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Every Little Helps? ESG News and Stock Market Reaction

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Abstract Stories about corporate social responsibility have become very frequent over the past decade, and managers can no longer ignore their impact on firm value. In this paper, we investigate the extent and the determinants of the stock market's reaction following ordinary news related to environmental, social and governance issues—the so-called ESG factors. To that purpose, we use an original database provided by Covalence EthicalQuote. Our empirical analysis is based on about 33,000 ESG news (positive or negative), targeting one hundred listed companies over the period 2002–2010. On average, firms facing negative events experience a drop in their market value of 0.1%, whereas companies gain nothing on average from positive announcements. We find also that market participants are responsive to the media, but they do not react to firms' press releases or to NGOs' disclosures. Moreover, our results indicate that sector's reputation mitigates the loss (the goodwill hypothesis) and that cultural proximity and lexical contents of ESG disclosures play a significant role in the magnitude of the impact.

Keywords Corporate social responsibility · Socially responsible investing · ESG news · Disclosure · Event study

Introduction

> "Even the largest avalanche is triggered by small things." Vernor Vinge[1]

Companies are used to coping, almost everyday, with one or several news concerning their social responsibility. Certainly, the debate on corporate social responsibility (CSR) and what should be the firm's objective(s) is not settled. There are still lively controversies on this question (Portney 2008; Porter and Kramer 2011), but whatever the answer, evidence suggests that environmental, social or corporate governance concerns—the so-called ESG factors—may impact firm value and managers can no longer ignore this.

Recent history provides many instances where bad corporate social responsibility caused huge economic and financial losses. Consider, for instance, the Deepwater Horizon oil spill in April 2010: 3 months after the disaster, BP had lost half its share value, which represents tens of billions dollars (Smith et al. 2011). Some even reported that, given the size of the company, the oil spill impacted the UK economy as a whole. The Fukushima Daiichi nuclear disaster in March 2011 is a dramatic example too. Admittedly, the accident is the direct consequence of the Great East Japan Earthquake, but the extent of the accident is also related to governance failures by TEPCO, whose market value has collapsed (Kawashima and Takeda 2012;

[1] The Coming Technological Singularity, 1993.

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Lopatta and Kaspereit 2014). Another recent example, albeit much less dramatic, is the Moncler scandal: in November 2014, after a television report showed geese being mistreated while being plucked by jacket makers, the market value of the Italian luxury outerwear company decreased by 6%.

However, beyond anecdotal evidence, we know little about the impact of ESG news on firm value, on a day-to-day basis. Recently, two papers provide interesting insights.[2] First, Krueger (2015) studies how stock markets react to positive and negative ESG events and provide evidence that investors respond strongly negatively to negative events and weakly negatively to positive events. Second, Aouadi and Marsat (2016) have investigated the relationship between ESG controversies and firm market value using a dataset of more than 3000 ESG controversies provided by Asset4 Thomson Reuters. They show that higher CSP score has an impact on market value (Tobin's Q) only for high-attention firms, located in countries with greater press freedom, more searched on the Internet, more followed by analysts, and with an improved corporate social reputation. Thus, these findings provide new insights on the role of firm visibility through which firms can profit from their CSP. These results are appealing and, in this paper, we attempt to contribute to this burgeoning literature.

In this study, we investigate the stock market's reaction to about 33,000 ESG news from 2002 to 2010 targeting one hundred multinational companies listed among the largest in the world. To that purpose, we use an original dataset provided by Covalence EthicalQuote, a Geneva-based firm specialized in ethical quotation.[3] The large number of news allows us to perform a robust-event study. The Covalence classification is used to build a range of variables of interest, such as the type, the source or the region of occurrence of an event. First, we globally examine the direct impact of positive and negative ESG news on firms' stock market capitalization and the consequences on shareholders' wealth. Second, we seek to determine whether certain characteristics of the news or of the targeted firm affect this impact. Thanks to the wide spectrum of events, we are able to implement multidimensional regressions to determine the main drivers of abnormal returns and which features have a key impact.

The richness of the database allows us to test a broad set of hypotheses. We first set apart positive and negative ESG news and examine a possible asymmetric impact. We also consider whether shareholders' perception is different whether the news is related to environmental, social or corporate governance issues. Further, we pay attention to the source of the news. Is the impact the same whether the news is published by the media, the firms themselves or NGOs? And do shareholders react differently when the news is published in a financial newspaper or a media devoted to CSR? We also investigate whether the impact of CSR on stock prices has evolved over time, and whether geographic and cultural proximity between events and shareholders matters. We also carry out a content (textual) analysis to characterize more precisely each news. Finally, we test whether the reputation may serve as a "reservoir of goodwill" in times of crisis.

Our results show that firms coping with ESG negative events experience a low but significant drop in their market value. On average, in our sample, the decrease is of 0.1% on a window of 3 days around the announcement. On the contrary, companies coping with positive events do not experience any significant change in their market value. In addition, it seems that stock market penalties do not vary significantly over time, which challenges the conventional idea of a raising awareness on ESG issues. Our results also indicate that sector's ESG reputation mitigates the loss and that market participants only react to information disclosed by the media and not to firm press releases; in other words, investors do not seem to be fooled by the efforts of companies to appear at their best. Finally, the loss is larger when there is a cultural proximity between shareholders and the event and when the content of a news has a quantitative, an economic or a legal orientation.

This research might have a number of important implications for both shareholders, companies and activists concerning CSR disclosures. Indeed, this paper provides guidance to understand when ESG news are likely to influence firm's value. This paper also contributes to the literature on greenwashing effectiveness and NGOs influence. Furthermore, our contribution is not limited to CSR issues as our work may be related to the growing body of economic research on how shareholders process information.

The reminder of the paper is organized as follows. "Related Empirical Papers" section surveys the related literature about the impact of ESG news on stock prices. "Hypotheses Development" section provides some theoretical background and posits a set of testable hypotheses. "A Two-Step Hypotheses Testing Procedure" section describes the data and the variables, while the event study methodology is briefly presented in "Data on ESG News" section. The econometric analysis is implemented in "The

[2] The academic literature on the impact of ESG news is larger, but most of the papers assess the market reaction following a specific event, based on small hand-collected samples without much details. Consequently, they provide little evidence concerning the determinants of the reaction or comparison between different events.

[3] Recently, Elayan et al. (2014) have also used data from Covalence EthicalQuote, but they only consider aggregated information. However, their results suggest that these pieces of information convey useful information to shareholders.

Impact of ESG News on Stock Prices" section, and the results are discussed. "Conclusion" section concludes.

Related Empirical Papers

Several academic papers have aimed at assessing the reaction of shareholders to various types of extra-financial events, in particular events harmful to the environment.[4] Most of them focused on public environmental disclosure programs (mainly the US Toxic Release Inventory; e.g., Hamilton 1995), judicial actions following environmental violations (e.g., Karpoff et al. 2005), or industrial accidents causing ecological damages (e.g., Capelle-Blancard and Laguna 2010). Some academic papers also consider the impact of "bad" social or corporate governance practices on firms' market value. This includes a very diverse set of events: product recalls (e.g., Jarrell and Peltzman 1985), airline crashes (e.g., Borenstein and Zimmerman 1988), product tampering (Mitchell 1989), corporate fraud (e.g., Karpoff and Lott 1993; Chaney and Philipich 2002), "unethical behavior" (Gunthorpe 1997), social movements and protests (King and Soule 2007) or massive layoffs (e.g., Farber and Hallock 2009). These studies provided salient results and showed, overall, that the market penalty may go beyond the direct cost for the company, although apparently without providing sufficient incentives for corporate executives to behave differently.

A common limit of these previous papers, however, is that they focus on extreme events. Oil spills, industrial accidents, toxic releases, product tampering, corporate frauds, etc., have a significant negative impact: this is a well-established fact. But what about less dramatic events? How do shareholders react to "ordinary" news? This question is important for at least three reasons. First of all, CSR does not consist merely in avoiding ecological or social disasters. Instead, according to its proponents, CSR should be embedded in all corporate operations, at every stage; CSR is a matter of day-to-day practices. Accordingly, everyday events should be addressed to assess corporate social performance. Second, all previous studies focus on few industries (particularly the petrochemical firms) which are prone to extreme events, while all firms should be involved. Specifically, the stock market impact of CSR in services or for high-tech companies is largely ignored, whereas these industries represent a large and growing part of the economic activity. Lastly, the tremendous development of social networks and the speed by which they spread information makes any ordinary event a potential market mover. In the case of Moncler (mentioned supra), it seems that the fall in stock prices has been triggered by algorithmic trading following an avalanche of negative tweets against the company.

The impact of ESG news on firm value on a day-to-day basis has received little scrutiny so far. A first attempt was made by Klassen and McLaughlin (1996). In their seminal study, they consider companies listed on the Nyse or the Amex over the period 1985–1991 and examine 22 environmental negative events (oil spill, gas leak, explosion and other incidental pollution) and 140 positive ones (environmental awards) extracted from the Nexis database. On average, negative events yield significant abnormal returns of −1.5% ($0.70 per share), whereas positive events lead to significant abnormal returns of 0.82% ($0.37 per share).

Thereafter, some papers have examined the market reaction to CSR awards and certifications (Jacobs et al. 2010; Lyon et al. 2013), CSR rankings (Takeda and Tomozawa 2008), CSR stock index redefinitions (Capelle-Blancard and Couderc 2009; Oberndorfer et al. 2013), voluntary corporate initiatives (Fisher-Vanden and Thorburn 2011; Yu 2012) or the release of standalone CSR reports (Yu et al. 2013). These papers, however, consider positive news only and secondhand information; they are limited by the small size of their sample, and they are not really suitable to determine what are the key factors influencing shareholders.

More recently, Flammer (2013) has extended the approach initiated by Klassen-McLaughin with a sample of 117 eco-friendly events and 156 eco-harmful events extracted from the Wall Street Journal over the period 1980–2009. Unsurprisingly, she finds that announcements of eco-harmful corporate behavior lead to negative abnormal returns (−0.65%) and that eco-friendly corporate initiatives generate positive abnormal returns (0.84%). She also provides additional interesting insights. Her results suggest that companies have been increasingly penalized for irresponsible behavior toward the environment over time and that shareholders of firms with stronger environmental performance react less negatively to the announcement of eco-harmful behavior. Yet, this paper focuses on a single dimension of CSR, considers only major events and is still limited by the small size of the sample.

