Heterogeneous CSR approaches, corporate social performance and corporate financial performance*

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Abstract

In this paper, we identify heterogeneous CSR approaches by segregating the promised and realised social performance of firms to better understand how corporate social performance affects financial performance. Empirical CSR literature provides predominantly mixed findings on the social performance to financial performance relation because it often implicitly assumes that social performance is homogenous. We move beyond this homogeneity by observing that 50%, 24%, and 26% of the firms respectively approach strategic CSR, CSR-as-insurance, and corporate greenwashing. We show that it is precisely the heterogeneity in CSR approaches that shapes the social and financial performance of firms. Specifically, strategic CSR firms outperform CSR-as-insurance and especially corporate greenwashing firms in both realised social performance and (short-term and long-term) financial performance.

Key words: Strategic CSR, CSR-as-insurance, corporate greenwashing, promised to realised CSP, CFP

JEL codes: M14, Q56, G15

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1 Introduction

Empirical corporate social responsibility (CSR) literature provides mixed evidence regarding the impact of corporate social performance (CSP) on corporate financial performance (CFP) (Margolis, Elfenbein & Walsh, 2009; Orlitzky, Schmidt & Rynes, 2003; Shahzad & Sharfman, 2017; Wang & Sarkis, 2017; Zhao & Murrell, 2016). To estimate the impact of social performance on financial performance, this literature primarily uses environmental, social, and governance (ESG) ratings as a proxy for the social performance of firms (Albuquerque, Koskinen & Zhang, 2019; Awaysheh, Heron, Perry & Wilson, 2020; Barnett & Salomon, 2012; Cheng, Ioannou & Serafeim, 2014; Griffin & Mahon, 1997; Kim, Lee & Kang, 2021; Servaes & Tamayo, 2013; Waddock & Graves, 1997; Widyawati, 2020).[1] Since ESG ratings are inherently linear (Carroll, Primo & Richter, 2016; Wood, 2010), empirical CSR literature often implicitly assumes that social performance is homogenous across firms.

This implicit homogeneity in social performance contrasts both intuitional theory and stakeholder theory. Firms heterogeneously approach CSR (Oliver, 1991; Suchman, 1995) as they face diverse stakeholder demands (Donaldson & Preston, 1995; Freeman & Reed, 1983). Precisely this heterogeneity in CSR approaches drives the social performance of firms (Aguinis & Glavas, 2012; Kaul & Luo, 2018; Ramus & Montiel, 2005; Preston & O'bannon, 1997; Porter & Kramer, 2006, 2011). We capture CSR heterogeneity by empirically identifying strategic CSR, CSR-as-insurance, and corporate greenwashing firms given their promised to realised social performance. By separately considering heterogenous CSR approaches, we show that it is not whether, but rather how firms approach CSR that explains their social and financial performance.

Empirical CSR literature obscures the social performance of firms by aggregating disparate promised and realised CSP across heterogeneous CSR approaches. Strategic CSR firms pro-actively incorporate CSR into their core strategy, often by providing sustainable goods and production process that augments their realised CSP (Kitzmueller & Shimshack, 2012; McWilliams & Siegel, 2001; Porter & Van der Linde, 1995; Porter & Kramer, 2011). However,

[1] Notable exceptions are Godfrey, Hatch & Hansen (2010); Hawn & Ioannou (2016) who separately consider internal and external CSR actions, and Flammer (2013, 2015); Krüger (2015) who use CSR news shocks or quasi-natural experiments to capture changes in CSP.

strategic CSR firms provide less promised CSP to protect their intellectual property (Fatemi, Glaum & Kaiser, 2018; Mishra, 2017) and manage stakeholder expectations (Luo, Meier & Oberholzer-Gee, 2011; Lyon & Maxwell, 2011). CSR-as-insurance firms are more reactive in nature as they create moral capital buffers to mitigate risks (Godfrey, 2005; Kim et al., 2021; Koh, Qian & Wang, 2014). This produces little CSR controversies with moderate promised and realised CSP. Corporate greenwashing firms provide empty CSR reporting, policies, activities or targets, while decoupling CSR from their core business model (Laufer, 2003; Wu, Zhang & Xie, 2020). When undetected, corporate greenwashing firms attain excessive promised CSP that overshoots their realised CSP. These fundamental differences in the promised to realised CSP across heterogeneous CSR approaches underline their importance when investigating how social performance affects financial performance.

Since prior CSR literatures does not provide a universal identification strategy for heterogeneous CSR approaches, we create a novel two-step procedure that allows us to simultaneously identify heterogeneous CSR approaches from granular CSR data by comparing the promised to realised CSP of firms. As a first step, we perform a firm-level clustering analysis to identify firms with resembling CSR approaches by industry for 17 years of worldwide granular CSR information extracted from Asset4 during 2003 to 2019, covering 51% of global market cap (CNBC, 2019). This analysis provides us with three distinct CSR approaches for every industry. Subsequently, we use a non-parametric rank ordering method to classify these CSR approaches by comparing the respective CSR reporting, policies, activities, and targets and CSR controversies and performance of firms as a proxy for their promised to realised CSP. Accordingly, we show that within our sample 50%, 24%, and 26% of the firms respectively approach strategic CSR, CSR-as-insurance, and corporate greenwashing.

This paper provides two contributions to CSR literature. First, we show that firms heterogeneously approach CSR in every continent and industry. By doing so, we provide empirical support for the theoretical models on strategic CSR (Burke & Logsdon, 1996; Husted & de Jesus Salazar, 2006; McWilliams & Siegel, 2001), CSR-as-insurance (Godfrey, 2005), and corporate greenwashing (Laufer, 2003; Lyon & Maxwell, 2011; Wu et al., 2020), which have previously been analysed individually and under specific preconditions (Fiaschi, Giuliani, Nieri

& Salvati, 2020; Jia, Gao & Julian, 2020). By simultaneously identifying heterogeneous CSR approaches, we also contribute to institutional theory in the context of CSR (Oliver, 1991).

Second, we show that both the social and financial performance of firms are strongly associated with their CSR approach. Strategic CSR firms outperform CSR-as-insurance and especially corporate greenwashing firms in terms of their realised social performance and both short-term and long-term financial performance. In accordance with instrumental stakeholder theory (Donaldson & Preston, 1995; Jones & Wicks, 1999; Jones, 2016), we find that firms which contribute to societal welfare through strategic CSR augment their financial performance, whereas the societally harmful behavior accompanying corporate greenwashing depreciates firm value. These findings provide practical implications for both managers and investors as we show that it is realised social performance, rather than promised social performance, which generates firm value. Given the above, this study moves beyond the implicit social performance homogeneity in empirical CSR literature by precisely showing that the heterogeneity in CSR approaches determines the social performance to financial performance relation.

This paper proceeds as follows. Section 2 provides theory and hypotheses development. Section 3 describes the data and methods which we employ to identify heterogeneous CSR approaches. In Section 4, we empirically show that firms approach strategic CSR, CSR-as-insurance, and corporate greenwashing as well as separately analyse their social and financial performance. In section 5, we discuss the implications of our research and conclude.

2 Theory and hypotheses development

2.1 Heterogeneous CSR approaches

To accurately examine the social to financial performance relation across heterogeneous CSR approaches, we investigate the driving forces behind strategic CSR, CSR-as-insurance, and corporate greenwashing as well as their decomposition across promised and realised CSP. During the last decades, society increasingly pressures firms to adopt CSR. For instance, policy makers require firms to extensively report on CSR issues (European Commission, 2014, 2017; Ioannou & Serafeim, 2017) and limit societally harmful activities (EESA, 2020; EPA, 2021). Likewise,

socially responsible consumers pay a premium for sustainable goods (Albuquerque et al., 2019; Eccles, Ioannou & Serafeim, 2014; Siegel & Vitaliano, 2007) and boycott unsustainable firms (Becker-Olsen, Cudmore & Hill, 2006; Klein & Dawar, 2004; Sen & Bhattacharya, 2001). In addition, institutional investors adopt CSR considerations in their portfolio construction (Amel-Zadeh & Serafeim, 2018; Dimson, Karakaş & Li, 2015; Fiaschi et al., 2020; Krueger, Sautner & Starks, 2020; Van Duuren, Plantinga & Scholtens, 2016), up to the point where a third of their assets under management in the United States is allocated in a socially responsible manner (USSIF, 2020). Therefore, stakeholder demands constitute an institutional pressure for CSR.

Firms approach CSR in heterogeneous ways when faced with increased institutional CSR pressure. In general, firms respond differently to institutional pressure given their ability to reap additional profits and their moral convictions (Suchman, 1995). As a result, some firms proactively conform to institutional pressure, whereas others actively resist it (Oliver, 1991). CSR provides a special instance of institutional pressure since it directly impacts the stakeholders of firms, which in turn constitute the institutional pressure for CSR (Donaldson & Preston, 1995; Freeman & Reed, 1983). Accordingly, because stakeholder demands for CSR are multidimensional (Choi & Wang, 2009; Henisz, Dorobantu & Nartey, 2014; Jensen, 2010) and not always financially material for all firms (Khan, Serafeim & Yoon, 2016; SASB, 2021), firms either approach CSR as an extension of their strategy or solely responsive to stakeholder demands (Porter & Kramer, 2006).

Some firms proactive confirm with institutional CSR pressure and incorporate CSR into their core business model by approaching strategic CSR (Oliver, 1991). Strategic CSR firms adopt a stakeholder orientation in which they consider the needs of diverse stakeholders (Donaldson & Preston, 1995; Freeman & Reed, 1983) by aligning CSR with their strategy to create long-term strategic commitments (Burke & Logsdon, 1996; Orlitzky, Siegel & Waldman, 2011; Vishwanathan, Van Oosterhout, Heugens, Duran & Van Essen, 2020). Firms often materialize these strategic commitments by providing sustainable goods and services (McWilliams & Siegel, 2001; Porter & Van der Linde, 1995) or improving their production process (Porter & Kramer, 2011) which improve customer loyalty (Albuquerque et al., 2019; Luo & Bhattacharya, 2009). Accordingly, strategic CSR firms strive to create mutually beneficial positive

externalities that provide non-zero-sum benefits for both firms and society (Husted & de Jesus Salazar, 2006; McWilliams, Siegel & Wright, 2006; Porter & Kramer, 2006). As a result, strategic CSR firms attain ample realised CSP and little promised CSP as their sustainable products and production processes respectively augment CSR performance and reduce CSR controversies (Kaul & Luo, 2018), yet simultaneously disincentivizes CSR reporting to protect intellectual property and manage stakeholder expectations (Fatemi et al., 2018; Hawn & Ioannou, 2016; Luo et al., 2011; Lyon & Maxwell, 2011; Mishra, 2017).

Other firms approach CSR-as-insurance and passively conform to the institutional pressure for CSR by providing a minimal level of CSR to mitigate risks and maintain their licence to operate (Oliver, 1991). Maintaining a good CSR reputation provides insurance-like properties in multiple ways. First, firms create moral capital buffers that temper negative shareholder reactions in case of CSR shocks by being responsive to stakeholder needs (Godfrey, 2005; Godfrey, Merrill & Hansen, 2009; Hoepner, Oikonomou, Sautner, Starks & Zhou, 2021; Kim et al., 2021; Koh et al., 2014; Orlitzky & Benjamin, 2001). Second, CSR provides a natural hedge against future regulatory requirements since firms that preemptively comply with regulation obtain regulatory goodwill and lower implementation costs (Amel-Zadeh & Serafeim, 2018; Burke & Logsdon, 1996). Last, providing a minimum level of CSR deters activist attention (Dimson et al., 2015). Therefore, CSR-as-insurance firms attain risk mitigative benefits by responding to a basic level of stakeholder CSR needs, resulting in moderate promised and realised CSP.

Select firms approach corporate greenwashing when they actively resist, or are unable to comply with, the institutional pressure for CSR (Oliver, 1991). Corporate greenwashing firms create a façade of sustainability that mainly consists of empty CSR reporting, policies, activities, or targets, without consecutively implementation these sustainable undertakings (Bowen & Aragon-Correa, 2014; Fatemi et al., 2018; Grewal, Hauptmann & Serafeim, 2020; Laufer, 2003; Lyon & Maxwell, 2011; Ramus & Montiel, 2005; Wood, 2010). Firms are able to corporate greenwash due to the information asymmetries surrounding their realised CSP and the intend of CSR actions (Bowen & Aragon-Correa, 2014; Wu et al., 2020). These information asymmetries originate from dissimilar ESG ratings (Berg, Koelbel & Rigobon, 2019; Chris-

tensen, Serafeim & Sikochi, 2021; Clementino & Perkins, 2020; Dimson, Marsh & Staunton, 2020) or marginal mandatory CSR reporting requirements (Ioannou & Serafeim, 2017). Consequently, corporate greenwashing firms maintain a positive CSR reputation, yet in truth decouple CSR from their core business activities, resulting in excessive promised CSP that overshoots the realised CSP of greenwashing firms.

