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RESTORING CONFIDENCE -

ESG scandals and impact of corrective actions

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Stakeholders of a company are paying more and more attention to ESG, which is a set of criteria describing company's commitment to ecologically, socially and ethically sound operations. To study the impact of severe ESG failures on shareholder return, the effect of a select number of corporate ESG scandals and corrective actions was studied. The impact of the scandals on the companies' annual financial performance in the following years was also studied. The selected corporate scandals were VW emission scandal, BP oil rig explosion, Kobe Steel quality data fraud and Nokian Tyres test cheat.

The initial news revealing the scandals were followed by significant fall in share prices. The response of the share prices to the news about corrective actions performed by the companies after the scandals was varied depending on the timing of the corrective action, the cultural environment in which the company operates and the content of the news. The impact of the scandal on company's annual financial performance was surprisingly modest and the financial metrics recovered already in the year following the scandal.

To conclude, major ESG scandals negatively affect both shareholder return and the company's annual financial performance. Based on the studied cases, shareholder return is more vulnerable than a company's financial performance to consequences of company ESG scandals. In addition, the timing and the qualities of corrective actions to recover shareholder confidence should be carefully considered case by case.

Keywords	ESG, scandal, shareholder return, financial performance, corrective action

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Glossary

BP	British Petroleum
CDS	Credit default swap
CSI	Corporate social irresponsibility
CSR	Corporate social responsibility
ESG	Environment, social, corporate governance
RDS	Royal Dutch Shell
SRI	Socially responsible investing
TBL	Triple bottom line
VW	Volkswagen

1 Introduction

Nowadays, different stakeholders pay more and more attention to how companies incorporate environmental, social and governance (ESG) practices into their businesses, putting pressure on organizations to perform well based on ESG criteria. In case of controversial behaviour by an organization in ESG issues (for example in relation to community, human rights, management and product responsibility), the consequences can be unpredictable and expensive, and they can have impact on the environment, companies, industries and even the whole society. Studying the effects of the news about company ESG scandals and selected corrective actions on companies' financial metrics can provide valuable information for companies facing similar situations in order to avoid potential pitfalls. It would be very valuable to know, which corrective actions seem to have mitigated the weakening of the financial metrics or even improved them in the past, and could these decisions and actions be used in similar situation faced by other companies and industries.

To study the effects of company's major ESG failure on both shareholder return and company's financial success, the following research questions are set:

> a) Are the shareholder return and the company financial metrics affected by the company's major ESG failure?
>
> b) Do the selected corrective actions help the shareholder return to recover? If they do, which actions help and how are they implemented?

Research aim of this thesis is to study the impact of company ESG scandals on both shareholder return and company's financial performance, and the effect of corrective actions carried out by the companies after the scandals on the consequences.

Research objectives of this thesis include selecting the ESG scandal cases and the corrective actions and collecting the financial data and the news about the scandals and corrective actions. The impact of the news is then reflected on the shareholder return and the companies' financial data.

Case study methodology with four selected cases is used as this method provides rich, descriptive data with the possibility to observe whether the findings replicate across the selected cases. This study is limited to corporate scandals, which has received international media attention. In addition, this study is limited to listed companies. Finally, this study is limited to ESG related corporate scandals in general; the division into ESG sub-categories (environment, social, corporate governance) is not within the scope of this work. Secondary data sources, for example newspapers and investor presentations, are exploited to collect the information about the selected major ESG failures and the corrective actions. Market and financial databases are used to gather the financial data including daily shareholder returns (adjusted closing price) and market indices, and annual revenues, relative revenue growths, gross profit margins and P/B values.

This thesis is organized as follows. The next chapter is the literature review about ESG, its implementation and correlation to company's financial performance, as well as company ESG failures and stakeholder responses to those. The third chapter states the research questions and the hypothesis. Research methods (data collection and data analysis) are described in the fourth chapter including discussion about limitations and justifications of the chosen methods. Chapter five introduces the research cases and corrective actions carried out in each case. Chapter six presents the results from the analyses, and these results are interpreted in chapter seven. Finally, chapter eight provides conclusions and summary of the study.

2 Literature review

2.1 ESG

The acronym ESG refers to Environmental, Social and Governance criteria, which in corporate context are used by various stakeholders to evaluate the company's performance in these respects. For example, many investors use them to search and screen ecologically, socially, and ethically sound investments. ESG criteria cover a wide spectrum of topics, which traditionally are not part of financial analysis, but they may have financial relevance. These criteria cover issues such as climate change and sustainability, diversity, human rights, consumer protection, as well as management structure in the company, employee relations, executive compensation and employee compensation. Also, health and safety policies in the protection against accidents, supply chain management, trust in the corporate culture, innovation and animal welfare are included into the ESG criteria (Kell, 2018). Figure 1 (below) shows schematically how ESG rating comprises of three pillars, namely environment, social and governance pillars, and how each pillar is divided into several themes.

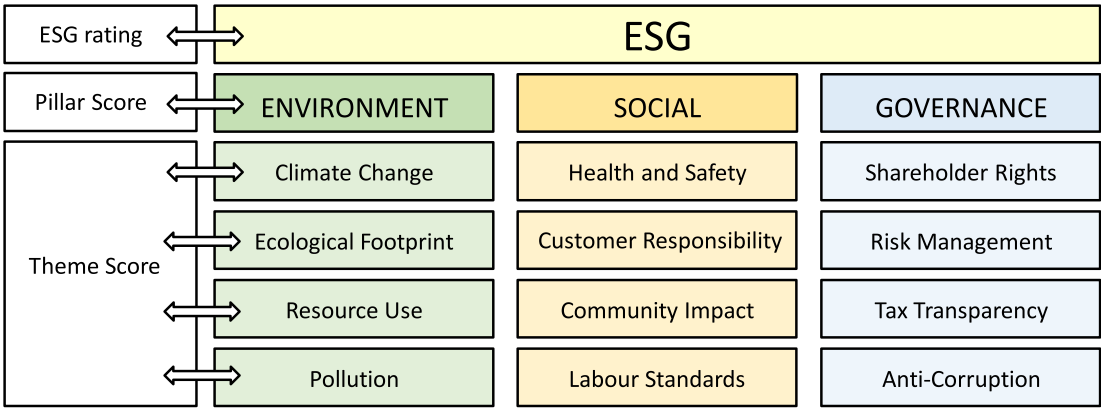


Figure 1 A scheme representing example components of ESG rating methodology Figure modified from (Czaplicki, 2019).

S & P Global defines ESG as a measure that reflects stakeholders' awareness of the responsible actions taken by companies to conduct their businesses. ESG conscious investors value these responsible actions, because they usually mitigate risk and help to ensure long-term sustainability (S & P Global, 2020). Socially responsible investment (SRI) can be considered as a predecessor to ESG. SRI builds more narrowly on negative screens excluding from investing for example in fast food, gambling, tobacco, alcohol, fossil fuels and firearm businesses. According to S & P Global's view, this might lower the levels of financial return for the SRI investor who puts more emphasis on moral values than financial returns. ESG investors, on the other hand, who use broader range of environmental, social and governance (ESG) criteria in their investment decisions, are able to maintain the same level of financial returns as they would with more traditional investment approaches (S & P Global, 2020).

The expression ESG was utilized for the first time in a report Who Cares Wins by Ivo Knoepfel in 2004 (Knoepfel, 2004). This report was a result of a joint initiative invited by former UN Secretary General Kofi Annan who wrote to over 50 CEOs of major financial institutions. The message of this report is that ESG factors embedded in capital markets lead to more sustainable markets and better outcomes for all stakeholders (Kell, 2018).

There is an increasing pressure for companies to incorporate ESG actions into their operations and provide comprehensive and standardized reporting on these actions. “ESG reporting needs a drastic revision”, writes Elina Kamppi from Finance Finland (Kamppi, 2020). Nowadays, only companies with 500 or more employees have the obligation to report ESG data, and the content of the material reported is very different from company to company. Finance Finland has proposed an EU-wide ESG data register, which includes companies with 250 or more employees and is based on common ESG reporting standards (Kamppi, 2020). This comparable data directly collected from the companies would be available for both the financial sector and the academic world. Another powerful driving force for ESG reporting is investor pressure. Larry Fink, CEO of influential institutional investor BlackRock, in his annual letter to CEOs (Fink, 2020) wrote that all the stakeholders need a clearer picture how companies are managing sustainability-related issues; not just climate-issues but how the companies are paying attention to all stakeholders (f.ex. workforce, supply chain, customers, etc.). He also added, that in BlackRock they “will be increasingly disposed to vote against management and board of directors when companies are not making sufficient progress on sustainability-related disclosures and the business practices and plans underlying them.” (Fink, 2020).

2.2 Practical implementation of ESG and measuring ESG performance

Annual Sustainability Reporting / GRI, is one example of internal implementation methods. GRI, an international not-for-profit organization, has produced free Sustainability Reporting Guidelines/Standards to help enhance global comparability, to increase companies’ transparency, and to make companies take the responsibility for their actions (Global Reporting Initiative, 2020a). These standards aim to help organizations to meet the needs of all stakeholders be they the companies themselves, investors, policymakers, markets and societies. The standards are composed of comprehensive sets of both Universal Standards (Foundation, General Disclosures, Management Approach) and Topic-Specific Standards (Economic, Enviromental, Social) (Global Reporting Initiative, 2020b).

Triple Bottom Line can be considered as another internal implementation method. In the mid 90’s, John Elkington invented the accounting framework called Triple Bottom Line

(TBL), which in addition to traditional measures (profits, return on investment, shareholder value) includes environmental and social dimensions (Elkington, 1994). This accounting method aims to incorporate three dimensions of performance: social, environmental and financial. These dimensions are often called 3 Ps: people, planet and profits (Slaper & Hall, 2011). Andrew Savitz defines TBL in the following way in his book The Triple Bottom Line (Savitz, 2013), p. 5: “The TBL captures the essence of sustainability by measuring the impact of an organization’s activities on the world. A positive TBL reflects an increase in the company’s value, including both its profitability and shareholder value and its economic, environmental and social capital.”

	Economic	**Environmental**	**Social**
Typical Measures	Sales, profit, ROI	Pollutants emitted	Health and safety records
	Taxes paid	Carbon footprint	Community impacts
	Monetary flows	Recycling and reuse	Human rights
	Jobs created	Water and energy use	Product responsibility
	Supplier relations	Product impacts	Employee relations
	Personal income	Fossil fuel consumption	Unemployment rate
	Cost of underemployment	Waste management	Median household income

Table 1 A simplified schematic presentation of TBL measurement. Table modified from (Savitz, 2013).

The weakness or strength of TBL (depending on who you ask) is the absence of universal method for calculating the company TBL. There is no common unit of measure for social capital or environmental health, for example. Further, the standards that comprise the three TBL categories are not universally determined (Slaper & Hall, 2011). Therefore, the TBL values between companies are not completely comparable. On the other hand, the lack of rigidness allows individual companies to utilize this method to suit their needs.

Company external ESG rating agencies have become a major force in the markets, because investors put a lot of faith in the ESG scores these agencies produce. In a Sustainable Investment Review released in 2018, the Global Sustainable Investment Alliance (GSIA) finds that sustainable investing assets worldwide were USD 30.7 trillion at the beginning of 2018, which is a 34 percent increase since 2016 (GSIA, 2018). Clearly, providing ESG data (also called non-financial data) is a big business, and tens, or maybe hundreds, of ESG research companies compete to offer their services. To name a few major players, the following five are given: Bloomberg, MSCI, RepRisk, Sustainalytics and Thomson Reuters.

Morgan Stanley Capital International's (MSCI) ESG Ratings research (MSCI, 2018) is an example of how these companies work. This research aims to answer to which issues of the negative externalities that companies in an industry generate may turn into unanticipated costs for companies in the medium to long term and conversely, which ESG issues affecting an industry may turn into opportunities for companies in the medium to long term. Their four key questions deal with the most significant ESG risks and opportunities a company and its industry are facing, the degree of company's exposure to those risks and opportunities, how well a company is managing those risks and opportunities and finally, the overall picture for the company and company's comparison to its global industry peers. Table 2 (below) summarizes the hierarchy of MSCI's ESG key issues.