Finally, the only paper that examines the relationship between CSR and stock price with firsthand events on all CSR dimensions and with a relatively large database is Krueger (2015). This paper, which has been carried out in

[4] Empirical studies on the relationship between CSP (corporate social performance) and CFP (corporate financial performance) are of three types. A first piece of literature examines whether portfolios composed of firms with a high level of CSP outperform the market (e.g., Barnett and Salomon 2006; Capelle-Blancard and Monjon 2014). A second strand considers the long-term relationship between CSP and accounting-based measures of CFP (e.g., King and Lenox 2001; Konar and Cohen 2001; Guenster et al. 2011). In this paper, we focus on the third type, namely event studies (see "Hypotheses Development" section).

parallel, is the one whose approach comes close to ours. In his paper, he considers 2116 negative and positive ESG events concerning 745 different firms between 2001 and 2007. The data are extracted from the KLD database. The results confirm that negative news are followed by a stock price decrease, while the impact of good events is positive only in cases of poor stakeholder relations. One of its main contributions is the content analysis which shows that investors react more strongly to ESG news containing strong economic and legal information content.

All these results are appealing. However, the main drawback of most of these studies is the relative small size of the samples used. Indeed, they usually relied on hand collection and coding of news content, which automatically restricted the sample size. Consequently, most of the papers simply assess the market reaction following a specific event and cannot provide much detail. Very few papers provide evidence concerning the determinants of the reaction or provide any comparison between heterogeneous events.

Hypotheses Development

> It is virtually impossible to open the business section of the New York Times, the Wall Street Journal, The Economist, or any business publication today without seeing mention of measures being taken by some company to become more "socially responsible". – Paul R. Portney (2008)

In the media, stories about CSR have become very frequent over the past decade. This statement is confirmed by Fig. 1 which reports the number of occurrences for the wording "corporate social responsibility" in the newspapers. The query is based on online archive collections provided by Dow Jones Factiva (it covers all major newspapers and publications in the world; that is, more than 10,000 news sources including major publications such as *The Wall Street Journal*, *The Financial Times*, etc.). Both in absolute terms (the raw number of occurrences) and in relative terms (as a percentage of the number of articles which mentioned the word "finance"), the occurrence of the CSR concept is growing quickly, and now it is quite common.

ESG news are increasingly popular and newsworthy. Information on CSR is likely to make good stories, and it is reasonable to consider that soft news on ESG issues and the emotive language associated are more appealing for a large audience than hard information on company's financial statements for instance.[5]

Does it pay to be good? There is an extensive academic literature on the relationship between CSR and firms value, using a wide variety of empirical methodologies (event studies, impact on Tobin's Q or firm profitability, portfolio analysis, etc.). While these studies provide mixed results, most of the surveys (including several meta-analyses) suggest a positive correlation between CSR and measures of firm performance, such as profit (Margolis and Walsh 2003; Orlitzky et al. 2003; Scholtens 2008; Margolis et al. 2009; Wang et al. 2016).

From a theoretical perspective, however, as pointed by MacWilliams and Siegel (2000), marginal costs and benefits of CSR should offset each other in equilibrium, and consequently, the relationship between CSR and financial performance should be neutral. Moreover, the fact that ESG news are more and more frequent does not mean that they have a significant impact on firms' market value. Being a media hype is neither a necessary nor a sufficient condition for being a market mover. ESG news are often considered as soft news. This is a clear advantage to attract media attention and readers, but at the same time, it is somehow a drawback from the investors' point of view, because soft news are more difficult to process (Demers and Vega 2010). Thus, for instance, Orlitzky (2013) challenges the conventional wisdom about the net benefits of CSR and argues that ESG news may harm stock markets: "*market signals about CSR [are] full of, and in fact generating new, noise because of (a) the ambivalent impact of CSR on an organization's economic performance and (b) information asymmetry in financial markets, resulting in large part from managerial opportunism* (p. 240)."

Thus, the common view is that ESG news impact firm value, although some doubts have not been allayed. That is, we first test a general but fundamental hypothesis:

H_1 ESG news have a significant impact on firms' market value.

The carrot or the stick? Our second hypothesis is related to the (a)symmetry of the impact of ESG news. Previous research in behavioral economics has shown that responses to positive and negative economic information are asymmetric (Schepers 2006).

Historically, investor awareness on ESG issues emerged with the rejection of "sin stocks." Practices have evolved,

[5] Extensive media coverage might also be explained by the fact that ESG news are "blue-compatible". Empirical evidence suggests that Democrats (the "blues"), in contrast to Republicans ("the reds"), are more apt to support causes such as environmental and labor protection, and they are more supportive of the stakeholder theory. For instance, Hong and Kostovetsky (2012) find that mutual fund managers who make campaign donations to Democrats hold less of their portfolios in industries that are deemed socially irresponsible (based on KLD ratings). Moreover, news media seems to be biased toward liberal ideas; see Groseclose and Milyo (2005) for empirical evidence from the USA. All together, this is consistent with the heavy weight news media give to ESG issues.

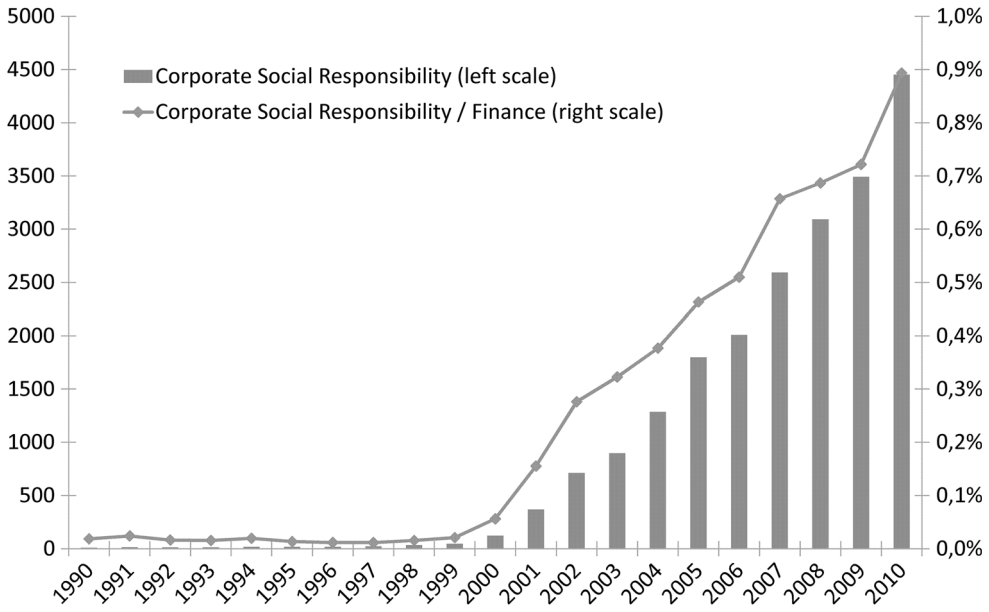

Fig. 1 CSR in the news. Number of occurrences for the wording "corporate social responsibility" in the newspapers on the left scale; on the right scale, the previous number is divided by the number of occurrences for the word "finance." The queries are based on online archive collections provided by Dow Jones Factiva

and nowadays socially responsible investors use generally both negative and positive screens. Still, the punishment seems intuitively more powerful and prevalent than the reward (Bird et al. 2007). According to previous studies, it is reasonable to assume that negative news have more impact in magnitude than positive ones. For instance, Klassen and McLaughlin (1996) find that positive stock returns after positive news are smaller, in absolute value, than negative stock returns after negative news. Similarly, Krueger (2015) finds that negative ESG events are followed by a stock price decrease, while the impact of positive ESG events is somewhat ambivalent and depends on the quality of the relations between the firms and their stakeholders. Note, however, that Flammer (2013) finds a significant effect, both for eco-friendly and eco-harmful corporate behaviors.[6]

So, does it pay less to be good than it costs to be bad? As stated by Mattingly and Berman (2006), positive and negative social actions are both empirically and conceptually distinct (see also Capelle-Blancard and Petit 2017). In particular, ESG-positive events are more diverse in nature, while ESG-negative events are likely to be more compelling.

H_2 The impact of ESG news on firms' market value is larger for bad news, compared to good news.

Public relations and watchdog NGOs It is expected that shareholders pay more attention to what they see as the most neutral source of information. As such, we expect that the media would be more influential, both because of their objectivity and their wide readership, relative to less independent sources of ESG news. Accordingly, we hypothesize that news published by the companies themselves (firms' press releases) or by NGOs have a lower impact on stock price, than news published by the media.

Indeed, to cope with increasing ESG concerns, companies have adapted their communication strategy. In particular, they disclose more and more information concerning their social responsibility. Obviously, it raises the question of the relevance of such news disclosures in a context of informational asymmetries. On the one hand, companies have a clear informational advantage but, on the other hand, the credibility of firms' announcements is low given that they have an interest to distort information to their own benefit. While there is a growing theoretical literature on greenwashing and ESG disclosures (Baron 2005; Lyon and Maxwell 2011), empirical evidence on the effectiveness and the impact of such strategies is missing.

A similar issue arises with NGOs. NGOs engage in private politics (Baron 2001), trying to influence firms' ESG practices. They have two main choices. They can either work directly with firms and highlight ESG improvements or report bad ESG practices (Lyon 2010), to influence medias and consumers. With the recent rise of public awareness on ESG issues, several NGOs choose to focus on public information campaigns rather than lobby the government (Yu 2005). Are advocacy NGOs able to impact stock prices? Is collaboration (by disclosing positive ESG news) more efficient than denunciation (bad news)? Several papers have cast doubt on NGOs influence, and there are growing debates on collaboration between

[6] Interestingly, Zyglidopoulos et al. (2012) find that more media attention leads to an increase in CSR strengths, but does not drive any significant change in CSR weaknesses. Yet, this is still consistent with our hypothesis suggesting that it is more expensive for firms to improve their weaknesses, than to enhance their strengths.

NGOs and corporations (Yaziji and Doh 2009), which could lower NGOs credibility (Gibelman and Gelman 2004). To our knowledge, there is no impact assessments other than case studies (Spar and Mure 2003; Doh and Guay 2006).

