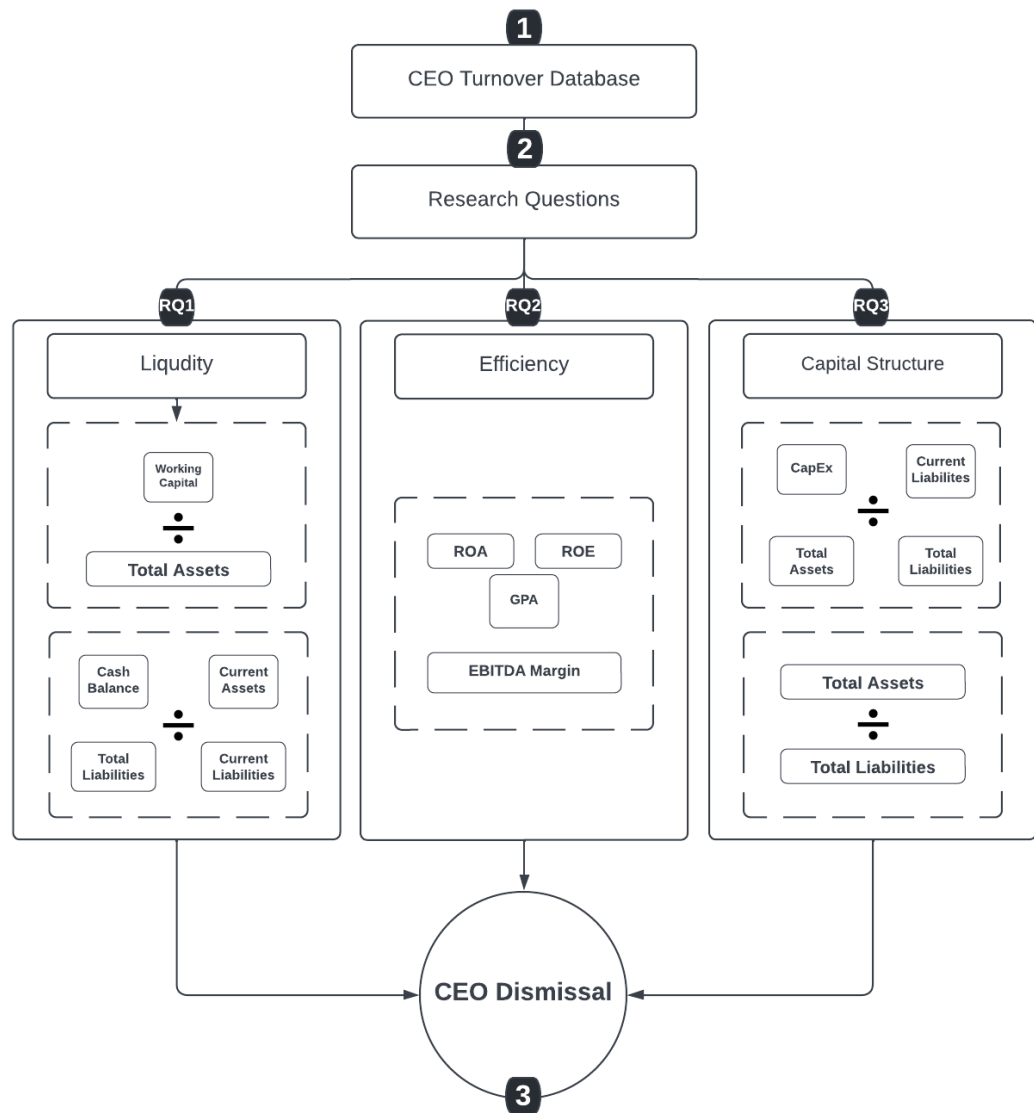
## 3.3 Data

This portion of the paper will focus on data and empirical analysis conducted for the purpose of achieving greater understanding of CEO dismissals in relation to financial parameters. The source of data will be presented first with its following limitations that have been set and identified. Variables will then be classified and explained in the last part of this section.

## 3.4 Data collection

For our data collection method we used archival data which was accessible through public data sources. These sources are high quality and reliable, and therefore very applicable for our research topic. By accessing this quality data we would be able to clean and combine it with other datasets in order to apply it in whatever way we saw fit for our research.

### 3.4.1 Data Source

While searching through archival data we found an open-source database of CEO turnover and dismissal in S&P 1500 firms, created by Gentry et al. (2021). They had gathered a total of 9390 cases of CEO turnover in S&P 1500 firms in the period 1987-2020.

This dataset provided dismissal codes which allowed us to separate between involuntary and voluntary dismissals, dismissals based on financial reasons, personal reasons, health problems, and others. Further we could sort the data based on year of dismissal, CEO tenure, and industries. There were many opportunities for different approaches which we wanted to take, and we found it to be a perfect starting point for our analysis.
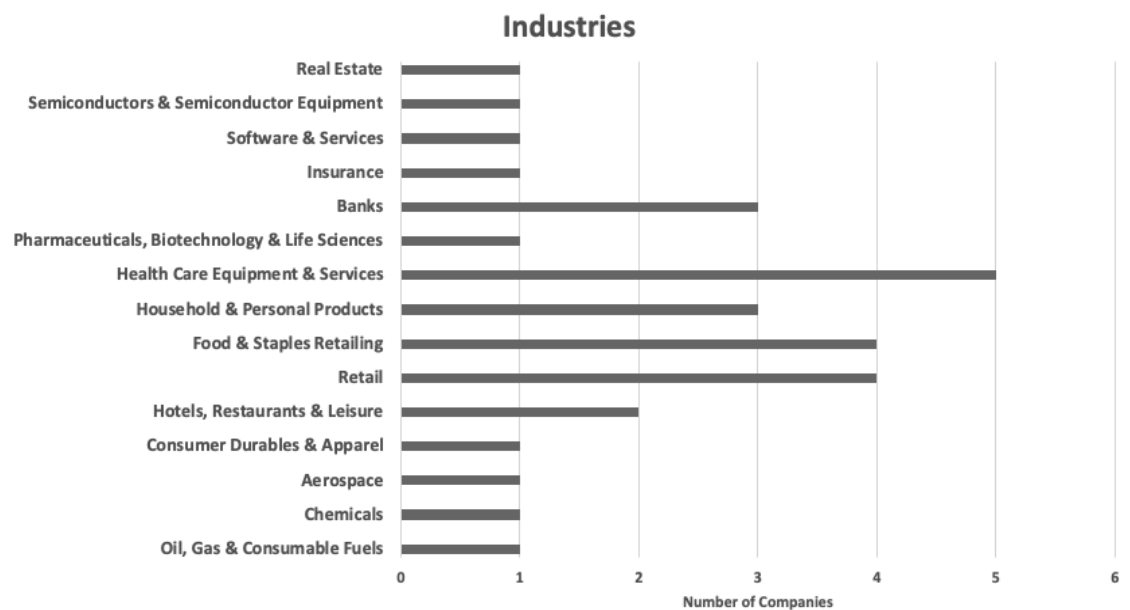


*Figure 2 - Industries*

### 3.4.2 Limitations

In order to utilise the most relevant and reliable data possible, there will be limitations to the given dataset. Our paper explores the relationship between financial data and CEO dismissals. Thus, dismissals based on financial reasons is a highly valuable trait for our research. This trait can be accounted for given that every dismissal is categorised by a departure code, which in this instance is the code "3". This leaves the dataset with 1200 observations with a different set of time periods the departures took place. For accurate and measurable metrics the CEO dismissals can't span several time periods, and has to take place in one specific year. The decision for this paper is to focus on the most recent period which is 2019, leaving out external factors such as the pandemic. Consequently, the dataset consisting of only departures based on financial reasons in the year 2019, presented us with 30 valid observations.