3 Pillars	10 Themes	37 ESG Key Issues	
Environment	**Climate Change**	Carbon Emissions Product Carbon Footprint	Financing Environmental Impact Climate Change Vulnerability
	Natural Resources	Water Stress Biodiversity & Land Use	Raw Material Sourcing
	Pollution & Waste	Toxic Emissions & Waste Packaging Material & Waste	Electronic Waste
	Environmental Opportunities	Opportunities in Clean Tech Opportunities in Green Building	Opp's in Renewable Energy
Social	**Human Capital**	Labor Management Health & Safety	Human Capital Development Supply Chain Labor Standards
	Product Liability	Product Safety & Quality Chemical Safety Financial Product Safety	Privacy & Data Security Responsible Investment Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing	
	Social Opportunities	Access to Communications Access to Finance	Access to Health Care Opp's in Nutrition & Health
Governance	**Corporate Governance***	Board* Pay*	Ownership* Accounting*
	Corporate Behavior	Business Ethics Anti-Competitive Practices Tax Transparency	Corruption & Instability Financial System Instability

Table 2 MSCI ESG Key Issue Hierarchy (adapted from (MSCI, 2018)).

In addition to ESG score, so called ESG controversies score can be exploited, which is based (in Refinitiv's case) on 23 ESG controversy topics (Refinitiv, 2020). During the year of scandal, in which the company is involved, the ESG controversy score is calculated and deducted from their ESG score thus affecting the overall ESG score and grading. The involvement in an ESG related scandal can have an effect on company's ESG score also in the following years, if there are new developments related to that negative event (Refinitiv, 2020).

However, the rating agencies might produce contradictory ESG rating results even for the same company. Berg and the colleagues (Berg, et al., 2019) found out in their data set of five different ESG rating agencies, that the correlation between the ratings were on average 0,61 ranging from 0,42 to 0,73. For their study they identified three distinct divergence sources: scope, weight and measurement. The result of their study showed that measurement differences (rating agencies measure the same attribute using different indicators) explain 53% of the total differences between ESG ratings, differences in weight (rating agencies take different views on the relative importance of attributes) explain 3 %, and finally, differences in scope (different sets of attributes are used as a basis to form different ratings) explain 44% (Berg, et al., 2019). It seems that, as a concept, ESG performance is still evolving. At the moment, there are probably too many reporting standards available and the optionality to report or not creates confusion. There is an obvious demand for standardization.

2.3 Correlation between company's financial and ESG performances

The correlation between company's financial and ESG performances has been a subject for intensive study by both scholars and investors. To provide a comprehensive overview of previous studies, Gunnar Friede and his colleagues (Friede, et al., 2015) gathered results from 2200 unique academic studies about this relationship. They conducted both vote-count studies and second-order meta-analysis (average correlation) and revealed that roughly 90% of studies found a nonnegative relation, and in addition, the large majority of studies reported positive correlation. Moreover, this positive impact of ESG performance on company's financial performance seemed to be stable over time (Friede, et al., 2015). However, this broad summary of previous studies does not specify how the financial performance of the companies studied was measured.

There are several ways how companies' financial performance has been measured, when the correlation between ESG and financial performances has been studied. One measure to estimate company's financial performance is cost of debt, which is the effective interest rate a company pays on its debts. Eliwa and colleagues (Eliwa, et al., 2019, article in press) studied whether lending institutions reward companies for their ESG-practices, both ESG-performance (what actually has been done; substantive approach) and ESG-disclosure (image created to convince the investors; symbolic approach). Their sample consisted of 6018 firm-year observations of listed companies in 15 EU countries during years 2005-2016. This material revealed a significant negative association between the cost of debt and both ESG performance and disclosure implying that there is a failure to distinguish between ESG performance and disclosure (Eliwa, et al., 2019, article in press). Malaysian listed firms were shown to benefit from Bloomberg's ESG score over the period 2005 to 2018. ESG scoring reduced on average firm's cost of capital (either cost of equity or cost of debt) by 1,2 % (Wong, et al., 2020). Return on equity (ROE) and Return on Asset (ROA) were used as a measures for financial performance in a study with a database of 356 European listed companies (Nirino, et al., 2021). This study confirmed a negative and significant relationship between corporate ESG controversies and financial performance; a relationship, which could not be mitigated exploiting fancy ESG practices afterwards (Nirino, et al., 2021). In other words, ESG practices should be used to prevent companies from ending up in ESG related controversies rather than curing the consequences.

Companies' financial performance in relation to ESG performance has been measured using the stock market performance as a financial metrics (Kim, et al., 2013), (Sahut & Pasquini-Descomps, 2020), (Capelle-Blancard & Petit, 2019). Kim and colleagues (2013) studied about 100 firms listed in the Korean capital market and included in MSCI ESG database during years 2011-2013. Their results show that the firms with higher ESG ratings perform 3,4%, on average, better than the firms with lower ratings in the Korean stock market (Kim, et al., 2013). In order to test the impact of ESG scores on companies' market performance, (Sahut & Pasquini-Descomps, 2020) studied over 200 large US, UK and Swiss companies based on the availability of ESG scores of these companies during years 2007 – 2011. They found out that variation of the overall ESG score was only significant in UK, and that changes in some particular sub-category ratings exhibit a small but significant impact on the stock prices during limited periods or on limited sectors, and these varied between the countries studied. Their overall conclusion was that the market did not clearly sanction negative or positive ESG efforts, and that firms and investors could need further incentives. One must remember that the researched material is quite old, and a lot has happened since 2011 in the public response to ESG. (Capelle-Blancard & Petit, 2019) studied the extent and the determinants of the stock market's reaction following released news related to ESG factors. Their empirical analysis is based on approximately 33000 either positive or negative ESG news about one hundred multinational listed companies during 2002-2010. According to the results derived from this material, on average, firms facing negative events experienced a drop in their market value of 0,1%. On the other hand, companies seemed to gain nothing on average from positive announcements (again, one must realize that the time period is 2002-2010 and that attitudes and awareness towards ESG issues have increased since).

Porter and the coauthors claim in their paper Where ESG fails (Porter, et al., 2019) that there has never been conclusive evidence that companies scoring higher points in ESG screens than their peers would deliver higher shareholder returns. On the contrary, there is convincing evidence that a company, which can identify, and harness selected social and environmental issues relevant to that business can eventually have an economic impact also on other companies as well as on entire industries. This is what they call shared value. For a company to be able to deliver this kind of profit-driven social impact, the social and environmental issues should be integral to its core strategy and they are to be implemented at every level of the organization; these issues cannot be just some corporate window-dressing. As an example, the authors (Porter, et al., 2019) bring up companies that appear on Fortune Magazine's annual Change the World list. These companies do not achieve the top ESG rankings in their industries. Still, public companies, which appeared on Fortune Magazine's list from 2015 through 2017 outperformed the MSCI World Stock index by an average of 3,9% in the year following publication. The shared value investing concept offers an essentially different approach than ESG rankings and SRI screens. It directly links social impact to company's competitive advantage.

As a conclusion from this narrow selection of journal articles, there is a correlation between company's financial and ESG performances. Companies' ESG practices (both ESG performance and disclosure) have at least nonnegative, and in most cases, positive correlation with companies' financial performance. On the other hand, ESG controversies encountered by the companies have negative effects on their financial performance. To really make a difference for all the stakeholders, the need to differentiate between substantive and symbolic ESG practices must be taken seriously. As discussed by (Porter, et al., 2019), ESG issues should be incorporated in company's daily operations at every level.

2.4 ESG failures, company reactions and stakeholder responses

To define corporate ESG failure/controversy/scandal, the opening paragraph from (Aouadi & Marsat, 2018) is quoted: "ESG controversies are corporate environmental, social, and governance news stories, such as suspicious social behavior and product-harm scandals, that place a firm under the media spotlight and grab investor's attention. This kind of news raises doubts about the firm's future prospects, constitutes a risk for firm reputation and may have an impact on firm value." Table 3 summarizes some example ESG failures:

Category	ESG Controversy Description
Community	Bribery Corruption Product price-fixing Tax-fraud Money laundering
Human rights	Use of child labour Human rights issues
Management	High executive and board compensation
Product responsibility	Consumer complaints or dissatisfaction directly linked to the company's products or services Customer health and safety Company's marketing practices
Resource use	Environmental impact of operations on natural resources or local communities
Shareholders	Non-transparent accounting issues Insider dealings Share price manipulations
Workforce	Workforce diversity and opportunities Workforce health and safety Wages or wage disputes Voluntary departure or ousting of an important executive manager

Table 3 Categorization and description of ESG controversies (table modified and simplified from (Thomson Reuters, 2017).

(Jory, et al., 2015) studied corporate scandals, which had occurred between 1993 and 2011, and which involved a firm's CEO. These scandals included accounting frauds, bribery, insider trading, price fixing and in addition to these, also extramarital affairs, personal loans and even sexual harassment. In their literature review (see (Jory, et al., 2015)), they show that the market reaction to corporate scandals is negative, and that the causes of scandals are traceable to poor corporate organizations and culture, poor character of individuals inside the company, and finally, outside pressures created by the markets. Their own results conclude that there is an increase in the stock market volatility of affected firms in the days following the announcement, but in the long run the stock price performance is comparable to the firms' peers, who were not affected by the scandals. They also found out, that firms prone to scandals are usually large firms with insiders that serve on the board of directors and where the managers are substantially remunerated for company's success (Jory, et al., 2015).

It is not only the shareholder wealth, but also firm's costs and operations, which are negatively affected in the case of scandal. Customers may start to avoid the products or services of the affected companies, because they feel hurt and betrayed by the wrongdoings causing the scandal. Suppliers may not want to be associated with a company involved in scandalous actions, because they might think that their own reputation is at stake. In addition, legitimacy loss, legal penalties and employee dissatisfaction might punish companies after ESG controversy (Hersel, et al., 2019).

However, (Jory, et al., 2015) conclude that the operating performance of the scandal-hit sample firms in their study is better than that of the counterparts in the years after the scandal. This implies that the actions taken by the companies after the scandal was made public have been the right ones and carried out at the right time. The corrective actions common to companies in (ESG) failure/controversy/scandal situations include, for example, CEO dismissal, changes in senior management, product recalls, apology to the stakeholders, policy changes in company organization and changes in executive compensation policy (these corrective actions are derived from the research cases and they are referenced in Chapters 5.1-5.4).

Determining the most effective timing for a corrective action in the scandalous situation is important for the companies. A so-called "Stealing thunder" approach suggests that companies should self-disclose crisis and major issues before media does (Claeys, et al., 2016). Instead, organizations tend to avoid communication if the issue is internal in nature and the extent of the crisis seems limited. Stealing thunder approach has been found to increase the credibility of organizational spokespersons as well as the reliability of the organizations. It also seems to mitigate the severity of the problem, and it makes the news following the crisis look like old news, as discussed by (Claeys, et al., 2016). In their study about Stealing thunder approach, (Claeys, et al., 2016) exposed the test persons to news articles, including a fictious one about organizational crisis, they drew a conclusion that novel information garners more attention and affects evaluations and attitudes more than old news. And if an organization fails to open communication about a crisis, attention drawn towards a critical third-party article could lead to more damaged reputation.

An apology to the stakeholders needs a careful thought. To investigate how corporate apologies affect stock prices (Racine, et al., 2020) studied a dataset of 223 non-financial, organizational crises between 1983 and 2013, where the shareholders were not the direct victims of the crisis. The study showed that the stock price response from apologizing depends on the firm's level of responsibility for the crisis meaning that if the company is not directly responsible for the crisis, apologizing for it has a negative impact on the stock price. And, if the firm fails to apologize when it is directly responsible for the crisis, its stock price will be negatively affected. As a result of that, company's response strategy should match with the degree of its responsibility for the crisis not to negatively affect the stock price. This same phenomenon was seen by Marcus and Goodman (Marcus & Goodman, 1991), who categorized investors' responses to crisis as being either defensive or accommodative (same as apologizing). They found out that for corporate scandals (companies being directly responsible for) investors react more positively to accommodative communication than in the cases of accidents (companies not being directly responsible for), when investors react more negatively to accommodative communication.

