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Punishment by ESG: The Impact of Negative Environmental, Social, and Governance News on
Stock Returns

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ABSTRACT

Based on existing research, there is little to no evidence to suggest a significant correlation between stock prices and Environmental, Social, and Governance (ESG) factors. This short-term event study looks at 85,878 negative ESG articles published from 2007 to 2022 about over 5,521 companies. My objective was to provide evidence that companies are being punished for negative ESG news by using a comparably larger dataset, over a longer period of time. Aggregating the data across industries and categories, I found that a negative ESG article correlates to a cumulative 6.5 basis point decrease in a company's stock price the next day. Moreover, there is some indication that the impact will grow in the coming years. Drilling down by category, governance-related categories generally dominated the results. Articles related to social and environmental issues had bigger impacts when classified by industry. Ultimately, the results highlight the importance of genuine and thorough ESG management by companies.

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Chapter 1

Introduction

Centuries ago, doing good deeds was mostly the individual's endeavor in society. Religious sanctuaries, with people at its forefronts, would donate resources for the wellbeing of their communities as well as to spread awareness for their beliefs. Not long after, charitable and not-for-profit organizations were created based on people's morality and value systems. Amidst the negativity, humans driven by their intrinsic nature have fostered immense positivity over time. Rapid transformation and innovation in the business world calls into question: why can't corporations also be an avenue for good and what the average person believes? Environmental, Social and Governance (ESG) investing creates a way for people to align their values with companies that have the power to effect change on a much larger scale.

Beliefs are a part of the information economy. Investors cannot be privy to all the knowledge a manager possesses. They will always be outsiders looking in, trying to get the best sense of what's going on inside, but their beliefs can offer a bigger window. A company that prioritizes minimal waste management might do a better job at maximizing profits. Employees that are able to connect and thrive in their workplaces might be more productive. Responsible leadership in an enterprise could indicate reduced volatility in the long term. Concepts like sustainability and corporate social responsibility (CSR) have been shown to factor into a company's financial performance (Mishra 2017). In the same way, ESG investing assigns monetary value to these traditionally nonfinancial factors.

Unfortunately, quantifying sustainability and social responsibility is extremely difficult. The need to measure is prevalent in every sector of commercial activity or study. Comprehensive analyses over time or across competitors would be next to impossible with just superlatives. There have been numerous approaches to coming up with an ESG score or rating, but some argue ESG cannot be captured in one value. Factors including weight assignments, industry standards, regulation, and data availability add multiple layers of complexity to the process. On top of that, most agencies are not transparent about these inputs (Abhayawansa and Tyagi 2021). Developing an ESG rating free from judgment and uncertainty is extremely challenging, yet ESG investing marches on.

One of the reasons why ESG investing has become more mainstream recently is because of the onset of millennials advancing in the corporate world. People that belong to younger generations, who tend to be more concerned with climate change and fair labor practices, are enrolling in pension funds and IRAs. Thus, a huge demand for investments that are socially responsible is created. In a 2021 survey of US millennials, 99 percent indicated they were interested in sustainable investment (Morgan Stanley 2021). Analysts estimate ESG investing will reach up to 30 trillion dollars by 2030.

To capitalize on this opportunity, corporations engage in greenwashing; the perception of ESG prioritization is much cheaper and easier than the real thing. Using buzzwords, making empty promises, or airing superficial ads are just some examples of the ways companies deceive stakeholders. Since the mid-1980s, long before the rise of ESG investing, there has been an element of greenwashing in many major marketing strategies (Dahl 2010). Companies in the Oil & Gas and Fashion Retail industries are veterans in disguising their socially and environmentally

harmful operations. Customers and investors alike may be inclined to reward this bad behavior because of the perpetual information asymmetry in the business world. The bad news doesn't end there; greenwashing has been on a sharp incline with an increase in climate change concerns.

Regulators are trying to keep up. The Securities and Exchange Commission (SEC) announced in 2021 that they are beginning to gather more information on how best to regulate climate risk disclosure. In 2023, Gavin Newsom, the governor of California, signed bills that will mandate large companies to report on their greenhouse gas (GHG) emissions starting in 2026. Other parts of the world are doing a little better. The European Union (EU) has already released effective legislation on how companies should disclose and classify ESG-related activities. The ideal outcome would be to prevent greenwashing and similar puffery while instilling trust in ESG-related metrics. Nevertheless, it could be a long time before ESG reporting in the US matches up to financial reporting in terms of standardization and assurance.

What remedies are available to stakeholders now? An efficient capital market should provide immediate deterrents for corporate malfeasance. At the forefront of reducing information asymmetry is the social media and internet age. Countless studies have shown corresponding correlations with stock price and positive or negative news about a company. There is no shortage of media companies and journalists that focus on ESG news. A lot of the content is positive, praising a company's plan to start an initiative or its ongoing efforts in the ESG space.

My concern is the negative content. If companies below the bar in terms of ESG practices are consequently punished with a decrease in their stock price, there will at least be accountability for delinquent companies. The way investors find out about the dishonesty is also crucial. News sources vary in popularity and credibility so articles may take time before they

gain traction. Some companies already hold a bad reputation or are in the "problem industries" related to ESG. Adverse ESG news about them may not cause as much of a change in their stock price because it's not necessarily new information. It may also matter what kind of ESG news is being reported about a company depending on what investors care about the most. I hope to tackle these questions and more in this paper.

