Factory or Felony: Industry Characteristics and the Effects on Shareholders Reaction to CSI

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Executive Summary

The thesis uses an integral approach to investigate how shareholders react to CSI through an institutional lens. First, the thesis explains that industries can have different expectations that can lead to significantly different reactions from shareholders. This is possible due to the underlying contradiction of society norms with industry norms that hinder embedding. The study uses the context of polluting industries and non-polluting industries when confronted with environmental CSI. The thesis assumes that polluting industries have incompatible operations with CSR, leading to lower embeddedness. This also directly leads to the notion that CSI will be less punished as it is not as normalised compared to non-polluting industries without this hindering. This is explored with accidental CSI such as legal enforcement or operational accidents. As institutions change and CSR norms can become stronger. This may affect the relationship, which the thesis also attempts to test.

The study also addresses the stream of research that indicates that shareholders are environmentally aware, and this study adds to the knowledge by introducing a new context. In this context, corporate actions that are polluting without harming the firm; on the contrary, it will be expected of the firm. This will be referred to as systematic CSI. The final thing this thesis uses is the resource-based view as a way to explain ways for firms to influence shareholder reactions, it does so by investigating corporate branding, as this is built on combined resources that over time become a brand.

The thesis uses an event study and samples stories from the Wall Street Journal (Online) in Factiva. It found 181 events in total, of which 50 systematic CSI, and 131 accidental CSI. It uses various significance tests, including a t-test, and proportion tests on shareholder reaction based on the market model-based Cumulative Abnormal Returns.

It is found that shareholders react positively to systematic CSI and negatively to accidental CSI. This indicates that the harm the firms receive plays a role in how shareholders view events. It also found that shareholders punish polluting industries significantly less than non-polluting industries. Introducing some level of institutional difference due to the contradiction of the industry type and CSR. It can also be noted that over time, both industries experience higher punishment, indicating some level of change and an increasing social norm. The thesis also finds that having a corporate brand reduces the punishment of shareholders. This is explained by other research by the presence of loyalty and potential customer switching costs.

Academically, this is relevant as industry norms skew investor reactions, meaning that industries can act as independent institutional fields and that contradiction impacts societal norms. It is also interesting, as this means CSI does not in all cases lead to a negative effect and CSI context may be more explored, as well as the mediating effect that harm to the firm may have.

Managerially, this is relevant because corporate-level policy may not be equally suitable across the entire (multi-industry) firm as some industries may require more resources within the policy to meet normative forces depending on their industry-specific context, as industries can be held at different standards. The results also show the importance of investing in a corporate brand to mitigate potential negative effects of CSI.

Acknowledgements

This thesis here marks the end of my master's degree at Tilburg University. I have been here for about one and a half years. That makes this the perfect place to reflect on the time I spent here beyond the thesis. This is important to me because the university gave me much more than just this thesis (of which I am still proud nonetheless). Therefore, I would like to use this to thank everyone who has been a great support during my master.

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Students of the master programme will probably know that this degree is filled to the brim with group projects. This also means that the reason I finished this master is partially directly attributable to the members of my group. Not only do I want to thank them for their participation in the projects, but also for the support and fun times next to the master. You have honestly made this masters very enjoyable.

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Thank you!

Keith Murphy

- Tilburg, twelfth of June 2024

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This thesis uses an institutional lens and the resource-based view to study the reaction of shareholders to accidental and systematic corporate social irresponsibility (CSI), which is the opposite of corporate social responsibility (CSR). The study argues that industry characteristics influence shareholder reaction as industries can act as institutional fields. The analysis finds that shareholders only react negatively to polluting events if it directly harms the firm. Shareholders react positively when pollution does not harm the firm. It also finds a significant difference in the punishment of environmental CSI between polluting and non-polluting industries. Furthermore, the thesis finds slight support for an increasingly negative effect of institutional change in both types of industries. With limited data available, the thesis also finds that firms are able to influence punishment with their resources. The study does so by comparing firms with and without a corporate brand, as this is a resource that can lead to customer expectations. The thesis uses 181 firm-level event studies from 1980-2020 that are aggregated into sub-samples. The constructs are based on publicly available data and literature.

1 Introduction

1.1 Problem Indication

Corporate social responsibility (CSR) is becoming more normative as markets increasingly expect it (Bice 2017; Flammer 2013). This market expectation causes a deviation for non-compliant firms (Boyd & Bresser 2008; Zhao et al. 2017) and also means that these firms tend to experience relatively lower performance (Flammer 2013; Hamilton 1995; Hawn & Ioannou 2016; Risi et al. 2023). As new norms are established, the market starts to take *things-for-granted* that non-compliant firms cannot deliver (Jeong & Kim 2019). This leads to firms experiencing a reduction in their legitimacy in the market as they no longer meet social expectations (Meyer & Rowan 1977). Legitimacy reduction causes firms to reduce the level at which they meet customer demand, which reduces performance due to declining sales. These are principles within institutional theory that guide organisational behaviour by setting the *rules of the game*. Firms can generate legitimacy through the communication of corporate actions related to CSR (Flammer 2013; Hawn & Ioannou 2016; Risi et al. 2023). The underlying principle of CSR is rooted in the idea that firms have a responsibility towards society. Since the original foundation of CSR that focused mainly on social aspects, it has evolved to include the ethical, environmental, and social dimensions within organisations (Kolk 2016). Consequently, the other side of the coin also exists, being corporate social irresponsibility (CSI). CSI can be defined as actions that harm stakeholders or neglect measures to protect the environment (Lenz, Wetzel, & Hammerschmidt 2016; Riera & Iborra 2017) and lead to

punishment, as this deviates from the increasingly establishing norm (Hamilton 1995; Flammer 2013). The paper by Flammer (2013) focusses on the environmental dimension of CSR and finds that firms involved in pollution are increasingly punished by deviating from the therefore increasing norm through declining stock prices.

However, this punishment may not affect all industries equally. Firms in polluting industries, such as metal and coal mining, oil production, and rubber (Berrone et al. 2013; Heras-Saizarbitoria, Arana, & Boiral 2015), have not collectively gone bankrupt. Following previous research, these firms should therefore experience continuous punishment through their industry operations. This suggests that CSI has a boundary condition based on industry context that influences enforcement mechanisms. Furthermore, CSI is a broad term that can be categorised into underlying types of CSI, such as by motive (Zhang et al. 2023) or by legality (Alcadipani & Oliveira Medeiros 2020). CSI can also be strategically planned and systematic by centralising profit to meet shareholder expectations (Riera & Iborra 2017) and pollution is in line with the operations of industries (Lenz, Wetzel, & Hammerschmidt 2016; Riera & Iborra 2017). This is possible as polluting industries are core-stigmatized and have lower expectations than would generally be accepted in society. Practically, this means that firms have polluting operations and can expand these without breaking expectations. As business expansion can be expected in industries, firms involved in polluting actions of expansion will likely not deviate from industry norms and create legitimised shareholder value. Firms can also be involved in polluting actions that do direct harm to the firm, this can be through incidents or getting caught in illegal activities. This is accidental CSI, and previous research has mainly focussed on this type (see, e.g., Flammer (2013); Zhang et al. (2023)). Interestingly, accidental CSI also causes disruptions in the routines and operations of the firms involved. Operational disruptions have direct and negative consequences for internal systems, efficiency (Essuman, Boso, & Annan 2020) and firm value (Hendricks & Singhal 2008), even without the presence of normative forces.

The purpose of this thesis is to investigate the reaction of shareholders to accidental CSI, how industry characteristics affect this reaction, and how this relationship changes over time. The thesis also recognises that firms influence how shareholders react, and therefore extends by investigating how firm's resources influence the reaction. Since firms have control over their internal organisation by building, grouping, or removing resources (Beamish & Chakravarty 2021; Sirmon et al. 2011). Bundled resources can rely on the presence of other resources to remain valuable. This makes it a complex interaction of the presence of different resources that together create value (Beamish & Chakravarty 2021; Sirmon et al. 2011). It is possible that a breach in one resource reduces the value of another. The thesis does so in the context of a corporate brand, as this is connected to the image and expectation of the firm (Van Riel 1992). Lastly, it investigates the effects of systematic CSI on shareholder reaction as a specific CSI. This connects the concepts of institutional theory, the resource-based view, and the underlying ideas such as institutional fields, contradiction, change, and expectations. The study will investigate shareholder reaction in the context of two industry characteristics that can act as having independent industry logics and examines industry norms by comparing polluting and non-polluting industries. This is because polluting industries directly contradict the environmental principles of CSR. This contradiction can hinder the embedding of the norm of CSR. However, these forces are not static and change constantly in the presence of other forces (Dacin 1997; Ponte & Pesci 2022; Seo & Creed 2002). As CSR norms become more general (Flammer 2013), it can interfere with existing forces to shape polluting industries to more closely resemble logics in non-polluting industries.

In summary, even when CSR is becoming more accepted as a norm in general, it may not be equally rooted in every industry simultaneously. This thesis will investigate whether normative forces related to polluting actions differ between industry characteristics and whether these forces change over time. Furthermore, it will investigate whether polluting actions can lead to legitimised shareholder value. Lastly, it will help firms influence these forces with their resources, the thesis will investigate the effects of building a corporate brand as a resource.

This will add to the understanding of institutional theory by examining the relationship between CSI and shareholder's perspective and how this is complicated by industry logic and how corporate brands may influence this relation further. It will also challenge the current academic narrative and way of thinking on how shareholders react to pollution and CSI. It can also help corporate-level managers better understand how external pressures can lead to different reactions across business units.

1.2 Problem Statement

What is the relationship between accidental CSI announcements and shareholder value, and how is the relationship moderated by industry characteristic (polluting / non-polluting), time, and the presence of a corporate brand within polluting industries, and how does systematic CSI announcements affect shareholder value?