As ESG controversies are corporate environmental, social, and governance news stories, the role of media cannot be ignored. The general role of media in financial markets can be said to constitute of three different roles as described in the literature review by (Naumer & Yurtoglu, 2020; article in press). First, media coverage is a principal channel for communicating to the public resulting in reduced informational asymmetries between corporate insiders and outside shareholders. Second, media can shape corporate policy by pressurizing corporate decision makers to behave in ways that are "socially acceptable". Third, the media not only reports events but also shapes the public's perception of them. In their own study of the influence of corporate ESG news' volume, tonality (positive, negative, neutral) and source (either financial or mass media) on costs of financing of European and U.S. firms from 2006 to 2016, (Naumer & Yurtoglu, 2020; article in press) found out that the volume of ESG-related news is associated with credit default swap (CDS) spreads, and that positive tonality especially in association with ESG related news has a positive effect on company's financial performance (and vice versa).

The role of media in sharing the initial information in the case of misconduct was studied by (Carberry, et al., 2018) when they tried to explain the variations in stock market reactions to corporate misconducts. Information provided by the media seems to be important for the investors, because corporations have strong incentives to limited information about the misconduct, which they are involved in. They studied a sample of 345 acts of corporate misconduct in five European countries and the results revealed that investors are more likely to react negatively when the media presents clear and credible information that misconduct occurred, that the firm was responsible for it, and that the misconduct was the result of deeper organizational problems. In addition, the investors' negative reactions are mitigated by the information that a firm has a restorative capacity if the media blames the corporation for the misconduct rather that specific individuals (Carberry, et al., 2018).

3 Research question and hypothesis

Various stakeholders of a company (investors, employees, suppliers, customers, etc.) are more and more aware of the importance of ESG related issues and their own power to influence these with their choices. The need for companies to make long-term decisions rather than short-term ones has a growing impact on the investment decisions made by private and institutional investors alike, as well as on the purchase decisions of the customers and the consumers. However, companies occasionally end up being involved in ESG related organizational misconducts, which can be defined as follows: "Organizational misconduct is an illegal, unethical or socially irresponsible behavior performed by an organization that directly harms the stakeholders.", reviewed in (Hersel, et al., 2019). (Hersel, et al., 2019) identified four major types of organizational misconducts: fraud, product safety issues, employee mistreatment and environmental violations, which are all strongly linked to ESG matters. In addition to stakeholders, these misconducts can also be harmful to organizations and companies themselves. Companies involved in misconducts can experience legitimacy loss, legal penalties, employee dissatisfaction, consumer boycotts and stock price drops (reviewed in (Hersel, et al., 2019)). To mitigate the effects of these misconducts, organizations can make use of several different corrective actions. These can be defined as behaviors performed by organizations to mitigate the negative effects of misconducts on the firm and its stakeholders and generate positive outcomes for the firm (Hersel, et al., 2019). Corrective actions include, for example, CEO dismissal and replacement, changes in senior management, product recalls (either repair or refund), apology to the stakeholders, policy changes in company organizations and changes in executive compensation policy (Chapter 4). Corrective actions have both primary and secondary outcomes. Primary outcomes include firm performance and stakeholder reactions, secondary outcomes encompass ancillary effects such as legitimacy restoration and trust (Hersel, et al., 2019).

Research question consists of two parts, a and b:

a) Are the shareholder return and the company financial metrics affected by the company's major ESG failure?

b) Do the selected corrective actions help the shareholder return to recover? If they do, which actions help and how are they implemented?

Research hypothesis of this thesis is that major failures in ESG related issues affecting various stakeholders have effect, at least momentarily, on both the shareholder return and the financial metrics of the involved company. In addition, another part of the research hypothesis is that the selected corrective actions carried out as crisis management and communication by the company involved have influence on the recovery of the shareholder return and the company financial metrics.

4 Research methods

4.1 Data collection methods

Cases

Case study with multiple cases was chosen as this methodology produces rich, descriptive data (DifferenceBetween.com, 2016), which enables deeper analysis of the results than just a yes or no answer. Detailed, descriptive data was needed to solve the impact of different implementation methods of selected corrective actions (timing of the action, tone of the action, content of the action). Multiple cases were chosen for this study to observe whether the findings can be replicated across the selected cases or not (Saunders, et al., 2019a). Case selection was based on purposive sampling (non-probability) (Saunders, et al., 2019b) to select cases, which were particularly informative to meet the content of the research questions. The following judgement was used in selecting the cases:

- A large-scale corporate scandal in a listed company
- ESG relevance
- Occurrence in the 21st century giving relevance in contemporary ESG climate
- Considerable media attention

The limitation of case study methodology is that it does not provide generalizations on an entire population, because the sample is usually limited to a single individual or a few individuals (DifferenceBetween.com, 2016). Because purposive sampling was applied, the cases do not statistically represent all ESG scandals (Saunders, et al., 2019b).

The following cases were included in the research material and each of them is more closely described in chapters 5.1-5.4.

5.1 Volkswagen emission scandal (year 2015)
5.2 BP oil rig explosion and following oil spill (year 2010)
5.3 Kobe steel quality data fraud (year 2017)
5.4 Nokian Tyres tire test cheating (2016)

The relevance of these cases towards ESG issues was obvious. Table 4 presents author's view about the sub-category involvement in each case. Cases could have been selected based on their sub-category involvement and the results could have been compared between the sub-categories, but the scope of this study was not that detailed.

STUDY CASE	ENVIRONMENT	SOCIAL	GOVERNANCE
VOLKSWAGEN		X	X
BP	X		X
KOBE STEEL		X	X
NOKIAN TYRES		X	X

Table 4 Author's view about ESG sub-category relevance of the selected cases

Financial metrics

Daily shareholder return (adjusted closing price) in comparison to market index (Yahoo Finance database) was used to monitor quick market responses towards the released news about the scandals and corrective actions. A time period of one year was chosen covering the dates of the scandal and all the selected corrective actions. Annual total revenue (Morningstar database) and annual relative revenue growth were chosen to reflect company reputation in the eyes of customers and consumers. These metrics were compared between each case company and its competitor, which was not involved in the scandal, in the years preceding, in the year of, and in the years following the scandal. Annual gross profit margin (Morningstar database) measured profitability of each case company revealing possible costs due to the scandal. Figures from the scandal year, previous years and following years were used. Gross profit margin was compared between each case company and its competitor. Price/Book values (Morningstar database) of the case companies the year before, in the year of and the few years after the scandal were compared to each other to look for similar patterns. These patterns represented investors' confidence on the companies' future prospects.

Corrective actions

To find out the corrective actions carried out by the selected companies or organizations after the scandal, various secondary data sources were used, including company annual reports, press releases, investor presentations, newspapers and different media channels were studied. Based on the secondary data, the following corrective actions (**#1** - **#6**) were chosen to be studied:

#1 Executive dismissal
#2 Senior management replacement
#3 Product recalls (either repair or refund)
#4 Apology to the stakeholders
#5 Policy changes in company organization
#6 (Changes in) executive compensation policy

The numbering of corrective actions from **#1** to **#6** (list above) was used through the research and analysis of the results. The length of the timeline (prior and after the scandal) studied was dependent on the case and might vary between the cases.

4.2 Data analysis methods

First, the data collected (for detailed description, see chapter 4.1) was handled case by case (Chapter 5). The news about the scandal and corrective actions, shareholder return and market index were combined with the selected timeline. The impact of the scandal and the corrective actions carried out on the shareholder return was quantitatively evaluated calculating the difference (%) in share price between trading day -1 (one day before the scandal news or corrective action news) and +5 (5 days after the scandal news or corrective action news, Chapter 6, Appendix 1). Second, the effect of the scandal on company's revenue, gross profit margin and price/book were analyzed on yearly basis (Chapter 6). Third, data derived from separate cases were combined (Chapter 7) to observe possible replication across the selected cases.

5 Research cases

5.1 Volkswagen emission fraud

5.1.1 The scandal

On September 18th 2015 US Environmental Protection Agency (EPA) delivered a notice of violation to the company bringing the scandal to public awareness. This notice of violation accused Volkswagen for having sold over 480000 VW and Audi diesel vehicles in the USA with an installed emission compliance defeat device (Welch, 2019). This defeat devise activated itself in the test situation on rollers in the laboratory directing the engine to revert to a low-emission performance. In reality, the nitrogen oxide emission of these manipulated vehicles exceeded up to 40 times those figures allowed by federal emissions requirements (Welch, 2019). These manipulated test emission figures allowed Volkswagen to sell diesel vehicles in the USA and to receive green car subsidies and tax exemptions in the USA as well as in Canada and Europe. Later, Volkswagen admitted that over 11 million diesel vehicles worldwide were equipped with the defeat device and these vehicles were manufactured during 2009-2015 (Welch, 2019).

5.1.2 Actions carried out

#	Corrective action	News release	Reference
1	CEO dismissal (23rd September 2015)	Martin Winterkorn resigns as VW boss over emissions scandal.	(Bryant & Sharman, 2015)
2	Changes in Senior Management (17th December 2015)	VW makes management changes following emissions scandal. Volkswagen seeks greater efficiency with new executive team.	(Ruddick, 2015) (Milne, 2015)
3	Product recalls (either repair or refund) (7th October 2015)	Volkswagen starts recalling 11 million cars on January 2016. VW sets aside €6.5bn to cover recall costs.	(Bryant, 2015)

4	Apology to the stakeholders (22nd September 2015)	Mr Winterkorn personally apologised for the affair, saying in a video statement on the company's website on Tuesday that he was "endlessly sorry" that VW had betrayed the trust of millions of people".	(Bryant & Sharman, 2015)
5	Policy changes in company organization (10th December 2015)	Four-eyes principle for Volkswagen. The top management will lead VW less centralistically in the future.	(Frankfurter Allgemeine, 2015)
6	(Changes in) executive compensation policy (13th April 2016)	Volkswagen plans to cut executive bonuses after emissions scandal. Top VW managers accept bonus cuts.	(Deutsche Welle, 2016) (Campbell & McGee, 2016)

Table 5 Selected actions (#1-6) carried out by Volkswagen

5.2 British Petroleum (BP) Deepwater Horizon oil spill

5.2.1 The scandal

On April 20th 2010, Deepwater Horizon, an oil drilling rig, which was operating in the Gulf of Mexico (Macondo well) exploded and eventually sank. 11 workers died and 4 million barrels of oil leaked from the damaged Macondo well into the Gulf of Mexico in the course of over 87 days. The well was finally capped properly on July 15th 2010 (United States Environmental Protection Agency, 2017). The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (established on May 21st 2010) concluded in its final report, that the companies involved (BP, Transocean and Halliburton) had made decisions to cut costs and save time, and these decisions led to the disaster (BBC News, 2011). The commission's report concluded, according to (BBC News, 2011), that BP (owner of the well and head of the operations), Transocean (owner of the oil drilling rig) and Halliburton (company managing the well-sealing operation) had "inadequate government oversight and regulation". The report identified the following risk factors, which had not been taken seriously: 1) the cement used in sealing the bottom of the well was falsely designed 2) a test conducted to study the sealing capacity of the cement was falsely interpreted to have been a success, and 3) the workers failed to notice the signs of the inevitable explosion (BBC News, 2011). To make the scandal even worse it already was, BP's actions after the explosion has been said to become a textbook example of how not to handle crisis management: BP executives blamed the contractors saying that this was not BP's accident and made the company look very arrogant. At the same time CEO Tony Hayward kept repeating publicly insensitive comments (the following quotes are from (Bryant & Hunter, 2010)):

> "The Gulf of Mexico is a very big ocean. The amount of volume of oil and dispersant we are putting into it is tiny in relation to the total water volume." (The Guardian, May 14, 2010)
> "I think the environmental impact of this disaster is likely to be very, very modest." (speaking to reporters, May 18, 2010)
> "There's no one who wants this over more than I do. I would like my life back." (speaking to reporters, May 31, 2010)

5.2.2 Actions carried out

#	Corrective action	News release	Reference
1	CEO dismissal (26th July 2010)	Tony Hayward stepped down.	(Crooks & Harvey, 2010)
2	Changes in Senior Management (29th September 2010)	Andy Inglis (chief of exploration and production) stepped down (effect from October 31st, 2010).	(Wilson, 2010)
3	Product recalls (either repair or refund)		(BP, 2010b)
3a	(23rd June 2010)	Gulf Coast Restoration Organization created, which managed all aspects of the response to the Deepwater Horizon incident and ensured that BP fulfilled its promises to the people involved.	(Hoyos, 2010)
3b	(5th and 6th Aug 2010)	Macondo oil well finally capped properly.	(McNulty, 2010) (The Guardian, 2010)
4	Apology to the stakeholders (17th June 2010)	CEO Tony Hayward said that he is deeply sorry that the oil rig exploded and admitted that the disaster should never had happened.	(Wearden, 2010)