Chapter 2

Literature Review

The term ESG was first used in a United Nations (UN) Global Compact report in 2004. The report was on recommendations on how best to incorporate environmental, social and governance factors into asset management and brokerage services. In the following year, Kofi Annan, the UN Secretary-General, invited top institutional investors to collaborate in the development of Principles for Responsible Investment. There was an increasing need for the amalgamation of sustainability and finance, and it hasn't slowed down. A bibliometric analysis of research keyword frequency found a growth of financial publications with ESG as a keyword. Over 60 papers were published between 2009 and 2015. A staggering 675 papers were published between 2016 and 2021 (Wan et al. 2023). Now more than ever, people are trying to understand the relationship between the capital markets and ESG.

Like with any social subject, there is a wealth of contradiction and disagreement on the value of ESG in research. Controlling for size, performance and industry, a study found that negative ESG news actually corresponded to an increase in firm value (Aouadi and Marsat 2018). When they added Corporate Social Performance (CSP) scores as a control, the ESG controversy relationship with firm value was statistically insignificant, though at least negative. There could be a number of reasons for this. It was a study done on companies in over 50 countries which opens up debate about the ESG relevance in other countries relative to the US. The authors noted that assessing ESG controversies for non-US firms is especially difficult. Another consideration is that the study does a yearly analysis. I hoped to yield different results by only looking at firms in the US and isolating abnormal returns one day after an ESG incident.

However, there is a possibility that the premise is flawed to begin with. Is ESG news too abstract to be directly linked to market value?

The possibility exists but it's important to remember that ESG is just a stylized way of saying non-financial. Good portfolio management is all about risk management and investors have always looked for ways to minimize risk. Employee satisfaction and responsible leadership were investment considerations before the popular ESG term. These factors and many others have proven to be time-honored indicators of long-term growth and value. A 2017 survey found that 82% of investors consider ESG information and 63% of them responded that it's because ESG information is material to investment performance (Amel-Zadeh and Serafeim 2017). ESG is not a novel concept; it's just a fairly new presentation of old concepts.

As mentioned earlier, an application of this is ESG scores. Analyzing published articles and press releases to track ESG progress for every firm in a portfolio is not easy. Agencies have come up with ESG ratings to ease the information burden on investors. In the process of reducing dimensionality, an incredible amount of judgment is needed. One aspect is factor weighting. Interestingly, one 2024 paper found that the environmental factors play the most significant role in explaining ESG scores generated by the 4 major ESG rating providers (Billio et al. 2024). They also found that there is a greater divergence among the individual E, S and G ratings compared to the overall ESG score. Akin to financial analysts, it could be that these agencies already have target scores that they adjust their models to fit. It also emphasizes that these score inputs can be very subjective. Media articles are a lot noisier, but ESG scores are like black boxes; there's a tradeoff that must be made.

Do the score weights correspond to greater economic value for investors? What letter in the ESG framework relates to the most investment returns? The social and governance elements have been around for much longer, but the environmental dimension usually gets most of the fresh attention. Climate change has inspired all kinds of action, including investment. However, research has not even been able to identify any strong relationship between ESG and stock prices in aggregated event studies; thus, the outlook for environmental factors specifically is bleak. An event study showed that the market reacts more strongly to ESG news related to social capital or a company's product. They note that investors are more poised to respond to ESG news when its financially material (Serafeim and Yoon 2022).

Moreover, looking at stock price reaction over 1-day to 3-day windows to both positive and negative ESG news from 2010 to 2018, Serafeim and Yoon found no significant reaction to negative news, only positive. As previously mentioned, I hope to yield more promising results with a wider range of years. Nonetheless, it could be that investors are still solely concerned about the bottom line and only how ESG is able to impact it. A socially responsible company might translate to a good investment, but the opposite does automatically not translate to a bad one. As the concept of ESG investing takes hold, it will be interesting to see if or when investors prioritize ESG over returns.

The industry distribution in a sample further complicates the matter. A quintessential restaurant business has vastly different ESG considerations than a software company. Additionally, the industry classification system is not without flaws. There are food service companies that have advanced technology like Domino's Pizza and Panera. There are also tech companies that offer food services like Amazon and Uber. A study found that there are not only

disparities across what type of ESG news is prevalent in a given sector but also whether it is mostly positive or negative. Notable insights were that companies in the Basic Resources industry received 60% more environmental criticism than others while financial institutions are criticized more for bad corporate governance (Capelle-Blancard and Petit 2017). Industry standards seem to correspond with the major type of ESG news published in media.

Additionally, considerations for articles and media sources not straightforward. Intuitively, the more likely an investor is to find out about material information, the more likely stock prices will react. In a highly efficient market however, this intuition may crumble. A 2019 event study found that the nature of media has no bearings on how the markets react but admitted further investigation is needed with more specific information. They also noted that the impact of negative ESG news is mitigated when the company previously disclosed more positive ESG information (Capelle-Blancard and Petit 2019). One might think news released that contradicts the status quo would punish companies more and not less.

From the management's end, evidence has shown that firms lacking in ESG-related areas are met with higher discount rates or increased exposure to disaster risk (Cornell and Damodaran 2020). Still, similar to findings in other papers discussed, they found little to no correlation between social responsibility and firm pricing. With an aggregate sample of 85,878 media articles referencing roughly 5,521 companies, I hope to take a more expansive and comprehensive look at ESG news and its relationship with stock prices. The hope is "punishment by ESG."

