

The relation between Corporate Social Responsibility and Financial Performance: an empirical study on Dutch companies

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Abstract:

The last few decades CSR has become increasingly important. A lot of research was done into the relation between CSR and financial performance already, but the results were ambiguous, and no specific research was done on Dutch companies. Through regression models the relation between the independent variable CSR and the dependent variable financial performance is researched.

Financial performance is measured by both accounting- and market-based measures. Control variables include size, risk, industry and R&D costs. The regression model is performed on different Dutch industries as well, to investigate whether the relation between CSR and financial performance would be different across industries. Lastly, the optimal level of CSR to maximize financial performance is researched. The results suggest there is no significant correlation between CSR and financial performance. It is also ambiguous whether this relation would have to be positive or negative. The relation between CSR and financial performance is indeed different across industries. Based on this research there is no optimal amount of CSR to maximize financial performance since there is no significant correlation between these two.

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Chapter 1: Introduction

1.1 Introduction to CSR

The last few decades corporate social responsibility (CSR) has become a hot topic. During this time a steep increase in the number of companies that are involved in CSR and report on the environmental and social issues, apart from the regular financial statements, was seen (Korobjanko, 2011). Nowadays CSR has come to a point where it is grown up. Within all branches and sectors companies are striving for the awareness and reporting towards CSR. There are differences within sectors, but entrepreneurs who are unaware of the term sustainability do not exist anymore (Reinhoudt & Teuns, 2017).

The increase of awareness on CSR is supported by the European Union (EU), where even a CSR strategy was thought out (“Corporate Social Responsibility”, 2018). The European Commission has defined CSR as the responsibility of enterprises for their impact on society. They state that CSR is important for sustainability, competitiveness and innovation of the enterprises within the EU.

They claim CSR is important for three different reasons. The first reason is that CSR is in the interest of enterprises, because it will provide benefits in cost savings, access to capital, customer relationships, HR management and the ability to innovate. The second reason provides benefits for the European Union; CSR will make companies more sustainable and innovative which contributes to a more sustainable economy. The last reason is the benefits for the society. CSR offers values that build a more cohesive society and make the transition possible to a more sustainable economic system. These three reasons thus show that CSR benefits the European Union, the society and the companies.

1.2 Research question

Not only the European Commission is involved in CSR; the government of the Netherlands also stepped in on this subject. The government requires companies to be transparent about their CSR policies and activities and has even introduced a special benchmark to assess the CSR. (“Transparantie-Benchmark”, 2015). This special benchmark, which was implemented since 2004, has the goal of measuring and stimulating the qualitative and quantitative development of CSR among Dutch companies (“About Transparency Benchmark”, 2018). According to the European Commission, CSR should be company led. Public authorities can play a supporting role however through a mix of voluntary policy measures and complementary regulation (“Corporate Social Responsibility”, 2018). The government of the Netherlands supports CSR through the benchmark, while the European Union claims there are (financial) benefits for the companies themselves already. If there are already enough benefits for companies to improve their CSR, it seems odd that the government of the Netherlands still implements this benchmark to enhance CSR. Apparently, there are not enough reasons for companies to enhance the improvement of CSR in the Netherlands. Improving CSR should be beneficial for the goals of the company and according to Milton Friedman companies only have one goal: to increase profits (1970). Therefore, the following research question is proposed:

Does corporate social responsibility significantly increase corporate financial performance within Dutch companies?

1.3 Relevance

There are several reasons to investigate the correlation between CSR and financial performance within Dutch companies. If companies act according to Friedman's perception of company goals, they will not do good through CSR unless it will provide economic benefits. Companies might act more consciously towards stakeholders when a positive link between CSR and financial performance would legitimize the investment in CSR (Margolis et al., 2009). Even additional costs towards CSR will be justified when the financial performance increases in the future.

A lot of research was already done on the relation between CSR and financial performance already (Margolis et al., 2009). But not specifically on Dutch companies.

Through a dialogue between stakeholders from eight different countries it became clear that divergent understandings of CSR exist between countries (Holme & Watts, 2000). It became clear that different social expectations are placed upon corporations within specific social contexts. A research of Wanderley et al. (2008) took this into account and investigated the link between CSR disclosure and the influence of country of origin. The outcome was that country of origin has a significant influence over CSR disclosure. Therefore, it makes sense to investigate Dutch companies only on the relation between CSR and financial performance, since this outcome may be different from other countries.

1.4 Structure

To answer the research question, first several hypotheses are proposed through a theoretical background in chapter 2. After this theoretical framework, the methodology of the data analysis will be described in chapter 3. Then the results of the analysis will be discussed, and the hypotheses will be answered in chapter 4. Afterwards conclusions will be drawn in chapter 5, the research question will be answered, and further recommendations will be made. At the end of this research a reference list and the appendices list containing the data tables used in the discussion are found.

Chapter 2: Theoretical framework

2.1 Introduction

CSR can be used by all types of firms, even though not all firms might be fully aware of this. Small and medium-sized enterprises (SME's) may not use the term CSR; but might already have a natural responsible approach to business ("CSR in practice", 2018). Through close relations with employees, local communities and business partners they meet their social responsibility goals, most likely in an informal and intuitive manner.

Large firms and SME's differ in critical points, thus there is a different approach towards CSR (Russo & Perrini, 2010; Welsh & White, 1981). Russo and Perrini state that social capital is most useful for understanding CSR policies for SME's, while the CSR policies for large companies are more closely related to the stakeholder theory.

In chapter 1 it was already mentioned the research will be done by using an existing benchmark. The benchmark on CSR by the Dutch government, is mainly on large sized enterprises ("Participation protocol", 2017). Since mostly large companies will be investigated, the stakeholder theory needs to be further investigated according to Russo and Perrini. Therefore, the stakeholder theory will be discussed first, since this theory is found to be a driver for the CSR policy of large firms.

2.2 Stakeholder theory

The stakeholder theory was developed as a counterpart to the dominant way of understanding business over 30 years ago (Freeman et al., 2010). Firms were seen as the property of their owners, shareholders in the case of public companies, and the effect upon others was supposedly limited. The ideas in the world of business were built on the idea that questions of value and ethics are at best "extra-theoretic" and not relevant. This is consistent with the view of Friedman (1970): the only goal of a company should be increasing profits. The stakeholder theory was initiated by Freeman (1984) to counter this mindset. The business world was changing since more people were becoming aware of the effects of capitalism on the environment and lives around them. Questions arose concerning the separation of business and ethics; in practise it was found to be more convenient to combine these two (Freeman et. al, 2010).

Also, because of the stakeholder theory, the focus shifts from the shareholders to the broader term stakeholders.

The stakeholder theory is based on the term stakeholder, defined as: any group or individual who can affect or is affected by the achievement of the firm's objectives (Roberts, 1992). The term stakeholder thus includes stockholders, creditors, employees, customers, suppliers and the government. Freeman (1984), the initiator, discusses the influence of stakeholders on corporate decisions. He states the corporate management has to assess the importance of meeting the stakeholder demands. The importance of meeting stakeholder demands also depends on the strategic objectives of the firm. As the level of power of the stakeholders increases, it becomes more important to meet the demands of the stakeholders (Roberts, 1992).

Following the ideas of Freeman, resulting in the stakeholder theory, Ullman (1985) presented a three-dimensional model to explain the correlations between social disclosure, social performance

and economic performance (Roberts, 1992). The first dimension is stakeholder power; this explains that a firm will respond to the intensity of the stakeholder demands. When stakeholder resources are more critical to the success of the firm, the demands of the stakeholders will be addressed to a greater extent. The second dimension is the firm's strategic response towards CSR activities by the key decision makers. In this second dimension there are passive and active responses; an active response would be a management board that tries to influence the firm's status through CSR activities. A passive response would be management board that is not constantly monitoring its position with stakeholders and is not developing special programs to address stakeholder influences. Last, but not least, the third dimension is the company's past and current economic performance. However important the social responsibility goals may be, these goals may be secondary compared to economic goals that impact the continuation of the firm. Economic performance directly affects the ability to institute CSR programs financially. Therefore, considering the two other dimensions, economic performance and social responsibility activities and disclosure are positively correlated according to Ullman. The theory proposed by Freeman and Ullman was tested empirically by Roberts (1992). The results of the study supported the framework discussed above.

2.3 CSR and financial performance

Van Beurden and Gossling (2008) performed a literature review on research that used the described views of either Friedman or Freeman. They did research among papers that investigated the relation between the variables CSR and financial performance. According to Van Beurden and Gossling the relation between financial performance and CSR is one of the older questions in the debate on CSR (2008). Many research papers have been done, but still researchers state there is no clear answer to the question whether CSR pays off financially. In the research of Van Beurden and Gossling a literature review was performed on a variety of papers, regarding this question. Most of these papers showed a positive correlation between CSR and financial performance (He et al., 2007; Luo and Bhattacharya, 2006; Peinado-Vara, 2006; Schnietz and Epstein, 2005). He et al. (2007) investigated the improvement of economic performance through the mediators CSR and adaptive capability. This empirical research was based on over 400 questionnaires from China and explains the positive indirect relation between non-market strategy and financial performance. Luo and Bhattacharya (2006) test a conceptual framework which predicts that customer satisfaction partially mediates the relation between CSR and the market value of the firm. Based on a large data set they conclude that there is a positive relation between CSR and market value, but this is subject to the innovativeness ability of a company which can influence the relation through customer satisfaction levels. When firms have low innovativeness capability CSR reduces customer satisfaction levels, and this will harm the market value in the end. Peinado-Varo (2006) shows in her research, based on two cases, that profits and a contribution to poverty alleviation go hand in hand. Profits are therefore positively related with CSR according to Peinado-Varo.

Schnietz and Epstein (2005) state that most researches had been done on the firm's reputation (CSR) and financial consequences regarding positive news. They decided to investigate the relation between financial performance and CSR regarding negative news: the economic crisis. By examining the investor reaction during the 1999 Seattle WTO failure, they discovered that a reputation for social responsibility protected firms from stock declines associated with the crisis. This research therefore shows a positive relation between financial performance and CSR.

Out of the 31 papers researched by Van Beurden and Gossling, 6 stated there is no influence of CSR on the financial performance (Van de Velde et. al, 2005; Seifert et. al, 2004; Moore, 2001). Van de Velde et. al (2005) investigated the interaction between sustainability and financial performance through the comparison of the returns of traditional investors and socially responsible investors. The results show a better performance for high sustainability-rated portfolios compared to low-rated portfolios. Although the results provide a certain difference between the return of traditional investors and socially responsible investors, the outcome is not significant. This can be due to the short horizon of the research however, but this research shows no significant interaction between CSR and financial performance. Seifert et. al (2004) investigated the correlation between corporate philanthropy and financial performance based on Fortune 1000 companies. They find a significant impact of cash flow on donations to charitable causes, but this relation does not work vice versa. The findings imply no significant effect on profits resulting from corporate generosity. Moore (2001) researched the relation between financial performance and CSR regarding supermarkets. The outcome was ambiguous: social and financial performance are negatively related, while prior-period financial performance is positively related with subsequent social performance. There were no significant values, but according to Moore this was not surprising since only eight supermarkets were taken into account.

In the literature research of Van Beurden and Gossling two of the papers concluded there is a negative relation between CSR and financial performance (Brammer et al., 2006; Boyle et al., 1997). Brammer et. al (2006) examined the relation between CSR and stock returns for the UK. CSR scores were found to be negatively related to stock returns and firms that attributed well to CSR were found to have a poor financial reward as a result. Considerable abnormal returns were available when holding a portfolio consisting of the socially least desirable stocks. A significant negative relation between CSR and financial performance was found. Boyle et. al (1997) set up an investor decision framework to measure and explain how investors perceive the effect of CSR on firm value. They predicted beforehand that CSR and firm value would be positively correlated, but the opposite happened. According to them investors perceive a negative effect of CSR on future cash flows.

Most of the papers in the research of Van Beurden and Gossling show a significant positive relation. Van Beurden and Gossling thus conclude there is clear empirical evidence for a positive correlation between CSR and financial performance. They point out the information that suggests otherwise, is out-dated.

An even wider performed research, a meta-analysis, by Margolis et al. (2009) took 251 studies into account. Papers from all times, since the beginning of research of the relation between CSR and financial performance till 2009, are included. The overall relation between CSR and financial performance was found to be positive but small, when including all researches. They also took the 106 researches from the last decade apart, which resulted in an even smaller positive relation between CSR and financial performance. The outcome of the meta-analysis is thus that CSR does not penalize the companies financially for the investment. At the same time, CSR does not have such a significant positive effect on the financial performance either. According to Margolis et al. a small positive relation between financial performance and CSR is all that is needed already, since that might be enough for management to engage in CSR. They state this is already proven by the fact all the firms in the 251 researches were involved in CSR.

Even though there is a positive correlation for most of the investigated papers, not all researches came to the same conclusion. After the research of Van Beurden and Gossling and Margolis et al., more researches appeared that did not find any or a negative correlation (Choi et al., 2010; Crisostomo et al., 2011). Also, a meta-analysis was performed by Revelli and Viviani (2015) which concluded no correlation exists between the amount invested in CSR and the financial performance. This meta-analysis consists of 85 studies and 190 experiments; thus, a total of 275 researches are included. Revelli and Viviani suggest that the 'data-driven' research in this field for the past 20 years generated a lack of consensus that their study overcomes. It is still ambiguous whether a significant relation exists therefore and thus this first must be investigated. Since the majority of the research states there is a positive relation between CSR and financial performance however, the first hypothesis is:

Hypothesis 1: There is a significant positive relation between CSR and financial performance.

In the same research of Van Beurden and Gossling (2008) various confounding variables of the researches were discussed. The second most named confounding variable was industry. Industry affected the research outcome in 6 studies. Many studies incorporate multiple industries, and this may influence the reliability of individual research conclusions (Griffin and Mahon, 1997).

2.4 Industry as a confounding variable

Already in 1977 Sturdivant and Ginter concluded that industry needs to be considered when studying CSR. Cottrill even states that research that does not incorporate industry level will be deficient (1990). Boutin-Dufresne & Savaria (2004) collaborate further on this by arguing that firms in particular industries need to be more socially responsible simply by the nature of their activities. Simpson and Kohers (2002) argue that differences between industries concerning CSR are big enough to stick to one industry at a time when doing research. Wanderley et al. (2008) already concluded that country of origin has a significant influence over CSR information disclosure. But they also concluded that industry sector has a relation with CSR disclosure. This relation might be smaller than the country of origin and CSR, but it is still a significant one. Sweeney and Coughlan (2008) also conclude there is a significant difference between industries in the reporting of CSR. They state this is consistent with the stakeholder theory since companies are focussed on the stakeholders and therefore differentiate in the CSR reporting. Hoepner and Yu (2010) extend these outcomes even further, and state that there are several factors of CSR that impact the financial performance. Industrial characteristics is one of these factors.

The economy of the Netherlands can be subdivided into 17 different industries according to the Ministry of Economic affairs and Climate policy ("Scores", 2017). In the transparency benchmark by the same ministry these industries all score very differently concerning CSR. Considering the mentioned researches above, it can be useful to distinguish between industries and investigate the correlation between CSR and financial performance. Therefore, the following hypothesis is proposed:

Hypothesis 2: The correlation between CSR and financial performance is different per sector

As stated before, the Dutch government stimulates CSR through a transparency benchmark ("About Transparency Benchmark", 2018). This benchmark is one of the means of the Dutch government to

stimulate CSR (“Rijksoverheid stimuleert...”, n.d.). There are no regulations that currently support this stimulation towards CSR. It would be possible for Dutch companies to not perform CSR at all. However, would this be optimal in financial terms?

2.5 Optimal CSR performance

According to Dahlsrud (2008) the definitions of CSR do not provide any description of the optimal CSR performance. The processes by which the optimal CSR performance can be achieved however are described in these definitions. Dahlsrud states that the voluntary dimension of CSR implies that companies should perform above the regulated requirements. The reason is that these regulated requirements are set at the minimum performance level that is profound acceptable.

The minimum level is thus the regulatory level. The question remains what should be done above this level or when there is no regulation at all; which is the case in the Netherlands. According to Dahlsrud the only answer is to look towards the stakeholders. The optimal CSR performance is thus dependent of the stakeholders of the company.

Bartkus et al. (2002) state there is an optimal level of investment in CSR. They point out that managers might overinvest because of managerial self-interest at the expense of the shareholders and this will not be accepted by the stockholders. Overinvestment meaning investments beyond the optimal level of a firm will have a negative net present value.

Brammer and Millington (2008) suggest that there is a difference between short and long term financial performance concerning investments in CSR. Firms with extremely high performance in CSR are expected to have a better performance in the long run because they achieve differentiation in the eyes of the important stakeholders. In the short run, firms with extremely low performance in CSR will have a better financial performance compared to others *ceteris paribus*.

The optimal CSR level also depends on the business risk of the firm according to Godfrey (2005). Firms with a higher business risk will have a higher optimal CSR level, since these firms are more vulnerable to negative events. The insurance provided by CSR against crisis is valued more, and thus the optimal CSR level will be higher.

Since smaller firms have more difficulty in gaining access to key resources, they are more vulnerable to adverse business events. When a firm grows it will develop ties with a variety of resource providers and will have a lower business risk (Richardson & Welker, 2001; Stinchcombe, 1965). For large firms, the insurance provided by CSR will not be as necessary as for smaller companies.

Another factor influencing the level of optimal CSR is the so-called stakeholder influence capacity (SIC). This captures the ability of the firm to use CSR to improve relationships with key stakeholders in a profitable way (Barnett, 2007). Barnett states that financial benefits from CSR vary with the SIC. If the societal expectations of the CSR of a firm are increase, the SIC will decrease *ceteris paribus*. Large firms tend to face high societal expectations, thus a certain level of CSR investment will lead to a lower SIC. The lower SIC shows that the financial reward on CSR investment for large companies is smaller. Therefore, the benefit on CSR investment is bigger for small firms than large firms.

Taking the above points into account, Ye and Zhang (2011) investigated whether it is indeed true that the optimal level of CSR is higher for small firms compared to large firms. They also investigated whether it is true that the optimal level of CSR is higher for high risk companies. In the end, Ye and Zhang concluded that the optimal level of CSR is higher for small firms compared to large firms. They also provided evidence for the optimal level of CSR being higher for high risk companies.