## 3.5 Variables

The variables were studied in the years prior to the dismissal. As mentioned, we set the year of dismissal to 2019 (Year t) and we compared this to how the variables performed in the years prior to 2019. Studying the transition over a period of several years allowed us to see how the given company performs under "normal operations"  and at the same time locate where things started to go wrong. We argued that a period of five years was sufficient, which gave us the time-scope of interest to be 2015-2019. Further, there was no information in our dataset that specified at which time during the year of 2019 the CEO was dismissed. This was a problem, as accounting numbers from 2019 would not be as relevant if the CEO was fired in January. In this case it would make more sense to use accounting numbers as of 2018 to determine the financial effects leading up to the dismissal. In order to combat this challenge, we set the financial performance at the year of dismissal to be the average of 2019 and 2018 (t and t-1).
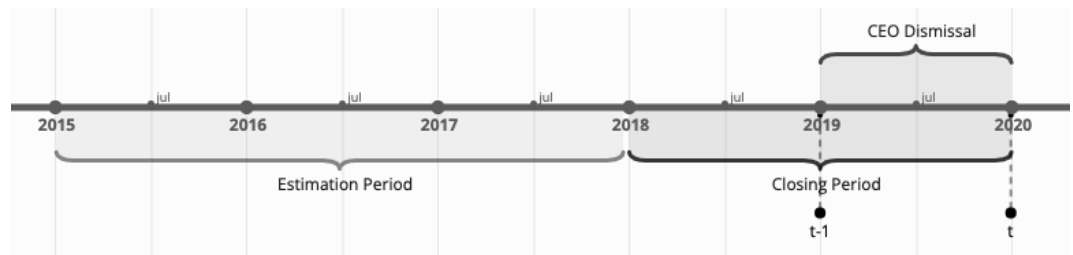
*Figure 3 - Timeline*

The variables of choice were tested through a t-test. A t-test is used to compare two sample means to measure whether or not they are statistically significant. As mentioned previously, one of our sample means was the company's average financial performance in the year t and t-1. This gave us the financial performance of a given company at the time of CEO dismissal. We wanted to compare this to the financial performance prior to the dismissal and therefore use the average financial performance in the period 2015-2017 to get the second sample mean.

$$
t \ = \ \frac{\overline{X}_d - \mu_d}{S_d / \sqrt{n}}
$$

$\overline{X}_d$ = Sample mean difference, $\mu_d$ = Population mean difference,

$S_d$ = Sample difference standard deviation, $n$ = Sample size

The results from the t-test would tell us if the change in variables are systematic or coincidental. Based on this we could determine which of the chosen key numbers in the financial reports to investigate further.

Further, it is important to emphasise *why* we would want to analyse how these variables change in the years leading up to the CEO dismissal. The reason is that it would provide a much more informative picture of activities within the companies as opposed to looking at an isolated year. For example, if a new CEO enters a company, it would not make sense to look at a selected variable at the time he joins and use that number for future reference. However, if we looked at how the variable changed every year over the following 5 years, it would make a much more informative description of that CEO's impact on the given variable.

### 3.5.1 Liquidity

The liquidity measures are selected ratios from the companies' balance sheets that are used to determine how "healthy" a company is, and how likely they are to meet future obligations. The variables we analysed were *working capital, cash balance, current assets* and *current liabilities.* We argue that these are the most relevant in order to capture a CEO's choices related to liquidity measurements. For comparability, we scaled these with respect to total assets or total liabilities, which allowed us to analyse companies across different sizes. This assisted us in overcoming the challenge of biassed results. For example, a company with 50K USD in current liabilities generating current assets of 100k USD, would be more impressive than a company with 200k USD in current liabilities generating the same current assets. Therefore, using current ratio as a measure would provide a much more realistic picture of the business' operations, resulting in a current ratio of 2 versus 0,5 in this case.

### 3.5.2 Efficiency

The efficiency variables are more operational and results-oriented, and were found in the companies' income statements in Compustat. We wanted to analyse *return on equity* (ROE), *return on assets* (ROA), *gross profit over assets* (GPA), and *EBITDA margin*, as these variables capture the CEO's influence on the arguably most important operating performance measures.

ROE and ROA are both widely-used measurements that capture how efficiently a company is managing their capital. ROE is commonly used by shareholders in order to decide whether or not to invest in a company and we argue that it would be highly relevant to capture the external pressure that CEOs are experiencing from various stakeholders and the board. Further, we also want to include ROA in our analysis which captures the total assets as opposed to only shareholder's equity. Total assets are less sensitive to changes in capital structure and will isolate the effect of returns better than ROE.

GPA is similar to ROA, but it does not include operating costs, interests, and taxes which are variables over which the CEO has less influence. And finally the EBITDA margin which covers all operational income and expenses divided by revenue. By looking at the EBITDA as opposed to net income it would provide a more realistic picture and be less vulnerable to manipulation. Reason being that a CEO in a struggling and pressured position would be more incentivised to make certain adjustments to make accounting numbers appear better. A way of doing this is to manipulate depreciation and change the accrual accounting standards, something EBITDA is less vulnerable to.

### 3.5.3 Capital Structure

Finally, we wanted to analyse how the capital structure of a company changes in the years prior to the dismissal, and see if this is something the board takes into consideration or not. When analysing capital structure, our aim was to see if, and how, changes in *liabilities, assets,* and *capital expenditures* affect board decisions.

## 4.0 Analysis and Empirical Results

This portion of the thesis will present insights and relevant findings derived from our sample. First we will present our results, then dive into the analysis based on the categorisation of our research questions, being liquidity, efficiency, and capital structure.

|  | N | 2015-2017 Mean | 2018-2019 Mean | Diff |
|---|---|---|---|---|
| Working Capital / Total Assets | 28 | 0,176 | 0,120 | -0,057*** |
| Cash Balance / Total Liabilities | 30 | 0,288 | 0,170 | -0,118** |
| Current ratio | 28 | 1,914 | 1,642 | -0,273*** |
| ROA | 30 | 0,125 | 0,087 | -0,038** |
| ROE | 30 | 0,060 | 0,142 | 0,082 |
| Gross Profit / Total Assets | 30 | 0,395 | 0,362 | -0,033** |
| Operating Profit Margin | 30 | 0,148 | 0,142 | -0,006 |
| Total Liabilities / Total Assets | 30 | 0,639 | 0,658 | 0,020 |
| Current Liabilities / Total Liabilities | 28 | 0,415 | 0,408 | -0,007 |
| Capital Expenditures / Total Assets | 30 | 0,035 | 0,033 | -0,002 |

*90% significance, ** 95% significance, *** 99% significance*

*Table 2 - Consolidated table demonstrating change in company fundamentals and performance over time*

The second column, N, shows the number of observations in our dataset. We analyse a total of 30 observations, but there are two companies that do not present their current assets and current liabilities, resulting in 28 observations for certain variables. The next columns show the mean results of the ratios for the given periods of 2015-2017 and 2018-2019 respectively. Finally, the last column shows the difference in means and whether or not they are statistically significant.

From the results we can see that changes in both Current Ratio and Working Capital/Total Assets are significant at a 0,01 interval, meaning that the estimations are correct 99% of the time. This indicates that the responsible companies struggle to accommodate short-term obligations and possibly are positioned in a distressed environment.

Further, changes in ROA, GPA, and Cash Balance/Total Liabilities are significant at a 0,05 interval, meaning that the estimations are correct 95% of the time. This suggests that the general performance of the companies has declined with less liquidity and more leverage. A general decline in firms performance over time can result in performance induced turnovers, which occurs approximately 50% of the time (Jenter & Kanaan, 2014). Therefore, we expected to observe ratios such as ROA and GPA to be present and of relevance for the results.