Chapter 3

Hypotheses Development

Considering the rapid increase in ESG research and steady growth in ESG new articles over time (Figure 3), An assumption underlying my analysis is that people are taking ESG factors more seriously. Specifically, environmental issues are becoming more urgent with the impending consequences of climate change and society's shift from personal to corporate accountability on the matter. The question is whether this environmental concern can be applied to the capital markets. It might still be a while before it can. Nevertheless, in an ideal world, investor decisions take precedent in deciding a firm's value. I posit that companies that act badly will eventually feel the effects financially. Furthermore, my preliminary research in ESG factors and investor reactions have led me to believe that investors still put governance factors first. The G in ESG may have the most of a financial impact because it's closely related to company leadership and management, followed by the S and E.

H1a: On average, investors punish companies for negative news related to ESG.

H1b: On average, investors punish companies for negative news related to governmental issues the most followed by social and environmental.

It is important to note that not all companies have similar ESG concerns. If investors can be advocates for society, then effects should be the most profound in areas where society cares the most. The industry category is one filter. In my analysis of the impact of negative ESG news on stock prices, it might be helpful to single out specific ESG concerns for specific industries. There might be an ESG impact on stock prices overall, but I believe the impact will be stronger where similar companies have struggled with a particular issue.

I obtained the ESG concern weight assignments by industry from MSCI's ESG Industry Materiality Map (MSCI 2023). MSCI is one of the leading providers of ESG ratings for investors and companies. The map showed that across industries governance concerns are a bigger concern across all industries. The specific industry-ESG concern matchings are also a little intuitive. Energy, utilities, and materials industries are most concerned with environmental factors. Health care, consumer discretionary, financials, information technology and communication services industries are most concerned with social factors. Consumer staples, industrials and real estate industries are most concerned with governance factors. It makes sense that industries closely related with natural resources focus on environmental factors. Similarly, industries that are more people-centered or people-dependent are associated with more social concerns. The governance group seems to be a catch-all for industries that can't fit in either group.

My second hypothesis (H2) works codependently with the MSCI information. If a company is focused or should be focused on a specific set of objectives, my hypothesis is that they'll also be scrutinized the most for those objectives. For instance, I think in the materials industry, investors will punish companies more for news related to environmental issues like GHG Emissions & Pollution and Resource Management. The MCSI map also affirmed my prior hypothesis that governance factors are ultimately regarded as the most important across all industries.

H2: On the industry level, investors punish companies more for their industry's prevalent ESG concern.

We know investors are not straightforward. An increased risk tolerance may cause an investor to buy stock from a company even with abysmal ESG practices. There's uncertainty

related to whether capital markets act as a correction to conflicts between the society and corporations, but it doesn't stop there. The media is not straightforward either. News articles can be simplistic, vague, biased, or just wrong. As a result, the number of risks associated with interactions between investors and new articles is compounded but should be similarly mitigated by a large sample size.

More popular news sources are more likely to be credible as well as have more consistent readers. Assuming investors only act on good quality information, they might respond more to articles published from trusted sources. The timing of article releases complicates the issue. The bigger media agencies might take longer to publish an article to carry out rigorous fact-checks and investigations. Less reputable sources might be quicker to publish an article. However, investors can only respond to articles they are aware about. Sources with more readership rates have an advantage in both timeliness and reliability of information. Thus, I think they should affect more of an impact on the capital markets.

H3: ESG news articles published by news sources with a higher reach correspond to a bigger stock price reaction.

The severity of an article should have bearings on stock price reaction. In this context, severity can be defined as the extent of a company's adverse ESG impact and therefore, its ability to counteract that impact as soon as possible. The concept is extremely subjective. If a firm is found to have high GHG emissions, what if it's only for a specific business unit? Is an oil spill always severe or does it depend on the area of land covered? Severity can be measured on both a financial and social impact scale. The pressing questions becomes do investors punish companies less for less severe ESG news? I think so. The impact difference on a severity

spectrum is likely material, especially for negative news. Investors tend to be loss averse. To investors, a 50% possibility of a loss is more serious than a 50% possibility of a gain (Kahneman 2011). Following that reasoning, articles that are more severe should have a greater impact on stock price.

H4: ESG news articles that are more severe correspond to a bigger stock price reaction.

The history of a company is another factor. There are companies that are known to have good reputations for social responsibility. The concept of greenwashing is also prevalent in a lot of industries. If a company that was previously conceived as a good actor is discovered to be a bad (or less good) one, are they at a higher risk of a stock price decrease? Similarly, is a company that is known to default on good ESG standards consistently punished by negative news, even though they are known for it? I think the good-turned-bad companies are at a higher risk. Information should not only be reliable and timely but also new. It's safe to say that investors that hold companies that have subpar ESG practices already know and are less likely to sell their stock if relatively similar information comes out.

H5: ESG news articles that are more novel correspond to a bigger stock price reaction.

Chapter 4

Research Methodology

My sample is from RepRisk, a database with negative ESG news about over 200,000 companies. They screen over 100,000 public sources from social media to government agencies daily. These articles were categorized based on 24 mutually exclusive ESG issues and were further assigned topic tags for more specific classifications. The original dataset stored ESG incidents as 0s and 1s to represent if a specific article was classified under a given category.

The next step in the data preparation process was category reduction. As illustrated in Figure 1, I developed 11 broader categories based on the available RepRisk classifications. They include Overexploitation of Ecosystems; GHG Emissions & Pollution; Resource Mismanagement; Consumer Relations & Privacy Violations; Employment Standards; Impacts on Local Communities; Workers' Rights, Health & Safety; Tax Practices; Anti-competitive Practices, Corruption, Fraud & Related Ethical Failures and Executive Compensation. As depicted by the terms in grey, I excluded classifications that were not applicable to the study or were too vague. The terms in blue are classifications that I included in more than one category as some of them are very closely related. Accordingly, the categories are not mutually exclusive.