Theoretical CSR literature introduces further CSR approaches in addition to strategic CSR, CSR-as-insurance, and corporate greenwashing. For instance, it also considers normative and instrumental stakeholder theory (Chiu & Sharfman, 2011; David, Bloom & Hillman, 2007; Donaldson & Preston, 1995; Freeman & Reed, 1983; Freeman, 1999; Gao & Bansal, 2013; Jones & Wicks, 1999; Jones, 2016; Sharfman, Pinkston & Sigerstad, 2000), pro-active risk management CSR (Husted, 2005; Jo & Na, 2012; Sharfman & Fernando, 2008), and isomorphic CSR (DiMaggio & Powell, 1983; Ioannou & Serafeim, 2019; Jackson & Apostolakou, 2010; Jamali & Neville, 2011) as supplementary CSR approaches. In this paper, we solely focuss on strategic CSR, CSR-as-insurance, and corporate greenwashing because we can identify these CSR approaches based on their promised to realised CSP, directly relating to the social performance to financial performance relation. In contrast, we cannot similarly identify normative and instrumental stakeholder theory, pro-active risk management CSR, and isomorphic CSR since we respectively lack information on managerial convictions and stakeholder demands (Donaldson & Preston, 1995), relevant CSR risks (Husted, 2005) and face a non-simultaneous inclusion of global CSR information in Asset4 (Ioannou & Serafeim, 2019; Refinitiv, 2020).

Nevertheless, we argue that the decomposition of social performance across promised and realised CSP does not fully exclude these alternative CSR approaches because strategic CSR, CSR-as-insurance, and corporate greenwashing respectively mimic normative stakeholder theory, and to a lesser extend active CSR risk management, isomorphic CSR, and instrumental stakeholder theory in their pro-active, mixed, and reactive nature (Porter & Kramer, 2006; Van de Ven & Graafland, 2006). For this reason, we solely consider the social performance to financial performance relation for strategic CSR, CSR-as-insurance, and corporate greenwashing and provide the following hypothesis:

Hypothesis (H_1): Firms heterogeneously approach CSR by means of strategic CSR, CSR-as-insurance, and corporate greenwashing.

2.2 Corporate financial performance and CSR heterogeneity

We anticipate that strategic CSR, CSR-as-insurance, and corporate greenwashing firms respectively improve, maintain and reduce their financial performance. By considering the precise theoretical channels through which social performance affects financial performance for each heterogeneous CSR approach, we move beyond the generic (Flammer, 2013; Margolis et al., 2009; Orlitzky et al., 2003) or best-in-class to worst-in-class (Awaysheh et al., 2020; Durand, Paugam & Stolowy, 2019; Hawn, Chatterji & Mitchell, 2018) relation of social to financial performance.

Theoretical CSR literature argues that strategic CSR firms attain price premia by providing sustainable products and production processes (Albuquerque et al., 2019; Luo & Bhattacharya, 2009; McWilliams & Siegel, 2001; Porter & Kramer, 2011; Siegel & Vitaliano, 2007). In correspondence with these higher prices, strategic CSR mimics a sustainability-oriented product differentiation strategy that allows firms to augment their financial performance (Hull & Rothenberg, 2008; McWilliams et al., 2006; Porter & Kramer, 2006).

CSR-as-insurance induces financial performance by insuring firms against the litigation consequences associated with negative CSR events (Christensen, 2016; Godfrey, 2005; Godfrey et al., 2009; Koh et al., 2014; Minor & Morgan, 2011), or extensive risk in general (Jia et al., 2020; Kim et al., 2021; Luo & Bhattacharya, 2009). Even though generic risk reductions abate financial returns, risk reductions through CSR-as-insurance moderately enhance financial performance (Shiu & Yang, 2017).

Corporate greenwashing firms face an intertemporal trade-off between temporary financial gains and future reputational damages. When corporate greenwashing is initially undetected by stakeholders, firms gain the reputational benefits and price premia associated with genuine CSR (Fatemi et al., 2018; Parguel, Benoît-Moreau & Larceneux, 2011). However, when information asymmetries recede and corporate greenwashing is subsequently exposed, firms experience steep reputational and financial losses (Groza, Pronschinske & Walker, 2011; Fi-

aschi et al., 2020; Krüger, 2015). Since information asymmetries for CSR have been shrinking (European Commission, 2014, 2017; Dimson et al., 2015), we deem corporate greenwashing the least profitable CSR approach, especially in the long-term. This decomposition of financial performance implications associated with promised and realised CSP across heterogeneous CSR approaches results in our second and last hypothesis:

Hypothesis (H_2): Strategic CSR, CSR-as-insurance, and corporate greenwashing firms respectively improve, moderately improve and reduce their financial performance.

3 Data and methodology

3.1 Data

We collect granular CSR information from the Asset4 ESG database of Refinitiv. For a worldwide sample of listed companies, we gather 136 environmental, 184 social and 146 governance related granular CSR variables from 2003 to 2019. We retain a sample of 4,529 unique firms, with 27,061 firm-year observations, when we require each firm to have granular CSR information. From the original 466 variables, we preserve 186 granular CSR variables by first merging variables that capture identical facets of CSR for different subsets of the database and subsequently removing variables with less than 500 observations.[2] Table 1 provides summary statistics on these granular CSR variables. In this table, we also allocate each granular CSR variable to either CSR reporting, policies, activities, targets, controversies, and performance to consecutively measure the promised to realised CSP of firms.

"INSERT TABLE 1 HERE"

In addition to CSR information, we retrieve the domicile, industry, total assets, net income, and market capitalisation of each company in our sample from Refinitiv, Compustat US, Compustat Global, and CRSP to analyse the long-term and short-term financial performance of firms. Our sample encompasses a geographically diverse set of companies, of which 1,569

[2]See Online Appendix A for a comprehensive overview of our variable cleaning and selection procedures as well as descriptive statistics. We use Asset4 CSR information over other CSR data providers because Asset4 provides a large range of granular CSR information.

unique companies reside in North America, 950 in Western Europe, 933 in Eastern Asia (including Japan), 313 in Oceania, and 605 in other regions. Furthermore, our sample is dispersed across the mining, construction, generic manufacturing, utilities, retail & wholesale, service, health care, ICT, food & beverages, and petrochemical manufacturing industries. Since we only analyse non-financial corporations, we remove entities that occupy the financial sector or are run by governments. By doing so, we maintain 4,370 unique companies with 26,411 company-year observations. Our sample covers a combined market capitalisation of 46.2 trillion USD in 2019, which is equivalent to 51.33% of worldwide market capitalisation (CNBC, 2019).

3.2 Methodology

We follow a two-step procedure to empirically identify CSR approaches from granular CSR information. Since there is no universal identification procedure for strategic CSR, CSR-as-insurance, or corporate greenwashing, we create a novel method that considering detailed firm-level CSR reporting, policies, activities, targets, controversies, and performance information extracted from Asset4 (see Table 1). Specifically, we first perform firm-level k-means clustering analyses by industry to capture heterogeneous CSR approaches by observing similarities in granular CSR information. Where our clustering analyses indicate which firms have heterogeneous CSR approaches, they do not elaborate on whether these CSR approaches are indeed strategic CSR, CSR-as-insurance, or corporate greenwashing. Therefore, we subsequently measure the relative performance of firms in CSR reporting, policies, activities, targets, controversies, and performance with a non-parametric rank ordering technique to provide a proxy for their promised and realised CSP. Since strategic CSR, CSR-as-insurance, and corporate greenwashing firms fundamentally differ in how they incorporate CSR into their core business model, we can identify them by observing disparities in their promised to realised CSP.

3.2.1 Clustering granular CSR information

A k-means clustering algorithm is a classification tool that considers multivariate similarities to identify groups of distinct observations, or clusters (MacQueen, 1967; Jain, 2010). In our setting, the k-means clustering analysis groups firms with similar CSR approaches solely based

on their absolute distances in CSR information. Consequently, it allows us to identify heterogeneous CSR approaches without the need to predefine social performance. Moreover, it enables us to empirically determine the number of CSR approaches, as the k-means clustering algorithm allows us to identify an optimal number of clusters, k (MacQueen, 1967). In addition, our clustering analysis does not assume any prior CSR approach nor enforce the decomposition of promised to realised CSP across heterogeneous CSR approaches, enabling us to verify the existence of strategic CSR, CSR-as-insurance and corporate greenwashing in a global sample.

The distance-based identification of the k-means clustering algorithm considers all variation in granular CSR information equally. Therefore, we need to consider the magnitude of granular CSR variables, potential missing observations and variable relevance (MacQueen, 1967). First, the k-means clustering algorithm overweighs variables with large means and standard deviations (Ketchen & Shook, 1996; Punj & Stewart, 1983). For example, water usage in litres will result in a significantly larger absolute distance than water usage in cubic meters. Therefore, we correct for company size by dividing all non-binary CSR variables with total assets, resembling the rating methodology of Asset4 (Refinitiv, 2020). We consecutively consider industry heterogeneity (Siegel & Vitaliano, 2007) and variable magnitude by normalising and subsequently winsorising our granular CSR information on an industry level to five standard deviations from the mean (Harrigan, 1985).

Second, the k-means clustering algorithm cannot determine the relevance of CSR information as it equally uses all variation in granular CSR variables to compute distances. Adding less relevant information to our clustering analysis could reduce the accuracy of the clustering outcomes (Bacharach, 1989; Punj & Stewart, 1983). For this reason, we solely include SASB material granular CSR information in our clustering analysis. SASB materiality is an industry specific classification of financially material CSR aspects (SASB, 2021) and is frequently used in both CSR literature (Amel-Zadeh & Serafeim, 2018; Avramov, Cheng, Lioui & Tarelli, 2021; Grewal et al., 2020; Ioannou & Serafeim, 2019; Khan et al., 2016) and legislation (European Commission, 2017). For instance, ecological impact is SASB material for the mining industry, whereas product health & safety matters for the health care industry. By solely considering SASB material information, we also provide a conservative estimation on the number of corpo-

rate greenwashing firms, because they can more readily use SASB immaterial CSR aspects for empty marketing purposes. Table 1, Column (1) assigns the SASB materiality classifications of all granular CSR variables that we employ in our clustering analyses.

Last, the k-means clustering algorithm allows us to identify firms with similar CSR approaches even in the presence of missing CSR information. The absence of CSR information is often intentional (Christensen et al., 2021; Porter & Kramer, 2006), creating a reporting bias due to self-reported positive events and media reported negative CSR events (Refinitiv, 2020). We address this reporting bias by more closely aligning firms that do not report on select CSR aspects, replacing missing observations as in accordance with both academic literature (Li, Deogun, Spaulding & Shuart, 2004) and ESG rating agency methodologies (Christensen et al., 2021). We consider missing positive self-reported CSR aspects as non-compliance with this aspect and missing media-reported negative CSR events as a sign that the company has not experienced such negative-event. The majority of missing variables are SASB immaterial and thus already omitted from our analyses.

3.2.2 Promised to realised CSP

We determine the CSR approach of each cluster by considering a non-parametric rank ordering method that provides us with an indication of the promised and realised CSP of firms. The Wittkowski, Lee, Nussbaum, Chamian & Krueger (2004) method composes a rank ordering system that solely considers strict dominance in multiple variables across observations. In our application, a firm is ranked higher (lower) than another firm when it is strictly superior (inferior) in at least one CSR variable and equal in all other CSR variables. Subsequently, the rank of an individual firm is constructed by subtracting the number of firms for which their CSR information is strictly inferior from the number of firms for which it is strictly superior. Firms for which no strict dominance in CSR information can be determined are not considered in the ranks of other firms. For convenience, we report all ranks on a 0 to 10 scale, for which a firm with a rank of 10 is superior in CSP to all other firms. Since we have granular CSR data that spans a broad range of CSR aspects, we are able to independently create CSR reporting, policies, activities, targets, controversies, and performance ranks. By computing these ranks

at the industry-year level, we correct for industry specific inter-temporal CSR isomorphism (Ioannou & Serafeim, 2019).

The combination of our k-means clustering analysis and Wittkowski et al. (2004) rank ordering method allows us to identify CSR approaches from granular CSR information through the promised and realised CSP of firms. We proxy the promised CSP of firms by considering their CSR reporting, policy, activity, and target ranks, and the realised CSP of firms by their CSR controversy and performance ranks. The segregation of promised to realised CSP across CSR reporting, policies, activities, targets, controversies, and performance is reasonable as it resembles the reporting methodology in the non-financial reporting detective of the European Commission (2014, 2017). Moreover, CSR reporting, policy, activity, and target ranks are a good proxy for the promised CSP of firms since these CSR actions are often endogenous to the firm (Godfrey et al., 2010), not necessarily put unto practice (Fiaschi et al., 2020; Laufer, 2003) and potentially used to cover up negative CSR shocks (Fatemi et al., 2018). In addition, CSR controversies and performance ranks are a good proxy for the realised CSP of firms since they capture a broad range of societally important CSR aspects like: emissions, product quality controversies, consumer complaints, strikes, and net employment creation. However, the differences in realised CSR are likely less pronounced than the differences in promised CSR due to the complexity and asymmetric information surrounding CSR controversies and performance.