Considering all the mentioned research on the optimal point of CSR, it seems logical to investigate an optimal point to maximize financial performance within Dutch companies as well. Hence the following hypothesis:

Hypothesis 3: There is an optimal level of CSR to maximize financial performance

2.6 Summary

The stakeholder theory proposes a possible relation between CSR and financial performance. Many researches were done, and indeed a majority found a positive significant relation between CSR and financial performance. There were still papers that did not find this relation, but instead found a negative or non-significant relation. Therefore, the first hypothesis proposed is:

Hypothesis 1: There is a significant positive relation between CSR and financial performance.

When investigating the relation between CSR and financial performance several other variables have to be taken into account. Industry is one of these variables and was even found to be a confounding variable. This would also be consistent with the stakeholder theory since companies are focussed on the stakeholders and therefore differentiate in the CSR reporting. Therefore, the second hypothesis proposed is:

Hypothesis 2: The correlation between CSR and financial performance is different per sector

The Dutch government does not have regulations currently that stimulates CSR. It can be beneficial however for companies to get involved in CSR more than the rules require. An optimal level of CSR might exist according to the literature. Therefore, the following hypothesis is proposed:

Hypothesis 3: There is an optimal level of CSR to maximize financial performance

Chapter 3: Methodology

3.1 Introduction

In this chapter the methodology of the empirical research will be explained. The results will be discussed in chapter 4. First the datasets of the CSR measure and financial performance measures are described. Then, the regression models and their variables will be explained for hypotheses 1 and 2. For hypothesis 3 an analysis based on graphs is explained. Afterwards the validity and reliability regarding this study are discussed.

3.2 Dataset CSR

To answer the research question, two measurements will be used. The first measure is that of the transparency of CSR towards the stakeholders. This will be measured by the Transparency Benchmark, which is provided every year up to 2017 ("Scores", 2017). Companies are selected for the benchmark based on the database 'Reach', which has information regarding more than 3.6 million Dutch firms. Firms are selected based on their profit and number of employees; only larger companies are selected ("Participation protocol", 2017). The list of selected companies consists of several groups;

- OOB's (Organisaties van Openbaar Belang) with 500 employees or more;
- Companies with a listing in Amsterdam;
- Companies with operations within the Netherlands with an accountable turnover and/or number of employees;
- Participation of governmental organisations;
- Universities, University Medical Centres and Universities of Applied Sciences;
- Large companies (more than 250 employees) that voluntarily joined the research group this year or in the past.

The Transparency Benchmark is performed based on public, periodic accounting information provided by the companies included in the benchmark. The benchmark focusses not only on (financial) reports, but also CR reports, sustainability reports and social reports. The results of the benchmark of the years 2009-2017 will be used.

3.3 Dataset financial performance

The second measure used is the financial performance of the companies included in the benchmark. The financial performance can be measured by two different measures according to Van Beurden and Gossling (2008): market-based measures and accounting-based measures. Market-based measures include stock performance, market return, market value to book value, price per share and share price appreciation. In this thesis the earnings per share (EPS) will be used as a market-based measure. Accounting-based measures include profitability measures, asset utilization, such as return on asset and asset turnover, and growth. In this thesis the return on assets (ROA) will be used as an accounting-based measure.

The research will be executed by using both market-based and accounting-based measures since the outcome may be different. Wu (2006) reports, for example, that studies using market-based measures report a smaller relation between CSP and CFP than studies using accounting-based

measures. This comparison will however only be possible for companies listed since EPS can only be calculated when companies sell shares.

The financial data was retrieved from the database Orbis, which is provided by Bureau Van Dijk. The companies from the transparency data were found in the database 'Reach', which is also included in Orbis. For the research the databases had to be combined. Unfortunately, not all the financial information was available for the companies ranked in the benchmark, thus the sample consists of 42 companies monitored over the years.

3.4 The regression model

For the first and second hypotheses a regression model is built consisting of various variables. There are two regression models since a market-based and an accounting-based measure are used.

$$ROA_{i,t} = \alpha + \beta_1 \cdot CSR_{i,t} + \beta_2 \cdot Size_{i,t} + \beta_3 \cdot Risk_{i,t} + \beta_4 \cdot IND_{i,t} + \beta_5 \cdot R\&D_{i,t} + \epsilon_{i,t}$$

$$EPS_{i,t} = \alpha + \beta_1 \cdot CSR_{i,t} + \beta_2 \cdot Size_{i,t} + \beta_3 \cdot Risk_{i,t} + \beta_4 \cdot IND_{i,t} + \beta_5 \cdot R\&D_{i,t} + \epsilon_{i,t}$$

ROA _i :	(Net profit / total assets)
EPS _i :	(Income / weighted average number of outstanding common shares)
α:	Intercept, the estimated value of FP _i
CSR _i :	Lagged CSR benchmark score
Size _i :	Proxy for the size of the company (ln of total assets)
Risk _i :	Proxy for the risk of the company (total debt / total assets)
IND _i :	Industry (2 digits industry code)
R&D _i :	R&D intensity (R&D expense / sales)
ε _i :	Residual, part of the observed FP _i that is not explained by the model
t:	Year index (2009 – 2017)
i:	Company index

These variables will be discussed next, starting with the dependent variable, then the independent variable and in the end the four control variables.

3.4.1 The dependent variables

3.4.1.1 ROA

One of the measures of financial performance that will be used is return on assets (ROA). ROA is an accounting-based measure that is often used in prior studies to measure financial performance. (McGuire et al., 1988; Waddock & Graves, 1997; Nelling & Webb, 2009; Raza et al., 2012). The ROA is calculated by dividing net profit before tax by total assets, as stated in the database Orbis.

Accounting-based measures can however be biased, due to differences in accounting procedures and managerial manipulation (Scholtens, 2008). That is why a second measure for financial performance is used as well; the market-based EPS.

3.4.1.3 EPS

The other financial performance measure used for the regression model is earnings per share (EPS). EPS is defined as the income available to common shareholders divided by the weighted average number of outstanding common shares for the period (Balsam & Lipka, 1998). EPS is a market-based measure, that is previously used in many studies (Pax et al., 2014;). As stated above accounting-based measures can be biased because of managerial manipulation. Market-based measures are not easily manipulated by the management since the measure refers to investor expectations and evaluations of firm performance. There is however also a weakness for market-based measures; if there is asymmetric information they will not reflect fair evaluation from investors (Scholtens, 2008).

3.4.2 The independent variable

There is one independent variable used in the regression model: the benchmark score. Every year a list is published by the Dutch government that ranks the companies participating. In order to rank the companies a benchmark score is given between 0-200 ("Transparantie-Benchmark", 2017). The score consists of 8 different parts, which are areas that companies are scored on:

1. Company and Business model
2. Policy and results
3. Management approach
4. Relevance
5. Clearness
6. Reliability
7. Responsiveness
8. Coherence

The scores in these 8 different areas are summed up yearly and this will total the benchmark score. This benchmark score is used as the independent variable in the regression model.

3.4.3 Control variables

There are several control variables that need to be implemented in the regression model. Ullman (1985) stated that size, risk and industry should be considered since they both influence CSR and financial performance. According to Ching et al. (2017) there is another control variable that should be included in the regression model: R&D expense. They state that larger firms with more investment in R&D are more likely to engage in sustainability initiatives and practices compared to smaller firms. The four control variables size, risk, industry and R&D will be described below.

3.4.3.1 Size

In the early stages of research to the link between CSR and financial performance size was found to be a variable that influences both CSR and financial performance (Ullman, 1985). According to Fry and Hock (1976) size related variables are the most important explanatory variables regarding the quantity of social disclosure. Spicer (1978) found that better pollution performance is associated with larger firm size, as well as lower risk and higher profitability. Another research by Chen and Metcalf (1980) showed that firm size explained both pollution and financial performance.

More recently, Van Beurden and Gossling (2008) state that size was the most important factor found in their extensive literature review. It is clear therefore that size should be included as a confounding variable. There are several ways to measure size according to the meta-analysis of Orlitzky et al. (2003), but in this research the log of total assets will be used.

3.4.3.2 Risk

In the same research Van Beurden and Gossling (2008) describe other factors, next to size, that also influence the relation between CSR and financial performance. These factors are industry, R&D and risk. Waddock and Graves (1997) explain several reasons to include risk. The amount of risk tolerance from the management is the base of these reasons since this influences the attitude towards CSR activities. The first reason is that management risk tolerance influences elicited savings. These savings can be costly in the beginning, for example recycling or waste reduction efforts, but are potentially saving money in the long run. The second reason is that the risk tolerance can influence activities that incur present or future costs. An example can be the pollution control equipment that helps avoid fines in the future. The last reason is that risk tolerance can influence activities in building environmentally friendly markets and destroying perceived unfriendly markets. Therefore, it depends on the amount of risk a company is under whether the management decides to invest in CSR activities. Waddock and Graves (1997) use the level of debt held by a firm as the proxy for the management's risk tolerance.

Risk also affects financial performance (Choi & Wang, 2009). According to Opler and Titman (1994) debt could lead to financial distress, which can be costly for two reasons. The first reason is that debt can force a firm into making harmful decisions for debtholders and non-financial stakeholders. Secondly, financial distress can be costly since the firms' condition is weakened which gives the competitors the opportunity to gain a bigger market share.

As described above risk is thus a variable that influences both CSR and financial performance. In this research the leverage will represent the risk in the regression model. The leverage is computed by dividing total debt by the total assets (Ching et al., 2017).

3.4.3.3 Industry

As stated before in paragraph 3.4.3.2, Van Beurden and Gossling (2008) also talk about industry as a confounding variable. Waddock and Graves (1997) describe that main effects of the study may be blurred when the variable industry is not considered. Each industry experiences their own social arena where significant problems arise. Therefore, the understanding of the link between financial performance and CSR is not complete when the variable industry is not included.

In this research industry will be included in the regression model by using a 2 digits industry code. The different industries included in the data and thus in the regression model are:

- 36. Transport
- 37. Energy
- 38. Building and maritime
- 40. Real estate
- 41. Consumer produce
- 42. Food and drinks

- 43. Media
- 44. Services
- 45. Technology
- 46. Industry goods
- 49. Retail
- 50. Trading companies
- 51. Pharma
- 52. Remainder

3.4.3.4 R&D expense

Waddock and Graves (1997) found that there is a difference between industries regarding performance before, as was stated for the industry control variable. But even before this research they discovered that R&D investment also differs among industries (Waddock and Graves (1994). Ching et al. (2017) elaborate further on this, stating that within industries, large firms with more investment in R&D are more likely to engage in sustainability initiatives and practices compared to smaller firms.

In their research into the relation between CSR and financial performance McWilliams and Siegel (2000) claim to have found a flaw in previous econometric papers: not including R&D as a control variable. The model these researches are built on does not control for the R&D investment, while this is shown to be an important determinant of firm performance. They state that the result of leaving the R&D control variable out is an upward biased estimate of relation between CSR and financial performance. The outcome of their empirical research is indeed different from the researches before: they do not find a relation between CSR and financial performance. It is clear therefore that R&D should be used as a control variable, otherwise the outcome will be biased. The control variable for R&D is computed by dividing the R&D expense by the sales.

3.5 Regression across industries

As stated before in the theoretical framework there are significant differences across industries regarding CSR. In order to discover these differences, regressions will be performed per industry. There are 14 industries included in this research: Transport, energy, building and maritime, real estate, consumer produce, food and drinks, media, services, technology, industry goods, retail, trading companies, pharma and a remainder. The amount of data in the dataset differs per industry, and therefore four industries with the biggest amount of data entries are chosen to perform regressions on. These industries are (with the amount of data entries between brackets): Technology (71), industry goods (52), services (41) and building and maritime (36). Regression models will be performed on these different industries.

3.6 Optimal CSR level

For the third hypothesis no statistical test will be performed since the optimal CSR level will probably differ per firm. In the theoretical framework firm specific factors were mentioned that cause these differences across firms. The optimal CSR level of a specific firm is to be found by the management board per company. In order to see if there is an optimal level of CSR on company level, several

graphs are plotted for the levels of CSR and financial performance over the years. The optimal CSR level would be the level with the best financial performance. Only the companies that provide data over all years are included, since the graph is not accurate enough for only a few years.

3.7 Validity

All the variables and the regression model have been explained above, however this does not give any indication of the validity of the model. The validity of a research consists of two parts: external and internal validity.

The external validity is described as the extent to which the results of a study can be generalised across other situations (Winter, 2000). These other situations can consist of other populations, settings and times (Johnson & Christensen, 2000). This research focusses on Dutch companies only, which causes a lower validity since the outcomes may be applicable to the Netherlands only. The research however does include all different types of firms with sufficient information over the past years. These firms were mostly selected by the government. This means there is no self-selection bias of the participating firms. The results can be applied to all types of firms within the Netherlands, which results in an average external validity.

The internal validity is described as the extent to which the results of the study relate to and are caused by the phenomena under investigation and not by unaccounted influences (Winter, 2000). Several variables are already included in the regression model stated at the beginning of chapter 3, including control variables. The most common control variables according to Ching et al. (2017) have been included in the study. Therefore, it can be said that the internal validity is high.

3.8 Reliability

When researching the relation between CSR and financial performance, it is good to be aware that a possible relation may work two ways. According to Nelling and Webb (2009) the causal relation between CSR and financial performance is seen as a “virtuous circle”. CSR may lead to an increased financial performance, while increased financial performance can result in a higher spending on CSR. Empirical evidence suggests that the causal relation works both ways regarding CSR and financial performance (Nelling and Webb, 2009). This so called reverse causality, the “virtuous circle”, has to be ruled out when the effects of CSR on financial performance are being researched. If reverse causality is not considered, the outcome of the research is biased and therefore not reliable.

Another problem that occurs when researching the correlation between CSR and financial performance is endogeneity. Garcia-Castro et al. (2009) state that endogeneity is one of the reasons that there are heterogeneous results in previous research. When there is no correction for endogeneity, the outcome of a research will be biased (Shahzad & Sharfman, 2017).

The solution to both reverse causality and endogeneity is the use of the lagged value for CSR (Shahzad & Sharfman, 2017; Scholtens, 2008; Mahoney & Roberts, 2007). The causal association will flow from CSR and the control variables to financial performance and potential endogeneity is avoided. Therefore, CSR is measured by the lagged value of CSR in the regression model.

3.9 Summary

In this chapter the datasets were described for CSR and financial performance. The data for the CSR measure comes from the government benchmark and the data for financial performance from Orbis. A regression model was built for the first two hypotheses, the independent variable is the benchmark score and the dependent variable is the ROA or the EPS. The control variables included are size, risk, industry and R&D. Several graphs will be used in order to discuss the optimal value of CSR. The validity and reliability of the research were discussed as well.

Chapter 4: Discussion

4.1 Introduction

In chapter 4 the results of the regression analysis will be discussed. The data is analysed using SPSS and first the normality and descriptive statistics are addressed. After this the Pearson correlations are discussed which is followed by the output of the regression models. The first hypothesis is answered afterwards. Then regression models are analysed for the different industries in order to answer hypothesis 2. Lastly, hypothesis 3 is discussed through graphs containing functions for CSR and financial performance for each company.

4.2. Descriptive statistics

First, the normality of the distribution of ROA and EPS is checked. A histogram and boxplot were made for both EPS and ROA in order to see the normality of distribution. These histograms and boxplots are visible in appendices 1 and 3. The normality tests, consisting of the Kolmogorov-Smirnov test and the Shapiro-Wilk test, both show the sample has an approximate normal distribution.

The descriptive statistics in table 1 consist of all the variables, including dependent, independent and control variables. The range of ROA is broad from -72.256 to 45.757 and the mean is 5.466. The mean indicates the average of the variable. The range of EPS is -8.781 to 16.848 with a mean of 1.124. The sample size is bigger for the dependent variable ROA compared to EPS. This is because the sample was taken over all types of companies in the Netherlands, including the ones that are not traded on the stock market. ROA is also known for non-trading companies, thus ROA provides a bigger sample. The independent variable, CSR, ranges from 0-199. The average score increases every year (“Transparantie-Benchmark”, 2017).

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
ROA	347	-72.25600	45.75700	5.46587	10.74709	115.500
EPS	338	-8.78099	16.84800	1.12409	2.07252	4.295
CSR	347	0	199	82.76	63.695	4057.076
Size	347	9.46164	17.59183	14.17854	1.74601	3.049
Risk	347	.06146	1.28011	.586764	.1729529	.030
Industry	347	36	52	43.55	3.785	14.323
R&D	347	.00000	.56006	.01910	.05082	.003
Valid N (listwise)	338					

Table 1

4.3. Correlation between CSR and the dependent variables

The regression model was already developed in chapter 3, but it is still important to check the Pearson correlations between the variables and CSR. The Pearson correlation between ROA and EPS with regards to CSR is also the first step towards answering hypothesis 1. The results of the correlation between ROA and CSR including the control variables are seen in table 2.

The Pearson correlation between CSR and ROA is small at a positive value of 0.01¹. That means that the correlation is positive, yet weak. This weak relation is not statistically significant.

The control variables do show a bigger Pearson correlation towards CSR. Sector and R&D have a negative Pearson correlation, which means that if CSR level increases R&D will decrease. Size and risk have a positive Pearson correlation, which means they will increase when CSR level is increased as well. Size has the biggest Pearson correlation with a value of 0.509, which means the relation has an average strength. The Pearson correlation of the other control variables are lower, which means there is a weaker correlation between these variables and CSR. The Pearson correlation is statistically significant at the 0.01 level, which indicates that CSR and the control variables significantly influence each other, for the known Pearson correlation level.

The Pearson correlation is different for ROA and the control variables. R&D, risk and sector have a negative Pearson correlation. Only the size has a positive Pearson correlation. The Pearson correlation for R&D has an average strength, while the others have a weak correlation. All these correlations are statistically significant at a 0.01 level.