We attempt to provide insights on these issues by testing whether the impact of ESG news varies according to the source.

H_3 The impact of ESG news on firms' market value is larger for bad news, compared to good news.

H3 The impact of ESG news on firms' market value is larger when it comes from the media, compared to the firms themselves or NGOs.

Media visibility and specialization In practice, shareholders do no give equal importance to all sources. In particular, it is expected that disclosures of the leading financial newspapers have a larger impact. For instance, Huberman and Regev (2001) have shown that the market might react sharply to a news published in *The New York Times*, even if the information has been already reported in various popular journals or newspapers (*Nature*, *The Times*, etc.). Conversely, it is likely that shareholders who value ESG issues scrutinize specialized media dedicated to CSR. All together, this leads to two non-exclusive hypotheses.

H_{4a} The impact of ESG news on firms' market value is larger when it comes from leading financial newspapers.

H_{4b} The impact of ESG news on firms' market value is larger when it comes from media dedicated to CSR.

Main Environmental, Social or Governance issues It seems, a priori, quite natural to separate environmental, social and corporate governance issues when testing whether one particular dimension of CSR has more importance for shareholders. However, there is no theoretical underpinnings and it appears to be mostly an empirical issue. In this respect, the literature on Socially Responsible Investing might provide some information: there is preliminary evidence of superior returns for portfolios based on employee relations (Edmans 2012) and corporate governance (Barnett and Salomon 2006; Renneboog et al. 2011), but we should be cautious in generalizing these findings. It seems more appropriate to consider the effect at a sectoral level. The impact of ESG news might be larger when the event is associated with a main concern for the firm.

As stated by Caroll (1979), the issues that business must address largely differ depending on the industry. Different industries face different problems and external pressure might vary accordingly (Capelle-Blancard and Petit 2017). For instance, environmental issues are undoubtedly more important for the Oil and gas sector than for the banking sector. Accordingly, the publication of environmental news is likely to have a stronger impact for an oil company than a bank. "One size may not fit all": environmental, social and governance news may have different impact on the stock market, depending on the industry. This is why we suggest the following hypothesis:

H_5 The impact of ESG news on firms' market value is larger when the events are associated with a main concern for the firms.

Awareness and limited attention Since ESG news are increasingly popular (see Fig. 1), it is interesting to see whether this has resulted in a greater impact over the last decade. This idea is quite intuitive and Takeda and Tomozawa (2008) and Flammer (2013) provide empirical evidence in favor of such hypothesis. As such, we would expect larger abnormal returns (in absolute value) for the more recent events. However, previous research has shown that greater awareness does not automatically result in more pro-environmental or pro-social behavior (Kollmuss and Agyeman 2002). Hence, the debate is still ongoing.

H_6 The impact of ESG news on firms' market value is increasing over time.

Economic crisis What has been the impact of the global crisis on shareholders' behavior toward ESG issues? For some, the crisis is a sure sign of a failure of the shareholder primacy. Accordingly, we might expect a greater impact of ESG news. However, the crisis could have caused a shift in priorities. It is well known that in times of recession individuals refocus on basic economic issues and act more conservatively and defensively. To use the famous metaphor of Carroll (1991), which sets CSR as a pyramid *a la* Maslow, the crisis might cause a shift toward the base of the pyramid. Hence, we could expect a lower sensitivity of shareholders to extra-financial events in time of economic crisis. This concern is far from minor. Empirically, for instance, Dang et al. (2009) have shown, using a difference-in-difference approach, that aid giving is negatively impacted by crises.

H_7 The impact of ESG news on firms' market value is lower in times of economic crisis.

Reputation The theoretical literature on the effect of reputation on financial performance is somewhat inconclusive. On the one hand, Jones et al. (2000) and Werther and Chandler (2005) argue that CSR may serve as a "reservoir of goodwill" in times of crisis. Accordingly, we can expect that firms with good reputation experience a lower decrease of their market value after the disclosure of negative ESG news. On the other hand, Baron and Diermeier (2007) and Baron (2009) state that companies with highly visible CSR activities face increased public scrutiny

and may experience a "boomerang effect" in case of disappointment. This is empirically confirmed by Luo et al. (2012): while BP was regarded as the "greenest" company in the oil industry, and Exxon as the "brownest," BP accidents were more likely to be reported than Exxon accidents. Kim et al. (2014) find that CSR performance is negatively associated with future stock crash risk, which also supports the mitigating effect of CSR. Theoretically, the two approaches are equally relevant and nothing came to our attention that suggests that the goodwill effect should be stronger or weaker than the boomerang effect.

Further, it should be paid attention to the way the reputation is defined. Rennings et al. (2007) point out that results may significantly differ depending on whether the firm's reputation is computed in respect with their industry peers or not. Empirically, they found that only the firm's absolute reputation has a significant impact on shareholder wealth. Accordingly, we consider two versions of the goodwill hypothesis.

H_{8a} The impact of ESG news on firms' market value is lower for firms in sectors with good ESG reputations.

H_{8b} The impact of ESG news on firms' market value is lower for firms with good ESG reputations in comparison with their peers.

Greenwashing If reputation serves effectively as a reservoir of goodwill, it might be very tempting for a firm to appear at its best and to mislead shareholders. Such strategies are usually referred to as greenwashing, that is, the selective disclosure of positive and negative information by the firm on ESG issues. Like reputation, the impact of greenwashing is theoretically ambivalent. As stated by Lyon and Maxwell (2011), "*although companies naturally want to publicize their environmentally friendly actions, they are often surprisingly hesitant to promote their environmental successes or to issue detailed environmental reports. Part of the reason appears to be that activists react more angrily to firms that lay claim to being virtuous, and then are discovered to have feet of clay, than to firms that never make such claims.*" Empirically however, since there is extensive evidence of greenwashing, it suggests that firms have a net interest in this (unless one considers that they do not know where their advantage lies).[7] Hence, we posit that the impact of greenwashing is likely to be positive and could moderate the impact of negative ESG news on firms' market value.

H_9 The impact of negative ESG news on firms' market value is lower for firms which are prone to greenwashing.

"Watch your words, for they become actions." Recently, several studies have shown the importance of news media content in explaining stock price variations. These works, initiated by Tetlock (2007), aim to study the impact of qualitative verbal information on shareholders. For doing so, they used content analysis (also referred to as textual analysis), which can be defined as a set of methods that seek to describe in a systematic and quantitative manner the content of a text. Although the method has been used frequently in social sciences, it has become prevalent among economists only recently. We propose to build on this approach to capture some specific features of the ESG news (Krueger (2015) has followed a similar approach). We focus here on four criteria based on the Harvard IV-4 and Lasswell Value dictionaries: economic, legal, qualitative and quantitative. Qualitative information is naturally more difficult to process than quantitative one, and there is evidence that information with high processing costs diffuses slowly into asset prices (Engelberg 2008). Moreover, it is likely that ESG events with a legal or economic orientation will have a larger impact on stock prices.

H_{10a} The impact of ESG news on firms' market value is larger when the articles contain words referencing to economic or legal orientations.

H_{10b} The impact of ESG news on firms' market value is larger when the articles contain words referencing to quantitative orientation.

Out of sight, out of mind? Tavares (2003) shows that the amount of foreign aid is decreasing with the geographical and cultural distance between giving and receiving countries. Engelberg and Parsons (2011), who examine earning announcements in the USA show also that the impact of media on financial markets is influenced by the distance. Accordingly, we investigate whether the proximity between a company and where the event takes place influences the impact of ESG news on shareholders behavior and firms' market value.

H_{11} The impact of ESG news on firms' market value is larger for local events or for more proximate geographically or culturally events.

The next sections will present the procedure used to test these assumptions, and how we proxy the main characteristics of the targeted corporations and the features of the news that may shape investors' sentiment and influence the impact on stock price.

A Two-Step Hypotheses Testing Procedure

To test our set of hypotheses, we investigate the extent to which ESG news affect firm's stock price. We proceed in two steps (as King and Soule 2007; Capelle-Blancard and Laguna 2010; Flammer 2013; Krueger 2015). First, we

[7] For a formal model of greenwashing in presence of "soft" and "hard" (verifiable) information, see Bazillier and Vauday (2009).

assess the direct impact of ESG news on stock prices using the event study methodology. Then, we aim to determine whether certain characteristics of the news or the firm might explain stock price variations.

The Event Study Methodology

Event studies examine the behavior of stock prices around corporate events. This methodology is widely used to measure shareholders' reaction to all kinds of unexpected news (Kothari and Warner 2006). The underpinning of event studies is the efficient market hypothesis (Fama et al. 1969), which states that as new information becomes available, it is fully taken into account by shareholders. Accordingly, stock price changes reflect, to some extent, the discounted value of current and future firm's cash flows. In practice, the basic idea is that shareholders' reaction to a specific information can be measured by comparing the observed return to the return that we would expect in absence of any firm-specific event; this difference is called the "abnormal return." If investors react (un)favorably to an event, we would expect (negative) positive significant abnormal returns. The strength of this approach is that it is based on the overall assessment of many investors who quickly process all available information in assessing firm's market value. Moreover, this approach reduces reverse causality concerns which might appear when one examines the correlation between CSR and accounting measures of firm performance, such as profits.

Formally, we follow the approach defined by MacKinlay (1997) and consider the Market model (augmented with a sectoral index) to predict returns. Hence, for each event, abnormal returns are computed as follows:

$$AR^{i}_{j,s,t} = R_{j,s,t} - E(R_{j,s,t}) = R_{j,s,t} - \widehat{\alpha_j} - \widehat{\beta_j} R_{m,t} - \widehat{\gamma_j} R_{s,t} \quad (1)$$

where $AR^{i}_{j,s,t}$ measure the shareholders' reaction to the event i targeting the firm j, which belong to the industry s, at time t. $R_{j,s,t}$ is the observed return for the firm j, $R_{m,t}$ is the corresponding market return and $R_{s,t}$ the corresponding sectoral return. The parameters $\widehat{\alpha_j}$, $\widehat{\beta_j}$ and $\widehat{\gamma_j}$ are estimated over a 60-day window ([−70, −11]) using OLS.[8]

As usual, abnormal returns are aggregated over $(2n + 1)$-day periods around the event: n days before to catch possible insiders information, the day of the event and n days after. It leads, for each event, to cumulative abnormal returns (for $n = 1, \ldots, 5$):

$$CAR^{i}_{j,s,t}[-n, +n] = \sum_{\tau=t-n}^{t+n} AR^{i}_{j,s,\tau} \quad (2)$$

To test hypotheses 1, 2 and 3, we separate ESG news between good news and bad news and according to the source (media, firms and NGOs). Then, for each category, we compute average abnormal returns ($AAR_0 = \overline{AR^i}$) and cumulative average abnormal returns ($CAAR_{[-n,+n]} = \overline{CAR^i}[-n, +n]$) and use statistical analysis to test the significance of our results (see MacKinlay, 1997). Stock market data are from Datastream.