## 4.1 Interpretation of Research Questions

We can further see how prevalent liquidity is based on our research questions in table 3 below. Whilst, capital structure appears to have no significance for the outcome based on the three ratios. The efficiency measures have a great balance of ratios that are both significant and not.

| Liquidity Measures: RQ1 |
| --- |
| Working Capital / Total Assets *** |
| Current Assets / Current Liabilities (Current Ratio) *** |
| Cash Balance / Total Liabilities ** |
| **Efficiency Measures: RQ2** |
| ROA (Return on Assets) ** |
| Gross Profit / Total Assets ** |
| ROE (Return on Equity) |
| Operating Profit Margin |
| **Capital Structure: RQ3** |
| Total Liabilities / Total Assets |
| Current Liabilities / Total Liabilities |
| Capital Expenditures / Total Assets |

*Table 3 - Table According to RQ*

## 4.2 Analysis

In the following section we will present an in-depth analysis on the ratios we found to be statistically significant for CEO dismissals and the remaining ones.

We want to analyse the financial numbers as well as ratios because it will give us a feel for the company size and an indication of the resulting financial effects of the board's decisions. Further, it is important to emphasise that the ratios we are analysing is the average collective sum of ratios for each specific year.

$$\overline{X} = \frac{\sum\limits_{i=1}^{n}}{n}$$

Simply dividing average income with average assets (from table 5 below) will provide an incorrect collective mean of ROA, since each and every observation has an unique ratio that has to be accounted for.

$$ROA = \frac{Operating\ Income}{Total\ Assets}$$

Like mentioned previously, the use of ratios is highly beneficial in analysing and comparing companies across different sizes. However, in this section we experienced why examining companies based on financial numbers of varying degrees can be an issue. For example, the established value of "Average Total Assets" was approximately \$100M in our sample. By removing the two largest companies from this sample the average was reduced to ~ \$16M. Incorporating these companies would be a misrepresentation of the realistic values, therefore we chose to remove these two observations from our sample, which resulted in a total of 28 observations in the following analysis.

## 4.3 Liquidity Measures

All of the three liquidity measures are of relevance and will be analysed for acquiring better understanding of the observations.

| Liquidity Measures: RQ1 |
|---|
| Working Capital / Total Assets *** |
| Current Assets / Current Liabilities (Current Ratio) *** |
| Cash Balance / Total Liabilities ** |

*Table 4 - Liquidity Measures*

### 4.3.1 Working Capital / Total Assets

| USD in 1000 | | | | | n=28 |
|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** |
| **Working capital** (USD) | 1 374 | 795 | 628 | 502 | 377 |
| **Assets** (USD) | 14 343 | 14 690 | 16 543 | 16 566 | 18 571 |
| **Working Capital/Total Assets** | 0,19 | 0,17 | 0,15 | 0,13 | 0,08 |

*Table 5 - Average Working Capital, Assets and WC/TA for the sample.*

Working capital to assets ratio highlights liquidity and the ability to solve short-term financial obligations of the organisation. Working capital is the difference between current assets and current liabilities, and supports the daily activities of the firm related to employees, retailers, manufactures, contractors and such. However, in this instance the ratio is compared to the total assets of the firm, which is an important aspect since it demonstrates the firm's capital allocation based on its needs and objectives. A well managed firm has a healthy balance of working capital that is contributing to organisational robustness and does not exceed any redundant amount. Any excess funds can be utilised for more beneficial purposes.
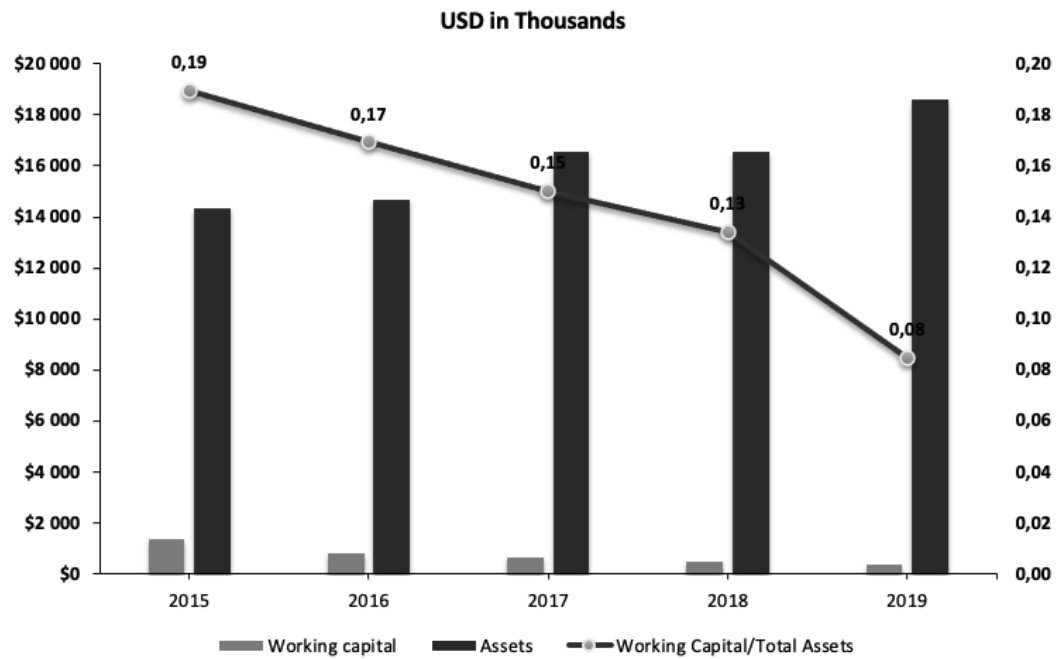
*Figure 4 - Average Working Capital, Assets and WC/TA for the sample.*

The findings present a steady decline in working capital over time and indicate that there is more capital allocation towards fixed assets and potential investments. This notion is supported by an increasing amount of total assets. The progress is not necessarily adverse if the management is confident in their abilities to cover obligations and operate in a fair manner. In return, the spare funds can be allocated towards opportunity costs that otherwise would not be valued.

It is an interesting development and can possibly be linked to the relationship between operational income and total assets, which will be presented later. The executives certainly have an incentive to present consistent and healthy measures in the accrual earnings through expansion and growth on the expense of daily operations, which could be the case here. Furthermore, the results show that the organisational performance is not in a progressive state based on the declining return on assets. Possibly leaving the organisations in a risky position facing liquidation issues and ongoing concerns from shareholders.

## 4.2.3 Current Ratio

| USD in 1000 | | | | | n=28 |
|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** |
| **Current Assets** (USD) | 5 802 | 5 533 | 5 764 | 6 533 | 7 192 |
| **Current Liabilities** (USD) | 4 427 | 4 738 | 5 136 | 6 030 | 6 815 |
| **Current Ratio** | 1,88 | 1,83 | 1,76 | 1,60 | 1,52 |

*Table 6 - Average Current Assets, Liabilities and Current Ratio for the sample.*

The current ratio is a measurement for assessing the liquidity of a company. It is especially important towards creditors and investors, as it says a lot about the credit rating of a company. A lower current ratio indicates that a company is less likely to pay off their loans, resulting in an unhealthy financial situation. This could turn out to be a devastating downward spiral for companies, as a poor credit rating could prevent them from getting access to new capital which would further diminish the current ratio.