Correlations

		ROA	CSR	Size	Risk	Industry	RD
ROA	Pearson Correlation	1	.010	.039	-.208*	-.073	-.471*
	Sig. (2-tailed)		.852	.475	.000	.175	.000
	N	347	347	347	347	347	347
CSR	Pearson Correlation	.010	1	.509*	.165*	-.173*	-.147*
	Sig. (2-tailed)	.852		.000	.002	.001	.006
	N	347	347	347	347	347	347
Size	Pearson Correlation	.039	.509*	1	.253*	-.261*	-.208*
	Sig. (2-tailed)	.475	.000		.000	.000	.000
	N	347	347	347	347	347	347
Risk	Pearson Correlation	-.208*	.165*	.253*	1	-.262*	-.016
	Sig. (2-tailed)	.000	.002	.000		.000	.770
	N	347	347	347	347	347	347
Industry	Pearson Correlation	-.073	-.173*	-.261*	-.262*	1	.258*
	Sig. (2-tailed)	.175	.001	.000	.000		.000
	N	347	347	347	347	347	347
R&D	Pearson Correlation	-.471*	-.147*	-.208*	-.016	.258*	1
	Sig. (2-tailed)	.000	.006	.000	.770	.000	
	N	347	347	347	347	347	347

*. Correlation is significant at the 0.01 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.10 level (2-tailed).

Table 2

¹ <https://www.spss-tutorials.com/pearson-correlation-coefficient/>

For CSR and EPS, the same Pearson correlation values can be calculated, which is seen in table 3. CSR and EPS have a weak Pearson correlation of 0.039. This means changes in CSR are barely correlated with changes in EPS. Also, this correlation is statistically not significant.

The control variables have a bigger Pearson correlation towards EPS, but the Pearson correlation is still weak for all of them. R&D and risk are negatively correlated while sector and size are positively correlated. Only size and risk are statistically significantly related to EPS, but still have a quite weak Pearson correlation.

		Correlations					
		EPS	CSR	Size	Risk	Industry	RD
EPS	Pearson Correlation	1	.039	.185*	-.260*	.008	-.061
	Sig. (2-tailed)		.480	.001	.000	.884	.264
	N	338	338	338	338	338	338
CSR	Pearson Correlation	.039	1	.509*	.165*	-.173*	-.147*
	Sig. (2-tailed)	.480		.000	.002	.001	.006
	N	338	347	347	347	347	347
Size	Pearson Correlation	.185*	.509*	1	.253*	-.261*	-.208*
	Sig. (2-tailed)	.001	.000		.000	.000	.000
	N	338	347	347	347	347	347
Risk	Pearson Correlation	-.260*	.165*	.253*	1	-.262*	-.016
	Sig. (2-tailed)	.000	.002	.000		.000	.770
	N	338	347	347	347	347	347
Industry	Pearson Correlation	.008	-.173*	-.261*	-.262*	1	.258*
	Sig. (2-tailed)	.884	.001	.000	.000		.000
	N	338	347	347	347	347	347
R&D	Pearson Correlation	-.061	-.147*	-.208*	-.016	.258*	1
	Sig. (2-tailed)	.264	.006	.000	.770	.000	
	N	338	347	347	347	347	347

*. Correlation is significant at the 0.01 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.10 level (2-tailed).

Table 3

4.4 Regression results

In order to give an answer to hypothesis 1 the regression models for ROA and EPS are regressed. The first equation consists of ROA as the dependent variable, CSR as the independent variable and size, risk, industry and R&D as control variables.

The output for the first regression model can be found in the tables below. The first measure to look at is the measure R of the regression. The R of the regression represents the correlation coefficient

and can be considered as the measure for the quality of the prediction of the dependent variable². The R is 0.519 which indicates an average rate of prediction. The R² represents the proportion of variance in the dependent variable that can be explained by the independent variables. The R² is 0.269 in this case, which means 26.9% of the value of ROA is explained by the regression model. The F-value, from the ANOVA table, tests whether the regression model is a good fit for the data. The F-value is 25.31 with a significance of 0.000, which means this regression model is a good fit for the data. The intercept of the model is 16.32 and the first regressive coefficient is -0.005. This means that the relation between CSR and ROA in this model is negative and small. There is a negative association between ROA and risk, R&D and industry. Size is positively associated.

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	CSR, Size, Risk, Industry, R&D ^b	.	Enter

a. Dependent Variable: ROA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.519 ^a	.269	.259	9.25405164083 3143

a. Predictors: (Constant), CSR, Size, Risk, Industry, R&D

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10760.614	5	2152.123	25.131	.000 ^b
	Residual	29202.378	341	85.637		
	Total	39962.992	346			

a. Dependent Variable: ROA

b. Predictors: (Constant), CSR, Size, Risk, Industry, R&D

² <https://statistics.laerd.com/spss-tutorials/multiple-regression-using-spss-statistics.php>

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	16.320	8.556		1.907	.057
	CSR	-.005	.009	-.029	-.542	.588
	Size	.039	.345	.006	.112	.911
	Risk	-13.338	3.055	-.215	-4.365	.000
	Industry	-.029	.143	-.010	-.200	.841
	R&D	-100.474	10.298	-.475	-9.756	.000

a. Dependent Variable: ROA

The output for the second regression model, using EPS as dependent variable, can be found in the tables below. The R-value for this regression model is 0.369 which indicates low-sided quality of prediction of EPS. The R² is 0.123 which means that 12.3% of EPS is explained by the regression model. This is also a quite low percentage. The F-ratio is 10.465 with a significance of 0.000, which means this regression model is a good fit for the data. The intercept of the model is -1.12 and the first regressive coefficient is -0.002. This means that the relation between CSR and EPS is negative and small within this model. The control variables risk, R&D and industry are negatively associated. Size is positively associated.

Variables Entered/Removed^a

Model	Variables	Variables	Method
	Entered	Removed	
1	CSR, Size, Risk, Industry, R&D ^b	.	Enter

a. Dependent Variable: EPS

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.369 ^a	.136	.123	1.94073184535 2016

a. Predictors: (Constant), CSR, Size, Risk, Industry, R&D

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	197.071	5	39.414	10.465	.000 ^b
	Residual	1250.458	332	3.766		
	Total	1447.529	337			

a. Dependent Variable: EPS

b. Predictors: (Constant), CSR, Size, Risk, Industry, R&D

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	-1.120	1.829		-.612	.541
	CSR	-.002	.002	-.060	-.986	.325
	Size	.344	.074	.292	4.637	.000
	Risk	-3.850	.648	-.323	-5.937	.000
	Industry	-.005	.030	-.008	-.151	.880
	R&D	-.468	2.164	-.012	-.216	.829

a. Dependent Variable: EPS

4.5 CSR and financial performance

Different regression models have been tested and the Pearson correlation was checked for CSR and financial performance. Two measures, both accounting-based and market-based, were used to discover the relation between CSR and financial performance. The outcome of these tests gives the answer to the following hypothesis:

Hypothesis 1: There is a significant positive relation between CSR and financial performance.

The Pearson correlation test for both ROA and EPS showed a positive relation between CSR and financial performance. The regression results show a negative relation between CSR and ROA and a positive relation between CSR and EPS. Under the test for Pearson correlation it was found that CSR and financial performance, for both ROA and EPS, are not significantly correlated. The F-value for the regression models both were significant, indicating the models were a good fit for the data. The correlation between CSR and financial performance was relatively small however and in the case of EPS negative. Therefore, the first hypothesis is rejected.

4.6 Regression across industries

For the comparison across industries regarding the relation between CSR and financial performance four regressions are performed and the Pearson correlation is analysed. These regressions are based on the relation between CSR and ROA since ROA had the highest R².

The technology sector is the first sector to be analysed. First the Pearson correlation is computed for the technology sector. The results can be found in appendix 5. The relation between CSR and ROA is significant at a 0.05 level with a Pearson correlation of 0.294. This means that CSR and ROA are slightly correlated, at a significant level. The regression model can also be computed for the technology sector. The results can be found in appendix 6. The R-value is 0.382, which indicates a weak level of prediction. The R² is 0.146 which indicates that the regression model explains 14.6% of the variability in ROA. This is only a small part of ROA. The F-value is 2.813 and is significant at a 0.05 level. This means the regression model is a good fit for the data

For the second sector, industry goods, the Pearson correlation is performed as well and can be found in appendix 7. The Pearson correlation between CSR and ROA is -0.031 and is not significant. This indicates there is almost no correlation between CSR and ROA. The value indicates a small negative, non-significant relation. The regression model for the industry goods sector can be found in appendix 8. The R-value is 0.438, which indicates an average level of prediction of the regression model. The R^2 is 0.192, which means that only 19.2% of ROA is explained by this regression model. The F-value is 2.790 and is significant at a 0.05 level which means this model is a good fit for the data.

The third industry investigated is the service sector. The results can be found in appendix 9 for the Pearson correlation and in appendix 10 for the regression model. The Pearson correlation between ROA and CSR is -0.286 and significant at a 0.10 level. This indicates a negative significant correlation between ROA and CSR in the service sector. The R-value of the regression model is 0.493, which indicates an average level of prediction of ROA. The R^2 is 0.243 which means that ROA is explained for 24.3% by the regression model. The F-value is 2.892 and is significant at a 0.05 level. This means the regression model is a good fit for the data.

The last sector investigated is the building and maritime industry. The results for the Pearson correlation can be found in appendix 11 and the regression results can be found in appendix 12. The Pearson correlation between CSR and ROA in the building and maritime sector is -0.296. This indicates a weak negative relation between CSR and ROA, which is significant at a 0.10 level. The R-value of the regression model is 0.623. This indicates a good level of prediction of ROA by the regression model. The R^2 is 0.388, which means ROA is predicted by 38.8% by the regression model. The F-value is 4.921 and is significant at a 0.01 level. This means the regression model is a good fit for the data.

These four industries are to be compared in order to answer our second hypothesis:

Hypothesis 2: The correlation between CSR and financial performance is different per sector

Out of the four models only technology sector reports a significant relation between CSR and financial performance at a 0.05 level. The services and building and maritime sectors report a significance of 0.10. The technology sector is the only sector with a weak positive Pearson correlation. The other sectors report a weak negative Pearson correlation between CRS and financial performance. For the building and maritime sector, the prediction of ROA by the regression model is highest at a percentage of 38.8%. And the regression model that is the best fit for the data is also the model of the building and maritime industry. The correlation between CSR and financial performance is different per sector according to these results. Therefore, the second hypothesis is not rejected.

4.7 Optimal CSR level

To find out if there is such a thing as an optimal CSR level several graphs were made of the ROA and CSR levels of each firm. These graphs can be found in appendix 13. In total there are 34 graphs, for all the companies that provided data for 8 years in a row. All these graphs consist of two lines: the blue line for the CSR score and the orange line for the ROA. The x-axis is the time in years, and the y-axis are the CSR score and ROA. When comparing these graphs different trends are seen. The

majority of the graphs show a more or less horizontal line for ROA, while CSR moves in all different directions. These graphs clearly show no correlation and no optimal CSR level for these firms since the ROA is not adapting when CSR levels are changed.

There are also graphs that show counter movement between the CSR and ROA lines. This counter movement is observed in the graphs for Core laboratories N.V. and Fugro N.V. The graph for Core laboratories N.V. shows a low CSR score over the years till 2014. After that year the CSR score, and thus the investment in CSR, goes up. It is the other way around for ROA. The years up to 2014 show a high score for ROA. From 2014 onwards, the ROA drops and eventually ends up near zero. The CSR score has gone up till around 100. The movements of these two lines show at best that the optimal CSR level for this firm is low. The same reasoning accounts for Fugro N.V.

There is one graph that shows a parallel movement between CSR and ROA during these year. The graph belongs to the company Wessanen N.V. The lines follow the same direction, although the line for ROA reacts later to the CSR movement; it seems one year behind in reaction time. The CSR score is already a lagged score for one year, but it might be that the two-year lagged score had to be used. This could however also be a coincidence since this relation only shows for one graph out of the 34 in total. After analysing these graphs, the following hypothesis can be answered:

Hypothesis 3: There is an optimal level of CSR to maximize financial performance

When analysing the graphs, it becomes clear that there is no such thing as an optimal level of CSR for most firms in the data sample. Only three graphs show a possible optimal level of CSR. However, from the previous hypotheses it already became clear there is mostly no correlation between CSR and financial performance. Therefore, it is not possible to maximize financial performance through an optimal CSR level or any CSR level at all. This hypothesis is rejected.

4.8 Summary

In this chapter, three hypotheses were discussed and either rejected or not rejected. The first hypothesis was rejected; there is no significant positive correlation between CSR and financial performance. The second hypothesis was not rejected: the correlation between CSR and financial performance is different per sector. The third and last hypothesis was rejected: there is no such thing as an optimal level of CSR in order to maximize financial performance.

Chapter 5: Conclusion

5.1 Summary

This research focusses on the relation between CSR and financial performance within Dutch companies. In order to find the nature of this relation several hypotheses were investigated.

The first hypothesis was stated to test whether CSR and financial performance are significantly correlated and in which way. A literature review was performed on several studies, but no clear outcome on the relation between CSR and financial performance was visible. Most researches did however report a positive relation between CSR and financial performance. Regarding this study there is also no clear outcome whether CSR and financial performance are related positively or negatively. Also, it turns out that CSR and financial performance are not significantly correlated.

The second hypothesis was stated to test whether the relation between CSR and financial performance is different across industries. Industries was already accounted for as a control variable in the regression for the first hypothesis, but in the second hypothesis several industries were researched individually. The correlation for CRS and financial performance turned out to be different across industries. Three of the industries showed a significant correlation between CSR and financial performance.

The third hypothesis was stated to find out whether there is an optimal amount of CSR to maximize financial performance. Graphs of all companies with data over the complete sample period were discussed. Only three graphs showed some type of optimal amount of CSR. It cannot be said that there is an optimal amount of CSR to maximize financial performance however, since no significant correlation exists between CSR and financial performance. Financial performance cannot be maximized by CSR and therefore there is no such thing as an optimal amount of CSR in this study.

5.2 Conclusion

All the hypotheses were stated and rejected or not rejected in order to answer the following research question:

Does corporate social responsibility significantly increase corporate financial performance within Dutch companies?

The answer to this research question is no: CSR does not significantly increase corporate financial performance within Dutch companies. First of all, there is no significant relation between CSR and financial performance for the sample of Dutch firms. There is also no concrete evidence that CSR increases corporate financial performance. Counterintuitive results were found with regards to a negative or positive relation, if any, between CSR and financial performance. It is with these reasons that can be said that CSR does not significantly increase corporate financial performance within Dutch companies.

5.3 Limitations and suggestions for further research

There are several limitations to this study. The first limitation is the sample selection. Part of the sample of the CSR measure is based on voluntary application. This might result in a bias since these

firms are more motivated compared to a “normal” sample. For further research it would be recommended to pick the participants randomly.

Another limitation was the amount of financial data available in Orbis. The majority of firms in the CSR database were not present in Orbis, while this financial information is publicly available. In order to perform a research with a larger dataset, which is less biased, this financial information has to be collected by hand from the annual reports. This would be a research recommendation for the future to get a more reliable sample. This would also include more SME's, while the firms included in this sample were mostly listed companies.

A third limitation is the use of the lagged value of CSR without research in how many lags should be used. It might be that the reaction time for the ROA on CSR is longer than one year. A recommendation for further research would be to investigate the degree of lagging that fits best for the relation between CSR and financial performance.

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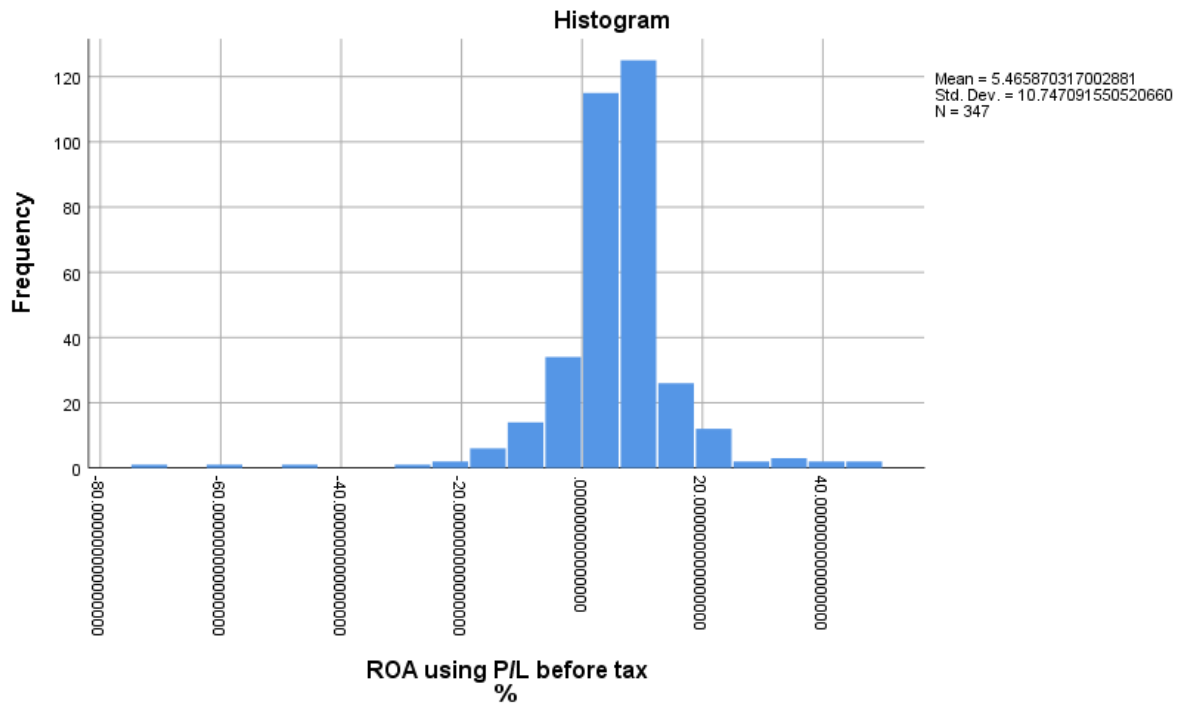
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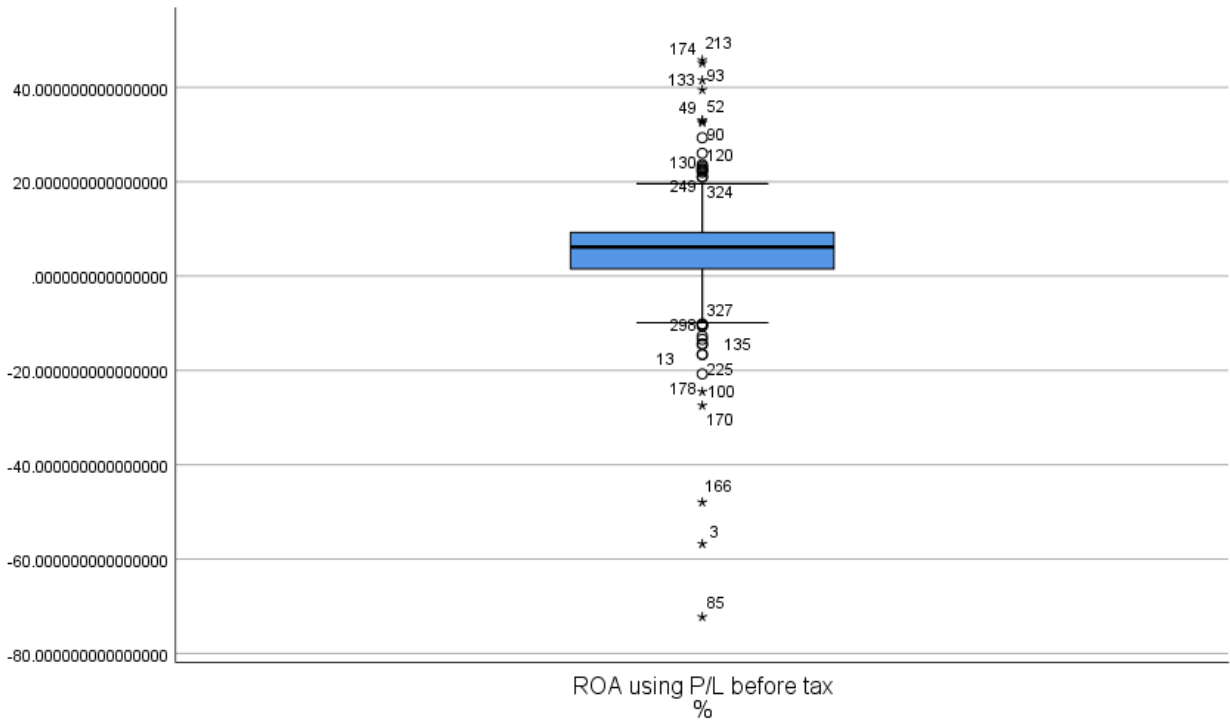
Appendices