The dataset stored only the internal RepRisk company identifiers with the corresponding ISINs in another file. In addition to the category merge, multiple merges were needed to get the CUSIPs and NAICS industry codes for each company. The resulting dataset was 77% smaller than the initial, totaling 1,272,719 observations. Before moving on to the event study stage, understanding the definition of an event was crucial. One article can be about more than one company. One company could have two or more differing articles published about them in the

same day. I defined an event as every unique company and incident date for any given category or industry. I dropped the duplicates only right before exporting the files for each research question, causing across board reductions in observations ranging from 2% to 67%.

Figure 1. Mapping of RepRisk Classifications

I used the Wharton Research Data Services (WRDS) US Daily Event Study software to run event studies for each category. The expected market returns are calculated over an

estimation window of 100 days, using the market-adjusted risk model. The estimation window is set to 50 days before the start of event window. The risk model used assumes the stock's expected return is equal to the market return, ignoring any stock-specific characteristics like firm-size or book-to-market ratios.

The event window begins a day before and ends a day after the event date (day 0). As I mentioned before, I identified events as the day an article was released about a certain company, as multiple articles can be released about a company in the same day. I used the Patell Z statistic to assess statistical significance among the different analyses. It standardizes the event window abnormal returns by the standard deviation of the estimation period abnormal returns. This test also assumes cross-sectional independence in abnormal returns as well as that there's no change in the variance of abnormal returns during the event period caused by the event itself.

By doing an analysis just 1 day after the event, I hope to control for biases in the data. It has been shown that returns for similar companies are correlated. In addition, ESG news articles are very noisy data. There's variance in severity, novelty, and media source. The research methodology is not without its limitations. Notwithstanding, this approach provides valuable insights into the immediate market response to ESG events.

Chapter 5

Results

As depicted in Figure 2, from a day before to a day after the event date (day -1 to day 1), the Mean Cumulative Abnormal Return (MCAR) for all ESG events was -0.065%. This accepts my hypothesis that investors punish companies for negative ESG news (H1). Intriguingly, majority of the decrease was from day -1 to day 0 with a -0.056% abnormal return. The Patell Z statistic for the MCAR at the end of the window was -7.29 which points to a significant result. Before the analysis, duplicate event date and company observations were dropped resulting in a sample of 85,878 observations. There was a total of 78,739 events at day 1 in the WRDS output with 40,323 of them being negative. These results are for all ESG events for all companies regardless of category, industry, media source or article characteristic.

Figure 2. WRDS Event Study Output for all ESG Events
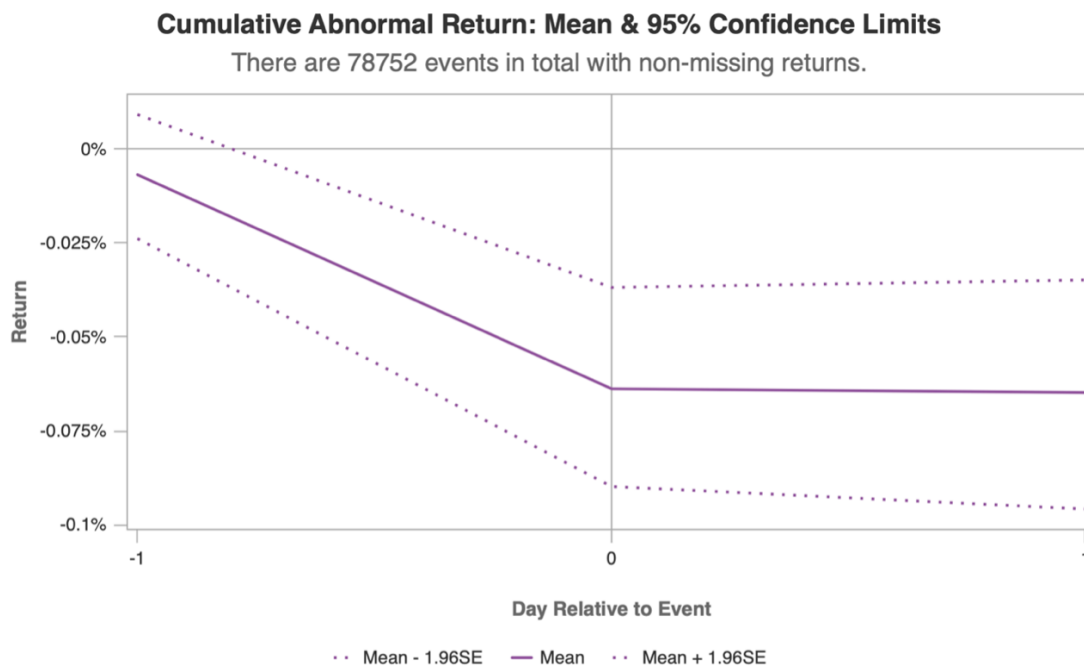
There are a few explanations for why a substantial amount of drop is before the event. Information is often leaked, and institutional investors usually already have access to news before it is released to the public. Market participants may also be anticipating the occurrence of an event especially if it's severe enough. A lot of the companies in the sample have very high visibility and speculation about their practices is not scarce.

Categories & Industries

The -6.5-basis point drop is statistically significant but relatively small from an economic magnitude standpoint. I carried out more event studies on the individual categories and then industries to uncover possibly larger decreases. Table 1 shows the MCAR and Patell Z statistics for each category as well as what letter in ESG they are related to. Articles in the corruption, fraud & related ethical failures category vastly outperformed the aggregate at -16.4 basis points. As displayed in Figure 1, his category included articles related to corruption, fraud, misleading communication, negligence, lobbying and violations of the United Nations Global Compact (UNGC) Principle 10, which states 'businesses should work against corruption in all its forms, including extortion and bribery.'