The results from the analysis seem to support this theory as the current ratio is decreasing throughout the period. We do not find this surprising as it could be seen as a clear indication that something is happening within the company which the board should act upon. As the decrease in current ratio could be alarming towards the investors, the board wants to show that they are caring and act in the best interest of the investors, and therefore wants to make a change to improve this negative trend.
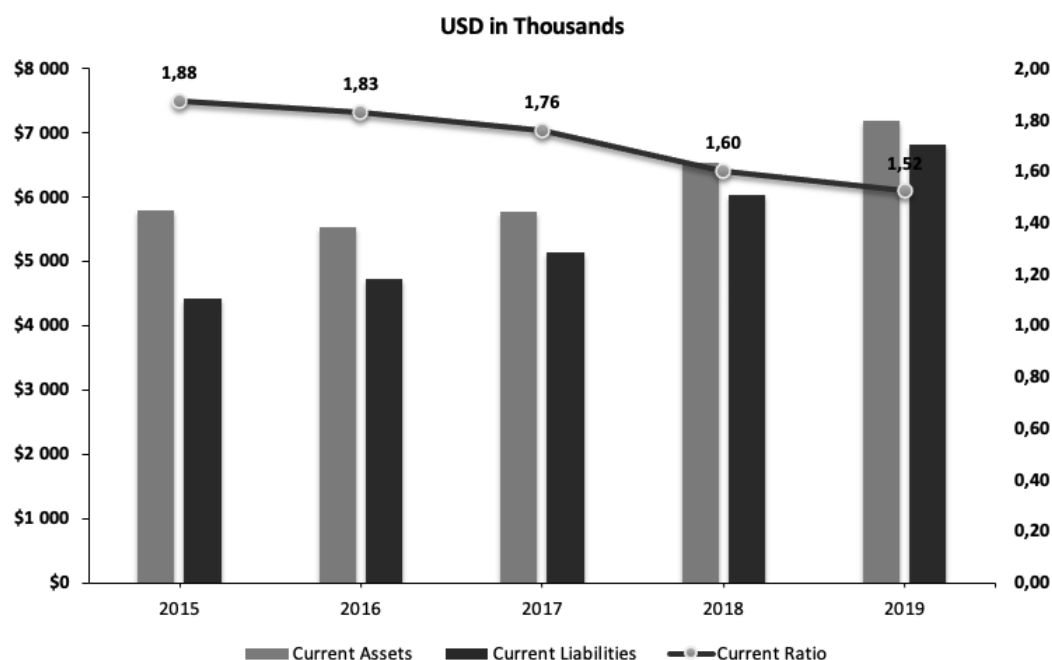
*Figure 5 - Average Current Assets, Liabilities and Current Ratio for the sample.*

The results show that the average current assets are increasing over the period. This signals a CEO that wants to generate and increase the cash at hand to be invested for future value. The desired outcome would be for a company to convert their current assets into value that both cover the current liabilities and create excess value which would allow the company to make additional investments. However, the current liabilities are increasing at a higher rate, meaning that the excess cash created is decreasing over the period, resulting in a lower current ratio. If this trend continues, the gathering of current assets would destroy value for the shareholders which is an undesired outcome for everyone involved, resulting in the board acting the way they see best fit and fire the CEO.

### 4.2.4 Cash Balance / Total Liabilities

| USD in 1000 | | | | | n=28 |
|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** |
| **Cash** (USD) | 1 167 | 1 001 | 940 | 810 | 936 |
| **Total Liabilities** (USD) | 10 129 | 11 035 | 11 593 | 12 273 | 14 699 |
| **Cash/Liabilities** | 0,23 | 0,22 | 0,18 | 0,15 | 0,11 |

*Table 7 - Average Cash, Total Liabilities and Cash/Liabilities for the sample.*

The cash balance shows companies' cash at hand, and says something about their ability to generate future cash flows through operating, financing, and investing activities. The results from the table above show that the cash balance has a stable decrease through the period with a slight positive jump in the final year. This, combined with an increasing total liabilities, results in a decreasing cash-liabilities-ratio.

The cash balance is commonly used by different stakeholders as it says a lot about companies' financing situation, and whether it is healthy or not. Stakeholders see cash balance in different ways. Lenders use it to determine companies' ability to meet future obligations and pay off loans, and it is an important determinant when measuring credit rating. Shareholders and investors use the cash balance to determine companies' ability to pay out dividends.
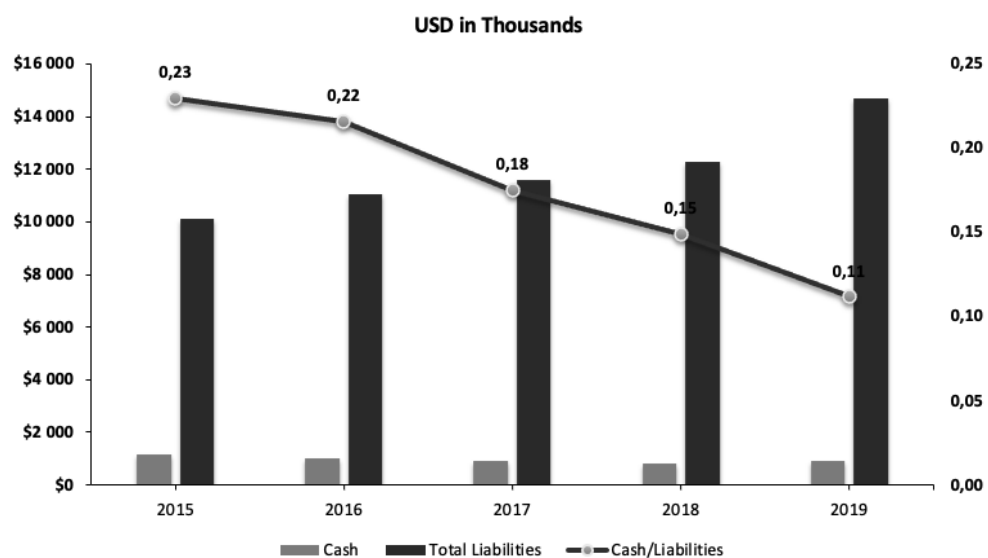


*Figure 6 - Average Cash, Total Liabilities and Cash/Liabilities for the sample.*

Of course, there is a balance between how much cash is healthy for a company to have. A company would not want to have too much cash at hand, as it would be more rewarding to invest it into a value-generating activity, but it needs to have some in back-up in case something unexpected would show up. Therefore, the cash-liabilities-ratio for a given year might not say a lot about a company, but the trend throughout the period is what is most telling.

It is very clear from the graphical illustration above how definite this negative trend is, and it is alarming towards the stakeholders. If the trend is believed to continue, it would be a natural reaction from the board to feel pressured by the shareholders into making a change, which in our case resulted in firing the CEO.

## 4.4 Efficiency Measures

ROA and GPA appears to be significant and should be examined closer. ROE and Operating Profit Margin will be reflected upon as well.

| Efficiency Measures: RQ2 |
| --- |
| ROA (Return on Assets) ** |
| GPA (Gross Profit / Total Assets)  ** |
| ROE (Return on Equity) |
| Operating Profit Margin |

*Table 8 - Efficiency Measures*

### 4.4.1 ROA

| USD in 1000 | | | | | n=28 |
| --- | --- | --- | --- | --- | --- |
| | **2015** | **2016** | **2017** | **2018** | **2019** |
| **Operating Income** (USD) | 1 251 | 1 505 | 1 583 | 1 575 | 1 473 |
| **Assets** (USD) | 14 343 | 14 690 | 16 543 | 16 566 | 18 571 |
| **ROA** | 12% | 14% | 10% | 9% | 8% |

*Table 9 - Average Income,Assets and ROA for the sample.*

ROA is a great indicator of the general performance of companies. The ratio is demonstrating how well and efficiently the assets are being capitalised on in order to yield a significant amount of profit. It is clear that there is a steady decline in performance, a stable amount of income and an increasing amount of assets each year. Given the proportional change in assets, it is not feasible to say that the operational performance has simply decreased. Although, managing more assets appears to be a deliberate course of action by the CEO.