Appendix 1: Normal distribution ROA

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ROA using P/L before tax %	.140	347	.000	.817	347	.000

a. Lilliefors Significance Correction





Appendix 2: Descriptive statistics ROA

Descriptives

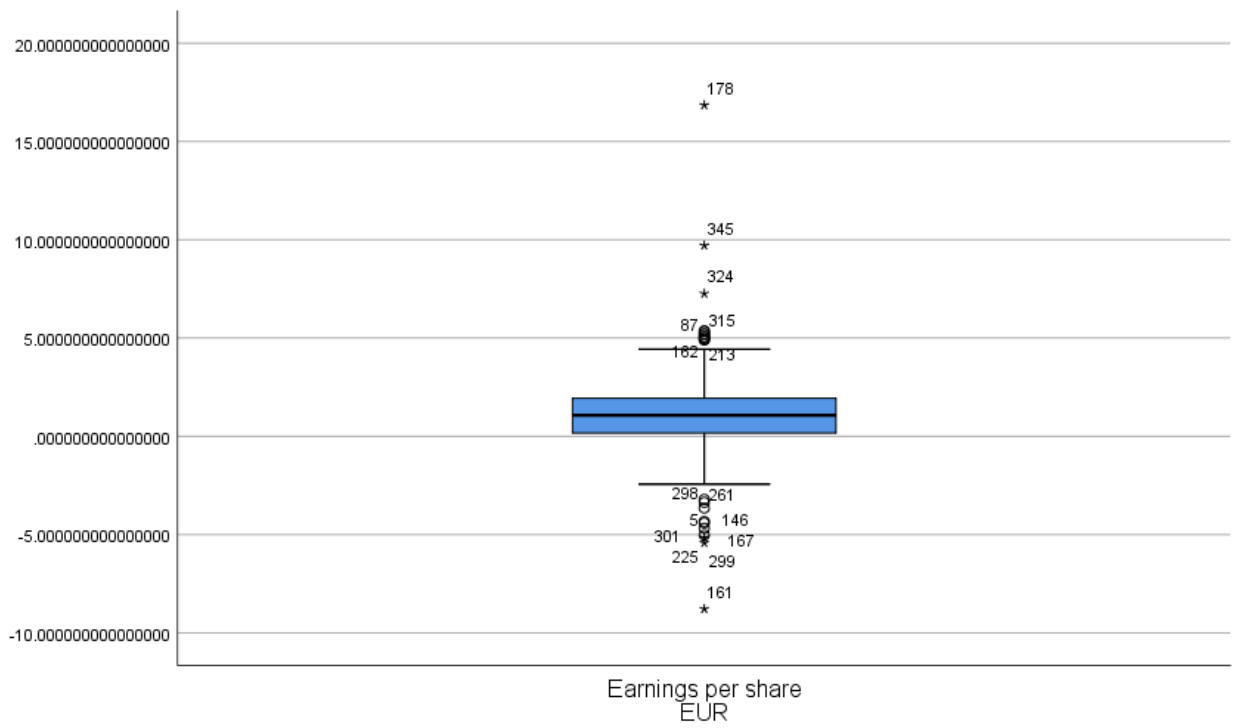
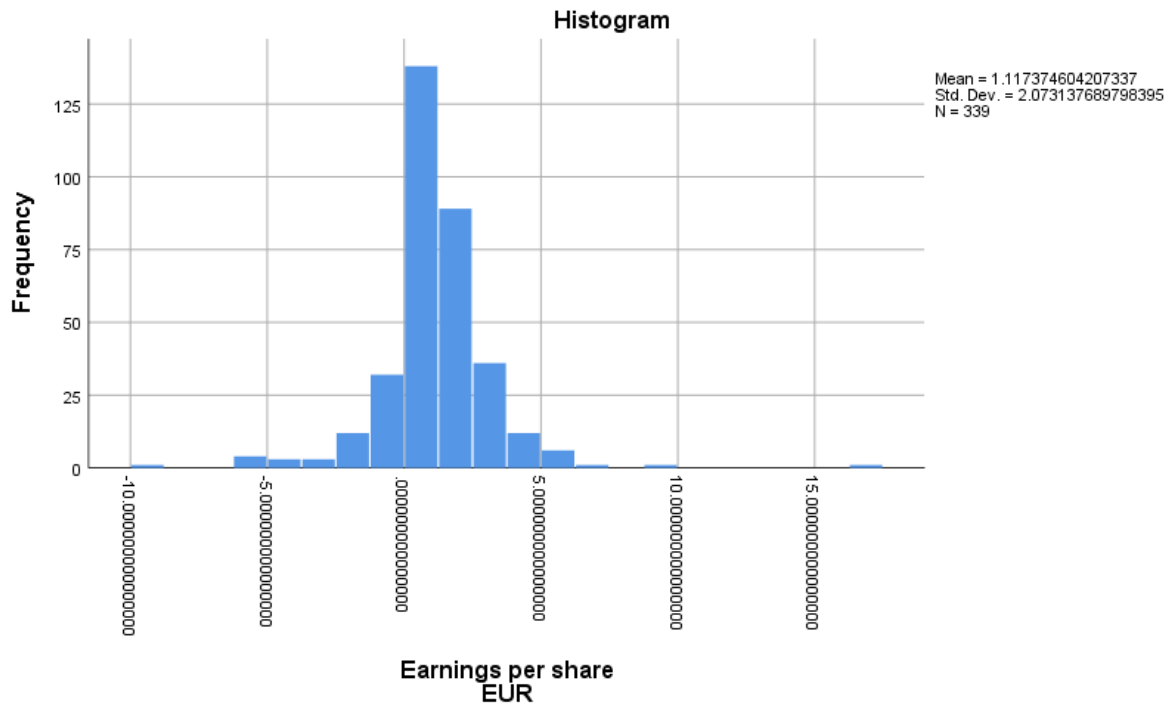
		Statistic	Std. Error	
ROA using P/L before tax %	Mean	5.46587031700	.576934102878	
		2882	471	
	95% Confidence Interval for Mean	Lower Bound	4.33113099708	
			9687	
		Upper Bound	6.60060963691	
			6078	
	5% Trimmed Mean	5.68796861991		
			6745	
	Median	6.13400000000		
			0000	
	Variance	115.500		
	Std. Deviation	10.7470915505		
			20652	
	Minimum	-		
		72.25600000000		
			00000	
	Maximum	45.75700000000		
		00000		
Range	118.013000000			
		000000		
Interquartile Range	7.74899999999			
		9999		
Skewness	-1.585		.131	
Kurtosis	13.590		.261	

Appendix 3: Normal distribution EPS

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Earnings per share EUR	.151	339	.000	.862	339	.000

a. Lilliefors Significance Correction



Appendix 4: Descriptive statistics EPS

Descriptives

		Statistic	Std. Error	
Earnings per share EUR	Mean	1.11737460420	.112597383362	
		7337	171	
	95% Confidence Interval for Mean	Lower Bound	.895894727971	
		Upper Bound	1.33885448044	
		999		
		2675		
	5% Trimmed Mean	1.12794278505		
		0590		
	Median	1.07100000000		
		0000		
	Variance	4.298		
	Std. Deviation	2.07313768979		
		8394		
	Minimum	-		
		8.78099999999		
		9999		
Maximum	16.84800000000			
	00000			
Range	25.62899999999			
	99998			
Interquartile Range	1.76600000000			
	0000			
Skewness	.874	.132		
Kurtosis	12.237	.264		

Appendix 5: Technology sector Pearson correlation

		Correlations				
		ROA	CSR	Size	Risk	RD
ROA	Pearson Correlation	1	.294**	.234**	-.194	.074
	Sig. (2-tailed)		.013	.050	.105	.537
	N	71	71	71	71	71
CSR	Pearson Correlation	.294**	1	.545*	.007**	-.097
	Sig. (2-tailed)	.013		.000	.953	.420
	N	71	71	71	71	71
Size	Pearson Correlation	.234**	.545*	1	.217***	.112
	Sig. (2-tailed)	.050	.000		.069	.354
	N	71	71	71	71	71
Risk	Pearson Correlation	-.194	.007**	.217***	1	-.382*
	Sig. (2-tailed)	.105	.953	.069		.001
	N	71	71	71	71	71
R&D	Pearson Correlation	.074	-.097	.112	-.382*	1
	Sig. (2-tailed)	.537	.420	.354	.001	
	N	71	71	71	71	71

*. Correlation is significant at the 0.01 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.10 level (2-tailed).

Appendix 6: Technology sector regression

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	CSR, Size, Risk, R&D ^b	.	Enter

a. Dependent Variable: ROA

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.382 ^a	.146	.094	7.83320540893 9212

a. Predictors: (Constant), CSR, Size, Risk, R&D

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	690.319	4	172.580	2.813	.032 ^b
	Residual	4049.701	66	61.359		
	Total	4740.020	70			

a. Dependent Variable: ROA

b. Predictors: (Constant), CSR, Size, Risk, R&D

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.411	7.560		-.187	.853
	CSR	.024	.018	.194	1.363	.177
	Size	.757	.614	.183	1.232	.222
	Risk	-9.460	5.149	-.243	-1.837	.071
	R&D	-4.819	31.806	-.020	-.151	.880

a. Dependent Variable: ROA

Appendix 7: Industry goods sector Pearson correlation

		Correlations				
		ROA	CSR	Size	Risk	RD
ROA	Pearson Correlation	1	-.031	-.146	-.398*	.252***
	Sig. (2-tailed)		.826	.300	.004	.072
	N	52	52	52	52	52
CSR	Pearson Correlation	-.031	1	.618*	-.147	-.039
	Sig. (2-tailed)	.826		.000	.298	.786
	N	52	52	52	52	52
Size	Pearson Correlation	-.146	.618*	1	-.015***	-.499*
	Sig. (2-tailed)	.300	.000		.917	.000
	N	52	52	52	52	52
Risk	Pearson Correlation	-.398*	-.147	-.015***	1	-.237***
	Sig. (2-tailed)	.004	.298	.917		.090
	N	52	52	52	52	52
R&D	Pearson Correlation	.252***	-.039	-.499*	-.237***	1
	Sig. (2-tailed)	.072	.786	.000	.090	
	N	52	52	52	52	52

*. Correlation is significant at the 0.01 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.10 level (2-tailed).

Appendix 8: Industry goods sector regression

Variables Entered/Removed^a			
Model	Variables Entered	Variables Removed	Method
1	CSR, Size, Risk, RD ^b	.	Enter

a. Dependent Variable: ROA

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.438 ^a	.192	.123	5.20564532046 7394

a. Predictors: (Constant), CSR, Size, Risk, RD

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	302.405	4	75.601	2.790	.037 ^b
	Residual	1273.641	47	27.099		
	Total	1576.046	51			

a. Dependent Variable: ROA

b. Predictors: (Constant), CSR, Size, Risk, RD

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.041	9.635		1.976	.054
	CSR	-.004	.016	-.045	-.248	.805
	Size	-.170	.613	-.058	-.278	.782
	Risk	-20.580	7.544	-.374	-2.728	.009
	RD	16.496	21.188	.132	.779	.440

a. Dependent Variable: ROA

Appendix 9: Services sector Pearson correlation

		Correlations				
		ROA	CSR	Size	Risk	RD
ROA	Pearson Correlation	1	-.286***	-.047	-.176	-.135
	Sig. (2-tailed)		.070	.771	.270	.401
	N	41	41	41	41	41
CSR	Pearson Correlation	-.286***	1	.014***	-.208	-.037
	Sig. (2-tailed)	.070		.929	.193	.817
	N	41	41	41	41	41
Size	Pearson Correlation	-.047	.014***	1	.629*	.464*
	Sig. (2-tailed)	.771	.929		.000	.002
	N	41	41	41	41	41
Risk	Pearson Correlation	-.176	-.208	.629*	1	.024
	Sig. (2-tailed)	.270	.193	.000		.880
	N	41	41	41	41	41
R&D	Pearson Correlation	-.135	-.037	.464*	.024	1
	Sig. (2-tailed)	.401	.817	.002	.880	
	N	41	41	41	41	41

*. Correlation is significant at the 0.01 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.10 level (2-tailed).

Appendix 10: Services sector regression

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	CSR, Size, Risk, R&D ^b	.	Enter

a. Dependent Variable: ROA

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.493 ^a	.243	.159	8.59881349263 4388

a. Predictors: (Constant), CSR, Size, Risk, R&D

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	855.419	4	213.855	2.892	.036 ^b
	Residual	2661.825	36	73.940		
	Total	3517.244	40			

a. Dependent Variable: ROA

b. Predictors: (Constant), CSR, Size, Risk, R&D

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-32.893	25.065		-1.312	.198
	CSR	-.084	.030	-.420	-2.738	.010
	Size	4.351	2.182	.471	1.994	.054
	Risk	-31.121	12.072	-.552	-2.578	.014
	R&D	-10598.725	5379.076	-.356	-1.970	.057

a. Dependent Variable: ROA

Appendix 11: Building and maritime Pearson correlation

Correlations

		ROA	CSR	Size	Risk	RD
ROA	Pearson Correlation	1	-.296***	.338**	-.496*	-.171
	Sig. (2-tailed)		.080	.044	.002	.319
	N	36	36	36	36	36
CSR	Pearson Correlation	-.296***	1	-.022***	.148	-.155
	Sig. (2-tailed)	.080		.900	.387	.366
	N	36	36	36	36	36
Size	Pearson Correlation	.338**	-.022***	1	-.220	.023
	Sig. (2-tailed)	.044	.900		.197	.896
	N	36	36	36	36	36
Risk	Pearson Correlation	-.496*	.148	-.220	1	.065
	Sig. (2-tailed)	.002	.387	.197		.708
	N	36	36	36	36	36
R&D	Pearson Correlation	-.171	-.155	.023	.065	1
	Sig. (2-tailed)	.319	.366	.896	.708	
	N	36	36	36	36	36

*. Correlation is significant at the 0.01 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.10 level (2-tailed).