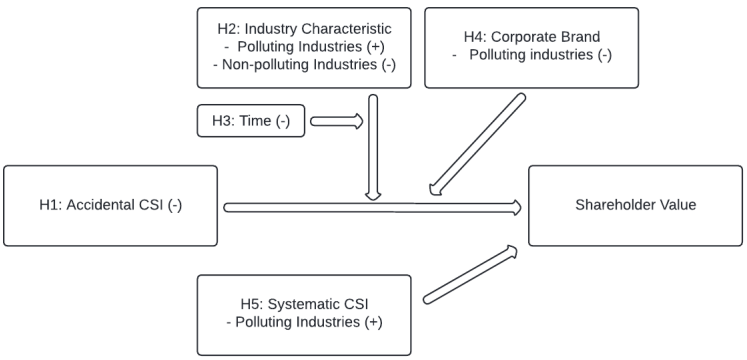
1.3 Research Questions

1. What is the relationship between accidental CSI announcements and shareholder value?
2. How is this relationship moderated by industry characteristic (polluting / non-polluting)?
3. How does this relation change between industry characteristics over time?
4. How is this relationship in polluting industries moderated by the presence of a corporate brand?
5. What is the relationship between systematic CSI announcements and shareholder value?

1.4 Conceptual Framework

Figure 1 shows the conceptual framework based on the introduction.

Figure 1
Conceptual Framework



1.5 Thesis Structure

This thesis consists of five chapters, the first of which is the introduction. The second will deep dive into the theoretical foundations, concepts, and development of hypotheses. The third will introduce the methodology, sampling, and variable constructs. The fourth chapter presents the findings of the thesis, and in the fifth chapter these findings and their complications will be discussed.

2 Theoretical Background and Hypotheses Development

2.1 Theoretical Buildup

Institutions constrain companies by establishing the rules of the game. There are different mechanisms associated with institutions. Therefore, this thesis will explain what an institution is. Also, how institutions are formed and how they change. The thesis will also address how CSI is related to norms and expectations. These mechanisms are separate within the theory and do not follow each other, but exist simultaneously and affect each other.

2.2 Neo-Institutional Theory

Firms are constrained in their actions by institutions (DiMaggio & Powell 1983; Glynn & D'Aunno 2023). Institutions do so by structuring *'rules of the game'* and guiding human interaction (North 1990, pp. 3-4). That means that institutions establish or promote behavioural rules when interacting within a social context that individuals perceive as an obligation to follow to fit in (Markey-Towler 2019). Institutions can be regional (Santangelo, Meyer, & Jindra 2016), national, or international (Meyer & Peng 2016; Ponte & Pesci 2022) and exist in formal and informal form. Formal institutions guide human behaviour using regulatory frameworks (Kostova 1999). Examples of formal institutions are formal (inter)national laws and constitutions.

Informal institutions guide behaviour through normative and cognitive forces (Kostova 1999). Normative forces are defined by establishing informal rules that establish norms and values through the expectations markets have (Kostova 1999; Deephouse & Suchman 2008). This means that firms are bound by expectations that dictate what normal behaviour is. Cognitive forces are defined by what creates meaning for the market (Deephouse & Suchman 2008; Kostova 1999). This means that each market has their own concept of value creation. Therefore, firms are further constrained in their behaviour through the limitations of meaningful actions to operate in a market.

Complying with the institutional rules, norms, and meaningful symbols leads to legitimacy for firms (Meyer & Rowan 1977). Institutions shape expectations and, in turn, demand (Deephouse & Suchman 2008; Kostova 1999; Ponte & Pesci 2022). That means that losing legitimacy causes the firm to no longer meet demand and becomes less competitive. Legitimacy can be defined as the judgement of individuals at the micro-level and the collective judgement at the macro-level (Bitektine & Haack 2015). Failure to comply causes firms to experience institutional punishment (Flammer 2013). For example, by withdrawing legitimacy (informal) or losing accreditation (formal) (Greenwood et al. 2011; Khan & Kamal 2021).

2.3 Institutional Norms and Corporate Social Responsibility

An action leading to legitimacy that has been intensively explored in the academic literature is corporate social responsibility (CSR) (see, e.g., Flammer (2013); Hawn & Ioannou (2016); Osagie et al. (2016); Pettigrew (2009); Risi et al. (2023)). The underlying principle of CSR is not recent, on the contrary. CSR has long been rooted in the idea that firms have a responsibility toward society and was originally focused on social responsibilities toward communities and employees. Since then, it has evolved to include ethical, environmental, and social dimensions (Kolk 2016). As CSR becomes more normative, following this norm creates an increasingly diminishing shareholder value, as this is increasingly expected (Flammer 2013; Hamilton 1995; Hawn & Ioannou 2016; Risi et al. 2023) shifting CSR actions from a differentiating action to a legitimating one.

Deviating from the CSR norm leads to institutional punishment and reduces shareholder value (Flammer 2013; Zhang et al. 2023). These 'anti'-CSR actions are called corporate social irresponsibility (CSI) and harm stakeholders or neglect precautions to protect the environment (Lenz, Wetzel, & Hammerschmidt 2016; Riera & Iborra 2017). Table 1 shows an overview of the dimensions in which CSI can happen.

Table 1
Description of Corporate Social Irresponsibility

Environmental degradation and pollution are inevitable and little precaution is taken
Employees are a resource to be exploited
Only basic, and sometimes reluctant, compliance with legislation pertaining to CSR
Ethical issues are on the periphery
New technologies should be developed and introduced to the market
Treating suppliers and customers unfairly
Sustainability defined in terms of business survival
Profit is the sole purpose of business and should be achieved at any cost

Note. This table was adapted from Riera & Iborra (2017) Corporate social irresponsibility: review and conceptual boundaries, *European Journal of Management and Business Economics*, *26*(2), 146-162, Table 5

CSI-actions decrease the legitimacy of firms, leading to formal or informal sanctions (Khan & Kamal 2021). This generally happens when firms break the baseline of CSI in accidents that degrade the natural environment or when firms are found to not have sufficient precautions in place to prevent an event from happening. Firms sometimes get caught engaging in actions that deliberately harm the environment; this tends to break the legislation dimension by breaking legal maximal levels of waste. This can lead to fines, boycotting (He, Kim, & Gustafsson 2021), investment in clean-up and repairs, as well as disrupted operations (Hendricks & Singhal 2008). All of which lead to (prolonged) reduced financial performance that can depreciate asset value (Haryono & Paminto 2015). These actions, whether deliberate and caught or unintentional, are harmful to the firm. This suggests that firms unanticipated these and are accidentally involved in these actions and this leads to the following hypothesis:

Hypothesis 1: Shareholders react negatively to the announcement of accidental CSI.

2.4 Between-Industry Normative Forces

Industry boundaries are derived from some form of common understanding (Johnson & Hoopes 2003). These can be understood in a formal way through government classification systems, such as SIC codes. Or informal understanding, which can be rooted in the cognitive grouping of products. Industries that are mature enough can achieve socio-political recognition, and in turn, public legitimacy that is based on regulatory legitimacy (Aldrich & Fiol 1994). This public legitimacy also results in a collective understanding of what industry boundaries are. The cognitive concept of an industry also leads industries to be institutional fields (Lo et al. 2020; Navis & Glynn 2010), as this comes with market expectations and industry assumptions. Institutional fields can be defined as the relational field in which organisations and individuals interact with each other to develop a collective understanding of how to handle issues (Leibel, Hallett, & Bechky 2018). Every institutional field and, therefore, every industry has an independent set of institutional logics (Roulet 2015) and expectations differ between them (Grougiou, Dedoulis, & Leventis 2016; Lo et al. 2020). Institutional logics lay out a local system of assumptions, values, beliefs, and rules (Roulet 2015). This leads industries to follow the rules of *their local* game. As industries have different institutional logics, institutional pressures can differ between industries (Alessandri & Khan 2006; Kanashiro 2020).

Several systems of institutional logics can exist simultaneously when they are compatible, as this will not lead to a contradiction (Roulet 2015). Systems can contradict when behaviour is desired in one institutional field and is undesired in another field (Creed, DeJordy, & Lok 2010). This leads to conforming behaviour and simultaneously deviating behaviour depending on the field and their logic set.

Previous research has shown that CSR actions lead to different performance outcomes based on the associated industry (Feng, Wang, & Kreuze 2017). Following the argumentation of Flammer (2013) this can resemble the industry-level embedding of CSR as normative where lower positive returns can indicate higher embedding. This also suggests that industries can have different levels of established norms related to CSR. Firms involved in accidental CSI will be subjected to the diversion of the industry standard. Polluting industries contradict their operations with the environmental dimension of CSR. This means that these norms cannot coexist as behaviour would contradict. This contradiction can therefore hinder the embedding of CSR norms within polluting industries. This can lead to lower environmental expectations (Kanashiro 2020). Non-polluting industries have less of a contradiction with CSR. This also means that environmental CSR can be more embedded in non-polluting industries, especially since environmental CSR is becoming stronger as a social norm (Bice 2017; Flammer 2013).

As actions of CSI are deviations from the CSR norms, non-polluting industries should face more institutional punishment due to their relative high CSR embeddedness and standards as they face less contradiction. This leads to the following hypothesis:

Hypothesis 2: Shareholders react less negatively to the announcement of accidental CSI in polluting industries than in other industries.

2.4.1 The Impact of Institutional Change

Institutions are carried out within individuals (Markey-Towler 2019; Patriotta 2020) which can be embedded in a diverse set of institutions through the nature of the institution or a feeling of belonging (Bitektine et al. 2020; Patriotta 2020). This embedding in multiple institutions can lead to tension when contradictions are experienced through acceptable and simultaneously unacceptable behaviour depending on the institution. This tension can be the basis for institutional change (Creed, DeJordy, & Lok 2010; Seo & Creed 2002) and makes institutional forces dynamic, causing changes over time (Dacin 1997; Ponte & Pesci 2022; Seo & Creed 2002).

