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THREE ESSAYS IN CORPORATE FINANCE

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Abstract

This dissertation comprises of three essays. The first essay (Chapter 1) looks at the incidence of sexual harassment in U.S. S&P 500 firms, and its relationship to shareholder value. The second essay (Chapter 2) is an investigation of the differences in policy toward corporate social responsibility (CSR) between family and non-family firms, using environmental performance as the proxy for CSR. The last essay (Chapter 3) investigates the undiversified shareholder rationale for corporate risk management by comparing the hedging behavior of family firms and non-family firms in the oil and gas industry between 1998 and 2015.

While sexual harassment has remained pervasive in the United States, its implications on shareholder value are not fully understood. In Chapter 1, I explore the value implications of sexual harassment. I find that public announcements of sexual harassment are associated with stock market losses that are both statistically and economically significant, as exemplified by an average abnormal drop in market capitalization of $419 million. In contrast, the average victim settlement is only $18.7 million. I find that investors react significantly less negatively if the firm takes action proactively, including by firing the perpetrator/s. Interestingly, I also find that a better corporate culture is associated with more sexual harassment cases being revealed, suggesting that such firms provide a safer reporting environment for victims. A firm is more likely to take action if it has higher institutional ownership, the victim is a woman, the perpetrator is a top manager, or the reported incident took place after the advent of the #MeToo movement. While the number of public announcements of sexual harassment escalated sharply following the start of the #MeToo movement on October 15, 2017, I find no significant difference in the market reactions before and after #MeToo.

Recent literature suggests that some socially responsible corporate actions benefit shareholders while others do not. Chapter 2 shows that family firms are more responsible to shareholders than non-family firms in making environmental investments. When shareholder interests and societal interests coincide, i.e., when it comes to alleviating environmental concerns that have potential to harm society and elevate the firm's risk exposure, family firms do at least as well as non-family firms in protecting shareholder interests. However, when shareholder and societal interests diverge, i.e., when it comes to making environmental investments that might benefit society but do not benefit shareholders, family firms protect shareholder interests by undertaking a significantly lower level of such investments than non-family firms. These findings suggest that lack of diversification by controlling families creates strong incentives for them to act in the financial interest of all shareholders, which more than overcomes any noneconomic benefits families may derive from engaging in social causes that do not benefit non-controlling shareholders.

Theory suggests that family firms should be more risk averse and engage in more hedging due to the presence of undiversified stakeholders in these firms. However, empirical evidence on this prediction has been inconclusive at best. Chapter 3 shows that, on average, family firms are about 30% more likely to hedge than non-family firms. Further, an additional family member on the board of directors is associated with a 5% higher likelihood that the firm is also a hedger and that hedging increases nonlinearly with family ownership. Interestingly, founder CEOs are especially likely to engage in hedging. These results are not driven by the 2008 spike in oil prices. However, FAS 123R may have moderated the difference in hedging between family and non-family firms.

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Chapter 1
Sexual Harassment, Corporate Culture and Shareholder Value

"It's a watershed moment," Moonves said [regarding the #MeToo movement] at a conference in November. "I think it's important that a company's culture will not allow for this. And that's the thing that's far-reaching. There's a lot we're learning. There's a lot we didn't know." But Moonves's private actions belie his public statements. Six women who had professional dealings with him told me that, between the nineteen-eighties and the late aughts, Moonves sexually harassed them…. Thirty current and former employees of CBS told me that such behavior extended from Moonves to important parts of the corporation, including *CBS News* and *60 Minutes*, one of the network's most esteemed programs.

– Ronan Farrow, The New Yorker, 7/27/2018

1. Introduction

While the practice of sexual harassment in the workplace is centuries old (Bularzik, 1978; Rosen, 1982; Kessler-Harris, 1982), it has recently come into sharp focus in the aftermath of the #MeToo movement that started on October 15, 2017. Since then, victims of sexual harassment in the workplace have come forward in unprecedented numbers to share their experiences. Anecdotal evidence suggests that sexual harassment in the workplace can be very costly to firms and their shareholders. For example, the shares of Wynn Resorts dropped more than 15% on January 29, 2018 after the *Wall Street Journal* reported sexual harassment cases against Steve Wynn, the founder of the company. Twenty-First Century Fox paid $20 million to Gretchen Carlson, who sued Roger Ailes, the then CEO of Fox, for sexual harassment. The negative financial implications of sexual harassment have not been limited to cases that involve top executives. For example, in 2017, Ford Motor Company reached a settlement for $10 million with the Equal Employment Opportunity Commission (EEOC) due to sexual harassment occurring at two of its plants in Chicago, which followed a similar settlement they reached in 1999 for $22 million.

In this chapter, I study how the incidence and disclosure of sexual harassment in the workplace is related to corporate culture and shareholder value. A large body of academic research, especially in sociology, psychology, and law, has studied various aspects of sexual harassment over four decades, including its prevalence in the workplace, characteristics of perpetrators and victims, organizational settings in which sexual harassment occurs, and various negative outcomes of sexual harassment both at the individual and organizational levels.[1] However, there is little systematic evidence on the economic consequences of such behavior. Nor is there any evidence on whether such economic consequences are confined to the direct financial costs incurred by the firm (as in Karpoff, Lott, and Wehrly, 2005), such as monetary payments to victims of sexual harassment, or whether they also include broader organizational costs such as reputational penalties.

I first examine the stock market reaction surrounding the public disclosure of sexual harassment cases in U.S. S&P 500 firms from 2012 to 2018. My sample consists of 174 sexual harassment reports involving both top executives and rank-and-file employees. The stock market reactions to sexual harassment announcements are statistically and economically significant on the event date, and the two- and three-day windows around the event, translating into mean risk-adjusted losses in market capitalization of $158 million, $234 million, and $419 million, respectively, for the firms where the sexual harassment occurred. For the subset of 25 firms where data on financial settlements with victims is available, the mean event day, two-day, and three-day losses in market capitalization are $137 million, $240 million, and $179 million, respectively, while the mean settlement is only $18.7 million. These findings suggest that sexual harassment imposes large costs on firms and these costs exceed the direct financial costs of victim settlements by an order of magnitude. Further, given that employees are the key

[1] See, for example, literature surveys by Pina, Gannon, and Saunders (2009) and McDonald (2012).

stakeholders directly affected by sexual harassment, I show that firms with public revelations of sexual harassment experience significant reductions in employee productivity in the year following the announcement.

Next, I study the relationship between announcements of sexual harassment and observable firm characteristics. While a poor corporate culture could be associated with a higher incidence of sexual harassment, my finding is consistent with the alternative hypothesis that a better corporate culture leads to more sexual harassment cases being revealed, since victims likely feel safer and more confident about reporting and taking action against perpetrators of sexual harassment.

I also analyze the cross-sectional determinants of the cumulative abnormal returns (CARs) following the disclosure of sexual harassment cases. I find that investors react significantly less negatively if they learn that the firm took action proactively when it became aware of the harassment. Interestingly, if the initial disclosure stems from a public announcement of a legal filling, then investors react less negatively compared to cases where the harassment is revealed via a media report. Additionally, the CARs are also significantly less negative if the perpetrator is fired and if this news is made public in the initial announcement.

While the number of publicly reported cases of sexual harassment increased dramatically after the #MeToo movement, I find that the difference in CARs before and after #MeToo is statistically insignificant. However, I find that the probability of a firm taking action increases by 59.4% after #MeToo, which is a 135% increase relative to the unconditional probability of a firm taking action once a harassment case is revealed.[2] In addition, a firm is

[2] A *New York Times* article revealed that a year after the #MeToo movement, at least 200 high-profile men had lost their jobs due to allegations of sexual harassment versus less than 30 in the previous year (Carlsen et al., 2018).

also more likely to take action if the victim is a woman and the perpetrator is a top manager; firms with higher institutional ownership are also more likely to take action. I also find that firms headquartered in one of the 35 U.S. states that have adopted corporate constituency statutes, which require directors to consider the impact of their decisions not only on their shareholders but also on all other stakeholders, including employees, customers, suppliers, and communities, are significantly less likely to have announcements of sexual harassment. However, there is no significant difference between stakeholder and nonstakeholder states in the market reaction to sexual harassment announcements.

The findings of this chapter contribute to three strands of literature. First, I contribute to the literature on sexual harassment. Previous studies of sexual harassment have been limited to federal government workers or workers in specific industries, such as lawyers, doctors, or university staff. This is the first study to my knowledge that systematically studies sexual harassment in S&P 500 firms. Even though sexual harassment at the workplace is illegal, it remains pervasive. Hersch (2011) examines whether sexual harassment lowers wages by reducing productivity or raises wages as a compensating risk premium. She finds that on the balance, workers receive a wage premium for the exposure to the risk of sexual harassment. Hersch (2018) argues that the current legal penalties are not sufficient to deter sexual harassment in the workplace. She calculates the "Value of Statistical Harassment," similar to the calculation of "Value of Statistical Life," and proposes that boosting the maximum damages award to equal the "Value of Statistical Harassment" would provide appropriate economic

incentives for firms to prevent sexual harassment.[3] Bac (2018) theoretically models the relationship between wages, harassment, and internal compliance structure in firms. He argues that wages are instrumental in reducing coworker harassment only in the presence of effective internal structures that victims can trust and easily use to seek redress, without fear.[4] In this chapter, I directly study the market estimates of the total costs associated with cases of sexual harassment.[5] To the best of my knowledge, I am the first to present comprehensive evidence of the costs to shareholders arising from sexual harassment.

Second, I contribute to the literature that examines the relationship between corporate misconduct and reputational penalties. The key takeaway from this literature is that markets impose significant reputational penalties (which go over and beyond legal penalties) on firms that violate their implicit contracts with key stakeholders.[6] Such losses occur when these key stakeholders change the terms by which they are willing to do business with the firm. Previous studies have documented reputational costs when firms violate implicit contracts with investors, business partners, suppliers, and customers (Jarrell and Pletzman, 1985; Karpoff and Lott, 1993; Karpoff, Lee, and Martin, 2008; Cline, Walking, and Yore, 2018). However, the

[3] Title VII of the Civil Rights Act of 1964 allows for both compensatory and punitive damages. The compensatory damages pay victims for out-of-pocket expenses caused by the discrimination and compensate them for any emotional harm suffered. Punitive damages may be awarded to punish an employer who had committed an especially malicious or reckless act of discrimination. The maximum total damages charged upon employers with 15 to 100 employees is $50,000; for those with 101 to 200 employees is $100,000; for 201 to 500 employees is $200,000; and for more than 500 employees is $300,000. These limits were set in 1991 and have not been changed since. Apart from these a victim may be entitled to other compensation and remedies such as economic damages (compensation for lost wages, future wages, or related expenses) and equitable relief (remedies that helps to recover from harassment including job reinstatement).

[4] He shows that wages and harassment risks should be negatively correlated across organizations with similar and effective compliance structures. Higher wages directly deter harassment by increasing the price of harassment (termination). There is also an indirect reinforcing effect that works by raising the probability of a complaint, because higher wages imply a higher contractual utility to the victim.

[5] Hersch (1991) studies the stock market reaction of firms that are involved in suits alleging violations of equal employment opportunity laws between 1964 and 1986 (she does not distinguish between sexual harassment and other forms of discrimination in her analysis). She finds that the equity value of firms charged with violating equal employment opportunity laws falls at the time a suit, decision, or settlement is announced. In addition, she documents that the average loss to shareholders is triple that of the average direct costs to the firm of settling the case. She believes that part of this additional loss of market value might be related to the costs of changing employment practices.

[6] See Karpoff (2012) for a comprehensive review.

prior literature has not examined the reputational costs of violating implicit contracts with employees, who are another key stakeholder group. In my setting, sexual harassment acts as an instrument for the violation of the implicit contracts firms have with their employees, helping me to overcome endogeneity concerns and difficulties in measurability. Notwithstanding the small sample size, I find that sexual harassment results in organizational/reputational costs that go well above any legal penalties. Further, I provide evidence that employee productivity drops in firms that have a public revelation of sexual harassment.

Finally, I contribute to the growing finance literature on corporate culture. A number of recent papers have documented how corporate culture is related to firm value (Guiso, Sapienza, and Zingales, 2015; Green et al., 2019). In particular, several papers document that firms with poorer culture are associated with more corporate misconduct (such as financial misreporting and insider trading), U.S. Securities and Exchange Commission (SEC) fraud enforcement actions, and securities class action lawsuits (Bereskin, Campbell, and Kedia, 2013; Biggerstaff, Cicero, and Puckett, 2015; Davidson, Dey, and Smith, 2015; Liu, 2016; Griffin, Kruger, and Maturana, 2017; Ji, Rozenbaum, and Welch, 2017). Cline, Walkling, and Yore (2018) study how managerial indiscretions, including sexual misadventure, adversely affect shareholder value. An important distinction between their paper and our research is that they look at *personal* indiscretions; they argue that managers who violate integrity in their personal lives compromise the trust that key stakeholders place in the firm and its operations. Further, their sample is limited to upper level management whereas nearly 80% of my observations involve lower level employees and managers. Lins et al. (2019), using the #MeToo movement as a natural experiment, show that a female-friendly corporate culture is value enhancing. I contribute to this literature by showing that firms with a better culture are associated with more sexual harassment cases being reported, consistent with the idea that victims in a firm with a better culture would feel safer and more comfortable in reporting sexual

harassment. Reports of sexual harassment can also reveal information about the culture of the firm. Indeed, I find that investors react less negatively when a firm acts proactively upon receiving a sexual harassment report. Interestingly, in my baseline results, I also document that the CARs are significantly less negative for firms that have a better culture. This implies that investors react differently based on whether the harassment is likely due to a high prevalence of sexual harassment in the firm (indicative of a poor corporate culture) or if the harassment was reported because the firm has effective mechanisms in place to handle sexual harassment (indicative of a good corporate culture).

The rest of this chapter is organized as follows. Section 2 provides a review of the relevant literature. Section 3 presents an overview of the data and the methodology used in the study. Section 4 contains the main empirical analysis and discussion of the results, while Section 5 concludes.

2. Background and Hypotheses

In this section, I review the relevant institutional details and literature, and then formulate my empirical hypotheses. The term "sexual harassment" first appeared in 1975, in a *New York Times* article,[7] even though the practice of sexual harassment in the workplace is centuries old.[8] The 1970s saw a social movement led by female lawyers and activists that ultimately resulted in the American legal system recognizing sexual harassment as a form of discrimination. In 1980, the EEOC issued the "Guidelines on Discrimination Because of Sex," identifying sexual harassment as a violation of Title VII of the Civil Rights Act of 1964.

[7] Lin Farley is said to have coined the term "sexual harassment" (Nemy, 1975).

[8] For example, even decades after emancipation, sexual coercion of African-American women who worked as domestic servants was common (Giddings, 1984; Berch; 1984). There are also accounts of women who encountered a variety of sexual advances from men while employed in factories and clerical positions during the late 19th and early 20th centuries (Bularzik, 1978; Rosen, 1982; Kessler-Harris; 1982).

Academics have struggled to give a single definition for sexual harassment and to specify what behaviors might be included. One of the key debates is distinguishing sexual harassment from other expressions of sexual interest (Gutek and Morasch, 1982). For example, some argue that flirting or sexual banter at work may help create a more relaxed workplace environment (Quinn, 1977; Williams, Giuffre, and Dellinger, 1999). Contemporary researchers now appear to categorize verbal comments and requests as well as nonverbal behavior as sexually harassing (Pina, Gannon, and Saunders, 2009).

In the United States, employment discrimination based on race, color, religion, sex, or national origin is prohibited under Title VII of the Civil Rights Act of 1964. The EEOC, established in 1965, enforces and administers this statute. However, initially sexual harassment was not defined nor specifically covered under Title VII.

When the EEOC issued "Guidelines on Discrimination Because of Sex," in 1980, it also offered guidelines for establishing criteria to determine whether sexual harassment has occurred. Accordingly, the EEOC identifies two types of sexual harassment: "quid pro quo" harassment and "hostile work environment" harassment. To quote the EEOC (2019):

> Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitutes sexual harassment when (1) submission to or rejection of this conduct explicitly or implicitly affects an individual's employment, (2) unreasonably interferes with an individual's work performance or (3) creates an intimidating, hostile or offensive work environment.[9]

[9] Sexual harassment can occur in many different circumstances and can include but not be limited to the following behaviors: a) the victim as well as the harasser may be a woman or a man. The victim does not have to be of the opposite sex; b) the harasser can be the victim's supervisor, an agent of the employer, a supervisor in another area, a coworker, or a nonemployee; c) the victim does not have to be the person harassed, but could be anyone affected by the offensive conduct; d) unlawful sexual harassment may occur without economic injury to or discharge of the victim; e) the harasser's conduct must be unwelcome (EEOC, 2019).

Activities that fall under (1) and (2) when committed by a supervisor are considered quid pro quo harassment. This type of harassment must be linked to a tangible employment action, such as hiring, firing, job promotion, and compensation. An example of a quid pro quo harassment would be a supervisor telling a subordinate that his/her promotion would be contingent only on him/her agreeing to engage in a sexual relationship with the supervisor. A harassment that does not involve tangible employment actions falls into the third category and is known as a hostile work environment harassment. This can be committed either by supervisors and/or coworkers. Examples of this type of harassment include obscene jokes, displaying of pornographic images at the workplace, sharing sexually inappropriate images or videos, making inappropriate sexual gestures, inappropriate touching, or making demeaning comments about women's ability to perform their jobs because of their sex.

An employer's liability for sexual harassment depends on the perpetrator's position at the workplace and the type of sexual harassment.[10] If a direct supervisor engages in quid pro quo harassment, the employer is held strictly liable. In the case of a hostile work environment, the employer is held strictly liable but may attempt to establish an affirmative defense. The defense has two parts: the employer must establish that 1) it reasonably tried to prevent and promptly correct the harassing behavior, and 2) the employee unreasonably failed to take advantage of any preventive or corrective opportunities provided by the employer. Therefore, victims need to exhaust all internal procedures before taking any further action.

If the remedies provided by these internal mechanisms prove to be unsatisfactory, the victims could file a complaint with the EEOC or with the corresponding state or local Fair

[10] Not every type of unpleasant work conduct is considered harassment. The behavior must be severe or pervasive in addition to being unwelcome for it to be illegal. In the case of a severe harassment, such as rape, only one instance would be sufficient to support a discrimination claim.

Employment Practices Agency.[11] After a complaint is filed, the EEOC will investigate and attempt to resolve the claim without litigation. If the EEOC finds that there is truth in the allegations, it may file a lawsuit in federal court against the employer. In most cases the EEOC does not sue, but issues a "Right to Sue" letter, which gives the victim the right to file a private lawsuit.[12]

The 1970s also saw the start of academic research on sexual harassment, particularly in the fields of sociology, psychology, and law. Over the past four decades, academic research has studied various aspects of sexual harassment, including its prevalence, characteristics of the perpetrators and victims, the organizational settings in which sexual harassment occurs, and various negative outcomes of sexual harassment both at the individual and organizational level. However, little evidence exists of the economic consequences of such behavior in the workplace.

"Me too" was a movement that was initiated by Tarana Burke, an activist, in 2006 to help survivors of sexual violence, particularly black women and girls, and other women of color from low income communities. On the 15th of October in 2017, Alyssa Milano, an American actress, invited anyone who has been sexually harassed or assaulted to tweet "#MeToo" on Twitter. Within 24 hours, there were more than 500,000 responses to her original tweet using the hashtag "#MeToo."[13] Since then, victims of sexual harassment in the workplace have come forward in unprecedented numbers to share their experiences. In S&P 500 firms

[11] In cases where a distinct date of harassment can be identified (more common in quid pro quo harassments), a complaint must be filed within 180 days (or 300 days if the state has a law prohibiting the type of discrimination). If more than one discriminatory event took place, the above timeline applies to each individual event. In the case of ongoing harassment cases, the filing must be done 180 (300) days within the last incident of harassment.

[12] After receiving a "Right to Sue" notice, the victim has 90 days to file a private lawsuit.

[13] See "After a year of #MeToo, American opinion has shifted against victims," *The Economist*, October 15, 2018.

alone, there has been a dramatic increase in the number of news stories related to sexual harassment since the advent of the #MeToo movement (Figure 1).

Prior studies have documented many ways in which sexual harassment could potentially impose significant organizational costs on firms for failing to rapidly and effectively deal with it, including the effects of a victim's anxiety, depression, and post-traumatic stress disorder (Fitzgerald, Swan, and Fischer, 1995; Fitzgerald et al., 1997; Crocker and Kalemba, 1999; Bergman et al., 2002; Willness, Steel, and Lee, 2007). In addition, sexual harassment can create significant negative externalities, such as team conflicts and occupational stress (Rubin, 1995; Applen and Kleiner, 2001; Raver and Gelfand, 2005; Miner-Rubino and Cortina, 2007), which can easily translate into a less productive work environment, increased turnover, and absenteeism (U.S. Merit Systems Protection Board Office of Policy and Evaluation, 1995; Fitzgerald, Drasgow, and Magley, 1999; Bergman and Drasgow, 2003; Willness, Steel, and Lee, 2007; Feldblum and Lipnic, 2016). And, while firms with high levels of employee satisfaction are more valuable and generate superior long-horizon returns (Edmans, 2011), a number of studies document that sexual harassment leads to less job satisfaction (Laband and Lentz, 1998; Antecol and Cobb-Clark, 2006; Miner-Rubino and Cortina, 2007; Salvaggio, Hopper and Packell, 2011). Conceivably, once revealed, sexual harassment cases could also impose serious reputational damage on firms.

If sexual harassment is costly to firms and their shareholders, [14] I expect that:

[14] Since the sexual harassment cases in our sample mostly involve employees on the lower end of the organizational hierarchy, one could argue for the null hypothesis that these cases should have no impact on the abnormal returns. Further, if sexual harassment is considered to be an occupational hazard and is already compensated through a wage premium (Hersch, 2011), then too the impact on abnormal returns could be negligible.

H1: *An announcement of a sexual harassment incident in a firm will be associated with a negative abnormal return in the share price of that firm.*

As discussed previously, it is possible that the costs imposed on the firm are confined to the legal liabilities associated with the sexual harassment episode. Alternatively, it is possible that the costs will transcend legal liabilities to include costs associated with loss of employee productivity,[15] increased absenteeism/turnover, increased insurance premia, and reputational damage. If sexual harassment imposes costs that exceed the legal penalties, I would expect the market reaction at the announcement of a sexual harassment incident to be greater than the size of the legal settlement, with any difference reflecting the relative magnitude of other organizational costs and reputational costs associated with sexual harassment.

To my knowledge, there is also little that is known about the relationship between corporate culture and sexual harassment (both the incidence and reporting of it). Extant research suggests that sexual harassment is more prevalent in certain working environments (Frye, 2017) but there is no comprehensive analysis of the relationship between sexual harassment and metrics of corporate culture and governance that are commonly used in the finance literature. Obtaining a better understanding of this relationship provides new insight into how sexual harassment affects shareholder value. Conceivably, in some companies, e.g. companies with lower employee satisfaction, high-pressure working environments, and/or poor governance, the stock price already incorporates expected losses from sexual harassment lawsuits and settlements, while in others the news of such episodes might come as a surprise. At the same time, some corporate cultures make it more likely that employees would report sexual harassment incidents, while in others victims would be more inclined to keep such

[15] It could also be the case that, once a sexual harassment case is revealed, shareholders realize that the employees were less productive than they could have been in the past due to sexual harassment.

incidents to themselves due to coercion, quid pro quo arrangements with perpetrators, or fear of reprisal.

Prior research shows that organizational climate is the single most important predictor of sexual harassment at the workplace (Fitzgerald, Gelfand, and Drasgow, 1995; Fitzgerald, Hulin, and Drasgow, 1997; Welsh, 1999; Willness, Steel, and Lee, 2007). In the context of sexual harassment, organizational climate refers to the extent to which an organization is tolerant of sexual harassment and the presence, accessibility, and effectiveness of harassment remedies (Fitzgerald, Gelfand and Drasgrow 1995; Fitzgerald, Hulin, and Drasgow, 1997). This important element of organizational culture includes aspects such as the perceived risk to victims for complaining, a lack of sanction against offenders, and the perception that the victim's complaints will not be taken seriously (Hulin, Fitzgerald, and Fritz, 1996). Therefore, I would expect that:

H2A: *A poorer corporate culture will be associated with a higher incidence of actual sexual harassment cases.*

On the other hand, better corporate culture might lead to more sexual harassment cases being revealed, as victims feel safe and confident about reporting and taking action against the perpetrator.[16] If so, I would expect that:

H2B: *A better corporate culture will be associated with a higher incidence of reports of sexual harassment cases.*

The public revelation of sexual harassment at a firm can reveal information about the firm's culture. The announcements may divulge information about the firm's handling of a

[16] Concerns about retaliation and the consequent effect on job satisfaction are some of the reasons sexual harassment is widely underreported (Bergman et al., 2002).

case once it's notified about a harassment. In particular, investor reaction to events where the firm had taken some action may differ from events where the firm had done nothing. Given the value implications discussed above, I would expect that:

H3: *Firms that act once notified of harassment experience higher/less negative cumulative abnormal returns.*

With the advent of the #MeToo movement, sexual harassment at the workplace has been made more visible than ever before. However, less clear is whether investors' perception of the financial implications associated with sexual harassment have changed. Survey data reveals that, following the #MeToo movement, perceptions and attitudes towards sexual harassment have changed among different groups of people. [17] Hence, I investigate whether stock market reactions to cases of sexual harassment differ before and after the #MeToo movement. If organizational costs related to sexual harassment are perceived to be more severe than before, I would expect that:

H4A: *Cumulative abnormal returns would be lower/more negative following the #MeToo movement.*

On the other hand, following the advent of the #MeToo movement, if investors believe that sexual harassment happens everywhere and they take it less seriously, I would expect that:

[17] A 2018 *Economist* magazine poll included in the article cited in footnote 13 reveals that the percentage of American adults responding that men who sexually harassed women at work 20 years ago should keep their jobs has risen 28% to 36% from 2017 to 2018. Similarly, it reports that the proportion of people that think women who complain about sexual harassment cause more problems than they solve has grown from 29% to 31%. Another poll, also conducted by *The Economist* magazine ("What group of people is most hostile to #MeToo?", January 12, 2019), reveals that after the #MeToo movement young men in four Western countries (the United States, Britain, France, and Germany) appear to be even more accepting of inappropriate behavior. For example, the proportion of men under 30 who think that a stranger flashing his genitals at a woman constitutes sexual harassment had dropped from 97% to 79% in Britain, and from 91% to 78% in the United States between 2017 and 2018.