Appendix 12: Building and maritime sector regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	CSR, Size, Risk, R&D ^b	.	Enter

a. Dependent Variable: ROA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.623 ^a	.388	.309	4.30354870959 1966

a. Predictors: (Constant), CSR, Size, Risk, R&D

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	364.559	4	91.140	4.921	.003 ^b
	Residual	574.136	31	18.521		
	Total	938.696	35			

a. Dependent Variable: ROA

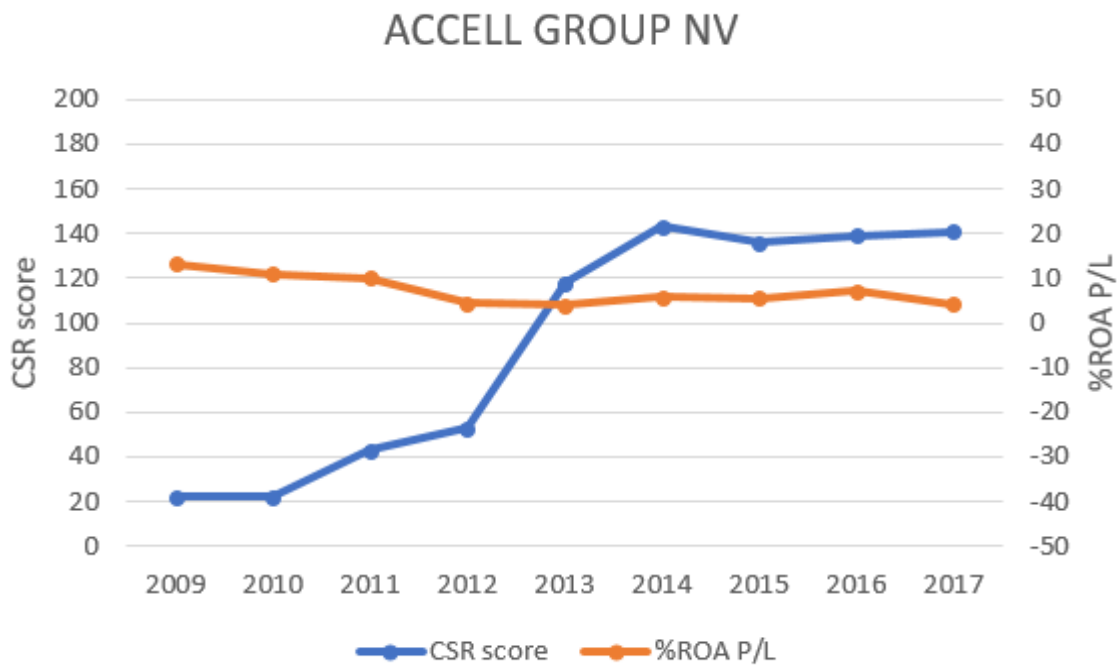
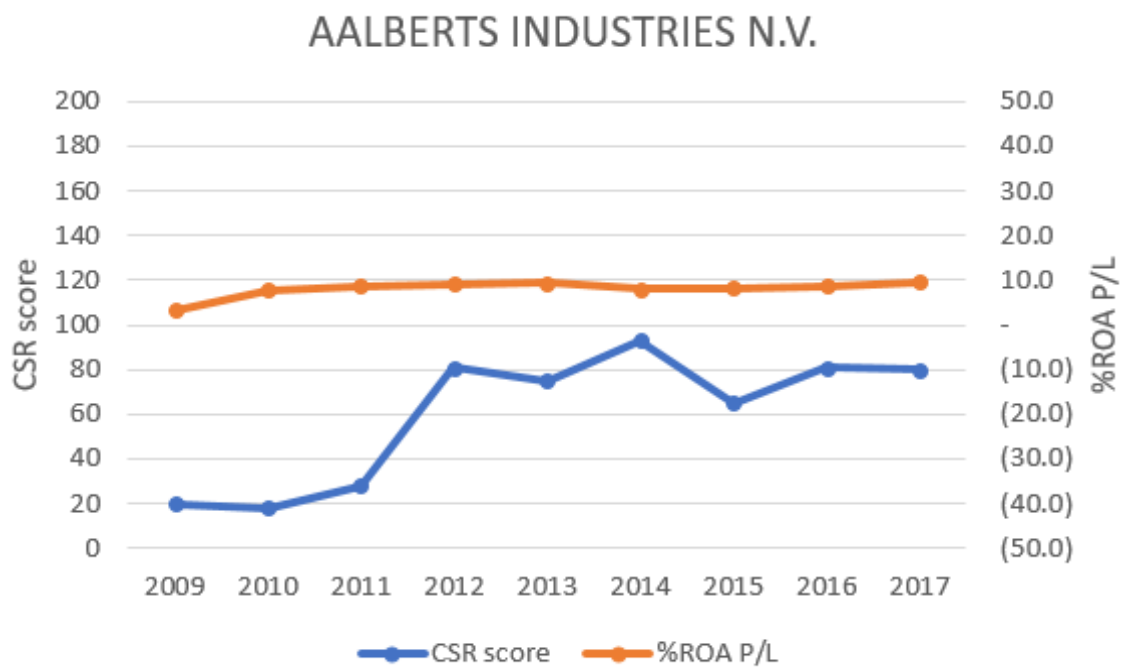
b. Predictors: (Constant), CSR, Size, Risk, R&D

Coefficients^a

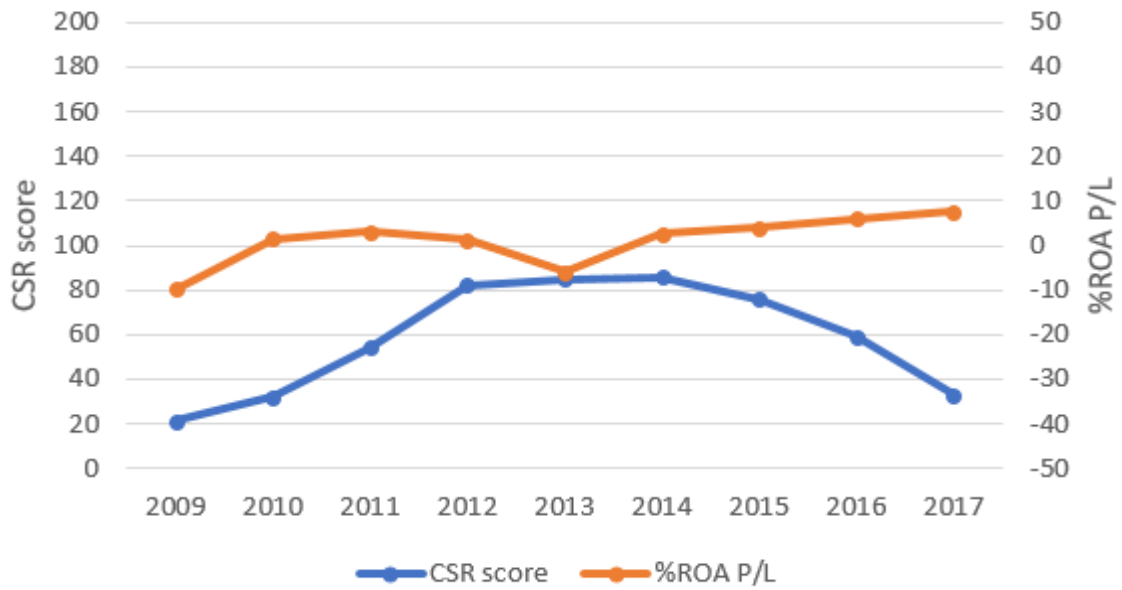
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-11.972	17.122		-.699	.490
	CSR	-.024	.013	-.262	-1.819	.079
	Size	1.810	1.042	.250	1.737	.092
	Risk	-15.095	5.662	-.390	-2.666	.012
	RD	-473.237	352.061	-.192	-1.344	.189

a. Dependent Variable: ROA

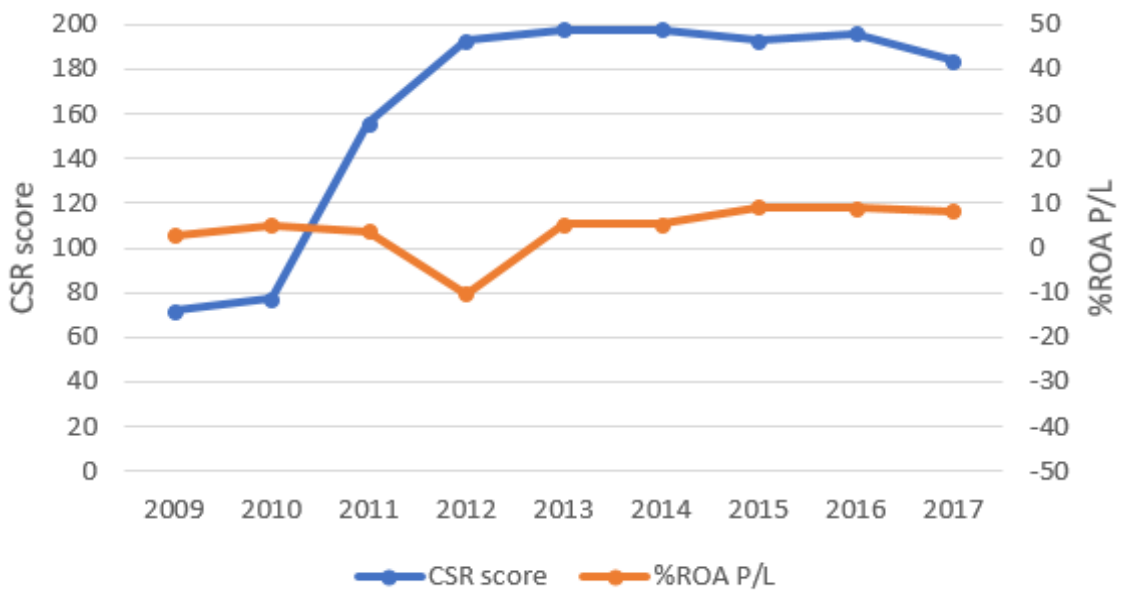
Appendix 13: Company graphs



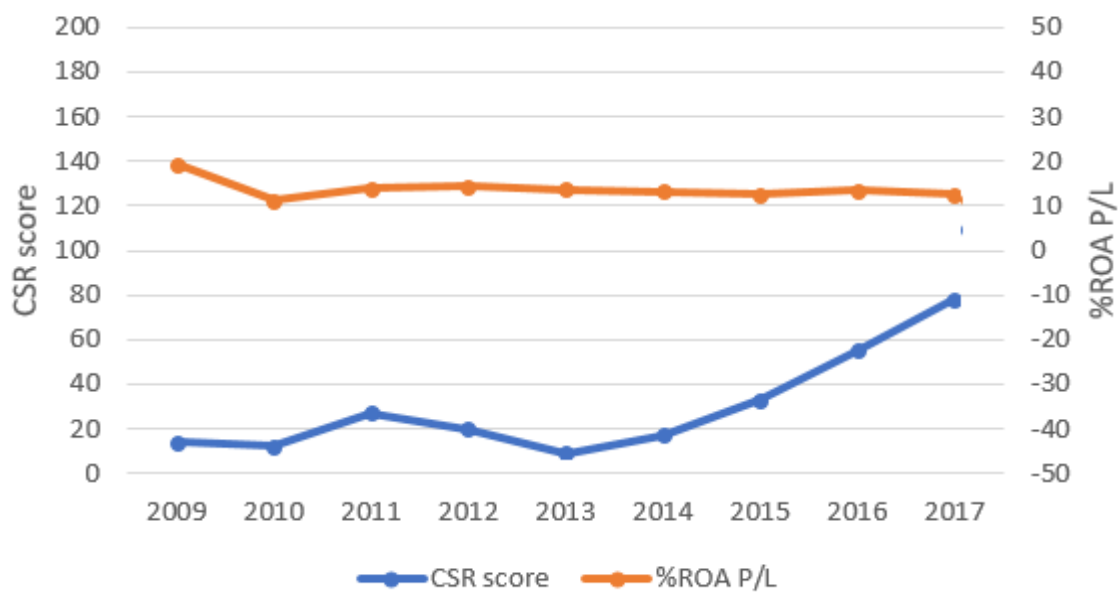
ADVANCED METALLURGICAL GROUP N.V.



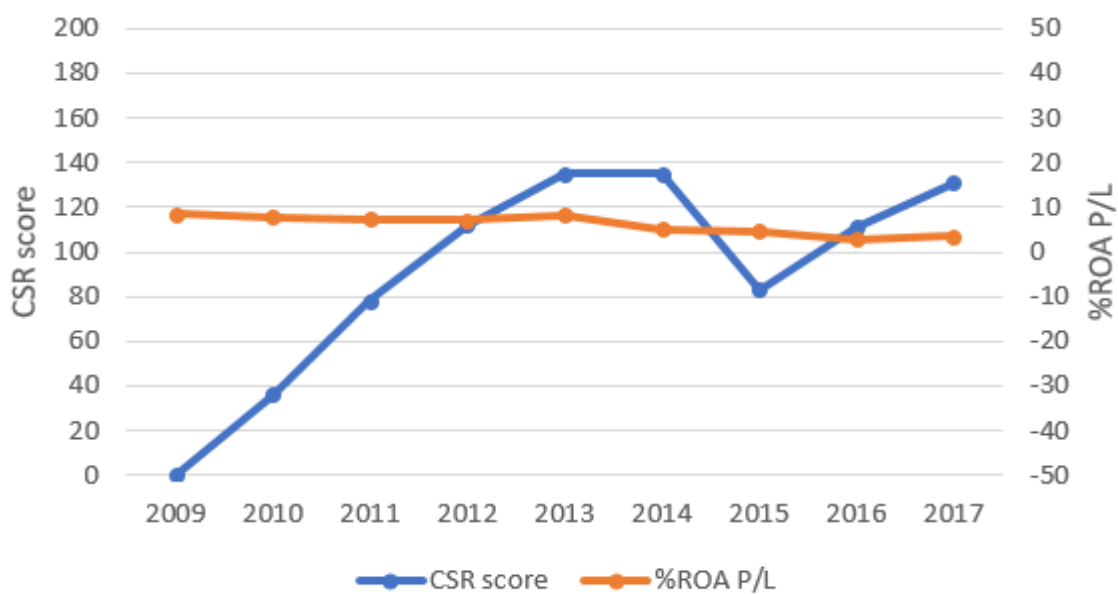
AKZO NOBEL NV



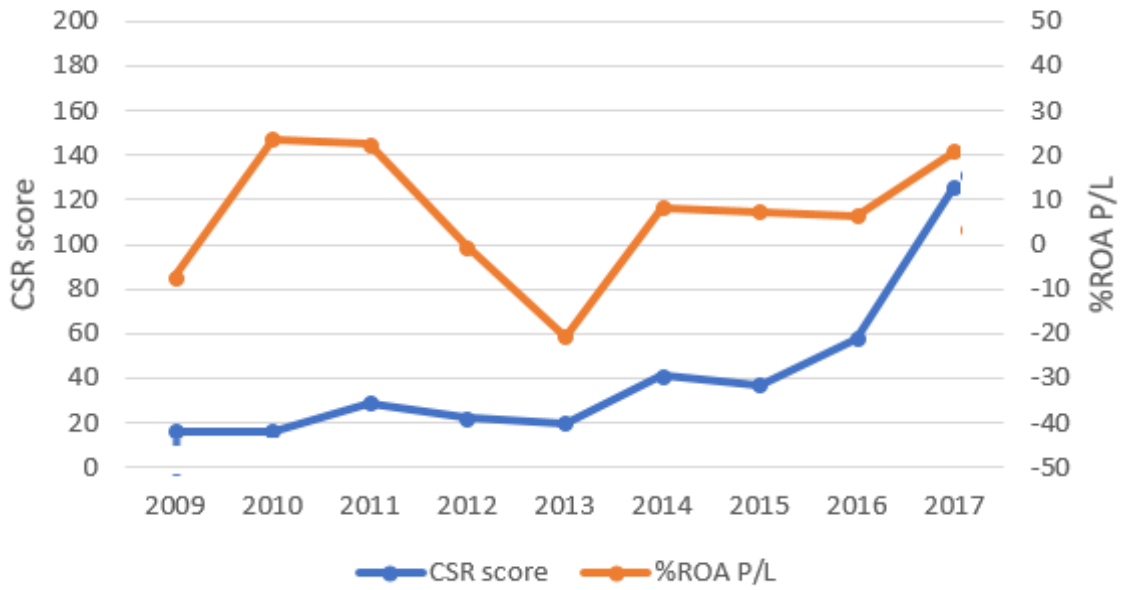
AMSTERDAM COMMODITIES N.V.



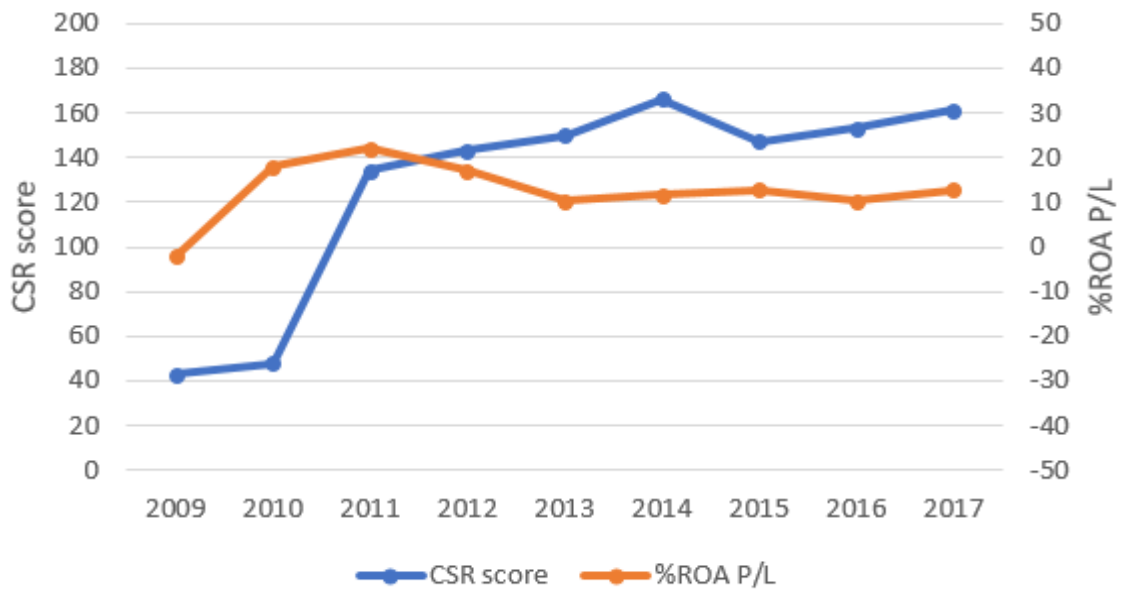
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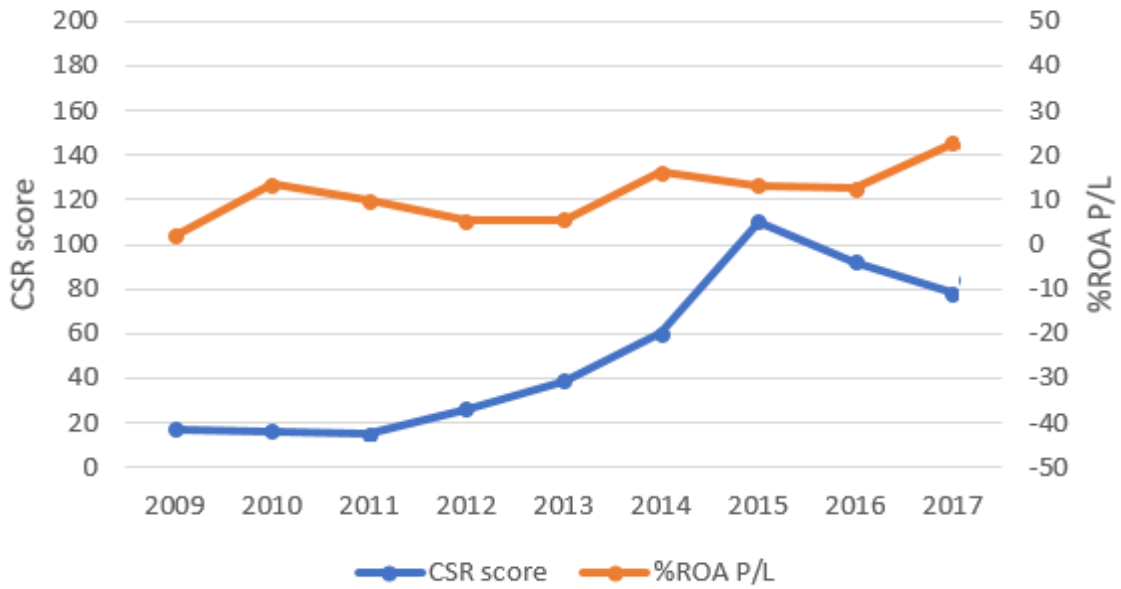
ASM INTERNATIONAL NV