Change occurs when taken-for-granted beliefs, values, and practices are replaced or transformed (Battilana, Leca, & Boxenbaum 2009; Seo & Creed 2002). From an organizational perspective, this can affect what markets expect from firms in the context of CSR. These changes occur when individuals, groups, or organisations start a conversation (Battilana, Leca, & Boxenbaum 2009; Navis & Glynn 2010) about what standards firms must follow. This conversation has created patterns and structured the formation of CSR as a social institution (Bice 2017). New institutions such as CSR loosely intertwine with existing higher institutions (Seo & Creed 2002) such as industry norms. Due to the loosely intertwined but independent relations between institutions, contradictions arise. These contradictions create tension between institutional logics (Creed, DeJordy, & Lok 2010; Seo & Creed 2002). In the context of polluting industries and CSR, there is a contradiction between accepted and expected operations and the environmental dimension of CSR. This tension can activate actors through awareness that makes it possible to rearrange, disrupt, and advance institutions with the now available social forms, leading to greater stability as tension is removed (Greenwood et al. 2011; Seo & Creed 2002; Vaccaro & Palazzo 2015) and CSR becomes more established through the creation of new norms regarding CSR.

However, the same institutions may compete in different time periods; but, they are not equally or consistently strong depending on the embeddedness of the institution in the relevant individuals. This may cause one institution to "win" in one contradiction while "losing" in another (Lounsbury 2007). Considering that polluting industries have a more foundational contradiction with the environmental dimension of CSR compared to non-polluting industries. This can hinder the embedding of the new institution. This means that due to the relative lack of contradiction in non-polluting industries, the embedding is more compatible and will resolve contradictions in a shorten time period. However, as CSR is becoming increasingly normative (Flammer 2013; Hamilton 1995), it can also start to ground within polluting industries. This may be possible because the pressure within CSR is increasing; it can start to 'win' in the contradicting polluting fields, as these norms are increasingly more important. In turn, this can lead to changing norms and in turn what is expected of these firms. This can lead to CSR becoming more prevalent, even within industries with contradiction. Bice (2017) found that aspects of the '*Social Licence to Operate*' within the mining industry were changing, as the communication of these firms started to increasingly incorporate environmental CSR as a central aspect. This shows that polluting industries feel the increasing pressures of specifically environmental CSR and must act. Additionally, as more firms can use it as a differentiation strategy, this can further reinforce industry-level norms. This in turn can change expectations over time. That means that the embedding of CSR can be dynamic between industry characteristics and time based on the underlying contradiction. This leads to the following hypothesis:

Hypothesis 3: Shareholders react increasingly negative to accidental CSI in polluting industries, but later than in other industries.

2.5 Firm-Specific Corporate Brand to Influence Reaction to CSI

Polluting industries may receive less punishment than non-polluting industries. However, this leniency does not mean that firms within polluting industries face no punishment or are punished equally across firms. Firms can influence the extent of the punishment they receive, and therefore the thesis extends into firm-level analysis within polluting industries to explore context that can lead to higher punishment.

As external pressures increase, firms must act within industries to meet the pressure to remain competitive. Some firms are better equipped to deal with pressure than others, making them heterogeneous within industries. Firms are heterogeneous due to the organisation of their internal environment (Barney 1991). The internal environment of firms can be conceptualised as a bundle of heterogeneous resources that can be utilised through capabilities to generate value and performance (Barney 1991; Barney, Ketchen, & Wright 2021; Furr & Eisenhardt 2021). This conceptualisation is called the resource-based view (RBV). Sun & Ding (2021) found that firms with specific resources experience different levels of reduced performance when involved in CSI, indicating that the firm's internal environment is important beyond the mere external pressure. RBV is based on the assumptions of resource heterogeneity and resource immobility (Barney 1991; Beamish & Chakravarty 2021). This means that resources are not universally similar within all competing firms and that these resources cannot be simply bought and sold. Resources must meet certain criteria to be able to achieve competitive advantage. They must be *v*aluable to the market, *r*are among competitors, difficult to *i*mitate, and must be utilisable by the *o*rganisation (VRIO) (Barney 1991; Beamish & Chakravarty 2021). Individual resources can provide value, but resources can also reduce or gain value when interacting with each other through an increasing or reducing cogency effect. This leads to the combined utilisation of resources in bundles and can lead to positive results when resources match and can interconnect with each other. One such resource that is made up of a collection of resources and that meets the VRIO criteria is a corporate brand (Abratt & Kleyn 2012; Van Riel 1992, p. 79).

Corporate brands are built on a far-developed corporate identity. Corporate identity is the behaviour, communication, ethos, and values of a firm (Balmer & Gray 2003; Van Riel 1992, p. 37). When resources are VRIO, bundled, and leveraged, this can lead to a sustained competitive advantage (Beamish & Chakravarty 2021; Sirmon et al. 2011). Firms with a corporate brand receive, for example, a higher investor evaluation (Filbeck, Gorman, & Preece 1997).

Having a corporate brand aligned with customer values creates loyalty, as customers recognise and feel connected to a firm relative to firms without a strong brand (Aaker, Fournier, & Brasel 2004; Bhattacharya & Sen 2009; Van Riel 1992, pp. 40-44). Customers know what they can expect and what the firm stands for (Kernstock & Brexendorf 2009). This also means that customers are more aware of firms with a strong brand, as these brands are built based on stakeholder management and communication (Kernstock & Brexendorf 2009) and that coverage in the media is more intense (Stäbler & Fischer 2020). Customer loyalty and expectations have led to better performance (Van Riel 1992, p. 31), which resembles firm-level legitimisation.

As these firms are generally more recognised as firms actively work on stakeholder management (Kernstock & Brexendorf 2009), more attention is paid to the firm, including in media coverage, when firms are involved in polluting events. Media-coverage

leads to higher levels of awareness within the population (Sampei & Aoyagi-Usui 2009) and reaches a larger body of customers amplifying the harm to the brand. This is harmful as it can violate the credibility of the principles on which their brand is built (Aaker, Fournier, & Brasel 2004; Hur, Kim, & Woo 2014) causing more customers having a misalignment with their expectations and the firm. This can lead to a corporate brand being a resource that simultaneously reduces in value when firms are involved in polluting events. This means that this resource can be affected due to an illegitimate action. Building a corporate brand is expensive and requires long-term investment. The reduction of a valuable but expensive resource can lead to a reduction of shareholder value. This leads to the following hypothesis:

Hypothesis 4: Shareholders react more negatively to the announcement of accidental CSI in polluting industries when the firm has a corporate brand.

2.6 When CSI Benefits the Firm

CSI occurs when stakeholders are harmed or there are insufficient environmental precautions (Lenz, Wetzel, & Hammerschmidt 2016). Previous research has examined what CSI does to a firm by investigating events that directly affect the firm through, among others, operational disruptions that reduce shareholder value (Essuman, Boso, & Annan 2020; Hendricks & Singhal 2008), regardless of normative forces. However, this disruption or punishment is not a criterion for CSI. CSI can be rooted and translated into the operations and routines of firms (Sales 2019; Sancha et al. 2022; Walker et al. 2014; Yuan, Bao, & Verbeke 2011). Firms can participate in actions that are harmful to stakeholders as well as the environment without harming the firm, especially since CSI does not always lead to punishment (Valor, Antonetti, & Zasuwa 2022). Table 1 indicates that CSI occurs when firms are involved in environmental degradation. This means that firms' operations that lead to environmental degradation can be regarded as CSI.

Certain industries produce products that are considered harmful to the environment, such as oil and chemicals. Production and trading of these products increases financial performance and therefore can increase shareholder value. This means that in relatively polluting industries, systematic and legal pollution occurs, but it favours the performance of the firm without breaking the expected behaviour of the industry. It does not break industry expectations as these industries have core operations that are permanently misaligned with societal norms and are generally categorised as core-stigmatised industries (Grougiou, Dedoulis, & Leventis 2016). Core-stigmatised industries are industries that receive relatively negative expectations from society due to their criticised products. This misalignment makes actions that could be classified as polluting more normative in polluting industries (Kanashiro 2020). This systematic behaviour meets the CSI criteria, by centralising profit as the main goal and treating environmental degradation as inevitable, and harming stakeholders through their operations (Bouslah et al. 2022; Jones, Bowd, & Tench 2009). This stakeholder harm through operations can become tangible in, e.g., the court case of Royal Dutch Shell Milieudefensie in 2021, which ruled that Shell's operations harm the environment. This introduces a type of systematic CSI that can exist without direct harmful effects for the firm in polluting industries. This means that firms within these industries can engage in polluting actions that would not be accepted outside of the stigmatised industries. Firms that follow the polluting norms of the industry and communicate operational news should, therefore, add legitimised value to shareholders, as this follows the business model.

Hypothesis 5: Shareholders react positively to the announcement of systematic CSI in polluting industries.

3 Method

This thesis investigates the reaction of announcements related to the impact of environmental misconduct on the stock market. It does so by conducting an event study that examines shareholder's reaction. There is no database that has these events listed, which means that a database was created specifically for this thesis project, including confounding events, constructs, and all time frames, dates, and stock tickers of the firms mentioned in the events. This leads to a hand-collected database. The following sections contain further details of the steps taken to create the database. Starting with the classification of industry type. Followed by the sampling of events and their classification is explained. Followed by the operationalisation of the corporate brand. This is followed by the analysis procedure.