Research has found that investors prioritize financially material ESG factors rather than their personal beliefs on social responsibility (Amel-Zadeh and Serafeim 2017). Discovered ethical failures usually result in litigation, which not only directly reduce earnings but can also destroy a company's reputation. One study found that penalties imposed by the legal system, from 1978 to 2005, for fraud-related cases averaged to $23.5 million (Karpoff et al. 2008). It's one of the ESG categories that are very closely related to the bottom-line investors harp on. In

addition, problems with ethics, especially among top management, does not bode well for a company's culture and stakeholder relationships, two factors crucial for long-term success and financial health. If significant changes are not made, it could spell the end of the company.

Table 1. Abnormal Returns by ESG Category

ESG	Description	Mean Cumulative Abnormal Return	Patell Z for Cumulative Abnormal Return
G	Corruption, Fraud & Related Ethical Failures	-0.164%	-6.510
G	Anti-competitive Practices	-0.125%	-3.794
S	Consumer Relations & Privacy Violations	-0.100%	-7.686
S	Impacts on Local Communities	-0.064%	-4.246
S	Workers' Rights, Health & Safety	-0.047%	-3.111
E	GHG Emissions & Pollution	-0.028%	-3.272
G	Executive Compensation	-0.025%	-2.558
S	Resource Mismanagement	-0.098%	-1.794
E	Overexploitation of Ecosystems	0.005%	1.366
S	Employment Standards	0.018%	0.347
G	Tax Practices	0.046%	0.402

Coming in second was another G category, anti-competitive practices, at a -10-basis point decrease. Initially, this seemed like an anomaly. The category was about to be put in an 'other' category, saved for sample completeness and value relevance. Upon further analysis, I found that companies that are discovered to be anti-competitive face fines up to $210 million (Howell). Similar to the ethical failures category, an antitrust violation would directly translate to financial loss.

The categories that closely follow are related to the S in ESG: consumer relations & privacy violations, impacts on local communities and workers' rights, health & safety. Then, at

the bottom of the statistically significant results are the GHG emissions & pollution and executive compensation categories. All other categories are statistically insignificant results and some even returned positive MCARs. This might be due to the relatively small number of observations for these categories or limited statistical power.

With smaller sample sizes, there is an increased likelihood of variability and misrepresentation of the population. As in Figure 5, the bottom five of the events distribution by category are employment standards, resource mismanagement, anti-competitive practices, tax practices, and executive compensation. Four of these categories are the four statistically insignificant categories, except for executive compensation.

Still, I narrowed the sample even further by NAICS industry classifications to hopefully find some stronger significant relationships. Table 2 shows my analyses on some of the pairings; excluding pairs that were less intuitive or had too small of a sample size. The average pair set was at only 4,800 observations.

Table 2. Abnormal Returns by Industry & ESG Category

E S G	Description	Mean Cumulative Abnormal Return	Patell Z for Cumulative Abnormal Return
	Mining, Quarrying, and Oil and Gas Extraction		
S	Impacts on Local Communities	-0.185%	-2.613
E	GHG Emissions & Pollution	-0.109%	-2.059
E	Resource Mismanagement	-0.256%	-0.918
	Manufacturing		
S	Workers' Rights, Health & Safety	-0.042%	-0.748
E	Resource Mismanagement	-0.044%	-0.402
	Finance and Insurance		
G	Corruption, Fraud & Related Ethical Failures	-0.088%	-3.752
G	Tax Practices	0.032%	0.822
	Utilities		
E	Overexploitation of Ecosystems	-0.093%	-2.034
E	GHG Emissions & Pollution	-0.065%	-1.819
	Information		
S	Consumer Relations & Privacy Violations	-0.089%	-1.837
S	Workers' Rights, Health & Safety	0.060%	-0.213
	Retail & Wholesale Trade		
S	Impacts on Local Communities	-0.191%	-2.730
E	GHG Emissions & Pollution	-0.061%	-1.401
S	Consumer Relations & Privacy Violations	-0.046%	-1.193
S	Workers' Rights, Health & Safety	-0.048%	-1.124

The results revealed that it's not all spell and doom for the social and environmental factors. Some industry-category pairings survived the power issues. Negative articles related to pollution about companies in the Mining, Quarrying, and Oil and Gas Extraction corresponded to a -10.9-basis point decrease in stock prices the next day. For articles related to impacts on local communities, the decrease is -18.5 basis points. It is important to note that the difference between the two category-industry pairings is not statistically significant as the categories are not mutually exclusive. Compared to the aggregate -6.4 and -2.8 basis point decrease for the impacts on local communities and GHG emissions & pollution categories respectively, the MCARs for the Mining and Oil & Gas industry are larger. Conducting further analyses, I found that the MCAR translates to losses for the industry at $134 million and $207 million in the GHG Emissions & Pollution and Impacts on Local Communities categories.

Negative articles related to the Overexploitation of Ecosystems about companies in the Utilities industry corresponded to a -9.3-basis point decrease in stock price. Interestingly, this category-industry MCAR was the only one that was statistically different than its aggregate MCAR counterpart. A possible explanation is that the category-industry pair sample size was about 8 times smaller than the aggregate category. Despite this, the category-industry yielded statistically significant results with a Patell Z statistic of -2.034.