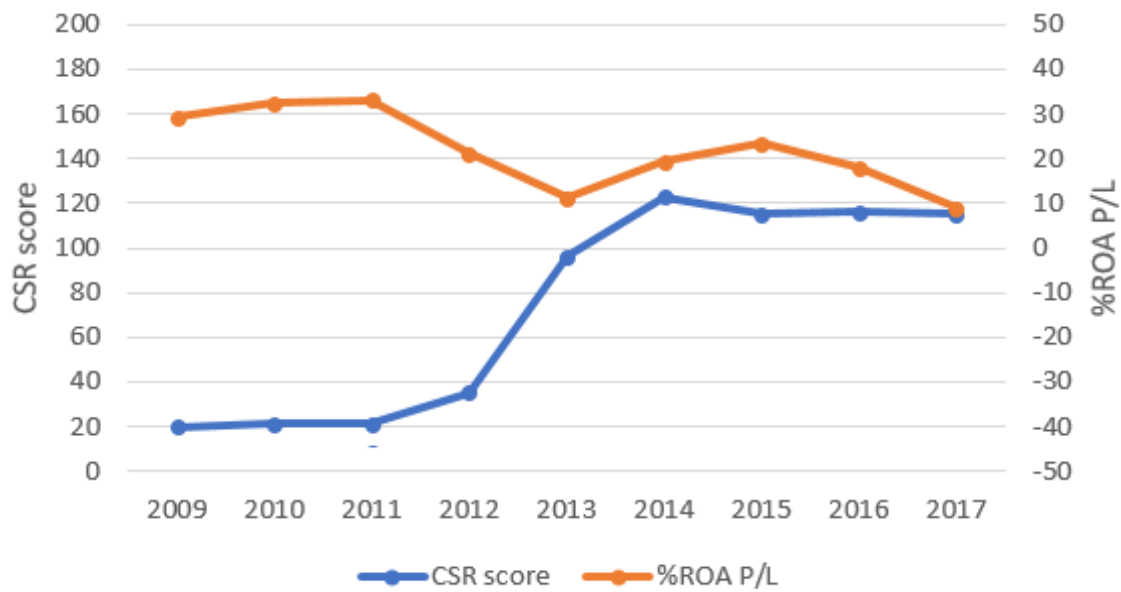
ASML HOLDING N.V.



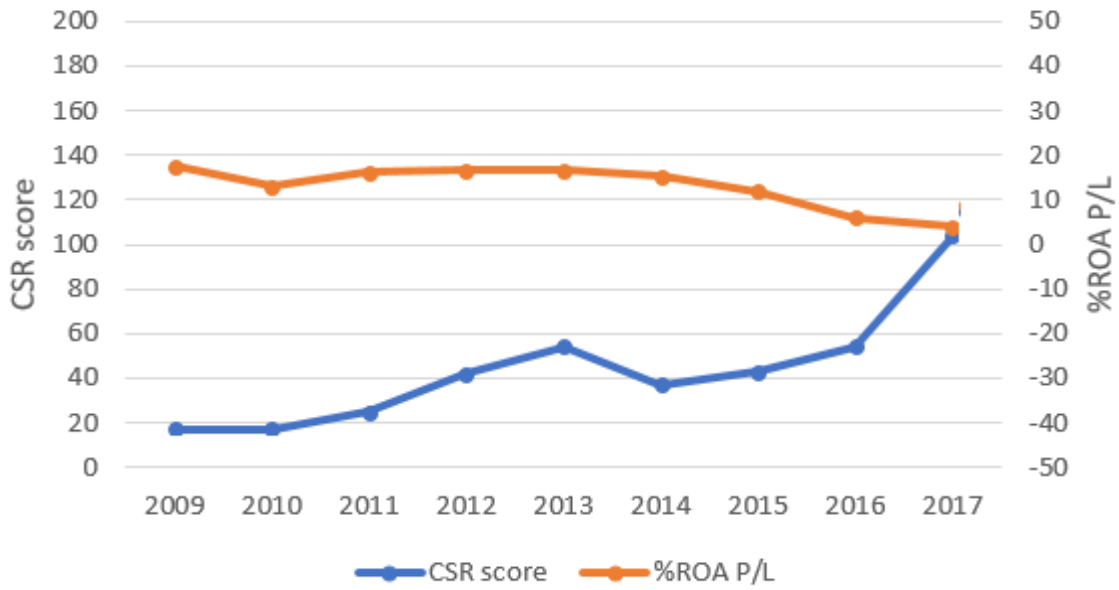
BE SEMICONDUCTOR INDUSTRIES NV



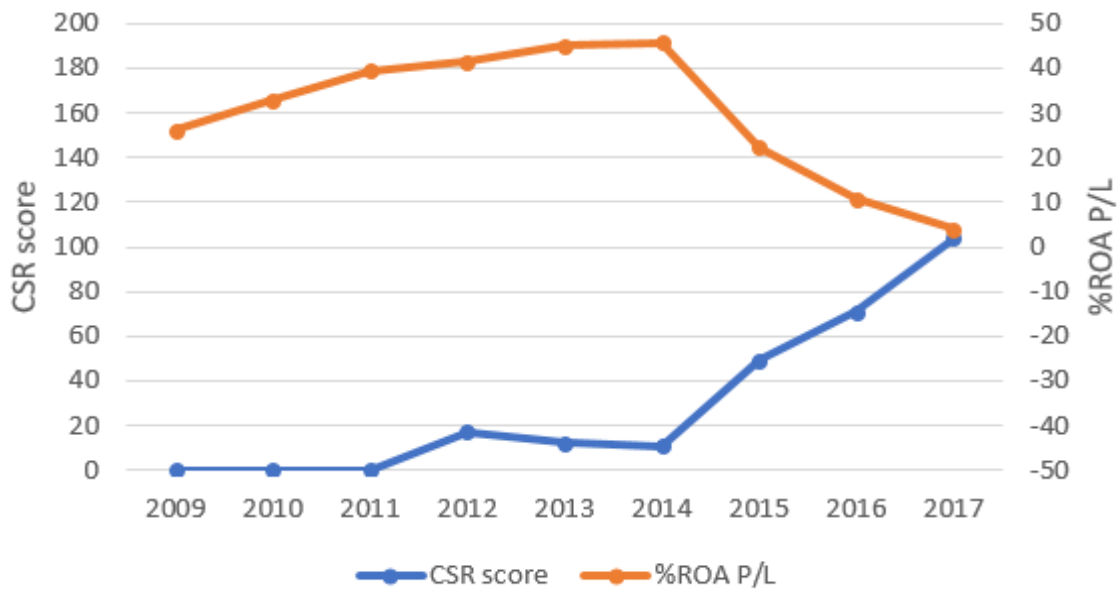
BETER BED HOLDING NV



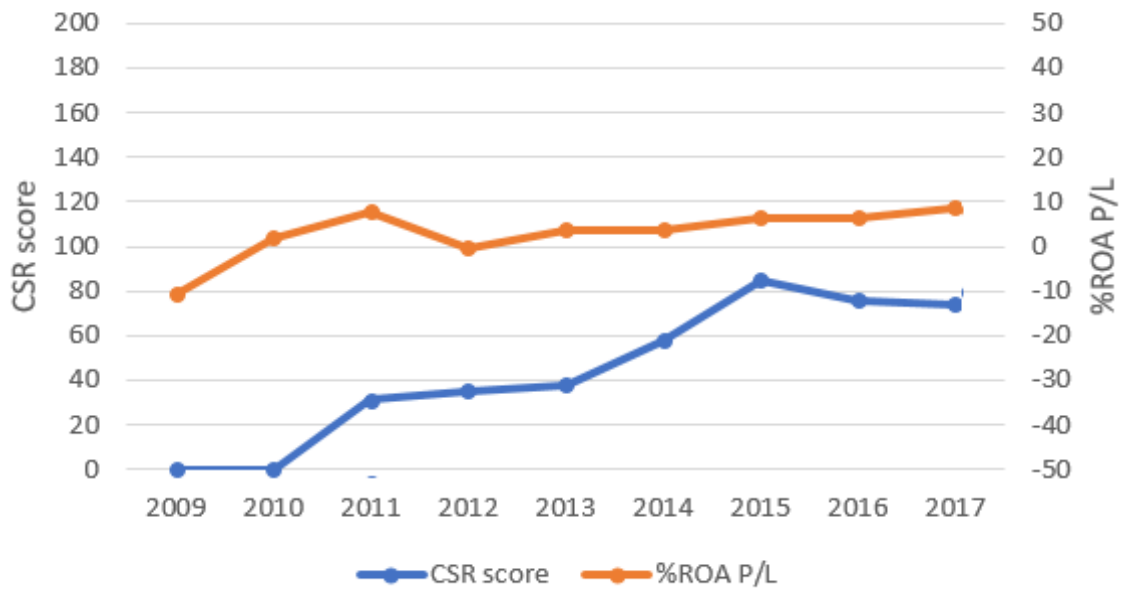
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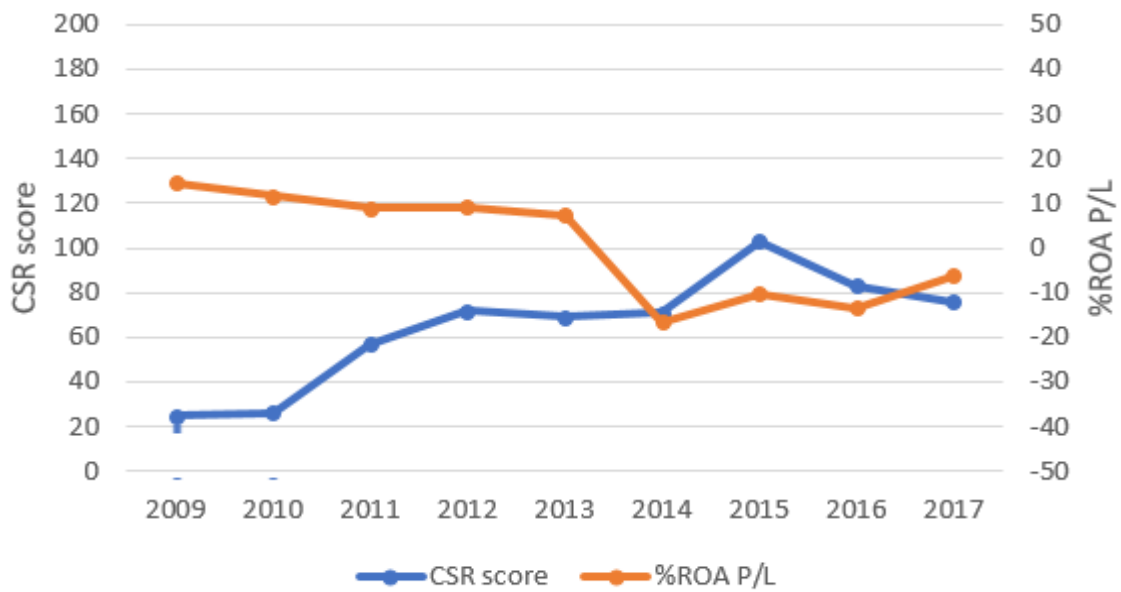
CORE LABORATORIES N.V.



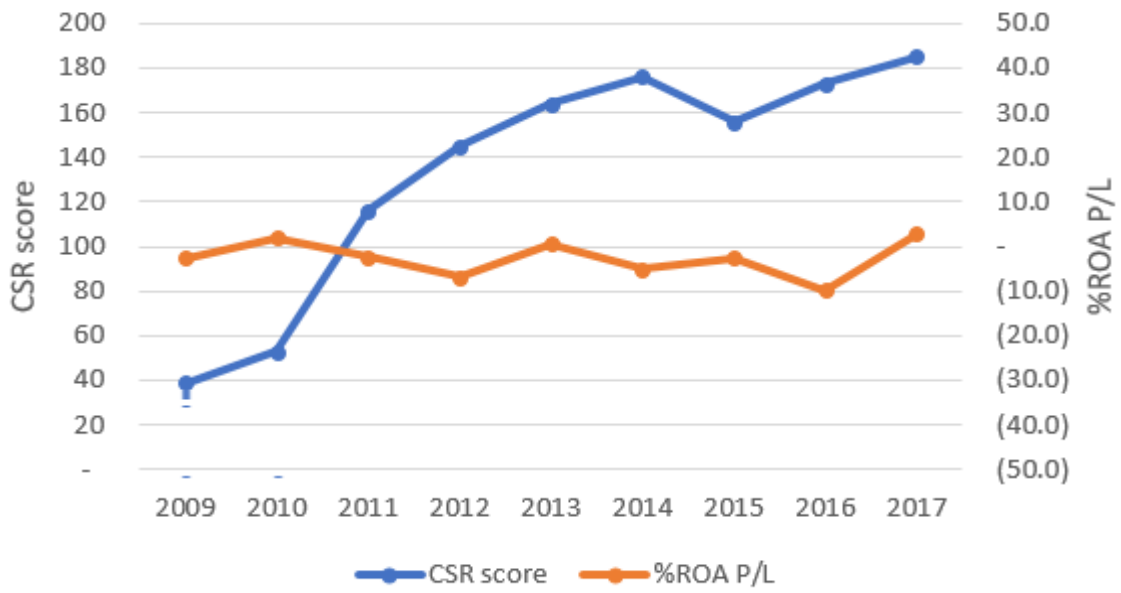
EUROCOMMERCIAL PROPERTIES N.V.



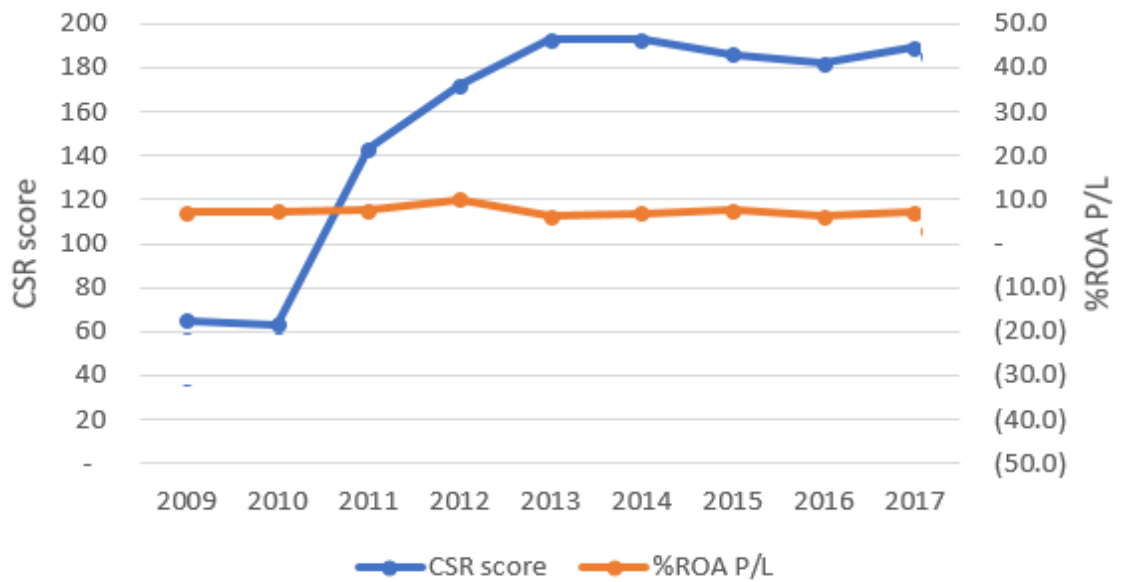
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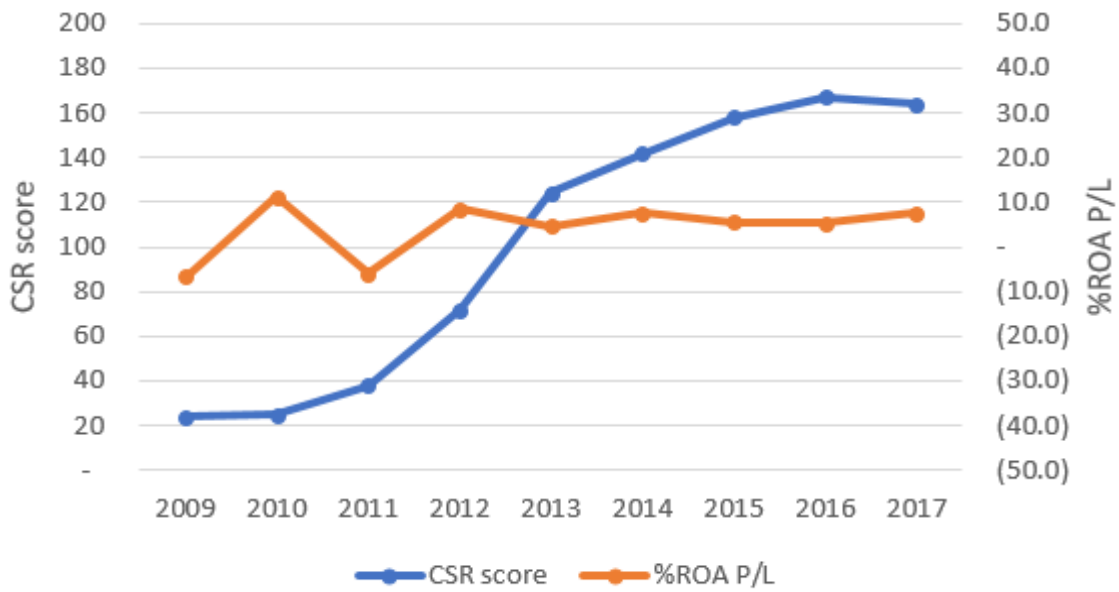
HEIJMANS NV