5	Policy changes in company organization (22nd Mar 2011)	BP claimed (in company's Sustainability review 2010) that it had implemented a comprehensive programme to strengthen safety, risk management and compliance across BP.	(BP, 2011)
6	(Changes in) executive compensation policy (3rd Mar 2011)	"Byron Grote (the finance director) and Iain Conn (the head of refining) received payouts of more than £100,000 on top of their regular salaries despite Deepwater Horizon disaster."	(Macalister, 2011)

Table 6 Selected actions (#1-6) carried out by BP

5.3 Kobe Steel product quality fraud

5.3.1 The scandal

Japan's third-largest steelmaker, Kobe Steel, on 10th October 2017 admitted faking data about the quality of some of its copper and aluminum products (Shane, 2017a); the products being less strong and durable than the specifications requested by the customers. The scandal kept expanding, when the company admitted faking data about their iron and steel products as well (Kobelco, 2018a). The scandal affected different businesses as Kobe steel had been selling metal to industries including aviation, automobiles, railways, and nuclear power. Customers, who had been using Kobe parts made with falsified data consisted of, at least, companies like Boeing, Airbus, Japan's Mitsubishi, Toyota, Honda, Nissan, Ford, GM and Mazda (Shane, 2017b). By the end of year 2017 the scandal was found to have affected more than 500 companies (producing cars, jets, trains, rockets and nuclear plants) and that the falsification of the product data had been going on for at least a decade (Wells, 2017). Report released by Kobe Steel on March 2018 said, that data was manipulated at 23 domestic and overseas plants, and more than 40 employees were involved in the falsification practice of the product quality data. On top of it all, the tampering of the data had been endemic in the company since the 1970s (Kobelco, 2018b). Luckily, no major accidents or tragedies were reported to have occurred due to Kobe's faulty steel products (Vaswani, 2018). Three things at the corporate governance level have been said to cause the problems creating the scandal: 1) a management style that overemphasized profits 2) lack of transparency in the corporate culture and 3) dishonesty towards the customers and negligence about the quality specifications set by their customers (Vaswani, 2018).

5.3.2 Actions carried out

#	Corrective action	News release	Reference
1	CEO dismissal (6th March 2018)	CEO Hiroya Kawasaki and executive vice president Akira Kaneka resigned (effect from 1st April 2018).	(Inagaki, 2018) (Obayashi, 2018)
2	Changes in Senior Management (6th March 2018)	Head of the company's aluminum and copper division resigned.	(Inagaki, 2018)
3	Product recalls (either repair or refund) (8th December 2017)	Kobe Steel said that no products have required recall.	(Reuters, 2017)
4	Apology to the stakeholders (12th October 2017)	CEO Hiroya Kawasaki spoke to the media for the first time after the scandal was revealed and apologized deeply admitting that trust in Kobe Steel had fallen to zero.	(Terazono, 2017)
5	Policy changes in company organization (7th March 2018)	Deep divide between management and front-line workers will be abolished. Each unit will have lower degree of authority. Prioritizing production volume over quality will be changed. Profit-driven thinking all over the company will be changed.	(Nikkei Asia, 2018)
6	(Changes in) executive compensation policy (5th March 2018) (6th March 2018)	Executive pay cuts were announced (up to 80% cuts).	(Obayashi, 2018) (Inagaki, 2018)

Table 7 Selected actions (#1-6) carried out by Kobe Steel

5.4 Nokian Tyres test cheating

5.4.1 The scandal

In February 2016, Kauppalehti reported that Finnish tire manufacturer, Nokian Tyres, had cheated for years in tests, possibly from 2005. According to staff e-mails the tire manufacturer sent modified and improved test tires for tests, which were not even manufactured. The sole purpose was to use the improved tires to win magazine tests that support Nokian Tyres' brand image, price position and share price (Kauppalehti, 2016a). Modified tires were produced from better materials and the tread structures were made more durable than standard tires. The modified test winners were so good that their normal production would not even have paid off, continued (Kauppalehti, 2016a). In its own stock exchange release, Nokian Tyres admitted that the tire sent to the test and the tire sold to the customer were different in terms of characteristics, not quality. The company also highlighted that they never risked safety of a customer (YLE, 2016a).

Right after the news concerning test manipulations came to light, Helsingin Sanomat reported that Finland's Financial Supervisory Authority (in Finnish Finanssivalvonta; from now on Fiva) tried to figure out whether the test fraud was associated with a securities market crime (Helsingin Sanomat, 2016). For example, Helsingin Sanomat covered in the news in the beginning of March 2016, that the members of Nokian Tyres' Board of Directors and an internal auditor had sold options for a total of EUR 600000 before disclosing fraud related to tire tests (Pietiläinen, 2016). In May 2017, YLE reported that Finland's National Bureau of Investigation had confirmed that Fiva had submitted a criminal complaint to police requesting the investigation on employees at Nokian Tyres whether they had misused insider information or broken securities market laws (YLE, 2017). In March 2019, police moved the suspicions of securities markets offences concerning the company's 2015-2016 Board members, President and CEO and certain employees to consideration of charges (Nokian Tyres, 2019), and in October 2020 prosecutor decided to press charges concerning the suspected disclosure offence against six person who acted as Board members and the president and CEO in 2015-2016. The prosecutor also pressed charges for suspected abuse of insider information against four persons who worked at Nokian Tyres in 2015 (Nokian Tyres, 2020).

5.4.2 Actions carried out

#	Corrective action	News release	Reference
1	CEO dismissal (27th September 2016)	CEO Ari Lehtoranta resigned (continued in his present position until the end of 2016).	(Nokian Tyres, 2016a)
2	Changes in Senior Management (18th May 2016)	Timo Tervolin (strategy and corporate development; new position in Senior Management).	(Suojanen, 2016)
3	Product recalls (either repair or refund) (29th February 2016)	"The opinion of the company is that no grounds for compensation exist."	(Nokian Tyres, 2016b)
4	Apology to the stakeholders (29th February 2016)	"We sincerely apologize for our actions in the past and want to earn the trust of the consumers and customers in the future, as well. We will continue to succeed in tests, with methods that are guaranteed to be honest." President and CEO Lehtoranta.	(Nokian Tyres, 2016b)
5	Policy changes in company organization (18th May 2016)	New managerial position was established (strategy and corporate development).	(Suojanen, 2016)
6	(Changes in) executive compensation policy (24th February 2016)	Nokian Tyres' incentive scheme was updated to offer a competitive rewarding system for the entire personnel.	(Nokian Tyres, 2016c)

Table 8 Selected actions (#1-6) carried out by Nokian Tyres

6 Results: Effects of the scandal and corrective actions

6.1 On daily shareholder return

The share price and corresponding stock index were plotted on a single timeline (one year) (Figures 2 (VW), 4 (BP), 6 (Kobe Steel) and 8 (Nokian Tyres)). To enable the use of a single Y-axis, the values were indexed (the first value was 100). The timepoints of the news about the scandal and each corrective action were shown on the share price graph to illustrate the course of events. The news concerning the corrective actions and the release dates were listed in Tables 5, 6, 7 and 8 in Chapter 5 (Research cases) and categorization of the corrective actions from **#1** to **#6** (Tables 5, 6, 7 and 8) is used in

Chapters 6 (Results) and 7 (Discussion). To calculate the changes in share prices and index values after the released news, the event window includes the values of **trading days -1 to +5** (Appendix 1). The results are shown as columns in Figures 3 (VW), 5 (BP), 7 (Kobe Steel) and 9 (Nokian Tyres). Day +5 was selected to give market participants enough time to process the news. The figures (adjusted closing prices and indices) were from Finance.yahoo.com.

Volkswagen

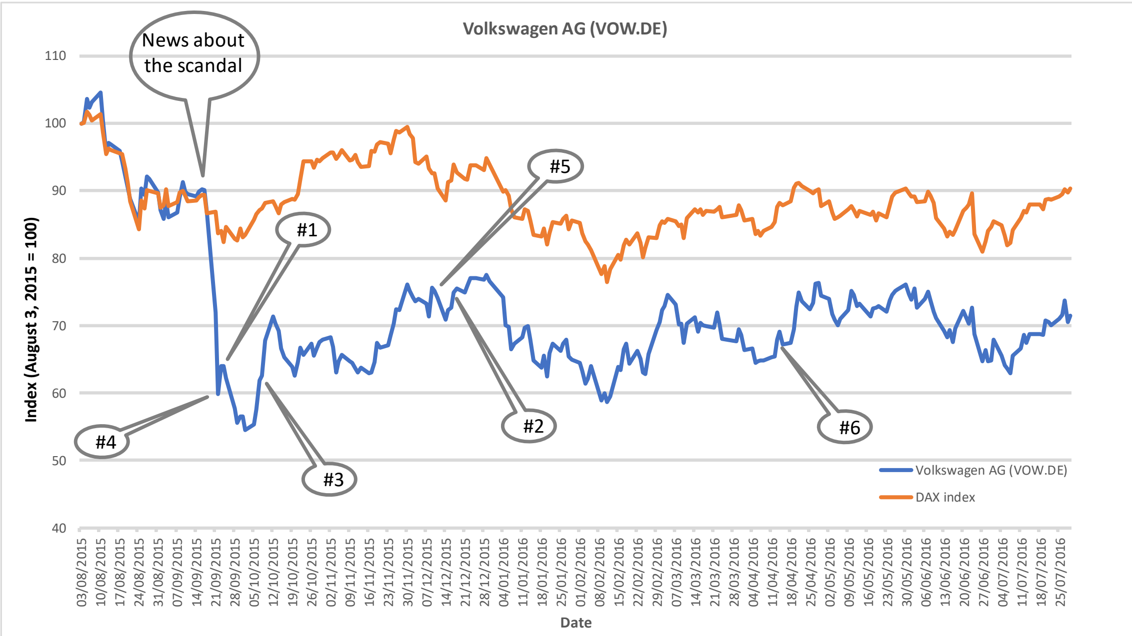


Figure 2 The timing of the news about the VW emission scandal and the selected actions (#1-6) plotted against daily shareholder return.

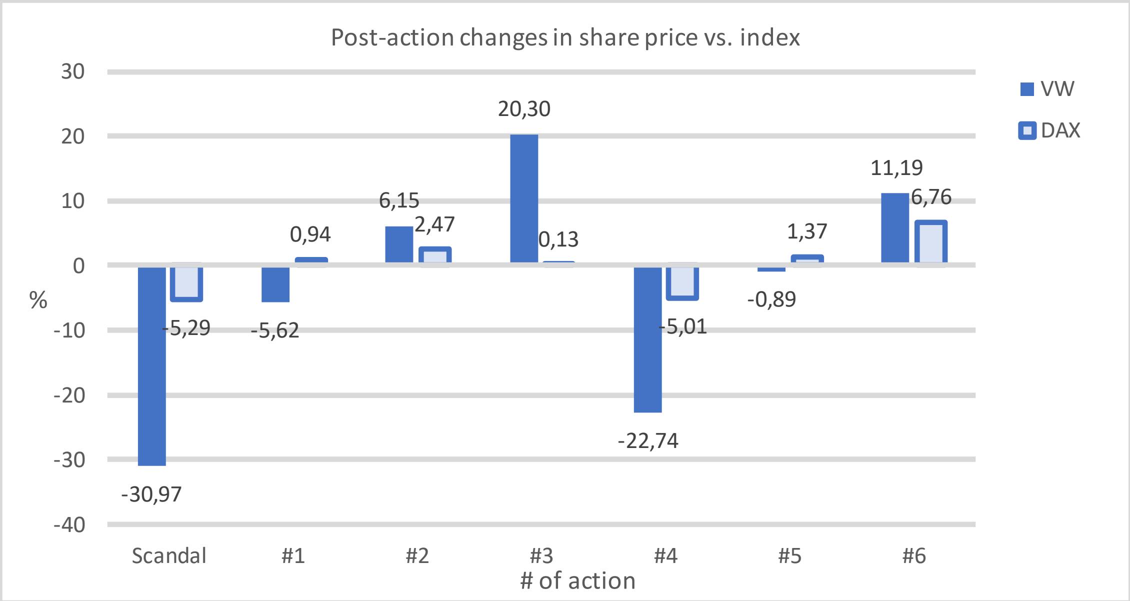


Figure 3 Post-scandal and post-action changes (%) in VW's share price.