We identify heterogeneous CSR approaches by considering the relative promised to realised CSP of firms. Corporate greenwashing firms predominantly maintain a façade of sustainability, rather than actually implement CSR (Laufer, 2003; Bowen & Aragon-Correa, 2014). Therefore, we label a cluster of firms as corporate greenwashing when its promised CSP exceeds its realised CSP. In contrast, we label a cluster of firms with ample realised CSP and little promised CSP as approaching strategic CSR. We do so because strategic CSR firms provide sustainable products and production processes (McWilliams & Siegel, 2001; Porter & Kramer, 2006, 2011) that respectively improve their CSP and reduce CSP. However, these sustainable products partially disincentivises extensive CSR reporting to protect intellectual property (Fatemi et al., 2018) and manage shareholder expectations (Lyon & Maxwell, 2011). Further, we label a cluster of firms as CSR-as-insurance when they attain a moderate promised and realised CSP.

Particularly, we anticipate average realised CSP for CSR-as-insurance firms because they attain most risk mitigating benefits by minimising CSR controversies (Jia et al., 2020), yet do not incorporate CSR into their core business model like strategic CSR firms (Burke & Logsdon, 1996). In addition, we anticipate average promised CSP since CSR-as-insurance firms maintain moral capital buffers by communicating their CSR efforts to stakeholders (Godfrey, 2005; Godfrey et al., 2009). Now that we have described how we use granular CSR information to first identify and subsequently label heterogeneous CSR approaches, we present our main results.

4 Results

4.1 Identifying CSR approaches

As a first step, we empirically identify three heterogeneous CSR approaches. Our k-means clustering analysis consistently demonstrates that three distinct CSR approaches is optimal in every industry.[3] In aggregate, identifying heterogeneous CSR approaches explains 48.04% of the variation in granular CSR information at the firm level. Since we purposefully omit all but granular CSR information from the clustering analysis, this explained variation is robust for firm characteristics, ESG ratings, or firm domicile. Consistently observing three clusters across every industry provides a promising first step towards verifying our first hypothesis.

As a second step, we empirically show that firms heterogeneously approach CSR by comparing their promised to realised CSP. Table 2 displays the CSR reporting, policy, activity, target, controversy, and performance Wittkowski et al. (2004) ranks as well as the average Asset4 rating for each CSR approach separately. Table 2 Panels A to K respectively represent the full sample as well as the mining, construction, generic manufacturing, utilities, retail & wholesale, service, health care, ICT, food & beverages, and petrochemical manufacturing industries individually.

"INSERT TABLE 2 HERE"

[3]For further information on the mechanics of our firm-level k-means clustering analysis and a detailed description of how we have identified the optimal number of clusters for every industry, see Online Appendix B.

First, firms in the third CSR approach strategic CSR because they display excellent realised and inferior promised CSP. Specifically, these firms strictly outperform all other firms in terms of CSR controversy and performance ranks at the industry level. In aggregate, we observe controversy and performance ranks of 8.40 and 5.47 for the third CSR approach in Table 2, 7.85 and 4.78 for the second CSR approach and 6.75 and 5.01 for the first CSR approach (Table 2, Panel A). In contrast, strategic CSR firms underperform in all CSR reporting, policy, target and activity ranks at the industry level. On average, CSR reporting, policy, target and activity ranks are respectively 1.25, 3.66, 2.58, and 3.15 for the third CSR approach, 4.50, 5.62, 3.15, and 5.30 for the second CSR approach, and 7.01, 7.47, 6.76, and 7.22 for the first CSR approach. These rank differences are statistically significant across CSR approaches with t statistics of at least 210.17. Strategic CSR firms occupy every industry and cover 49.51% of the observations in our sample. Furthermore, strategic CSR firms are a global phenomenon with 34.51% domiciled in Unites States, 11.49% in Japan, 9.92% in Australia, and 6.15% Great Britain.

Second, firms approach CSR-as-insurance in the second CSR approach for every industry, characterised by moderate promised and realised CSP. In particular, they have average CSR reporting, policy, target and activity ranks of respectively 4.50, 5.62, 3.15, and 5.30 and little CSR controversies with an average rank of 7.85. Notwithstanding, CSR-as-insurance firms attain poor CSR performance with an average score of 4.78, which is mainly attributed to firms in the construction and food & beverages industries. This discrepancy in CSR controversies and performance accompanies CSR-as-insurance firms which primarily focus on mitigating CSR related risks, rather than improving CSR performance (see Jia et al., 2020). Similar to strategic CSR, the firms that perform CSR-as-insurance are not region specific and cover on average 24.10% of the firm-year observations in all industries.

Last, firms in the first CSR approach of every industry are corporate greenwashing, given that their promised CSP strongly overshoots their realised CSP. Corporate greenwashing firms outperform in terms of promised CSP in every industry as they realize superior average CSR reporting, policy, target and activity ranks of respectively 7.01, 7.47, 6.76, and 7.22 (Table 2, Panel A). Contrastingly, they underperform in terms of realised CSP in almost all industries

given their inferior average CSR controversy and performance ranks of respectively 6.75 and 5.01 (Table 2, Panel A).[4] In accordance with other CSR approaches, firms who pursue corporate greenwashing are widely dispersed across the globe and cover on average 26.33% of the firm-year observations in all industries. We carefully suggest that corporate greenwashing firms attain superior Asset4 ESG ratings compared to strategic CSR and CSR-as-insurance firms, potentially instigating the required opacity and information asymmetry for corporate greenwashing.

In multiple (untabulated) robustness analyses we consistently observe strategic CSR, CSR-as-insurance, and corporate greenwashing firms in resembling proportions. Our results persist when we use a gaussian mixture model clustering analysis (Duda & Hart, 1973), indicating that our findings are non k-means specific. Moreover, the gaussian mixture model clustering analysis indicates strong differences in CSR approaches as only 5 out of 26,411 observations could be allocated to multiple CSR approaches. In addition, our results persevere when we first perform a principal component analyses on our granular CSR information and subsequently cluster granular CSR information. Further, we observe similar CSR approaches when we cluster solely on CSR reporting, policies, activities, and targets, CSR controversies and performance indicators, SASB immaterial CSR information, and both SASB material and immaterial CSR information. In Online Appendix C, we validate our results for a sub-sample of firms domiciled in the United States.

Most firms with a similar CSR approach provide resembling promised and realised social performance. To better understand the resemblance of strategic CSR, CSR-as-insurance and corporate greenwashing firms, we estimate the abnormal promised and realised CSP ranks. We compute these abnormal promised and realised CSP ranks by respectively averaging CSR reporting, policy, activity, and target ranks and CSR controversy and performance rank at the firm-level and consecutively subtract their respective sample means. Given this construction, a realised CSP rank of three implies that a firm outperforms the average firm in CSR controversies and performance by three rank points on our 0 to 10 scale. We provide an overview of rounded abnormal promised and realised CSP ranks by CSR approach in Table 3.

[4]Corporate greenwashing firms do not underperform with respect to CSR-as-insurance firms in the construction, utility, health care, and food & beverages industries for CSR performance.

"INSERT TABLE 3 HERE"

Cluster-level CSR approaches can be carefully interpreted at the firm-level. Similar to Table 2, Table 3 shows that the vast majority of individual firms approach either strategic CSR, CSR-as-insurance, or corporate greenwashing in accordance with our promised to realised CSP definitions. Specifically, many firm-level abnormal promised and realised CSP ranks are relatively centered around cluster means, demonstrating that cluster-level CSR approaches often apply to individual firms. To illustrate, 73.49% of the strategic CSR firms have at least average realised societal impact ranks, while 92.44% of the corporate greenwashing firms have higher promised abnormal CSP than realised abnormal CSP. However, cluster-level CSR approaches are not always generalisable to the firm-level since 6.66% of the strategic CSR firms scores more than two realised CSP ranks below their sample average, 6.25% of the corporate greenwashing firms have higher realised than abnormal promised CSP ranks, and 3.14% of the CSR-as-insurance firms deviates more than 2 ranks in both abnormal promised and realised CSP. Moreover, we identify 3.59% of our sample as "superstar" CSR firms, which perform strategic CSR yet also outperform in CSR reporting, policy, activity, and targets. Given the above, cluster-level CSR approaches can in most instances be interpreted at the firm-level, although caution is warranted for corner cases. Since we observe strategic CSR, CSR-as-insurance, and corporate greenwashing approaches at both the cluster-level and firm-level throughout our global sample, we verify our first hypothesis.

4.2 Corporate social performance

Next we provide a more nuanced perspective on how CSR is associated with the social and financial performance of firms for heterogeneous CSR approaches. In addition to the previous analysis in which we identified strategic CSR, CSR-as-insurance and corporate greenwashing firms based on their promised and realised CSP, our granular CSR information allows us to provide a detailed comparison of the social performance of firms along multiple dimensions of CSP. Since social performance cannot be captured by a single factor and is hard to capture in absolute terms, we provide select stylised summary statistics as an indication for the relative performance of strategic CSR, CSR-as-insurance, and corporate greenwashing firms. Specifi-

cally, we compare detailed information on emissions, labor conditions, and CSR controversies as an indication of respectively the environmental, social and (improper) governance exposure of firms on society (Eccles & Stroehle, 2018; Krueger et al., 2020; Shafer & Szado, 2020).

In accordance with our non-parametric rank ordering test, strategic CSR firms outperform both CSR-as-insurance and especially corporate greenwashing firms in realised social performance. First, strategic CSR firms experience an average of 2.10 and 6.29 times fewer CSR controversies than respectively CSR-as-insurance and corporate greenwashing firms. For example, they experience respectively 3.92 and 10.84 times fewer environmental controversies, 3.25 and 8.86 times fewer wage and working condition controversies, 2.19 and 7.55 times fewer product quality controversies, 1.86 and 6.58 times fewer consumer complaints controversies, and 1.17 and 1.96 times less frequent accounting controversies compared to CSR-as-insurance and corporate greenwashing firms.

Second, strategic CSR firms exhaust respectively 4.41 and 2.99 times fewer CO_2 emissions to total assets, emit 2.74 and 5.21 times less frequent VOC or particular matter emissions, and 2.56 and 8.40 times less frequent water pollutant emissions to total assets compared to CSR-as-insurance and corporate greenwashing firms, while promoting fewer emission related policies.

Last, strategic CSR firms treat their employees better than CSR-as-insurance and corporate greenwashing firms. They respectively experience 2.84 and 7.35 times fewer strikes, 3.65 and 6.51 times fewer firms with employee fatalities, and 1.20 and 2.03 times more employment creation compared to CSR-as-insurance and corporate greenwashing firms. Given the above, strategic CSR firms outperform CSR-as-insurance firms which in turn outperform corporate greenwashing firms in terms of multiple societally relevant aspects of CSR. Therefore, we show that the social performance of firms is strongly associated with the way in which they approach CSR.

Current promised CSP does not or negatively predict future realised CSP. In Table **??**, we regress the CSR reporting, policy, target and activity ranks on current and 5-year future CSR controversy and performance ranks. In every instance, we observe a negative or insignificant relation between current promised CSP and future realised CSP. Therefore, the inferior societal impact of greenwashing firms is relatively persistent over time.

4.3 Corporate financial performance

As a second step to identifying the impact of social performance on financial performance, we measure the short-term and long-term financial performance associated with heterogenous CSR approaches.

4.3.1 Short-term financial outperformance

We separately investigate the short-term financial outperformance of firms with different CSR approaches by computing value-weighted alphas of the Fama and French 5-factor model (Fama & French, 2015). Empirical CSR literature often uses factor models to capture the short-term financial performance of firms not explained by select risk factors (Eccles et al., 2014; Flammer, 2013; Khan et al., 2016; Krüger, 2015). These 5-factor alphas capture the stock returns of firms not explained by the market, company size, value or growth firms, profitability, and re-investments into the firms. In a way, they relate to changes in Tobin's Q, after correcting for the aforemention risk factors.

Because the firms in our sample are geographically dispersed, we consider their domicile by estimating the 5-factor alphas with distinct factor returns. Specifically, we use the general 5-factor model for firms domiciled in the United States (Fama & French, 2015), the Asian-Pacific, European, Japanese and North-American 5-factor models for respectively firms domiciled in Asia and Oceania, Europe, Japan, Canada and Mexico (Fama & French, 2017), and the emerging markets model for firms domiciled in the Latin-America, Africa, or the Middle-East. We employ the 3-month T-bill rate as the risk-free rate to compute excess stock returns (similar to Fama & French, 2017) and compute 5-factor alphas for strategic CSR, CSR-as-insurance, and corporate greenwashing firms by assessing both their firm level excess stock returns and the regional market factors in USD to correct for exchange rate fluctuations. All factor information is collected from the Kenneth French data library (French, 2020).