H4B: *Cumulative abnormal returns would be higher/less negative following the #MeToo movement.*

3. Data

In this section, I describe the data and methodology used in this study. I discuss the sample in Section 3.A, the control variables in Section 3.B, and the summary statistics in Section 3.C.

3.A The Sample

To construct my sample, I start by obtaining from Institutional Shareholder Services (ISS) a list of publicly reported sexual harassment cases in S&P 500 firms from 2012 to 2018. I augment this data by adding additional cases of sexual harassment that I locate through a Factiva search. Through this process, I identify a total of 188 news articles related to sexual harassment in S&P 500 firms. For each event, the announcement date is the date of the first news article that mentions it. Then, I carefully study each news article and extract data about the event, including data on the nature of the harassment, the action taken by the firm if any, the parties involved, and the initial source of disclosure.

The sexual harassment cases used in this study vary from hostile work environment harassments, such as those that involve obscene jokes, touching, or verbal abuse, to quid pro quo harassments that include supervisors explicitly requesting or coercing sexual favors in return for job security or advancement. The perpetrators are not limited to top executives and involve various parties such as coworkers, store managers, and factory supervisors. While most of the victims are women, there are a few cases where men and transgender men and women have also been subject to sexual harassment. Table 1 provides examples of the harassment cases used in this study.

After screening the news articles, I retain a total of 174 distinct events from 64 unique firms that provide sufficiently detailed information to enable further analysis and I use these 174 events in my event study. Further, conditional on the availability of the other control variables and the use of fixed effects, the regressions that follow use a total of 152 announcements.

Table 2 provides details on the characteristics of the events considered in this study. The harassment sample consists of all 174 events while the regression sample consists of only the 152 observations that are used in the regressions. Panel A reveals the initial source of public revelation for each case. Of the 174 events, 12.1% are revealed through firm-initiated announcements, 58% are publicized through legal filings, and the rest are discovered and reported by the media. As shown in Panel B, in 43.9% of the cases (out of 164), the firm takes some action regarding the harassment; in 24.8% of the cases (out 149), the perpetrator had been fired when the news was released; in 45% of the cases (out 160), the victims claim retaliation when they reported the harassment; and in 13.9% of the cases (out of 173), the company contradicts the claims made by the victim. Panel C provides details about the perpetrators. A majority of the perpetrators are male (97.6% out of 165) and are managers (59.4% out of 165) with 80 cases involving managers only and 18 involving both managers and coworkers. I further break down the managers (a total of 98) into CEOs, other C-suite managers (Chief Operating Officer, Chief Financial Officer, or Chairman), other executives, and other managers (such as supervisors, factory managers, or store managers). It is evident that, out of the cases that involve managers, a majority involve "other managers," who are at the lower end of the chain of command (67.3% out of 98; 65 cases involve only other managers and one case involves both executives and other managers).

Panel D provides details about the victims. A majority of the victims are female (86.7% out of 166) and a majority of the events relate only to the harassment of one individual (63.5% out of 170). As seen in Panel E, consistent with what has been observed in practice, a majority of the claims are categorized as hostile work environment harassments (88.1% out of 168). Since the #MeToo movement, which began on October 15, 2017, the number of sexual harassment cases that have been revealed has increased considerably. This pattern is evident in S&P 500 firms as well (Panel F): 48.9% of the cases (85 out of 174) are revealed between October 15, 2017 and December 31, 2018 compared to the 89 cases revealed between January 1, 2012 and October 14, 2017. Figure 1 shows a clear spike in the number of harassment cases that are revealed in S&P 500 firms in 2017, a 100% increase compared to the number of cases revealed in 2016.

The industry distribution (using two-digit SIC codes) of the sexual harassment announcements is presented in Panel G. About 28% of the cases occur in the communications industry (SIC code 48). This includes entertainment and media firms and is arguably where some of the most publicized cases of sexual harassment have been reported. Consistent with other research (Hersch, 2011 and 2018), certain industries appear to have a higher likelihood of sexual harassment.

3.B Control Variables

I include several firm-level controls in my regressions. Accounting data (including the number of employees) is from the Compustat Fundamentals Annual database and stock data is from the Center for Research in Security Prices (CRSP). I control for firm size using the log of the number of employees. Firm age is calculated as the difference between the year under consideration and the year in which the firm is first included in the CRSP data set. I control for market leverage by including the ratio of long-term debt to total assets (adjusted for the market

value of equity) and profitability is controlled for by a measure of ROA (EBITD over total assets). Growth opportunities are controlled for by the inclusion of an estimation of Tobin's Q. I obtain the analyst coverage data from the Institutional Brokers Estimates System (I/B/E/S) database. As in earlier studies (Hong, Lim, and Stein, 2000; Hong and Kacperczyk, 2009; He and Tian, 2013), I define my measure of analyst coverage as the log of (1+average number of analysts).

Following recent papers (Huang et al., 2015; Hales, Moon, and Swenson, 2018; Ji, Rozenbaum, and Welch, 2018; Green et al., 2019; Sheng, 2019), I obtain employee ratings for the S&P 500 firms from Glassdoor.com to create a measure of firm culture. Employees' views are a direct way to measure corporate culture since they experience a firm's culture firsthand. Glassdoor, launched in 2008, is a website that allows current and former employees to anonymously review firms, and search and apply for jobs.[18] Glassdoor asks employees to report their overall satisfaction with their firm as well as in five separate categories (culture and values, career development, compensation and benefits, senior management, and work-life balance) using a 5-point Likert scale where 1 is the lowest level of satisfaction and 5 is the highest. Following the literature, I use the average overall rating each year for each firm as a measure of corporate culture.[19] As an additional measure of corporate culture, following Lins et al. (2019), I also use the fraction of women among the top-five-compensated executives of a firm to capture the extent to which the firm is "female-friendly." Given that the vast majority of the victims in my sample are women, this measure is likely to capture a highly relevant aspect of firm culture in the context of my study.

[18] Glassdoor maintains a "give to get" policy, which helps reduce polarization bias and encourages more neutral and balanced company ratings (Chamberlain and Smart, 2017). Under this policy, in order to receive unlimited access to the content on its website, employees are required to submit a review. In addition, Glassdoor maintains a two-step moderation process to detect abuse or gaming, minimizing the likelihood that companies can unduly influence the reviews given by employees.

[19] The results are robust to using the median overall rating and the cumulative average overall rating.

Most of the governance data, particularly data related to the composition of the board including the fraction of board members who are women,[20] is from ISS. Following Cline, Walking, and Yore (2018), I create a "poor monitoring" index. This is an index that ranges from 0 to 4 and is the sum of the following four dummies: busy board dummy (takes a value of one if 50% or more of the outside directors hold three or more total directorships), nonindependent board dummy (takes a value of one if 50% or more of a board is classified as nonindependent directors), large board dummy (takes a value of one if the board size is over the yearly median board size of all firms covered in Execucomp), and hand-picked board dummy (takes a value of one if 50% or more if the independent directors have a tenure shorter than that of the CEO). Data on institutional ownership is obtained from Thomson Reuters Institutional (13f) Holdings and family firm data is hand-collected.

All firm-level control variables are lagged by a year and all continuous variables are winsorized at the 1st and 99th percentiles. Unless otherwise specified, I include industry and year fixed effects in all my regressions.[21] Detailed descriptions of the variables can be found in Appendix A.

3.C Summary Statistics

Table 3 presents the summary statistics for the control variables discussed above. Panel A contains the full sample of S&P 500 firms while Panel B looks at the harassment subsample only.[22] Given the availability of the required control variables, the full sample consists of a maximum of 2,448 firm-year observations, with an average market capitalization of $36.36 billion and an average of 60,404 employees. The average overall Glassdoor rating is 3.34 and

[20] Unfortunately, for most firms the breakdown of the employees (or managers) by gender is not available.

[21] To avoid the incidental parameters problem in Probit regressions, the reported results use industry fixed effects at the one-digit SIC code level. However, all results are robust to the inclusion of industry fixed effects using two-digit SIC codes.

[22] Firms with multiple independent events within a given year are treated as independent observations.

26% of the full sample of firm-year observations belongs to family firms. For the full subsample of harassment firm-year observations, the average market capitalization is $108.52 billion and the average number of employees is 228,821. The average overall Glassdoor rating for these observations is 3.52 and over 50% of these observations come from family firms.

In Panel C, I report results from a simple means comparison test between the sample of harassment firm-year observations and the nonharassment firm-year observations used in the regressions. Except for the Top 5 female executives dummy, fraction of female board directors, the busy board dummy, and the nonindependent board dummy, the two groups of firm-year observations are statistically different, highlighting the importance of controlling for these variables in a multivariate regression setting.

4. Results

In this section, I present the results of my empirical analysis.

4.A Stock Price Reactions to Sexual Harassment Announcements

I estimate daily abnormal stock returns using the market model, Fama-French three-factor model (1993), and Carhart four-factor model (1997). The model parameters are estimated using 250 trading days ending 50 days before the event date. The CRSP value-weighted index serves as the market index in all estimations. Daily abnormal returns during the event period are calculated in the usual manner by subtracting the expected return implied by each model from the realized return. Apart from the event date (0,0), I report results for several other event windows where CARs are used. For the mean CARs, the *t*-statistics are computed following the standardized cross-sectional method of Boehmer, Musumeci, and Poulsen (1991), which allows for event-induced changes in variance, and are adjusted for cross-

sectional correlation following Kolari and Pynnönen (2010). I also compute a nonparametric sign test following Cowan (1992). Results of the event studies are reported in Table 4.

The average stock market reactions to sexual harassment announcements are negative and are statistically and economically significant, confirming my first hypothesis. The mean abnormal return based on the Fama-French three-factor model (Panel B) on the event date is

−0.31%, statistically significant at the 5% level. This corresponds to a mean risk-adjusted loss of $158 million. The cumulative abnormal returns over the event windows of (0, +1) and

(0, +2) are −0.46% and −0.42%, respectively, corresponding to risk-adjusted losses of $234 million and $419 million, respectively.

Information on sexual harassment, once made public, tends to be disseminated over a few days. This would explain the economically and statistically significant CARs over both the two-day and three-day event windows. In contrast, there appears to be no information leakage as the CARs over the (−1,0) window are negative but statistically insignificant. Unlike other corporate announcements where there could be potential leakage of information (e.g., earnings announcements and announcements of mergers and acquisitions), it is unlikely that investors are able to anticipate when an announcement of harassment would be made and, hence, it is unlikely that information would leak. There is also no evidence of a reversal of the announcement return in the 10 days (+1, +10) following the event.

Panels A and C report the event study results where the abnormal returns are generated using the market model and the four-factor model, respectively. The results are consistent with Panel B.

In Panel D, following Karpoff and Lott (1993) and Karpoff, Lott, and Wehrly (2005), I partition the total market reaction into settlements (both legal and corporate) and

organizational/reputational costs. Unfortunately, the amounts paid in any legal or corporate settlements related to sexual harassment are not always made public. Consequently, I have this information for only 25 firms in the sample. The average settlement paid by these 25 firms is $18.7 million. The loss of market value at the announcement is the abnormal dollar loss from the market model, three-factor model, and four-factor model. This is calculated by multiplying the one-day (0, 0), two-day (0, +1), and three-day (0, +2) CARs by the pre-event market capitalization of each of these 25 firm observations. The average market estimation of the total cost is much higher than the average settlement, at $240 million ($179 million) over the two-day (three-day) event window when using the abnormal dollar return from the three-factor model. Likewise, the other two models also generate abnormal dollar losses much greater than $18.7 million.

Following the interpretation of Karpoff and Lott (1993) and Karpoff, Lott, and Wehrly (2005), this finding implies that, based on the three-factor model-derived abnormal dollar loss over the two-day event window, nearly 92% of the market reaction is related to organizational[23]/reputational costs as opposed to direct court penalties, fines, or corporate settlements. This finding is consistent with Karpoff and Lott (1993), who report that the reputational losses surrounding corporate fraud prosecutions account for over 93% of the market reaction. In contrast, Karpoff, Lott, and Wehrly (2005) find that firms that violate environmental laws suffer market losses that are of a similar magnitude to the legal penalties imposed.

Table 5 presents unconditional comparisons of the mean two-day (0, +1) CARs along various dimensions. While there is an economically significant difference (44 basis points

[23] A frequently cited study done in 1988 indicates that the average annual cost of sexual harassment at Fortune 500 companies, due to absenteeism, low productivity, and employee turnover, is 6.7 million (Klein, 1988). Based on the Bureau of Labor Statistics inflation calculator, this is equivalent to $14.9 million in 2019 USD.

according to the three-factor model) in the mean CARs between firms that take action once notified of a harassment and those that do not (Panel A), the difference is not statistically significant. Similarly, there is no difference in the mean CARs between firms that have dismissed the perpetrator at the time of the initial announcement and those that have not (Panel B). However, I find significant differences in the CARs depending on the source of the announcement. On average, announcements initiated via media reports have significantly more negative CARs than announcements initiated via legal filings. I also find that quid pro quo harassments have lower mean CARs than hostile work environment harassments, based on the market model and the three-factor model. I do not find a significant difference in mean CARs before and after the #MeToo movement. In the next section, I move beyond these univariate comparisons to a more comprehensive multivariate regression analysis of the cross-sectional differences in CARs.

4.B Incidence of Sexual Harassment

In this section, I report on how the incidence of sexual harassment relates to various observable firm characteristics.[24] The incidence of sexual harassment is likely to be endogenously related to the firm characteristics I study. Therefore, these results should be interpreted as associations and not as causal relationships (Table 6).

I proxy for firm culture primarily using two measures: the overall Glassdoor rating (column (1)) and the fraction of female top executives (column (2)). If Hypothesis 2A is the prevailing effect, I would expect a negative coefficient on the measure of culture. If Hypothesis 2B is the prevailing effect, I would expect a positive coefficient instead. In addition, following

[24] However, one important caveat is that we observe only the sexual harassment cases that are made public. Hence, if a variable can have a differential impact on the actual incidence of harassment versus the reporting of harassment, the interpretation of the regression coefficients depends on the dominant effect.

Lins et al. (2019), I use a dummy indicating whether the firm has at least one female in its top-five-compensated executives (column (3)) and the fraction of female board members (column (4)). These measures are also meant to capture how *female-friendly* the firm culture is. As a final measure of firm culture, I use the HRC corporate equality index (column (5)).[25] This measure captures how *LGBT-friendly* a firm is. Since, LGBT employees are likely to be a group of employees who are potentially discriminated against, this measure can be a proxy for how employee friendly a firm is in general.

In addition, I include the standard control variables for firm characteristics; these include firm size, leverage, profitability, growth opportunities, analyst coverage, and firm age.[26] To control for any effect corporate governance might have on the incidence of sexual harassment, I include the poor monitoring index and institutional ownership as control variables. Firms with better corporate governance are likely to have established mechanisms and procedures to deal with sexual harassment. This could act as a potential deterrent of sexual harassment and reduce its incidence. Since over 50% of sexual harassment cases in my sample occurs in family firms, I also include a dummy that controls for the family firm status. Finally, I include industry and year fixed effects. Table 6 reports the results.

Both my primary measures of corporate culture have a positive and significant coefficient (columns (1) and (2)), supporting my latter hypothesis regarding the relationship between the incidence of sexual harassment and corporate culture. This result indicates that in firms with a better culture, employees feel more comfortable reporting harassment. Further, the

[25] The Human Rights Campaign Foundation (HRC), is the largest national lesbian, gay, bisexual, and transgender (LGBT) civil rights organization working towards the advancement of workplace equality based on sexual orientation and gender identity. Its corporate equality index rates firms based on their policies and practices pertaining to LGBT employees, consumers, and investors, and assigns a score ranging from 0 to 100, where 100 is the highest possible.

[26] Older firms might have fewer occurrences of harassment because they already have effective harassment prevention mechanisms in place; on the other hand, younger firms might be more progressive and focus more on empowering women.

positive significant coefficient on the fraction of female top executives would be consistent with recent survey data suggesting that women are better at creating a safe and respectful workplace than men (Parker, Horowitz, and Igielnik, 2018). These results are economically significant as well. For example, when evaluating the marginal effects in the first (second) column, I find that an increase in the overall Glassdoor rating (fraction of female top executives) from its 10^{th} percentile to 90^{th} percentile increases the probability of a firm having an announcement by 2.31% (2.28%), which is a 37.2% (36.7%) increase relative to the unconditional probability of a firm having an announcement (6.2%). My results are also robust when using the dummy, which captures whether the firm has at least one female among the top-five-compensated executives (column (3)), or when using the HRC corporate equality index (column (5)). However, I find that the fraction of female board members does not matter (column (4)). This finding is consistent with Lins et al. (2019), who report that a female-friendly culture is primarily driven by the presence of women in corporate leadership roles rather than their presence on the board. Considering these results, in subsequent regressions I use the overall Glassdoor rating and the fraction of female top executives as my measures of corporate culture. However, the results are also robust to the use of the HRC corporate equality index.

Firms with weaker monitoring by the board, larger firms, younger firms, firms with higher growth opportunities, less profitable firms, and family firms all appear to be associated with a higher probability of harassment-related announcements.

4.C Cross-sectional Regressions of Cumulative Abnormal Returns

Previously, I reported evidence that on average the stock market reacts negatively to public announcements of sexual harassment. In this section, I investigate the cross-sectional

determinants of this market reaction. To do so, I regress the two-day (0, +1) CARs, generated via the Fama-French three-factor model on announcement- and firm-specific characteristics.[27]

A primary concern associated with using publicly announced cases of sexual harassment to detect sexual harassment in firms and draw inferences is the selection bias arising from partial observability. Some harassment cases go unreported and others are handled internally by the firm without any public knowledge. If the sample of public announcements of sexual harassment is not a random sample, there may be some unobservable characteristic(s) apart from sexual harassment that could be correlated with the variables of interest in my study. However, I begin the cross-sectional analysis by first presenting the results obtained using a nonconditional approach where I do not control for potential selection bias, i.e., under the assumption that the sample of firms with public announcements of sexual harassment is a random sample of all the other firms in the full sample. Here, I use the sample of sexual harassment cases only and regress the CARs on the variables described previously. These results are reported in Table 7.

As in the previous table, I include the standard control variables for firm characteristics (not reported for the sake of brevity). Further, I include a dummy indicating whether the announcement contains information about any action being taken by the firm when it was notified of the harassment. I also include dummies to control for the three sources of initial disclosure; I include a dummy indicating whether the disclosure was by a firm press release or a legal filing (the omitted category is disclosure by a media report).

Columns (1), (2), and (3) use the overall Glassdoor rating as a measure of corporate culture while column (4), (5), and (6) use the fraction of female top executives. The coefficient

[27] The results are robust to using the event day abnormal returns (0, 0) or the three-day (0, +2) CARs and to the CARs generated via both the market model and the Carhart four-factor model.

on the "Action taken" dummy is positive and significant in both columns (1) and (4), implying that investors react less negatively if they learn that the firm took action when it became aware of the harassment. The coefficient on the "Action taken" dummy is economically significant as well. For example, column (1) implies that firms that take action experience CARs that are 130 basis points higher than the CARs of firms that do not take action. Interestingly, the overall Glassdoor rating has a positive significant coefficient. This is consistent with the previous finding of firms with better culture having more sexual harassment cases being reported; if that is the case, then investors might make an allowance for such firms having a culture that makes victims feel comfortable enough to report harassment versus firms that have a poor culture.

In columns (2) and (5), I split the "Action taken" dummy into two parts: a "Proactive" dummy and a "Reactive" dummy. The "Proactive" dummy takes a value of one if the announcement contains details about the firm taking action before a legal case is filed and is zero otherwise. The "Reactive" dummy takes a value of one if the announcement contains details about the firm taking action only after a legal case is filed. These results show that the CARs are higher/less negative only if a firm is proactive.

In columns (3) and (6), I replace the "Action taken" dummy with a "Fired" dummy that takes a value of one if the perpetrator is fired and if this news is made public with the initial announcement regarding the harassment, and is zero otherwise.[28] This is arguably one of the more stringent actions the firm can take when dealing with a harassment case. The coefficient on this dummy is also positive and highly significant.

[28] The number of observations drops to 137 as not all announcements contain information regarding the employment status of the perpetrator at the time of the initial announcement.

In order to deal with the potential selection bias, I first employ the Heckman (1976, 1979) selection model for my cross-sectional analysis.[29] Specifically, I estimate a joint model of the incidence of sexual harassment and the determinants of the event date abnormal returns. In the first step, I estimate the selection equation that models whether any observable firm characteristics are associated with the public announcements of sexual harassment. This is estimated via a Probit model using the same model specification used in Table 6. In the second stage, which is the outcome equation, I regress CARs on various information content metrics in the announcements as well as on various firm characteristics. I include the Inverse Mills ratio calculated from the estimated parameters of the first stage as an additional explanatory variable in the second stage, which is an OLS estimation.

In columns (1) to (5) of Table 8, I use the overall Glassdoor rating as my measure of corporate culture, while it's replaced by the fraction of female top executives in columns (6) to (10). The results of the first-stage regression of the Heckman selection model corresponding to the second-stage reported in column (2) and (7) are reported in column (1) and (6), respectively. The results are qualitatively identical to the results reported in Table 6. To conserve space, I report only the second-stage results for the remaining specifications.

The most striking result is the highly significant positive coefficient on the "Action taken" dummy. Similar to Table 7, I still find that firms that take action experience CARs that are 130 basis points higher than the CARs of firms that do not take action. Interestingly, if the initial disclosure stems from a public announcement of a legal filing, then investors also react

[29] Strictly speaking, the Heckman selection model is identified by nonlinearity (under the assumption of bivariate normal errors, the Inverse Mills ratio is a nonlinear function) and, therefore, does not require an exclusion restriction in the first stage. However, in practice, it could be that the Inverse Mills ratio is roughly linear in parts of its domain. If such is the case, having the same variables in the first stage and second stage could be problematic. Therefore, having an exclusion restriction is recommended when using the Heckman selection model. However, finding an instrument that is related to the likelihood of a sexual harassment announcement but does not have a direct impact on CARs is challenging.

less negatively compared to scenarios where the harassment is revealed via a media report. The latter finding could be attributed to the costs associated with a legal filing being more circumscribed whereas investors may attribute greater uncertainty to the costs (including reputational losses) associated with a harassment case revealed through the media. The coefficient on the overall Glassdoor rating in the cross-sectional regressions of CARs (i.e. in the second stage) is now insignificant.

In columns (3) and (8), I split the "Action taken" dummy again into two parts: a "Proactive" dummy and a "Reactive" dummy. As in Table 7, CARs are higher/less negative only if a firm is proactive. In columns (4) and (9), I replace the "Action taken" dummy with the "Fired" dummy. Although less significant than the "Action taken" dummy, the coefficient on the "Fired" dummy is still positive and of comparable magnitude to the coefficient on the "Action taken" dummy.

In columns (5) and (10), I add a few more variables to the second stage that capture information contained in the announcements. These are: the number of victims mentioned in the initial announcement, a dummy indicating whether the victim was a woman, and a dummy indicating whether the harassment was a quid pro quo harassment or not. Interestingly, the results are significantly more negative if the harassment is a quid pro quo harassment. The relationship between the other variables and the CARs remain qualitatively similar (although the legal disclosure dummy is now insignificant).