Regression Specification

In addition to assessing the direct effect of ESG news on stock price, we aim to determine whether certain characteristics of the event or the firm affect abnormal returns. To this end, we use a regression-based approach. Specifically, we estimate the following model:

$$CAR^{i}_{j,s,t}[-n, +n] = \alpha + \beta \times Trend_t + \Gamma' X_i + \Lambda' Y_{j,t} + \delta_j + \theta_s + \varepsilon_{i,j,s,t} \quad (3)$$

where $CAR^{i}_{j,s,t}[-n, +n]$ is the cumulative abnormal return for the event i, occurring at the date t, targeting the firm j, which belongs to the industry s, over a centered $(2n + 1)$-day window (Eq. 2). $Trend_t$ is a linear monthly trend. X_i is a vector of variables related to the event and $Y_{j,t}$ is a vector of variables related to the targeted firm at time t. δ_j and θ_s are firm and industry fixed effects, respectively. $\varepsilon_{i,j,s,t}$ is the error term. We use White heteroskedasticity-robust standard errors. The coefficients of interest are β, Γ and Λ which capture the characteristics related to hypotheses 4 through 11. Definition and sources of the variables are presented in the next section.

[8] Alternative specifications (with or without the sectoral index or with the CAPM) lead to very similar results. The most serious concern is about confounding events. While there is an extensive literature on the event study methodology, the contamination of the estimation period (Aktas et al. 2007) or the event period (Nelson et al. 2008) has attracted little attention. The standard approach consists in using a case-by-case analysis to neutralize all the confounding events, but this approach is impractical for large samples. In our case, we know precisely the dates of the possible confounding events (not all of them, but the ones related to ESG news). Then, we provide a robustness check in order to tackle the problem of confounding events. We consider another estimation window (−130, −11) where confounding events included in the Covalence EthicalQuote database are neutralized. In other words, for each firm, the days surrounding ESG news (−1, 0, +1) are dropped from the estimation window. The results are qualitatively the same (see in "Appendix" section). But the contamination by non-ESG events of the estimation period or the event period remains a possible limitation of this study.

Data on ESG News

Covalence

The potential number of ESG news to examine is huge: dozens are published almost every day for each firm, either by the media, NGOs, consultants or the firms themselves. Therefore, in order to assess the financial impact of these information we need a very large database. Furthermore, each piece of news should be sufficiently comprehensive and precise to analyze what drives the market reaction.

Most of the time, to conduct an event study, academics compose their database by collecting events from newspapers archives. In recent years, online search engines have facilitated this collect. Still, there is a huge amount of work to process the events, which usually limits the size of the database. Thus, until now, most event studies consider, at best, hundreds of events.

In this study, we use an original database provided by Covalence EthicalQuote. Created in 2001 in Geneva (Switzerland), Covalence EthicalQuote has developed a systematic collect of positive and negative ESG information concerning the world's largest companies. The range of ESG news is very broad.[9] Positive news includes, for instance, announcement of a social sponsoring program, the launch of new eco-innovative product, a green award, etc. Negative news goes from toxic release disclosure to rumors of downsizing, through the disclosure of bad labor practices in subcontractor factories, etc.

According to Covalence EthicalQuote, each day 20 analysts perform a total of 80 h of reading, screening 2000 news items (in English, Spanish, German and French). As of 2010, their database includes more than 190,000 information items from more than 10,000 sources, covering a universe of more than 500 companies. Covalence EthicalQuote uses its database to feed its ethical reputation scoring system. For each firm, the score is computed by aggregating positive and negative ethical news. Then, the scores, the rankings and some specific reports are sold to various agents like banks (Barclays, BNP Paribas, HSBC, etc), companies (Coca-Cola, HP, Nokia, etc.) and NGOs (Gain, MSF, WWF, etc.). The main advantage of this database is its comprehensiveness. Moreover, contrary to sustainability ratings, the information is firsthand.

Recently, Elayan et al. (2014) have shown that the Covalence EthicalQuote data convey some useful information to investors. Indeed, they find a causal relationship between stock market reaction and Covalence quarterly press releases, which indicate changes in the ethical score of the firms. Their results reinforce our idea that these data are valuable. However, unlike Elayan et al. (2014), we do not consider aggregated data, but we examine the impact of every piece of ESG news.

[9] See "Appendix" section for some examples of ESG news collected by Covalence EthicalQuote.

The Sample

Covalence provides us a sample of 126,365 ESG news items from January 2002 to December 2010. These news involve 100 listed firms which belong to the Dow Jones Sector Titans indexes (the complete list is provided in "Appendix" section). Some news items are related to the same event, occurred on nonbusiness days, or are poorly specified (either the nature, the event or the source of the news is missing). Consequently, these news are dropped: this leaves 65,881 events (52% of the sample). Moreover, several news may occur for the same firm on the same day, making impossible any interpretation of the market reaction. These news are dropped also, leaving a total of 33,067 ESG news (26% of the initial sample), positive or negative. This represents, on average, three ESG news per firm every month. The total number of news per firms varies approximately from 150 to 600, with a standard deviation of 110. The complete distribution is presented in "Appendix" section.

For each news, we know the name of the firm, the announcement date and the source. Covalence classifies ESG news into a large number of different sources that we aggregate into three categories. We consider that ESG news may come from: (i) media (including internet) and official authorities (governmental bodies, academics, international organizations), (ii) NGOs and trade unions or (iii) the firms themselves. Moreover, Covalence classifies the news into 45 criteria depending on the topic considered (see the detail in "Appendix" section). We group them into three broad criteria: (i) environment, (ii) social and (iii) governance. Table 1 reports the number of positive and negative news for each of the nine categories: source $\times$ topic. Note that some news have been published by more than one source (for instance, by both a newspaper and a NGO), and/or are related to several ESG issues; consequently the total number of news is lower than the sum of the categories.

This first table gives us some interesting insights. First, the main provider of ESG news is the media which disclose about 84% of the news, firms and NGOs equally sharing the rest. Moreover, the proportion of news by source is approximately the same whether one considers environmental, social or corporate governance issues. Second, our sample of news is well balanced in terms of ESG criteria even if there are slightly more news related to social issues (39% overall), than news on corporate governance (34%) and the environment (29%). Third, the part of "good" news relative to "bad" ones is very skewed. The total

Table 1 Number of ESG news by category

	All sources		Firms		Media		NGOs	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Environment	8829	2432	843	34	7486	1867	353	488
Social	9969	5353	1378	88	7830	4455	569	757
Governance	8371	550	964	70	6814	4201	340	915
Total	22,391	10,676	2682	166	18,751	8869	1070	1677

This table documents the number of negative and positive ESG news included in the sample, categorized by source (the firms, the medias, the NGOs) and topic (environment, social and governance). One hundred firms are considered (see the list in "Appendix" section) over the period 2002–2010. Data are from Covalence EthicalQuote. Given that some events have been reported by several sources and/or are related to several ESG issues, the total number of news is lower than the sum of the categories

number of positive news is two times larger than the total number of negative news. More precisely, the ratio of positive to negative news is 3.1 for environmental news, 1.8 for social issues and 1.5 for corporate governance. Unsurprisingly, firms are the most prone to announce good news: positive news announced by the firms themselves are 16-fold larger than negative news. ESG news from media are also biased toward positive news with a ratio slightly below two. On the contrary, NGOs disclose almost 50% more negative than positive ESG news.

Definition of the Variables

As we argued above, certain factors are likely to be associated with the effectiveness of ESG news. These factors could be classified into three categories. The impact of ESG news will depend on the nature of the news (the type, the origin, the tone, etc.), the strength of external pressures (the long-term trends, the economic environment, etc.) and the characteristics of the targeted firm (its reputation, its sector, its financial health, etc.). We describe below how we computed the variables which serve as proxies. Descriptive statistics are provided in "Appendix" section.

ESG Issues

We created three dummy variables E, S and G that are set to one if the news is related to environmental, social or corporate governance issues, respectively. Note that these dummy variables are not exclusive since some information involve several issues.

Sources

We created a set of dummy variables to distinguish news from the media, from the firms themselves and from NGOs (hypothesis #3). Further, we consider three dummy variables. The first one "Main newspapers" is equal to one when the news was published in one of the "Top 200 Newspapers in the world." The second one, "Financial newspapers" is set to one when the news was published in an newspaper with a business or financial orientation (*Financial Times*, *Business Week*, *The Wall Street Journal*, *Bloomberg.com*, etc.). The last one "CSR newspapers" is equal to one when the news was published by a media specialized in CSR (*Ethical Corporation Magazine*, *CSRwire*, *GreenBiz.com*, etc.) (hypotheses #4a & #4b).[10]

Sector's Main Concern

The relevance of ESG news is likely to be different depending on the activity of the firm: Environmental news, for instance, have certainly a different meaning for a petrochemical firm and a bank (hypothesis #5). To capture this, we created a dummy variable equal to one when the news is related to the "main concern" of the firm targeted. The main concern is defined at the industry level, based on the relative percentage of E, S and G news. Firms are classified into six industries: Banks, Basic Resources, Chemicals (including health care), Consumer goods and services, Industrial goods, and Technology. Unsurprisingly, environment is the main concern for "Basic Resources" and "Chemicals," social issues are the most important for "Consumer goods and services" and "Industrial goods," and corporate governance is the main stake for "Banks" and "Technology."[11]

Trends

Our regressions include a linear monthly trend from January 2002 to December 2010 (hypothesis #6). Further, we

[10] These lists have been manually check. The complete list (with more than 1000 sources) is available on request.