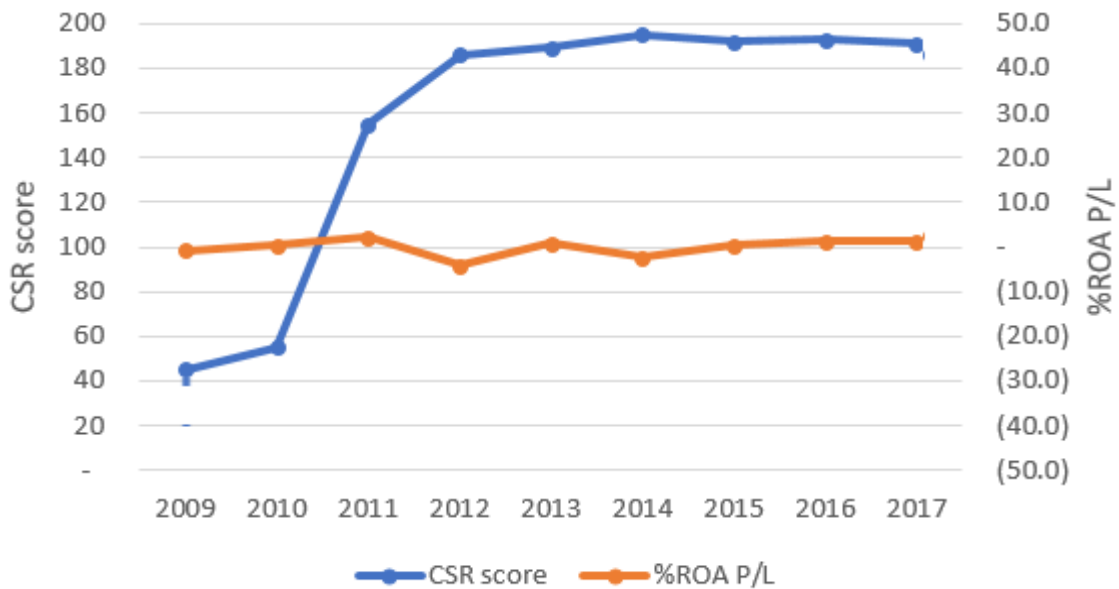
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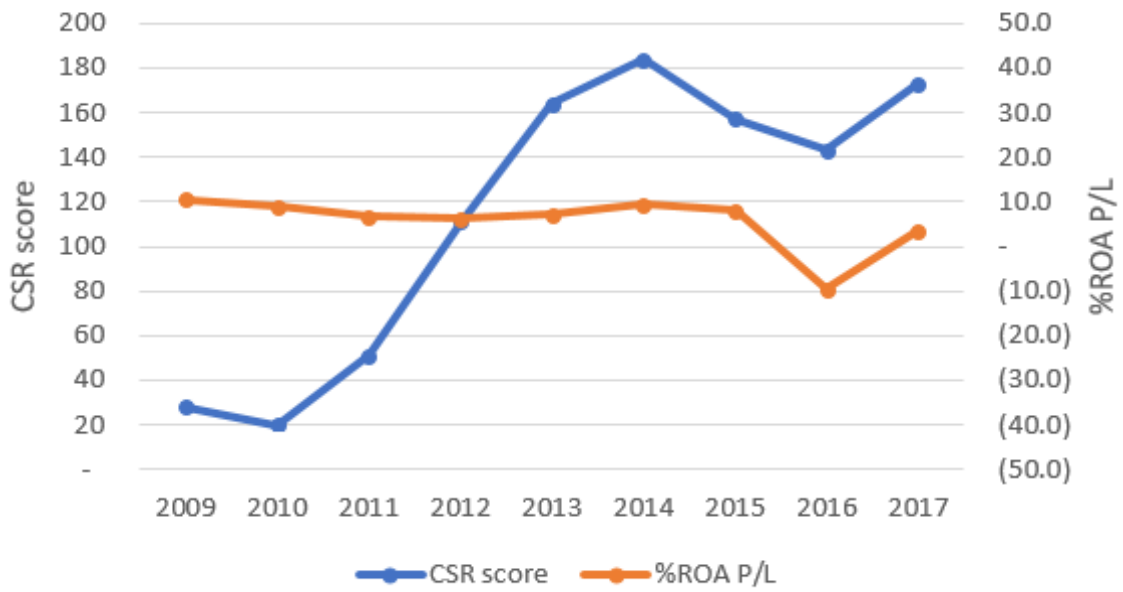
KENDRION N.V.



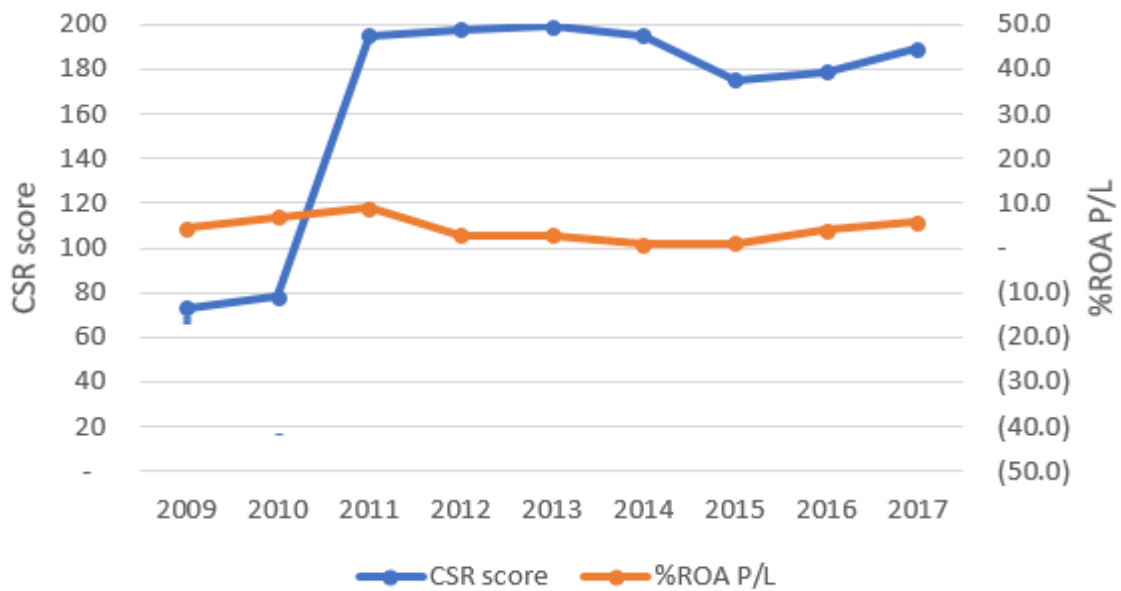
KONINKLIJKE BAM GROEP NV

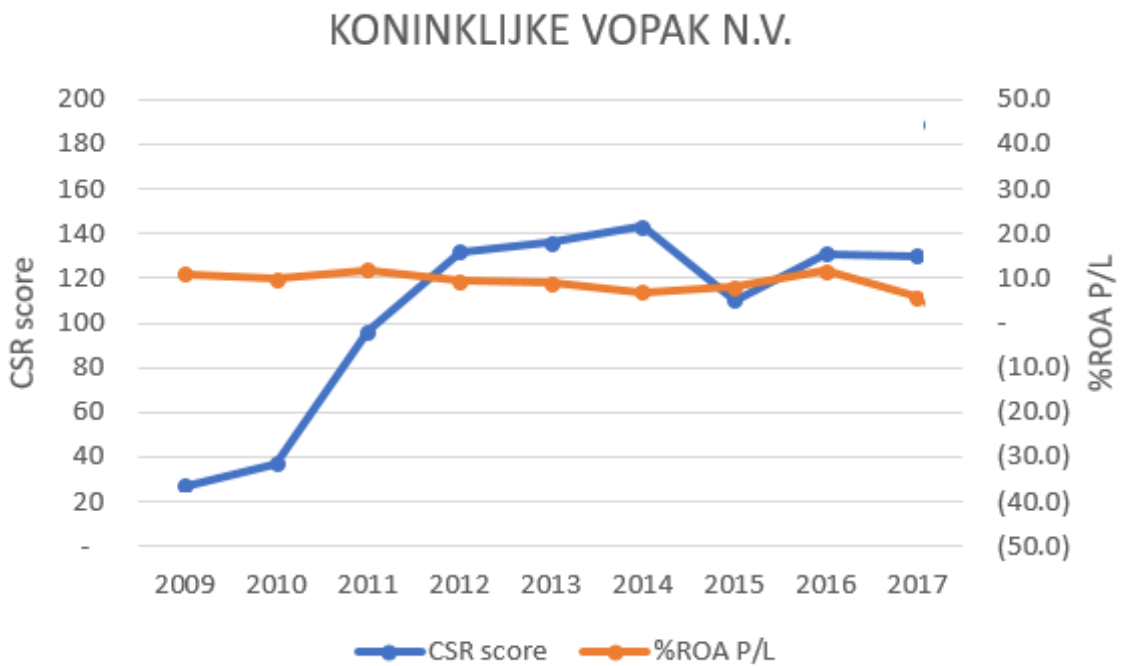
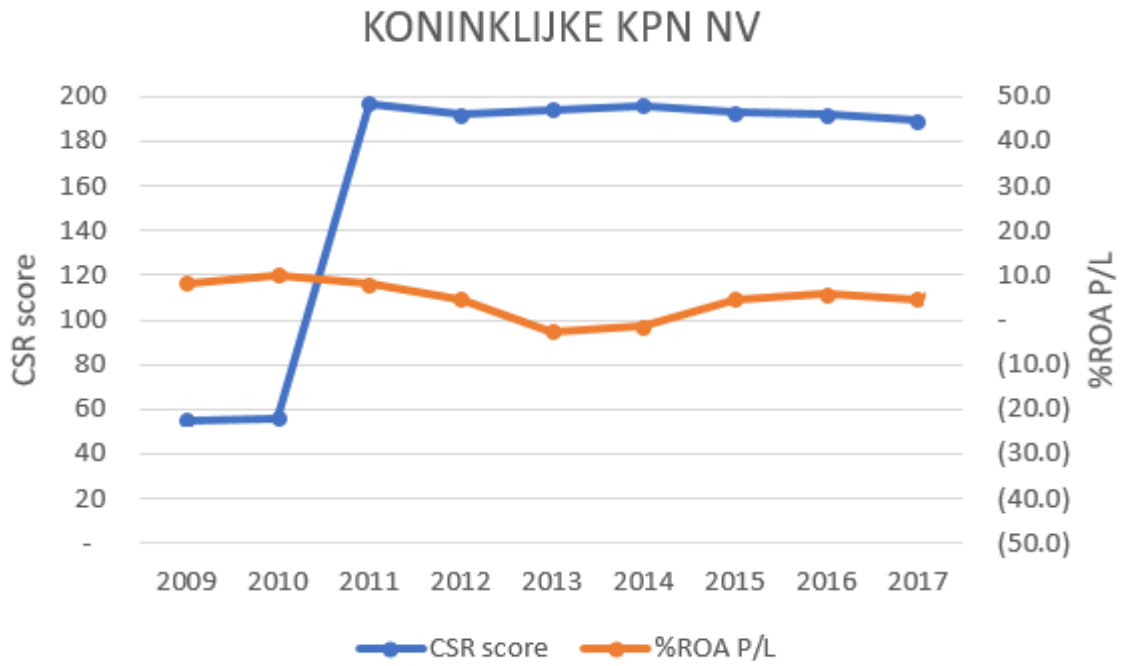


KONINKLIJKE BOSKALIS WESTMINSTER NV

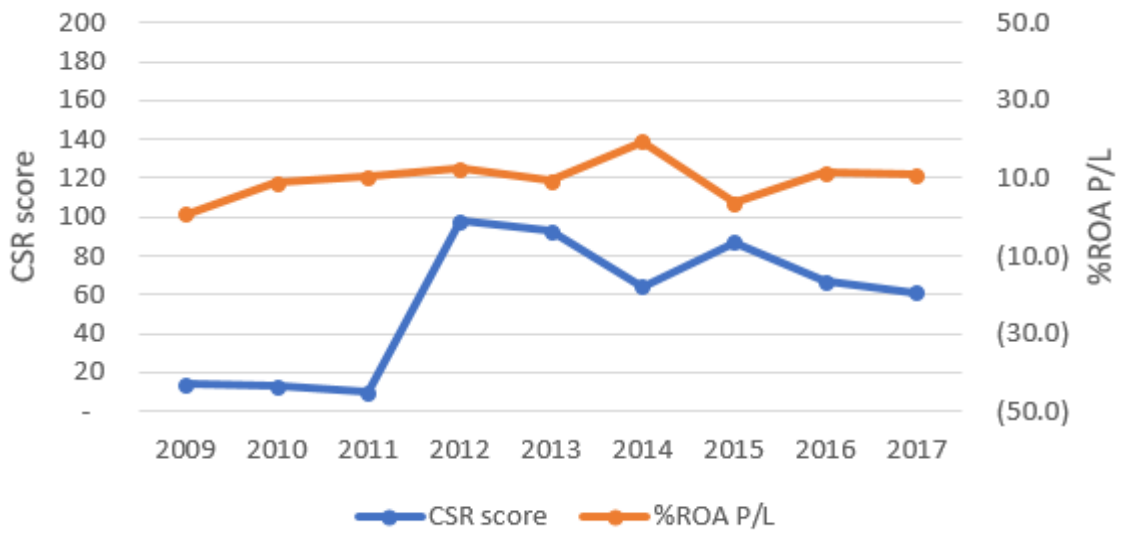


KONINKLIJKE DSM N.V.

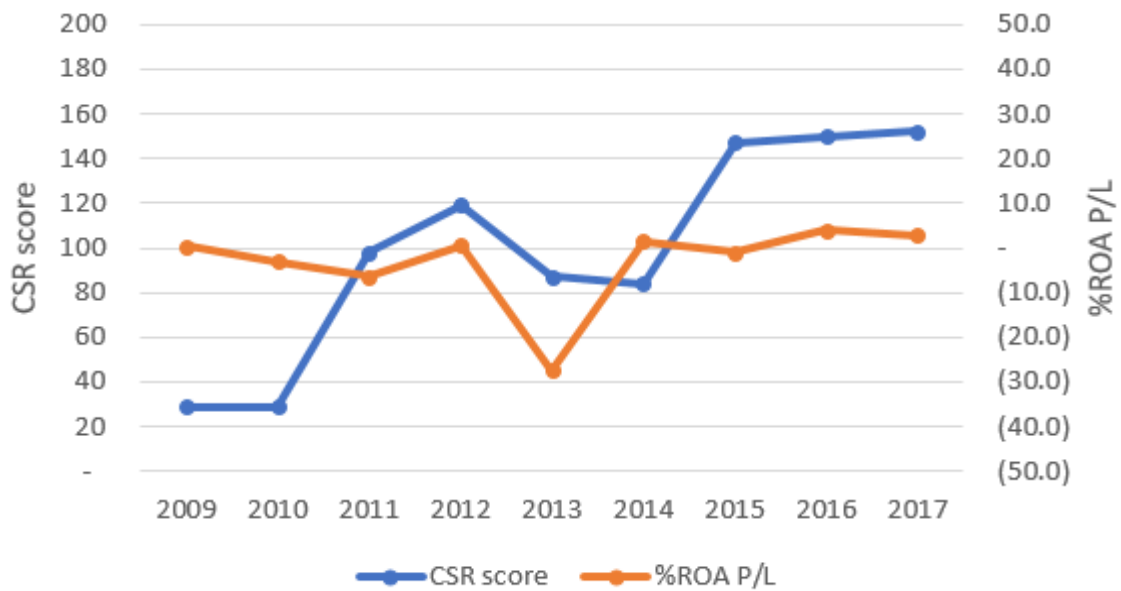




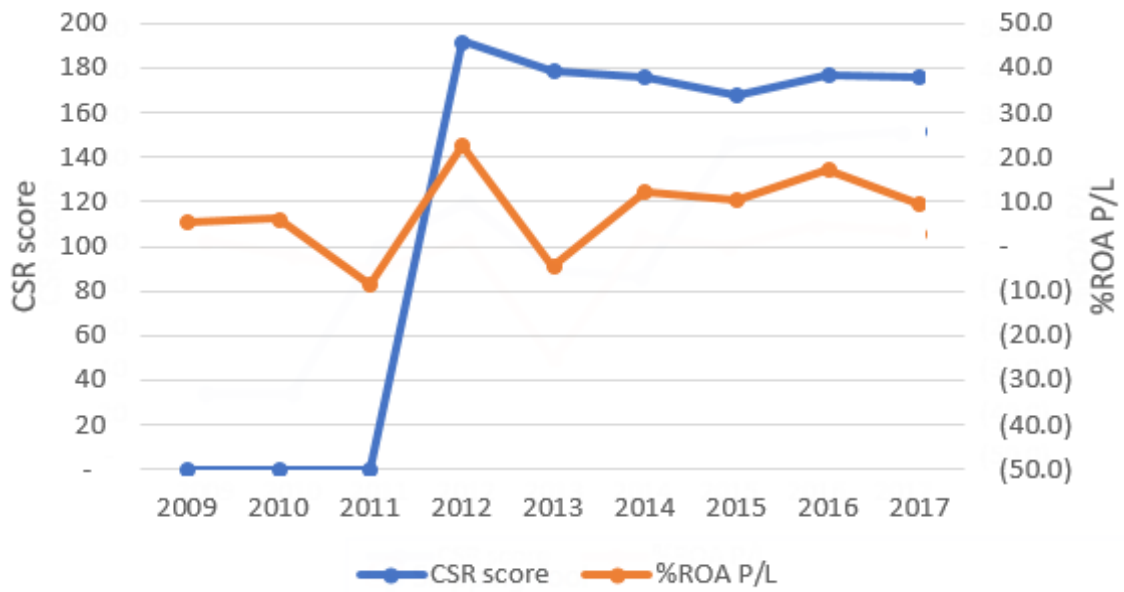
NEDERLANDSCHE APPARATENFABRIEK 'NEDAP' N.V.