In voluntary corporate events, such as repurchases and acquisitions, managers can control the type, timing, and magnitude of public announcements. Even in the case of sexual harassment, rational managers would voluntarily initiate an announcement only if it provides

some personal or corporate benefit.[30] This form of selection bias is likely to be immaterial in my setting since nearly 87% of the announcements I study are initiated by outside parties. Further, the Heckman selection model should help mitigate such biases arising from the private information of managers (Acharya, 1988). Nevertheless, in Table 9, I repeat the event study analysis (Panels A, B, C) and the cross-sectional regression of CARs (Panel D) excluding the announcements initiated by the firm. Since this sample uses only announcements initiated via legal filings or media reports, they should have more relevant information content regarding the culture of the firm. In order to receive EEOC clearance to take legal action, victims are required to fully exhaust the available internal procedures. Hence, an announcement initiated via a legal filing might imply that the internal procedures were not successful, and an announcement initiated via a media report might indicate that the internal procedures are not effective.

Despite a slight loss of significance in certain windows, the overall event study results remain qualitatively the same. More importantly, in the cross-sectional regression of CARs (Panel D of Table 9), the "Action taken" dummy and the "Legal disclosure" dummy are still positive and significant and are of a similar magnitude to the coefficients in Table 8. The relationship between the CARs and the other variables also remains qualitatively the same.

[30] A firm is likely to announce a harassment case if and only if it has successfully managed to deal with it (for example, in our sample the unconditional correlation between the firm making the announcement and having fired the perpetrator is 0.62). Even though a firm has successfully dealt with a case, it is not necessarily true that it would want to make it public. Looking at the sample of announcements used in this study, it appears that a firm is likely to voluntarily make a public announcement if (a) the case involves a top official or is of a very serious nature or (b) the firm has had previous issues of harassment that are known to the public. In the case of (a), the firm would make the case public because it wants to signal that it takes sexual harassment very seriously regardless of the position of the employee. Further, it might want to avoid any reputational damage if the news gets out by other means. In the case of (b), the firm would be inclined to make a public announcement in order to demonstrate that it's taking corrective action to change the firm culture.

4.D #MeToo Movement

The #MeToo movement gave more visibility to the prevalence of sexual harassment in the workplace as evidenced by the increase in public allegations of sexual harassment. However, whether the market's perception of the organizational costs associated with sexual harassment changed following the #MeToo movement remains an open question. To test this, I create a #MeToo dummy, which equals one if the announcement occurs after October 15, 2017 and zero otherwise, and add it to my cross-sectional regressions of CARs.[31] The results are reported in Table 10.

In columns (1) to (3), I use the overall Glassdoor rating as my measure of corporate culture, while in columns (4) to (6) I use the fraction of female top executives instead. Columns (1) and (4) presents results estimated via ordinary least squares. Columns (2) and (3), as well as columns (5) and (6), use the Heckman selection model. Columns (2) and (5) report the first-stage regressions corresponding to the second-stage results reported in columns (3) and (6), respectively. While none of the other results change qualitatively, the #MeToo dummy is positive and insignificant. Taken together with the media reports and Figure 1, this implies that, even though the number of publicly reported cases of sexual harassment clearly increased after the #MeToo movement, the market assessment of the risk-adjusted losses associated with sexual harassment in the workplace did not change.

4.E Explaining Firm Action

A key implication of the results discussed previously is that if a firm takes action when made aware of a sexual harassment case, and this is disclosed in the initial public

[31] Given various past allegations of sexual misconduct involving Donald Trump, in untabulated results we use the Trump election instead of the #MeToo dummy (this dummy equals one if the announcement occurred after November 9, 2016 and is zero otherwise); we do not find a difference in the market reaction before and after his election as the President of United States.

announcement, then the CARs are higher/less negative. In order to understand what factors might be associated with a firm taking action, in Table 11, I regress the "Action taken" dummy on several firm characteristics and characteristics of the harassment announcement.[32] In columns (1) to (3) I use a linear probability model and in columns (4) to (6) I use a Probit model.

In both the linear probability model and the Probit model, firms are more likely to take action after #MeToo. A firm is also more likely to take action if the victim is a woman and the perpetrator is a top manager. Further, firms with higher institutional ownership are also more likely to take action. These effects are economically significant as well. For example, when evaluating the marginal effects in column (4), I find that the probability of a firm taking action increases by 59.4% after #MeToo, which is a 135% increase relative to the unconditional probability of a firm taking action (44.1%). However, female representation in the top management or in the board does not appear to matter.

4.F Employee Productivity

Earlier, I showed that public announcements of sexual harassment result in organizational/reputational costs. According to Karpoff (2012), these reputational costs arise due to impaired operations because of the revelation of misconduct. In the context of sexual harassment, public revelation of sexual harassment can affect the productivity of the other employees, as they realize that the severity of sexual harassment at their workplace is higher than they perceived it to be. In Table 12, I present evidence that employee productivity, as measured by sales per employee and operating profit per employee, drops significantly for firms that have at least one public revelation of sexual harassment (captured by the sexual

[32] This analysis is restricted to firms with a public announcement of sexual harassment.

harassment announcement dummy) in the previous year. In terms of economic magnitude, column (1) shows that if a firm has a public revelation of sexual harassment in one year, sales per employee drops by $405,858 in the following year. An alternative explanation for these results might be that customers choose to boycott firms that have a public announcement of sexual harassment. Either way, these results add credibility to the notion that reputational losses occur due to impaired operations following the public revelation of sexual harassment.

4.G Location Analysis

Since not all harassment cases I study occur at the headquarters of firms, as a test of robustness I investigate whether location would have any impact on the market reaction to announcements of sexual harassment using the Heckman selection model. The results are reported in Table 13. For brevity, the reported results use Glassdoor ratings as the measure of corporate culture. However, the results are consistent when corporate culture is proxied by the fraction of top female executives. In the first specification, I include a dummy that equals one if the harassment involved employees that work at the headquarters of the firm and is zero otherwise (column 2) and find that it is statistically insignificant. In the second specification I include a "stakeholder state" dummy that equals one if the firm is headquartered in a state that has adopted directors' duties laws (also known corporate constituency statues). These laws require directors to consider the impact of their decisions not only on their shareholders but all other stakeholders including employees, customers, suppliers, and communities.[33] Consequently, the stakeholder state dummy can serve as another proxy for a firm's employee friendliness. As column (3) shows, firms headquartered in stakeholder states are significantly less likely to have announcements of sexual harassment. However, there is no significant difference in the market reaction between stakeholder and nonstakeholder states (column (4)).

[33] 35 U.S. states have adopted these laws so far. We obtain the list of these states from Cremers, Guernsey and Sepe (2019).

Finally, since different parts of the United States may have different perceptions of harassment, in the third specification (columns (5) and (6)) I include headquarters state fixed effects and find that my results are largely consistent with the baseline results.

5. Conclusions

My study of the incidence of sexual harassment in the workplace and its relationship to corporate culture and shareholder value reveals that firms associated with sexual harassment events experience large negative stock market reactions, as exemplified by a mean risk-adjusted loss in market capitalization of $419 million over a three-day interval following the announcement. However, for the subsample of firms where settlement data is available, I find that the average victim settlement is only $18.7 million, dramatically less than the loss in market capitalization for these firms of $240 million, suggesting that firms incur large organizational and reputational costs due to sexual harassment. Corporate culture is positively related to the likelihood of an announcement, which suggests that a better corporate culture leads to more sexual harassment cases being revealed, since victims feel safe and confident about reporting and taking action against the perpetrator.

The manner in which companies respond to reports of sexual harassment has material consequences. Investors react significantly less negatively if the firm took action proactively before a sexual harassment case is made public. I find that investor reactions are also significantly less negative if the perpetrator is fired and if this news is made public with the initial announcement regarding the harassment. A firm is more likely to take action if the victim is a woman or the perpetrator is a top manager. Firms with more institutional ownership are also significantly more likely to take action and to fire perpetrators.

The #MeToo movement has recently brought considerably more attention to sexual harassment in the workplace and the number of publicly reported cases has escalated

dramatically since the movement commenced on October 15, 2017. However, there is no significant difference in stock price reactions before and after #MeToo. Nonetheless, I find that, after the #MeToo movement, firms are more likely to take action once a harassment case is revealed and more likely to fire perpetrators. Firms headquartered in stakeholder states, i.e., U.S. states that have adopted corporate constituency statutes, are significantly less likely to have announcements of sexual harassment. However, there is no significant difference between stakeholder and nonstakeholder states in the market reaction to sexual harassment announcements.

To my knowledge, this is the first study to systematically examine the consequences of sexual harassment in the workplace in terms of shareholder value. My findings show that sexual harassment is, indeed, very costly to shareholders, and that managers should take it seriously. Further, its impact on shareholder value suggests that this area of research warrants significantly more attention.

Chapter 2

Corporate Social Responsibility versus Corporate Shareholder Responsibility: A Family Firm Perspective

1. Introduction

We study the differences in policy toward corporate social responsibility (CSR) between family and non-family firms to shed new light on both corporate posture toward CSR and the tension between type I and type II agency problems in family firms.[34] Bowen (1953) states that businessmen should "pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society." On the other hand, in a well-known *New York Times Magazine* article, Friedman (1970) states that "The social responsibility of a business is to increase its profits." These two statements reflect a widely debated topic among both academics and practitioners for the past several decades, i.e. is CSR a legitimate part of a firm's business or none of its business?

Several studies, including Hamilton, Jo, and Statman (1993), Bauer, Koedijk, and Otten (2005), Schröder (2007), Benabou and Tirole (2010), Borghesi, Houston, and Naranjo (2014), Masulis and Reza (2015), Cheng, Hong, and Shue (2016), Adhikari (2016) and Ghoul et al. (2016) suggest that CSR is orthogonal to corporate shareholder responsibility. However, numerous other studies, such as Guenster et al. (2011), Derwall et al. (2005), Luo and Bhattacharya (2006), Kempf and Osthoff (2007), Sharfman and Fernando (2008), Deng, Kang, and Low (2013), Servaes and Tamayo (2013), Chava (2014), Eccles, Ioannou, and Serafeim (2014), Crifo, Forget, and Teyssier (2015), Flammer (2015), Lins, Servaes, and Tamayo (2017) and Albuquerque, Koskinen, and Zhang (2018) show that CSR is positively related to

[34] In the family firm literature the type I agency problem refers to the conflict of interest between owners and managers while the type II agency problem refers to the conflict of interest between controlling (family) shareholders and non-controlling shareholders (Villalonga and Amit, 2006;Villalonga et al., 2015).

shareholder value. A third set of studies shows that some CSR actions are beneficial to shareholders while other CSR actions are not (Oikonomou, Brooks, and Pavelin, 2012; Kruger, 2015; Fernando, Sharfman, and Uysal, 2017).

Friedman (1970) goes on to argue that individuals are free to do what they wish with their private money, including spending it on social causes; hence, an individual proprietor is free to spend money from his business as he wishes. However, if a manager is running a firm on behalf of shareholders, his fiduciary duty is to spend the firm's money on investments that maximize shareholder value. In the case of firms run by managers, a question arises then as to whether CSR activities are value enhancing or not. Fernando, Sharfman, and Uysal (2017) document that some corporate investments in social causes (spending to reduce negative environmental outcomes and thereby reduce the firm's risk exposure) creates value for shareholders. In contrast, they show that spending on increasing positive environmental outcomes (investments that go beyond both legal requirements and any conceivable risk mitigation rationale), while good *socially*, is not viewed by shareholders as value-enhancing.

While the findings of Fernando, Sharfman and Uysal (2017) are based on a cross-sectional analysis of a sample of firms, there is currently no evidence on whether individual firms can differentiate between CSR actions that benefit shareholders and CSR actions that create no value for shareholders. Family firms provide an ideal experimental setting to examine this question. If family firms operate more like sole-proprietorships than widely held non-family firms, one would expect to see more spending by family firms on social causes that bring noneconomic benefits to the controlling family but no financial benefits to non-controlling shareholders (type II agency problem). On the other hand, if family firms are more concerned about their financial profits than non-family firms due to large undiversified stakes

in the firm that mitigate the type I agency problem, one would expect them to spend less on social activities that do not enhance shareholder value.

Following Fernando, Sharfman, and Uysal (2017), we focus on the KLD environmental ratings to capture CSR investments.[35] The financial consequences of environmental policies of firms are likely to be considerably larger than other socially relevant corporate policies.[36] As a result, corporate environmental performance is the area that is most likely to provide evidence of socially responsible investing (see Fernando, Sharfman, and Uysal (2017) for a more detailed discussion). KLD provides a set of binary indicator variables, which reflect either environmental strengths or environmental concerns. For each firm, KLD provides five sub-indicators for environmental strengths and seven sub-indicators for environmental concerns. The sub-indicators for environmental strengths capture aspects of a firm's environmental policy that is intended to enhance its environmental friendliness ("greenness") whereas the environmental concerns capture aspects that are related to various environmental risk exposures ("toxicity"). KLD assigns a value of one if a firm meets or exceeds a predetermined threshold for each sub-indicator and zero otherwise. Our main analysis focuses on separately aggregating a firm's environmental strengths and concerns to measure its "greenness" and "toxicity," respectively.

The main finding by Fernando, Sharfman, and Uysal (2017) is that institutional investors, who they use as their proxy for the "smart money," avoid "toxic" stocks (firms with negative net environmental scores). This finding is consistent with the notion that corporate

[35] Kinder, Lydenberg and Domini Research and Analytics (KLD) is now a part of MSCI, a leading provider of investment decision support tools. Many other studies related to the corporate environment policy has used this dataset; see for example Galema, Plantinga, and Scholtens (2008)and Chava (2014).

[36] To provide anecdotal evidence, consider the British Petroleum gulf oil spill in 2010; it is estimated that this has cost British Petroleum over $60 billion to date in losses, damages and fines. In addition, Karpoff, Lott, and Wehrly (2005) document that firms pay substantial legal penalties and suffer corresponding market value losses following violations of environmental regulations.

policies that mitigate risk exposure are value enhancing.[37] Interestingly, they also find that institutional investors also avoid "green" stocks (firms with positive net environmental scores). This finding is consistent with the view that any corporate environmental policy that requires action beyond what is legally mandated or cannot be justified by a risk rationale does not create value for shareholders.[38] To summarize, Fernando, Sharfman, and Uysal (2017) find that the interests of shareholders and society coincide when it comes to reducing a firm's environmental concerns but they diverge sharply when it comes to increasing environmental strengths. In other words, shareholders reward firms that reduce their "toxicity" but punish firms that increase their "greenness." [39]

Kruger (2015) finds results that are consistent with Fernando, Sharfman, and Uysal (2017); he uses the KLD Socrates database which contains the underlying events used to generate the more common KLD indicators. He finds that investors react strongly negatively to negative events (that would lead to higher environmental concerns) and weakly negatively to positive events (that would lead to higher environmental strengths). This implies that reducing environmental concerns, as classified by KLD, is value enhancing but increasing environmental strengths does not create value for shareholders.

We show a clear negative association between family firms and environmental strengths. This result is economically significant indicating an environmental strength score 21% lower compared to the mean environmental score of the sample. This finding suggests that, on average, family firms are more responsible to shareholders than non-family firms when

[37] Examples of environmental concerns as classified by KLD include issues related to the disposal of hazardous waste and violation of environmental regulations. See Appendix D for details.
[38] Examples of environmental strengths as classified by KLD include extensive recycling and the use of clean energy. See Appendix D for details.
[39] The terms "strengths" and "concerns" are applied by KLD from a social standpoint, not from a shareholder standpoint. The findings of Fernando, Sharfman, and Uysal (2017) show that shareholders place highest value on firms that have no environmental strengths and no environmental concerns.

it comes to incurring expenditure that makes their firms green. Our findings for environmental concerns provide somewhat weaker evidence that family firms are also more responsible to shareholders in alleviating environmental concerns. In the univariate analysis, we find that family firms have significantly lower environmental strengths and environmental concerns. Given that higher levels of both environmental concerns and strengths are value eroding, this finding implies that when looking at the unconditional means, family firms appear to be more consistent with shareholder wealth maximization in terms of both environmental strengths and concerns. However, in the multivariate analysis we do not find a statistically significant difference between family firms and non-family firms regarding environmental concerns. Nonetheless, taken together, our findings show that, on average, the corporate environmental policies of family firms are significantly more consistent with shareholder wealth maximization than non-family firms since family firms invest significantly less in environmental actions that benefit society but do not benefit shareholders while investing relatively more in environmental actions that benefit both society and shareholders.

We also investigate whether the nature of the family's involvement has any impact on the reported relationships between environmental strengths/concerns and family firms. We find that regardless of whether a family firm has a founder CEO or a descendent CEO, it has lower environmental strengths compared to non-family firms. If the firm is a family-controlled firm (i.e., where neither the founder nor a descendant is the CEO), the reduction in the environmental strengths compared to non-family firms is even more pronounced. As with the previous analysis, regardless of who the CEO is, there is no difference between family firms and non-family firms when it comes to environmental concerns. Furthermore, instead of the family dummy (which is the primary focus of this chapter) we look at how environmental strengths relate to the degree of family control. Consistent with our main analysis we find a

negative relationship between the degree of family control and environmental strengths and no relationship between the degree of family control and environmental concerns.

We undertake additional analysis to strengthen identification and establish robustness of our findings. First, we repeat our analysis on a propensity score matched sample. We match family firms with non-family firms using a propensity score calculated on size, book-to-market and the two-digit SIC code and using the nearest neighbor matching (with replacement) approach. When we repeat our analysis on this propensity score matched sample, we find results that are consistent with our prior findings; family firms have lower environmental strengths compared to non-family firms but there is no significant difference between the firms regarding environmental concerns. Second, we use state level regulatory stringency of corporate environmental performance to control for the possibility that the environmental regulatory stringency of each state affects the environmental CSR activities of firms and their location decisions. We control for regulatory stringency using a proxy that has previously been used in the literature (King and Lenox, 2002; Kassinis and Vafeas, 2002; Berrone et al., 2010). Controlling for the state-level regulatory stringency and interacting with the family firm variable does not substantively change our results. For environmental strengths, we find that even when the state regulation is high, family firms have significantly fewer strengths than non-family firms. For environmental concerns we find that that family firms have significantly lower concerns when state regulation is high. Therefore, our overall conclusions remain unchanged.

Since family reputation is an important noneconomic utility for family firms, we also investigate what family reputation might mean for environmental performance in family firms. As a proxy for how important preserving the reputation of the family could be, we look at the interaction between the family firm dummy and a dummy indicating whether the founder's

name or a portion of it is included in the firm name. We find that reputation does not seem to have an impact on the results for environmental strengths. However, we find that this interaction term is positive for environmental concerns, which implies that family firms with the founder's name have a higher amount of concerns. This could either imply that family reputation effects do not truly exist for large public companies or that our firm name proxy is capturing another unknown effect. However, this test also provides some evidence of family firms having less environmental concerns than non-family firms, among the firms that do not have the founder's name as part of the firm name.

We also find that our results persist across different time periods. Specifically, we investigate whether the recent financial crisis had an impact on environmental performance. We find that both during the crisis and prior to the crisis family firms have consistently lower environmental strengths. Interestingly we find that during the crisis, family firms have lower environmental concerns compared to non-family firms.

As an additional robustness test, we look at an alternative database, the Thomson Reuters' ASSET4 database. The ASSET4 database reports many indicator variables related to the environmental policy of a firm. Using the KLD definitions we categorize these variables as strengths and concerns. We repeat our analysis using these variables and find results consistent with our previous analysis. We also find that our results are robust to different methods of computing standard errors and when we control for environmental concerns (strengths) in the strengths (concerns) regressions or exclude firms that have both strengths and concerns greater than zero.

This chapter contributes to a recent literature that is divided on the CSR performance of family firms. Ghoul et al. (2016) look at the CSR performance in nine East Asian countries using the Thomson Reuters' ASSET4 database and find that family firms are associated with

a lower CSR score in terms of both environmental CSR and social CSR. In contrast, Berrone et al. (2010) show for a sample of U.S. firms that family firms have lower levels of toxic emissions, indicating superior environmental performance while Dyer and Whetten (2006) show that family firms have fewer social (including environmental) concerns than non-family firms. Additionally, Block and Wagner (2014) show that family firms do better than non-family firms in some CSR dimensions and worse in others. Ghoul et al.(2016) view CSR activities as "…firm actions that go above and beyond the interests of the firm to further the social good" (Ghoul et al. 2016, pg.1). Their perspective contrasts sharply with the insight provided by Fernando, Sharfman, and Uysal (2017) that some CSR activities (specifically those that mitigate the risk exposure of companies) are strongly consistent with shareholder interests, while other CSR activities are antithetical to shareholder interests.

Our findings contrast with the aforementioned studies and contribute to the literature by showing that when it comes to CSR, family firms are more responsible to shareholders than non-family firms. When shareholder interests and societal interests coincide, i.e., when it comes to alleviating environmental concerns that have potential to harm society and elevate the firm's risk exposure, family firms are no different than non-family firms in protecting shareholder interests. However, when shareholder and societal interests diverge, i.e., when it comes to making environmental investments that benefit society but do not benefit shareholders, family firms are significantly more on the side of shareholders by undertaking fewer such investments than non-family firms. These findings contrast sharply with studies of corporate governance in family firms that show family firms being less responsible to their non-family shareholders.[40] When it comes to CSR, our findings suggest that the actions of the

[40] For example: Anderson and Reeb (2004), show that firms with concentrated founding-family ownership and relatively few independent directors perform significantly worse than non-family firms. Their study also suggests that families seek to minimize the presence of independent directors, while outside shareholders seek independent director representation. Anderson, Reeb and Zhao (2012) find that informed trading via short sales is pursued more aggressively in family firms than in nonfamily firms. Chen, Cheng and Dai (2013) observe that both founder

family are more consistent with the interests of shareholders (including non-family shareholders) than the managers of non-family firms, which supports the argument that the type I agency problem is alleviated in family firms, thereby causing family firms to align their CSR activities with shareholder wealth maximization.

The rest of this chapter is organized as follows. Section 2 provides a brief review of the relevant literature. Section 3 presents an overview of the data and the methodology used in the study. Section 4 contains the main empirical analysis and discussion of the results while Section 5 concludes.

2. Family Firms and CSR

The literature on the role and functioning of the modern firm is largely based on the assumption of widely dispersed ownership, a notion that is derived from Berle and Means (1932). However, this assumption is often violated in the case of family firms, which have been documented to be a pervasive organizational form around the globe.

Anderson and Reeb (2003a) document that a third of the U.S. S&P 500 firms are family firms. Claessens, Djankov and Lang (2000) document that more than half of East Asian corporations are family controlled. Similarly, Faccio and Lang (2002) observe that family controlled firms account for 44% of the firms in Western Europe. Given the prevalence of this organizational form, researchers over the past two decades have been interested in investigating whether family firms are effective and valuable as a form of organization.

Family firms have certain unique characteristics when compared to non-family firms. First, family owners tend to hold poorly diversified portfolios due to their concentrated

and descendent CEO family firms are less likely to fire a CEO after the firm performs poorly compared to non-family firms, leading to management entrenchment.

ownership in the firm (Anderson and Reeb, 2003a; Cheng, 2014). Due to this high ownership stake and low diversification, the performance of the firm is of critical importance for family owners as their wealth is closely tied to the performance of the firm. Secondly, family firm owners are thought to have longer investment horizons than other blockholders (James, 1999; Le Breton-Miller and Miller, 2006; Zellweger et al., 2012). In fact, family owners typically regard their ownership as an asset to be passed on to future generations (Casson, 1999; Chami, 1999).

These aforementioned characteristics give rise to a third characteristic of family firms, i.e., given the under-diversification of their portfolios and the emphasis on the survival of the firm, family owners tend to be actively involved in the management of the firm. Given these characteristics, the agency problem between managers and shareholders (known as "type I agency problem" in the family firm literature; see for example Villalonga and Amit, 2006) is likely to be less severe compared to non-family firms.[41]

At the same time, family owners are known to derive utility from a variety of noneconomic benefits associated with their firms. These include viewing the firm as an extension of themselves as well as deriving a sense of identity from the firm (Kepner,1983; Schein,1995), creating a positive family image and reputation (Zellweger et al., 2012; Deephouse and Jaskiewicz, 2013), enjoying family influence over the business (Gomez-Mejia et al., 2007) and building social capital (Arregle et al., 2007). These noneconomic benefits of

[41] Anderson and Reeb (2003) find that based on profitability measures (return on assets) as well as based on market measures (Tobin's Q) family firms on the S&P 500 outperform their non-family counterparts. Furthermore, they show that when a family member serves as the CEO, the firm performance is better than with an outside CEO. Maury (2006) finds similar results with respect to 13 Western European countries. In particular he finds that firms with active family control are more profitable than non-family firms while firms with passive family control are associated with levels of profitability that is comparable to non-family firms. Fahlenbrach (2009) documents that 11% of the largest US public firms are headed by founder CEOs and that these firms invest more in R&D, have higher capital expenditure, and make more focused mergers and acquisitions. Overall, these results are consistent with the idea that family firms reduce the type I agency problem and hence that they are an effective organizational structure.

family owners are collectively known as "Socioemotional Wealth" in the management literature (Gomez-Mejia et al., 2007). While non-family owners and managers too might experience some of these noneconomic benefits, it is likely that the value of socioemotional wealth to the family is more intrinsic and is a more deeply rooted psychological phenomenon among family owners whose identity is tied to the firm (Berrone et al., 2010). When the socioemotional wealth of family owners is threatened it is possible that family owners will make strategic decisions that are aimed at protecting their socioemotional wealth even though it might be at the expense of other shareholders. In the finance literature on family firms this phenomenon is known as the "type II agency problem," (Villalonga and Amit , 2006); i.e. given the substantial ownership of cash flow rights and their extensive involvement in management, founding families have the incentive to take actions that benefit themselves at the expense of the other shareholders.