[11] For example, the percentage of bad ESG news published by the media on environmental issues is equal to 7% for the banking industry and to 35% for the chemical industry. Conversely, the percentage of bad ESG news published by the media on corporate governance issues is equal to 24% for the banking industry and to 11% for the chemical industry (see Capelle-Blancard and Petit 2017).

use *Google Insights for Search* between 2004 and 2010 to capture public attention (Da et al. 2011). *Google Insights for Search* provides insights into the search terms people have been entering into the Google search engine. In this study, we use the keyword "economic crisis" (hypothesis #7) and extract a weekly index. The value of the index is lower than 10 until September–October 2008, when it jumps to 100 in few weeks with the failure of Lehman Brothers. Since then, the index declines regularly toward 20 at the end of 2012.[12]

Reputation

We proxy CSR reputation, for each firm or sector, by the number of positive ESG news over the total number of ESG news (positive and negative) published by the media (hypotheses #8a & #8b).[13] We calculate this ratio on the year preceding each event to have a rolling measure compatible with companies' fixed effects.[14] As we want to test simultaneously sectoral and idiosyncratic reputation's impact on abnormal returns, the firm reputation is defined in comparison to its peers. The latter is a measure of the relative good reputation of a firm compared to the average reputation of a sector. That is, sector reputation is defined between 0 and 1, while firm reputation is defined between −1 and 1.

Greenwashing

To assess greenwashing (hypothesis #9), we compute the percentage of positive ESG news disclosed by a firm (or a sector) over the total number of positive ESG news related to this firm (or sector). As for the reputation, we designed a time frame of 1 year preceding each event to have a rolling measure. The greenwashing variable is between 0 and 1 at the sectoral level and between −1 and 1 at the firm level.

Lexical Content

We investigate whether the tone of the articles matters (hypotheses #10a & #10b). To quantify this, we rely on four tag categories of the Inquirer dictionary (including the Harvard IV-4 and the Lasswell value dictionaries).[15] For each event, we introduce proxy variables equal to the number of words in the title of the news and referenced in the following lexical categories: Econ@: 510 words of an economic, commercial, industrial or business orientation, including references to money. Legal: 192 words relating to legal, judicial or police matters. Quality: 344 words indicating qualities or degrees of qualities which can be detected or measured by the human senses. Quan: 314 words indicating the assessment of quantity, including the use of numbers.

Distance

We implement a first indicator of the distance between the country where the event takes place and the firm's country of origin by considering the logarithm of the distance between the two countries. We implement also a dummy variable equal to 1 if the country where the event takes place and the firm's country of origin have a common official language (hypothesis #11). Data on geographical and cultural distance are from the CEPII.

Size

We control for the size of the firms using total assets (in logarithm). *A priori*, two opposite effects could play a role concerning the influence of the size on the impact of ESG news. On the one hand, investors may be more sensitive to ESG news concerning large firms (Aouadi and Marsat 2016), but on the other hand, the shares of small firms are less liquid, and their reallocation possibilities are weaker. We use also the Price Earning Ratio as a control variable.[16]

The Impact of ESG News on Stock Prices

Event Analysis of CAR

To test the hypotheses #1 and #2, we assess the statistical significance of average abnormal returns by setting apart negative and positive ESG news. Then, to test hypothesis #3 we repeat the analysis separately for ESG news published by firms, media and NGOs. Table 2 presents average abnormal returns (AAR_0) and cumulative average abnormal returns ($CAAR_{[-1;+1]}$ and $CAAR_{[-5;+5]}$), with the corresponding standard deviation in parentheses, for each

[12] An alternative would be to use the Volatility Index (VIX) computed by the CBOE and based on the implied volatility of the S&P 500 index options. Often referred to as the fear index, it shows a very similar pattern.

[13] We also used the Fortune Magazine's annual ranking of the "world's most admired companies." A problem, however, is that it does not cover all the firms included in our sample. Moreover, according to McGuire et al. (1988), Fortune Magazine's ranking is linked to prior financial performance.

[14] We also used a 6-month and a 2-year time frame for robustness tests, but it does not change the results.

[15] We only consider news in English.

[16] R&D spendings (divided the total assets) and percentage of floating shares have been used also, but the availability of the data (moreover, only annual) lowers the size of the sample without changing meaningfully the results.

Table 2 Impact of ESG news on firm's market value

	All Sources		Firm		Media		NGO	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
$AAR_{[t=0]}$	.008	−.027	.006	−.156	.009	−.028	−.012	−.008
	(.010)	(.016)*	(.027)	(.188)	(.012)	(.018)	(.043)	(.036)
$CAAR_{[-1;+1]}$	.016	−.085	.032	−.188	.021	−.092	−.098	−.042
	(.018)	(.028)***	(.048)	(.351)	(.020)	(.031)***	(.076)	(.062)
$CAAR_{[-5;+5]}$	.035	−.139	.003	−.580	.044	−.137	.011	−.131
	(.035)	(.056)**	(.093)	(.493)	(.039)	(.062)**	(.153)	(.130)
Nb. Obs.	22,391	10,676	2682	166	18,751	8869	1070	1677

This table presents the average change in firm's market value around the publication of ESG news, from least squares regressions (using White-corrected standard errors). Robust standard errors are reported in parentheses. $AAR_{[t=0]}$ is the average abnormal return the day of the publication, $CAAR_{[-1;+1]}$ and $CAAR_{[-5;+5]}$ are the cumulative average abnormal returns over 3 and 10 days, respectively, around the publication. The estimation window is $[-70; -11]$. Figures are in percent. Data on ESG news are from Covalence EthicalQuote. The sample is composed of 100 companies considered between 2002 and 2010

*, **, *** indicate statistical significance at the 10, 5, 1% level respectively

subsample. The null hypothesis is that average abnormal returns equal zero across the event period; any significant deviation from random returns indicates that ESG news had a discernible effect on firm's stock prices.[17]

Overall, ordinary ESG disclosures impact firm's market value, but mainly negatively. In support of hypothesis #1, the cumulative average abnormal return in a 3-day (10-day) event window is −0.085% (−0.139%) for negative events and +0.016% (+0.035%) for positive events for the full sample. The magnitude of the impact is low, but it is significant at the 1% level for negative events; in contrast, as stated in hypothesis #2, the average change in firm's market value around the publication of positive ESG news is barely significant. Accordingly, while shareholders seem to penalize bad corporate social responsibility, they do not really reward positive behaviors. Figure 2 shows the daily cumulative average abnormal returns over a 20-day time window around the publication of negative or positive ESG events. This figure clearly illustrates the significant declines in stock price for firms that were targets of negative ESG news. Meanwhile, the trend for positive ESG news is unclear. This asymmetry is in line with most of the previous literature (except Flammer 2013). Fisher-Vanden and Thorburn (2011) even find that voluntary certifications such as Climate Leaders and Ceres generate market penalties. Thus, ESG investments are not always perceived as profitable by the stock markets.

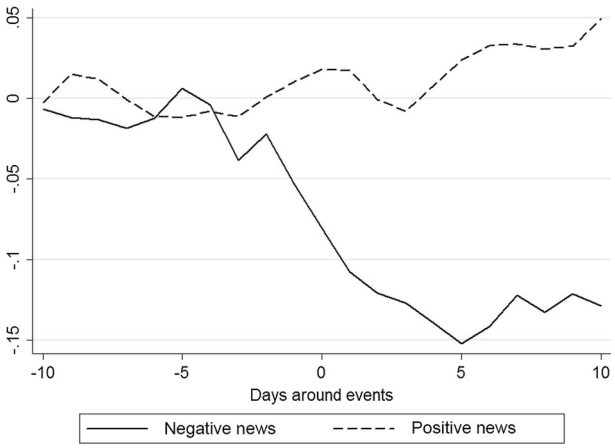

Fig. 2 Cumulative abnormal returns around ESG news

The only source of ESG news that seems relevant for shareholders is the media (hypothesis #3). Negative ESG news disclosed by the media generate significant losses. In a 3-day (10-day) event window, these news caused cumulative average abnormal returns of −0.092% (−0.137%), which represent an average loss of $0.25 ($0.37) per share. Not surprisingly, firm's press releases are not market movers. Most striking, albeit consistent with some concerns about their lack of credibility, the financial impact of ESG news published by NGOs are not significant. Confronted to a profusion of competing daily news, investors may react strongly to a disclosure that is not genuinely new (Huberman and Regev 2001). NGOs' disclosures may influence media information (Capelle-Blancard and Petit 2017), while only media information directly influence investors. Considering this, the indirect impact of NGOs' on stock markets remains a potential field of research.

[17] Note that this first set of results holds when we consider alternative specifications: with a restricted sample that excludes events for which abnormal returns are likely to be misspecified (i.e., when parameters of the market model are jointly not significant), with or without sectoral indexes, with a longer estimation window cleaned of contaminating events, or with the Fama-French 4 factors. Those results are available on request.

Subsequently, given the previous findings, we only consider negative events published by the media and the event windows that catch the best the impact on the stock markets ([−1;+1] and [−5;+5]).

Regression Analysis of CAR

Table 3 shows the results of several models regressing changes in firm's market value related to negative ESG news published by the media, on a set of independent variables capturing certain characteristics of the news or the targeted firm. Changes in firm's market value are expressed as a percentage variation from expected returns over a 3-day period ($CAR_{[-1;+1]}$) and a 10-day period ($CAR_{[-5;+5]}$). Columns 1, 2, 5 and 6 include company fixed effects to capture idiosyncrasies. We measure the impact of sectors' and companies' reputation and greenwashing with the past disclosures on their ESG activities. As we are mostly interested in analyzing the effect of reputation and greenwashing between firms and sectors, we do not include these variables in specifications including company fixed effects. Therefore, columns 3, 4, 7 and 8 only include HQs' country fixed effects. All regressions include White-corrected robust standard errors.[18]

Source

The nature of the media has very little influence on the magnitude of the shareholders' reaction to negative ESG news, which is consistent with the efficient market hypothesis (hypothesis #4a for leading financial newspapers and #4b for CSR specialized media). Nevertheless, this question should be further investigated, with more specific data on sources, to study the dynamics of information reports by different sources.

E, S, G?