Altogether, the results confirm my H1b hypothesis that, across industries, investors punish companies for negative news related governance factors the most out of the three ESG letters, followed by the S and E. The average statistically significant MCARs across all governance-related categories is -10.4 basis points, compared to 7 for social and 2 for

environmental. The results confirm the established notion in research that investors are mostly concerned with economic implications (Serafeim and Yoon 2022).

On the other hand, the results reject my H2 hypothesis that investors punish companies for their industry's prevalent ESG concern. Most of the category-industry pairing yielded insignificant results. The significant ones are not enough to reach a conclusion across all industries. However, I believe further research may be done on specific industries, especially for the social and environmental factors. My assumption is that, now, more investors are investing in sustainable securities not only because it's material to returns but also because it's socially responsible. The correlation between stock prices and ESG-related news for social and environmental factors should be stronger to that effect. Alternatively, other less noisy measures of ESG competences will be available in a few more years. With any luck, there will be more data to carry out a more comprehensive analysis.

Media Sources & Article Types

There are many complications with using ESG news. There are justifications for why investors may react in all three different ways: inversely, directly and no reaction at all (Serafeim and Yoon 2022). News about increased ESG investment would mean less money to shareholders which may disincentive them from supporting it (and vice versa). However, if invested well, that investment should turn into lasting shareholder value. Investors can vary greatly on long-term or short-term standpoints. The third alternative is that investors just don't care. They may already have their beliefs about their investments and confirmation bias kicks in. Any contradicting

information is disregarded. Table 3 suggests otherwise. The MCAR for new or conflicting ESG information about a company is -9.4 basis points, compared to -5.9 for recurring incidents.

The article classifications were provided by RepRisk; thus, event studies were able to be carried out in a similar fashion to the category and industry data. Sample size was less of an issue, aside from the High Severity category. As shown in Table 4, it was the only grouping that resulted in a statistically insignificant MCAR with a Patell Z statistic of -0.289. Consistent with the existing theme, it actually had the lowest number of observations amongst all the groupings at 1,813 observations. According to the RepRisk metadata, the High Severity group represents the largest impacts in terms of consequence, extent and cause. For instance, in the category of Consumer Relations & Privacy Violations, a highly severe article could involve an article detailing multiple fatalities caused by a product due to systematic negligence. With the extensive legislative infrastructure in the US, the likelihood of highly severe events is not zero, but is still very low. That leaves ESG incidents that are moderately or slightly severe with MCARs of -13.1 and -4.8 basis points respectively. These results confirm that investors punish companies more for ESG news that are more severe.

RepRisk also classified media sources by their readership and circulation, denoted as Reach. Limited-reach sources would include local media, smaller NGOs, local governmental bodies, and social media. Medium-reach sources include most national and regional media, international NGOs, and state, national, and international governmental bodies. High-reach sources are the few truly global media outlets. The results imply that articles published from sources with a higher reach responded to a bigger stock price reaction. This could be due to

several factors. As noted in my hypothesis development, high-reach sources may be more likely

to be credible and respected by investors.

Table 3. Abnormal Returns by Article Novelty

Description	Mean Cumulative Abnormal Return	Patell Z for Cumulative Abnormal Return
New Incidents	-0.094%	-6.087
Recurring Incidents	-0.059%	-5.485

Table 4. Abnormal Returns by Article Severity

Description	Mean Cumulative Abnormal Return	Patell Z for Cumulative Abnormal Return
Medium Severity	-0.131%	-7.377
Low Severity	-0.048%	-4.860
High Severity	-0.021%	-0.289

Table 5. Abnormal Returns by Media Source Reach

Description	Mean Cumulative Abnormal Return	Patell Z for Cumulative Abnormal Return
High Reach	-0.197%	-7.788
Medium Reach	-0.060%	-5.374
Limited Reach	-0.030%	-2.799

Summary Statistics

All roads point to an increase in ESG concern over time. Figure 3 shows the trend of

RepRisk ESG incidents over more than a decade. Incidents are defined as all company mentions

in every article published. From 2007 to 2014, there was a steady rise that has however plateaued in recent years. A similar story is told by the number of companies in the sample per year. I extrapolated the number of companies that had never shown up in an article in prior years and labelled them "new occurrence." In addition to the total number of ESG incidents and companies flattening out after 2014, the percentage of new occurrences (NO) for total companies decreases over time as well. 2008 had 55.7% of NO companies which quicky dropped to 29.3% in 2009. By 2015, the NO percentage reached 19.1% with the lowest percentage in 2022 at 10%.

Figure 3. ESG Incidents & Companies per Year
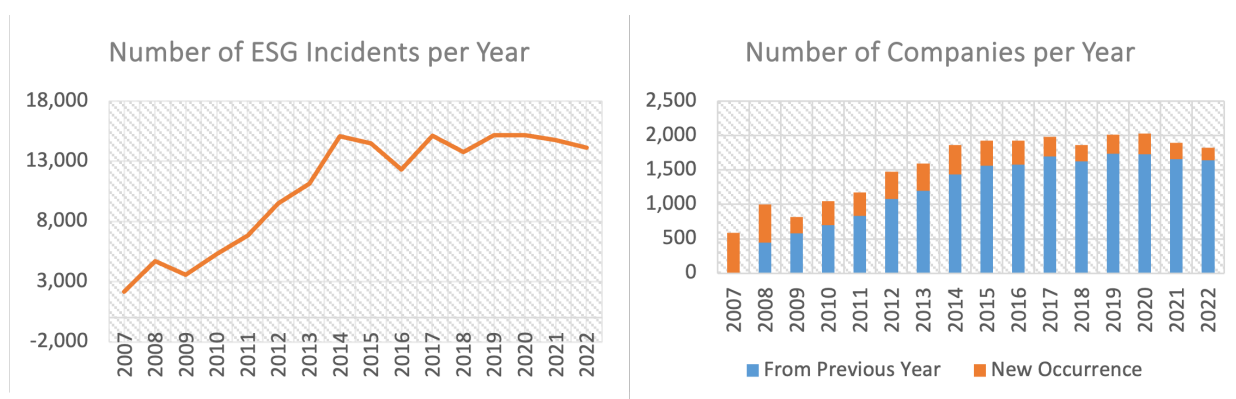
The event study takes all the days, regardless of year, to day 0 and calculated abnormal returns over the day before and after. Looking at the day analysis in Figure 2, for all companies in the dataset, the average number of articles in a day is about 3. The days are defined by days that there were actual articles published. As much as 200 companies, average to 12 negative articles published on them in one day. This illustrates how concentrated the articles are per company. It also affirms the logic that one article can reference multiple companies at the same time. Companies in the dataset are widely covered by different media publishers.