3.1 Industry Classification

To identify the nature of the firm, each firm was classified as part of polluting industries or not. This was done on the basis of literature synthesis to provide construct validity, as shown in Appendix B. These articles were selected as published in high-impact journals related to the fields of sustainability and strategic management: Strategic Management Journal, Academy of Management Journal, Journal of Business Ethics, Business Strategy and the Environment, Science of the Total Environment, Environmental Research, Economic Modelling, and Journal of Cleaner Production. Appendix B shows that there is no general consensus in academia on what a polluting industry is. All industries mentioned in at least 60% of the articles were used as polluting industries to prevent a narrow or wide selection of industries without losing a majority of the consensus on which industries are polluting. This identified the following industries as polluting: coal, metal, petroleum, chemicals, sanitary services, food, paper, and textiles. These will categorise firms into industry type to operationalise the variables in the problem statement.

To verify industry validity, two-digit US SIC codes were used; This attached to polluting industries the following SIC codes: coal (11, 12), metal (10, 33), petroleum (13, 29), chemicals (28), food (01, 02, 09, 20), paper (26, 27), and textiles (22, 23). Sanitary services do not have a related SIC code, which means that firms operating in this industry will not be taken into account for polluting industries. Firms that operate in several industries will be classified as being involved in polluting industries when their main operations matches with a polluting industry. Any other industry was classified as non-polluting.

3.2 Sampling and Event Classification

To collect events, this thesis uses the Wall Street Journal (WSJ) and the Wall Street Journal Online to find related news that is consistent with previous research (see, e.g., Flammer (2013); Roulet (2015)). After an event was identified, the stock tickers (or symbols) were matched to the affected firms. Firms that did not have a ticker or the ticker was unavailable were excluded. The stock market data was extracted from Wharton Research Data Services (WRDS) using stock tickers. This thesis uses data from a period of 1-1-1980 until 31-12-2020 on a sample of news stories on US-listed and US-based

firms. Events that occur outside the United States were used if they match the United States listed and headquarters criteria. Events that occurred with subsidiaries were treated as if they were their parent firm. For example, XYZ Brazil and XYZ Financial Services Inc. would be treated as if it were XYZ Corp.

Stories related to events were identified using a coding scheme as added in Appendix C. This labelled an event as accidental CSI or systematic CSI. These stories were based on the environmental dimension of CSI. Stories that focused on social injustice were not taken into account. The keyword-based sampling methodology has the disadvantage of being too narrow and introducing systematic bias by missing events outside of the search. To prevent this, keywords were selected that broadly reflect the two types of events, as well as specific keywords tailored to industry types. To reduce the bias that the researcher can introduce in this issue, several preventive steps were taken.

Keywords were picked in an iterative process, in which the events found were checked to see if the accidental events found were similar and overlapped with Flammer (2013) to reduce researcher bias. Events that were not found in this study but were included in the study by Flammer (2013) were examined to create new keywords.

Within systematic CSI keywords were novel and self-selected. To reduce researcher bias within systematic events, larger corporations (Exxon, Chevron, and DuPont) were selected, and Factiva news stories were examined in 2011 to ensure that essential keywords were not missing. These were chosen as large corporations are more featured within media leading to a large coverage. This year had a small sample in the dataset for the study, but had the most total events in Factiva.

In both types, iterative processes were central, where events led to the usage of new words as well as combinations. This can be seen as keywords become more refined. Synonyms were also used to prevent too narrow searches or linguistic differences, leaving out relevant events.

Keywords used for Accidental CSI

The following keywords were used in Factiva to search the Wall Street Journal (Online): "oil spill", "pollut*", "environmental accident", "environmental disaster", "environmental harm", "contaminat* and environment*", "sues and environment*", "leak and environment*", "violation and environment*", "charge* and environment*", "chemical and spill*", "spill and evacuat*", "spill and emergency", "leak and incident", "explosion and toxic", "incident and gas", "plant and leak*", "material and contaminat*"

Keywords used for Systematic CSI

The following keywords were used in Factiva to search the Wall Street Journal (Online): "new oil field", "oil platform", "new chemical plant", "new plant", "chemical facility", and "coal mine" for systematic CSI in combination with polluting industries. "New Oil Field" also led to three events within accidental CSI.

To ensure that the stories were relevant and valid for the study, several actions were taken. The stories were read to ensure their relevance to CSI. To reduce researcher bias, selected events were independently classified by a different individual. If the events had a matching classification, the event was taken into account. Events that did not match were ignored. This led to a level of agreement of 100 %. Events that contain more than one category or events with confounding major events (McWilliams & Siegel 1997) were dismissed. Events with multiple announcements were dismissed in systematic CSI (e.g., new plant, with layoffs, new plant with annual report). After an event was found, a stock ticker (or stock symbol) of the firms involved was linked to the event. Events or firms for which the stock ticker was not available were dismissed.

This led to a sample of 181 articles in the Wall Street Journal or the Wall Street Journal Online. Of these, 131 are classified as accident CSI and 50 as systematic CSI. The complete sample and the accompanying database are available upon request.

3.3 Corporate Brand

This thesis will use a dummy variable to identify whether a firm has a corporate brand by looking at the Fortune's 500, as this list is able to match all years taken into account in the thesis. Firms mentioned in the year of the event will be classified as having a corporate brand. This means that the firm may not always have a corporate brand or may gain and lose one during the time period. This is a publicly available list ranking firms based on their financial performance. As most reputation-focused lists were unavailable or lack sufficient longitudinal data, this list was chosen to approximate a corporate brand. Specifically, since financial performance has a positive relationship with brand perception (Van Riel 1992, p. 102). The available data taken into account was from 1980-2020. Fortune has the years 1996-2020 available as part of their paid subscription model, the remaining data for the time period 1980-1995 was extracted from the CNN Money Archives.

3.4 Design and Procedure

To investigate the reaction of the stock market, an event study must be performed on every announcement, as this allows for the examination of the effect of an event (Brown & Warner 1980). This uses the hypothesis of efficient capital markets. Efficient capital markets are expected to react immediately without overreaction to an event (Kolaric & Schiereck 2016) and the price of the asset fully reflects the available information (Fama 1970). This makes it possible to estimate how shareholders react to the availability of new information by looking at an abnormal return (Hawn, Chatterji, & Mitchell 2018). These returns around the event windows of different types of events can be captured through the cumulative abnormal return (CAR). The CAR is the sum of the difference between the expected and realised outcomes of every event. CAR measures whether the stock is higher, lower, or indifferent to the expected return after an event (MacKinley 1997; Woo, Willard, & Daellenbach 1992) and is commonly used as a measure of shareholder reaction within strategic management research (see, e.g., in Flammer (2013); Woolridge & Snow (1990); Woo, Willard, & Daellenbach (1992)).

The reliability of this method increases as the event window decreases (Kothari & Warner 2007). Reliability within cumulative abnormal returns can also be improved, as with most methods, by increasing the sample size (Brown & Warner 1985). According to Bartholdy, Olson, & Peare (2007) statistical results can be made from a minimum sample of 25, but preferably starting from 50 events. The validity of this method is mainly rooted in the theoretical arguments that the researcher constructs (Kothari & Warner 2007) as well as the exclusion of confounding factors that may influence the sentiment of stakeholders (McWilliams & Siegel 1997; Sorescu, Warren, & Ertiken 2017). Events that overlapped with dividend payouts, the public change of executives, and unrelated major announcements were excluded from the study.

Event studies are subject to limitations that, in some cases, can be partially reduced. First, as with all statistical techniques, research works with a threshold of statistical significance. However, not satisfying this threshold does not directly justify the null hypothesis that an event does not have an impact, but only that this is not statistically significant (Fisch, Gelbach, & Klick 2018).

Second, the specific event date may not be specifiable to an event window. This can skew results from event studies as they do not always grasp the full event. (MacKinley 1997).

Third, large events lead to a combination of connected events that create confounding factors, making the pinpointing of the role of a specific event, in this context described as a factor, harder to establish. This was demonstrated in the study Nelson, Price, & Rountree (2008) that investigated whether reputation damage was the reason for the decline in Arthur Andersen's stock price after the Enron scandal in 2001.

3.5 Analysis

This thesis relies on event studies that examine the reaction of the stock market based on the cumulative abnormal return (CAR) to capture the reaction around the announced date and the difference between the expected value and the realised value using several intervals. As the WSJ is used, the announcement of the events will be day 0 on the date on which the stories are published. To account for events that occurred the day before the announcement, a frame of (-1, 0) will be used. This also captures the announcement and potential early information leak (Hawn, Chatterji, & Mitchell 2018). Other intervals that were considered in the analysis are (-40, -21), (-20, -11), (-10, -6), (-5, -2) leading up to the event, as well as (1, 5) and (6, 20) post-announcement. This follows the time frames used by Flammer (2013).