The literature related to CSR in family firms is nascent. Dyer and Whetten (2006), show in a preliminary study done using the S&P 500 firms that family firms behave similarly to non-family firms in terms of positive social initiatives but are associated with lower social concerns compared to non-family firms. The authors use the KLD dataset for this study. Berrone et al. (2010) look whether family firms pollute less than non-family firms using a between group approach. Their firms are limited to firms that operate in industries that are required to report their toxic emissions in the Toxic Release Inventory (TRI) program of the Environmental Protection Agency (EPA). They find that family firms have a better environmental performance,[42] especially when the firm has a strong geographical concentration. They argue that CEOs with significant stock ownership might not want to voluntarily adopt environmental policies that go beyond what is legally required nor be more stringent than their peers, as this

[42] Their measure of environmental performance is the average of the weighted on-site emissions (weighted using the Human Toxicity Potential Factor) in terms of benzene equivalence (for carcinogens) and for toluene equivalence (for non-carcinogens).

would cause them to assume a risk that might not be justified by a sufficient return. However, while they find that this is not the case with family firms, in non-family firms they find that CEO stock ownership is associated with lower environmental performance. Furthermore, they document that the positive association between family firms and environmental performance is independent of whether the CEO is a family member or if both the CEO and Chairman are the same person.

Cruz et al. (2014) examine whether family firms are socially responsible towards both external and internal stakeholders. The authors utilize the CSRhub database and focus on European firms. Their interpretation of their finding is that family firms are as socially responsible as non-family firms when it concerns external stakeholders, but they are socially irresponsible when it concerns internal stakeholders. They consider both these findings to be consistent with the socioemotional wealth maximization objective of family firms. In another recent study, Block and Wagner (2014) revert back to the KLD dataset and use Bayesian regressions. They document that family ownership is negatively associated with community-related CSR performance but positively related to other dimensions of CSR.[43] They find that the largest positive relationship is between family ownership and product-related CSR. As an explanation for the only negative association they document, they argue that family owners might find it more efficient to pursue community related CSR activities in a more direct manner (example: through a family foundation) than through the firm.

In the finance literature, although CSR has been a topic of much debate, there is a dearth of research on CSR in family firms. Ghoul et al. (2016) examine differences in CSR performance between family and non-family firms of nine East Asian countries using the

[43] The CSR dimensions they consider are diversity related, employee related, environment related and product related aspects of CSR.

ASSET4 database from Thomson Reuters. Their measure of CSR performance is taken as the average of the firm's environmental and social performance scores. Interestingly, they find that family-controlled firms exhibit lower CSR performance. They argue that this is consistent with what they term as the "expropriation hypothesis," i.e., family owners using their dominant voting rights to divert resources from CSR activities to other activities.

In summary, it can be said that the literature has been largely inconclusive regarding the relationship between CSR and family ownership. On one hand due to the reduction in type I agency problem in family firms, one could expect family firms to align their CSR activities with shareholder wealth maximization. However, due to the presence of the type II agency problem, socioemotional wealth maximization can take precedence over shareholder wealth maximization in family firms, leading to CSR investments that are not value enhancing.

3. Data and Methodology

In this section, we describe the data and methodology used in this study.

3.A The Sample

We use the family ownership data provided by Ronald Anderson[44] as a starting point for this study. This data is a combined and augmented sample from Anderson, Duru, and Reeb (2009) and Anderson, Reeb, and Zhao (2012). The dataset excludes regulated public utilities, financial firms, foreign firms, firms listed as master limited partnerships and firms with share price less than $0.25. The data include an indicator variable that equals one when the family owns (or votes) a 5% or larger stake.[45] In designating family firms they do not include shares

[44] See http://www.ronandersonprofessionalpage.net/data-sets.html

[45] The authors have collected family ownership data (founder and/or heir ownership) from corporate proxy statements and 10-K's for the years 2001 through 2010. To control for survivorship bias, they allow firms to exit and re-enter the sample. They state that they look at corporate histories from ReferenceforBusiness.com, FundingUniverse.com, and individual company websites.

held by charitable foundations as part of the family holdings. Their final sample consists of 2,000 largest firms for 2001, and spans from 2001 to 2010 with 16,200 firm-year observations. We merge this dataset with the KLD data. We drop firms for which we do not have KLD data for the full sample period. This results in a sample of 232 unique firms, out of which 59 firms, on average each year, are deemed to be family firms. However, for many companies, the selected KLD indicators are not available in 2010.[46] As a result our sample period extends from 2001 to 2009. We consider five sub-indicators of environmental strengths and seven sub-indicators of environmental concerns[47]; these indicators were picked solely based on the availability of sub-indicators for the full sample period. As Fernando, Sharfman, and Uysal (2017) show, the environmental strengths reflect activities of the firm that go beyond legal requirements or cannot be justified by any risk rationale; in contrast, the environmental concerns are directly related to the firm's risk profile and financial costs. If a firm meets the KLD analyst criteria in each area, it is assigned a value of one, and zero otherwise.

3.B Control Variables

We use several control variables in our analysis and data for these variables are obtained from multiple sources: accounting measures are obtained from COMPUSTAT, stock prices from CRSP, analyst coverage from I/B/E/S, governance variables from IRRC and institutional holdings data from the CDA/Spectrum 13F Holdings database. We also hand-collect certain data (data related to family ownership and any missing data) from the proxy statements and company websites.

[46] KLD at times reclassifies its indicators. Sometimes the reclassification could simply involve renaming of indicators but in other instances it could involve combining existing indicators or splitting existing indicators in to sub-indicators.

[47] The sub-indicators of environmental strength are: Beneficial Products and Services, Pollution Prevention, Recycling, Clean Energy and Other Strengths. The sub-indicators of environmental concerns are: Hazardous Waste, Regulatory Compliance, Ozone Depleting Chemicals, Substantial Emissions, Agricultural Chemicals, Climate Change, and Other Concerns. See Appendix D for detailed definitions.

We include the natural log of the book value of total assets to control for the effect of firm size. Older firms might be inclined to use older technologies that are not environmentally friendly; on the other hand, older firms might be more concerned about their image hence be more environmentally friendly. Therefore, we control for firm age by taking the natural log of the number of years since the firm's inception.[48]Growth opportunities are measured as the ratio of research and development expenses to total sales. We control for market leverage by including the ratio between long-term debt to total assets (adjusted for the market value of equity). Profitability is controlled by a measure of ROA (EBITD over total assets). In order to control for any effect stemming from the influence of S&P 500 membership, we include an S&P 500 dummy. We include a NASDAQ dummy to control for differences across stock exchanges. Further we use several market-based measures: we include Tobin's Q, the average monthly trading volume divided by shares outstanding (turnover) and the standard deviation of the daily stock return over each year. A control for the fraction of institutional ownership is also included. As the interest analysts have in the firm could have an effect on the environmental performance, we control for the average analyst coverage during the year.

Ferrell, Liang, and Renneboog (2016) show that well governed firms suffer from less agency concerns, hence they engage in more CSR. We include numerous corporate governance controls. These variables include a dummy variable indicating whether the firm has dual class shares or not, the fraction of independent board directors, a CEO duality dummy which equals one if the CEO and Chairman are the same person and a measure of CEO equity compensation. See Appendix B for a detailed description of the variables.

Table 14 summarizes the sample by industry and year. It is apparent that family firms function in a broad array of industries. However, family firms appear to be more prevalent in

[48] We obtain the date of inception from "Google search" and the company websites.

some industries than others. To control for these industry affiliations, we include fixed effects for two-digit SIC codes in addition to year fixed effects. The percentage of family firms show a declining trend over the sample period. Overall, one fourth of the observations are from family firms. This proportion is similar to the proportion of family firm observations found in the study by Ghoul et al. (2016).

3.C Summary Statistics

Table 15 presents three panels of descriptive information of our sample. Panel A provides the mean, standard deviation and minimum and maximum values for the all the key variables. Panel B reports the results for the difference in means between family firms and non-family firms for selected key variables. These statistics are calculated using firm-year observations. Panel C shows the correlation among some key variables used in the analysis.

Looking at the full sample (Panel A), 25.4% of the firm-year observations are family-firm observations. The average firm in the sample is nearly 67 years old. In terms of ROA, the average firm has a return of 15.6%. The average Tobin's Q is 2.159, with a maximum and minimum value of 8.473 and 0.533, respectively. Average institutional ownership for our sample is 75.6%.

The univariate analysis (Panel B) shows that family firms have both lower environmental strengths and environmental concerns compared to non-family firms. Hence, the univariate analysis suggests that family firms are more responsible to their shareholders than non-family firms when it comes to environmental CSR investments. Family firms have lower analyst coverage, leverage, institutional ownership, CEO equity-based pay (option pay as a fraction of salary, bonus and options), and fraction of independent directors. However, family firms have higher likelihood of having the same person as the CEO and chairman and having dual class shares. They also have a higher percentage of insider ownership (excluding

the family ownership). Interestingly, there is no difference in the firm size in terms of the book value of total assets and firm performance based on both ROA and Tobin's Q. Family firms have a negative significant correlation with both strengths and concerns as shown in Panel C. Furthermore, consistent with the findings of Kruger (2015) and Fernando, Sharfman, and Uysal (2017), Tobin's Q shows a significant negative correlation with both strengths and concerns.[49]

4. Empirical Analysis

In this section, we present the results of our empirical analysis.

4.A Multivariate Analysis

The empirical analysis of this chapter uses a two-way fixed effects model, using industry and year fixed effects. Table 16 reports the main OLS regressions. Column 1 shows the results from regressing the sum of the environmental strengths on the family firm dummy and the other control variables, whereas results from regressing the sum of the environmental concerns are shown in column 2.

The coefficient on the family firm dummy is negative and highly statistically significant in model (1). However, the family dummy is negative but insignificant in model (2). These results indicate that even after controlling for other variables, industry and time fixed effects, family firms have a negative association with environmental strengths. Given the findings of Fernando, Sharfman, and Uysal (2017), this could imply that family firms do not spend on environmental CSR activities that are not valued by shareholders. Interestingly, once controlled for other confounding factors there is no difference between family firms and non-family firms

[49] In unreported results, we test for the conditional correlation between Tobin's Q and strengths/concerns using Tobin's Q regressions. Consistent with the findings of Kruger (2015) and Fernando, Sharfman, and Uysal (2017), we find that strengths do not have a statistically significant relationship with Tobin's Q and that concerns have a significant negative relationship with Tobin's Q. We find similar results when we run the Tobin's Q regressions separately for family firms and non-family firms.

regarding environmental concerns. This could be interpreted as family firms expending similar amounts of resources as non-family firms, to mitigate their environmental concerns.

The analysis in this chapter primarily focuses on the family firm dummy. In column (3) and (4), we replace the family firm dummy with the control rights held by the family and repeat the analysis in column (1) and (2). For strengths, consistent with column (1), a highly significant negative association is reported with the degree of family control. For concerns, albeit being positive this time, consistent with column (2), the coefficient on family control is insignificant.

In column (5) and (6), we examine how a family's relationship to the management of the firm might affect the results reported in column (1) and (2). We split family firms in to three categories: family firms with the founder as the CEO, family firms with a descendant as the CEO and firms which are family controlled (with a hired CEO). Column (5) and (6) include a dummy for each of these three categories; these dummies simply replace the family firm dummy used in column (1) and (2). The results are consistent with the results of column (1) and (2); regardless of the nature of the family involvement in the firm management, family firms are associated with lower environmental strengths and there is no significant difference in their environmental concerns compared to non-family firms.

One plausible explanation for the results we find is the reduced presence of the type I agency problem in family firms.[50] When there is ownership concentration, those owners have

[50] An alternative explanation maybe that family firms face weaker monitoring and are less transparent in terms of disclosure. As a result, it could be that a fewer concern are detected in family firms and they do not have to establish many strengths to "cover the sin." The evidence is mixed on whether family firms practice a less transparent disclosure. Anderson, Duru and Reeb (2009) find that founder and heir-controlled firms are more opaque than diffuse shareholder firms. However, several other studies document that family firms have a more transparent disclosure policy (Wang, 2006 and Ali, Chen, and Radhakrishnan, 2007); this would contradict the premise on which this alternative explanation is based. Furthermore, our regressions control for potential differences in monitoring in family firms, through several control variables such as institutional ownership, managerial stock ownership and the fraction of independent directors.

the ability to influence and/or the incentives to at least monitor mangers to ensure that the deviation from the owner's objectives are minimal. Family ownership is one scenario of ownership concentration. However, given that their own wealth is at stake, unlike other controlling shareholders, family shareholders are likely to be more dedicated principals and more effective monitors as their own wealth is at stake. As Villalonga et al. (2015) explain, other types of concentrated owners (such as institutions, banks or state) are only agents for their respective "super-principals"; this dilutes their incentives to monitor the manger as closely as family shareholders would. Claessens et al. (2002), provide some evidence that is consistent with this argument. They document that the positive effect of concentrated shareholder ownership on firm value in their study, is driven by family ownership and not by other controlling shareholders such as institutions and state. Therefore, family shareholders have the potential to create value by mitigating the type I agency problem.

4.A Matched Sample Analysis

In the previous section we show that family firms are associated with a lower score of environmental strengths and that there is no significant difference between family firms and non-family firms regarding their association with the score of environmental concerns.

To address concerns of endogeneity, we examine a matched sample of family firms and non-family firms. If the matched firms are similar based on many observables, one hopes that they are similar based on unobservables as well although this is, by no means, assured. Based on a propensity score calculated on size, book-to-market and the two-digit SIC code, we create a matched sample for the family firms based on nearest neighbor matching (with replacement).[51] We check for the covariate balance and find that although we match on a

[51] The regression results based on the propensity score matched sample reported in this chapter uses size, book-to-market and industry, which are the variables that are most commonly used in the finance literature for matching. However, we have verified that the results hold when the propensity score is calculated on a host of variables

propensity score calculated on size, book-to-market and industry, there is no statistical difference in the matched sample in terms of size, leverage, age, CEO compensation, ROA, R&D expenditure, Tobin's Q, return volatility, analyst coverage, the S&P dummy and the NASDAQ dummy (Table 17, Panel A). Next, we repeat the analysis of column (1) and (2) found in Table 17 on this matched sample (Table 17, Panel B).[52] The results confirm the results presented in Table 16 for environmental strengths and environmental concerns.

4.B Regulatory Stringency

As emphasized in Berrone et al. (2010), the regulatory stringency of each state could have an impact on the environmental CSR activities of a firm. Hence, we repeat our analysis by controlling for the regulatory stringency in the state in which a firm is headquartered. Further, there might be a possibility of some endogeneity arising from (especially) family firms preferring to locate in states with lower regulatory stringency. We repeat our analysis after including an interaction term between the family firm dummy and the regulatory stringency variable.

Based on King and Lenox (2002), Kassinis and Vafeas (2002) and Berrone et al. (2010), we create a coarse proxy for state-level regulatory stringency by the log-transformed and inverted value of the total carbon dioxide (CO^2) emissions in the state where the firm is headquartered,[53] scaled by total employment of the state.[54] A higher value of this variable is indicative of higher regulatory stringency. Table 18 reports the results.

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other than size, B/M and Industry, such as size, market leverage, institutional ownership, insider ownership, Tobin's Q and return volatility. In fact, we find that negative relationship between environmental concerns and the family firm dummy to be significant at the 10% level in this alternative matched sample. See Table 23.

[52] The sample size is notably reduced because of the matching process.

[53] Source: U.S. Energy Information Administration (EIA).

[54] Source: U.S. Census Bureau.

Even after controlling for regulatory stringency, we continue to find results consistent with our prior analysis, i.e. family firms have lower environmental strengths than non-family firms but there is no significant difference between the two types of firms when it comes to environmental concerns (columns (1) and (3)). The coefficient on regulatory stringency is highly statistically significant in both columns (1) and (3). The coefficient is positively related to environmental strengths while it is negatively related to environmental concerns. This is not surprising as one would expect the environmental performance of a firm to improve (from a social perspective) when regulatory stringency is higher.

In columns (2) and (4) we include the interaction term between the family firm dummy and the regulatory stringency variable. For strengths, the interaction term is negative and significant, indicating that even when the state-level regulation is high, family firms tend to have significantly fewer strengths than non-family firms. It is also negative and significant for concerns, indicating that family firms have significantly lower concerns when state regulation is high. Our overall conclusions remain unchanged when the interaction term is added.

4.C Reputation Effects

It is possible that family firms derive noneconomic utilities through CSR activities. These utilities could come in the form of increased reputation for the family. To test this hypothesis, we look at the firm names and identify firms that have the founder's name or a portion of it included in the firm name. We create a dummy variable called "founder name," which equals one if the firm name contains the founder's name or a portion of it and is zero otherwise; next, we repeat the main analysis by including the founder name dummy and an interaction term of it with the family firm dummy. Results are reported in Table 19.

For the regressions of environmental strengths, the coefficient on the family firm dummy remains negative and significant (column (1)). This implies that among the firms

without the founder's name, family firms have a lower amount of environmental strengths compared to non-family firms. The coefficient on the interaction term of the family firm dummy and founder name dummy is insignificant (column (1)). However, the sum of the family firm dummy and this interaction term is found to be negative and significant at the 1% level, implying that among the firms with the founder's name, family firms have a lower amount of environmental strengths compared to non-family firms. The regression with concerns (column (2)) present a rather surprising result. The founder name dummy and the interaction term are positive and highly statistically significant. The sum of the family firm dummy and the interaction term is also positive and significant, implying that among firms that have the founder's name, family firms have a higher amount of concerns. This is rather puzzling given the reputation hypothesis. However, it is interesting to note that among the firms that do not have the founder's name, family firms have lower amounts of environmental concerns as demonstrated by the negative significant coefficient on the family firm dummy.

4.D 2008 Financial Crisis

Next we examine whether the financial crisis has an impact on the results obtained, as it has been shown that family firms behave differently from non-family firms during periods of crisis (Lins, Volpin, and Wagner, 2013).[55] We create a crisis period dummy which equals one if the observation is from 2007-2009 and zero otherwise; we then interact this dummy with the family firm dummy. Results are reported in Table 20.

The family firm dummy captures the difference between family firms and non-family firms during the pre-crisis period (2001-2006). The sum of the family firm dummy and the interaction term captures the difference between family firms and non-family firms during the

[55] Lins, Volpin, and Wagner (2013) find that family firms reduced investments during the recent financial crisis compared to non-family firms, to ensure firm survival.

crisis period. The results for environmental strengths and concerns remain consistent with the prior analysis for the pre-crisis period. When looking at the crisis period, the sum of the family firm dummy and the interaction term is negative and significant for environmental strengths at the 1% level. Interestingly, for environmental concerns, the summed coefficients are negative and significant at the 5% level. This implies that family firms had both lower environmental strengths and concerns during the crisis period.

4.E Alternative CSR Database

This study is based on environmental strengths and concerns as classified by the KLD database. In order to verify that the reported findings are not an artifact of the database that is being used we look at an alternative database: Thomson Reuters' ASSET4 database. While this database does not classify CSR variables as strengths and concerns, they do report many indicator variables related to the corporate environmental policy of a firm. Following the KLD definitions we classify these individual variables as strengths and concerns, and then aggregate them as strengths and concerns for each firm (see Appendix E for a description of these variables). Next, we re-run our main analysis reported in columns (1) and (2) in Table 16 but by replacing the KLD strengths and variables with the Thomson Reuters' ASSET4 strengths and concerns. Unfortunately, the Thomson Reuters' ASSET4 database primarily focuses on environmental strengths; hence, regressions related to environmental concerns lack statistical power and need to be interpreted with caution. Results are reported in Table 21.[56]

We find that even with this alternative dataset, family firms have significantly lower environmental strengths compared to non-family firms. The results for environmental concerns too appear to be consistent with the main results of Table 16.

[56] We lose a significant number of observations as some firm-years are not covered by the Thomson Reuters' ASSET4 database.

4.F Other Robustness Tests

Table 22 presents the results obtained in the main analysis with alternative methods to calculate standard errors. We consider the classical OLS standard errors (column (1) and (2)), robust standard errors (column (3) and (4)), standard errors clustered by industry (column (5) and (6)), standard errors clustered by industry and year (column (7) and (8)).[57] As with the bootstrapped standard errors in the main analysis, the family dummy remains negative and significant at the 1% level for strengths, whereas it is negative but insignificant for concerns.

The correlation between strengths and concerns was shown to be positive and significant in Table 15, Panel C. It could be that firms with reported concerns attempt to establish strengths to "cover their sins"; this is a potential strategic channel that might explain this positive correlation. A related question is whether environmental strengths and concerns are separately or jointly determined. Further, managers of firms with higher reported concerns might have a higher likelihood of career termination. Therefore, they might have a higher incentive to establish strengths to increase their external values in the job market (Type I agency problem); this particularly might be a concern for family firms if they are less transparent and subject to less monitoring. Therefore, we run our main tests using concerns as a control for the strengths regression and vice versa. We also included the interaction between concerns(strengths) and the family firm dummy in the strengths(concerns) regressions. The results can be found in Table 24. In all these regressions, the strengths (concerns) coefficient is positive and significant but the interaction term is insignificant. More importantly, the coefficient on the family firm dummy hardly changes in absolute value and neither does its significance.

[57] In unreported results, we look at standard errors clustered by firm, and standard errors clustered by firm and year. Results in terms of statistical significance remain unchanged.

As a further check, we have re-run our main regressions by excluding from our sample firms that have both strengths and concerns (see Table 25.) The resulting sample only has firms that have strengths and no concerns or concerns but no strengths. Our results remain unchanged.

5. Conclusions

In this chapter, we study the differences in policy toward CSR between family and non-family firms in the U.S., using environmental performance as the proxy for CSR. We obtain the environmental data from KLD, a widely used database for CSR studies. We find that when it comes to CSR, family firms are more responsible to shareholders than non-family firms. When shareholder interests and societal interests coincide, i.e., when it comes to alleviating environmental concerns that have potential to harm society and elevate the firm's risk exposure, family firms are no different than non-family firms in protecting shareholder interests. However, when shareholder and societal interests diverge, i.e., when it comes to making environmental investments that benefit society but do not benefit shareholders, family firms are significantly more on the side of shareholders and undertake fewer such investments than non-family firms. This finding holds for the full sample as well for a matched sample of family and non-family firms. The results are robust to several tests including different definitions for family firms, different time periods and different levels of regulatory stringency.

The reduced presence of the type I agency problem might be a potential explanation for the results reported in this chapter. Due to their undiversified investments, the financial bottom line may take precedence over noneconomic utilities for families that own these large public firms. As a result, family firms maybe behaving in a manner that happens to be favorable to the other shareholders as well. These are avenues left for further investigation in future research.

Chapter 3

Undiversified Shareholders and Corporate Hedging: Evidence from Family Firms

1. Introduction

Holthausen (1979) provides a theoretical development of the undiversified shareholder rationale for corporate hedging by modeling the relation between risk aversion and hedging in the presence of price uncertainty and showing that hedging will increase as risk aversion increases. As noted by Mayers and Smith (1982, 1990), and Smith and Stulz (1985), risk aversion alone is not a sufficient rationale for hedging when risk averse shareholders have the ability to hold diversified portfolios. However, when shareholders are unable to hold diversified portfolios, it should be optimal for firms to hedge even in the absence of the usual frictions that firms attempt to minimize by hedging, such as the costs of financial distress, financing constraints, and taxes (Smith and Stulz, 1985; Bessembinder, 1991; Froot, Scharfstein, and Stein, 1993). One such example is the case of firms that value the monitoring role of large undiversified shareholders and engage in hedging to retain them as shareholders (Stulz, 2003). Another example is the case of family firms whose shareholders are unable to fully diversify their portfolios. In general, family owner-managers tend to be less diversified than the average manager of a non-family firm and, even if a family firm employs a non-family manager, it's likely such a manager will act to mitigate the risk exposure of the family. Therefore, managers of family-owned firms are likely to display a higher demand for hedging firm-specific risks than managers of non-family-owned firms.

However, the empirical evidence to date has generally been unable to document a significantly positive relation between family ownership and hedging demand. In contrast, most of the extant literature has shown that family firms either take on more risk or behave in

a manner similar to non-family firms. For example, Anderson and Reeb (2003b) find no difference between family and non-family firms in the leverage they employ, and Ellul (2008) finds that family firms have *higher* leverage ratios than non-family firms.[58] In addition, Anderson and Reeb (2003b) find that family firms are less operationally diversified than non-family firms. Gomez-Mejia et al. (2007) show that family firms in the Spanish olive oil industry often expose themselves to significant firm-specific risk. And Kim, Pantzalis and Park (2014), who study risk management of family firms in the S&P 500, document that family firms use fewer interest rate and currency derivatives than non-family firms. Overall, the preponderance of evidence in the extant literature appears to reject the theoretical prediction that the higher firm-specific risk exposure of family owners/managers results in a greater demand for hedging activity by family firms.