Figure 4. Frequency of the Average Number of Articles in a Day
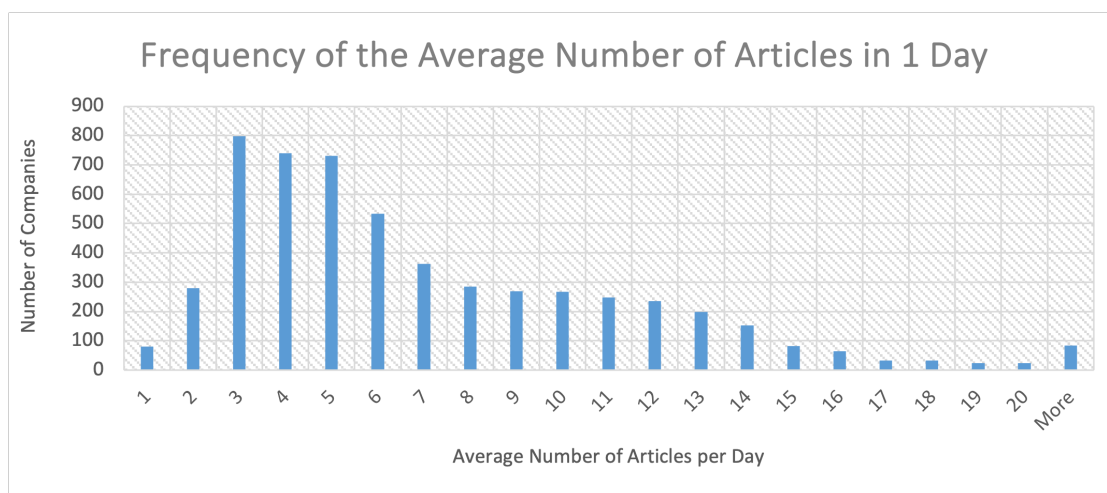
Another useful insight is to understand to frequency distributions in the dataset. Figure 4 shows the disparities in the number of events across all the groups. An event, as aforementioned, is defined as observations with unique company codes and incident dates. For the categories, the highest occurring type of event is Consumer Relations & Privacy Violations. Generally, events related to social issues dominate the media more than the environmental or governance issues.

**Figure 5. Category Distribution**
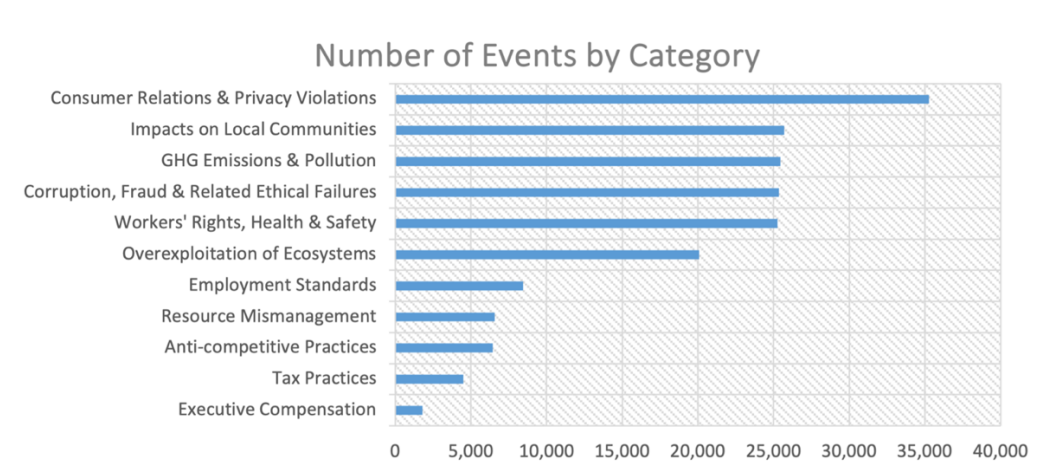
For the article distributions (also by event) in Figure 6, majority of the articles published are recurring incidents and are not too severe. These assessments were done by RepRisk, and

they were assigned numerical values on a scale of 1 to 3 and 1 to 2 for severity and novelty. These proportions indicate that most of the articles in the dataset may not result in a big stock price reaction. Considering my hypotheses that recurring incidents may correspond to a lower stock price decrease compared to new incidents, the overall dataset's stock price reaction in the dataset may be influenced by that relationship.