The literature did not provide clear ideas on what dimension of CSR should be, a priori, the most important for shareholders. Our results suggest that the average impact of negative ESG news is similar whether it concerns environmental issues, social issues or corporate governance issues. We hypothesized also that the impact of ESG news might be larger when the event is associated with a main concern for the firm (hypothesis #5). The effect is not significant, and it appears that shareholders attach as much importance to ESG events directly related to the firm's business model (such as environment for the Basic resources industry for instance), than to ESG events on orbital aspects.

Awareness and Limited Attention

We do not find that the coefficient on the time trend is significantly negative (i.e., the loss gets stronger over time). While the number of ESG news covered by the media has increased (see Fig. 5), the perception of ESG events has not really changed during the last decade. External pressure to become socially responsible is similar, and firms have not been increasingly penalized by shareholders when they experienced negative ESG news (hypothesis #6). This result might appear inconsistent with Flammer (2013), but remember that we consider only 8 years (2002–1010), while Flammer (2013) considers three decades (1980–2009).

We also posited that shareholders' attitude toward ESG news might be impacted by the crisis (hypothesis #7). We do no find any significant impact, either positive or negative.[19]

Past Disclosures: Reputation and Greenwashing

Our results suggest that a sector's ESG reputation could act as a shield against potential shareholders' losses (hypothesis #8a). Indeed, the more positive the past media coverage on a sector's ESG issues, the lower the loss due to a negative ESG news. This confirms the "reservoir of goodwill" hypothesis, at a sectoral level at least. The result is barely significant when considering firm's reputation compared to its peers (hypothesis #8b), which is in line with most of the previous literature.

Are firms able to mediate the impact of adverse ESG events by disclosing their own positive ESG news (hypothesis #9)? The answer seems to be yes: the more ESG communications firms issued in the preceding year, the lower the impact of negative news on stock market performance. Public relations, which could include greenwashing, are useful to reduce the direct financial penalties in times of trouble. However, the long-run dynamics of the strategic interactions between companies, NGOs and the media are ambiguous and should be the subject of further investigations. Public relations influence shareholders, but

[18] Table 10 in "Appendix" section only considers cumulative abnormal returns significant at the 1% level. Table 11 uses a larger estimation window [−130; −11] which is "decontaminated" (the days when a firm experiments ESG events were removed from the estimation windows).

[19] Similarly, we also tested whether upcoming weekend (the so-called Friday effect) or holidays distract shareholders from ESG issues (DellaVigna and Pollet 2009), but we did not find any impact as well. We have also controlled for the total amount of news reported in the Dow Jones Factiva database (therefore, including non-ESG news), which can be considered as a proxy of limited attention of shareholders (Hirshleifer et al. 2009); the results were not significant.

Table 3 Determinants of the market reaction following negative ESG events disclosed by the media

Event window	$CAAR_{[-1;+1]}$				$CAAR_{[-5;+5]}$			
Source								
Main	−.008	.009		.028	.161	−.031		−.076
	(.084)	(.114)		(.113)	(.161)	(.222)		(.219)
Finance	.078	.104		.077	.102	.333		.308
	(.113)	(.131)		(.132)	(.208)	(.279)		(.277)
CSR	−.040	−.060		−.056	−.171	.012		.054
	(.096)	(.114)		(.114)	(.177)	(.256)		(.251)
Concern								
Environment	.001	.159		.168	.300	.006		−.164
	(.096)	(.133)		(.126)	(.196)	(.289)		(.275)
Social	−.056	.027		.031	.082	.134		.126
	(.090)	(.120)		(.119)	(.173)	(.227)		(.222)
Governance	−.099	.100		.063	.132	.251		.128
	(.090)	(.124)		(.123)	(.175)	(.237)		(.231)
Sector's Main Concern	−.005	−.068		−.075	−.060	.031		.200
	(.093)	(.138)		(.105)	(.190)	(.278)		(.218)
Trend								
Time (month)	.002	−.001		−.003	.001	.009*		.004
	(.001)	(.003)		(.002)	(.002)	(.005)		(.004)
Economic Crisis		−.003		−.002		−.005		−.003
		(.005)		(.005)		(.009)		(.009)
Past disclosures								
Sector Reputation			.638*	.753**			.823	.562
			(.358)	(.364)			(.729)	(.741)
Firm Reputation			.428	.397			.081	.132
			(.375)	(.378)			(.805)	(.806)
Sector Greenwashing			−.203	−.562			.738	1.431
			(.416)	(.487)			(.874)	(1.011)
Firm Greenwashing			.837*	.806			1.845**	1.888**
			(.495)	(.500)			(.939)	(.941)
Lexical content								
Economic		−.070	−.059	−.059		−.232**	−.225**	−.231**
		(.048)	(.045)	(.046)		(.099)	(.093)	(.094)
Legal		−.083	−.103	−.101		−.208	−.235	−.254
		(.086)	(.083)	(.084)		(.192)	(.190)	(.191)
Qualitative		.278*	.200	.196		−.108	−.126	−.094
		(.155)	(.149)	(.149)		(.302)	(.289)	(.292)
Quantitative		−.321***	−.317***	−.310***		−.424*	−.427*	−.444*
		(.112)	(.109)	(.110)		(.230)	(.230)	(.230)
Proximity								
Distance (log km)		.007		.011		−.105		−.066
		(.052)		(.048)		(.110)		(.099)
Common Language		−.246**	−.195**	−.222**		−.074	−.213	−.089
		(.109)	(.094)	(.106)		(.249)	(.206)	(.237)
Controls								
Assets (log)		.207	−.017	−.005		−.960*	−.152**	−.181**
		(.240)	(.039)	(.041)		(.499)	(.077)	(.082)
P/E Ratio		−.005	−.003	−.003		−.015***	−.014***	−.014***

Table 3 continued

Event window	$CAAR_{[-1;+1]}$				$CAAR_{[-5;+5]}$			
		(.003)	(.003)	(.002)		(.004)	(.004)	(.004)
Const.	−.125	−3.647	.068	−.147	−.424*	17.910**	2.653*	3.265*
	(.128)	(4.352)	(.751)	(.924)	(.250)	(8.912)	(1.487)	(1.818)
Specifications								
Nb. Obs.	8869	3726	3709	3709	8869	3726	3709	3709
R-square	.015	.034	.010	.011	.020	.040	.013	.015
Adjusted R-square	.004	.004	.004	.003	.009	.011	.007	.007
F statistic	.602	1.757	2.665	1.701	.635	2.196	3.182	2.166
P > F	.9995	.0000	.0001	.0091	.9984	.0000	.0000	.0002
P > F (absorb)	.014	.089	.199	.174	.000	.004	.010	.007
Company FE:	Y	Y	N	N	Y	Y	N	N
HQ country FE:	N	N	Y	Y	N	N	Y	Y

This table reports results from least squares regressions (using White-corrected standard errors). Reputation and greenwashing are calculated on a 1 year window preceding each event. Robust standard errors are reported in parentheses. The estimation window is $[-70; -11]$. The sample is composed of 100 large companies between 2002 and 2010. Data on ESG news are from Covalence EthicalQuote

*, **, *** indicate statistical significance at the 10, 5, 1% level respectively

firms which claim to be virtuous are more scrutinized by the media and the watchdogs, which could be double-edged.

Content Analysis

As expected, the tone of the articles clearly influences the impact of ESG news on firms' market value (hypotheses #10). We find that articles including quantitative words tend to be associated with larger losses. The impact is also amplified when articles include an economic vocabulary, albeit to a lower extent. The literature has already shown that the content of financial news influence the stock markets (see for example Schumaker and Chen 2009, or Kogan et al. 2013). Our results confirm recent findings (Krueger 2015) highlighting the relevance of content analysis of extra-financial news.

Out of Sight, Out of Mind?

Cultural distance affects the impact of ESG news (hypothesis #11). Previous papers have shown that within a country, investors overweight domestic firms[20]. Heath and Tversky (1991) explain this phenomenon by an aversion to ambiguity where investors infer beliefs from preferences. In line with the literature on the domestic bias, our results suggest that when events take place in countries sharing the same official language with the involved company headquarters, they have more financial impact. Interestingly, the effect of cultural distance is lower when considering the $[-5; +5]$ event window compared to the $[-1; +1]$ event window. This may suggest another interpretation: events occurring in countries sharing less proximity with headquarters have a similar impact, but shareholders take more time to assimilate these information and incorporate it into prices. Note that we did not find such results for the geographical distance.[21]

Conclusion

Investors and analysts have access to more information than ever on firms' behavior toward environmental, social and corporate governance issues. And whether they like it or not, corporate executives have to take into account CSR concerns, if only to improve financial performance and lower risks.

This paper examines the stock markets reaction to ESG news gathered in the Covalence EthicalQuote database which includes, after several filters, more than 30,000 occurrences concerning 100 listed companies over the period 2002–2010. It means that we do not only consider extreme events, but also very ordinary events. Our results first point out that shareholders react to the publication of

[20] See Coval and Moskowitz (2001), Grinblatt and Keloharju (2001), Huberman (2001) or Ivkovic and Weisbenner (2005).

[21] In a previous version, we tested whether the impact of ESG news depends on the country where the event took place ; in particular, we distinguished developed and developing countries. On the one hand, the impact should be higher for negative events if they occur in developed countries compared to developing ones, because of environmental liability rules or the stringency of regulation. On the other hand, due to the difference of media coverage, small events are more likely to be reported in developed countries. We did not observe any significant differences.

ESG news, but mainly (not to say only) to negative ESG news. While the change in firm's market value on a window of 3 days around the publication of negative ESG news is about 0.1% on average, the impact of positive ESG news is barely significant. This loss due to negative ESG events is mitigated when the targeted firms have previously disclosed more positive ESG information than their peers and when the sector has a good ESG reputation. In contrast, the loss is amplified when the news has a quantitative and economic orientation, and when there is a feeling of emotional closeness between the event and the firm.

Many directions could be explored to improve this study. The most visible extension could be to implement more sophisticated approaches for the computation and the analysis of abnormal returns. But more fundamentally, there is a lack of information to proxy the extent of the event. As the previous papers on CSR events, we consider all news equally. Indeed, we have no way to distinguish a priori the most striking events. As such, the media audience could be interesting to investigate, considering that the more media coverage, the heavier the financial losses due to negative ESG events. Moreover, if the Covalence EthicalQuote database provides remarkable research possibilities on CSR, it could be improved with systematic and automatic requests. This would allow notably to deepen the lexical analysis with other categories. Finally, it could be interesting to refine the analysis of reputation and greenwashing.