In this chapter, we reexamine the undiversified shareholder rationale for corporate hedging by comparing the hedging activities of family firms to non-family firms using a unique dataset of firms from the oil and gas industry. We study derivative transactions of 187 firms in the oil and gas industry (SIC code 1311) between 1998 and 2015. Our multivariate results confirm that family firms hedge significantly more than non-family firms. The coefficient on our family firm dummy is positive and significant (at the 1% level) in all models. On average, family firms are about 30% more likely to hedge than non-family firms. Using our family director variable, we find that an additional family member on the board of directors is associated with a 5% higher likelihood that the firm is also a hedger. Even though most family members have one director on the board, a few family firms have up to three family directors

[58] Anderson, Mansi, and Reeb (2003) argue that the debt-carrying capacity of family firms might be higher than non-family firms because creditors know that family members often pass their firms to subsequent generations, thereby making them less risky debtors.

on the board. Given that the unconditional probability of hedging is about 55%, our results are both statistically and economically significant.

Anderson, Martin and Reeb (2017) provide evidence suggesting that founder family firms are significantly more likely to be involved in financial misconduct than family firms run by other family members, which raises the possibility that founder family firms are significantly less risk averse than the founder's family members. Therefore, we also examine whether our hedging results are driven by the founder of the firm or his/her family members. We separately identify family firms in which the original founder is the CEO (Founder CEO) from family firms controlled by relatives (children, grandchildren, nephews, nieces, etc.) of the original founder. As in Anderson and Reeb (2003a) We also identify a third category of family firms; family firms with a hired CEO (Family controlled firms). Surprisingly, we find a strong positive and significant relationship between the founder CEO dummy variable and hedging, which suggests that founders are, in fact, more risk averse than other family members.

Having more family directors on the board is an indication of the family's influence on the running of the firm. However, voting power can be more important for firms. Therefore, we test whether firms with higher family ownership stakes hedge more. Following Anderson and Reeb (2003a), We include both the level and square of family ownership in the regressions to test for non-linear effects of ownership on hedging. Consistent with our earlier findings, higher family ownership stakes are significantly and positively associated with more hedging in all models except for those of oil exposure, while the coefficient of the square of family ownership is negative and significant. This suggests that family ownership nonlinearly increases with hedging.

The oil and gas industry provides an ideal empirical setting to test the hypothesis that family firms are more risk averse than non-family firms in the context of corporate hedging

policy. First, oil and gas firms face significant risk exposure due to the high volatility of oil and gas prices. Therefore, hedging is widespread and plays a crucial role in the oil and gas industry. Second, since oil and gas prices are determined in a global market, family firms are unlikely to have informational advantages over investors of non-family firms. Third, oil and gas exploration and production is a fairly mature industry and all the firms in our sample face essentially the same oil and gas risk exposure. Therefore, by focusing on a homogenous industry, we avoid unobservable industry differences that can potentially confound our analysis.[59] Fourth, and perhaps most important, firms in the oil and gas industry report their derivative holdings clearly and completely. Investments in oil and gas firms are attractive for investors who seek exposure to oil and gas prices. Investors are aware that commodity hedging is critical in this industry and demand comprehensive financial reporting. Perhaps for this reason, the sample of oil and gas firms that we use in our study has been thoroughly whetted by previous studies of hedging by oil and gas firms, including Haushalter (2000), Jin and Jorion (2006), and Kumar and Rabinovitch (2012). Finally, family firms are fairly common in this industry. Almost half of the sample in this study is comprised of family firms.

We also explore whether compensation incentives drive our results. In particular, throughout our analysis, we control for CEO wealth delta and CEO wealth vega. Furthermore, we pay particularly close attention to FAS 123R, which is the financial accounting standard adopted by the Financial Accounting Standards Board (FASB) that required firms to report option compensation expenses at fair value after December 15, 2005. Most firms had previously expensed options at the lower intrinsic value of options. FAS 123R led many firms to reduce option compensation. In addition, Bakke et al. (2016) show that FAS 123R led to an

[59] As in prior studies, our sample is confined to firms in SIC code 1311 (firms that engage in exploration and production of crude oil and natural gas) and excludes large integrated petroleum companies such as Exxon that are engaged in refining and other activities encompassing the entire petroleum supply chain and are classified under SIC code 2911.

increase in hedging by firms that cut back on their option compensation. Because CEOs of family firms are compensated with fewer options than non-family firms, FAS 123R impacted non-family firms more than family firms. We find that family firms hedge more than non-family firms especially in the pre-FAS 123R period. However, our findings persist in the post-FAS 123R period in that family firms are still significantly more likely to hedge than nonfamily firms. Our results are also robust to controlling for the unusual oil price volatility that was observed in 2008 and persist after controlling for the possibility that institutional ownership could influence hedging behavior.

Our results are important in light of the extensive research showing that risk management increases firm value. For example, Smith and Stulz (1985) argue that hedging can increase firm value by reducing the variability of cash flows and therefore reducing the costs associated with financial distress. Hedging can also reduce the underinvestment problem by providing assurance to firms that they will have internal cash flow to fund positive NPV projects (Bessembinder, 1991; Froot et al., 1993). On the empirical side, Allayannis and Weston (2001), Carter, Rogers, and Simkins (2004), Kim, Mathur, and Nam (2004), Bartram, Brown, and Fehle (2009) and Allayannis, Lel, and Miller (2012) provide evidence of a positive relation between hedging and firm value. Our study is most closely related to that of Kim, Pantzalis and Park (2014), whose finding that family firms in the S&P 500 use fewer interest rate and currency derivatives than non-family firms is the opposite of what we show for oil and gas hedging. It is possible that family firms may not need currency derivatives as much as non-family firms since family firms tend to be smaller. The firms in our sample operate in the oil and gas extraction industry and so all firms (family and non-family) are fully exposed to volatility in oil and gas prices.

The rest of this chapter is organized as follows. In Section 2 we describe our data and our methodology. We present results in Section 3 and conclude in Section 4.

2. Sample Selection and Data Description

We study derivative transactions of 187 firms in the oil and gas industry (SIC code 1311) between 1998 and 2015. Table 26 presents the number of observations that we study by year. The year with the least number of observations is 2015 with 59 and the year with the most observations is 2008 with 87. In total, we have 1,292 firm-year observations. To identify founding family firms in this industry, we follow Anderson and Reeb (2003a). To be a family firm, a) the founder or a family member of the founder must either be a high-level executive or serve on the board of directors or b) a family must control and/or operate the company, in which case at least one of the family members must serve as a board member or as a high-level executive. We use three measures of family control in this chapter: First, we use a family firm dummy variable that is equal to one if the firm is a founding family firm and zero otherwise. In addition, we identify and count the number of directors on the board that are related to the founding/controlling family. Finally, we collect ownership stakes by the families.[60] A more detailed description of the construction of all the variables used in this study is provided in Appendix C. Table 27 presents the summary statistics for our sample. About half the firms in the oil and gas industry are family firms. In addition, family firms typically have one family director on the board. Family ownership averages 7% in the sample but this is somewhat deceiving because about half of the firms in our sample are not family firms.

While most firms in the oil and gas industry typically produce both oil and gas, some firms extract only oil and some extract only gas. Additionally, individual firms vary their

[60] As Anderson and Reeb (2003a) point out, family ownership data reported in proxies is less than true family ownership because families can usually find ways to "hide" their ownership stakes.

product mix occurs over time. We use the SEC Edgar database to collect derivative positions from annual 10-K reports. Firms usually disclose derivative positions in item 7A. In the oil and gas industry in particular, firms report their use of oil/gas derivative contracts very clearly (most often in tabulated format). We collect the contract type (forward, future, call, put, swap, etc.), the contract maturity, the amount of oil/gas sold forward (firms sometimes provide these figures on a per day basis and sometimes in aggregate over a time period), the type of commodity (sweet, Brent, etc.) and price of the commodity in the agreement. We confine our analysis to directional hedge positions and therefore ignore derivative positions such as crack spreads.

After collecting the information of each derivative contract, we collect volatility and prices at exchanges of futures contracts for all types of oil/gas commodities from Bloomberg. This information allows us to calculate delta for each of the derivative contracts. Deltas for futures, forwards, swaps, loans and other such contracts are assumed to equal one. For other commodities, we use the Black and Scholes delta formula to estimate the sensitivity of a contract to movement in oil/gas prices. As in Haushalter (2000) and Jin and Jorion (2006), we first look at oil and gas hedging separately and then together. We first measure hedging with a dummy variable equaling one if the firm has derivative positions outstanding at the end of the fiscal year and zero otherwise. This variable is useful because it does not require the identification of a suitable good deflator for the hedge ratio. Alternatively, we build hedge ratios for each firm k and year t (h_{kt}) defined as follows:

$$h_{kt} = \frac{-Portfolio\ delta}{Deflator} \tag{1}$$

where portfolio delta is the amount of oil/gas that the firm has sold short, computed as the sum of all the deltas of a firm's oil and gas derivative positions in barrels of oil equivalent (Tufano,

1996). Tufano (1996) uses expected production from gold industry surveys. Because expected production is not available for the oil and gas industry, we use one-year-ahead actual annual production figures and current reserves as of the fiscal year-end as the two deflators. About 69% of the sample consists of oil and/or gas hedgers. About 54% of the firms hedge oil price exposure and 59% hedge gas price exposure. Firms sell short an average of about 36% of their oil/gas production or 3% of their reserves. However, the standard deviation of hedge ratios is quite high at 53% for oil hedge ratios and 51% for gas hedge ratios. Given that some firms hedge more than one year ahead of their production, it is not surprising to see such large variation in hedge ratios. Our hedge ratios are in line with Jin and Jorion (2006). [61]

In the context of our study, CEO risk-incentives are important. Therefore, we control for CEO compensation vega and delta in all our regressions. We hand-collect all relevant CEO compensation data from 10-K filings and calculate vega and delta following the methodology of Core and Guay (2002). Vega is the change in the dollar value of the executive's wealth derived from ownership of stock options in the firm when the annualized standard deviation of the firm's stock price changes by 0.01. Delta is the change in the dollar value of the CEO's wealth derived from ownership of stock and stock options in the firm when the firm's stock price changes by 1%. Finally, following Bakke et al. (2016) we take the natural logarithms of both vega and delta. [62] The average vega for our sample of firms is 46.087 and the average delta is 588.554.

Finally, we obtain financial data from Compustat. With this data, we construct the following commonly used control variables that we include in all regressions:[63] firm size,

[61] 46% of the firms in their sample are hedgers. Among oil hedgers, the median firm in their sample hedges 23% of expected production and among gas hedgers, the median firm in their sample hedges 33% of expected production.

[62] Our results our robust even if we use vega and delta without taking their natural logarithms.

[63] Other papers using similar control variables in hedging studies include Tufano (1996), Mian (1996), and Haushalter (2000).

leverage, market-to-book ratio, a dividend payout ratio, return on assets (henceforth ROA), and the quick ratio. The average (median) firm in the sample has about $730 million ($650 million) in assets, leverage of around 31%, a market to book ratio of about 1.57 and a quick ratio of 1.36. In addition, the payout ratio is about 3%, on average.

We use probit regressions when the dependent variable is the hedging dummy and we use Tobit regressions with censoring at zero for our regressions in which the dependent variable is the magnitude of hedging (Haushalter, 2000). We use year dummy variables and heteroskedasticity consistent-standard errors throughout the chapter.[64]

3. Empirical Results

In this section, we test our main hypothesis that family firms hedge more than non-family firms. To do this, we employ a number of different tests. We first run univariate tests of hedging for family and non-family firms. Next, we employ probit regressions that examine only the decision to hedge. Finally, we complement the probit analysis with Tobit regressions that use the magnitude of hedging as the dependent variable. We use three measures of family firms (the family dummy variable, family directors and family ownership). In robustness checks, we exclude observations from 2008, a year characterized by very high oil and gas price volatility, to rule the possibility of our results being driven by extreme observations. We also look at whether the adoption of FAS 123R has any impact on our results. Finally, we include institutional ownership as an additional control variable and check the robustness of our results.

[64] Our regression methodology basically follows that of Haushalter (2000). However, we have also verified that other specifications, such as regular OLS, OLS with fixed effects, firm clustered standard errors, etc. yield similar results.

3.A Univariate Results

Before testing our main hypothesis, we first investigate how family firms are different from non-family firms. In Table 28, we present summary statistics for family firms and non-family firms separately. In addition, we present the p-values from difference-of-means tests for the relevant variables across family firms and non-family firms. Family firms obviously have larger family ownership stakes and family members on the directorate. Family firms have an average of 1.5 directors on the board and own about 12% of the firm. We also find that family firms are more leveraged than non-family firms, which is consistent with Anderson, Mansi and Reeb (2003). After subtracting family ownership from insider ownership, non-family firms have larger insider stakes than family firms (significant at the 1% level). Since family firms own larger ownership stakes in the firm than non-family firms, it is not surprising that CEO delta is higher for family firms than non-family firms. Similarly, given the high ownership stakes of family firms, it is not surprising that option compensation is lower in family firms than in non-family firms, and therefore, vega is lower in family firms than in non-family firms.

Now we move to our main hypothesis that family firms hedge more than non-family firms. We use a total of nine measures of hedging throughout the chapter. Three measures are dummy variables (for aggregate hedging, oil hedging and gas hedging). We also have three hedge ratio measures that scale the level of hedging using production in the denominator and three hedge ratios that use reserves in the denominator. For all nine measures of hedging, our univariate evidence based on differences between family versus non-family firms indicates that family firms do indeed hedge significantly more than non-family firms. Of course, these univariate tests are incomplete because of confounding effects of other variables. For our research, undertaking a multivariate analysis before arriving at firm conclusions is of particular

importance because family firms have higher leverage than non-family firms, on average, and prior literature shows that leverage and hedging are strongly related.[65]

3.B Multivariate Results

We focus on the multivariate tests of our main hypothesis that family firms hedge more than non-family firms. We provide three tests of this hypothesis. First, we use Probit regressions with a binary dependent variable that is equal to one if the firm hedges and zero otherwise. The advantage of this hedging dummy is that it is clear and easy to calculate. The limitation of the hedging dummy variables in this context is that they provide no information on the magnitude of hedging for firms that hedge. Hedging 1% of expected production surely is different than hedging 90% of expected production. To capture these continuous differences in hedging, we first calculate hedge ratios that estimate the proportion of a firm's expected production sold forward, with expected production proxied by actual production as in prior studies since *ex ante* production estimates are not available for our sample. We also calculate a corresponding set of hedge ratios using reserves in the denominator.

3.C The Decision to Hedge

Table 29 presents results of regressions of the relation between a firm's decision to hedge and firm characteristics. Panel A estimates this relationship using a linear probability model while Panel B uses a probit estimation. For ease of interpretation, we present marginal probit coefficients (making the intercept irrelevant) in Panel B. In all models, we use two variables to identify family firms: a dummy variable that is equal to one if the firm is a family firm and zero otherwise and the number of family directors serving on the board of directors. We also have three hedging dummy variables: an aggregate hedging dummy that is equal to

[65] See, for example, Campello, Min, Yuan and Zou (2011).

one if the firm hedges *either* oil or gas production and zero otherwise, an oil hedging dummy that is equal to one if the firm sells oil forward and zero otherwise, and a corresponding gas hedging dummy that is equal to one if the firm sells gas forward and zero otherwise.

First, as theory would predict we find a statistically significant negative relationship between option compensation (vega) and the decision to hedge for the oil hedging dummy and aggregate hedging dummy in all our specifications.[66] Theory suggests that delta can have opposing effects on the decision to hedge (Armstrong and Vashishtha, 2012; Armstrong et al. 2013). On one hand, delta could encourage managers to reduce their risk (hence hedge more) since delta captures the increase in value of the CEO's wealth from an increase in stock price. On the other hand, delta could encourage managers to take on risks (hence hedge less) that might sufficiently increase firm value or transfer wealth from creditors to shareholders. Consistent with the latter hypothesis, the coefficient on Ln (1+delta) is negative (and significant in columns 1,3,4 and 6). Consistent with the literature, we find that larger firms hedge more than smaller firms.[67] Additionally, as in Mian (1996), when significant (in two out of 9 models), we find a negative coefficient on the market-to-book ratio. Finally, we find that hedge ratios are negatively related to the quick ratio. This is consistent with Mian (1996) and Adam and Fernando (2006).

Next, turning our attention to the variables of interest for the tests of our main hypothesis, our multivariate results confirm that family firms indeed hedge more than non-family firms. The coefficient on our family firm dummy is positive and significant (at the 1% level) in all models. On average, family firms are about 30% more likely to hedge than non-family firms. Using our family director variable, we find that an additional family member on the board of directors is associated with a 5% higher likelihood that the firm is also a hedger.

[66] See for example Bakke et al. (2016).
[67] See, for example, Tufano (1996), Mian (1996), Haushalter (2000) and Adam and Fernando (2006).

Even though most family members have one director on the board, a few family firms have up to three family directors on the board. Given that the unconditional probability of hedging is about 55%, our results are both statistically and economically significant.

3.D Magnitude of Hedging

Hedging dummies have their advantages but as noted above they are coarse measures of hedging. Hedge ratios vary significantly in our sample. For example, our aggregate hedge ratio (with production in the denominator) has a mean of about 36% and a standard deviation of 49%. The 90th percentile of the aggregate hedge ratio for our sample is 103% (the denominator is one-year-ahead production whereas firms hedge up to 10 years in the future). As in Haushalter (2000), we use Tobit regressions with censoring at zero for our tests. We include year dummy variables in our regressions to account for possible temporal variation in the hedge ratios. In addition, we use heteroskedasticity consistent standard errors for our tests.

In Table 30, we use the family firm dummy as the variable of interest. As in the previous univariate results, the coefficient on the family firm dummy variable is positive and significant in all models. That is, regardless of how we measure hedging, family firms hedge more than non-family firms. The coefficient on firm size is positive and significant in all our models. The coefficient on leverage is also statistically significant and positive in all models. This is consistent with Tufano (1996) and Haushalter (2000). As in Mian (1996), the coefficient on market-to-book ratio is negative and significant in all models. The dividend dummy is negative in most models, consistent with evidence in Haushalter (2000). Finally, the quick ratio is negatively related to hedging. This result is consistent with Mian (1996), who finds that hedgers are less liquid.

One concern with the family firm dummy variable is that it puts all family firms in one category. However, some families are more involved in the day-to-day management of the firm

than others. For example, some family firms have as many as three family directors on the board while other family firms have no family representation on the board. Table 31 reports the results of our tests of whether firms with more family directors on the board hedge more than firms with fewer family directors on the board. The results in Table 31 are quite similar to those in Table 30. The coefficient on the family director variable is positive and significant in all models, except for those with hedging of oil exposures. Overall, our results suggest that having more family members on the board of directors is associated with more hedging.

3.E Types of Family Firms

So far, we have identified family firms as those firms with some type of family control. This family control could be via the original founder, the relatives of the founder or some other family.[68] The question that follows is whether the founder is driving our results or whether our results are driven by the relatives of the founder. Ownership concentration and long investment horizons should be driving our results and so all types of family firms in our sample are likely to exhibit high levels of risk aversion. Alternatively, recent evidence from Anderson, Martin and Reeb (2017) documents some risk seeking behavior by founders. In particular, Anderson, Martin and Reeb (2017) show that the original founders are responsible for the majority of federal regulatory enforcement actions from financial misrepresentation. If founders are particularly less risk averse than other managers, then we should observe less hedging from firms managed by founders.

We present results of our analysis in Table 32. For brevity, we examine only the extent of risk management against determinants of risk management. We include dummy variables for each of the different types of family firms simultaneously. For example, we identify family

[68] For example, Villalonga and Amit (2006) identify as an example of Berkshire Hathaway as a family firm, even though Warren Buffett is not the founder of Berkshire Hathaway

firms in which the original founder is the CEO (Founder CEO). In addition, we identify family firms controlled by relatives (children, grandchildren, nephews, nieces, etc.) of the original founder (Relatives of founder). Finally, as in Anderson and Reeb (2003a) we identify a third category of family firms; family firms with a hired CEO (Family controlled). Consistent with our prior results, we find that the family firm dummy variable is positively and significantly related to hedging across all models. However, no other family firm dummy variable is positively related to hedging. This evidence contrasts with the findings of Anderson, Martin and Reeb (2017) and indicates that founders are, in fact, more risk averse than other family members.

In untabulated results, we also estimate regressions of hedging against our different categories of family firms separately. Throughout this analysis, we find that all types of family firm categorical variables are positively and significantly related to hedging. Overall, our results suggest that all family firms are generally risk averse and therefore try to reduce their cash flow volatility through the use of hedging instruments.

3.F Family Ownership

Having more family directors on the board is an indication of the family's influence on the running of the firm. However, voting power can be more important for firms. In Table 33, we test whether firms with higher family ownership stakes hedge more. Following Anderson and Reeb (2003a), we include both the level and square of family ownership in the regressions to test for non-linear effects of ownership on hedging. In addition, we control for insider ownership excluding family ownership. Consistent with our earlier findings, higher family ownership stakes are associated with more hedging in all models except for those of oil exposure (the coefficients on family ownership variables are insignificant in oil exposure hedging). However, the coefficient on the square of family ownership is negative and

significant. This suggests that ownership is positively related to hedging up to some level of ownership. It is possible that family risk aversion increases non-linearly with ownership stakes. Note that this result is robust to including other insider ownership stakes in the firm. In other words, only family insider ownership is associated with more hedging.

3.G Economic Significance

Our results so far provide strong statistical evidence that family firms hedge more than non-family firms. The next question is whether the difference in hedging behavior is also economically significant. In the probit regressions, we show that family firms are about 11% more likely to hedge than non-family firms. This difference is quite large, given that only about 55% of firms in the sample hedge at all. As we turn to hedging magnitudes, we need to address the two formulations of hedge ratios (those with production in the denominator and those with reserves in the denominator) separately. The coefficient on the family firm dummy variable for the regressions in which the dependent variables are hedge ratios with production in the denominator ranges between 0.1 and 0.15. Given that the average of these hedge ratios ranges between 0.32 and 0.36, our results are economically meaningful. Turning to hedge ratios with reserves in the denominator, the coefficients on the family firm dummy variable range from 0.012 to 0.018, whereas the average hedge ratio with reserves in the denominator is around 0.034. Again, the results suggest that the family firm effect on hedging is economically significant.

3.H Robustness Checks

Next, we consider three robustness checks. The first robustness test has to do with the observed high volatility in oil prices during 2008. We test whether this one year drives our results. Second, we consider whether compensation incentives drive our results. We do so by studying more carefully the impact of CEO delta, vega and the 2003 compensation reporting

regulation change, FAS 123R. Third, we add institutional ownership as an additional control variable.

Oil prices experienced unusual volatility in 2008. West Texas Intermediate crude oil prices started at $92 a barrel in January, spiked to $147 a barrel on 11 July, and ended the year at around $42 a barrel, marking a period of volatility not seen for more than 25 years. Since oil price volatility directly affect oil producers, often with a multiplier effect due to relatively fixed costs especially over short periods, the 2008 oil price spike raises the question of whether our results may be driven primary by this year. In this section, we re-test our main results without observations from 2008 to rule out the possibility that our results may be driven by 2008.

Results of this analysis are provided in Table 34. We provide both the binary regression results and the Tobit regression results. The coefficient on the family firm dummy variable continues to be positive and significant in all models. In fact, the coefficients on the family firm dummy variables in Table 34 are quite similar to the corresponding coefficients in Table 29 and 30. All in all, our basic story remains unchanged. Family firms hedge more (statistically and economically) than non-family firms and our results are not explained by the unusual oil price behavior observed in 2008.

We now consider whether compensation incentives drive our results. The motivation for this robustness test comes from evidence that compensation packages of family executives tend to be less exposed to risk (Gomez-Mejia, Larraza-Kintana, and Makri, 2003). If that is the case, then it is possible that option compensation could explain our findings because we find that family firms hedge more than non-family firms. We already have included CEO compensation delta and vega in most of our regressions. However, FAS 123R brought a significant change to compensation reporting requirements in 2004 that also impacted the way firms compensated executives. Specifically, FAS 123R changed the required method to report

option compensation expense. Before 2004, firms had a choice to report option compensation at intrinsic value or at fair value (computed via Black-Scholes). Most firms chose to report option compensation expenses at intrinsic value. After 2004, firms were required to report option compensation expenses at fair value. This led to a significant increase in the reported compensation expense. Firms responded by reducing option compensation. Bakke et al. (2016) find that firms affected by the regulation cut back on option compensation and increased hedging following FAS 123R. Since family firms' executives tend to be compensated with fewer options than those of non-family firms, FAS 123R impacted non-family firms more than family firms. Thus, it is possible that our results weakened after FAS 123R because non-family firms may have increased hedging more than family firms after FAS 123R.