Results presented by Jenter & Kaanan (2021), showed that companies that have executed a forced or performance-induced CEO turnover have a lower mean ROA compared to those who were not forced or induced (Appendix 8.1). These results are consistent with ours, as it would make sense that companies who show a decrease in ROA over time would lead to a CEO dismissal.
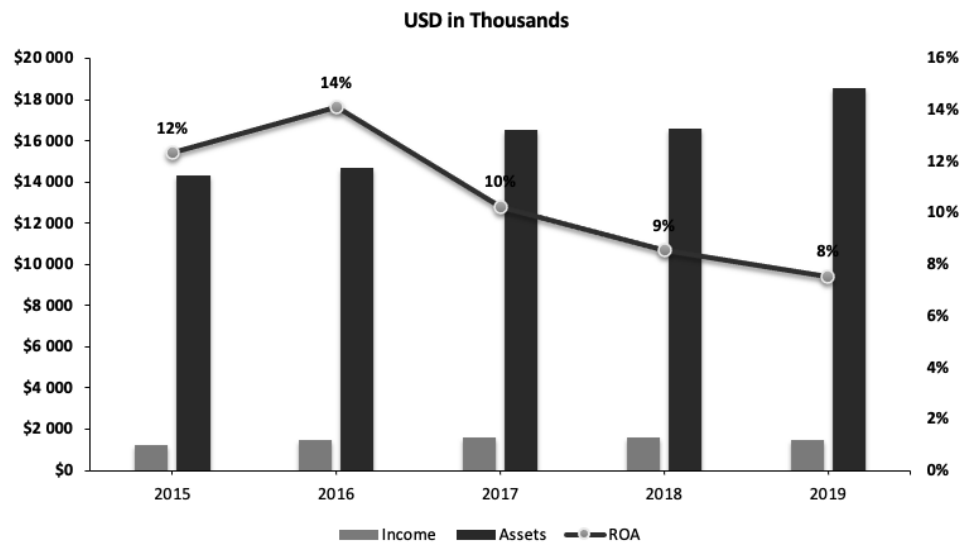


*Figure 7 - Average Income, Assets and ROA for the sample.*

It can be argued that the CEO aims to acquire new assets in order to improve the operations and future prospects for its firm. However, without the proper managerial capabilities and strategic approach the utilisation of the assets can be suboptimal and leave for the possibility of diminishing performance, as presented in our findings. On the other hand, keeping the operating income at a stable level over time can be an incentive and an objective for the CEO.

By increasing the assets one can maintain the operating income afloat and yield a more healthy financial portrayal. The stable income can appear prosperous and be used as a tool for negotiation by the CEO - such as extending tenancy. Although, after a prolonged amount of time, it is reasonable that the board will warrant improvements and concrete results. Based on our findings, a positive trajectory for both the income and performance is certainly absent. Indicating that the dismissals are performance induced to a certain extent.

### 4.4.2 GPA

| USD in 1000 | | | | | n=28 |
|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** |
| **Gross Profit** (USD) | 2 944 | 3 163 | 3 416 | 3 524 | 3 045 |
| **Assets** (USD) | 14 343 | 14 690 | 16 543 | 16 566 | 18 571 |
| **GPA** | 0,42 | 0,42 | 0,40 | 0,41 | 0,39 |

*Table 10 - Average Gross Profit, Total Assets and GPA for the sample.*

The gross profit is the difference between a firm's revenue and cost of goods sold. The GPA says something about how efficiently a company is utilising its given assets to generate a gross profit. It is somewhat similar to ROA, however it isolates revenues and costs of goods sold, whereas ROA would also include other operating expenses, like for example depreciation.

The results from the table above show that the gross profit is relatively stable throughout the period, increasing from 2015 to 2018, but has a slight dip in the final year. The assets are increasing in the same period, resulting in a decreasing GPA, which is clearly visualised in figure 8 below. These results indicate that either the company is not able to increase their revenue sufficiently with their increasing assets, or that the acquired assets are not used cost-effectively, resulting in an increasing cost of goods sold relative to the increase in revenue.
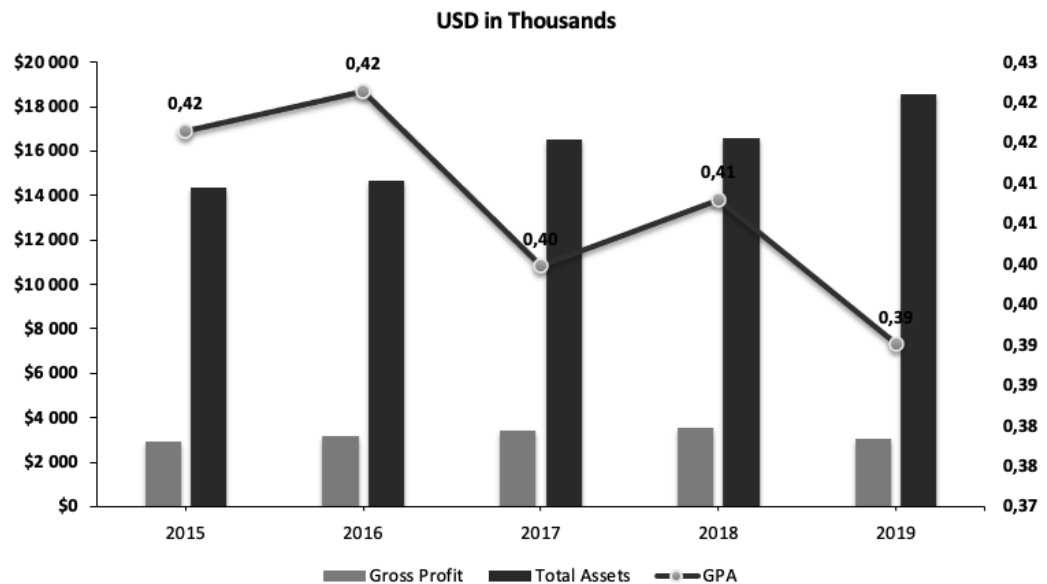
*Figure 8 - Average Gross Profit, Total Assets and GPA for the sample.*

Gross profit is a central measurement of operational performance. Our results, combined with the findings of Jenter & Kanaan (2014) linking operational performance to CEO turnover, are as expected. This strengthens the theory of boards using operational performance measures as a determining factor when deciding to let a CEO go.

An interesting observation is that the results from analysing the GPA and ROA are very similar. As mentioned previously, one of the main differences between the two variables is the inclusion of depreciation in the calculations. By changing the accrual accounting standards a CEO could manipulate the depreciation costs and thereby also present a false portrayal of the financial performance. This is especially relevant for a CEO in a troubling situation (Guan et al., 2005). However, the results from our study show no indication that this is the case, as there is no significant difference between the results from analysing GPA and ROA.

### 4.4.3 ROE

In comparison to ROA, ROE is the return on the net assets of a firm. Meaning that shareholders equity is composed of assets minus the given debt. The ratio is then highly dependent on the debt a company owns and can to varying degrees be misleading of the effective assets at hand. Simply by acquiring an extensive

amount of debt will yield a greater ROE and can reflect an inflated increase in performance. A firm has certainly more possibilities with the excess debt that can be utilised for investments and future gains, but it can not be a justification for being an exact measure of organisational performance. This notion appears to support the table presented by Herciu et al (2018) where ROE is not considered a relevant performance determinant. Therefore, the board and shareholders may not view ROE as a relevant source for deciding on the performance of the operating CEO.