For every firm *(i)*, the market model was used to calculate abnormal returns. Using ordinary least squares, the coefficients α and β were determined based on 200 trading days before the first time frame, effectively [-240, -41]. This prevents event effects from being taken into account in the regression. This leads to the return on the stock of an event with intercept (α) and β being the systematic risk of the stock. R_{mt} is based on the capital asset pricing model, which takes into account market effects and risk-asset returns and can help predict the return on assets. ϵ_{it} is the residual that is unexplained for by the market for every *i*. Using this method the thesis is able to estimate the expected market return α + β * R_{mt} as well as the deviation that the market cannot explain ϵ_{it}. This makes it possible to calculate the actual return (R_{it}) taking into account market effects, formally expressed in formula 1.

$$R_{it} = \alpha_i + \beta_i * R_{mt} + \epsilon_{it} \tag{1}$$

To find the estimated return of the stock, formula 2 (Brown & Warner 1985; Flammer 2013; Ma, Pagán, & Chu 2009) is used. It is based on the expected return that the stock could have on the 200 market days before any event window and the correction based on the market effect of the day of interest. The expected return is annotated as $\hat{R}_{it}$.

$$\hat{R}_{it} = \alpha_i + \beta_i * R_{mt} \tag{2}$$

Formula 3 (Brown & Warner 1985) was used to calculate the abnormal return of *i* on a specific day (*t*). The difference between the actual return (R_{it}) and the expected return ($\hat{R}_{it}$) is the abnormal return and is annotated as AR_{it}:

$$AR_{it} = R_{it} - \hat{R}_{it} \tag{3}$$

The CAR is calculated on the basis of the event window (t1, t2) of (-1, 0) based on formula 4 following Ma, Pagán, & Chu (2009). This sums the total abnormal return within an event window. This is done for every of the sub-samples and every specific event used within the study. The average CAR is calculated in Formula 5 and can be used to test significance for a subset or between subsets.

$$CAR_{(t1,t2)} = \sum_{i=t1}^{t2} AR_i \tag{4}$$

$$\textit{Average } CAR_t = \frac{1}{N} \sum_{i=1}^{N} CAR_i \tag{5}$$

To establish statistical significance for, hypotheses-specific statistical tests were performed. Significance for H1 was established using the average CAR in a one-sided t-test against zero. As the sum of all expected returns add up to a deviation of 0, a significant deviation from this caused by the abnormal returns indicates a positive or negative reaction. Formula 6 shows the t-test (Nieuwenhuis 2009, p. 480).

$$T = \frac{\bar{X} - 0}{\frac{S}{\sqrt{n}}} \tag{6}$$

For additional robustness and to account for outliers, every timeframe and sub-sample has a one-sided proportion test being taken as the number of positive abnormal returns in proportion to the total. This was tested against 0.5 as it is expected that in normal circumstances the market has a close to equally likely chance of increasing and decreasing. This is done with formula 7 (Nieuwenhuis 2009, p. 426).

$$Z = \frac{\hat{p} - 0.5}{\sqrt{\frac{p_0(1-p_0)}{n}}} \tag{7}$$

H2 is comparative between two sub-samples, being the samples of polluting and the non-polluting industries. To test for a significant difference, a two-sample t-test with unequal variance was performed. This is done using formula 8 (Nieuwenhuis 2009, p. 546). This test is commonly referred to as Welch's t-test and is able to find significant differences in means with unequal variance. This is because the variance is significantly different between the subsets at the 10 percentage level. For additional robustness, a two-sample proportion for the equality test was performed following formula 9 (Nieuwenhuis 2009, p. 544), as the hypothesis does not advocate any specific difference. This can prevent results where the outcome of the mean was skewed by

outliers.

$$T = \frac{\bar{X_1} - \bar{X_2}}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} \tag{8}$$

$$Z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\hat{p}(1-\hat{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \tag{9}$$

H3 is based on temporal change. To see if this occurs, it must be tested against several periods of time. To do this, the average of the first and last decades (1980-1990, 2011-2020) can be tested using formula 8 by testing within the subgroup. Similarly, it also assumes differences between subgroups; this means that the subset average within a time period must also be tested against each other. This leads to a testing scheme that resembles a matrix. However, change is rarely linear or one-directional; it is important to compare periods that do not follow up with each other, as this may not show significant differences, as change can be too slow to find significant differences immediately.

H4 is focused on a possible difference between two subsamples, these being samples of firms in polluting industries with and without a corporate brand. To test whether these samples lead to significant differences, formulas 8 and 9 are reused due to similarity in hypotheses and testing measures.

H5 follows similar requirements as H1, therefore it reuses Formulas 6 and 7 to find statistical significance to test the hypothesis. It uses data from the collected systematic events to find whether the magnitude and overall proportion are significantly positive.

4 Results

4.1 Descriptive Statistics

Table 2 displays the descriptive statistics of the entire dataset, as well as the separate subsamples. It can be seen that the general columns show the entire dataset, as well as the accidental CSI. The rest is split into relevant descriptive statistics for the hypotheses. The results indicate a negative return for accidental CSI, and it also indicates that non-polluting industries receive more negative returns compared to polluting industries. It can also be seen that firms without a corporate brand receive on average a more negative reaction compared to firms with a brand. Finally, it can be seen that systematic CSI on average yields a positive result. This is in support of hypotheses 1, 2, and 5. However, the results of the hypothesis related to the corporate brand (H4) show the opposite effect. This can indicate that a corporate brand does not amplify the effect but may have a shielding effect. All effects are confirmed by the min-max range as well.

Table 3 indicates the distribution of industries and the number of events within the industry. Table 4 further explains the data distribution by indicating the type of events included.

Table 2
Descriptive Statistics of the Dataset for the timeframe (-1, 0)

General Information on the Full Sample		
	General	
	Full Sample	**Accidental CSI**
Average CAR	-.00401	-.01006
Standard Deviation	.02440	.02261
Maximal	.08418	.03664
Minimum	-.09214	-.09214
Number of events	181	131
Number of firms	109	88
Accidental CSI split in Industry Types		
	Polluting	**Non-Polluting**
Average CAR	-.00622	-.01397
Standard Deviation	.01997	.02456
Maximal	.03664	.03231
Minimum	-.07181	-.09214
Number of events	66	65
Number of firms	40	49
Corporate Brand in Polluting Industries		
	Present	**Lacking**
Average CAR	-.00256	-.01598
Standard Deviation	.0192	.0191
Maximal	.03664	.02263
Minimum	-.05752	.-07181
Number of events	48	18
Systematic CSI in Polluting Industries		
	Systematic CSI	
Average CAR	.01186	
Standard Deviation	.02180	
Maximal	.08418	
Minimum	-.02235	
Number of events	50	
Number of firms	33	

Table 3
Event Distribution based on Industry

Industry	# of events	# of firms
Animal Food	1	1
Automotive	6	3
Broadcasting	2	2
Chemicals	24	14
Coal	4	4
Defence	3	3
Electric Services	21	14
Electronics	11	8
Financial Services	1	1
Food	6	5
Forestry	2	2
Gas	1	1
Metal	10	9
Paper	4	3
Petroleum	68	27
Pharmaceuticals	3	3
Retail	1	1
Self-care	2	1
Transport	11	7

Table 4
Event Distribution based on Event Description

Description	# of events
Air & Water Pollution	31
Coal Project	8
New Plant	22
Contamination	10
Dumping	17
Destruction, Explosion & Fire	9
Leak	15
Mining Location	2
Misconduct & Precaution	27
Oil Field & Platform	18
Spill	22

4.2 Event Study Results

4.2.1 Shareholders react negatively to the announcement of accidental CSI

Table 5 shows the CAR, the result of the t test on the mean, and the proportion with the inferential result of the reaction of the shareholders to accidental CSI. This shows support for the hypothesis as the statistical significance of the average CAR is significantly negative at the 0.000 percentage level (t = -6.39).

To avoid outliers skewing results of the average, a proportion test is used where outliers reaction can skew results. This also supports the hypothesis, with the results being significantly negative at the 0.000 percentage level (z = -3.93, with 43 positive and 88 negative). The proportion shows that 33% of all reactions are positive, which is significantly lower than the expected 50%. This means that shareholders react significantly negatively in magnitude but also proportionally in the amount of negative returns.

Table 5
CAR's around the announcement of Accidental CSI

	Accidental CSI[1]	
Event Frame	CAR	Proportion
(-40, -21)	-.84	.42**
(-20, -11)	-.31	.53
(-10, -6)	.53	.55
(-5, -2)	.36*	.58**
(-1, 0)	-1.32****	.33****
(1, 5)	-.65*	.51
(6, 20)	.84	.51

Note. Significance level *p>0.10; **p>0.05; ***p>0.01; ****p>0.000; n^1 = 131; CAR is displayed of accidental events with one-sided t test significance outcomes. The proportions and associated significance are displayed. >.50 indicates more positive than negative reactions, <.50 indicates the opposite.

4.2.2 Shareholders react less negatively to the announcement of accidental CSI in polluting industries than in other industries

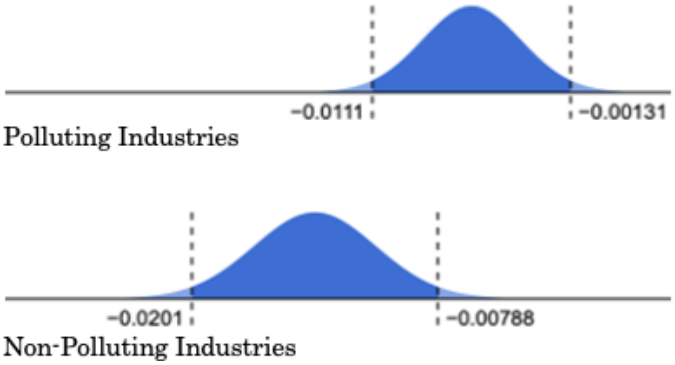
This hypothesis requires a comparative analysis to find a significant difference between industry characteristics and their reaction. The empirical analysis results in Table 6 show a significant difference in magnitude between polluting and non-polluting industries at the five-percentage level of significance. This means that on average the reaction for non-polluting industries has a higher magnitude than in polluting industries. That means that the stock price is less negatively affected in polluting industries in the event of a polluting event. Figure 2 shows the distributions of both subsamples, visually illustrating the significance of the difference.

To avoid the effects of outliers that skew the mean, a two-sample proportion test was performed. This also disproves the hypothesis that polluting industries have a significantly more negative effect on stock price compared to other industries at the significance level 95%. This shows that the CAR is significantly more negative in non-polluting industries, indicating that shareholders proportionally react more positively in polluting industries.

Table 6
Difference between reaction in accidental CSI in polluting and non-polluting industries

	Difference in mean	Difference in proportion
t-score & z-score	-1.993	-3.436
p-value	.02530	.00030
significance	95%	99.99%

Figure 2
Visual Distribution of Accidental CSI Samples at 95%



4.2.3 Shareholders react increasingly negative to accidental CSI in polluting industries, but later than in other industries

The empirical data test in Table 7 shows that when investigating the first and last decade specifically, it can be seen that there is a proportional difference indicating a decrease in positive reactions, but not a significant magnitude difference. This can indicate that the change is slow, but that CSI is leading to an increasingly negative effect. There is also insufficient evidence that there is a difference between the subgroups. That means that there is insufficient data to support evidence of the delay in CSR embedding. This leads to partial support for the argument for change, but not for the industry differences.