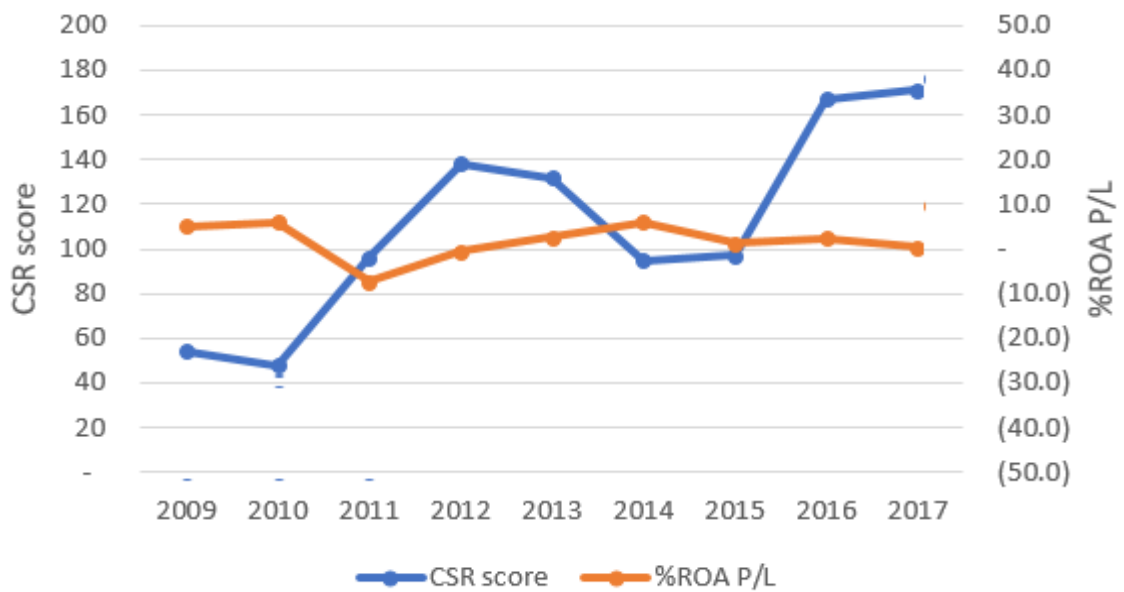
ORDINA NV



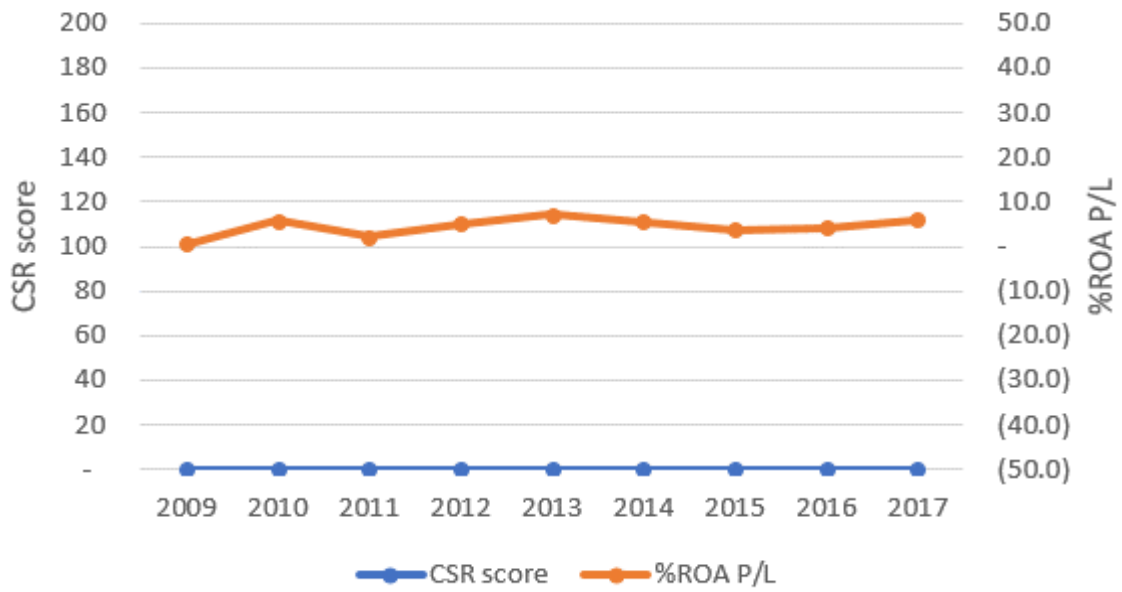
POSTNL N.V.



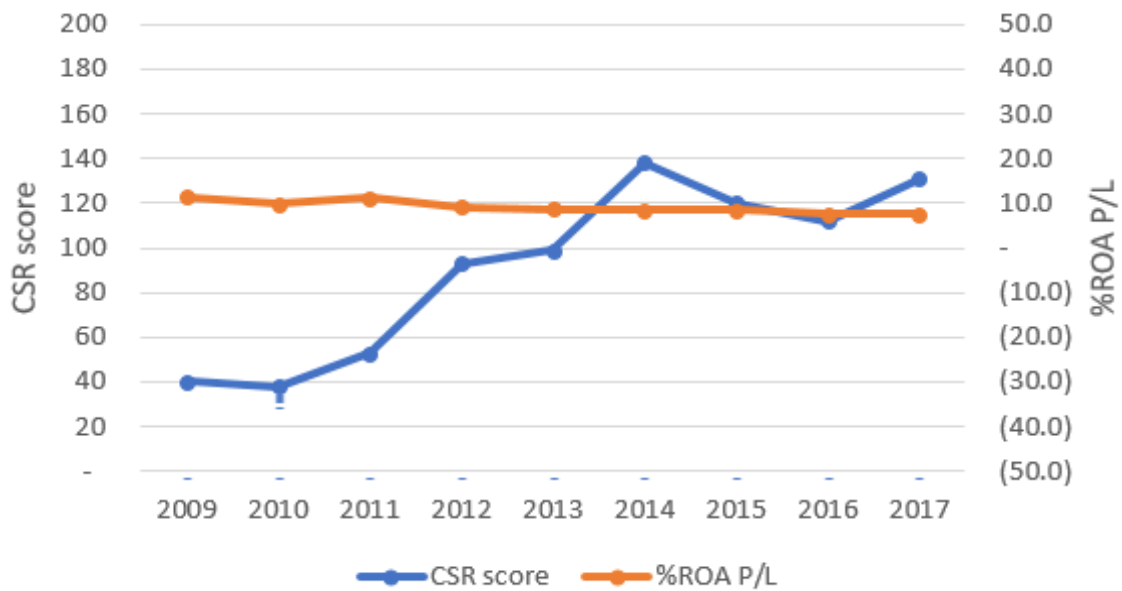
SBM OFFSHORE N.V.



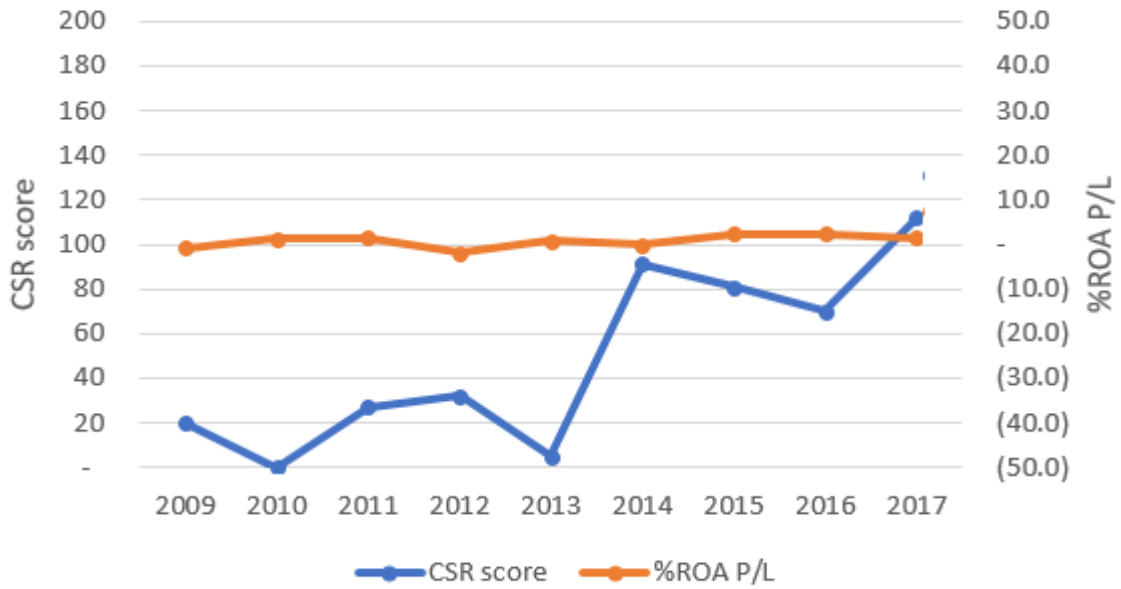
SENSATA TECHNOLOGIES HOLDING N.V.



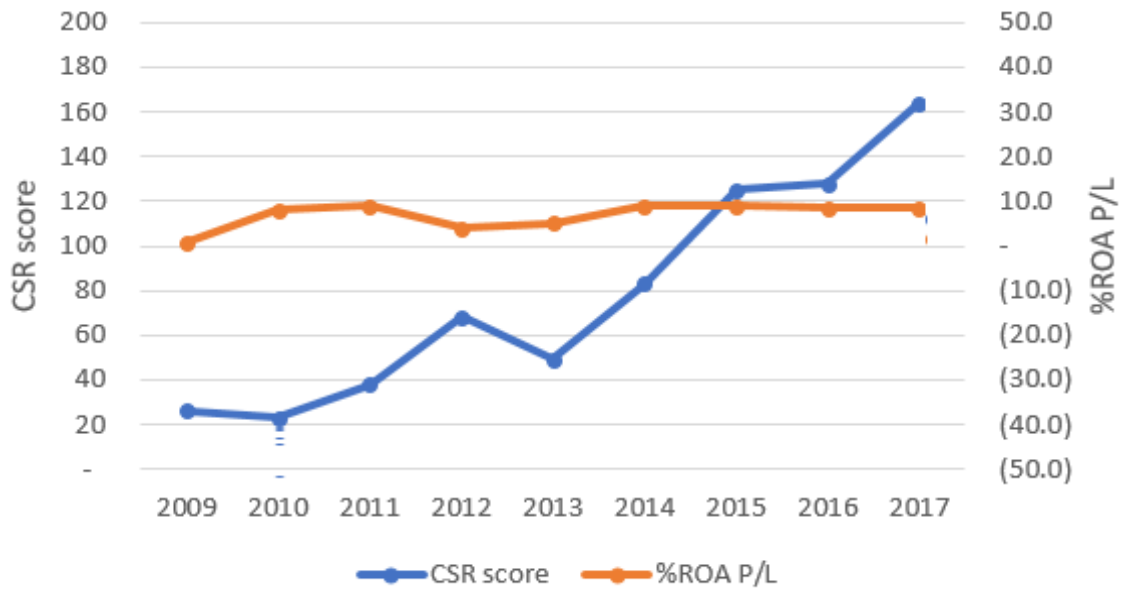
SLIGRO FOOD GROUP N.V.



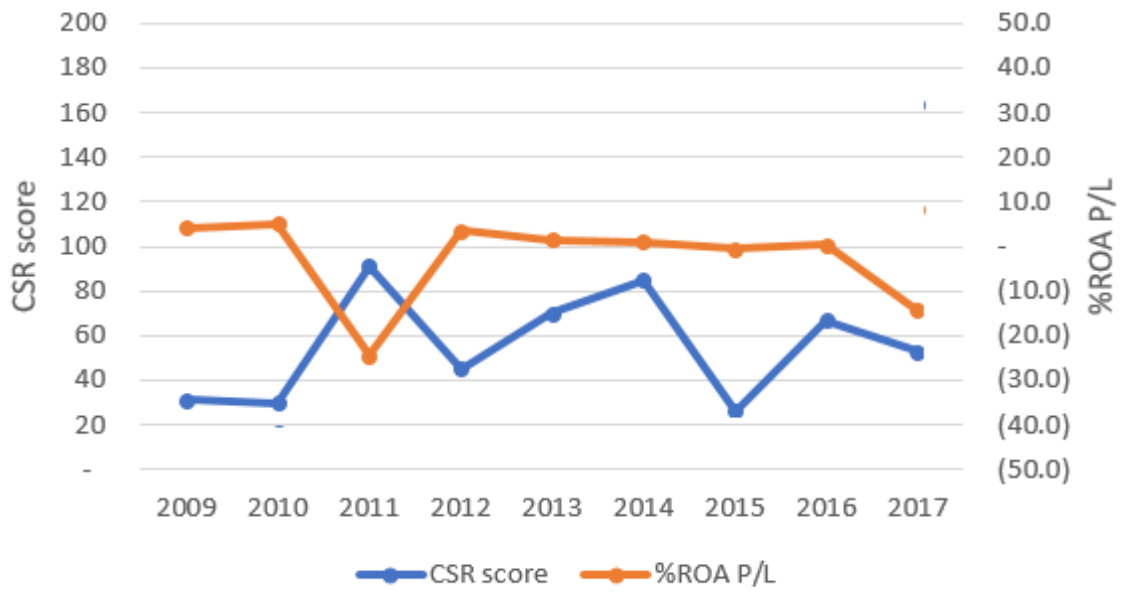
STERN GROEP NV



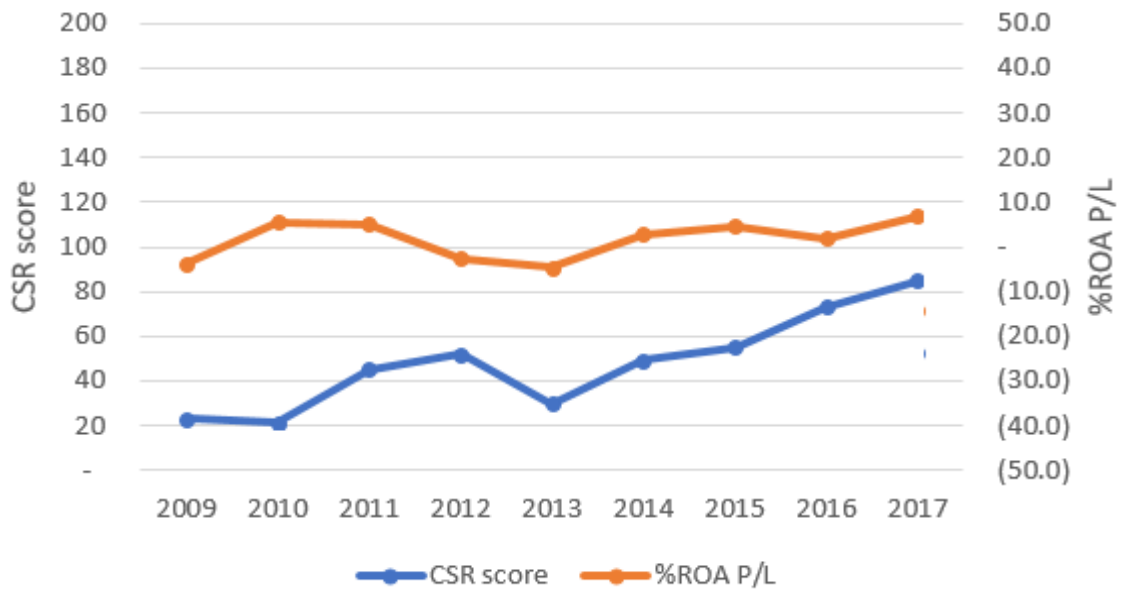
TKH GROUP N.V.



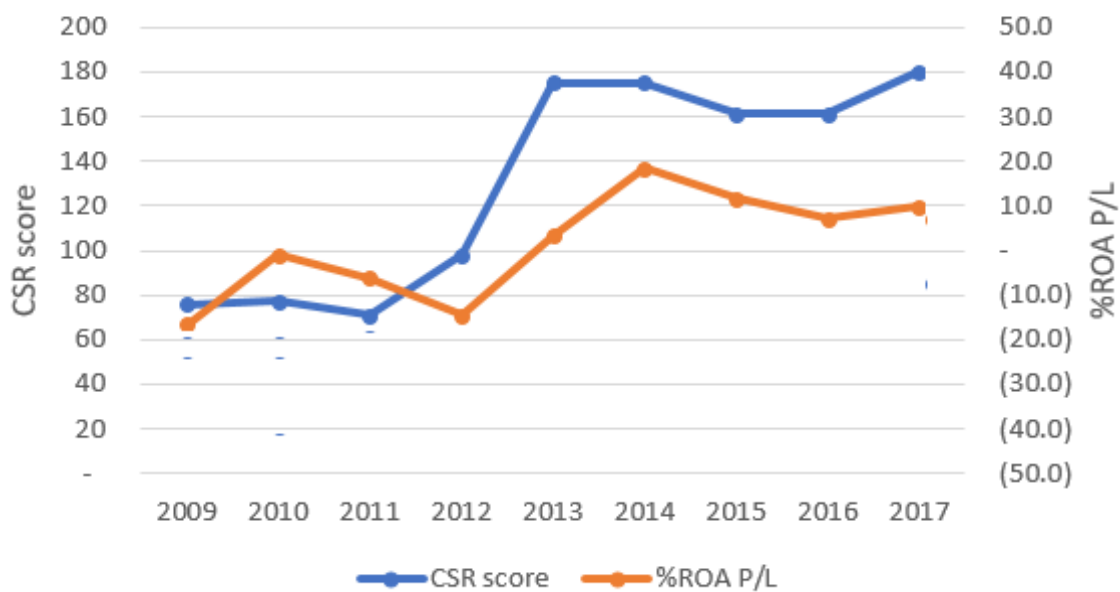
TOMTOM NV



VASTNED RETAIL N.V.



WESSANEN N.V.



WOLTERS KLUWER NV