### 4.4.4 Operating Profit Margin

Operating Profit Margin is a simple way of observing the return a company has on its operations and revenue by dividing profit on sales. The ratio presents a more nuanced picture of the performance since it is dependent on the industry, business model and other characteristics in how the operational profit margin is perceived. Generally, increased sales and minimal costs will yield a good margin and indicate that the firm is performing well. However, costs often vary between companies of different sizes, sectors (due to intangible assets found in services and software) and accounting factors such as depreciation. Additionally, companies have different strategies and models for their businesses. We imagine that some may have subscription based models or do outsourcing that in turn yield different pictures of both the revenue streams and costs. It can be argued that the same concerns are prevalent in ROA as well, although the relationship between the operational income and assets appears to be more representative of the effective performance across different firms and characteristics for both the board and the shareholders. For instance, the mean Operating Profit Margin had only a minor decline, even though several factors found in our analysis show that there has been an apparent reduction in performance of the observed firms. It can be beneficial to engage with profit margins to better understand the underlying operations, but the general health of the companies seems to not be reflected, nor influence board's decisions to dismiss executives.

## 4.5 Capital Structure

| Capital Structure: RQ3 |
| --- |
| Total Liabilities / Total Assets |
| Current Liabilities / Total Liabilities |
| Capital Expenditures / Total Assets |

*Table 11 - Capital Structure*

The financial indicators that are solely coupled to the balance sheet have not been shown to have any relevance for the financial performance of the observed firms. Liabilities, Assets, Current Liabilities and CapEx increased relative to each other over time and does not signal anything to the board except stability. It can be imagined that the liabilities and assets go hand in hand in a declining environment. Our reasoning is that the CEO seeks to maintain stable earnings and yet try to grow the business and hope for a successful breakthrough in a given market or through a short-term investment. Furthermore, without any reasonable growth in the earnings, potential new short-term investments and projects require borrowed funds in order to expand and grow, which could be reflected here.
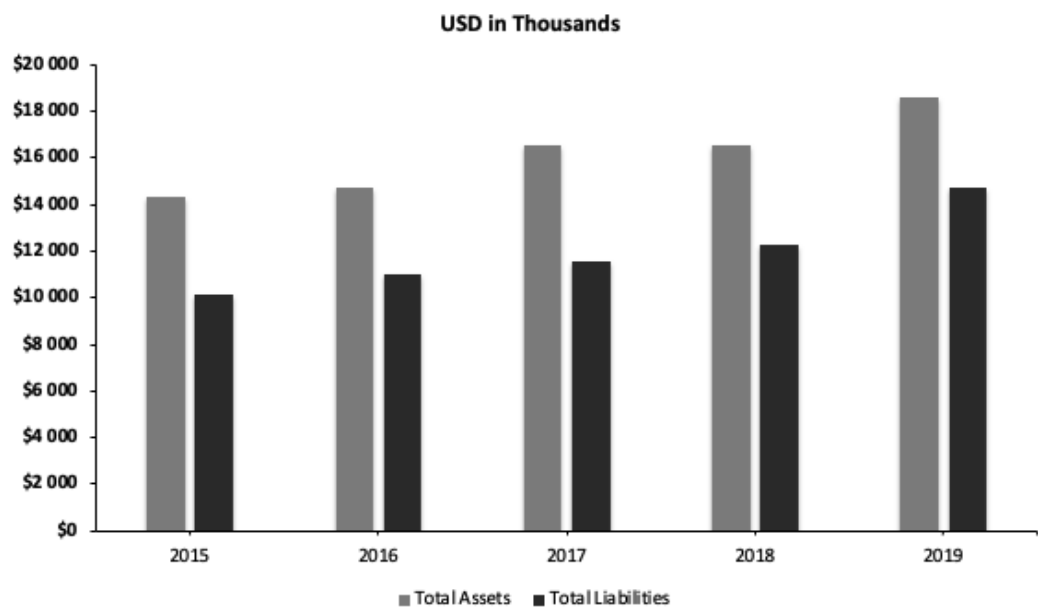


*Figure 9 - Total Assets and Liabilities*

For the stakeholders any relative measures over time in the balance sheet are not beneficial indicators in evaluating performance. Does every declining company have a relative increase in the valued balance? Likely not, but in contrast it would probably be a concerning factor if there was an asset selloff and massive surge of leverage. We assume that such instances are accustomed to drastic changes in business models, crises or executive change. Thus, a good indicator for substantial organisational change, but not for marginal display of firm performance. Without any comparable measure of earnings it is truly difficult to assess the value proposition of the assets and liabilities like in ROA. Consequently, the board may value the capital structures less in judging or deciding the faith of a current CEO.

## 5.0 Discussion

The following section seeks to draw parallels between key observations found in the previous chapters and discuss them in detail.

So far, we have collected and interpreted relevant financial data to assess whether there are any indicative symptoms of CEO dismissal. The results have presented us with a set of five financial indicators that advocate for CEO dismissals in view of declining trends. Ratios that demonstrate firm performance and liquidity appear to be imperative in the decision making of the board. The combining ratios yield a great overview of the general efficiency and financial state of the companies that may be of relevance for the stake-and shareholders.

| Liquidity Measures: RQ1 |
| --- |
| Working Capital / Total Assets *** |
| Current Assets / Current Liabilities (Current Ratio) *** |
| Cash Balance / Total Liabilities ** |

*Table 4 - Liquidity Measures*

All of the liquidity measures have been shown to have an influence on boards decisions. One commonality is that firms that are facing risks and liquidation issues are in a rather distressed financial position. Generally, inadequate liquidity signals that there are no margins for possible mistakes. Consequently, attracting the attention and concerns from stakeholders such as lenders, creditors, suppliers and shareholders. Ongoing concerns corresponding to market volatility and demands can be an additional toll on the respective stakeholders due to the risk factors and in turn pressure the board members to act. Thus, the general trend appears to be that maintaining a distressed financial position is not sustainable for the given companies. It can be argued that the CEO has some time to negotiate and ensure better terms under these conditions, but not for long. Based on the findings and the fact that all the given measures related to liquidity are significant indicates to us that liquidity issues over time are indicative of a future CEO dismissal.

| Efficiency Measures: RQ2 |
|---|
| ROA (Return on Assets) ** |
| GPA (Gross Profit / Total Assets) ** |
| ROE (Return on Equity) |
| Operating Profit Margin |

*Table 8 - Efficiency Measures*

As established previously in our paper, utilising assets efficiently is a prevalent measure of organisational performance. Whilst, ROA and Gross Profit to Total Assets have been shown to be of significance for a potential dismissal, ROE and Operating Profit Margin have been left out. It is an interesting outcome since both ROE and Operating Profit Margin illustrate different pictures of the organisational performance. The consensus appears to be that the ROA and GPA is more representative of the effective performance of firms across sectors and other characteristics such as size, business model and accounting measures. For the stakeholders it can be easier to interpret and trust ROA and GPA since it is a ratio that reflects efficiency purely of the assets and management in an accurate manner. Organisational performance can then be transcribed for the shareholders and the board as efficiency.Thus, both ROA and GPA are fundamental ratios to consider in terms of executive performance and should concern both the CEO and the board. We still believe that ROE and Operating Profit Margin are important figures to observe, and that the board and shareholders do as well. However, it can be attested that these ratios are less concerning for the board and could be only applicable for certain instances or companies. Overall, this notion seems to coincide with Herciu et al (2018) demonstrating what previous literature considers as vital indicators of firm performance, as we proposed earlier.