Table 7
CAR's of (-1, 0) accidental CSI over time in polluting industries and non-polluting industries

	Polluting Average CAR	Non-polluting Average CAR	Within Industry t(z)-score	Between Industry t(z)-score
1980-1990	-.0037[1]	-.0065[2]	.5416(1.4150*)	.1965(.7608)
2011-2020	-.0047[3]	-.0127[4]	1.0310(1.4396*)	.8145(.5859)

Note. Significance level *p>0.10; **p>0.05; ***p>0.01; ****p>0.000. n^1= 31; n^2= 26;n^3= 11; n^4= 14; This matrix shows the average CAR's of the time frames; the other categories show the significance within and between groups, based on t and z scores. The first-row within group is the difference between polluting industries and the second-row is the difference in non-polluting industries.

4.2.4 Shareholders react more negatively to the announcement of accidental CSI in polluting industries when the firm has a corporate brand

Empirical data analysis supports the exact opposite of this hypothesis, as the mean of shareholders reaction of firms without a corporate brand is significantly lower than when firms do have such a brand. This was significant at the five percentage level (t = 2.5389).

There is sufficient evidence from the proportion test to further disprove the hypothesis as it finds a significant difference at the 0.1 significance level (z = -2.5928, p = .00476, with 23 positive and 25 negative reactions for firms with a brand. Firms without a brand had 3 positive and 15 negative reactions). This means that the reaction is more positive when a firm has a corporate brand.

An alternative explanation to this can be that having a corporate brand leads to an increase in loyalty towards the firm. As customers feel more connected to a firm, this connection may lead to more tolerance towards the firm. This can cause stakeholders to react less negatively compared to lesser known firms. This effect follows prior research such as that by Guèvremont & Grohmann (2018) and Thaler, Herbst, & Merz (2018) that investigates how scandals affect a firm with a corporate brand. Thaler, Herbst, & Merz (2018) found that in scandals customers would still prefer a brand they know well due to the lack of interest in engaging with an unknown brand resembling customer switching costs.

4.2.5 Shareholders react positively to the announcement of systematic CSI in polluting industries

Table 8 shows the reaction of shareholders when the systematic CSI is announced. This hypothesis is supported by the mean that the CAR is significantly positive at 0.000 percentage (t = 3.73, p = .0002). That means that shareholders react significantly positive to systematic CSI events. This means that on average the abnormal return is significantly higher than 0.

As the average CAR can also be influenced by outliers in this hypothesis, a one-sided proportion test was performed. This further supports the hypothesis and verifies the effect in the mean, as this is also significantly positive at the 0.000 percentage (z = 3.29, p = .0005, with 37 positive and 13 negative). The proportion shows that 74% of all reactions are positive, which is significantly higher than the expected 50%. Both tests show support for the hypothesis that systematic CSI is perceived to be valuable to shareholders.

Table 8
CAR's around the announcement of Systematic CSI

	Systematic CSI[1]	
Event Frame	CAR	Proportion
(-40, -21)	.22	.51[2]
(-20, -11)	-.16	.45[2]
(-10, -6)	.44**	.64**
(-5, -2)	-.11	.58
(-1, 0)	.59****	.74****
(1, 5)	.56**	.60*
(6, 20)	-.11	.50

Note. Significance level *p>0.10; **p>0.05; ***p>0.01; ****p>0.000; n^1= 50; n^2= 49;

CAR is displayed of systematic events in polluting industries with one-sided t test significance outcomes. The proportions and associated significance are displayed. >.50 indicates more positive than negative reactions, <.50 indicates the opposite.

4.3 Robustness

To test the robustness of the results, Table 10 has different robustness checks to test the reliability of the results for H1, H2, and H5 that can address valid concerns. Table 11 rules out an alternative explanation for institutional change. Table 12 has an alternative construct of a corporate brand for robustness for H4. The different checks are explained below.

4.3.1 Firm Specific Influence

Several firms are being taken into analysis more frequently due to their repetitive CSI actions within polluting industries. This can add a large firm-specific element in the results. The firm that is incorporated the most is Exxon (later ExxonMobil, but will be referred to as Exxon). Exxon has been incorporated into the study sixteen times, which means that a large proportion of the results are attributed to this firm. This can raise concerns whether the outcomes are a result of Exxon rather than of the phenomenon. What can further disturb the results is that Exxon has a track record of many, some large, events that can influence the results of subsequent events. To test this concern, the calculations were redone without events from Exxon and ExxonMobil. Events from Mobil were taken into account in the analysis. The results of H1 and H5 are still significant without the inclusion of Exxon events, as shown in Table 10. It mildly affects the CAR in accidental CSI, but the average CAR (-.01067) and the significance (t = -4.3275, p = .0002) remain the same. Within systematic CSI, the mean (.0122) and the significance of the test (t = 3.5858, p = 0.0003) remain significant. This shows that the effects are not attributable to a specific firm.

This is extended with the proportion test to exclude outlier effects in the robustness. It can be seen that this is still significant in systematic (z = 3.0151, p = .0013), and in accidental CSI (z = -4.0909, p = .000). For industry characteristics, it is notable that the removal of Exxon events removes the mean significance (t = -0.6015, p = .2748). However, there is still a significant difference in the proportion of negative reactions (z

= 2.0424, p = .0206). This shows that there is a partial robustness of the result and that it partially rules out that the results are caused by a specific firm.

4.3.2 Alternative Time Windows

Robustness can also be demonstrated by retesting the data in extended event windows (MacKinley 1997). This means that for every event window, a t-test and a proportion test have been performed. The results of these tests are shown in Table 9, Table 10 further shows how this is translated to significance. In both tests and in all event windows, the results of accidental and systematic CSI remain significant. This shows that the results are robust even in an increased time frame.

However, it shows that the initial reaction creates the strongest divide between industry characteristics by looking at the mean reaction of the subsets. That means that industry characteristics lose the significance of the mean difference in an increased time frame. This shows that industry characteristics are only significant on the initial announcement. However, it is also notable that within the proportional positive and negative the difference remains significant. This shows that for industry differences, there is only partial support for robustness.

Table 9
Results of the robustness tests for alternative event windows

	(-1, 1)		**(-1, 2)**		**(-1, 3)**	
	t-score	z-score	t-score	z-score	t-score	z-score
Systematic CSI	3.5367	2.5456	3.0159	2.5456	3.0890	2.2627
Accidental CSI	-4.3157	-2.7084	-3.3950	-1.3105	-3.3832	-2.7085
Difference in industry	-1.2514	2.0800	-1.0287	1.9680	-.8717	2.8205

4.3.3 Alternative Stock Market Models

The market model used is based on the reaction of shareholders. However, there are concerns that this does not include potential influencing aspects such as firm size. To see if this affects the results, the Fama-French three-factor model is used for robustness. Both reactions to accidental (t = -3.8658, p = .000) and systematic (t = 3.2325, p = .0007) actions were similarly significant within the mean test. The Fama-French-Carhart four-factor model introduces the momentum of asset returns, which can also co-explain abnormal returns. Similar results were found for accidental (t = -3.7630, p = .0001) and systematic (t = 3.1681, p = .0095) CSI to be significant.

Both results are again highly significant when this is extended with proportional significance as this shows whether a reaction is positive or negative without weight and controls for outliers. The results of the three-factor model are significantly positive in systematic CSI (z = 2.5456, p = .0055) and negative in accidental CSI (z = 3.4074, p = .0003). The plus model shows similar results in systematic (z = 2.2627, p = .0118) and accidental (z = 3.0580, p = .0011) CSI.

However, both models reduce the level of significance of the mean test of the industry characteristics below that are considered significant when looking at the mean difference (three factor: t = -.7925; plus momentum: t = -.6942). Interestingly, proportional differences are present between industry characteristics (three factor: z = 3.7001 p = .0001; plus momentum: z = 2.1202 p = .01700). This shows a partial robustness in the findings.

4.3.4 Outliers within the Dataset

The proportion tests are a way of testing the data without magnitude, making it possible to test a level of significance without any magnitude-based outliers that can affect the mean significance test. However, this also indicates that the mean test might have been affected by outliers. To prevent this from influencing the results, the data was tested again, but removing 10% from the data. This leads to the removal of the highest and lowest 5%. It can be seen that systematic CSI remains significant in the mean (t = 4.3088, p = .0000) and the proportion test (z = 3.6181, p = .0001). Similar robustness is found in accidental CSI in the mean (t = 6.1321, p = .0000) and proportion test (z = 4.1603, p = .0000). Significance remains between industries in the mean (t = 3.8884, p = .0001) and in the proportion test (z = 3.8632, p = .0000).

Table 10
Robustness around the timeframe (-1, 0)

	Systematic CSI	**Accidental CSI**	**Significance between industries**
Without Exxon	.54***(.73***)	-1.29****(.31****)	- (95%)
(-1,1)	.79***(.68***)	-1.41****(.38***)	- (95%)
(-1,2)	.80***(.68***)	-1.52***(.44*)	- (95%)
(-1,3)	.85***(.66**)	-1.63***(.38***)	- (99%)
Three Factor	.56***(.68***)	-1.17****(.35***)	- (99%)
Plus Momentum	.53***(.66**)	-1.19****(.37***)	- (95%)
Outliers	.44****(.77***)	-1.05****(.31****)	99% (99.99%)

Note. Significance level *p>0.10; **p>0.05; ***p>0.01; ****p>0.000. '-' refers to below threshold significance. Values or '-' outside of brackets are based on the significance of the one-sided mean test. Values within brackets are based on the significance of the one-sided proportional test. The proportions and associated significance are displayed. >.50 indicates more positive than negative reactions, <.50 indicates the opposite.