Only firms that approach strategic CSR enhance their risk adjusted corporate financial performance, while CSR-as-insurance and particularly corporate greenwashing firms underperform. Table 5 shows the separately estimated (international) Fama and French 5-factor model alphas for each CSR approach. We observe annualised alphas of 1.42%, -0.38%, and -1.33% for

respectively strategic CSR, CSR-as-insurance, and corporate greenwashing firms and perform a t-test to show that they represent statistically significant differences in financial performance. These results provide a first indication that it is not whether, but how firms approach CSR that impacts their financial performance.[5]

"INSERT TABLE 5 HERE"

4.3.2 Long-term profitability

We capture the long-term corporate financial performance for heterogeneous CSR approaches by separately considering their return on assets (ROA) over multiple time horizons. We analyse this long-term CSP by using ROA instead of 5-factor alphas for four reasons. First, over the last two decades, investors have oriented their portfolios towards more sustainable firms (USSIF, 2020), instigating a demand side pressure for sustainability that could potentially be ungrounded by firm fundamentals (Choi & Wang, 2009; Pástor, Stambaugh & Taylor, 2021). Consequently, alphas might persistently overestimate firm performance, whereas book-based ROA are less affected by portfolio reallocative demand pressures (Eccles et al., 2014). Second, 5-factor alphas are a forward-looking measure of firm performance (Fama & French, 2015) and thus discounts all future impact of CSR in the current stock price. Contrastingly, ROA constitute a backward-looking measure that allows us to separate the initial investment faces of CSR approaches from their long-term benefits. Third, 5-factor alphas are relatively unstable over long periods time, whereas ROA provide an auto-correlated measure of performance which allows stable time-series comparison. Last, it is common in literature to measure long-run performance with ROA in the context of CSR (Choi & Wang, 2009; Eccles et al., 2014).

Firms that approach strategic and CSR-as-insurance surpass corporate greenwashing firms in their long-run financial performance. In Figure 1, we separately display the developments in ROA of firms approaching strategic CSR, CSR-as-insurance, and corporate greenwashing, as well as firms that do not receive an Asset4 ESG rating, up to 13 years since firms first

[5]As robustness analyses, we have extend this analysis across domicile, industry, and size to consider different regulatory and stakeholder demands for CSR. Moreover, we observe similar alphas when employing a Fama & French (1993) 3-factor model, or a Carhart (1997) 4-factor momentum model, indicating that our results are not model-specific. Analyses are available upon request.

approached CSR. We retain 13 of our 17 years of observations as we require at least 100 firms for each CSR approach in every year. Strategic CSR and CSR-as-insurance firms approximately double their initial ROA from 6.27% and 5.86% to respectively 11.71% and 10.53% in the long-run. Unsurprisingly, corporate greenwashing firms attain ROA similar to strategic CSR firms for up to 8 years after their first implementation, yet strongly underperform in the long-run. Therefore, we show that markets appreciate the initial introduction of promised CSP, but demand eventual realisation. Namely, that firms do not realise their promised CSP are even surpassed in ROA by firms that do not receive an Asset4 ESG ratings. These results persevere when we assume that firms are persistent in their initial CSR approaches over time, or when we allow time-varying CSR approaches.

These findings are not driven by discrepancies in risk as firms with heterogeneous CSR approaches realize similar 5-factor market betas in Figure 2 (Fama & French, 2015, 2017). In addition, even when we attribute the respective 3.03% and 2.62% higher initial ROA of strategic CSR and CSR-as-insurance firm compared to firms that do not receive an Asset4 ESG rating to a difference in risk not captured by the market, we cannot attribute their excess 0.24% and 0.22% yearly ROA increases to increased risk. Given the above, we show that firms who approach strategic CSR outperform CSR-as-insurance and especially corporate greenwashing firms in term of both short-term and long-term financial performance, verifying our second hypothesis. Consequently, the way in which firms approach CSR determines both their contribution to society and their financial performance, which subsequently affects the social to financial performance relation. By omitting the heterogeneous CSR approaches, empirical CSR literature muddles this empirical relation by aggregating the good social impact of strategic CSR firms with the value deteriorating corporate greenwashing firms.

"INSERT FIGURES 1, 2 HERE"

5 Discussion and conclusion

In this paper we contribute to empirical CSR literature by providing a potential explanation for the mixed findings regarding the CSP to CFP relation (Flammer, 2013, 2015; Krüger, 2015;

Margolis et al., 2009; Orlitzky et al., 2003; Shahzad & Sharfman, 2017; Wang & Sarkis, 2017; Zhao & Murrell, 2016). Where empirical CSR literature implicitly assumes that social performance is homogenous by relying on ESG rating as a proxy for the social performance of firms (Albuquerque et al., 2019; Awaysheh et al., 2020; Barnett & Salomon, 2012; Cheng et al., 2014; Griffin & Mahon, 1997; Kim et al., 2021; Servaes & Tamayo, 2013; Waddock & Graves, 1997), we argue that precisely the heterogeneity in CSR approaches determines how social performance affects financial performance. By empirically identify strategic CSR, CSR-as-insurance, and corporate greenwashing firms with their promised and realised CSP, we find that strategic CSR firms outperform CSR-as-insurance and especially corporate greenwashing firms in their realised social performance. Subsequently, we observe that strategic CSR, CSR-as-insurance, and corporate greenwashing firms respectively improve, moderately improve and reduce their financial performance. In doing so, we contribute to empirical CSR literature by showing that the aggregation of positive, mildly positive and negative financial performance consequences associated with heterogeneous CSR approaches clouds prior estimations of the social to financial performance relationship when social performance is implicitly assumed homogenous.

In addition to empirical CSR literature, we also contribute to theoretical CSR literature, institutional theory, and instrumental stakeholder theory. We contribute to theoretical CSR literature by confirming that firms approach strategic CSR, CSR-as-insurance, and corporate greenwashing in every industry, on a global scale. By jointly considering the promised to realised CSP of firm for heterogeneous CSR approaches, we verify the theoretical models on strategic CSR (Burke & Logsdon, 1996; Husted & de Jesus Salazar, 2006; McWilliams & Siegel, 2001), CSR-as-insurance (Godfrey, 2005) and corporate greenwashing (Laufer, 2003; Lyon & Maxwell, 2011; Wu et al., 2020). Where prior empirical CSR literature primarily consider these CSR approaches under specific preconditions (Fiaschi et al., 2020; Jia et al., 2020), our global and generic setting allows for a more robust empirical identification.

Since we simultaneously observe heterogeneous CSR approaches, we contribute to institutional theory by applying it in the context of CSR (Oliver, 1991). Namely, strategic CSR, CSR-as-insurance, and corporate greenwashing firms respectively display proactive confor-

mity, passive conformity and active resistance to the institutional pressure for CSR as given by their promised to realised CSP. Since the institutional pressure for CSR consists of diverse stakeholder demands (Albuquerque et al., 2019; Becker-Olsen et al., 2006; European Commission, 2014; Dimson et al., 2015; Ioannou & Serafeim, 2017; Jensen, 2010; Krueger et al., 2020; Siegel & Vitaliano, 2007), we contribute to institutional stakeholder theory (Donaldson & Preston, 1995; Freeman, 1999; Jones & Wicks, 1999; Jones, 2016) by showing that firms who address stakeholder demands through realised social performance experience superior financial performance.

Our results also provide practical implications for managers and investors. Managers are incentivised to provide social performance since it either directly boost their remuneration or indirectly augements their remuneration through enhanced profits (Eccles et al., 2014; Gabaix & Landier, 2008). We show that managers can simultaneously improve the social performance and profitability of their firm by reducing CSR controversies and enhancing CSR performance. To do so, our long-term profitability analysis indicates that managers can profitably engage in an initial CSR phase where they introduce CSR policies, targets, and activities with the intend to subsequently execute them. For instance, managers could start by implementing common industry-level CSR practices (Ioannou & Serafeim, 2019). However, when managers promise social performance, they should in subsequent periods realise this promises to prevent the negative societal and financial consequences associated with corporate greenwashing.

Where managers can improve firm profitability by pursuing realised social performance via strategic CSR, investors can similarly profit by allocating capital to the firms that contribute most to society. Current socially responsible investment practices often rely on ESG rating based screening procedures (Amel-Zadeh & Serafeim, 2018; Fiaschi et al., 2020; Krueger et al., 2020; Van Duuren et al., 2016). Where we have shown that linear ESG ratings omit the CSR approaches of firms, institutional investors do not always accurately allocate their capital to strategic CSR firms, which provide most social and financial performance. Therefore, we recommend institutional investors to directly consider the promised and realised CSP of firms, rather than solely relying on ESG rating based screening procedures.

This study has several limitations that provide opportunities for future research. First, given

the structure of our data, we have only been able to capture the promised and realised CSP of firms across all stakeholders. This segregation of CSP allows us to identify strategic CSR, CSR-as-insurance and corporate greenwashing firms, but it does not enables us to identify their respective promised and realised CSP towards individual stakeholder groups. Future research could focus on analysing stakeholder specific promised and realised CSP to shape a more nuanced impact of firms on society. Moreover, stakeholder specific CSP allow the identification of instrumental and normative stakeholder theory (Chiu & Sharfman, 2011; David et al., 2007; Donaldson & Preston, 1995; Freeman & Reed, 1983; Freeman, 1999; Gao & Bansal, 2013; Jones & Wicks, 1999; Jones, 2016; Sharfman et al., 2000), isomorphic CSR behaviour (DiMaggio & Powell, 1983; Ioannou & Serafeim, 2019; Jackson & Apostolakou, 2010; Jamali & Neville, 2011), or pro-active risk management CSR approaches (Husted, 2005; Jo & Na, 2012; Sharfman & Fernando, 2008), in addition to strategic CSR, CSR-as-insurance and corporate greenwashing.

Second, while our paper explores the existence of heterogeneous CSR approaches and their association with the social and financial performance of firms, it does not offer an overarching explanation of the underlying mechanisms that encourage firms to pursue a specific CSR approach. Institutional theory and frequently profitable stakeholder demands explain *that* firms heterogeneously approach CSR (Donaldson & Preston, 1995; Khan et al., 2016; Oliver, 1991). However, we call for an overarching theoretical model that explains *the drivers* of each heterogeneous approach, given the institutional pressure that firms face. Such universal theory for CSR approaches could broaden our understanding of CSR and its impact on firms and society. For instance, where our quantitative CSR information allows for a comparison of the CSR approaches across firms, within-firm micro analyses could shed further light on the underlying mechanisms that drive CSR approaches.

Last, the stepwise inclusion of firms from specific exchanges in the Asset4 dataset does not allows us to perform a dif-in-dif analysis and determine causality for the social performance to financial performance relation across heterogeneous CSR approaches (Refinitiv, 2020). The persistence in our long-term profitability analysis elevates some of the reverse causality arguments, but nevertheless only provides supportive evidence in favour of social performance to

financial performance relation for strategic CSR and CSR-as-insurance firms. Therefore, we cannot claim causality between social and financial performance across heterogeneous CSR approaches, only a strong statistical association.

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6 Tables and Figures

Table 1: Division of granular CSR variables into SASB materiality groups, and CSR reporting, policies, activities, targets and controversies and performance, as well as generic summary statistics.

SASB materiality group	Variable name	CSR type	mean	sd	min	max
Greenhouse gas emissions	Emission policy	Policy	0.50	0.50	0.00	1.00
	Emission trading	Activity	0.11	0.31	0.00	1.00
	Emission targets	Target	0.31	0.46	0.00	1.00
	Emission reduction target (%)	Target	-0.00	0.17	-1.71	3.83
	CO_2 Emissions	Performance	-0.02	0.36	-0.61	5.00
	Staff transportation impact reduction	Activity	0.16	0.36	0.00	1.00
Air quality	Ozon-depleting substances	Performance	0.00	0.05	0.00	1.00
	NO_x and SO_x Emissions	Performance	-0.02	0.79	-1.27	5.00
	NO_x and SO_x Emission reduction	Performance	0.13	0.33	0.00	1.00
	VOC and PM Emissions	Performance	0.17	0.38	0.00	1.00
	VOC and PM Emission reduction	Performance	0.13	0.34	0.00	1.00
Energy management	Energy efficiency policy	Policy	0.52	0.50	0.00	1.00
	Energy efficiency targets	Target	0.22	0.41	0.00	1.00
	Renewable energy ratio	Performance	0.01	0.89	-5.00	5.00
Water and wastewater	Water efficiency policy	Policy	0.36	0.48	0.00	1.00
	Water technologies	Activity	0.06	0.24	0.00	1.00
	Water efficiency targets	Target	0.13	0.34	0.00	1.00
	Water usage / revenue	Performance	-0.01	0.32	-0.35	5.00
	Water recycled	Performance	-0.00	0.20	-0.99	5.00
	Water pollutant emissions	Performance	-0.00	0.18	-0.51	5.00
Waste & hazardous management	Waste reduction initiatives	Activity	0.49	0.50	0.00	1.00
	Waste / revenue	Performance	-0.04	0.32	-0.35	5.00
	Waste recycled (%)	Performance	-0.00	0.20	-0.99	5.00
	Hazardous waste	Performance	-0.02	0.32	-2.18	5.00
	Toxic chemicals reduction	Performance	0.13	0.34	0.00	1.00
	Electronic waste reduction	Performance	0.12	0.33	0.00	1.00
Ecological impact	Environmental restoration initiatives	Activity	0.20	0.40	0.00	1.00
	Land environmental impact reduction	Policy	0.08	0.28	0.00	1.00
	Biodiversity impact reduction	Policy	0.20	0.40	0.00	1.00
Human rights & Community relations	Policy human rights	Policy	0.41	0.49	0.00	1.00
	Policy Community involvement	Policy	0.67	0.47	0.00	1.00
	Human rights compliance ILO/UN	Policy	0.20	0.40	0.00	1.00
	Donations / revenue	Performance	-0.01	0.29	-0.79	5.00
Customer privacy	Controversies privacy	Controversy	0.00	0.08	-2.07	5.00
	Policy data privacy	Policy	0.49	0.50	0.00	1.00
	Whistleblower protection	Policy	0.52	0.50	0.00	1.00
Data security	HSMS certified percent	Policy	0.00	0.12	-4.12	1.72
Access and affordability	Product discount emerging markets	Activity	0.50	0..46	0.00	1.00
	Product access low prices	Activity	0.05	0.21	0.00	1.00
Product quality and safety	Policy customer health safety	Policy	0.27	0.44	0.00	1.00
	Product recall	Performance	0.04	0.19	0.00	1.00
Customer welfare	Product responsibility monitoring	Activity	0.15	0.36	0.00	1.00
	Healthy food/products	Activity	0.08	0.27	0.00	1.00
Selling practices and product labelling	Controversies consumer complaints	Controversy	0.02	0.12	0.00	1.00
	Policy responsible marketing	Policy	0.03	0.18	0.00	1.00
	Policy fair trade	Policy	0.02	0.13	0.00	1.00
	Retailing responsibilities	Activity	0.01	0.12	0.00	1.00
	Ethical trading initiatives	Policy	0.01	0.07	0.00	1.00
	Customer satisfaction	Performance	0.00	0.25	-5.00	1.62
Labor practices	Controversies wages working conditions	Controversy	0.02	0.15	0.00	1.00
	Policy child labor	Policy	0.18	0.38	0.00	1.00
	Policy forced labor	Policy	0.16	0.37	0.00	1.00
	Policy training and development	Policy	0.64	0.48	0.00	1.00
	Day care service	Activity	0.12	0.32	0.00	1.00
	Employee engagement voluntary work	Policy	0.50	0.50	0.00	1.00
	Training hours / assets	Performance	-0.00	0.41	-1.37	5.00
	Employee fatalities / assets	Performance	-0.00	0.45	-0.77	5.00
	Flexible working hours	Activity	0.23	0.42	0.00	1.00
	Employee satisfaction	Performance	-0.01	0.39	-5.00	2.37
	Salaries/wages	Performance	-0.02	0.23	-1.29	5.00
	Net employment creation / assets	Performance	-0.03	0.44	-5.00	5.00
	Employee turnover	Performance	-0.01	0.50	-1.84	5.00
	Strikes	Controversy	0.02	0.15	0.00	1.00
Employee health and safety	Health safety policy	Policy	0.71	0.46	0.00	1.00
	Employee health safety team	Activity	0.49	0.50	0.00	1.00
	Health safety training	Activity	0.56	0.50	0.00	1.00