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Compliance with ethical standards

Conflict of Interest Gunther Capelle-Blancard declares that he has no conflict of interest. Aurélien Petit has worked on short-term contract with Covalence EthicalQuote.

Appendix

See Tables 4, 5, 6, 7 and 8 and Figs. 3, 4 and 5.

Table 4 Examples of ESG disclosures

Bayer January 3rd 2002 E(−), Media	"Bayer was one of several multinationals to export highly toxic obsolete pesticides to Nepal, and abandon them there after they reached their expiry date or were banned. (...) The obsolete pesticides had been inadequately stored in rusting and rotting original packaging (...). The toxic waste threatens the health of residents, workers and livestock in the area as well as local water supplies, irrigation systems and soil. Despite requests to Bayer from the Royal Nepalese Government, the company has refused to help"
Coca-Cola December 8th 2002 E(−), Media	"A Coca-Cola bottling plant in Kerala (India) gets its water from 60 wells the plant has drilled in the area. Local villagers claim this is draining their water supply and leaving what is left contaminated. (...) Protesting villagers want the plant closed but Coke says (...) they 'have not found any change in the water situation"'
Procter and Gamble December 20th 2004 S(+), NGO	"A new water purification product developed by Procter and Gamble is being launched in Haiti, where diarrhea is a major killer of children under 5, by an initiative funded by the Global Development Alliance of the US Agency for International Development (USAID)"
Wal-Mart November 14th 2003 S(−), Media	"Wal-Mart, the world's biggest company and the largest employer in the US, is being taken to court by a group of former immigrant employees. The workers have accused the US supermarket chain of conspiring with cleaning contractors to employ them in conditions that were "one step away from slavery" (...) foreign workers have told of working seven-night, 56-h weeks at the budget stores for as little $325, well below the national minimum hourly wage"
Riggs Bank January 27th 2005 G(−), NGO	"Riggs Bank pleaded guilty to helping former Chilean dictator Augusto Pinochet and the leaders of oil-rich Equatorial Guinea hide hundreds of millions of dollars. The federal judge questioned whether a $16 million fine agreed to by prosecutors was enough. US District Judge Ricardo Urbina in Washington today asked whether the penalty is "just a business expense" that wouldn't even cover the profits Riggs made on the suspect accounts. (...)"

This table presents some examples of ESG disclosures extracted from the Covalence EthicalQuote database

Table 5 Covalence EthicalQuote criteria 1/2

Criterion	Description	ESG
Working conditions		
1. Labor standards	Covers labor issues taking place within the company	S
2. Wages	Looks at how the company manages the level of wages paid to employees and executives	S
3. Social benefits	Looks at measures regarding social benefits and advantages for employees and families	S
4. Training and insertion	Looks at how the company takes measures regarding training employees, continued formation, stabilization of jobs and social plans in case of layoffs	S
5. Women	Describes working conditions for women and the coordination of professional and private life	S
6. External working conditions	Covers working conditions outside the analyzed company	S
Impact of production		
7. Sales	Describes how companies' sales benefit people and the environment	G
8. Link with official development aid	Highlights when a company collaborates with, or benefits from, a governmental development aid program	G
9. Export risk guarantee	Describes a situation when a government covers the risks taken by a national company investing abroad	G
10. International presence	Describes the impact of the company's foreign direct investments and related policies	G
11. Joint ventures	Receives information about multinational companies investing together with local investors, to create a new company and the economic, social and environmental of such joint ventures	G
12. Economic impact	Deals with how a company's investments influence local industries in terms of job creation, access to markets, competition, economic growth	G
13. Social impact	Receives information on how the company's operations influence the implementation of local laws relating to social areas	S
14. Job stability	Looks at the turnover of the company's employees	S
15. Local employees	Looks at the number and the proportion of local employees in the company	G
16. Local executives	Looks at the number and the proportion of local executives in the company	G
17. Women employed	Looks at the proportion of women among the company's employees and executives	G
18. Downsizing	Is used to code information that relates to factory closures, the transfer of production to another country, and measures taken to minimize negative social effects of such decisions	S
19. Infrastructures	Describes when a company is (co-) financing public infrastructures	G
20. Local sourcing	Highlights when a company is buying/sourcing directly to a local producer, farmer	G
21. Stability of prices	Describes how a company manages prices of raw materials on international commodity markets	G
22. Technical assistance	Highlights when a company transmits skills, knowledge, technologies to another company/partner	G
23. Intellectual property rights	Describes how a company manages its own intellectual propriety rights vis-a-vis other companies and countries	G
24. Local innovation	Highlights when a company helps another company to develop a new product	G
25. Fiscal contributions	Looks at the following questions: Does the company pay taxes? Where? How much?	G
26. Environmental impact	Highlights how a company's production activities are impacting the environment	E

Table 6 Covalence EthicalQuote criteria 2/2

Criterion	Description	ESG
Impact of products		
27. Product human risk	Describes when a product or service is perceived to be risky to man or nature	S
28. Product social utility	Serves to describe when a company offers, or is being asked to provide, products or services that respond to needs related to human, social and economic development	S
29. Product relation to culture	Describes the relation between a product and a culture	G
30. Socially innovative product	Reflect communications regarding the R&D of products or services that present a particular Interest for responding to human needs and contributing to economic and social development	S
31. Product environmental risk	Reflects communications found about a product or service described to be risky to nature and the environment by itself or by its implications	E

Table 6 continued

Criterion	Description	ESG
32. Waste management	Describes action/lack of action in waste management	E
33. Eco-innovative product	Covers information regarding new products or services that are environmentally friendly	E
34. Information to consumer	Looks at how companies are, or are not, providing the public and consumers with information	G
35. Pricing/needs	Looks at which price does a company sell its products considering their social utility and capacity to respond to essential human needs	S
36. Cause related marketing	Highlights when the support to social/environmental projects is linked to the selling of a product	G
37. Social sponsorship	Pertains to information about a company's donation of money or goods to an external organization in the pursuit of social or environmental objectives	S
Institutional impact		
38. Anti-corruption policy	Covers material presenting how companies are acting, or failing to act, against corruption	G
39. Humanitarian policy	Describes how a company behaves in and about emergency situations such as wars and natural disasters	G
40. Human rights policy	Is used to code information that pertains to how a company deals, or should deal, with the respect for, and promotion of human rights, internally and externally	G
41. Relations with United Nations	Describes how a company discusses and collaborates with programs or agencies of the United Nations	G
42. Boycott policy	Describes how a company deals with calls to boycott certain countries and governments because of the human rights situation	G
43. Social stability	Describes when a company helps, or fails to help, promote local social stability	G
44. Support to political actors	Compiles information describing relations of a company with political actors, such as financial support	G
45. Lobbying practices	Covers material describing lobbying activities of companies: activities aiming at influencing decisions taken by governments at the national and international levels	G

Table 7 Sample of firms

Company	HQs	Events	Company	HQs	Events
Banks			*Health Care*		
Bank of America Corporation	USA	419	Abbott Laboratories	USA	249
Barclays plc	UK	333	AstraZeneca plc	UK	226
BNP Paribas	France	264	Bristol-Myers Squibb Co.	USA	282
Citigroup Inc.	USA	327	Eli Lilly and Co.	USA	270
Credit Suisse Group	Switzerland	224	GlaxoSmithKline plc	UK	455
Deutsche Bank AG	Germany	278	Johnson and Johnson	USA	337
Goldman Sachs Group Inc.	USA	165	Merck and Co. Inc.	USA	405
HSBC Holdings plc	UK	404	Novartis AG	Switzerland	356
JPMorgan Chase and Co.	USA	208	Pfizer Inc.	USA	515
UBS AG	Switzerland	264	Roche Holding AG	Switzerland	230
Wells Fargo and Company	USA	306	Sanofi-Aventis	France	302
Basic resources			*Industrial goods*		
Alcoa Inc.	USA	444	BMW Group	Germany	384
Anglo American plc	UK	228	Boeing Co.	USA	226
Arcelor Mittal	France	199	Daimler AG	Germany	429
Barrick Gold Corporation	Canada	217	Electricité de France	France	191
BHP Billiton plc	Australia	317	Ford Motor Co.	USA	539
BP plc	UK	520	General Electric Co.	USA	369
Chevron Corp.	USA	524	Honda Motor Co. Ltd.	Japan	379
Exxon Mobil Corp.	USA	488	Hyundai Motor Co.	Korea	221

Table 7 continued

Company	HQs	Events	Company	HQs	Events
Halliburton Company	USA	253	Nissan Motor Co. Ltd.	Japan	323
Newmont Mining Corp.	USA	169	PSA Peugeot Citroen	France	263
Rio Tinto plc	UK	425	Renault SA	France	286
Royal Dutch Shell plc	UK	560	Toyota Motor Corp.	Japan	502
Total SA	France	369	Veolia Environnement SA	France	226
Xstrata plc	Switzerland	184	Volkswagen AG	Germany	428
Chemicals			*Technology*		
BASF SE	Germany	335	ABB Ltd.	Switzerland	216
Bayer AG	Germany	430	Alcatel-Lucent	France	225
EI DuPont de Nemours and Co.	USA	396	Apple Inc.	USA	267
Monsanto Co.	USA	372	ATandT Inc.	USA	228
The Dow Chemical Company	USA	415	Cisco Systems Inc.	USA	318
Consummer goods and services			Dell Inc.	USA	387
Carrefour SA	France	280	Fujitsu Ltd.	Japan	192
Danone	France	220	Google Inc.	UK	312
Gap Inc.	USA	194	Hewlett-Packard Company	USA	547
Kraft Foods Inc.	USA	451	Intel Corporation	USA	412
L Oreal SA	France	216	International Business Machines Corp.	USA	490
Marks and Spencer Group plc	UK	297	Koninklijke Philips Electronics NV	Netherlands	255
McDonald s Corp.	USA	457	LG Electronics Inc.	Korea	184
NestlÃ©S.A.	Switzerland	540	LM Ericsson Telephone Co.	Sweden	259
Nike Inc.	USA	310	Microsoft Corporation	USA	404
Pepsico Inc.	USA	442	Motorola Inc.	USA	278
Procter and Gamble Co.	USA	372	Nokia Corp.	Finland	363
Starbucks Corp.	USA	445	Oracle Corp.	USA	227
Tesco PLC	UK	350	Panasonic Corporation	Japan	274
The Coca-Cola Company	USA	606	Samsung Electronics Co. Ltd.	Korea	328
The Home Depot Inc.	USA	287	Siemens AG	Germany	422
Unilever NV	Netherlands	469	Sony Corporation	Japan	376
Wal-Mart Stores Inc.	USA	506	Toshiba Corp.	Japan	224
Walt Disney Co.	USA	152	Verizon Communications Inc.	USA	214
			Vodafone Group plc	UK	188
			Xerox Corp.	USA	273
			Yahoo! Inc.	USA	180