The board has a role of monitoring and evaluating a CEO's performance to ensure that decisions made are in the best interest of everyone involved. As this study has showcased, there are strong indications that CEO performance is measured through financial reporting numbers, at least in the eyes of shareholders and the board. However, previous studies by the likes of Wiersema (2002) and Arnulf et al. (2012) have shown that this most definitely might not be appropriate. That simply replacing a CEO is not the solution to all their problems, that there are

factors affecting the bottom line other than CEO attributes, which are out of his control. Based on this, why has our study shown that boards deliberately evaluate a CEO based on operational performance and liquidity measures to use that as a decider to let him stay or go?

A possible explanation is that the external pressure is not only influencing the CEO, but the board as well. The board has a closer relationship with the CEO than the shareholders and other external partners, and might share his ideas and thoughts. They know that the CEO is not solely responsible for the performance of a company, but expectations from external partners make them feel pressured into making a change. This makes the board stand in a split between the CEO and the shareholders, eventually accepting the course of action as they expect change. Our results indicate that this is a very probable situation, and is aligned with previous findings and theories by Jenter & Kannan (2015) and Fisman et al. (2014).

Knowing this, CEOs would be incentivised to make certain short-term adjustments to their financial reporting to please the shareholders, which could be very unhealthy in the long-run.

If a CEO knows that he is being evaluated constantly based on financial reporting numbers, he would be incentivised to take whatever actions required to deliver on the expectations set by the shareholders. If the company is delivering better numbers than expected, it could retain some earnings to save it for a darker day. On the contrary, if a company is performing below the expectations, the CEO would be incentivised to change accounting standards or manipulate accounting items to make a false portrayal of the financial situation. He would be rewarded for short-term thinking, something which is very disruptive and unhealthy for the company.

Why would a CEO invest in research and long-term planning? It is very expensive and will impact the financial returns negatively today. It is also very risky, as it may or may not pay off in the following 5 or 10 years. There are little to no incentives for CEOs to engage in such an investment as the shareholders expect good results today. This mind-set is very destructive. It would slow down

innovation and growth, and you would get surpassed by other businesses in the long-run.

An interesting observation from the results is that even though the companies in our study are in a troubling environment, they tend to deliver a stable operating income. The average operating income is actually higher in the closing period of 2018-2019 (1524$)  than in the estimation period of 2015-2017 (1446$). It can be argued that the CEO's may have achieved a more favourable position to negotiate terms or prolonged tenure by making the operating income appear more stable and "healthier". However, as our study has shown, a stable operating income has come at the expense of letting other performance measures suffer.

## 6.0 Conclusion

In this thesis, we have studied if, and how, financial performance measures affect CEO dismissals. This is done by analysing how reporting numbers change over a period of five years prior to the dismissal. We used a sample of 30 observations from S&P 1500 firms where the CEO had been dismissed due to poor financial performance. Our selected variables were categorised into selected items from both the income statement and balance sheet, allowing us to explore beyond the traditional performance measures. The variables of interest were a mix of liquidity measures, efficiency measures, and capital structure ratios.

Our results show that boards actively evaluate a CEO's performance based on certain financial reporting numbers and use this as a decider to let the CEO stay or not to please the shareholders. The variables we found to be significant for an upcoming CEO dismissal in our analysis were *ROA, Current Ratio, Working Capital / Total Assets, GPA.* and *Cash Balance / Total Liabilities.*

Our most significant variables were liquidity ratios, indicating that boards see poor liquidity management as a determining factor when deciding to dismiss a CEO. The remaining significant variables were efficiency measures, indicating that boards see diminishing revenue- and income ratios as strong warning signs. Finally, none of the capital structure variables turned significant, suggesting that boards are more or less indifferent to the ratios between assets, liabilities, and equity when dismissing a CEO. To summarise, we have the following answers to our research questions:

*RQ1: Do boards use liquidity measures to decide an upcoming CEO dismissal?*
There are strong indications in our study that boards use liquidity as a deciding factor when dismissing a CEO.
*RQ2: Do boards use efficiency measures to decide an upcoming CEO dismissal?*
Our research shows that boards use certain efficiency variables when determining whether or not to dismiss a CEO.
*RQ3: Does capital structure matter when deciding an upcoming CEO dismissal?*
We found no evidence that boards take capital structure into consideration when deciding on a CEO dismissal.

## 7.0 Further Research

There is a lot of literature on CEO dismissals and turnovers, however through this paper we find that there can be room for more topics to be explored. Our study focused on a timeframe that did not involve any significant financial stress on the markets, nor the given firms through a recession or similar events. It could then be a consideration to examine how unexpected financial stress affects the board decisions based on financial data in a similar study and capacity. The results would then serve to create a stronger understanding of the relationship between financial indicators and the board and how they potentially differ in nature. Additionally, incorporating a broader and more extensive sample would be beneficial for the overall results. Our current sample of 30 firms are considering only North-American organisations and yield a relatively small spectrum of possible scenarios.

Another question that became very apparent for us during our research was whether or not this decision is "correct". According to research, in many cases there seem to be other factors that influence financial reporting data negatively, something which is out of a CEOs control. A big problem is that there are very few people with the insight required to distinguish between the fault of a CEO or other factors. This could lead to information asymmetry, and in many cases an unfair dismissal. Thus, another direction could be to elaborate on a board's role in an organisation, and whether or not they have the required knowledge to make such a decisive decision. This could further accentuate whether the decisions made based on financial parameters are objectively correct and of a high standard.

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## 9.0 Appendix

### 9.1 Forced-Induced CEO Turnover Performance

**A. Turnovers classified as forced or performance induced**

|  | Performance induced | Not performance induced | Total |
|---|---|---|---|
| Forced | 506 (82%) | 113 (18%) | 619 |
| Voluntary | 794 (41%) | 1147 (59%) | 1941 |
| Total | 1,300 (51%) | 1,260 (49%) | 2,560 |

**B. CEO and firm characteristics by turnover classification**

| Forced / perf.-induced: | Yes/yes | | Yes/no | | No/yes | | No/no | |
|---|---|---|---|---|---|---|---|---|
|  | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| log(assets) | 6.9 | 6.8 | 9.2 | 9.3 | 6.6 | 6.5 | 8.1 | 8.0 |
| Dividend payer | 0.41 | 0.00 | 0.95 | 1.00 | 0.30 | 0.00 | 0.92 | 1.00 |
| ROA | 0.14 | 0.13 | 0.12 | 0.12 | 0.17 | 0.17 | 0.16 | 0.14 |
| 3-year CAR | −47% | −45% | 0% | 4% | −12% | −17% | 12% | 7% |
| CEO age | 52.5 | 53.0 | 59.4 | 59.0 | 56.4 | 57.0 | 63.7 | 64.0 |
| Age 61–63 | 0.03 | 0.00 | 0.20 | 0.00 | 0.12 | 0.00 | 0.29 | 0.00 |
| Age 64–66 | 0.00 | 0.00 | 0.12 | 0.00 | 0.04 | 0.00 | 0.33 | 0.00 |
| Age >66 | 0.01 | 0.00 | 0.08 | 0.00 | 0.10 | 0.00 | 0.18 | 0.00 |
| Tenure | 7.1 | 6.0 | 10.4 | 7.0 | 10.5 | 9.0 | 12.6 | 10.0 |
| Obs. | 506 | 506 | 113 | 113 | 794 | 794 | 1,147 | 1,147 |