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Table 1 – continued

SASB materiality group	Variable name	CSR type	mean	sd	min	max
	Accidents total/ assets	Performance	0.02	0.48	-1.05	5.00
	Lost time injury rate	Performance	-0.00	0.52	-0.99	5.00
	Occupational diseases	Performance	-0.02	0.44	-1.05	5.00
Employee engagement	Policy board diversity	Policy	0.36	0.48	0.00	1.00
	Policy diversity and opportunity	Policy	0.61	0.49	0.00	1.00
	Internal promotion	Activity	0.28	0.45	0.00	1.00
	HRC corporate equality index	Performance	-0.00	0.43	-3.64	2.69
	Targets diversity and opportunity	Target	0.21	0.38	0.00	1.00
	Salary gap	Performance	-0.03	0.26	-3.66	5.00
	Women employees	Performance	-0.01	0.66	-2.67	5.00
	Employees with disabilities	Performance	-0.00	0.39	-1.96	5.00
Product design and lifecycle management	Sustainable packaging policy	Policy	0.15	0.36	0.00	1.00
	Takeback and recycling initiatives	Activity	0.10	0.30	0.00	1.00
	Environmental material sourcing	Activity	0.29	0.45	0.00	1.00
	Environmental products	Activity	0.29	0.46	0.00	1.00
	Eco-design products	Activity	0.13	0.34	0.00	1.00
	Renewable energy products	Activity	0.11	0.31	0.00	1.00
	Sustainable building products	Activity	0.04	0.20	0.00	1.00
	Product impact minimization	Activity	0.18	0.39	0.00	1.00
	Product environmental responsibilities	Activity	0.35	0.48	0.00	1.00
Business model resilience	Environment management team	Policy	0.40	0.49	0.00	1.00
	CSR sustainability committee	Policy	0.44	0.50	0.00	1.00
	Global compact signatory	Reporting	0.17	0.37	0.00	1.00
	Sustainability compensation executives	Activity	0.16	0.37	0.00	1.00
	Integrated strategy in MDA	Policy	0.13	0.34	0.00	1.00
	environmental project financing	Activity	0.00	0.06	0.00	1.00
	Environment management training	Policy	0.44	0.50	0.00	1.00
	Green buildings	Performance	0.17	0.37	0.00	1.00
	Environmental investment initiatives	Activity	0.14	0.35	-0.93	3.81
	Six sigma and quality management system	Policy	0.16	0.36	0.00	1.00
	Environmental provisions	Activity	-0.02	0.23	-0.37	5.00
	Environmental expenditures	Performance	-0.03	0.27	-1.32	5.00
	Environmental investment expenditures	Performance	0.26	0.44	-0.78	4.03
Supply chain management	Environmental partnership	Activity	0.38	0.49	0.00	1.00
	Contractor human rights breaches	Performance	0.13	0.33	0.00	1.00
	Human rights contractors	Activity	0.30	0.46	0.00	1.00
	Supplier ESG training	Activity	0.12	0.33	0.00	1.00
	Environmental supply chain policy	Policy	0.35	0.48	0.00	1.00
	Environmental supply chain management	Policy	0.39	0.49	0.00	1.00
	Policy supply chain health safety	Policy	0.19	0.39	0.00	1.00
	Injury rate contractors	Performance	0.00	0.33	-1.71	5.00
Material Sourcing and efficiency	Resource reduction policy	Policy	0.64	0.48	0.00	1.00
	Organic product initiatives	Activity	0.03	0.18	0.00	1.00
	Resource reduction targets	Target	0.25	0.43	0.00	1.00
	Energy usage	Performance	-0.01	0.23	-0.26	5.00
	Renewable energy usage	Performance	-0.02	0.33	-0.54	5.00
Physical impact of climate change	Climate change commercial risk	Controversy	0.31	0.46	0.00	1.00
Business Ethics	Controversies tax fraud	Controversy	0.00	0.07	-2.76	5.00
	Controversies business ethics	Controversy	-0.00	0.17	-2.18	5.00
	Controversy bribery corruption and fraud	Controversy	0.08	0.27	0.00	1.00
	Controversies intellectual property	Controversy	-0.00	0.14	-2.74	5.00
	Policy bribery and corruption	Policy	0.60	0.49	0.00	1.00
	Policy business ethics	Policy	0.66	0.47	0.00	1.00
	Animal testing	Activity	0.06	0.23	0.00	1.00
Competitive behavior	Policy fair competition	Policy	0.50	0.50	0.00	1.00
	Trade union representation	Activity	-0.00	0.53	-1.81	3.11
	Poison pill	Controversy	0.06	0.23	0.00	1.00
Legal & regulatory environment	Quality management systems	Policy	0.41	0.49	0.00	1.00
	OECD guidelines for multinationals	Policy	0.06	0.24	0.00	1.00
	Stakeholder engagement	Activity	0.31	0.47	0.00	1.00
	Real estate sustainability certificate	Policy	0.01	0.11	0.00	1.00
	Corporate responsibility awards	Performance	0.34	0.47	0.00	1.00
	Self-reported environmental fines	Performance	-0.89	0.35	-1.00	5.00
Critical incident risk management	Accounting controversies	Controversy	0.00	0.06	0.00	1.00
	Crisis management systems	Policy	0.33	0.47	0.00	1.00
	Controversies public health	Controversy	0.00	0.10	-2.27	3.61
	Accidental spills	Controversy	-0.00	0.12	-0.58	5.00
Systemic risk management	Environmental controversies	Controversy	0.01	0.09	0.00	1.00
	Controversies anti-competition	Controversy	0.05	0.21	0.00	1.00
	Controversies responsible marketing	Controversy	0.07	0.58	-2.00	5.00

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Table 1 – continued

SASB materiality group	Variable name	CSR type	mean	sd	min	max
	Obesity risk	Controversy	0.02	0.12	0.00	1.00
	Controversies product quality	Controversy	0.04	0.19	0.00	1.00
	Controversies customer health	Controversy	-0.00	0.13	-1.32	5.00
Reporting	ESG reporting scope	Reporting	0.00	0.61	-5	0.62
	GRI reporting guidelines	Reporting	0.30	0.46	0.00	1.00
	Global CSR sustainability report	Reporting	0.42	0.49	0.00	1.00
	CSR sustainability external audit	Reporting	0.22	0.42	0.00	1.00

Notes: The first column shows the SASB materiality group of the granular CSR variable. The categories critical incident management and systemic risk do not strictly follow the SASB definition as they also contain controversy variables. The third column contains type of CSR indicator that we assign to each granular CSR variable in accordance to the EU non-financial reporting directive and guidelines (European Commission, 2014, 2017). We capture the promised societal impact of firms by considering its CSR related reporting, policies, activities, and targets and the realised societal impact with the CSR related controversies and performance. Columns four to seven contain summary statistics for all variables in our sample. We show the mean, standard deviation, minimum and maximum. Due to the full rank requirements of k-means, we have not reported the number of observations, 26,411.

Table 2: The performance of heterogeneous CSR approaches across Asset4 ESG rating, CSR reporting, policy, activity, target, controversy, and performance ranks.

Panel A: Full sample

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	6,953	6.45 (1.61)	7.01 (2.33)	7.47 (1.94)	6.76 (3.59)	7.22 (1.69)	6.75 (3.54)	5.01 (1.75)
2	6,366	4.20 (1.61)	4.50 (3.23)	5.62 (1.97)	3.15 (3.71)	5.30 (2.01)	7.85 (2.74)	4.78 (2.04)
3	13,092	2.57 (1.75)	1.25 (2.52)	3.66 (2.61)	2.58 (3.19)	3.15 (2.54)	8.40 (2.38)	5.47 (2.31)

Panel B: Mining

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	275	6.65 (1.62)	8.60 (1.84)	8.25 (1.37)	7.83 (2.67)	7.67 (1.17)	5.57 (4.03)	3.97 (1.16)
2	590	5.32 (1.45)	6.63 (2.22)	6.77 (1.55)	7.37 (2.47)	6.99 (1.17)	8.91 (2.59)	4.24 (1.64)
3	1,562	1.96 (1.52)	1.15 (2.42)	3.61 (2.33)	6.89 (2.29)	3.98 (2.38)	8.55 (1.77)	4.72 (2.49)

Panel C: Construction

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	333	5.91 (1.43)	6.63 (1.97)	6.73 (2.14)	7.13 (2.99)	7.19 (1.81)	7.34 (3.00)	4.50 (2.14)
2	196	3.42 (1.51)	4.29 (3.09)	5.66 (2.29)	6.47 (2.50)	3.65 (2.07)	9.11 (2.90)	3.89 (2.05)
3	365	2.25 (1.58)	1.22 (2.65)	2.86 (2.64)	5.87 (2.42)	3.54 (2.63)	8.37 (2.60)	5.17 (2.97)

Panel D: Manufacturing (non-food, non-petrochemical)

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	1,086	6.66 (1.54)	7.00 (2.17)	7.85 (2.23)	8.05 (3.33)	7.38 (1.85)	8.39 (3.41)	5.16 (1.49)
2	261	5.11 (2.17)	6.06 (3.23)	6.19 (2.41)	5.68 (4.35)	6.32 (2.47)	8.29 (3.49)	5.19 (1.63)
3	3,070	3.16 (1.86)	2.27 (3.06)	4.45 (3.05)	1.90 (2.81)	3.59 (2.46)	9.60 (1.67)	5.26 (2.17)

Panel E: Utilities

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	1,000	6.54 (1.50)	7.10 (2.02)	7.16 (1.68)	7.29 (3.78)	7.07 (1.31)	5.61 (3.44)	4.68 (1.25)
2	1,496	4.23 (1.54)	4.65 (2.95)	5.22 (1.82)	2.54 (3.27)	5.14 (1.58)	7.51 (2.62)	4.41 (1.76)
3	1,460	2.58 (1.87)	1.13 (2.35)	2.96 (2.25)	1.99 (2.54)	3.21 (2.60)	7.97 (2.33)	5.02 (2.24)

Panel F: Retail & Wholesale

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	705	6.47 (1.53)	6.82 (2.47)	7.83 (2.01)	5.14 (4.12)	7.03 (1.69)	9.04 (2.82)	5.78 (2.11)
2	877	3.74 (1.44)	3.67 (3.53)	5.63 (2.11)	1.88 (3.38)	4.99 (2.39)	9.62 (1.59)	6.13 (1.75)
3	1,185	2.34 (1.55)	0.67 (2.02)	2.91 (2.37)	0.72 (1.85)	2.87 (2.56)	9.58 (1.50)	6.23 (1.59)