BP

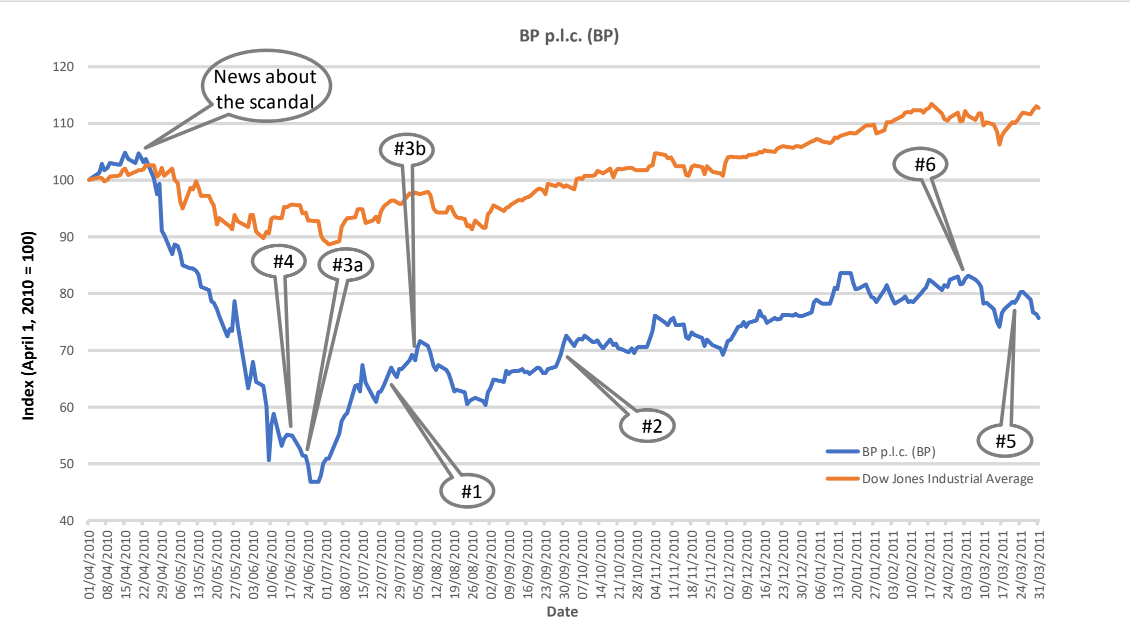


Figure 4 The timing of the news about the BP oil spill scandal and the selected actions (#1-6) plotted against daily shareholder return.

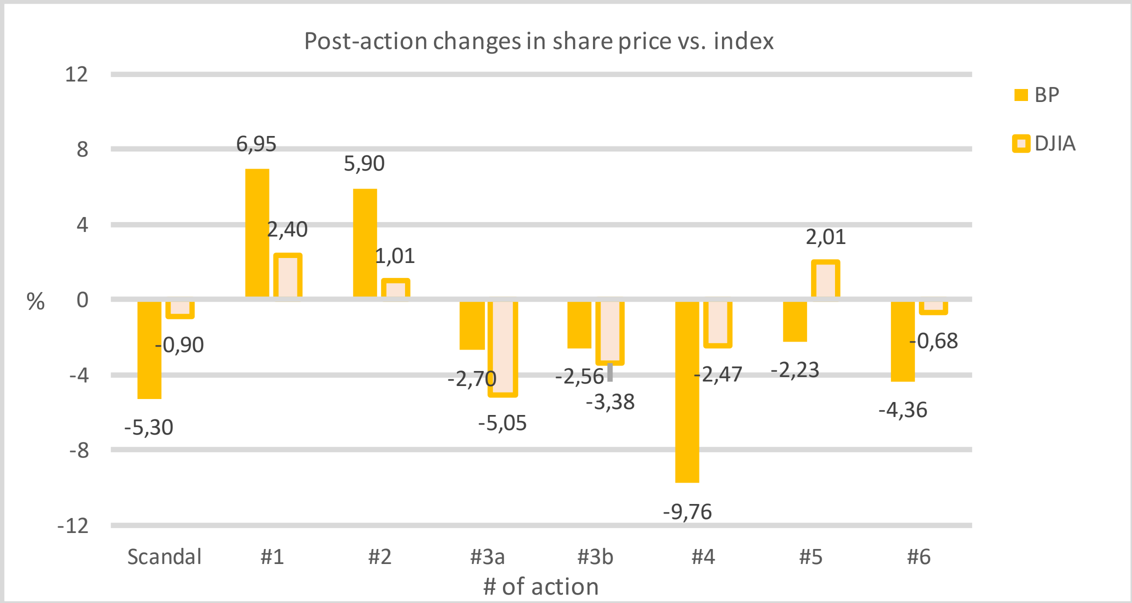


Figure 5 Post-scandal and post-action changes (%) in BP's share price (DJIA: Dow Jones Industrial Average).

Kobe Steel

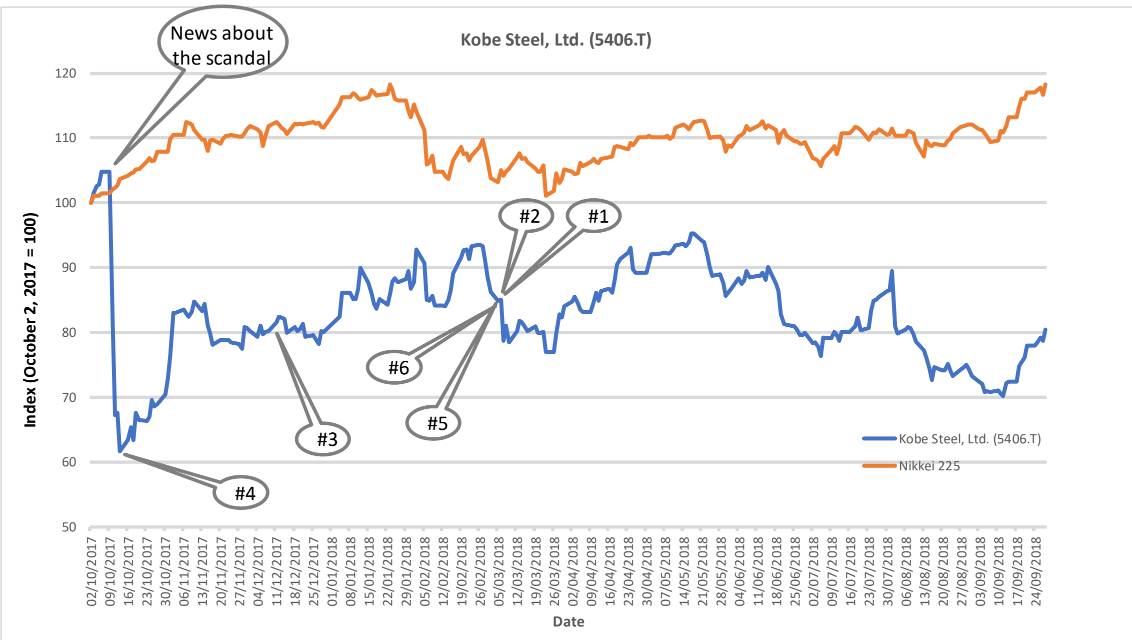


Figure 6 The timing of the news about the Kobe Steel data fraud scandal and the selected actions (#1-6) plotted against daily shareholder return.

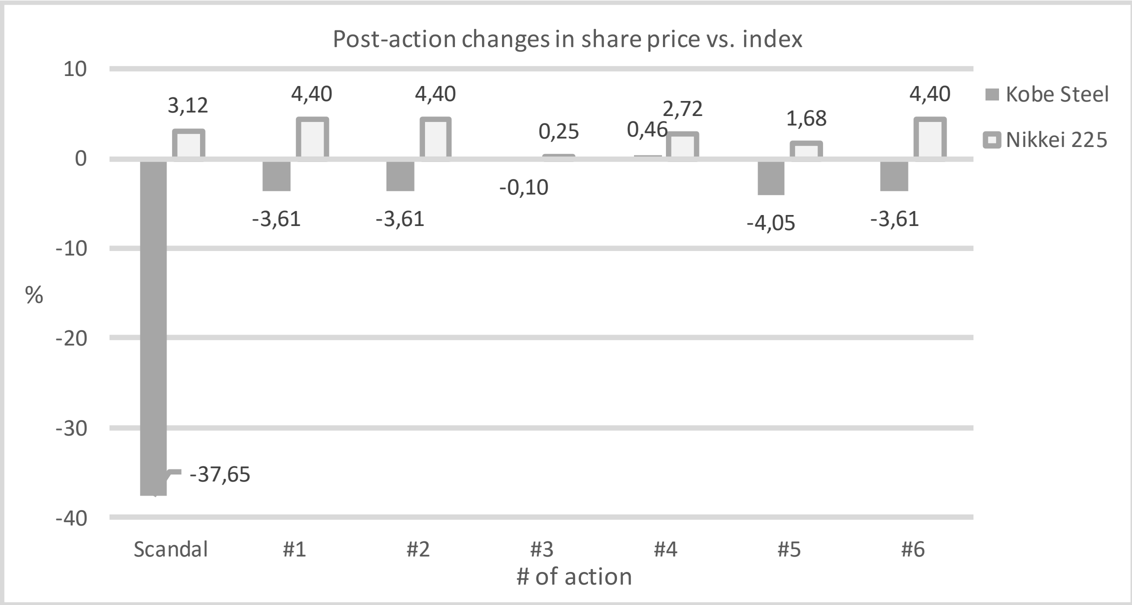


Figure 7 Post-scandal and post-action changes (%) in Kobe Steel's share price.

Nokian Tyres

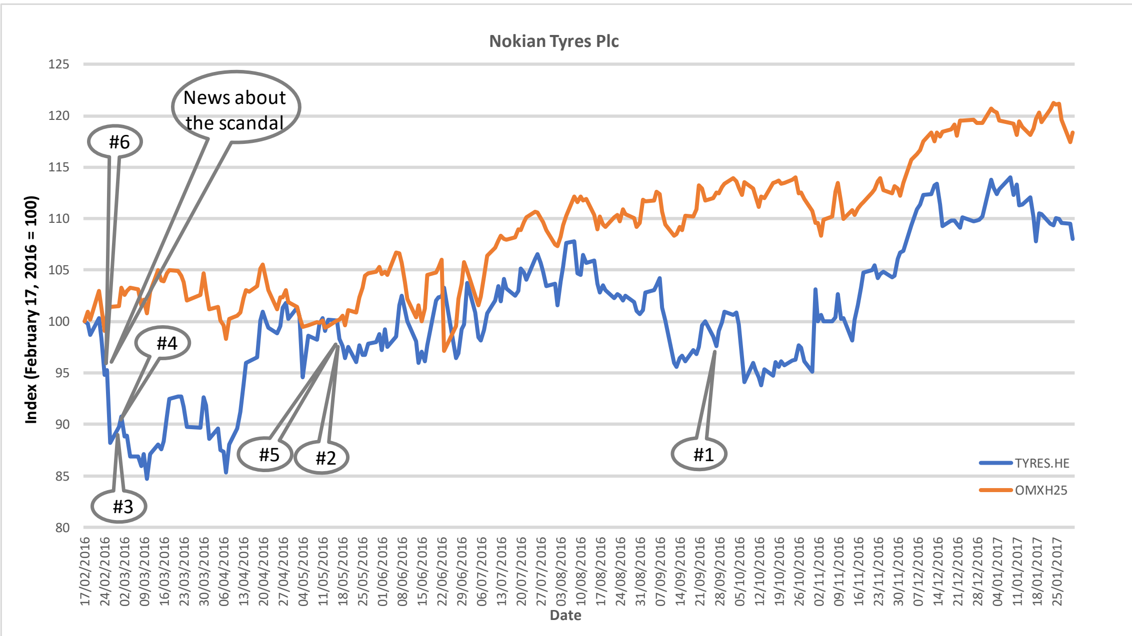


Figure 8 The timing of the news about the Nokian Tyres test cheating and the selected actions (#1-6) plotted against daily shareholder return.