4.3.5 Industry-Specific Expectations instead of General Operational Expectations

In addition to the firm's specific influence, industry-specific expectations can skew results due to repetitive CSI actions within an industry that build polluting expectations. This would introduce an alternative explanation for why polluting industries receive less punishment instead of industry operations. To test whether these effects stay consistent when removing the industry with the most repetition to rule out repetition effects, the thesis redoes formulas 8 and 9 without petroleum. This does lead to a reduction of the sample size to below the minimal 25, requiring caution in the results. The two-sample mean test came back insignificant (t = .9696, p = 1708), the proportion test came back significant at the 99 percentage level (z = 2.5250, p = .0087). Showing partial support with low sample size that polluting industries with less repetition yields similar results. It must be noted that almost every industry has repetitive events, and full repetition effects cannot be ruled out.

4.3.6 Alternative Reasoning for Temporal Change

To test whether the results remain robust in temporal change, an alternative explanation will be used. Norms are followed by regulatory actions, which means that shareholders may not react to changing informal norms but to the increased regulatory action. To test this, the thesis performs an ordinary least squares regression based on the OECD

Environmental Stringency index for the US from 1990-2020, controlling for specific variables that investors can be interested in such as the unemployment rate and the interest rate. The regression, shown in Table 11, shows that the OECD values are not significantly responsible for the change in CAR. In contrast, it shows a positive effect leading to an increase in the CAR. This leads to extra robustness of the normative forces by partially ruling out regulatory effects.

Table 11
Ordinary Least Squares Regression featuring OECD measure

	Coefficient	**P > |t|**
Intercept	3.0517	.197
OECD	.0239	.130
Interest Rate	.0005	.857
Unemployment Rate	.0007	.793
Event Year	-.0015	.192
R^2	0.0287	
Prob > F	0.6591	
N	86	

4.3.7 Alternative Construct of a Corporate Brand

To test the robustness of the results of the corporate brand, an alternative construct was used. This was done on the basis of the proportion of advertising expenditures on the revenue. This is because investing in advertising is positively related to customer perception (Ralston 2003; Wang, Zhang, & Ouyang 2009). This thesis will therefore alternatively classify firms that invest in advertising expenditure as having a corporate brand. This data was extracted from Compustat, after which the entries were matched with the original dataset. This led to a sample of 5 entries with and 27 entries without a corporate brand. Table 12 displays the results of the two-sample t test (t = 2.8373, p = .0234) and the two-sample proportion test (z = 1.8866, p = .0296). The results show that the original findings remain robust, seeing a significantly more positive reaction when firms possess a corporate brand.

Table 12
Robustness for Corporate Brand

	CAR Corporate Brand		
	Lacking	**Present**	**Significance in difference**
Corporate Brand	-.19 (.26)	.06 (.80)	95% (95%)

Note. Significance outside of brackets are based on the significance of the two-sample one-sided mean test. Significance within brackets are based on the significance of the one-sided proportional test.

5 Discussion, Conclusions, Implications

5.1 Discussion

This paper presented five hypotheses that investigate the reaction of shareholders in the context of CSI through an institutional lens. It does so by looking at different types of industries, CSI, and by expanding to firm-level reactions. The thesis expects that contradiction will lead to different outcomes for different industries and that firms can influence the outcome. Finally, it theorises that not every CSI action will lead to negative outcomes due to the nature of the action. The findings will be discussed on each hypothesis.

First, this thesis improves our understanding of how shareholders react to CSI actions that do not harm the firm. This study therefore extends the current understanding of CSI that shareholders view all activities of CSI as negative. Shareholders expect certain CSI within these industries and therefore meet industry norms for shareholders. This adds legitimised value to shareholders.

This thesis builds on previous research by Flammer (2013) and emphasises the negativity for firms when involved in accidental CSI and extended the notion that shareholders are becoming more environmentally *green* by suggesting that this is not prominent when polluting events are in favour of firm operations.

It is notable that accidental CSI leads to a significant negative reaction and systematic CSI leads to a significant positive effect. Both of these effects last significantly past the event window used. This shows that the value that shareholders attribute to these events continues slightly after the announcement. Unexplained is the sudden increase in a positive reaction just before accidental CSI and around one week before systematic CSI. The latter might be explained by information leakages prior to the announcement. Information leakages can influence shareholder reaction as they become aware of future events (Aitken & Czernkowski 1992). The interesting part this thesis does not investigate is the sudden positive reaction just before accidental CSI. A potential explanation can be that, since firms can be informed of upcoming negative announcements, they can get involved in stock manipulation to reduce the net zero change in stock price. Research by (Peng & Röell 2013) has shown that managers can be involved in stock manipulation, especially to enhance the compensation package.

Second, this thesis extends the conceptualisation of institutional fields. This thesis finds that industry characteristics can influence shareholder reaction. This study does so by comparing the reaction to environmental CSI between polluting and non-polluting industries. The findings show that industry characteristics can hinder the embedding of societal norms when these contradict, which leads to a less negative reaction. It should be noted that this effect is partially removed in robustness testing and should be interpreted with caution.

Third, there is partial support that the norms are increasing in both types of industries. The thesis cannot find temporal differences between industries. The sub-sampling reduces most of the sample size below the threshold by Bartholdy, Olson, & Peare (2007). This means that this result must be interpreted with caution and can partially explain insignificant results between industries.

Fourth, the thesis explores how a corporate brand influences shareholder reaction. It does so by looking at the complex interplay of resources that can shield or reduce shareholder value. It finds that firms with a corporate brand receive significantly fewer

and milder negative reactions, suggesting that having a corporate brand can indicate some shielding towards negative events from a shareholders perspective.

5.2 Implications and Further Research

5.2.1 Academic Implications and Further Research

The theoretical contributions of this thesis are threefold. First, it extends the concept of industries as an institutional field by empirically testing how industry characteristics influence the reaction of shareholders to CSI. Previous studies have shown the increasing effects of the social norm of CSR on firms without the perspective of industry differences. This thesis extends this stream of research by investigating how societal norms can be hindered in their embedding due to the contradiction between industry norms with an institutional field. It does so by comparing polluting events in polluting and non-polluting industries. The thesis finds that there is a difference in the reaction of shareholders based on the industry characteristics when these contradict with the social norms. This hinders the embedding of such norms compared to industries with compatible logic. This suggests that industries can have their own institutional logics, which can hinder or allow the adaptation of societal norms. This would further add empirical evidence for industries being institutional fields introduced by North (1990). Further research can investigate industries as their own institutional fields through between-industry comparisons. This thesis proposes further research on the industry level compared to the industry characteristics used in this thesis. Since CSI and CSR are related and to some degree opposing concepts, further research can expand the understanding of CSR by introducing industry norms. Although the thesis attempts to rule out repetition effects as the primary explanation, it also acknowledges that this effect can have an effect on industry expectation formation. The study encourages further research on how the combined effects of industry operations and CSI repetition can influence industry expectations, which can help further improve understanding of the formation of industry expectations in the context of CSI.

This study was unable to provide complete evidence that social or industry norms become stronger over time. Further research can therefore focus on under what conditions institutional change may occur between social and industry norms mainly by conducting large-scale longitudinal studies.

Secondly, this study also shows that shareholder sentiment is not inherently *green*, but shareholders primarily react negatively to events that simultaneously harm the firm. This extends previous research such as by Flammer (2013), Zhang et al. (2023), and Sun & Ding (2021). Further studies can improve our understanding of shareholder sentiment in the context of sustainability. This can be done, for example, by looking at the difference between how shareholders react on industry level and the type of CSR/CSI event. This thesis suggests aggregating the CSI types further to understand how firm behaviour influences this phenomenon following research such as Zhang et al. (2023). Further research can also be extended to see how shareholders react on a basis of temporal change by looking at systematic CSI events to see if this reduces over time to understand shareholder sentiment without the operational disruption. It also invites researchers to expand the role of harm to the firm within CSI as a potential mediating effect.

This thesis also finds evidence following previous research (see, e.g. Thaler, Herbst, & Merz (2018)) that a corporate brand can partially protect firms during negative events. This shows that the fundamentals of corporate branding are strong and may not deter

in situations of negativity. This further provides empirical evidence for the benefits of a corporate brand and the interfering role of resources.

5.2.2 Managerial Implications

This study has two major implications for practitioners. The first is that industry characteristics lead to different outcomes. That means that for corporate practitioners, some business units can be held to higher standards, and higher levels of precaution are necessary due to the associated punishment. Furthermore, this may also mean that this can complicate firm-wide policy. This is because some business units may need more resource allocation or a stricter policy to avoid punishment. This may require an interaction of flexible corporate policy adapted to business-level expectations, instead of uniformly enforcing a *one-size fits all* approach. Furthermore, these standards are not static and change over time, which means that company policy must be revised accordingly.

The second is that even in industries where environmental CSR is not as embedded, the resources a firm possesses can influence the effects. This study finds that corporate brands reduce negative effects when confronted with CSI. This follows previous research that explains why this effect is attributed to the familiarity markets have with established brands and the weight this has compared to switching to a lesser known brand (Thaler, Herbst, & Merz 2018). Making it more interesting to invest in a corporate brand.

5.3 Limitations

Several limitations must be acknowledged within the thesis. This will be divided into limitations related to the sample, the methodology, and the limitations within the construct.

5.3.1 Sampling Limitations

Event studies based on keyword sampling have the limitation of only including events that are within the searched queries used. This leaves out potentially relevant events that will not be taken into account, which can influence the results.