Panel G: Service

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	601	5.18 (1.70)	5.72 (3.07)	8.18 (1.86)	6.18 (2.91)	6.36 (2.05)	7.53 (2.49)	6.99 (1.56)
2	148	3.75 (2.47)	3.59 (4.24)	5.22 (3.37)	6.11 (2.48)	4.10 (3.33)	8.21 (2.30)	7.09 (1.39)
3	911	2.40 (1.45)	1.16 (2.49)	4.37 (2.99)	6.05 (2.24)	2.94 (2.71)	7.96 (2.43)	7.08 (1.20)

Panel H: Health care

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	303	6.29 (1.48)	7.41 (1.75)	7.06 (1.43)	5.99 (3.99)	8.25 (1.09)	7.32 (3.11)	4.64 (1.67)
2	393	4.06 (1.63)	3.73 (3.42)	5.77 (1.54)	2.03 (3.29)	5.68 (1.69)	7.89 (2.64)	4.49 (2.47)
3	650	2.47 (1.55)	0.72 (2.18)	3.77 (2.40)	0.92 (1.99)	3.28 (2.73)	8.49 (2.13)	5.46 (2.38)

Panel I: ICT

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	1,316	6.41 (1.60)	7.05 (2.39)	7.31 (1.96)	5.98 (3.65)	7.07 (1.23)	4.92 (2.10)	4.53 (1.65)
2	1,153	3.97 (1.40)	3.63 (3.35)	5.59 (1.97)	1.62 (2.72)	5.27 (1.48)	5.29 (1.53)	4.72 (2.32)
3	2,048	2.49 (1.60)	0.71 (2.00)	3.36 (2.14)	1.07 (1.87)	2.80 (2.39)	5.50 (1.77)	5.73 (2.56)

Panel J: Food & beverages

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	381	6.96 (1.41)	6.90 (2.49)	8.13 (2.04)	8.06 (3.24)	6.90 (1.62)	5.87 (4.35)	4.67 (1.78)
2	363	4.15 (1.68)	4.75 (2.97)	5.77 (2.10)	3.33 (4.06)	5.00 (1.96)	8.91 (2.81)	3.73 (2.31)
3	450	2.17 (2.01)	1.09 (2.16)	2.77 (2.71)	1.92 (2.80)	2.68 (2.69)	9.18 (2.08)	5.44 (2.51)

Panel K: Manufacturing petrochemicals

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	971	6.92 (1.48)	7.40 (2.02)	6.74 (1.41)	6.61 (3.09)	7.77 (1.98)	6.74 (4.13)	4.75 (1.27)
2	893	4.22 (1.39)	4.67 (2.66)	5.29 (1.52)	2.90 (3.49)	5.05 (2.16)	9.11 (2.46)	4.84 (1.50)
3	1,383	2.60 (1.84)	0.90 (2.12)	3.80 (2.18)	1.42 (2.41)	2.05 (2.19)	9.35 (1.95)	5.54 (2.26)

Notes: Table 2 shows the aggregated average Asset4 ESG rating as well as the Wittkowski et al. (2004) ranks for CSR reporting, policies, targets, activities, controversies and performance, both on a 0 to 10 scale on an industry level. The first clusters represent corporate greenwashing firms, the second CSR-as-insurance and the third strategic CSR firms. Standard deviations are given in parentheses.

Table 3: The within cluster dispersion of promised to realised CSP ranks.

Panel A: Strategic CSR

		Realised CSP											
		-7	-6	-5	-4	-3	-2	-1	0	1	2	3	Total
	-4	0	3	9	22	53	96	236	341	638	550	214	2,162
	-3	0	3	10	43	122	208	404	469	748	586	218	2,811
	-2	0	8	14	45	112	170	407	513	699	409	138	2,515
	-1	0	8	10	41	93	116	344	466	647	361	135	2,221
	0	0	2	16	35	38	97	218	348	430	294	74	1,552
Promised CSP	1	0	8	9	26	35	51	124	212	299	162	52	978
	2	1	7	5	19	23	17	71	96	141	65	37	482
	3	0	3	7	18	12	6	26	64	86	31	12	265
	4	0	1	2	0	4	1	2	14	27	14	8	73
	5	0	0	0	1	2	0	1	0	4	6	1	15
	6	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1	43	82	250	494	762	1,833	2,523	3,719	2,478	889	13,071

Panel B: CSR-as-insurance

		Realised CSP											
		-7	-6	-5	-4	-3	-2	-1	0	1	2	3	Total
	-4	0	0	0	0	0	0	1	6	9	22	4	42
	-3	0	1	1	7	8	8	26	34	64	46	17	212
	-2	0	8	10	30	69	104	137	125	148	191	42	864
	-1	0	7	15	41	77	84	188	213	258	221	46	1,150
	0	1	9	23	36	66	107	189	292	343	236	51	1,353
Promised CSP	1	0	3	15	39	58	93	148	261	238	147	39	1,041
	2	1	2	13	23	41	52	138	157	179	96	12	714
	3	1	3	8	31	23	30	99	181	140	79	9	604
	4	0	1	16	19	21	10	37	85	97	36	7	329
	5	0	3	6	5	3	4	8	13	24	10	1	77
	6	0	0	0	4	2	1	1	0	1	0	1	10
	Total	3	37	107	235	368	493	972	1,367	1,501	1,084	229	6,396

Panel C: Corporate greenwashing

		Realised CSP											
		-7	-6	-5	-4	-3	-2	-1	0	1	2	3	Total
	-4	0	0	0	0	0	0	0	0	0	0	0	0
	-3	0	0	0	0	1	1	2	0	0	0	0	4
	-2	0	0	0	0	2	2	10	8	2	5	3	32
	-1	0	1	3	2	15	9	7	13	30	17	4	101
	0	0	1	11	13	37	25	37	77	80	81	17	380
Promised CSP	1	0	6	22	46	71	71	82	144	205	147	21	815
	2	0	14	43	70	133	85	131	277	337	160	39	1,289
	3	0	7	62	132	170	191	196	324	432	219	42	1,775
	4	2	15	91	188	190	183	149	357	378	142	25	1,720
	5	1	5	37	129	72	57	41	108	174	44	8	676
	6	0	1	0	17	6	5	0	7	6	3	0	45
	Total	3	50	269	597	698	629	655	1,315	1,644	818	159	6,837

Notes: Table 3 shows the within cluster dispersion of promised to realised CSP for strategic CSR, CSR-as-insurance, and corporate greenwashing firms. Specifically, promised and realised CSP ranks are defined as respectively the deviation of CSR reporting, policies, activities, and targets, and CSR controversies and performance from their sample means. For example, a positive deviation in realised CSP implies that a firm performs better in terms of CSR controversies and performance than the average. Each cell represents the number of firm-year observations with a given rounded promised and realised CSP rank.

Table 4: The impact of current promised CSP on future realised CSP.

VARIABLES	Reporting	Policy	Activity	Target
$Controversy_{i,t}$	-0.091***	-0.086***	-0.090***	-0.121***
	(0.018)	(0.013)	(0.014)	(0.020)
$Controversy_{i,t+1}$,	-0.086***	-0.025*	-0.031**	-0.058***
	(0.020)	(0.014)	(0.015)	(0.022)
$Controversy_{i,t+2}$,	-0.033*	-0.023*	-0.048***	0.004
	(0.020)	(0.014)	(0.015)	(0.022)
$Controversy_{i,t+3}$,	-0.046**	-0.038***	-0.037**	-0.011
	(0.019)	(0.013)	(0.014)	(0.021)
$Controversy_{i,t+4}$,	-0.047***	-0.051***	-0.048***	-0.044**
	(0.018)	(0.013)	(0.014)	(0.020)
$Controversy_{i,t+5}$,	-0.049***	-0.040***	-0.042***	-0.026
	(0.017)	(0.012)	(0.013)	(0.019)
$Performance_{i,t}$	-0.135***	-0.070***	-0.054**	-0.078***
	(0.028)	(0.020)	(0.022)	(0.028)
$Performance_{i,t+1}$,	-0.008	-0.029	-0.039	-0.006
	(0.034)	(0.025)	(0.028)	(0.035)
$Performance_{i,t+2}$,	-0.059*	-0.024	-0.018	-0.007
	(0.036)	(0.028)	(0.031)	(0.038)
$Performance_{i,t+3}$,	-0.018	-0.017	-0.058*	0.009
	(0.039)	(0.030)	(0.033)	(0.041)
$Performance_{i,t+4}$,	0.028	-0.021	-0.022	0.027
	(0.041)	(0.031)	(0.034)	(0.041)
$Performance_{i,t+5}$,	0.004	-0.076***	-0.012	-0.039
	(0.036)	(0.028)	(0.029)	(0.037)
Constant	7.494***	8.403***	8.120***	6.699***
	(0.159)	(0.113)	(0.116)	(0.174)
Observations	8,818	8,818	8,818	8,818
Adjusted R-squared	0.069	0.082	0.084	0.030

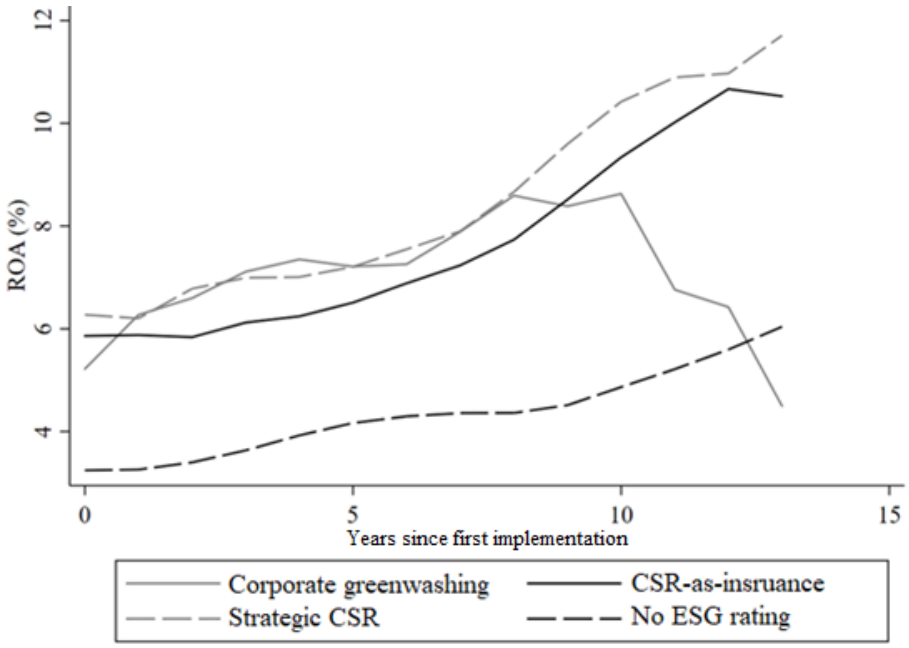
Notes: Robust standard errors in parentheses in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively. All dependant and independent variables in this regression represent Wittkowski et al. (2004) ranks. CSR reporting, policy, activity, and target ranks are $_{i,t}$.

Table 5: The Fama & French (2015) 5-Factor model for strategic CSR, CSR-as-insurance, and corporate greenwashing firms.

	Strategic CSR		CSR-as-insurance		Corporate greenwashing	
Parameters	Estimates	t	Estimates	t	Estimates	t
Intercept	0.001***	2.23	-0.001	0.70	-0.001***	-2.74
Market	0.995***	8.58	0.943***	8.62	0.951***	10.53
SMB	0.479***	2.23	0.297	1.41	0.125	0.58
HML	0.005*	0.05	0.027	0.14	0.083	0.33
RMW	-0.075	-0.20	-0.013	-0.22	0.091	0.20
CMA	-0.149	-0.47	-0.107	-0.44	-0.057	-0.30
N	125,66		60,924		67,873	
Annualised alpha	1.42%***		-0.38%***		-1.33%***	

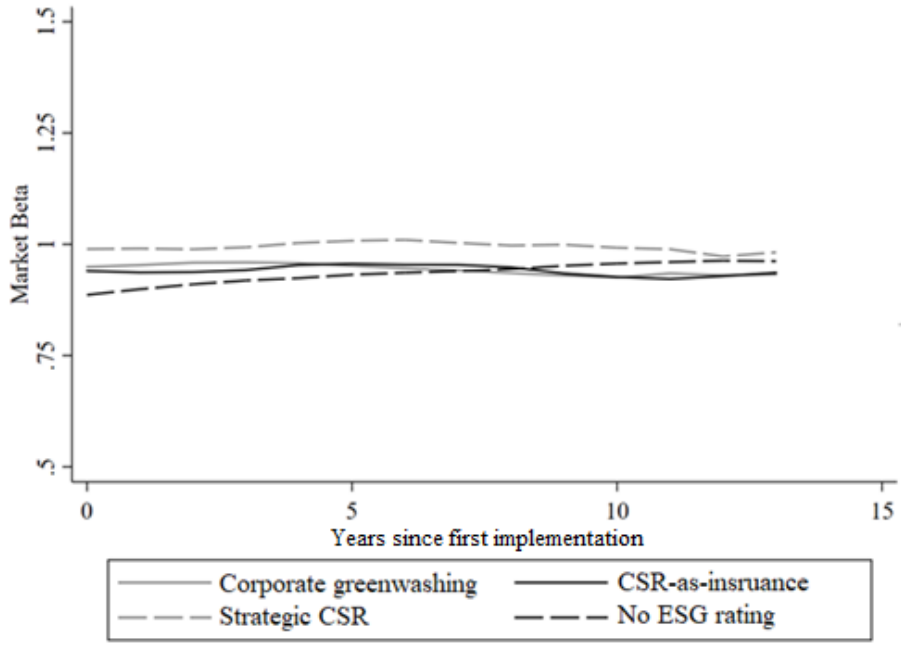
Notes: Table 5 shows the estimated coefficients of the (Fama & French, 2015) 5-factor model in an international setting (Fama & French, 2015, 2017). For firms in the United States, Europe, the Asian-Pacific region and Japan, the corresponding Fama and French factors have been retrieved from the Kenneth French website (French, 2020). For firms in Canada and Mexico and Latin America, Africa and the Middle East, we respectively employ the North American and Emerging Markets factors. The annualised alphas are value-weighted and winsorised at the 5% and 95% level. *, ** and *** denote significance at the 10%, 5% and 1% level.