In Table 35, we re-estimate our hedging regressions in the pre-FAS 123R period (1998-2004) and the post-FAS 123R period (2005 – 2015) separately. In Panel A, we present results of the pre-FAS 123R period and in panel B we present results of the post-FAS 123R period. Overall, our results confirm that family firms hedge more than non-family firms primarily before FAS 123R. In the pre-FAS 123R period, the coefficient on the family firm dummy variable is positive and significant in 9 out of 9 models. After FAS 123R, the family firm dummy variable is positive and significant in only 6 of 9 models. Specifically, family firms are still more likely to hedge than non-family firms after FAS 123R (regressions where the hedging dummy variable is the dependent variable), but family firms do not hedge more than non-family firms (regressions where the dependent variables are hedge ratios).

One last test that we consider is whether institutional ownership impacts our results. Institutional ownership can be seen as a measure of external corporate governance. If hedging is value increasing, it is possible that institutions may push firms to hedge. Thus, institutional ownership may be positively related to the likelihood of hedging. Furthermore, if institutions

have investment preferences toward or against family firms, it is possible that our results could be affected by institutional ownership. In Table 36, we re-estimate our hedging regressions and control for institutional ownership. Our sample size is a bit smaller when we control for institutional ownership (observation count drops from 1,292 in Table 29 to 1,190 in Table 36). Nonetheless, our results remain generally consistent. We continue to observe that family firms hedge more than non-family firms.

4. Conclusions

The extant literature related to family firms and hedging activity has mostly failed to find a connection between family-ownership and managerial risk aversion. This general lack of significance has been rather perplexing given that managers of family firms have a significant part of their wealth invested in the firm. In this chapter, we examine the family firm-hedging relation using a unique hand-collected dataset of oil and gas companies. We find strong and consistent evidence that family firms do indeed hedge more extensively than non-family firms. Our statistically and economically significant results are consistent with theoretical expectations that managers who are exposed to greater firm-specific risk will engage in more hedging activity than less exposed managers. Our results also have important corporate governance and incentive implications, given that 33% of the firms in the S&P 500 and approximately 50% in the S&P 1500 are family-owned firms.

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Appendix A: Variable Definitions for Chapter 1

#MeToo takes a value of one if the announcement occurs after October 15, 2017.

Action taken dummy takes a value of one if the initial announcement contains information about the firm having taken some action related to the harassment, such as firing or investigating, and is zero otherwise.

Age refers to the number of years between the year under consideration and the year in which the firm is first listed in the CRSP data set.

Analyst coverage is the log of (1+ average number of analysts).

Busy board dummy takes a value of one if 50% or more of the outside directors hold three or more total directorships and is zero otherwise.

Culture and value Glassdoor rating is the average rating on "culture and values" given by employees on glassdoor.com in a given year.

Disclosure by firm dummy takes a value of one if the initial source of public information regarding the harassment is disclosed in a press release by the firm and is zero otherwise.

Employees is the number of employees in thousands (Compustat item *EMP*).

Family firm takes a value of one if a) the founder or a family member of the founder is a high-level executive or serves on the board of directors; b) a family controls and/or operates the company, in which case at least one of the family members serves as a board member or as a high-level executive; or c) the founder or family member of the founder has 5% or more ownership stake. In all other cases *family firm* takes a value of zero.

Female victim dummy takes a value of one if the victim(s) is(are) female.

Fired dummy takes a value of one if the initial announcement mentions that the perpetrator had been fired or had resigned and is zero otherwise.

Firm contradicts dummy takes a value of one if in the announcement it is mentioned that the firm denies the charges made by the victim and is zero if otherwise.

Fraction of female board members is the fraction of board members that are women.

Fraction of female top executives is the fraction of female executives among the top five executives of the company.

Fraction of independent directors is the fraction of independent board directors from the total board directors.

Hand-picked board dummy takes a value of one if 50% or more of the independent directors have a tenure shorter than that of the CEO and is zero otherwise.

Headquarters dummy takes a value of one if the employees involved in the harassment case work at the firm headquarters and is zero otherwise.

HRC corporate equality index is the Human Rights Campaign's score on how extensively a firm manages sexual orientation diversity at the workplace.

Institutional ownership is the ratio of shares held by institutional investors to shares outstanding.

Large board dummy takes a value of one if the board size is over the yearly median board size of all firms covered in Execucomp and zero otherwise.

Legal disclosure dummy takes a value of one if a major legal filing publicized the disclosure and is zero otherwise.

Leverage is *Long-Term Book Debt* (Compustat item *DLTT)* divided by *Total Assets* (Compustat item *AT)* minus *Book Value of Equity* (Compustat item *CEQ)* plus *Market Value of Equity*.

Market capitalization is *Common Shares Outstanding* (Compustat item *CSHO)* times the *Fiscal Year End Price* (Compustat item *PRCC_F)*.

Media disclosure dummy takes a value of one if the media discovers harassment through an investigation and is zero otherwise.

Nonindependent board dummy takes a value of one if 50% or more of a board is classified as nonindependent directors and is zero otherwise.

Number of victims is the number of victims mentioned in the harassment announcement.

Overall Glassdoor rating is the average overall rating given by employees on glassdoor.com, in a given year.

Poor monitoring index is the sum of the large board dummy, nonindependent board dummy, hand-picked board dummy, and busy board dummy.

Proactive dummy takes a value of one if the announcement contains details about the firm taking action before a legal case is filed and is zero otherwise.

Quid pro quo dummy takes a value of one if the harassment can be classified as quid pro quo and is zero if it is a hostile work environment harassment.

Reactive dummy takes a value of one if the announcement contains details about the firm taking action only after a legal case is filed.

ROA is operating income before depreciation (Compustat item *OIBDP*) divided by *Total Assets* (Compustat item *AT*).

Sexual harassment announcement dummy takes a value of one if the firm had at least one announcement of sexual harassment in the previous year and is zero otherwise.

Stakeholder state dummy takes a value of one if the firm is headquartered in a state that has adopted directors' duties laws (also known as corporate constituency statues) and is zero otherwise.

Tobin's Q is the ratio of *Total Assets* minus book value of equity (Compustat item *CEQ*) plus *Market Value of Equity* to *Total Assets.*

Top-5 female executives dummy takes a value of one if a firm has at least one female executive among the top five executives and is zero otherwise.

Top manager dummy takes a value of one if the perpetrator is the Chief Executive Officer, a C-suite officer (Chairman, Chief Financial Officer, or Chief Operating Officer), a Director, or an executive and is zero otherwise.

Appendix B: Variable Definitions for Chapter 2

Age is the number of years between the year of estimation and the year in which the firm was incorporated.

Analyst Coverage is the monthly average of analysts following a firm each year.

Board Size is the number of members in the board including the Chairman.

CEO Duality takes a value of one if CEO and Chairman are both the same person.

CEO Equity-based Pay is the dollar amount of options paid to the CEO as a fraction of the sum of the bonus pay, salary and option pay.

Concerns is the sum of the KLD sub-indicators for environmental concerns of a firm. The sub-indicators of environmental concerns indicate whether the firm releases hazardous waste, agricultural chemicals or ozone depleting chemicals; has regulatory problems; has substantial emissions; contributes to climate change; has other environmental concerns. If the firm meets the KLD threshold in each area, it is assigned a value of one and zero otherwise.

Descendent-CEO Family Firm takes a value of one if the firm is a family firm with a descendent of the founder as its CEO.

Dual Class Dummy takes a value of one if the firm has more than one class of common shares.

Family Control % is the percentage of control the family has in a firm (accounting for the effect of dual class shares, if any).

Family Firm takes a value of one if a family owns (or votes) a 5% or larger stake of the firm.

Founder Name takes a value if the firm name includes the founder's name or a portion of it.

Founder-CEO Family Firm takes a value of one if the firm is a family firm with the founder as its CEO.

Fraction of Independent Directors is the proportion of board members that are deemed to be independent.

Hired CEO- Family Firm takes a value of one if the firm is controlled by a family but the CEO is a hired professional.

Institutional Ownership is the fraction of common shares held by institutions that file 13F reports.

Leverage is *Long-Term Book Debt* (COMPUSTAT item *DLTT)* divided by *Total Assets* minus book value of equity (COMPUSTAT item *CEQ)* plus *Market Value* of equity.

Market Value is shares outstanding (COMPUSTAT item CSHO) multiplied by stock price (COMPUSTAT item *PRCC_F*).

NASDAQ Dummy takes value one if the firm trades at the NASDAQ Stock Exchange.

Officer/Director Ownership (less Family) is measured as the equity holdings of all officers and directors less family holdings.

R&D/Total Assets is the R&D expenses (COMPUSTAT item *XRD*) divided by *Total Assets (COMPUSTAT item AT*).

Regulatory Stringency is the total CO2 emission of a state scaled by the total employment in the state, log-transformed and inverted.

Return Volatility is the standard deviation of daily holding period stock returns (from CRSP) during the year.

ROA is operating income before depreciation (COMPUSTAT item *OIBDP*) divided by *Total Assets* (COMPUSTAT item *AT*).

S&P Dummy takes a value of one if the firm is listed in the S&P 500 Index.

Strengths is the sum of the KLD sub-indicators for environmental strengths of a firm. The sub-indicators of strength indicate whether the firm has environmentally beneficial products and services, uses clean energy, engages in extensive recycling, attempts to prevent pollution and has other environmental strengths. If the firm meets the KLD threshold in each area, it is assigned a value of one and zero otherwise.

Tobin's Q is the ratio of *Total Assets* minus book value of equity (COMPUSTAT item *CEQ*) plus *Market Value* of equity to *Total Assets.*

Total Assets is the book value of assets (COMPUSTAT item AT).

Turnover is the average monthly trading volume divided by shares outstanding.

Appendix C: Variable Definitions for Chapter 3

Aggregate hedge ratio 1 is the sum of the oil and gas delta positions for the firm at the end of the fiscal year end divided by total oil and gas production reported on the next fiscal year.

Aggregate hedge ratio 2 is the sum of the oil and gas delta positions for the firm at the end of the fiscal year end divided by reserves reported on the current fiscal year.

Aggregate hedging dummy is equal to one if the firm had oil or gas derivatives outstanding at the end of the fiscal year and zero otherwise.

Delta measures the sensitivity of CEO stock and option holdings to stock price levels following the methodology of Core and Guay (2002).

Family controlled is equal to one if the CEO is a nonfamily member in a family firm and is zero otherwise

Family directors are the number of family directors on the board.

Family firm dummy is equal to one if the firm is a family firm that year and is zero otherwise.

Family ownership is the beneficial ownership of the founding or controlling family.

Founder CEO is equal to one if the CEO is the original founder and is zero otherwise.

Gas hedge ratio 1 is the sum of the gas delta positions reported at the end of the fiscal year end divided by total gas production reported on the next fiscal year end.

Gas hedge ratio 2 is the sum of the gas delta positions reported at the end of the fiscal year end divided by reserves reported on the current fiscal year end.

Gas hedging dummy is equal to one if the firm had gas derivatives outstanding at the end of the fiscal year and zero otherwise.

Insider ownership (minus family) is the equity holdings of all officers and directors less family holdings.

Institutional ownership is the fraction of shares held by institutions that file 13F reports.

Leverage is the book value of long-term debt divided by the market value of the company.

Ln (assets) is the natural logarithm of assets.

Market to book ratio is the ratio of the market value of assets to the book value of assets.

Oil hedge ratio 1 is the sum of the oil delta positions reported at the end of the fiscal year end divided by total oil production reported on the next fiscal year end.

Oil hedge ratio 2 is the sum of the oil delta positions reported at the end of the fiscal year end divided by reserves reported on the current fiscal year end.

Oil hedging dummy is equal to one if the firm had oil derivatives outstanding at the end of the fiscal year and zero otherwise.

Payout ratio is the total dividend paid divided by income before extraordinary items divided by total assets.

Relatives of founder is equal to one if the CEO is a relative of the original founder and is zero otherwise.

Quick ratio is current assets minus inventory all divided by current liabilities.

Return on assets is income before extraordinary items divided by total assets.

Vega measures the sensitivity of CEO stock and option holdings to stock price volatility following the methodology of Core and Guay (2002).

Appendix D: KLD Variable Definitions

I. Environmental Strengths

Strength		Definition
A	Beneficial Products and Services	This indicator measures the positive environmental impact of a firm's products and/or services. Factors affecting this evaluation include, but are not limited to, products/services that reduce other firms' and individuals' consumption of energy, production/consumption of hazardous chemicals, and overall patterns of resource consumption.
B	Pollution Prevention	Company has notably strong pollution prevention programs including emissions reductions and toxic-use reduction programs.
C	Recycling	This indicator measures a firm's use of recycled materials in its products/services. Factors affecting this evaluation include, but are not limited to: assessment of the volume and recycled content of products made with recycled input materials, including paper, metal, plastic; and any certification of its practices by a third party, such as the Forest Stewardship Council for timber product companies.
D	Clean Energy	This indicator measures a firm's policies regarding climate change. Factors affecting this evaluation include, but are not limited to, acknowledgement of direct and/or indirect impacts on operations due to climate change, formal commitments to reduce greenhouse gas emissions, initiatives to reduce energy consumption and to increase the use of renewable energy.
X	Other Strengths	This indicator assesses a firm's environmental management policies, programs and initiatives that are not covered by any other MSCI ESG Research environmental metrics.

II. Environmental Concerns

Concern		Definition
A	Hazardous Waste	The company's liabilities for hazardous waste sites exceed $50 million, or the company has recently paid substantial fines or civil penalties for waste management violations. Before 1996 the threshold for liabilities was $30 million.
B	Regulatory Problems	Companies that averaged $40,000 or more in settlements, fines, and/or penalties during the period receive a score = 1. For each company, MSCI ESG Research calculates a three-year average of settlements, fines, and/or penalties (US$) for alleged violations of any of the following nine major U.S. federal environmental health and safety laws: i. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) ii. Toxic Substances Control Act (TSCA) iii. Endangered Species Act (ESA) iv. Clean Water Act (CWA) v. Safe Water Drinking Act (SWDA) vi. Resource Conservation and Recovery Act (RCRA) vii. Clean Air Act (CAA) viii. Atomic Energy Act (AEA) Source: Nuclear Regulatory Commission ix. Mine Act (MA) Source: Mine Safety and Health Administration
C	Ozone Depleting Chemicals	The company is among the top manufacturers of ozone depleting chemicals such as HCFCs, methyl chloroform, methylene chloride, or bromines.
D	Substantial Emissions	This indicator is designed to assess the severity of controversies related to a firm's non-GHG emissions. Factors affecting this evaluation include, but are not limited to, a history of involvement in land or air emissions-related legal cases, widespread or egregious impacts due to hazardous emissions, resistance to improved practices, and criticism by NGOs and/or other third-party observers.
E	Agriculture Chemicals	The company is a substantial producer of agricultural chemicals, i.e., pesticides or chemical fertilizers.

F	Climate Change (from 1999)	This indicator is designed to assess the severity of controversies related to a firm's climate change and energy-related policies and initiatives. Factors affecting this evaluation include, but are not limited to, a history of involvement in GHG-related legal cases, widespread or egregious impacts due to corporate GHG emissions, resistance to improved practices, and criticism by NGOs and/or other third-party observers.
X	Other Concerns	This indicator is designed to assess the severity of controversies related to a firm's environmental impact not covered by other MSCI ESG Research's environmental indicators. Factors affecting this evaluation include but are not limited to widespread or egregious environmental impacts, resistance to improved practices, and criticism by NGOs and/or other third-party observers.

Appendix E: Thomson Reuters' ASSET4 Variables

I. Environmental Strengths

Variable	Description
Resource Reduction Policy	Does the company have a policy for reducing the use of natural resources or to lessen the environmental impact of its supply chain?
Policy Water Efficiency	Does the company have a policy to improve its energy efficiency?
Policy Energy Efficiency	Does the company have a policy to improve its water efficiency?
Policy Sustainable Packaging	Does the company have a policy to improve its use of sustainable packaging?
Policy Environmental Supply Chain	Does the company have a policy to include it supply chain in the company's efforts to lessen its overall environmental impact?
Resource Reduction Targets	Does the company set specific objectives to be achieves on resource efficiency?
Environment Management Team	Does the company have an environmental management team?
Environment Management Training	Does the company train its employees on environmental issues?
Environmental Materials Sourcing	Does the company claim to use environmental criteria (eg:life cycle assessment) to source or eliminate materials?
Renewable Energy Use	Does the company make use of renewable energy?
Green Buildings	Does the company report about environmentally friendly or green sites or offices?
Environmental Supply Chain Management	Does the company use environmental criteria (ISO 14000, energy consumption, etc.) in the selection process of its suppliers or sourcing partners?
Environmental Supply Chain Partnership Termination	Does the company use environmental criteria (ISO 14000, energy consumption, etc.) in the selection process of its suppliers or sourcing partners?
Land Environmental Impact Reduction	Does the company report on initiatives to reduce the environmental impact on land owned, leased or managed for production activities or extractive use?

Biodiversity Impact Reduction	Does the company report on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas?
Emissions Trading	Does the company report on its participation in any emissions trading initiative?
Climate Change Commercial Risk Opportunities	Is the company aware that climate change can represent commercial risks and/or opportunities?
Waste Reduction Initiatives	Does the company report on initiatives to recycle, reduce, reuse, substitute, treat or phase out total waste?
e-Waste Reduction	Does the company report on initiatives to recycle, reduce, reuse, substitute, treat or phase out total e-waste?
IS0 14000 or EMS	Does the company claim to have an ISO 14000 or EMS certification?
Environmental Restoration Initiatives	Does the company report or provide information on company-generated initiatives to restore the environment?
Staff Transportation Impact Reduction	Does the company report on initiatives to reduce the environmental impact of transportation used for its staff?
Environmental Partnerships	Does the company report on partnerships or initiatives with specialized NGOs, industry organizations, governmental or supra-governmental organizations, which are focused on improving environmental issues?
Environmental Products	Does the company report on at least one product line or service that is designed to have positive effects on the environment or which is environmentally labeled and marketed?
Eco-Design Products	Does the company report on specific products which are designed for reuse, recycling or the reduction of environmental impacts?
Noise Reduction	Does the company develop new products that are marketed as reducing noise emissions?
Product Impact Minimization	Does the company reports about take-back procedures and recycling programs to reduce the potential risks of products entering the environment or does the company report about product features or services that will promote responsible and environmentally preferable use?

Take-back and Recycling Initiatives	Does the company report about take-back procedures and recycling programs to reduce the potential risks of products entering the environment?
Product Environmental Responsible Use	Does the company report about product features and applications or services that will promote responsible, efficient, cost-effective and environmentally preferable use?
Renewable/Clean Energy Products	Does the company develop products or technologies for use in the clean, renewable energy (such as wind, solar, hydro and geo-thermal and biomass power)?
Water Technologies	Does the company develop products or technologies for use water treatment, purification or that improve water use efficiency?
Sustainable Building Products	Does the company develop products and services that improve the energy efficiency of buildings?
Toxic Chemicals Reduction	Does the company report on initiatives to reduce, reuse, substitute or phase out toxic chemicals or substances?

II. Environmental Concerns

Variable	**Description**
Environmental Controversies	Is the company under the spotlight of the media because of a controversy linked to the environmental impact of its operations on natural resources or local communities?
Environmental Expenditures Investments	Does the company report on its environmental expenditures or does the company report to make proactive environmental investments to reduce future risks or increase future opportunities? (Zeros transformed to ones and ones to zeros).
Environmental Project Financing	Does the company claim to evaluate projects on the basis of environmental or biodiversity risks as well? (Zeros transformed to ones and ones to zeros).
Agrochemical Products	Does the company produce or distribute agrochemicals like pesticides, fungicides or herbicides?
Agrochemical 5 % Revenue	Are the revenues generated by the company from agrochemicals like pesticides, fungicides or herbicides 5% or more of company sales?

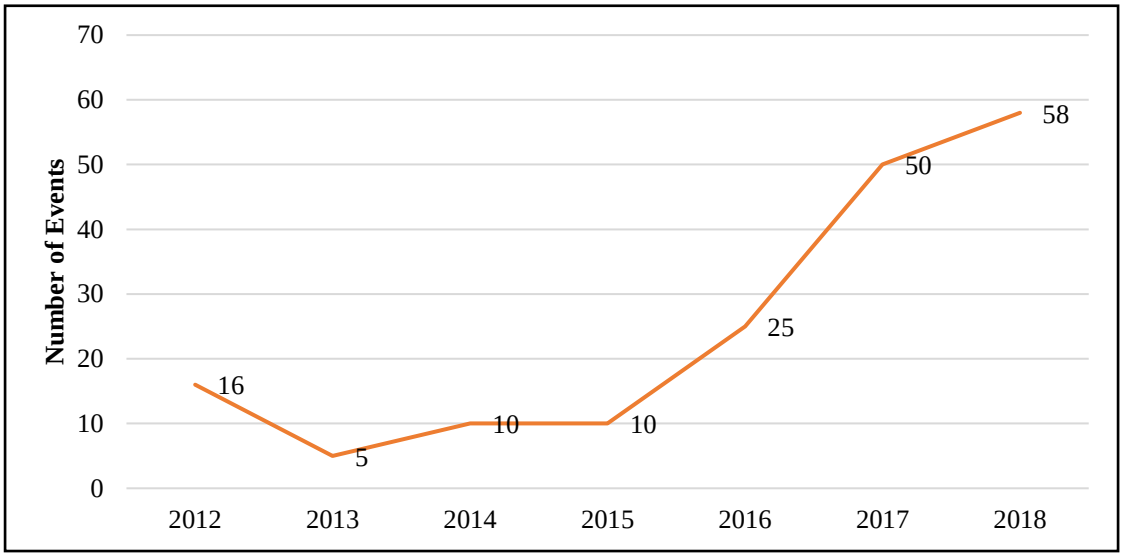

Figure 1. Public Announcements of Sexual Harassment by Year
This graph depicts the time trend in public announcements of sexual harassment cases in S&P 500 firms from 2012 to 2018.

Table 1
Examples of Sexual Harassment

Company	Title of perpetrator(s)	Title of victim	Type of harassment	Notes	Media citation
Twenty-First Century Fox, Inc.	CEO	News host	Quid pro quo	Former Fox News host Gretchen Carlson sues Roger Ailes for sabotaging her career because she rejected his sexual advances. Since then at least 20 women have publicly accused Roger Ailes of sexual harassment.	According to the lawsuit, filed in the Superior Court of New Jersey nearly two weeks after Carlson last appeared on Fox, Ailes marginalized Carlson for refusing to have a relationship with him. "Ailes denied Carlson fair compensation, desirable assignments and other career-enhancing opportunities in retaliation for her complaints of harassment and discrimination and because she rejected his sexual advances," it said. *NBC News* (07/06/2016)
Alphabet Inc.	Coworkers	Software engineer	Hostile work environment	A woman sues Google, alleging that she was subjected to repeated sexual harassment by male co-workers and that the company did not do enough to stop it.	As a young, female software engineer at male-dominated Google, Loretta Lee was slapped, groped and even had a co-worker pop up from beneath her desk one night and tell her she'd never know what he'd been doing under there, according to a lawsuit filed against the Mountain View tech giant. *The Mercury News* (02/23/2018)
CBS Corporation	Supervisors	Video producer	Hostile work environment	A man sues the CBS Corp., saying that he was repeatedly, drunkenly groped and kissed by powerful men at the network.	"I have symptoms of PTSD from this," Lombardi, who quit his job in November, told *The Post* on Thursday, comparing CBS to "the Catholic Church or Penn State" for allegedly sweeping his complaints under a carpet. *New York Post* (04/03/2015)
Tyson Foods	Supervisor and co-workers	Edible rendering operator	Hostile work environment	A man sues the company, claiming that his supervisor and a coworker created a sexually hostile work environment by continually directing derisive comments about homosexuals towards him.	West is suing Tyson for sexual harassment and retaliation. He said the company's policies of reporting harassment, investigating discrimination complaints and failure to enforce existing sexual harassment policies resulted in a sexually hostile work environment. *Sioux City Journal* (06/30/2015)
Nike	Executive Vice President	Details not given	Details of harassment not given	Ford Motor fires one of its most senior officials over inappropriate workplace behavior, including sexual harassment, after an internal investigation.	Ford declined to elaborate on the nature of Mr. Nair's actions, but said that an internal investigation had determined that they had been inconsistent with the company's code of conduct. *The New York Times* (02/21/2018)

Table 2
Characteristics of Sexual Harassment Cases
This table presents various characteristics of the sexual harassment cases that are used in this study. "Full sample" refers to all the sexual harassment cases that had sufficient details provided in the announcements while "regression sample" refers to the events that were ultimately used in the regressions given the availability of return data, other control variables and the use of fixed effects.