Table 8 Summary statistics

Variable	All observations					Only negative media events				
	Nb. Obs	Mean	SD	Min	Max	Nb. Obs	Mean	SD	Min	Max
Score (EthicalQuote)	33,067	0.35	0.94	−1	1	8869	−1	0	−1	−1
Source										
Main	33,067	0.49	0.50	0	1	8869	0.44	0.50	0	1
Finance	33,067	0.46	0.50	0	1	8869	0.34	0.47	0	1
CSR	33,067	0.45	0.50	0	1	8869	0.29	0.46	0	1
Concern										
Environment	33,067	0.34	0.47	0	1	8869	0.21	0.41	0	1
Social	33,067	0.46	0.50	0	1	8869	0.51	0.50	0	1

Table 8 continued

Variable	All observations					Only negative media events				
	Nb. Obs	Mean	SD	Min	Max	Nb. Obs	Mean	SD	Min	Max
Governance	33,067	0.41	0.49	0	1	8869	0.48	0.50	0	1
Sector's main concern	33,067	0.27	0.44	0	1	8869	0.34	0.47	0	1
Trend										
Time (month)	33,067	65.46	28.39	1	108	8869	65.58	27.27	1	108
Economic crisis	31,535	14.80	18.40	1	100	8499	14.65	18.61	1	100
Past disclosures										
Sector reputation	31,386	0.64	0.12	0	1	8466	0.59	0.13	0	0.91
Firm reputation	31,365	0.01	0.13	−0.79	0.70	8460	−0.04	0.13	−0.79	0.44
Sector Greenwashing	31,386	0.13	0.09	0	1	8464	0.13	0.09	0	1
Firm Greenwashing	31,363	0.00	0.08	−0.61	0.93	8451	0.00	0.09	−0.61	0.93
Lexical content										
Economic	23,549	0.71	0.93	0	13	5720	0.64	0.85	0	7
Legal	23,549	0.05	0.25	0	4	5720	0.12	0.37	0	4
Qualitative	23,549	0.05	0.22	0	3	5720	0.06	0.25	0	3
Quantitative	23,549	0.18	0.47	0	7	5720	0.16	0.42	0	3
Proximity										
Distance (log km)	19,614	8.08	1.20	4.38	9.85	6351	8.07	1.24	4.71	9.85
Common language	19,614	0.22	0.41	0	1	6351	0.23	0.42	0	1
Sectors										
Banks	33,067	0.10	0.30	0	1	8869	0.11	0.31	0	1
Basic resources	33,067	0.15	0.36	0	1	8869	0.22	0.42	0	1
Chemicals	33,067	0.06	0.24	0	1	8869	0.07	0.25	0	1
Consummer goods and services	33,067	0.20	0.40	0	1	8869	0.18	0.38	0	1
Health Care	33,067	0.11	0.31	0	1	8869	0.12	0.32	0	1
Industrial goods	33,067	0.14	0.35	0	1	8869	0.11	0.31	0	1
Technology	33,067	0.24	0.43	0	1	8869	0.19	0.39	0	1
Controls										
Assets (log)	33,067	18.22	1.30	14.49	22.02	8869	18.27	1.34	14.49	22.02
P/E Ratio	30,457	19.05	13.11	1	346.9	8103	18.89	14.56	1	302

The sample is composed of 100 large companies observed between 2002 and 2010. Data on ESG news are from Covalence EthicalQuote

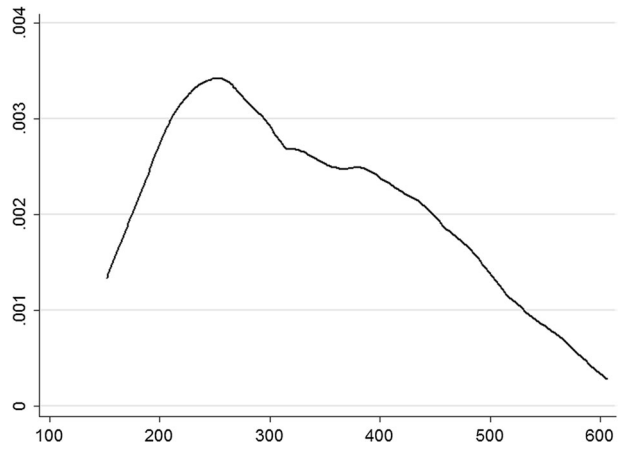

Fig. 3 Average number of ESG news per firm

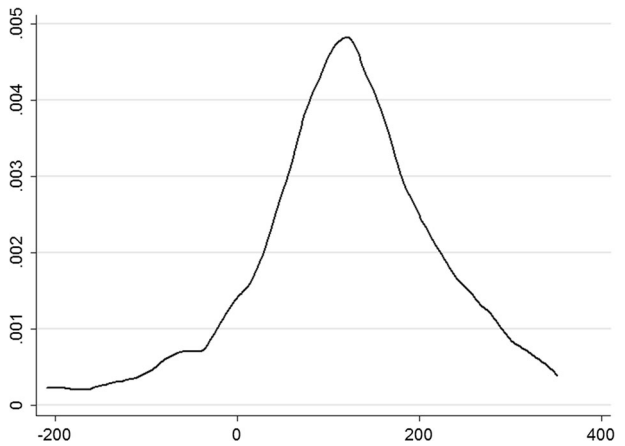

Fig. 4 Average score per firm (number of good news minus number of bad news)

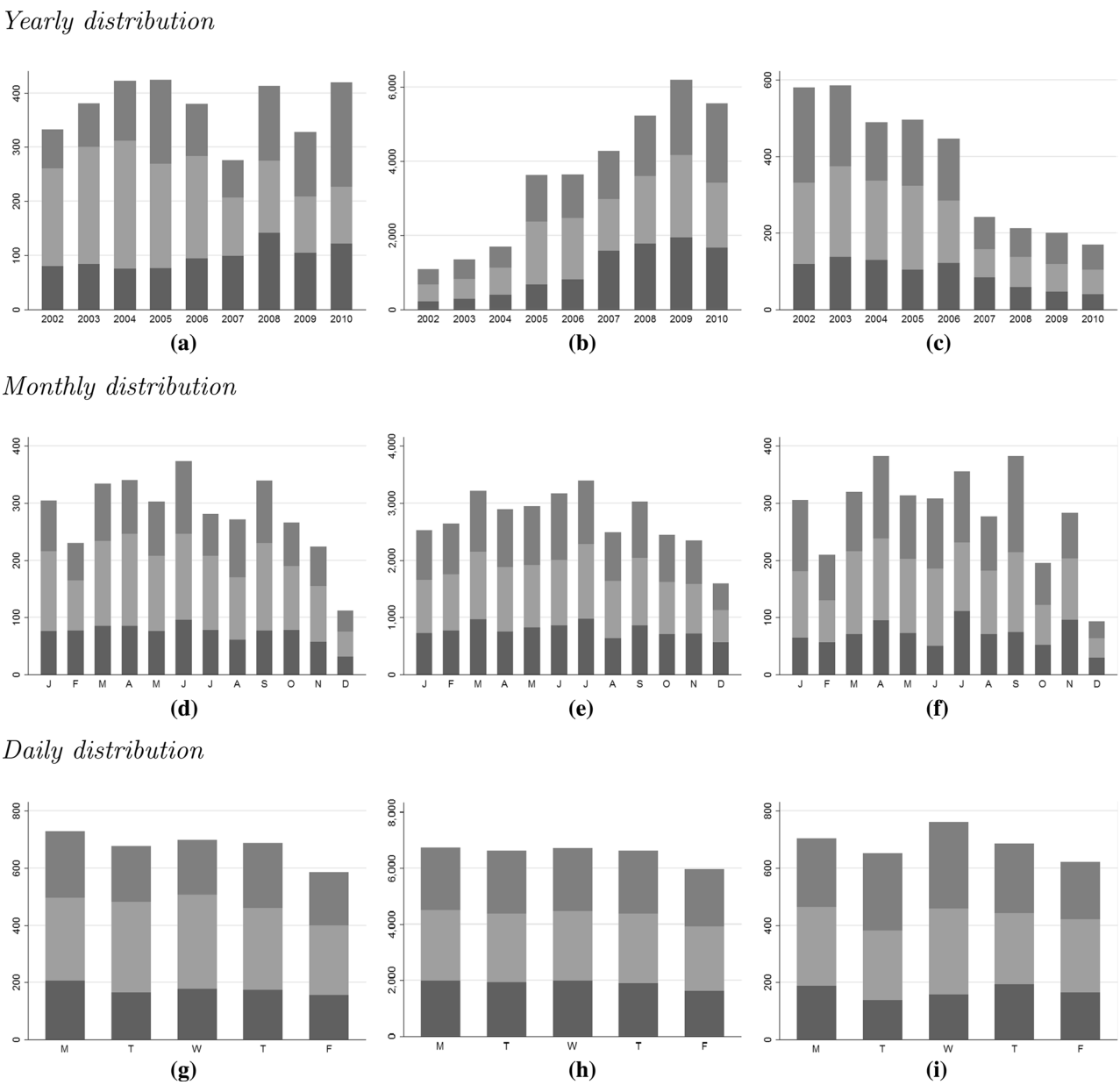

Fig. 5 Timing of ESG news. This figure presents, for each type of source, the total number of ESG news (from the bottom to the top: E, S and G) breakdown by year, month and day of the week (positive and negative news present similar patterns). Data: Covalence EthicalQuote, 2002–2010

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