The total number of events that this study incorporates is roughly equal to other studies such as in (Flammer 2013) and satisfies the ideal minimum number of events (Bartholdy, Olson, & Peare 2007). However, this study further specifies sub-samples that reduce the number of events per hypothesis. That means that even though most of the hypotheses were statistically significant, there is a reduction in the reliability of the results. It can also explain why some hypotheses were insignificant, as an increase in sample size can create sufficient data and reduce the effects of chance, making the result more significant. H3 and H4 did not meet the minimum requirement of 25 events to obtain adequate results (Bartholdy, Olson, & Peare 2007). This is especially true in the robustness check for H4. That means that these results need to be interpreted with caution. This also means that further studies can elaborate on these hypotheses with a larger sample size. H1, H2, and H5 met an adequate sample size. H5 has a minimally ideal sample size but is generally lower than in other event studies (see, e.g., Flammer (2013); Zhang et al. (2023)), affecting robustness in this hypothesis. This means that the results here can also be improved as it has only met the minimum 50 events. The thesis encourages further research to work with an increased sample size.

5.3.2 Methodology Limitations

First, the methodology is based on the assumption of efficient capital markets. This assumption states that capital markets react proportionally to new information and, therefore, the price reflects the value of the asset (Fama 1970; Kolaric & Schiereck 2016). However, hypotheses based on this assumption are limited by several violations that can break the assumption of the required information symmetry. Examples are information asymmetries due to insider trading (Laffont & Maskin 1990), price distortion due to market manipulation (Aggarwal & Wu 2006), and irrational investor behaviour due to bias (Elhussein & Abdelgadir 2020). These examples can reduce the validity of the results found in this thesis and are hard to identify. This study invites further research to examine similar phenomena using different methodologies and stakeholders.

Secondly, significance is constructed on the basis of general tests leading to a z or t value as an outcome that is significant or insignificant according to the threshold value. This threshold indicates the chance of finding this result in the sample, but not in the population. This leads to two limitations in the methodology; the first is that it dismisses all results even slightly above the threshold regardless of their possible validity by justifying the null hypothesis (Fisch, Gelbach, & Klick 2018) and that significant results can still be false and found by chance.

5.3.3 Construct Limitations

Finding polluting industries through a literature review includes industries that may not generally be seen as polluting; it can also remove industries that are seen as such. Since academic papers are held to an expert understanding of industry-nature, this may not reflect that there may be a difference in public expectations towards an industry. Since legitimisation depends on the target audience of firms (Fischer et al. 2017; Zhao 2022, p. 4), this can be different between shareholders, experts, academics, and customers. Especially since academic researchers tend not to be the expected audience of firms, the idea of a polluting industry can be different for a shareholder. Likewise, when comparing academic perspectives to the perspective of the customer. Therefore, the thesis invites further research to focus on customer-level research in industry perception.

The construction of the corporate brand is an approximate measurement by looking at the largest firms in every year based on financial information. This can reflect the recognition of firms, but the focus on financial data also means that less known firms can be included because their operations are less consumer or reputation focussed. This can also be a reason for why the results show opposite results, as the Fortune 500 list has other criteria not tailored to branding that are required to be listed. Other constructs such as the Fortune Most Admired Brands ranking are more commonly used (see, e.g., (Black, Carnes, & Richardson 2000; Filbeck, Gorman, & Preece 1997)). However, due to the limited availability of this list, this study was unable to use it.

Another point of future research is the dummy aspect of constructs; this refers to both the events and the corporate brand. Events differ in magnitude, and this difference can be further explored as a nuance. The data show a larger effect in major events than in small events, both in loss of value and in the duration of the effect. Weighing events can improve the understanding of how these events influence the reaction of shareholders. The same limitation can be found in the construction of a corporate brand, Thaler, Herbst, & Merz (2018) uses a specific type of corporate branding, these being high-equity brands. This can imply that the type of corporate branding may be able to influence the relation. The thesis encourages further research to improve the construct with above mentioned limitations.

5.4 Conclusions

Some studies note that shareholders are becoming more *green* (see, e.g., Flammer (2013)); the findings of this thesis, however, show that shareholders react positively to CSI that does not affect or disrupt the operations of the firm. This shows that shareholders can, under specific conditions that do not harm firms, perceive polluting events as legitimised value. This introduces a context in which shareholders do not always act *green* by providing evidence that shareholders may not always punish pollution and reward sustainability, which was the suggestion of previous research.

Furthermore, the results find that shareholders punish firms that are expected to pollute less compared to non-polluting firms. Following the expectations of shareholders, polluting actions are less illegitimate in polluting industries under their institutional logic. This contributes by adding nuance to the academic understanding of how shareholders view CSI.

However, these findings also add to the general understanding of institutional fields. It is a complex game of different institutional fields that simultaneously try to embed. This study tries to introduce industries more as their own institutional field by looking at industry characteristics. Institutional fields are central to understanding legitimating actions; these findings show that industries have characteristics that contradict logic to societal norms and can hinder the embedding of these social norms. This suggests that industries can act as their own institutional field. Societal norms can, on the other hand, become stronger over time and force industry norms to adjust accordingly. These findings contribute to the literature by empirically supporting the conceptualisation of industries as an institutional field with a specific set of field logics (Grougiou, Dedoulis, & Leventis 2016; North 1990) according to the view of shareholders.

Furthermore, it can be seen that firms can influence their reaction by building resources, following the findings that firms with a corporate brand experience lower punishment than firms without one. Indicating that firms can protect themselves in the case of CSI by investing in specific resources, such as a corporate brand.

By understanding how CSI affects firms and how industry logics affect this relationship, together with the influence firms have on this through building resources, this study tries to write one more instruction to the understanding of the *rules of the game*.

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6 Appendices

6.1 Appendix A: Disclosure of the use of AI tools

During the thesis, Writefull was used within the Overleaf LaTeX environment. Writefull is a tool that provides in-text feedback. This improves the text flow, identifies grammar issues and spelling errors. Writefull does not provide any ideas related to the thesis and concentrates solely on text. Additional services (title, LaTeX code, and abstract generator) exist within the software but are not used in the thesis, as these generate entire pieces of text. Therefore, this service was only used to enhance the thesis, and not for text or concept generation. Link to the service: https://www.writefull.com/

6.2 Appendix B: Synthesis of literature on polluting industries

To identify what a polluting industry is, a literature review has been performed that seeks articles in high-ranking journals that use polluting industries as a variable. The following articles were used Berrone et al. (2013), Kanashiro (2020), Zheng & Shi (2017), Yin, Zheng, & Li (2016), Du et al. (2014), Wu et al. (2019), Cai et al. (2020), (Ding et al. 2024), Nguyen et al. (2021) and Guo, Kuai, & Liu (2020). The following table demonstrates the industries used for the thesis.

As the table is too large to be fully included in the paper, only industries that meet the minimum 60% were displayed in Table 13. Overlapping industries across papers were grouped: metal production and ores were grouped; durable and undurable goods are grouped in Retail; printing was counted as paper. Beverages and tea were added to the food. Plastics were added to the chemicals. Fur was added to the leather. Water, cleaning, and heating were grouped in sanitary services. Industries that were dropped because they did not meet the minimum proportion but were included in the examined papers are gas, nuclear fuel, rubber, retail, electronics, stone, leather, machinery, transport, lumber, tobacco, waste, medicine, and construction.

Table 13
Overview of Papers using polluting industries and their proportion of being mentioned

		Industries							
Papers	Journal	Coal	Metal	Petroleum	Chemicals	Sanitary Services	Food	Paper	Textile
Berrone et al. (2013)	Strategic Management Journal	YES	YES	YES	YES	YES	YES	YES	NO
Kanashiro (2020)	Business Strategy and the Environment	NO	YES	YES	YES	YES	YES	YES	NO
Zheng & Shi (2017)	Journal of Cleaner Production	NO	YES	YES	YES	NO	YES	YES	YES
Yin, Zheng & Li (2016)	Journal of Cleaner Production	YES	YES	YES	YES	YES	YES	YES	YES
Du et al. (2014)	Journal of Business Ethics	NO	YES	YES	YES	NO	YES	YES	NO
Wu et al. (2019)	Journal of Cleaner Production	NO	YES	YES	YES	NO	NO	YES	YES
Cai et al. (2020)	Science of the Total Environment	YES	YES	YES	NO	YES	YES	YES	YES
Ding et al. (2024)	Environmental Research	YES	YES	YES	YES	YES	YES	YES	YES
Nguyen et al. (2021)	Business Strategy and the Environment	YES	YES	NO	NO	YES	NO	NO	NO
Guo, Kuai & Liu (2020)	Economic Modelling	YES	YES	YES	YES	YES	YES	YES	YES
	Included in proportional of the total:	60%	100%	90%	80%	70%	80%	90%	60%

6.3 Appendix C: The coding scheme used for the classification of events

Stories will be identified by the environmental dimension of CSI. This means that stories that fit CSI, but in different dimensions, will not be used to analyse and will be dismissed. To identify CSI events, this thesis must divide CSI into systematic and accidental CSI actions. Accidental CSI actions are identified by polluting actions that occur against the operations of the firm and can be identified, for example, by spillages, leaks, and destruction. Systematic events are harder to identify because they may not be as objectively obvious. This means that actions that are not obviously polluting should not be taken into account. Figure 3 shows the coding scheme used to categorise.

Some justification of the scheme. Expending wasteful operations leads to additional pollution. Replacing current operations does not add pollution but leads to operations remaining equally polluting or less polluting. Neither of which can test how shareholders react to firms engaging in pollution.

When firms are caught in polluting cases that lead law enforcement to fine or start a case against the firm, generally means that the firm was involved in unlawful pollution or lack of precaution against pollution. Both are CSI in the sense that they violate precautionary rules, legal minimums, or affect stakeholders.

Figure 3
Coding Scheme used to categorise events