Panel A: Frequency by source of disclosure

		Full sample		Regression sample	
Initial source of disclosure		*N*	Percentage	*N*	Percentage
By firm		21	12.10%	21	13.82%
By legal		101	58.00%	89	58.55%
By media		52	29.90%	42	27.63%
	Total	174	100.00%	152	100.00%

Panel B: Reaction by the company

		Full sample		Regression sample	
Does the company take action once the victim complains?		*N*	Percentage	*N*	Percentage
Action taken		72	43.90%	67	44.08%
Nothing done		92	56.10%	85	55.92%
	Total	164	100.00%	152	100.00%
		Full sample		Regression sample	
Is the perpetrator fired at the time of the announcement?		*N*	Percentage	*N*	Percentage
Fired		37	24.80%	34	24.82%
Not fired		112	75.20%	103	75.18%
	Total	149	100.00%	137	100%
		Full sample		Regression sample	
Does the victim claim that there was retaliation when he or she complained?		*N*	Percentage	*N*	Percentage
Yes		72	45.00%	67	45.89%
No		88	55.00%	79	54.11%
	Total	160	100.00%	146	100.00%
		Full sample		Regression sample	
Does the company contradict the statement made by the victim?		*N*	Percentage	*N*	Percentage
Yes		24	13.90%	21	13.91%
No		149	86.10%	130	86.09%
	Total	173	100.00%	151	100.00%

Panel C: Perpetrators

		Full sample		Regression sample	
Gender of the perpetrator(s)		*N*	Percentage	*N*	Percentage
Male		161	97.60%	142	97.26%
Female		3	1.80%	3	2.05%
Male and female		1	0.60%	1	0.68%
	Total	165	100.00%	146	100.00%
		Full sample		Regression sample	
Who is the perpetrator?		*N*	Percentage	*N*	Percentage
Managers only		80	48.50%	70	47.95%
Managers and coworkers		18	10.90%	17	11.64%
Coworkers only		59	35.80%	52	35.62%
Coworkers and clients		3	1.80%	2	1.37%
Clients only		5	3.00%	5	3.42%
	Total	165	100.00%	146	100.00%
		Full sample		Regression sample	
Breakdown of the manger category		*N*	Percentage	*N*	Percentage
CEOs only		13	13.30%	12	13.79%
C-suite managers (excluding CEOs) only		3	3.10%	2	2.30%
C-suite managers and other executives		1	1.00%	1	1.15%
Executives only		15	15.30%	13	14.94%
Executives and other managers		1	1.00%	1	1.15%
Other managers (supervisors, factory managers, store managers) only		65	66.30%	58	66.67%
	Total	98	100.00%	87	100.00%

Panel D: Victims

		Full sample		Regression sample	
Gender of the victim(s)		*N*	Percentage	*N*	Percentage
Male		12	7.20%	7	4.76%
Female		144	86.70%	130	88.44%
Transgender		9	5.40%	9	6.12%
Male and female		1	0.60%	1	0.68%
	Total	166	100.00%	147	100.00%

Table 2, Panel D (Contd.)

Number of victims mentioned in the announcement		Full sample		Regression sample	
		N	Percentage	*N*	Percentage
1		108	63.50%	95	64.19%
2		10	5.90%	9	6.08%
3		5	2.90%	5	3.38%
4		4	2.40%	4	2.70%
5		5	2.90%	5	3.38%
6		5	2.90%	4	2.70%
8		5	2.90%	3	2.03%
10		1	0.60%	1	0.68%
12		2	1.20%	2	1.35%
15		1	0.60%	1	0.68%
Group of people		24	14.10%	19	12.84%
	Total	170	100.00%	148	100.00%

Panel E: Type of harassment

Is it a quid pro quo harassment or a hostile work environment harassment?		Full sample		Regression sample	
		N	Percentage	*N*	Percentage
Quid pro quo		20	11.90%	18	12.24%
Hostile work environment		148	88.10%	129	87.76%
	Total	168	100.00%	147	100.00%

Panel F: #MeToo

Is the observation before or after October 15, 2017?		Full sample		Regression sample	
		N	Percentage	*N*	Percentage
Before #MeToo		89	51.10%	78	51.32%
After #MeToo		85	48.90%	74	48.68%
	Total	174	100.00%	152	100.00%

Panel G: Industry distribution

Industry distribution by two-digit SIC code		Full sample		Regression sample	
		N	Percentage	*N*	Percentage
20 Food & Kindred Products		5	2.90%	5	3.29%
28 Chemical & Allied Products		4	2.30%	4	2.63%
30 Rubber & Miscellaneous Plastics Products		6	3.40%	6	3.95%
31 Leather and Leather Products		1	0.60%	0	0.00%
36 Electronic & Other Electric Equipment		1	0.60%	1	0.66%
37 Transportation Equipment		7	4.00%	6	3.95%
42 Trucking & Warehousing		1	0.60%	1	0.66%
44 Water Transportation		1	0.60%	0	0.00%
45 Transportation by Air		7	4.00%	6	3.95%
48 Communications		48	27.60%	43	28.29%
49 Electric, Gas, & Sanitary Services		4	2.30%	4	2.63%
52 Building Materials and Gardening Supplies		1	0.60%	0	0.00%
53 General Merchandise Stores		18	10.30%	14	9.21%
54 Food Stores		1	0.60%	1	0.66%
55 Automotive Dealers & Service Stations		3	1.70%	3	1.97%
56 Apparel & Accessory Stores		2	1.10%	1	0.66%
58 Eating & Drinking Places		20	11.50%	20	13.16%
59 Miscellaneous Retail		5	2.90%	5	3.29%
60 Depository Institutions		6	3.40%	6	3.95%
61 Nondepository Institutions		1	0.60%	1	0.66%
62 Security & Commodity Brokers		5	2.90%	5	3.29%
67 Holding & Other Investment Offices		2	1.10%	1	0.66%
70 Hotels & Other Lodging Places		3	1.70%	1	0.66%
73 Business Services		16	9.20%	12	7.89%
78 Motion Pictures		3	1.70%	3	1.97%
79 Amusement & Recreation Services		1	0.60%	1	0.66%
99 Nonclassifiable Establishments		2	1.10%	2	1.32%
	Total	174	100.00%	152	100.00%

Table 3

Summary Statistics

This table presents the summary statistics for observations used in this study. Panel A reports the summary statistics for the full S&P 500 sample, including the sexual harassment observations. Panel B presents the summary statistics only for the sexual harassment observations. "Full sample" refers to the total sample of sexual harassment cases. "Regression sample" is the sample of sexual harassment firms ultimately used in the regressions, subject to the availability of control variables and the use of fixed effects. Panel C compares the difference in means between the nonharassment observations and the harassment observations (used in the regressions). Variable definitions can be found in Appendix A. All continuous variables have been winsorized at the 1st and 99th percentiles. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Panel A: Summary statistics for full sample (including sexual harassment sample)

Variables	*N*	Mean	Standard deviation
Market capitalization (in $ millions)	2,448	36,356.20	59,222.47
Employees (in thousands)	2,448	60.40	160.28
Log (1+employees)	2,448	3.22	1.22
Sales (in $ millions)	2,448	21,153.97	34,232,56
Leverage	2,448	0.61	0.20
Firm age	2,448	38.03	24.46
Tobin's Q	2,448	2.91	1.32
ROA	2,448	0.15	0.07
Average number of analysts	2,448	19.33	7.60
Analyst coverage	2,448	2.92	0.48
Overall Glassdoor rating	2,448	3.34	0.46
Fraction of female top executives	2,448	0.03	0.10
Top-5 female executives dummy	2,448	0.14	0.34
Fraction of female board members	2,448	0.20	0.09
HRC corporate equality index	1,075	67.43	35.09
Family firm dummy	2,448	0.26	0.44
Poor monitoring index	2,448	0.75	0.69
Busy board dummy	2,448	0.00	0.06
Nonindependent board dummy	2,448	0.00	0.06
Large board dummy	2,448	0.33	0.47
Hand-picked board dummy	2,448	0.41	0.49
Institutional ownership percentage	2,448	0.59	0.29

Panel B: Summary statistics for sexual harassment sample

	Full sample			Regression sample		
Variables	*N*	Mean	Standard deviation	*N*	Mean	Standard deviation
Market capitalization (in $ millions)	174	108,514.60	112,237.70	152	107,967.40	111,623.40
Employees (in thousands)	174	228.82	493.05	152	216.86	467.86
Log (1+employees)	174	4.26	1.26	152	4.23	1.27
Sales (in $ millions)	174	49,749.86	49,164.26	152	49,969.92	52,690.77
Leverage	174	0.69	0.22	152	0.70	0.23
Firm age	174	29.55	20.48	152	30.07	21.12
Tobin's Q	174	3.40	1.55	152	3.49	1.62
ROA	174	0.16	0.08	152	0.16	0.08
Average number of analysts	174	25.69	8.15	152	26.18	7.71
Analyst coverage	174	3.19	0.57	152	3.23	0.45
Overall Glassdoor rating	164	3.52	0.39	152	3.53	0.39
Fraction of female top executives	174	0.05	0.12	152	0.05	0.12
Top-5 female executives dummy	174	0.18	0.38	152	0.17	0.38
Fraction of female board members	174	0.21	0.09	152	0.21	0.10
HRC corporate equality index	88	88.86	21.67	77	89.16	21.17
Family firm dummy	174	0.56	0.50	152	0.57	0.50
Poor monitoring index	174	1.16	0.68	152	1.13	0.70
Busy board dummy	174	0.00	0.00	152	0.00	0.00
Nonindependent board dummy	174	0.01	0.08	152	0.01	0.08
Large board dummy	174	0.63	0.48	152	0.63	0.49
Hand-picked board dummy	174	0.52	0.50	152	0.50	0.50
Institutional ownership percentage	172	0.45	0.34	152	0.46	0.34

Panel C: Difference in means

	Nonharassment sample			Difference in means between nonharassment sample and harassment (regression) sample	
Variables	*N*	Mean	Standard deviation	Difference	t-statistic
Market capitalization (in $ millions)	2,296	31,615.39	50,573.41	−76,352.01	−16.19***
Employees (in thousands)	2,296	50.05	106.11	−166.81	−12.84***
Log (1+employees)	2,296	3.16	1.19	−1.08	−10.77***
Sales (in $ millions)	2,296	19,246.30	31,751.81	−30,723.62	−19.98***
Leverage	2,296	0.61	0.19	−0.09	−5.35***
Firm age	2,296	38.56	24.58	8.49	4.16***
Tobin's Q	2,296	2.88	1.29	−0.62	−5.63***
ROA	2,296	0.15	0.07	−0.01	−1.75*
Average number of analysts	2,296	18.87	7.38	−7.31	−11.79***
Analyst coverage	2,296	2.90	0.47	−0.33	−8.44***
Overall Glassdoor rating	2,296	3.33	0.46	−0.20	−5.47***
Fraction of female top executives	2,296	0.03	0.09	−0.02	−2.02**
Top-5 female executives dummy	2,296	0.13	0.34	−0.04	−1.28
Fraction of female board members	2,296	0.20	0.09	−0.01	−1.51
HRC corporate equality index	998	65.76	35.40	−23.40	−5.72***
Family firm dummy	2,296	0.24	0.43	−0.33	−9.18***
Poor monitoring index	2,296	0.72	0.68	−0.41	−7.24***
Busy board dummy	2,296	0.00	0.06	0.00	0.77
Nonindependent board dummy	2,296	0.00	0.06	0.00	−0.74
Large board dummy	2,296	0.31	0.46	−0.31	−8.05***
Hand-picked board dummy	2,296	0.40	0.49	−0.10	−2.39**
Institutional ownership percentage	2,296	0.59	0.29	0.14	5.55***

Table 4

Equity Market Reactions to Announcements of Sexual Harassment Cases

Panels A, B, and C of this table present the event study results of the announcement of sexual harassment cases. For the mean CARs, *t*-statistics are computed with the standardized cross-sectional method of Boehmer, Musumeci, and Poulsen (1991) and adjusted for cross-sectional correlation following Kolari and Pynnönen (2010). Generalized Sign *Z* is the non-parametric test statistic of Cowan (1992). The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. Panel D compares the dollar value of victim settlements with mean market value losses for the 25 firms where settlement data is available.

Panel A: Market model adjusted abnormal returns

Event window	*N*	Mean CAR	*t*-statistic	Generalized Sign *Z*
(0,0)	174	−0.29%	−1.872**	−1.102
(0, +1)	174	−0.46%	−1.869**	−2.467***
(0, +2)	174	−0.47%	−2.127**	−2.921***
(−1,0)	174	−0.17%	−0.944	−1.102
(+1, +10)	174	0.09%	0.145	−0.192

Panel B: Fama-French three-factor adjusted abnormal returns

Event window	*N*	Mean CAR	*t*-statistic	Generalized Sign *Z*
(0,0)	174	−0.31%	−2.120**	−2.538***
(0, +1)	174	-0.46%	−1.799**	−2.538***
(0, +2)	174	-0.42%	−1.822**	−2.387***
(−1,0)	174	-0.20%	−1.186	−0.870
(+1, +10)	174	0.05%	0.210	0.039

Panel C: Fama-French Carhart four-factor adjusted abnormal returns

Event window	*N*	Mean CAR	*t*-statistic	Generalized Sign *Z*
(0,0)	174	−0.21%	−1.315*	−1.112
(0, +1)	174	−0.41%	−1.545*	−2.325**
(0, +2)	174	−0.45%	−1.915**	−2.628***
(−1,0)	174	−0.06%	−0.356	0.253
(+1, +10)	174	−0.14%	0.418	−0.354

Panel D: Settlements versus abnormal dollar loss of market value (*N* = 25)

Settlement (in $ millions)	Loss of market value (in $ millions)								
	Market model adjusted CARs			Fama-French three-factor adjusted CARs			Carhart four-factor adjusted CARs		
	(0, 0)	(0, +1)	(0, +2)	(0, 0)	(0, +1)	(0, +2)	(0, 0)	(0, +1)	(0, +2)
−$18.7	−$74.1	−$298	−$247	−$137	−$240	−$179	−$133	−$233	−$244

Table 5

Differences in CARs

This table presents the two-day (0, +1) CARs of the sexual harassment announcements split by the reaction by the firm, by the employment status of the perpetrator at the time of the announcement, by the initial source of disclosure, by the type of harassment, and by whether the announcement occurred after #MeToo or not. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	N	Market model adjusted mean CARs	Fama-French three-factor adjusted mean CARs	Carhart four-factor adjusted mean CARs
Panel A: Reaction by the firm				
Action taken	67	−0.24%	−0.19%	−0.12%
Nothing done	85	−0.59%	−0.63%	−0.61%
Difference		0.35%	0.44%	0.48%
Panel B: Perpetrator being fired at the time of the announcement				
Fired	34	−0.16%	−0.16%	−0.23%
Not fired	103	−0.61%	−0.63%	−0.54%
Difference		0.45%	0.47%	0.31%
Panel C: Initial source of disclosure				
By firm	21	−0.70%	−0.78%	−0.86%
By legal filling	92	−0.19%	−0.16%	−0.12%
By media	49	−0.90%	−0.92%	−0.80%
Difference between firm and legal filing		−0.51%	−0.62%*	−0.73%*
Difference between firm and media		0.19%	0.14%	−0.05%
Difference between legal filing and media		0.71%*	0.75%*	0.68%*
Panel D: Type of harassment				
Quid pro quo	19	−1.26%	−1.26%	-1.12%
Hostile environment	137	−0.41%	−0.41%	-0.38%
Difference		−0.86%*	−0.86%*	-0.74%
Panel E: #MeToo				
Before #MeToo	82	−0.37%	−0.37%	-0.34%
After #MeToo	80	−0.57%	−0.57%	-0.51%
Difference		0.20%	0.20%	0.17%

Table 6
Determinants of Sexual Harassment Announcements
This table presents the determinants of public announcements of sexual harassment estimated via a Probit model. All continuous variables have been winsorized at the 1st and 99th percentiles. Variable definitions can be found in Appendix A. Standard errors are presented within parenthesis and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Sex harassment dummy				
Variables	(1)	(2)	(3)	(4)	(5)
Overall Glassdoor rating	0.518**				
	(0.206)				
Fraction of female top executives		1.306**			
		(0.542)			
Top-5 female executives dummy			0.338*		
			(0.183)		
Fraction of female board members				0.172	
				(0.966)	
HRC corporate equality index					0.010**
					(0.004)
Poor monitoring index	0.197*	0.243**	0.238**	0.226**	0.092
	(0.111)	(0.118)	(0.118)	(0.110)	(0.137)
Analyst coverage	0.334	0.338	0.339	0.352	0.452
	(0.294)	(0.307)	(0.305)	(0.294)	(0.331)
Log (employees)	0.452***	0.457***	0.455***	0.454***	0.389***
	(0.102)	(0.102)	(0.101)	(0.100)	(0.120)
Leverage	0.566	0.444	0.465	0.471	0.495
	(0.437)	(0.425)	(0.427)	(0.425)	(0.597)
Firm age	−0.008*	−0.008**	−0.008**	−0.008**	−0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Tobin's Q	0.204***	0.245***	0.242***	0.239***	0.164*
	(0.072)	(0.071)	(0.071)	(0.073)	(0.086)
ROA	−2.174*	−2.485**	−2.494**	−2.433**	−1.545
	(1.167)	(1.124)	(1.126)	(1.133)	(1.616)
Institutional ownership	0.649	0.335	0.337	0.375	0.449
	(0.878)	(0.778)	(0.781)	(0.786)	(0.758)
Family firm dummy	0.736***	0.750***	0.748***	0.719***	0.701***
	(0.222)	(0.219)	(0.218)	(0.217)	(0.267)
Constant	−6.290***	−4.557***	−4.564***	−4.570***	−4.432***
	(1.355)	(1.110)	(1.109)	(1.055)	(1.159)
Observations	2,225	2,225	2,225	2,225	940
Pseudo *R*-squared	0.409	0.406	0.404	0.399	0.406
Year FE	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES

Table 7

Cross-sectional Analysis of Cumulative Abnormal Returns

This table presents the cross-sectional regressions of the two-day (0, +1) CARs of the sexual harassment announcements (generated via the Fama-French three-factor model) on various announcement and firm characteristics estimated via ordinary least squares. All continuous variables have been winsorized at the 1st and 99th percentiles. Standard errors are presented within parenthesis and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	CARs					
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Action taken dummy	0.013**			0.012**		
	(0.005)			(0.005)		
Proactive dummy		0.020***			0.019***	
		(0.007)			(0.007)	
Reactive dummy		0.004			0.005	
		(0.006)			(0.006)	
Fired dummy			0.013***			0.012**
			(0.004)			(0.005)
Disclosure by firm dummy	0.001	−0.004	−0.003	0.001	−0.003	−0.002
	(0.005)	(0.007)	(0.005)	(0.005)	(0.007)	(0.006)
Legal disclosure dummy	0.010	0.012*	0.010*	0.011*	0.012*	0.010*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Overall Glassdoor rating	0.008*	0.010**	0.012***			
	(0.004)	(0.005)	(0.004)			
Fraction of female top executives				-0.003	−0.005	0.000
				(0.014)	(0.014)	(0.016)
Constant	−0.047	−0.071*	−0.084**	−0.018	−0.031	−0.035
	(0.031)	(0.035)	(0.040)	(0.020)	(0.023)	(0.028)
Observations	152	152	137	152	152	137
Adjusted R-squared	0.242	0.276	0.214	0.231	0.258	0.184
Controls	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Table 8
Heckman Selection Model
This table presents the cross-sectional regressions of the two-day (0, +1) CARs of the sexual harassment announcements (generated via the Fama-French three-factor model) on various announcement and firm characteristics, estimated via a Heckman selection model. Panel B is also estimated via a Heckman selection model but includes additional announcement characteristics. All continuous variables have been winsorized at the 1st and 99th percentiles. Variable definitions can be found in Appendix A. Standard errors are presented within parenthesis and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.

	Overall Glassdoor ratings					Fraction of female top executives				
	Sex harassment dummy	CARs	CARs	CARs	CARs	Sex harassment dummy	CARs	CARs	CARs	CARs
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Action taken dummy		0.013***			0.013***		0.012***			0.012***
		(0.004)			(0.004)		(0.004)			(0.004)
Proactive dummy			0.020***					0.019***		
			(0.005)					(0.005)		
Reactive dummy			0.005					0.005		
			(0.005)					(0.005)		
Fired dummy				0.013**					0.012**	
				(0.006)					(0.006)	
Disclosure by firm dummy		0.001	−0.004	−0.003	−0.001		0.002	−0.002	−0.002	0.000
		(0.005)	(0.006)	(0.007)	(0.007)		(0.005)	(0.006)	(0.007)	(0.007)
Legal disclosure dummy		0.010**	0.012***	0.010**	0.006		0.011**	0.012***	0.010**	0.006
		(0.004)	(0.004)	(0.005)	(0.005)		(0.004)	(0.004)	(0.005)	(0.005)
Number of victims					−0.001					−0.001*
					(0.001)					(0.001)
Female victim dummy					−0.005					-0.005
					(0.005)					(0.006)
Quid pro quo dummy					−0.009*					−0.009*
					(0.005)					(0.005)
Overall Glassdoor rating	0.532***	0.013	0.014	0.012	0.008					
	(0.154)	(0.011)	(0.011)	(0.011)	(0.012)					
Fraction of female top executives						1.278***	0.009	0.008	−0.010	0.018
						(0.466)	(0.030)	(0.030)	(0.036)	(0.034)
Constant	−6.312***	−0.144	−0.145	−0.062	−0.043	−4.523***	−0.087	−0.098	0.011	−0.037
	(0.891)	(0.139)	(0.135)	(0.139)	(0.153)	(0.697)	(0.111)	(0.109)	(0.115)	(0.125)
Observations	2,448	152	152	137	126	2,448	152	152	137	126
Pseudo *R*-squared	0.415					0.411				
Wald Chi-squared statistic		44.97***	55.56***	37.16*	52.49***		42.98**	49.89***	29.94	49.50***
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Inverse Mills ratio	NO	YES	YES	YES	YES	NO	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 9

Analysis Excluding Firm-Initiated Announcements

Panel A, B, and C of this table present the event study results of the announcement of sexual harassment cases where any announcements that are initiated by firms are excluded. For the mean CARs, *t*-statistics are computed with the standardized cross-sectional method of Boehmer, Musumeci, and Poulsen (1991) and adjusted for cross-sectional correlation following Kolari and Pynnönen (2010). Generalized Sign *Z* is the nonparametric test statistic of Cowan (1992). Panel D presents the cross-sectional regressions of the two-day (0, +1) Fama-French three-factor CARs on various announcement and firm characteristics, estimated via a Heckman selection model, excluding the announcements that are initiated by firms. Variable definitions can be found in Appendix A. Standard errors are presented within parenthesis and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.

Panel A: Market model adjusted abnormal returns

Event window	*N*	Mean CAR	*t*-statistic	Generalized Sign *Z*
(0,0)	153	−0.32%	−1.957**	−0.946
(0, +1)	153	−0.43%	−1.536*	−1.592*
(0, +2)	153	−0.38%	−1.611*	−2.239**
(−1,0)	153	−0.20%	−1.065	−0.946
(+1, +10)	153	0.15%	0.226	−0.460

Panel B: Fama-French three-factor adjusted abnormal returns

Event window	*N*	Mean CAR	*t*-statistic	Generalized Sign *Z*
(0,0)	153	−0.33%	−2.034**	−2.171**
(0, +1)	153	−0.41%	−1.430*	−1.685**
(0, +2)	153	−0.32%	−1.325*	−1.524*
(−1,0)	153	−0.21%	−1.210	−0.554
(+1, +10)	153	0.13%	0.301	−0.230

Panel C: Fama-French Carhart four-factor adjusted abnormal returns

Event window	*N*	Mean CAR	*t*-statistic	Generalized Sign *Z*
(0,0)	153	−0.20%	−1.135	−0.818
(0, +1)	153	−0.35%	−1.117	−1.303*
(0, +2)	153	−0.36%	−1.415*	−1.949**
(−1,0)	153	−0.07%	−0.410	0.476
(+1, +10)	153	−0.08%	−0.284	−0.494

Table 9 (Contd.)