Figure 6. Article Distribution
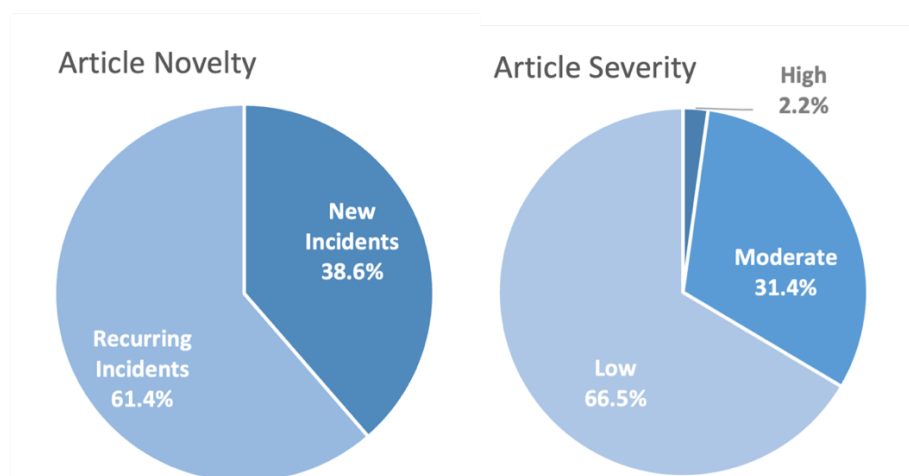
The event frequency distribution for media source reach was not too varied. Sources with high, medium, and low reach were 21.3%, 40.1% and 38.6% of the dataset respectively. This may offer a balancing effect to the aggregated stock price reaction for all the events. Considering multiple articles can be released in a day, I filtered for each category before dropping duplicates. These ordered steps will isolate the events for each category without losing some events that may have occurred on the same day for both categories. My hypothesis that sources with a higher reach can still be tested across categories.

Chapter 6

Conclusion

The key takeaway is that companies *are* punished for their negative ESG impacts. While the impact of negative ESG news on stock prices fell short of initial expectations, there are indications that it may amplify in the future. Delving into specific categories, governance-related issues predominantly influenced results, aligning with existing literature. Social and environmental issues had more significant impacts when categorized by industry. Furthermore, articles from more prominent media sources and those addressing novel and more severe topics correlated with greater stock price impacts. The findings affirm the widespread integration of ESG factors in investment decisions, emphasizing the necessity for authentic and comprehensive ESG management by companies. Ultimately, companies failing to effectively address ESG risks and concerns are likely to experience a decline in firm value. This underscores the importance of truthful reporting on sustainability, with hopes that management will exercise greater caution in manipulating such reports.

With only a few years of comprehensive research, ESG investing offers many opportunities for academic pursuit. The breadth of interrelated disciplines and functions broadens the academic possibilities exponentially. This paper hopes to contribute a minute fraction to every one of those branches. To iron out the nuances surrounding ESG news and stock prices, my objective was to push the needle of ESG research forward a little. The result of thousands of papers may transform loose assumptions into generally accepted norms. By prioritizing ESG, both investors and corporations can not only contribute to sustainable long-term value creation but also positive change in society and the environment.

Appendix A

Drill-down on Subcategories

Land Ecosystems	17,097	Local Pollution	21,039
Marine Coastal Ecosystems	3,159	Climate GHG Pollution	10,398
Fracking	1,895	Greenhouse Gas Emissions	3,706
Animal Mistreatment	1,770	Airborne Pollutants	2,438
Endangered Species	1,490	Coal Fired Power Plants	1,657
Mountaintop Removal Mining	556	Wastewater Management	1,030
Hydropower Dams	482	Oil Sands	732
Deep Sea Drilling	416	Arctic Drilling	439
Monocultures	374	Forest Burning	332
Illegal Logging	334	High Conservation Value Forests	243
Forest Burning	265	Ship Breaking Scrapping	25
Offshore Drilling	179	**GHG Emissions & Pollution**	**42,039**
Coral Reefs	121		
Fur	121	Waste Issues	8,914
Abusive Illegal Fishing	57	Overuse And Wasting	2,347
Animal Transportation	46	Wastewater Management	1,131
Seabed Mining	34	Water Management	860
Sand Mining Dredging	9	Energy Management	93
Overexploitation of Ecosystems	**28,405**	**Resource Mismanagement**	**13,345**
Prod Health Environment Issues	20,159	Indigenous People	7,474
Privacy Violations	5,132	Local Participation Issues	5,774
Social Discrimination	2,633	Land Grabbing	2,349
Cyberattack	742	Involuntary Resettlement	1,134
Predatory Lending	376	Hydropower Dams	472

Agric Commodity Speculation	209	Access To Prod Services	277
Consumer Relations	29,251	Agri Commodity Speculation	163
		Impacts on Local Communities	17,643
Poor Employment Conditions	11,122		
Occupational Health	11,000	Fraud	18,832
Salaries Benefits	3,162	UNGC Principle 10	14,438
UNGC Principle 3	1,733	Misleading Communication	10,252
Freedom Of Association	1,674	Negligence	6,719
Asbestos	525	Lobbying	619
Conflict Minerals	424	Corruption & Ethical Failures	50,860
Diamonds	104		
Workers' Rights, Health & Safety	29,744	Discrimination In Employment	2,318
		UNGC Principle 6	2,312
Tax Optimization	3,847	UNGC Principle 4	2,125
Tax Evasion	3,779	Forced Labor	2,114
Tax Havens	343	Racism Racial Inequality	1,679
Tax Practices	7,969	UNGC Principle 5	1,486
		Child Labor	1,409
Anti-Competitive Practices	12,860	Migrant Labor	1,014
		Human Trafficking	293
Executive Compensation Issues	3,440	Employment Standards	14,750

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