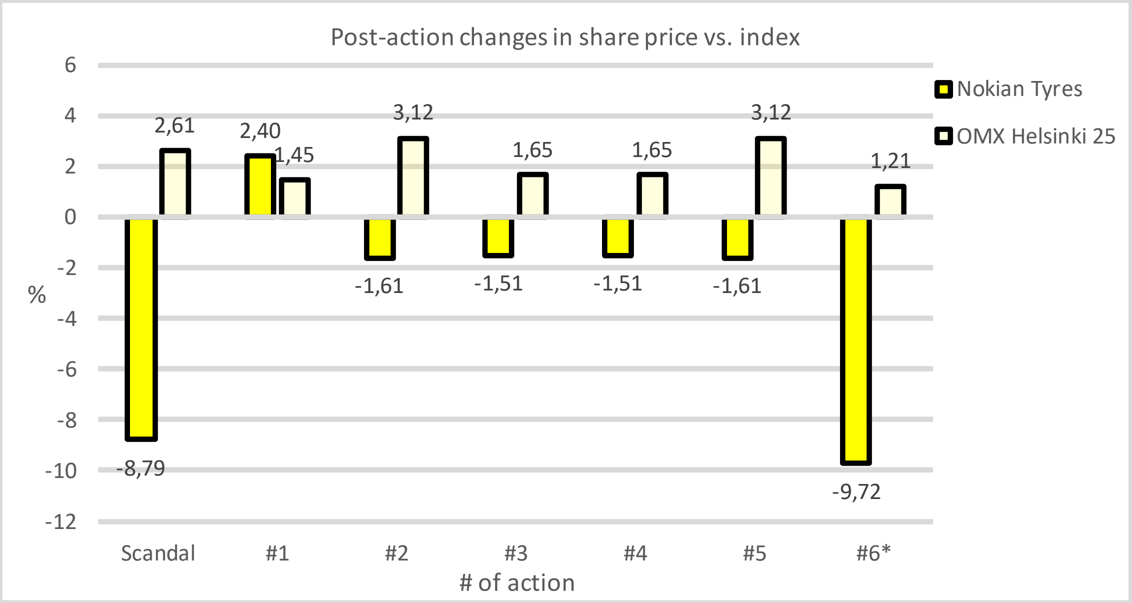


Figure 9 Post-scandal and post-action changes (%) in Nokian Tyres' share price.

6.2 On annual total revenue and relative revenue growth

Total revenue and revenue growth of each studied company were compared to one selected peer company. VW was compared to Daimler, BP to RDS (Royal Dutch Shell), Kobe Steel to Nippon Steel and Nokian Tyres to Continental. Revenue figures were taken from Morningstar.com and these figures were also used in calculating revenue growth values (relative difference in total revenue compared to the previous year).

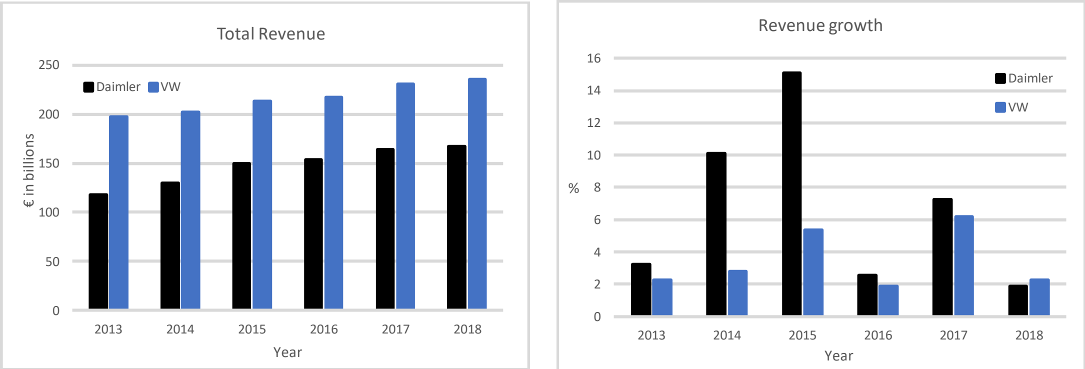


Figure 10 Comparison of revenue and revenue growth between VW and Daimler (the year of scandal: 2015).

Despite the emission scandal, VW's total revenue grew each year from 2013 to 2018. VW's total revenue exceeded that of Daimler's although Daimler's relative revenue growth was much higher already in year 2014, a year before the scandal took place (Figure 10).

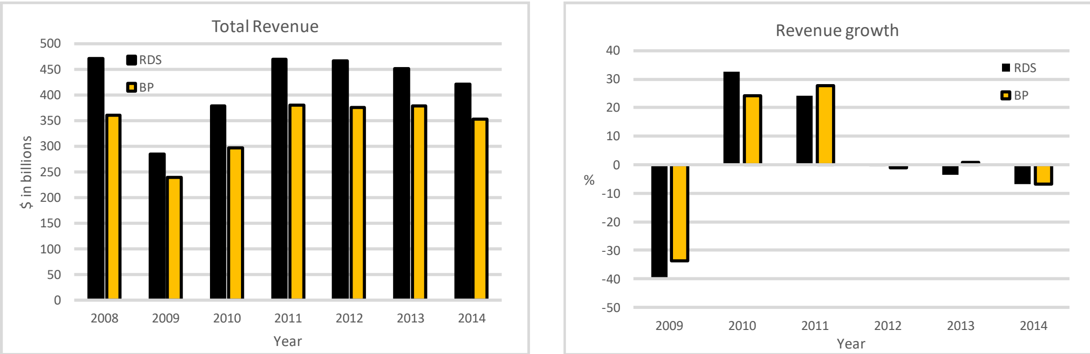


Figure 11 Comparison of revenue and revenue growth between BP and RDS (the year of scandal: 2010).

Total revenue of BP was somewhat less than that of RDS during years 2008 to 2014. Global recession in 2008 resulted in significant decrease (30%-40%) in the total revenues, but both companies (despite BP's scandal in year 2010) seemed to have recovered completely by the end of 2011. Revenue growth profiles looked very similar between BP and RDS, but the BP's scandal in 2010 might have reduced its relative revenue growth in 2010 (Figure 11).

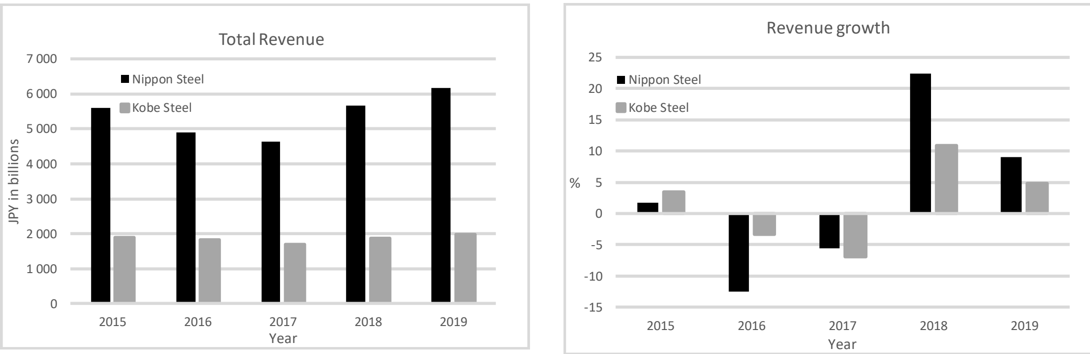
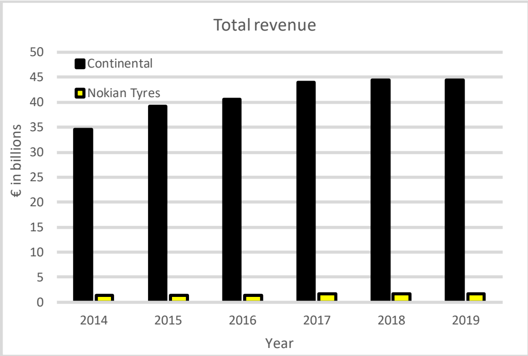


Figure 12 Comparison of total revenue and revenue growth between Kobe Steel and Nippon Steel (the year of scandal: 2017).

When comparing the revenue figures of Nippon Steel and Kobe Steel, Nippon Steel seemed to be a bigger player. The revenue profiles of both companies slightly reminded of a V-shaped form year 2017 being the lowest point. The revenue growth of both steel companies moved into the same direction. The revenue of Nippon Steel decreased relatively more than that of Kobe Steel in year 2016; at the end of the scandal year 2017 Kobe Steel's revenue dropped relatively more than that of Nippon Steel. However, by the end of year 2018, the revenues of both companies seemed to have recovered at the same level as in year 2015 (Figure 12).



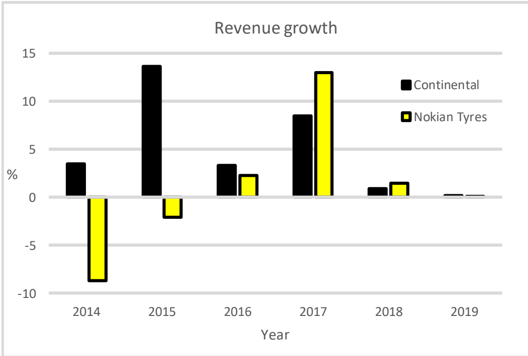


Figure 13 Comparison of total revenue and revenue growth between Nokian Tyres and Continental (the year of scandal: 2016).

Measured by revenue, Continental was a far bigger player in the car tire market than Nokian Tyres. Continental grew over the years, but not steadily. In contrast, Nokian Tyres' revenue fell in the years just before the scandal, but then grew strongly immediately post-scandal (Figure 13).

6.3 On gross profit margin

Gross profit margin of each company studied were compared to one selected peer company. Peer companies were the same as in 6.2. Gross profit margins (%) were calculated using figures (revenue and gross profit) from Morningstar.com.

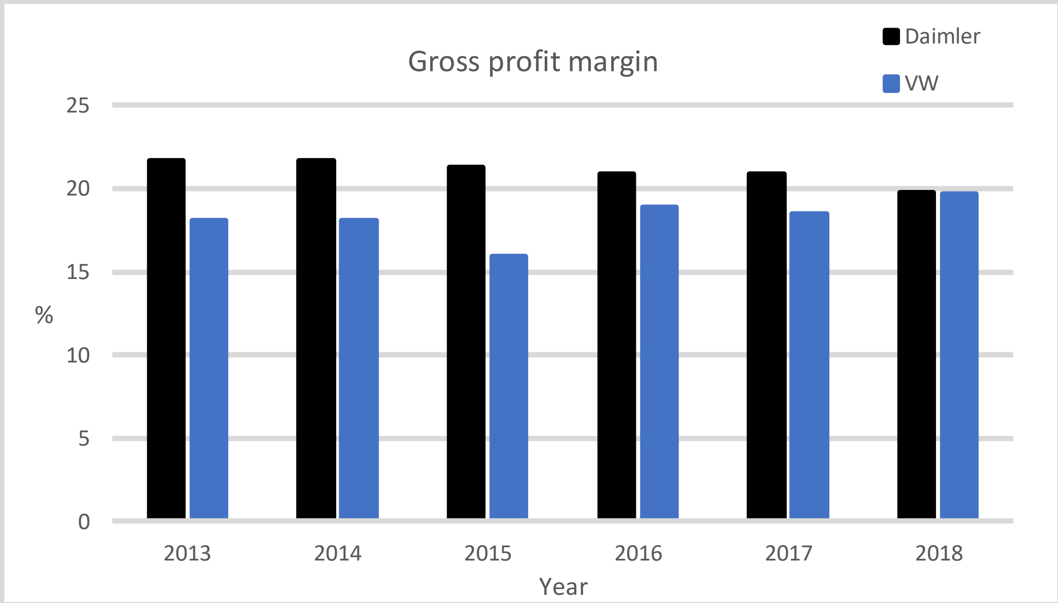


Figure 14 Comparison of gross profit margin between VW and Daimler.