Figure 1: Long-term profitability of strategic CSR, CSR-as-insurance, and corporate greenwashing firms for multiple time-horizons



Note: Figure 1 shows the current and future return on assets of strategic CSR, CSR-as-insurance, and corporate greenwashing firms. The return on assets is captured up to 13 years in the future to capture the long-term impact of CSR on firm profitability. For each CSR approach, we have at least 100 firms in every period.

Figure 2: The market risk of strategic CSR, CSR-as-insurance, and corporate greenwashing firms for multiple horizons



Note: Figure 2 shows the current and future Fama & French (2015, 2017) market beta for strategic CSR, CSR-as-insurance, and corporate greenwashing firms and firms without Asset4 ESG ratings. The market beta is captured up to 13 years in the future to capture the long-term impact of CSR on firm profitability.

Online Appendices

Appendix A Data cleaning and summary statistics

A.1 Missing and too specific observations

We cannot use all granular CSR information that the Asset4 database encompasses. We need to reconstruct or remove select variables as they contain too many missing observations to be useful, some variables are irrelevant due to their narrow scope and some variables inherently measure the same thing as other variables for complementary parts of the sample. By removing these variables, we reduce the number of granular CSR variables from 466 to 186, approaching the strict selection procedure of Asset4 who retain 177 relevant variables (Refinitiv, 2020).

We do not include granular CSR variables with less than 500 relevant observations (out of the 26,411) as including these variables would over represent the impact of outliers on our analysis. Many controversy variables, especially recent controversies, contain fewer than 50 observations and are thus too narrow to be considered in our analysis. This includes recent controversies regarding the health and safety of customers and customers in general, responsible marketing, product access, business ethics, management team compensation, intellectual property, responsible R&D, anti-competition, wage working conditions, diversity, privacy, employee health and safety, critical countries, shareholder rights, insider trading, accounting and tax fraud. Moreover, we also observe insufficient observations regarding non-recent controversies related to human rights, child labour, environmental controversies in critical countries and critical countries in general, product access, freedom of association and insider trading.

In addition to controversies, there are a set of natural resource and emission related CSR variables that are too narrow to contain many observations. This list includes policies regarding the divestment of fossil flue, indirect energy use, cement energy use, the supplied renewable energy , cement co2 emissions, internal carbon pricing per tonne and in general, total hazardous $\frac{waste}{revenue}$, $\frac{waterpollutantemissions}{revenue}$ and fleet CO_2 emissions and fuel consumption.

Furthermore, we observe insufficient information regarding revenue from environmental products, equator principals or equator environmental projects, company cross shareholding,

supply chain health and safety impairments, abortifacients, drug delays, FDA warning letters, not approved drug, recent FDA warning letters, product delays, alcohol revenue, gambling revenue, tobacco revenue, armament revenue, employee resource groups, expanded constituency provisions, community lending and investment, the percentage of certified quality management systems and the production of cluster bombs, landmines and firearms, litigation expenses, fair price provision, energy produced directly, unlimited authorised capital, carbon offsetting credits, advance notice period, written consent requirements, non-audit / audit fees ratio, auditor tenure, golden parachute, water discharged total donations, earning restatement, profit warnings, ESM certificated (%), GMO products, iso 9k, training costs total, and HIV/aids programs.

We do not consider shareholder rights in our identification of companies with similar CSR approaches. The CSR approach of a company should capture its impact on society that is not driven by the interests of the firm nor required by law (McWilliams & Siegel, 2001). As shareholder rights are directly related to the interest of the company, they do not align with this definition. Moreover, the SASB materiality index does not provide an allocation of shareholder rights, as the main focus of its materiality map regards stakeholders in a broader sense. Consequently, we do not consider shareholder rights policy, policy equal voting rights, policy shareholder engagement, different voting rights per share, equal shareholder rights, voting cap, voting cap (%), minimum number of shares to vote director election majority requirement, shareholder vote on executive positions, public availability corporate statement, veto power or golden shares, state owned enterprise identifier, anti-takeover devices larger than two, percentage supermajority vote requirement, limited shareholder rights, elimination of cumulative voting, pre-emptive rights, confidential voting policy, limitation of director liability, shareholder approval significant, limitations on removal of director, or advance notice for shareholder propositions.

A.2 Normalisation

The Asset4 database contains a significant number of granular CSR information that measure the same underlying CSR component. To enhance our clustering analysis, we compile such variables to improve our cover of the dataset and to prevent overweighing specific aspects of

CSR. However, not all CSR variables are of similar scope. For example, water recycled as a percentage of total water usage and water recycled in cubic meters measure the same underlying CSR component, but cannot be directly compared due to differences in magnitude. Moreover, our clustering analysis is sensitive to the magnitude of variables. To correct for this, we divide the total energy use, direct energy purchases, indirect energy use, electricity purchased, renewable energy purchased, total renewable energy use, renewable energy use, water withdrawal, fresh water withdrawal, water recycled, CO_2 equivalent emissions, direct CO_2 equivalent emissions, indirect CO_2 equivalent emissions, estimated CO_2 equivalent emissions, carbon offsetting credits, flaring gasses, total waste, non-hazardous waste, recycled waste, water discharged, water pollutant emissions, environmental expenditures, environmental provisions, self-reported environmental fines, environmental R&D expenditures, salaries and wages, training costs, donations, community lending and investment, political contributions, and lobbying contributions by the total assets of the firm. Furthermore, to increase the comparability of granular CSR variables, we normalize all non-binary variables on an industry level and constrain them to five standard deviations from the mean.

After reconstructing our variables, we combine highly similar CSR variables regarding ISO 14000 or EMS classifications, estimated CO_2 emissions, waste recycling ratios, hazardous waste ratios, controversies concerning the responsible market, health and safety policies, employee health safety teams, lost time injury rates, salary gaps, environmental expenditures (due to investments), supply chain management activities, partnerships and investments in environmental initiatives, supply chain health safety policies, renewable energy, labelled wood, agrochemical revenue, anti-competition controversies, total waste to revenue, policy business ethics, animal testing, and human rights policies.

In addition, we split the board structure in multiple dummies, covering unitary board structures, two trier board structures and mixed board structures. We include the identifiers for VOC and particulate matter emissions in their joint identifier to improve coverage. We append information about water withdrawal and fresh water usage to the total water. We combine information concerning total employee turnover, voluntary employee turnover and involuntary turnover. We enhance training and development policies with information regarding skills

trainings, management training, and career development, as they measure a similar aspect of CSR and are all endogenous to the firm. When information is missing for the total number of training hours, we use the average training hours per employee and the training costs as a replacement. We proxy missing net employment creation observations by the number of employees. We supplement women employee information by regarding new women employees or women managers data. We enhance the coverage of our policy on board diversity variable by including the percentage of board or executive gender or cultural diversity. We reduce the number of missing observations for the contractor injury rate by introducing contractor accidents, fatalities and lost time injury rates. We collect information on direct energy purchases, electricity purchases, renewable energy purchases, the amount of energy used as a share of total revenue, and amount of renewable energy used to create an augmented ratio of energy consumption divided by total revenue and a renewable energy over total energy consumption ratio. We remove information concerning poison pill adoption and expiration dates as we already observe whether a company has a poison pill. Finally, we capture information related to classified or staggered board structures by considering both board composition and take-over prevention mechanisms though our singular, mixed or two-tier board structure and poison pill identifiers.

For more details on the controversy allocation as well as the geographical and industry composition of our sample, see respectively Tables (A.1) to (A.3).

Table A.1: Industry decomposition

Industry	N
Mining	2,419
Construction	903
Manufacturing non-food, non-petrochemicals	4,419
Utility	3,943
Retail & Wholesale	2,766
Service	1,693
Health care	1,340
ICT & ICT equipment	4,506
Food & Beverages	1,196
Manufacturing petrochemicals	3,226
Total	26,411

Notes: Table A.1 discloses information about the industries for each of the firm-year observations in our sample. The industries are chosen to match the available information from SIC and NAICS classifications from Refinitiv, Compustat US, Compustat Global, and FactSet. The industries are aggregated to a industry level to accommodate the industry classification presented by the SASB Materiality map (SASB, 2021).

Table A.2: Controversies by industry

Controversies	Mining	Construction	Generic Manufacturing	Utilities	Retail & Wholesale	Service	Health care	ICT	Food & beverages	Manufacturing petrochemicals
Accidental spills	x			x						x
Accounting				x						
Anticompetitive	x	x	x	x		x		x	x	x
Bribery, corruption and fraud	x	x		x	x	x	x	x		x
Business ethics	x		x		x	x	x	x		x
Consumer complaint			x		x		x		x	x
Consumer health		x	x	x	x	x	x	x	x	x
Environmental	x	x		x					x	x
Intellectual property			x	x	x	x	x	x		x
Privacy						x	x	x		
Product quality		x	x		x	x	x	x	x	
Public health	x				x		x		x	x
Responsible marketing		x	x	x	x	x	x	x	x	x
Tax fraud	x		x	x		x		x		x
Wage working condition	x				x	x			x	

Notes: Table A.2 presents an overview which controversies we deem material for which industries. We need to manually assign some controversies to the SASB materiality map as they do not always match perfectly (SASB, 2021).

Table A.3: Domicile decomposition

Country	N	Country	N	Country	N	Country	N	Country	N	Country	N
Argentina	38	Czechia	8	Iman	21	Mexico	114	Poland	230	Taiwan	602
Australia	1,943	Germany	767	India	517	Malta	4	Portugal	69	Uganda	1
Austria	123	Denmark	295	Ireland	226	Mauritius	5	Qatar	15	United Arab Emirates	12
Belgium	188	Egypt	21	Israel	89	Malaysia	212	Romania	21	United Kingdom	2,379
Bahrain	2	Finland	256	Italy	288	Netherlands	327	Russia	117	Unites States	6,895
Bermuda	333	France	851	Japan	3,479	Norway	162	Saudi Arabia	31	Virgin Islands	3
Brazil	361	Faroe Islands	1	Jersey	39	New Zealand	200	Singapore	249	South Afrika	583
Canada	865	Guernsey	3	Kazakhstan	1	Oman	9	Slovenia	2	Yemen	37
Chili	109	Gibraltar	1	Kenia	1	Pakistan	4	Spain	317	Zimbabwe	9
China	473	Greece	97	Korea	403	Panama	11	Sweden	450	**Total**	26,411
Colombia	25	Hong Kong	191	Kuwait	15	Peru	32	Switzerland	483		
Cayman Islands	339	Hungary	26	Luxembourg	73	Philippines	61	Thailand	116		
Cyprus	18	Indonesia	126	Morocco	5	Papua New Guinea	4	Turkey	56		

Notes: Table A.3 decomposes the corporations by domicile, considering the firm-year observations across the sample of 2003 to 2019. Our findings are unadjusted when we remove firms from countries with less than 10 observations.

Appendix B Number of clusters

A k-means clustering algorithm is a classification tool that considers similarities in a multivariate setting to identify groups of distinct clusters (MacQueen, 1967; Hair, 2013; Jain, 2010). The algorithm uncovers comparable observations by first assigning k random companies as initial cluster means, for which k represents the number of clusters (MacQueen, 1967). In a second step, it determines the joint distance of all variables to the k initial cluster means for each observation to identify the smallest distance. Subsequently, it assigns each observation to the cluster with the smallest distance to later compute the cluster means using the updated cluster allocation. This process is repeated until each observation is more closely associated to its current cluster mean than to all the other cluster means and thus no observation changes cluster (Anderberg, 2014). The k-means clustering algorithm requires a predefined number of clusters, k, to perform its clustering analysis (MacQueen, 1967).

We anticipate to find three distinct clusters as we hypothesize that firms approach strategic CSR, CSR-as-insurance, and corporate greenwashing. To illustrate the importance of an accurate number of clusters we show what happens when k is suboptimal. When we choose an insufficient number of clusters, not every CSR approach can be identified as a share of the firms is assigned a wrong cluster by definition. On the other hand, when we assign a surplus of clusters, we create multiple clusters for a single CSR approach or near-empty clusters. For this reason, we validate our clustering analysis when we show that our hypothesised three clusters, one for every CSR approach, is optimal (Punj & Stewart, 1983; Ketchen & Shook, 1996).