*(Jenter & Kaanan, 2021)*

## 9.2 Company Characteristics

| Company names | Sector | Year of Dismissal |
|---|---|---|
| ACETO CORP | Health Care Equipment & Services | 2019 |
| ASHLAND GLOBAL HOLDINGS INC | Chemicals | 2019 |
| BOEING CO | Aerospace | 2019 |
| CANTEL MEDICAL CORP | Health Care Equipment & Services | 2019 |
| ASCENA RETAIL GROUP INC | Retail | 2019 |
| KRAFT HEINZ CO | Food & Staples Retailing | 2019 |
| KIMBERLY-CLARK CORP | Household & Personal Products | 2019 |
| MCKESSON CORP | Health Care Equipment & Services | 2019 |
| WELLS FARGO & CO | Banks | 2019 |
| HSBC USA INC | Banks | 2019 |
| RITE AID CORP | Food & Staples Retailing | 2019 |
| PUBLIC STORAGE | Real Estate | 2019 |
| TYSON FOODS INC  -CL A | Food & Staples Retailing | 2019 |
| UNIFI INC | Household & Personal Products | 2019 |
| AKORN OPERATING COMPANY LLC | Pharmaceuticals, Biotechnology & Life Sciences | 2019 |
| NORTONLIFELOCK INC | Software & Services | 2019 |
| SIRIUSPOINT LTD | Insurance | 2019 |
| CAESARS ENTERTAINMENT CORP | Hotels, Restaurants & Leisure | 2019 |
| BED BATH & BEYOND INC | Retail | 2019 |
| NAUTILUS INC | Consumer Durables & Apparel | 2019 |
| SPARTANNASH CO | Food & Staples Retailing | 2019 |
| GUESS INC | Retail | 2019 |
| EDGEWELL PERSONAL CARE CO | Household & Personal Products | 2019 |
| SYNAPTICS INC | Semiconductors & Semiconductor Equipment | 2019 |
| CROSS COUNTRY HEALTHCARE INC | Health Care Equipment & Services | 2019 |
| CUTERA INC | Health Care Equipment & Services | 2019 |
| BANC OF CALIFORNIA INC | Banks | 2019 |
| BLOOMIN' BRANDS INC | Hotels, Restaurants & Leisure | 2019 |
| APPROACH RESOURCES INC | Oil, Gas & Consumable Fuels | 2019 |
| FHC HOLDINGS CORP | Retail | 2019 |

## 9.3 t-Tests

### 9.3.1. ROA

| ROA | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,124525 | 0,0867659 |
| Variance | 0,007954 | 0,0033119 |
| Observations | 30 | 30 |
| Pearson Correlation | 0,605357 | |
| Hypothesized Mean Difference | 0 | |
| df | 29 | |
| t Stat | 2,909791 | |
| P(T<=t) one-tail | 0,003439 | |
| t Critical one-tail | 1,699127 | |
| P(T<=t) two-tail | 0,006878 | |
| t Critical two-tail | 2,04523 | |

### 9.3.2 Current Ratio

| Current Ratio | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 1,914189 | 1,641649 |
| Variance | 0,797166 | 0,586806 |
| Observations | 28 | 28 |
| Pearson Correlation | 0,839579 | |
| Hypothesized Mean Difference | 0 | |
| df | 27 | |
| t Stat | 2,971647 | |
| P(T<=t) one-tail | 0,003079 | |
| t Critical one-tail | 1,703288 | |
| P(T<=t) two-tail | 0,006159 | |
| t Critical two-tail | 2,051831 | |

### 9.3.3 ROE

| ROE | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,060004 | 0,142429 |
| Variance | 0,306413 | 0,70379 |
| Observations | 30 | 30 |
| Pearson Correlation | 0,593931 | |
| Hypothesized Mean Difference | 0 | |
| df | 29 | |
| t Stat | -0,66667 | |
| P(T<=t) one-tail | 0,255125 | |
| t Critical one-tail | 1,699127 | |
| P(T<=t) two-tail | 0,510251 | |
| t Critical two-tail | 2,04523 | |

### 9.3.4 Operating Profit Margin

| Operating Profit Margin | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,14763 | 0,141818 |
| Variance | 0,016418 | 0,016119 |
| Observations | 30 | 30 |
| Pearson Correlation | 0,439453 | |
| Hypothesized Mean Difference | 0 | |
| df | 29 | |
| t Stat | 0,235708 | |
| P(T<=t) one-tail | 0,407658 | |
| t Critical one-tail | 1,699127 | |
| P(T<=t) two-tail | 0,815316 | |
| t Critical two-tail | 2,04523 | |

### 9.3.5 Working Capital / Total Assets

| Working Capital / Total Assets | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,176445 | 0,119801 |
| Variance | 0,028343 | 0,022303 |
| Observations | 28 | 28 |
| Pearson Correlation | 0,865902 | |
| Hypothesized Mean Difference | 0 | |
| df | 27 | |
| t Stat | 3,556001 | |
| P(T<=t) one-tail | 0,000707 | |
| t Critical one-tail | 1,703288 | |
| P(T<=t) two-tail | 0,001414 | |
| t Critical two-tail | 2,051831 | |

### 9.3.6 Gross Profit / Total Assets

| Gross Profit / Total Assets | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,394878 | 0,362319 |
| Variance | 0,078376 | 0,068341 |
| Observations | 30 | 30 |
| Pearson Correlation | 0,962077 | |
| Hypothesized Mean Difference | 0 | |
| df | 29 | |
| t Stat | 2,32277 | |
| P(T<=t) one-tail | 0,013706 | |
| t Critical one-tail | 1,699127 | |
| P(T<=t) two-tail | 0,027411 | |
| t Critical two-tail | 2,04523 | |

### 9.3.7 Cash Balance / Total Liabilities

| Cash Balance / Total Liabilities | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,287857 | 0,169866 |
| Variance | 0,178008 | 0,030335 |
| Observations | 30 | 30 |
| Pearson Correlation | 0,905143 | |
| Hypothesized Mean Difference | 0 | |
| df | 29 | |
| t Stat | 2,354872 | |
| P(T<=t) one-tail | 0,012755 | |
| t Critical one-tail | 1,699127 | |
| P(T<=t) two-tail | 0,02551 | |
| t Critical two-tail | 2,04523 | |

### 9.3.8 Total Liabilities / Total Assets

| Total Liabilities / Total Assets | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,638919 | 0,658464 |
| Variance | 0,044687 | 0,037011 |
| Observations | 30 | 30 |
| Pearson Correlation | #N/A | |
| Hypothesized Mean Difference | 0 | |
| df | 29 | |
| t Stat | -1,00244 | |
| P(T<=t) one-tail | 0,162211 | |
| t Critical one-tail | 1,699127 | |
| P(T<=t) two-tail | 0,324422 | |
| t Critical two-tail | 2,04523 | |

### 9.3.9 Current Liabilities / Total Liabilities

| Current Liabilities / Total Liabilities | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,415307 | 0,408042 |
| Variance | 0,03504 | 0,034894 |
| Observations | 28 | 28 |
| Pearson Correlation | #N/A | |
| Hypothesized Mean Difference | 0 | |
| df | 27 | |
| t Stat | 0,49872 | |
| P(T<=t) one-tail | 0,311008 | |
| t Critical one-tail | 1,703288 | |
| P(T<=t) two-tail | 0,622016 | |
| t Critical two-tail | 2,051831 | |

### 9.3.10 CapEx / Total Assets

| CapEx / Total Assets | Variable 1 | Variable 2 |
|---|---|---|
| Mean | 0,03498 | 0,033376 |
| Variance | 0,000863 | 0,000966 |
| Observations | 30 | 30 |
| Pearson Correlation | 0,860878 | |
| Hypothesized Mean Difference | 0 | |
| df | 29 | |
| t Stat | 0,548187 | |
| P(T<=t) one-tail | 0,293879 | |
| t Critical one-tail | 1,699127 | |
| P(T<=t) two-tail | 0,587759 | |
| t Critical two-tail | 2,04523 | |