The gross profit margin of VW dropped slightly in the year of the scandal (year 2015) but recovered quickly in the following year. Daimler's gross profit margin decreased slightly over the years. In 2018 the gross profit margins of both companies are essentially the same (Figure 14).

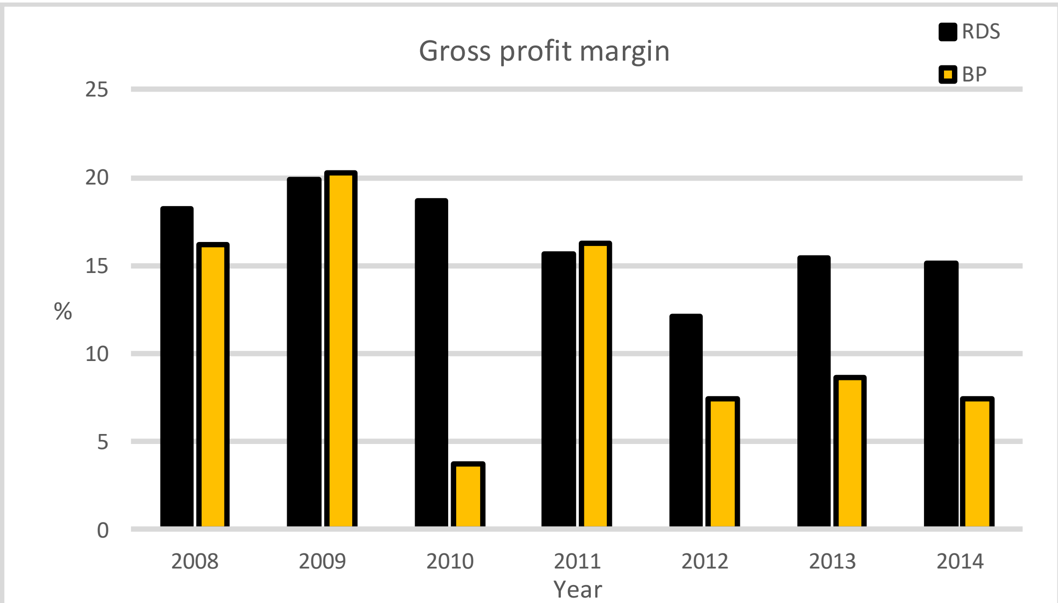


Figure 15 Comparison of gross profit margin between BP and RDS.

The gross profit margin of BP dropped dramatically in the year of the scandal (year 2010), but really quickly recovered to the same level with that of RDS. Except for year 2010, the gross profit margins of both companies followed a similar pattern (Figure 15).

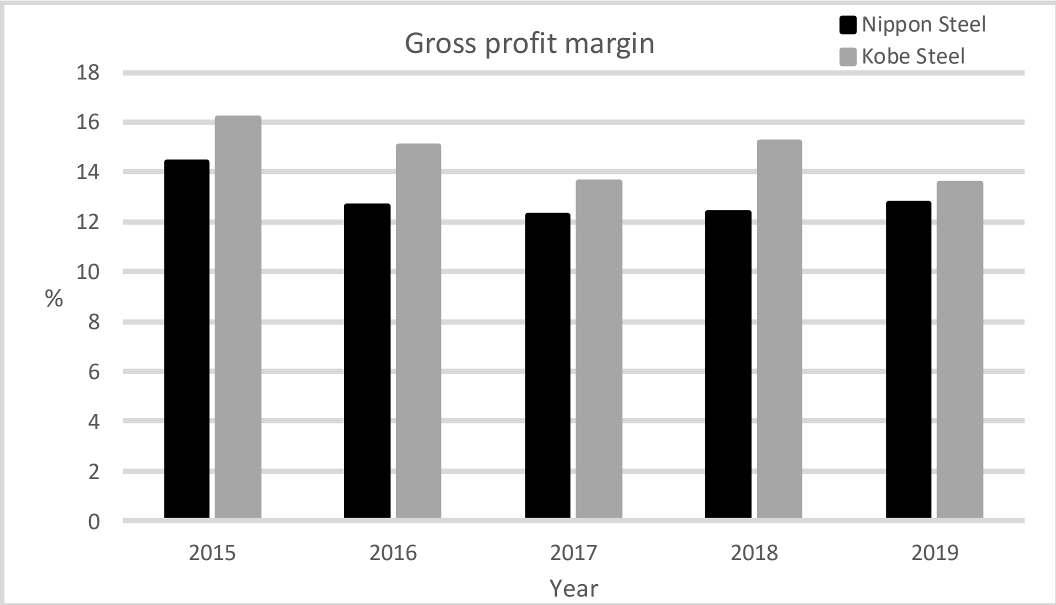


Figure 16 Comparison of gross profit margin between Kobe Steel and Nippon Steel.

The gross profit margin of Kobe Steel marginally dropped in the year of the scandal (year 2017). During the years Kobe Steel's gross profit margin was higher than that of Nippon Steel, including the year of scandal (Figure 16).

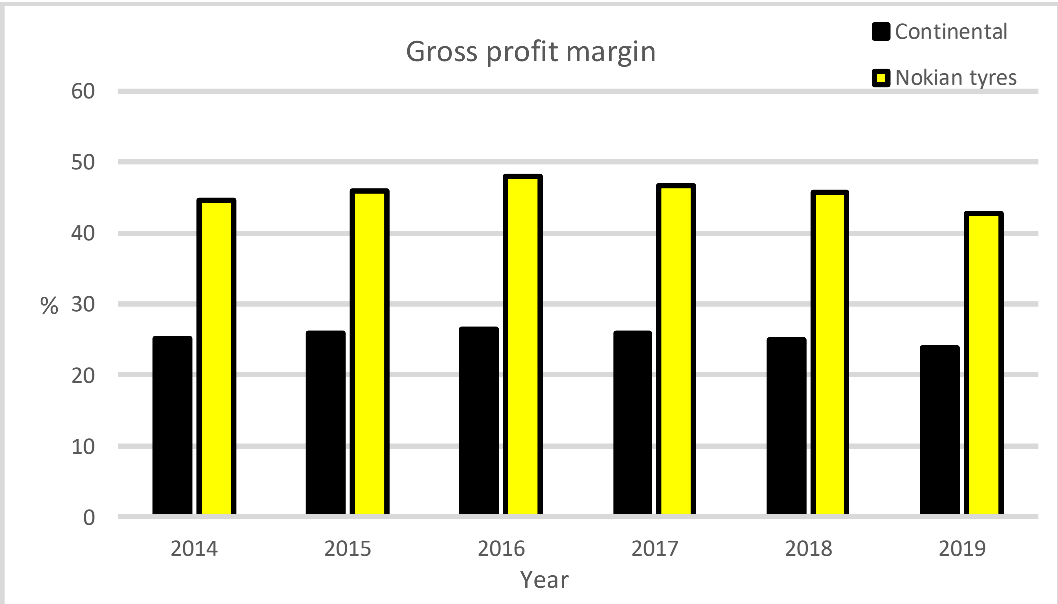


Figure 17 Comparison of gross profit margin between Nokian Tyres and Continental.

Nokian Tyres' gross profit margin was twice as much as that of Continental. The gross profit margins of both companies followed a similar pattern. The scandal year 2016 did not cause any visible change in Nokian Tyres' gross profit margin (Figure 17).

6.4 On Price / book (P/B) trends

Price / book (P/B) values from Morningstar.com were used in calculating the P/B index (Table 9). The original P/B values were replaced with the indices, because the companies represented different industries. The rationale was not to compare companies' P/B values to each other, but to see if there were similar trends. The use of indices enabled the use of a common starting value (100,00). In order to present the values on a single timeline, the year of scandal was fixed to 0.

Price / Book						
	- 1 year	0*	+ 1 year	+ 2 years	+ 3 years	+ 4 years
VW	0,97	0,71	0,73	0,8	0,6	0,75
BP	1,78	1,46	1,24	1,17	1,16	0,92
Kobe Steel	0,58	0,52	0,36	0,29	0	0
Nokian Tyres	3,42	3,3	3,6	2,6	1,95	0
Price / Book Index						
	- 1 year	0*	+ 1 year	+ 2 years	+ 3 years	+ 4 years
VW	100,00	73,20	75,26	82,47	61,86	77,32
BP	100,00	82,02	69,66	65,73	65,17	51,69
Kobe Steel	100,00	89,66	62,07	50,00	n.d.	n.d.
Nokian Tyres	100,00	96,49	105,26	76,02	57,02	n.d.
	0 Year of the scandal*					
	n.d. Not determined					

Table 9 Annual Price/Book values and indices.

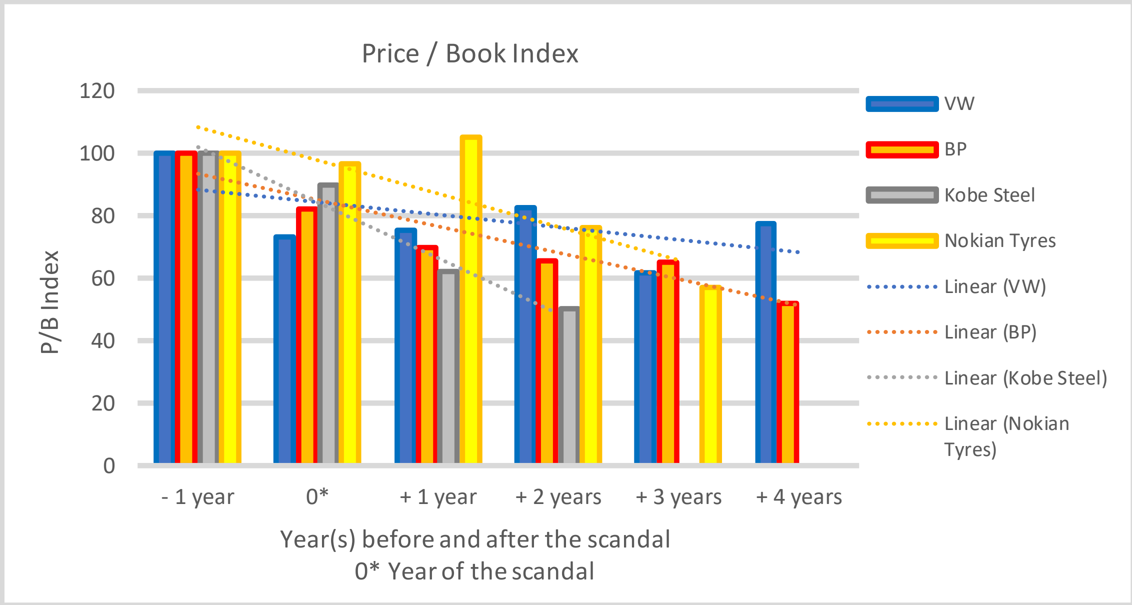


Figure 18 Annual Price/Book Index.

As a result, the diagram showed declining trendlines of the P/B index for all companies (Figure 18).

7 Discussion

In this thesis study the effects of selected corrective actions on company financial metrics in four major ESG related scandals were studied. Table 10 (below) summarizes the components of the study.

Study cases					
VW emission fraud	BP oil spill	Kobe Steel quality fraud	Nokian tyres test cheating		
Corrective actions (number and description)					
#1 CEO dismissal	**#2** Changes in senior management	**#3** Product recalls (repair or refund)	**#4** Apology to the stakeholders	**#5** Policy changes in organizations	**#6** Changes in executive compensation policy
Financial metrics					
Shareholder return vs. index	Total revenue	Revenue growth	Gross profit margin	P/B value	

Table 10 Components of this thesis study. # of corrective actions and corrective actions are linked as indicated in the table and this numbering is used throughout the text.

The effect of companies' major ESG failures and corrective actions on shareholder return (Chapter 6, Figures 2-9)

The news about the ESG scandal in every study case was followed by a loss of shareholder return on trading day +5. This probably reflects disappointment and anger amongst the shareholders, but most of all this signals uncertainty and even fear towards the future of the company. To understand the scope of this reaction, the owner base of each company should be known. For example, in November 2015 VW's shares were divided as follows: Porsche and Piëch families (52,2%), Lower Saxony (20%), Qatar Holdings (17%) and free float (10,8%) (Milne, 2015). It can be said with great certainty that the three major owners did not react immediately to the news leaving only the owners of the free-floating shares to react. The amount of loss in share prices varied from BP's -5,3% to Kobe Steels -37,56%. The modest reaction in BP's share price might be explained by the lack of understanding the extent of the destruction during the first days. In two months, the value of BP's share price had dropped more than 50% from the pre-scandal value.