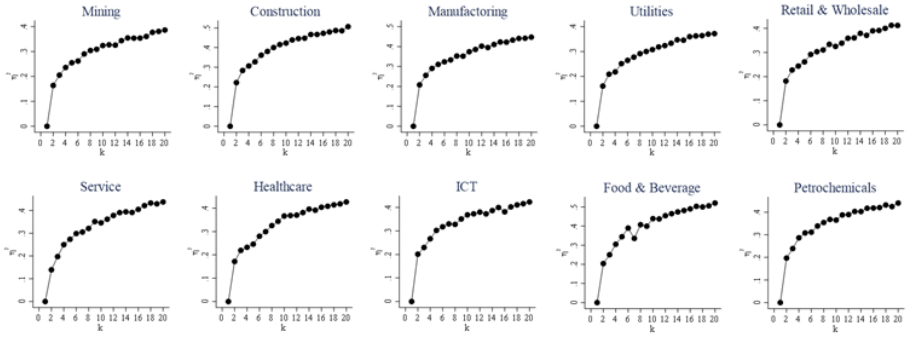
We empirically verify that three clusters provides an optimal solution by considering a goodness of fit measure. Equation 1 displays our goodness of fit measure, η_k^2, which considers the share of variation in granular CSR data that is explained by our clustering mechanism for different numbers of clusters, k. The WSS_j represents the weighted sum of squared variation of all granular CSR observations in cluster j. Likewise, the TSS represents the sum of all squared variation in granular CSR observations. This goodness of fit measure strongly resembles the R^2 of a linear regression model and is frequently used in literature (Punj & Stewart, 1983). We determine the optimal number of clusters k by identifying the point in which the marginal increases of η_k^2 converge in the $k+1$ cluster Ketchen & Shook (1996); Tibshirani, Walther &

Hastie (2001). In addition, we require each cluster to contain at least 5% of the firms to ensure cluster validity and statistical relevance.

$$\eta_k^2 = 1 - \frac{\sum_{j=1}^{j=k} WSS_j}{TSS} \tag{1}$$

Figure B1 shows the η_k^2 for each industry separately for one to twenty clusters. We see the largest marginal increase in η_k^2 for low values of k, indicating that there are but a few distinct CSR approaches in each industry. Specifically, we find three diverging CSR clusters for firms in the mining, construction, general manufacturing, utilities, retail & wholesale, and health care industries and four clusters for companies in the service, ICT, food manufacturing, and petrochemical manufacturing industries. However, we are forced to constrain the industries with four clusters to three clusters as firms either attain near empty clusters or provide near identical CSR approaches in two clusters. The resulting η_k^2 are 20.53%, 28.34%, 25.56%, 20.90%, 22.27%, 19.74%, 21.93%, 22.97%, 24.99%, and 23.90% for respectively the mining, construction, general manufacturing, utilities, retail & wholesale, service, health care, ICT, manufacturing food & beverages, and manufacturing petrochemicals industries. The average η_k^2 is 23.08%, indicating that the k-means clustering algorithm explains on average 48.04% of the variation in granular CSR information across industries. Moreover, the validity of the clustering procedure is supported by the pronounced rate of the marginal η_k^2 increases (Hambrick & Schecter, 1983) and the single natural kink in the η_k^2 plot (Aldenderfer & Blashfield, 1984). In addition, both the η_k^2 and the number of clusters are similar across industries, indicating that our clustering procedure persists in multiple subsamples of our dataset (Hambrick & Schecter, 1983; Lange, Roth, Braun & Buhmann, 2004). When we perform a principal component analysis on out granular CSR data, we observe that the first three components respectively explain 23%, 6% and 5% of the joint variation. Therefore, our clustering analysis is not driven by selected variables, but captures the multifaceted nature of CSR.

Figure B.1: The goodness of fit for multiple clusters by industry



Note: Figure B.1 represents the goodness of fit, η_k^2, using Equation (1) on an industry level, similar to an R^2 in a linear regression.

Appendix C A United States sub-sample clustering analysis

We demonstrate that our clustering results are robust for a Unites States subsample. Our international sample allows us to observe CSR approaches in all the major economies around the world. However, country specific sustainability divergence in firm, investor (Van Duuren et al., 2016; Krueger et al., 2020) or regulatory (Ioannou & Serafeim, 2017) preferences might drive our CSR approach classification. To verify whether our clustering analysis provides robust CSR aproaches for a subset of our data, we perform a separate analysis solely for firms domiciled in the Unites States. Specifically, we analyse a United States subsample on an industry level to benchmark our results to prior literature and to retain a sufficiently large number of observations.[6]

We find similar CSR approaches in the United States compared to our international sample. Similar to Table 2, Table C.1 shows the Asset4 ESG rating and CSR reporting, policy, activity, target, controversy, and performance ranks across clusters on an industry level for firms domiciled in the United States. For every industry, we identify a cluster of firms that performs corporate greenwashing, a cluster of firms that performs strategic CSR and a cluster of firms that performs CSR-as-insurance. We observe that the first cluster of firms in every industry perform corporate greenwashing, as these firms have the highest average Asset4 ESG rating and CSR reporting, policy, activity, and target ranks, with the lowest CSR controversies and per-

[6]US CSR approaches are similar to our worldwide sample since our findings are similar when we perform a new clustering analysis on US data or simply take a US subset of the old clustering analysis. Please note that the US construction industry provides only 15 observations in the first cluster and 21 observations in the second cluster. Therefore, we should be careful to draw any conclusions based on just this industry.

formance ranks. That is, they have an average Asset4 ESG rating and CSR reporting, policy, activity, and target, controversy and performance ranks of respectively 6.70, 7.81, 7.66, 5.78, 6.59, and 4.81. Corporate greenwashing firms constitute 19.16% of the United States firm-year observations.

The last clusters in every industry of Table C.1 represent a group of strategic CSR firms . We distinguish strategic CSR firms by their low CSR reporting, policy, activity, and target ranks with high CSR controversy and performance ranks. Notably, the have CSR reporting, policy, activity, and target, controversy, and performance ranks of respectively 0.50, 3.77, 1.24, 3.11, 8.06, and 5.54. Strategic CSR firms encompass 59.96% of the firm-year observations, which is slightly more than the 49.51% in our worldwide sample.

We observe CSR-as-insurance in all but the service, health care and food manufacturing industries. For the service, health care and food & beverages industries, we only observe two distinct clusters due to an insufficient number of observations or by default of our clustering algorithm. These clusters contain firms for which firms approach strategic CSR or corporate greenwashing. For the other industries, we observe that the second cluster of firms approaches CSR-as-insurance given its average CSR reporting, performance, activity, target, and performance ranks and good controversy ranks. That is, CSR-as-insurance firms have CSR reporting, policy, activity, and target, controversy and performance ranks of respectively 2.30, 6.49, 5.34, 2.08, 7.78, and 4.99. CSR-as-insurance firms in the United States cover 20.43% of the firm-year observations. Given the above, firms in the United States are comparable to firms in other parts of the world in both the nature as well as the distribution of CSR approaches.

Table C.1: The performance of clusters across Asset4 ESG rating, CSR reporting, policy, activity, target, controversy, and performance ranks for a US sub-sample.

Panel A: Full US sub-sample

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	1,310	6.42 (1.60)	6.69 (3.38)	7.79 (2.26)	5.81 (4.14)	7.46 (1.80)	6.601 (3.78)	4.79 (2.68)
2	1,358	3.72 (1.51)	2.27 (3.53)	6.49 (2.29)	2.01 (3.20)	5.37 (2.19)	7.77 (2.94)	5.01 (2.83)
3	4,007	2.54 (1.56)	0.50 (1.77)	3.76 (2.62)	1.23 (2.13)	3.10 (2.72)	8.06 (2.70)	5.55 (2.67)

Panel B: Mining

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	91	6.34 (1.68)	7.38 (3.30)	8.46 (1.25)	6.21 (3.48)	8.33 (1.18)	6.21 (3.90)	4.49 (2.36)
2	257	2.62 (1.61)	1.14 (2.76)	5.12 (2.52)	4.82 (3.04)	4.99 (2.25)	8.07 (2.91)	5.19 (3.01)
3	147	1.18 (0.75)	0.30 (1.48)	2.35 (2.36)	4.58 (2.60)	2.63 (2.48)	7.94 (2.21)	5.69 (2.75)

Panel C: Construction

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	21	6.61 (1.26)	9.24 (1.19)	9.07 (2.19)	2.20 (0.61)	7.19 (2.21)	6.52 (2.93)	4.62 (3.08)
2	23	2.99 (1.26)	0.83 (2.62)	6.69 (1.79)	2.36 (0.00)	6.84 (1.73)	8.38 (1.18)	3.48 (2.86)
3	122	2.18 (1.07)	0.81 (1.66)	3.00 (3.12)	2.47 (0.54)	4.08 (3.15)	7.77 (1.69)	5.17 (2.85)

Panel D: Manufacturing (non-food, non-petrochemical)

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	219	6.28 (1.69)	6.71 (3.45)	7.89 (2.18)	6.27 (4.39)	7.81 (1.50)	8.73 (3.08)	4.86 (2.21)
2	228	3.71 (1.36)	1.59 (3.19)	8.26 (2.36)	0.57 (1.53)	4.22 (2.56)	9.64 (1.61)	5.35 (2.89)
3	678	2.71 (1.57)	0.64 (2.06)	3.59 (2.74)	1.19 (2.32)	3.22 (2.56)	9.48 (1.71)	5.12 (2.57)

Panel E: Utilities

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	175	6.65 (1.18)	7.32 (2.14)	7.70 (1.59)	6.72 (4.12)	7.60 (1.45)	5.80 (3.89)	3.56 (1.75)
2	237	4.36 (1.25)	3.47 (3.73)	6.06 (1.99)	1.58 (2.83)	5.91 (1.78)	8.10 (3.02)	4.41 (2.33)
3	441	2.82 (1.79)	0.60 (1.84)	3.67 (2.69)	1.43 (2.45)	3.56 (2.72)	8.53 (2.54)	5.01 (2.43)

Panel F: Retail & Wholesale

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	164	6.58 (1.39)	6.32 (3.59)	8.34 (2.06)	4.38 (4.30)	7.46 (1.79)	8.27 (3.53)	6.16 (3.24)
2	172	3.60 (1.26)	1.57 (3.22)	6.36 (1.94)	0.74 (2.30)	5.06 (2.75)	9.20 (2.44)	6.78 (2.48)
3	463	2.71 (1.52)	0.39 (1.70)	3.50 (2.51)	0.79 (1.75)	3.21 (3.00)	9.33 (1.80)	6.41 (2.18)

Panel G: Service

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	107	5.36 (1.60)	5.43 (4.27)	8.16 (1.86)	2.87 (2.07)	7.46 (2.34)	6.91 (3.16)	6.18 (3.17)
2	288	2.34 (1.22)	0.61 (1.59)	3.92 (3.02)	2.78 (1.15)	3.24 (3.03)	7.48 (3.06)	6.12 (2.09)

Panel H: Health care

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	101	5.01 (1.67)	4.77 (4.50)	7.47 (1.70)	2.27 (3.74)	7.99 (1.40)	7.82 (3.47)	5.90 (2.94)
2	404	2.66 (1.55)	0.62 (2.13)	4.60 (2.47)	0.69 (1.60)	4.07 (3.03)	8.79 (2.86)	4.89 (2.82)

Panel I: ICT

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	222	6.77 (1.53)	7.30 (3.05)	8.16 (1.92)	6.17 (3.73)	7.77 (1.17)	4.82 (2.41)	4.11 (2.52)
2	309	4.10 (1.32)	2.52 (3.66)	6.65 (1.99)	1.94 (3.18)	6.00 (1.38)	5.20 (1.91)	4.56 (2.85)
3	899	2.51 (1.45)	0.37 (1.66)	3.86 (2.28)	0.61 (1.28)	3.12 (2.39)	5.27 (1.77)	5.80 (2.89)

Panel J: Food & beverages

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	145	6.76 (1.46)	5.84 (3.23)	5.85 (3.85)	7.62 (3.77)	6.81 (2.45)	5.89 (4.16)	4.22 (2.58)
2	121	2.49 (2.25)	0.68 (1.65)	2.87 (3.34)	2.05 (2.86)	2.92 (3.23)	8.07 (3.36)	5.84 (3.47)

Panel K: Manufacturing petrochemicals

Cluster	N	Asset4	Reporting	Policy	Target	Activity	Controversy	Performance
1	157	7.33 (1.10)	7.93 (2.05)	8.11 (1.31)	7.89 (2.72)	7.97 (1.79)	4.73 (4.28)	4.77 (2.16)
2	167	4.12 (1.51)	3.92 (3.83)	6.64 (1.45)	2.17 (3.68)	5.47 (1.94)	8.38 (3.23)	4.13 (2.52)
3	534	2.46 (1.55)	0.34 (1.39)	4.19 (2.35)	0.79 (1.91)	1.69 (1.99)	9.35 (1.87)	5.46 (2.57)

Notes: Table C.1 shows the average Asset4 ESG rating as well as the aggregated performance on CSR reporting, policies, activities, targets, controversies, and performance across our ten industries for the subset of companies in the United States. Standard deviations in parenthesis.