Reviewed in (Hersel, et al., 2019), organizations often remove the leaders responsible for the misconduct. This signals to stakeholders that the firm involved is committed to rehabilitate and reduces stakeholder uncertainty about the firm's future. Investors seem to react favorably to **CEO dismissal (#1)** re-establishing trust with organizations as reviewed in (Hersel, et al., 2019). In this study the news about CEO dismissal had different effect on shareholder return depending on the case. The timing of the announcement of CEO dismissal might affect. VW announced Mr. Winterkorn's dismissal 5 days after the news about the scandal broke resulting in a drop in share price. The others announced CEO dismissal after several months. This was followed by a rise in share price (BP and Nokian Tyres), except in Kobe Steel's case. The Japanese culture of ultimate shame might cause the share price to drop at the time of CEO dismissal even after a long period of time. Also, the news about Kobe Steel's CEO dismissal was reported at the same time with the news about changes in senior management and executive compensation policy.

The news about VW and BP removing senior managers involved in the scandal **(#2)** was followed by a rise in their share price. Kobe Steel announced changes in the senior management at the same time with CEO dismissal and changes in executive compensation policy, which together resulted in decrease in their share price. Nokian Tyres, instead of removing any senior manager involved, added a new managerial position: strategy and corporate development. Markets saw this probably as a greenwashing attempt and reacted negatively.

After two weeks from the scandal news VW announced their intension to start massive product recalls (**#3**) creating a significant positive reaction to VW's share price. Recalls from consumer frauds, as in VW's case, are unique because the corrective action is not associated with a product safety concern but an attempt to avoid government regulation (Hersel, et al., 2019). The news about BP's corrective actions, establishing Gulf Coast Restoration Organization and successful capping of the Macondo oil well, did not help BP share price from falling with the index. Maybe these were the minimum actions stakeholders were expecting BP to take. Kobe Steel and Nokian Tyres announced that they were not going to engage themselves in product recalls. Japanese markets did not react to this news: perhaps the additional news stating that the product quality fraud had not caused any safety risks prevented the share price from falling. Nokian Tyres' simultaneous apology and refusal to recall products caused markers to react negatively.

Apology to the stakeholders **(#4)** was the first corrective action fulfilled in every case studied. VW, Kobe Steel and Nokian Tyres apologized during a few days from the scandal news; BP only after a couple of months accepted the responsibility. VW's apology took place during the turbulent first days around the same time with the news about the scandal and CEO dismissal and was followed by a deep fall in the share price. BP's apology had negative consequences on their share price: having first been blaming the subcontractors for the disaster and then apologizing is maybe not the best practice. Kobe Steel's share price did not react noticeably to the apology, which is surprising when one thinks about the pivotal roles of remorse and apology in Japanese culture. However, apology was the only action, which was followed by a positive (although small) change in Kobe Steel's share price. Nokian Tyres' not so sincere apology containing the message that other players in the industry cheat as well (Nokian Tyres, 2016d) combined with the news about the recall refusal was followed by a decrease in company's share price.

Policy changes **(#5)** are internal strategic and organizational changes, which companies use to diminish the incentives for behavior leading to misconduct (Hersel, et al., 2019).

VW's communication after the scandal about less centralistic management style and use of four-eyed principle in critical manufacturing steps induced no reaction in the markets. BP published a new comprehensive programme to strengthen safety, risk management and compliance across BP. Markets reacted negatively and this programme was even accused of being greenwashed (Schwartz, 2011). Kobe Steel announced their policy changes approximately at the same time with other major changes (CEO dismissal and changes in both senior management and executive compensation policy). All these together made the share price fall. Nokian Tyres established a new managerial position, namely strategy and corporate development, to represent their policy changes. This maneuver probably did not convince the shareholders as the share price fell.

VW's notification of executive bonus cuts as changes in executive compensation **(#6)** was followed by a rise in share price. The news about certain BP executives receiving bonuses (£100000) despite Deepwater Horizon disaster made the share price fall. Kobe Steel's announcement on cutting executive salaries by 80% was made about at the same time with three other corrective actions (CEO dismissal and changes in both senior management and executive compensation policy) and these together caused the share price fall. Nokian Tyres announced changes in their compensation policy 2 days before the news about the scandal came out. It appears that the company expected to be exposed. Share price movements already before scandal news came out imply that markets had suspicions about test cheating.

The effect of companies' major ESG failures on financial performance (Chapter 6, Figures 10-17)

The impact of the scandal on annual total revenue, relative revenue growth and gross profit margin of each company was studied on annual level. To have at least a slight idea how the other players in the industry field were performing, the performance of each "scandalous" company was compared to one of its competitors. Volkswagen was compared to Daimler, BP to Royal Dutch Shell, Kobe Steel to Nippon Steel and finally, Nokian Tyres to Continental. Kobe Steel (Figure 12) was the only company, whose revenue fell during the year of scandal compared to the previous year, but so did its control company's revenue. Both steel companies being Japanese, it is possible that the scandal hit Japanese steel industry as a whole. The revenues of the three other companies (Figures 10, 11 and 13) grew during the year of scandal although somewhat less than the revenues of their rival companies. During the year following the scandals, the revenues of all companies grew. In VW's case, the growth was slower than during the scandal year, but Daimler's revenue growth slowed down significantly much more. Probably the whole car industry suffered from VW's arrogant emission cheating.

The gross profit margins of three out of four case companies, namely VW, BP and Kobe Steel, fell during the scandal year while the gross profit margins of their control companies stayed roughly on the pre-scandal year levels (Figures 14, 15 and 16). BP's gross profit margin fell most dramatically, because the company had to pay large sums for the environmental damage. Surprisingly, the gross profit margins of all three companies recovered next year to the pre-scandal year level (VW and Kobe Steel) or to the competitor's gross profit margin level (BP). Neither Nokian Tyres' nor Continental's gross profit margin reacted to the tire test scandal (Figure 17).

The effect of companies' major ESG failures on P/B (Chapter 6, Table 9, Figure 18)

Price per book ratio (P/B) compares the market value to the book value of the company's equity. Traditionally, value investors have used P/B ratio to find undervalued stocks and therefor good investments. However, declining P/B ratio can also tell about poor growth and earnings prospects. It seems that the investors are not convinced that the companies have fully recovered from the scandals even after a few years (Table 9, Figure 18).

8 Conclusions and summary

Company's major ESG failure has a significant effect on the shareholder return. In all the cases researched in this thesis, the shareholder return fell considerably after the news about the scandal became public. The drop in the shareholder return happened either instantly (VW, Kobe Steel and Nokian Tyres) or more slowly (BP). The slower reaction in BP's shareholder return presumably results from the uncertainty about the extent of the damage in the beginning and the division of the responsibilities between BP (the head of the operations) and its subcontractors. The declining P/B ratio after the scandal also indicates investors' lack of faith in companies' growth and profitability outlook.

Company's major ESG failure also affects its annual financial performance on some level. Even if the revenue growth and gross profit margin were negatively affected during the scandal year in the study cases, the financial performance recovered in the following year.

The effect of the news concerning the selected corrective actions on the recovery of shareholder return after major ESG failure is affected by the order of implementation of the corrective actions, the timing of the corrective action, the cultural environment in which the company operates and the contents of the news regarding the corrective action. CEO dismissal has a negative effect on shareholder return if it is executed immediately after the scandal news and it has a positive effect when executed several months later. Changes in senior management are positive corrective actions, when managers responsible for decisions leading to failures are dismissed. When a company announces a voluntary product recall / repair, shareholder return is positively affected. Apology to the stakeholders seems to be a difficult corrective action. Apology about the same time with the scandal news and CEO dismissal deepens the fall in shareholder return. Apology without showing remorse or reluctantly after a period of time and with accusations made towards other players also affects negatively. The content and the timing of the news concerning policy changes in organizations needs to be carefully thought in order to achieve a positive reaction in shareholder return. Announcement about executive bonus cuts rather than bonus payments during the months following the scandal helps the shareholder return to recover. Several actions announced simultaneously might together affect negatively the shareholder return recovery, while separately announced some of the actions could have positive effect. Japanese cultural environment has an obvious influence on the effect of the corrective actions. Despite sincerity and apparently the right kind of content in the selected corrective actions, the effect of the ESG failure on the shareholder return cannot be mitigated there.

In summary, major ESG failures studied in this thesis affect both shareholder return and company's financial performance. Company's financial performance, however, is not as severely affected as shareholder return by major ESG failures. Based on these cases, the use of selected, corrective actions to recover shareholder return should be carefully thought case by case, because the effect of the corrective actions is affected by so many factors. Due to case study methodology including four cases, which were selected using purposive sampling, these results cannot be used in making generalizations on every ESG scandal. Instead, they provide valuable detailed and descriptive information on these four ESG scandals and they can be used as a basis for further research.

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Changes in share prices and index values after the released news; calculated using the values of trading days -1 and +5

VW				DAX		
Action	- 1 weekday	+ 5 weekdays	Difference (%)	- 1 weekday	+ 5 weekdays	Difference (%)
Scandal	151,096817	104,296524	-30,97	10229,58	9688,53	-5,29
#1	100,370171	94,728867	-5,62	9570,660156	9660,44043	0,94
#2	121,762016	129,253662	6,15	10469,25977	10727,63965	2,47
#3	96,488953	116,075577	20,30	9902,830078	9915,849609	0,13
#4	120,678886	93,239563	-22,74	9948,509766	9450,400391	-5,01
#5	126,726357	125,598106	-0,89	10592,49023	10738,12012	1,37
#6	109,667053	121,942543	11,19	9761,469727	10421,29004	6,76

BP				Dow Jones Industrial Average		
Action	- 1 weekday	+ 5 weekdays	Difference (%)	- 1 weekday	+ 5 weekdays	Difference (%)
Scandal	33,94	32,14	-5,30	11092,05	10991,99	-0,90
#1	21,029783	22,490339	6,95	10424,62012	10674,37988	2,40
#2	22,416168	23,739805	5,90	10858,13965	10967,65039	1,01
#3a	16,933361	16,476944	-2,70	10293,51953	9774,019531	-5,05
#3b	22,473228	21,896994	-2,56	10680,42969	10319,9502	-3,38
#4	18,171415	16,397066	-9,76	10409,45996	10152,79981	-2,47
#5	25,852098	25,276348	-2,23	12036,53027	12279,00977	2,01
#6	26,947138	25,773073	-4,36	12066,79981	11984,61035	-0,68

Kobe Steel				Nikkei 225		
Action	- 1 weekday	+ 5 weekdays	Difference (%)	- 1 weekday	+ 5 weekdays	Difference (%)
Scandal	1299,806396	810,478638	-37,65	20690,71094	21336,11914	3,12
#1	1053,717407	1015,711243	-3,61	21042,08984	21968,09961	4,40
#2	1053,717407	1015,711243	-3,61	21042,08984	21968,09961	4,40
#3	992,907593	991,957458	-0,10	22498,0293	22553,2207	0,25
#4	834,232422	838,03302	0,46	20881,26953	21448,51953	2,72
#5	1054,66748	1011,910583	-4,05	21417,75977	21777,28906	1,68
#6	1053,717407	1015,711243	-3,61	21042,08984	21968,09961	4,40

Nokian Tyres				OMX Helsinki 25		
Action	- 1 weekday	+ 5 weekdays	Difference (%)	- 1 weekday	+ 5 weekdays	Difference (%)
Scandal	25,3365	23,108337	-8,79	**3106,139893**	3187,080078	2,61
#1	26,202345	26,831331	2,40	**3455,939941**	3506,100098	1,45
#2	26,152689	25,730604	-1,61	**3089,709961**	3186,070068	3,12
#3	23,454767	23,100466	-1,51	**3129,27002**	3180,949951	1,65
#4	23,454767	23,100466	-1,51	**3129,27002**	3180,949951	1,65
#5	26,152689	25,730604	-1,61	**3089,709961**	3186,070068	3,12
#6*	26,171078	23,627977	-9,72	**3127,139893**	3164,98999	1,21

* The news about the changes in the compensation structure was announced 2 weekdays before the news about the scandal was revealed