Panel D: Heckman selection model

	Overall Glassdoor ratings				Fraction of female top executives			
Variables	Sex harassment dummy (1)	CARs (2)	CARs (3)	CARs (4)	Sex harassment dummy (5)	CARs (6)	CARs (7)	CARs (8)
Action taken dummy		0.012***				0.012***		
		(0.004)				(0.004)		
Proactive dummy			0.023***				0.022***	
			(0.005)				(0.005)	
Reactive dummy			0.001				0.002	
			(0.005)				(0.005)	
Fired dummy				0.016**				0.014**
				(0.006)				(0.006)
Legal disclosure dummy		0.010**	0.012***	0.011**		0.010**	0.012***	0.010**
		(0.004)	(0.004)	(0.005)		(0.004)	(0.004)	(0.005)
Overall Glassdoor rating	0.503***	0.013	0.013	0.011				
	(0.157)	(0.014)	(0.013)	(0.013)				
Fraction of female top executives					1.220**	0.011	0.001	−0.012
					(0.476)	(0.037)	(0.035)	(0.046)
Constant	−5.921***	−0.143	−0.120	−0.067	−4.253***	−0.080	−0.068	0.022
	(0.911)	(0.170)	(0.160)	(0.168)	(0.715)	(0.136)	(0.130)	(0.141)
Observations	2,427	131	131	117	2,427	131	131	117
Pseudo *R*-squared	0.388				0.3834			
Wald Chi-squared statistic		39.31**	58.86***	34.31*		38.72**	52.78***	26.79
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Inverse Mills ratio	NO	YES	YES	YES	NO	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES

Table 10
#MeToo Analysis
This table presents the cross-sectional regressions of the two-day (0, +1) CARs of the sexual harassment announcements (generated via the Fama-French three-factor model) on various announcement and firm characteristics with the inclusion of a #MeToo dummy. Columns (1) and (4) are estimated via ordinary least squares. Columns (2) and (5) represent the first stage of the Heckman selection model while columns (3) and (6) represent the corresponding second stage of the Heckman selection model. All continuous variables have been winsorized at the 1st and 99th percentiles. Variable definitions can be found in Appendix A. Standard errors are presented within parentheses and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Overall Glassdoor rating			Fraction of female top executives		
	CAR	Sex harassment dummy	CAR	CAR	Sex harassment dummy	CAR
Variables	(1)	(2)	(3)	(4)	(5)	(6)
#MeToo	0.005		0.008	0.004		0.006
	(0.004)		(0.006)	(0.004)		(0.006)
Action taken dummy	0.011**		0.011***	0.011**		0.011***
	(0.004)		(0.004)	(0.004)		(0.004)
Disclosure by firm dummy	−0.002		−0.001	−0.001		−0.001
	(0.004)		(0.005)	(0.004)		(0.005)
Legal disclosure dummy	0.010		0.010**	0.010		0.010**
	(0.007)		(0.004)	(0.007)		(0.004)
Overall Glassdoor rating	0.008	0.532***	0.014**			
	(0.005)	(0.154)	(0.006)			
Fraction of female top executives				-0.006	1.278***	0.006
				(0.012)	(0.466)	(0.018)
Constant	−0.046	−6.312***	−0.118**	-0.017	−4.523***	−0.056
	(0.030)	(0.891)	(0.058)	(0.020)	(0.697)	(0.042)
Observations	152	2,448	152	152	2,448	152
Adjusted *R*-squared	0.203			0.191		
Pseudo *R*-squared		0.415			0.411	
Wald Chi-squared statistic			39.10***			36.05**
Controls	YES	YES	YES	YES	YES	YES
Inverse Mills ratio	NO	NO	YES	NO	NO	YES
Year FE	NO	YES	NO	NO	YES	NO
Industry FE	YES	YES	YES	YES	YES	YES

Table 11
Explaining Firm Actions
This table presents regressions of the 'Action taken' dummy on various announcement and firm characteristics. All continuous variables have been winsorized at the 1st and 99th percentiles. Variable definitions can be found in Appendix A. Standard errors are presented within parentheses and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Ordinary least squares			Probit		
Variables	(1)	(2)	(3)	(4)	(5)	(6)
#MeToo	0.436***	0.437***	0.417***	1.547***	1.521***	1.459***
	(0.103)	(0.102)	(0.106)	(0.408)	(0.399)	(0.406)
Female victim dummy	0.210**	0.233**	0.230**	0.777*	0.843**	0.805**
	(0.102)	(0.097)	(0.110)	(0.397)	(0.391)	(0.408)
Top manager dummy	0.274**	0.263**	0.284**	0.890**	0.847**	0.907**
	(0.118)	(0.115)	(0.117)	(0.383)	(0.376)	(0.387)
Quid pro quo dummy	-0.078	−0.050	−0.097	−0.277	−0.173	−0.340
	(0.127)	(0.124)	(0.125)	(0.374)	(0.365)	(0.365)
Overall Glassdoor rating	0.083			0.294		
	(0.145)			(0.454)		
Fraction of female top executives		-0.499			−1.595	
		(0.317)			(1.096)	
Fraction of female board members			0.644			1.600
			(0.648)			(1.770)
Log (1+employees)	0.016	0.013	0.009	0.021	0.014	0.011
	(0.059)	(0.058)	(0.059)	(0.181)	(0.179)	(0.179)
Leverage	0.054	0.077	0.012	0.278	0.333	0.128
	(0.143)	(0.128)	(0.121)	(0.493)	(0.465)	(0.474)
Firm age	0.001	0.001	0.001	0.003	0.004	0.003
	(0.003)	(0.003)	(0.003)	(0.009)	(0.009)	(0.009)
Tobin's Q	−0.031	−0.027	−0.019	−0.154	-0.128	−0.113
	(0.039)	(0.033)	(0.029)	(0.126)	(0.110)	(0.102)
ROA	−0.807	−0.765	−0.915	−2.910	−2.739	−3.237
	(0.638)	(0.605)	(0.641)	(2.270)	(2.195)	(2.266)
Analyst coverage	0.040	0.046	0.058	0.134	0.143	0.169
	(0.084)	(0.086)	(0.081)	(0.284)	(0.291)	(0.268)
Poor monitoring index	−0.069	−0.084	−0.026	−0.235	−0.279	−0.127
	(0.068)	(0.068)	(0.060)	(0.224)	(0.224)	(0.205)
Institutional ownership	0.513***	0.473***	0.551***	1.829***	1.660***	1.860***
	(0.165)	(0.172)	(0.178)	(0.565)	(0.579)	(0.593)
Family firm dummy	0.091	0.078	0.094	0.320	0.276	0.333
	(0.088)	(0.089)	(0.079)	(0.279)	(0.282)	(0.256)
Constant	−0.735	−0.456	−0.644*	−2.346	−1.355	−1.873*
	(0.473)	(0.320)	(0.337)	(1.822)	(1.142)	(1.128)
Observations	141	141	141	141	141	141
Adjusted *R*-squared	0.203	0.212	0.209			
Pseudo *R*-squared				0.273	0.278	0.274
Year FE	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES

Table 12
Changes in Employee Productivity
This table presents the regression of employee productivity on firm level controls and on a dummy indicating whether the firm had a public announcement of sexual harassment in the previous year or not. All continuous variables have been winsorized at the 1st and 99th percentiles. Variable definitions can be found in Appendix A. Standard errors are presented within parentheses and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.

	Sales per employee		Operating profit per employee	
Variables	(1)	(2)	(3)	(4)
Sex harassment announcement dummy	−405.858***	−403.506***	−67.101***	−67.279***
	(140.507)	(140.905)	(20.800)	(21.593)
Log (1+ assets)	270.512***	273.483***	67.833***	66.346***
	(73.377)	(73.077)	(20.871)	(17.726)
Leverage	306.238	304.356	−77.880	−74.004
	(304.035)	(308.662)	(66.414)	(62.894)
Overall Glassdoor rating	36.377		−15.445	
	(108.044)		(47.360)	
Fraction of female top executives		−305.321		−26.552
		(295.091)		(74.519)
Firm age	−8.648*	−8.663*	−0.965	−0.949
	(4.792)	(4.810)	(0.810)	(0.789)
Tobin's Q	−21.595	−20.268	36.126**	34.778**
	(55.196)	(51.671)	(16.668)	(14.472)
Poor monitoring index	−77.036	−80.261	−17.046	−17.016
	(65.342)	(66.392)	(12.276)	(12.323)
Institutional ownership	446.976*	445.106*	147.916	151.818
	(239.163)	(238.064)	(90.280)	(93.103)
Family firm dummy	−169.858	−171.462	−42.912*	−43.118*
	(104.236)	(104.230)	(25.469)	(25.339)
Constant	−2,476.214***	−2,369.922***	−673.346***	−712.467***
	(652.261)	(646.376)	(187.909)	(233.895)
Observations	1,245	1,245	1,245	1,245
Adjusted *R*-squared	0.148	0.149	0.227	0.227
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES

Table 13
Location Analysis
This table presents an analysis of the Heckman selection model with the addition of various controls for location. All continuous variables have been winsorized at the 1st and 99th percentiles. Variable definitions can be found in Appendix A. Standard errors are presented within parentheses and are clustered at the firm level. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Sex harassment dummy	CARs	Sex harassment dummy	CARs	Sex harassment dummy	CARs
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Headquarters dummy		-0.000				
		(0.005)				
Stakeholder state			-0.374***	0.002		
			(0.137)	(0.009)		
Action taken dummy		0.007*		0.011***		0.009***
		(0.004)		(0.004)		(0.004)
Disclosure by firm dummy		0.006		0.001		-0.002
		(0.007)		(0.005)		(0.005)
Legal disclosure dummy		0.012***		0.009**		0.005
		(0.004)		(0.004)		(0.004)
Overall Glassdoor rating	0.612***	0.012	0.502***	0.014	0.474***	0.025***
	(0.170)	(0.015)	(0.160)	(0.010)	(0.183)	(0.010)
Fraction of top female executives						
Constant	-7.013***	-0.062	-5.892***	-0.094	-5.204***	-0.178
	(0.991)	(0.181)	(0.919)	(0.118)	(1.104)	(0.120)
Observations	2,420	124	2448	152	2,439	152
Pseudo R-squared	0.4056		0.4221		0.4821	
Wald Chi-squared statistic		51.41***		45.64***		100.44***
Controls	YES	YES	YES	YES	YES	YES
Inverse mills ratio	NO	YES	NO	YES	NO	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Headquarter State FE	NO	NO	NO	NO	YES	YES

Table 14

Sample Composition

This table presents the sample distribution by two-digit SIC codes (Panel A) and by year (Panel B).

Panel A: By Industry

SIC Code	Industry Description	Non-family Firm-Years	Family Firm-Years	Percent Family Firm-Years in Industry
10	Metal Mining	18	0	0.00%
13	Oil and Gas Extraction	57	15	20.80%
14	Mining and Quarrying of Nonmetallic Minerals, Except Fuels	9	0	0.00%
15	Construction - General Contractors & Operative Builders	9	18	66.70%
16	Heavy Construction, Except Building Construction, Contractor	24	3	11.10%
20	Food and Kindred Products	72	36	33.30%
22	Textile Mill Products	0	9	100.00%
23	Apparel, Finished Products from Fabrics & Similar Materials	0	9	100.00%
24	Lumber and Wood Products, Except Furniture	18	0	0.00%
25	Furniture and Fixtures	18	9	33.30%
26	Paper and Allied Products	45	0	0.00%
27	Printing, Publishing and Allied Industries	9	27	75.00%
28	Chemicals and Allied Products	188	28	13.00%
29	Petroleum Refining and Related Industries	36	0	0.00%
30	Rubber and Miscellaneous Plastic Products	18	9	33.30%
31	Leather and Leather Products	0	9	100.00%
33	Primary Metal Industries	10	17	63.00%
34	Fabricated Metal Products	36	9	20.00%
35	Industrial and Commercial Machinery and Computer Equipment	132	21	13.70%
36	Electronic & Other Electrical Equipment & Components	164	70	29.90%
37	Transportation Equipment	72	27	27.30%
38	Measuring, Photographic, Medical, & Optical Goods, & Clocks	81	27	25.00%
39	Miscellaneous Manufacturing Industries	27	9	25.00%
40	Railroad Transportation	27	0	0.00%
44	Water Transportation	9	0	0.00%
45	Transportation by Air	0	18	100.00%
47	Transportation Services	18	0	0.00%
48	Communications	9	0	0.00%
50	Wholesale Trade - Durable Goods	25	11	30.60%
51	Wholesale Trade - Nondurable Goods	36	0	0.00%
52	Building Materials, Hardware, Garden Supplies & Mobile Homes	18	9	33.30%
53	General Merchandise Stores	36	18	33.30%
54	Food Stores	36	0	0.00%
55	Automotive Dealers and Gasoline Service Stations	6	3	33.30%
56	Apparel and Accessory Stores	18	18	50.00%
57	Home Furniture, Furnishings and Equipment Stores	9	0	0.00%
58	Eating and Drinking Places	36	0	0.00%
59	Miscellaneous Retail	27	0	0.00%
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	0	9	100.00%
73	Business Services	141	66	31.90%
75	Automotive Repair, Services and Parking	9	0	0.00%
79	Amusement and Recreation Services	9	0	0.00%
80	Health Services	27	0	0.00%
82	Educational Services	0	9	100.00%
87	Engineering, Accounting, Research, and Management Services	0	18	100.00%
99	Non-classifiable Establishments	18	0	0.00%
	Total Observations	1,557	531	

Table 14 (Contd.)

Panel B: Year

Year	Non-family Firms	Family Firms	Percentage of Family Firms
2001	168	64	27.6%
2002	168	64	27.6%
2003	169	63	27.2%
2004	174	58	25.0%
2005	174	58	25.0%
2006	174	58	25.0%
2007	175	57	24.6%
2008	177	55	23.7%
2009	178	54	23.3%
Total Observations	1,557	531	25.4%

Table 15
Descriptive Data
This table reports descriptive data of the sample. Panel A reports the summary statistics for the whole sample. Panel B reports a comparison of means between family firms and non-family firms for key variables. Panel C reports the correlation matrix for key variables. Variable definitions can be found in Appendix B. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Summary statistics for the full sample

Variables	N (1)	Mean (2)	Standard Deviation (3)	Min (4)	Max (5)
Family firm dummy	2,088	0.254	0.436	0	1
Age	2,088	66.51	43.63	2	203
Strengths	2,088	0.314	0.659	0	4
Concerns	2,088	0.489	0.979	0	5
S&P dummy	2,088	0.653	0.476	0	1
Analyst Coverage	2,088	13.75	6.727	1	42.08
Total assets	2,088	15,666	52,812	246	797,769
Leverage	2,088	0.114	0.105	0	0.624
R&D/total assets	2,088	0.0333	0.0547	0	0.68
ROA	2,088	0.156	0.0849	-0.641	0.574
Tobin's Q	2,088	2.159	1.165	0.533	8.473
Turnover	2,088	2.095	1.686	0.157	28.25
Institutional ownership	2,088	0.756	0.141	0.245	1
NASDAQ dummy	2,088	0.263	0.44	0	1
Return volatility	2,088	0.0251	0.0124	0.00682	0.0958
Dual class dummy	2,088	0.0666	0.249	0	1
CEO equity-based pay	2,088	0.226	0.312	-0.265	1
Board size	2,088	10.05	2.334	4	19
Fraction of independent directors	2,088	0.74	0.141	0.182	1
CEO duality dummy	2,088	0.88	0.325	0	1
Officer/director ownership (less family)	2,088	0.0367	0.0436	0	0.509

Panel B: Difference of means tests

Variables	Family Firms (1)	Non-Family Firms (2)	Difference (3)
Number of firm-years	531	1557	
Age	60.49	68.56	-8.07***
Strengths	0.143	0.372	-0.23***
Concerns	0.279	0.556	-0.277***
S&P dummy	0.556	0.686	-0.13***
Analyst coverage	12.48	14.18	-1.70***
Total assets	12455	16760	-4305
Leverage	0.0989	0.119	-0.02***
R&D/total assets	0.0316	0.0339	0.00
ROA	0.155	0.156	0.00
Tobin's Q	2.194	2.147	0.05
Institutional ownership	0.701	0.774	-0.07***
NASDAQ dummy	0.352	0.232	0.12***
Return volatility	0.0262	0.0247	0.00**
Dual class dummy	0.243	0.00642	0.24***
CEO equity-based pay	0.184	0.24	-0.06***
Board size	9.589	10.21	-0.62***
Fraction of independent directors	0.655	0.769	-0.11***
CEO duality dummy	0.923	0.866	0.06***
Officer/director ownership (less family)	0.0486	0.0326	0.02***

Table 15 (contd.)

Panel C: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Family firm	1										
(2) Strengths	-0.15***	1									
(3) Concerns	-0.12***	0.29***	1								
(4) Total assets	-0.04	0.25***	0.43***	1							
(5) Leverage	-0.09***	0.07***	0.18***	0.13***	1						
(6) ROA	-0.01	0	-0.05	-0.07***	-0.37***	1					
(7) Tobin's Q	0.02	-0.06**	-0.19***	-0.08***	-0.54***	0.49***	1				
(8) Institutional ownership	-0.23***	-0.12***	-0.19***	-0.25***	0.11***	-0.11***	-0.14***	1			
(9) Dual class shares	0.41***	-0.03	-0.01	0.03	0.06**	-0.08***	-0.07***	-0.02	1		
(10) Independent directors	-0.35***	0.15***	0.17***	0	0.09***	-0.02	-0.12	0.16***	-0.25***	1	
(11) CEO duality	0.08***	0	0.01	0	0.06***	-0.04*	-0.04*	0	-0.01	-0.07***	1

Table 16
Multivariate Regression Analysis
This table reports the regression of the sum of environmental strengths and concerns on different measures of family control and other covariates. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

	Family Firm Dummy		Family Control		Family Management	
	Strengths	Concerns	Strengths	Concerns	Strengths	Concerns
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Family firm	-0.249***	-0.0386				
	(0.0327)	(0.0385)				
Family control %			-0.653***	0.242		
			(0.120)	(0.167)		
Founder-CEO family firm					-0.211***	-0.0177
					(0.0387)	(0.0463)
Descendent -CEO family firm					-0.238***	-0.0204
					(0.0466)	(0.0590)
Hired CEO- family firm					-0.356***	-0.114
					(0.0535)	(0.0762)
Log (total assets)	0.197***	0.371***	0.205***	0.375***	0.194***	0.369***
	(0.0201)	(0.0218)	(0.0204)	(0.0218)	(0.0201)	(0.0217)
Leverage	-0.375**	-0.409**	-0.377**	-0.387*	-0.400**	-0.429**
	(0.161)	(0.201)	(0.163)	(0.201)	(0.163)	(0.202)
Log (firm age)	0.0197	0.0759***	0.0255	0.0767***	0.0202	0.0760***
	(0.0234)	(0.0289)	(0.0232)	(0.0290)	(0.0236)	(0.0292)
Institutional ownership	-0.461***	-0.483***	-0.326***	-0.413***	-0.473***	-0.487***
	(0.116)	(0.124)	(0.109)	(0.124)	(0.114)	(0.124)
Officer/director ownership	0.638**	-0.427	0.359	-0.420	0.660**	-0.415
(less Family)	(0.256)	(0.273)	(0.240)	(0.265)	(0.264)	(0.276)
CEO equity-based pay	0.0194	-0.0662	0.0140	-0.0559	0.0108	-0.0732
	(0.0630)	(0.0765)	(0.0640)	(0.0765)	(0.0636)	(0.0767)
ROA	0.255	0.433*	0.208	0.445**	0.231	0.417*
	(0.165)	(0.225)	(0.164)	(0.226)	(0.165)	(0.224)
R&D/total assets	-0.0266	-0.471	-0.117	-0.484	-0.0207	-0.467
	(0.294)	(0.301)	(0.291)	(0.301)	(0.294)	(0.300)
CEO duality	0.0197	0.0965**	0.0120	0.0860*	0.0240	0.100**
	(0.0394)	(0.0457)	(0.0402)	(0.0455)	(0.0401)	(0.0461)
Dual class shares	0.162***	0.148**	0.215***	0.0361	0.189***	0.166**
	(0.0605)	(0.0724)	(0.0755)	(0.0887)	(0.0651)	(0.0757)
Fraction of independent directors	-0.120	0.146	-0.0453	0.189	-0.0804	0.171
	(0.110)	(0.130)	(0.109)	(0.129)	(0.113)	(0.134)
Tobin's Q	0.00425	-0.0305*	0.00744	-0.0288	0.00335	-0.0311*
	(0.0142)	(0.0176)	(0.0142)	(0.0175)	(0.0143)	(0.0176)
Return volatility	-0.0274	5.708***	-0.250	5.627***	-0.177	5.610***
	(1.199)	(1.863)	(1.202)	(1.850)	(1.192)	(1.858)
Turnover	-0.0195**	0.0590***	-0.0199**	0.0605***	-0.0187**	0.0595***
	(0.00968)	(0.0121)	(0.00969)	(0.0123)	(0.00954)	(0.0121)
Analyst coverage	-0.0101***	-0.0221***	-0.00926***	-0.0221***	-0.00989***	-0.0219***
	(0.00309)	(0.00322)	(0.00311)	(0.00321)	(0.00310)	(0.00324)
S&P dummy	-0.0816**	0.0159	-0.0973***	0.0184	-0.0803**	0.0159
	(0.0333)	(0.0424)	(0.0337)	(0.0424)	(0.0341)	(0.0432)
NASDAQ dummy	0.0664*	0.0423	0.0724*	0.0376	0.0654*	0.0408
	(0.0386)	(0.0342)	(0.0394)	(0.0348)	(0.0385)	(0.0349)
Intercept	-1.323***	-1.128***	-1.520***	-1.239***	-1.313***	-1.121***
	(0.226)	(0.369)	(0.221)	(0.370)	(0.225)	(0.369)
Observations	2,088	2,088	2,088	2,088	2,088	2,088
Adjusted R-squared	0.264	0.555	0.256	0.555	0.265	0.555
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Table 17

Matched Sample Analysis

This table reports the results of the matched sample analysis. Matching is done on size, book-to-market and on the two-digit SIC code. Panel A reports the difference in means between the matched samples of family firms and non-family firms. Panel B reports the regression of environmental strengths and concerns on a family firm dummy and other covariates on the matched sample. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Covariate balance

Variables	Family Firms (1)	Non-Family Firms (2)	Difference (3)
Log (total assets)	8.45	8.27	0.18
Leverage	0.09	0.10	-0.01
Log (firm age)	3.89	3.88	0.02
Institutional ownership	0.70	0.78	-0.08***
Officer/Director Ownership (less family)	0.05	0.04	0.01**
CEO equity-based pay	0.19	0.20	-0.01
ROA	0.16	0.16	0.00
R&D/total assets	0.04	0.04	0.00
CEO duality	0.90	0.85	0.05*
Dual class shares	0.22	0.01	0.21***
Fraction of independent directors	0.66	0.76	-0.10***
Tobin's Q	2.16	2.33	-0.17
Return volatility	0.03	0.03	0.00
Turnover	1.86	2.22	-0.36**
Analyst coverage	13.65	13.94	-0.296
S&P dummy	0.62	0.65	-0.03
NASDAQ dummy	0.31	0.31	0.00

Table 17 (contd.)

Panel B: Regressions on the matched sample		
Variables	Strengths (1)	Concerns (2)
Family firm	-0.235***	-0.0519
	(0.0542)	(0.0744)
Log (total assets)	0.110***	0.212***
	(0.0369)	(0.0463)
Leverage	-0.551	0.677
	(0.380)	(0.463)
Log (firm age)	-0.159**	0.171***
	(0.0648)	(0.0618)
Institutional ownership	-0.450**	-0.483*
	(0.215)	(0.262)
Officer/director ownership (less family)	0.252	-1.259**
	(0.338)	(0.511)
CEO equity-based pay	0.275**	0.0313
	(0.122)	(0.155)
Profitability	0.0151	0.118
	(0.405)	(0.534)
R&D/total assets	-0.198	0.121
	(0.475)	(0.597)
CEO duality	0.0302	0.0779
	(0.0633)	(0.0986)
Dual class shares	0.266**	0.277**
	(0.105)	(0.121)
Fraction of independent directors	0.137	0.194
	(0.167)	(0.237)
Tobin's Q	0.0113	-0.00669
	(0.0268)	(0.0365)
Return volatility	1.215	5.136
	(2.173)	(3.778)
Turnover	-0.0573**	0.0352
	(0.0225)	(0.0305)
Analyst coverage	-0.0121**	-0.0154***
	(0.00591)	(0.00516)
S&P dummy	0.00391	0.0386
	(0.0549)	(0.0748)
NASDAQ dummy	-0.145**	-0.0470
	(0.0664)	(0.0734)
Intercept	0.0340	-1.025*
	(0.461)	(0.590)
Observations	452	452
Adjusted R-Squared	0.304	0.422
Industry FE	YES	YES
Year FE	YES	YES

Table 18
Regulatory Stringency
This table reports the results from regressing environmental strengths and concerns on a family firm dummy and other covariates while controlling for the level of regulatory stringency in the state which the firm is headquartered in. In addition, Columns (2) and (4) include an interaction term between the family firm dummy and the regulatory stringency variable. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

VARIABLES	Strengths (1)	Strengths (2)	Concerns (3)	Concerns (4)
Family firm	-0.232***	0.450	-0.0291	1.434***
	(0.0331)	(0.275)	(0.0371)	(0.360)
Family firm × regulatory stringency		-1.025**		-2.198***
		(0.419)		(0.543)
Regulatory stringency	0.750***	1.051***	-1.131***	-0.486
	(0.251)	(0.302)	(0.246)	(0.308)
	(0.0396)	(0.0392)	(0.0352)	(0.0352)
Intercept	-1.527***	-1.738***	-0.558	-1.009**
	(0.264)	(0.284)	(0.385)	(0.405)
Observations	2,052	2,052	2,052	2,052
Adjusted R-squared	0.272	0.273	0.568	0.571
Controls	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Table 19

Reputation Effect

This table reports whether the founder's name being included in the firm name has any effect on the environmental strengths and concerns of a firm. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Variables	Strengths (1)	Concerns (2)
Family firm	-0.227***	-0.111***
	(0.0371)	(0.0392)
Family firm × founder name	-0.0763	0.242***
	(0.0566)	(0.0681)
Founder name	0.0314	0.170***
	(0.0403)	(0.0458)
Intercept	-1.351***	-1.089***
	(0.227)	(0.375)
Observations	2,088	2,088
Adjusted R-squared	0.264	0.566
Controls	YES	YES
Industry FE	YES	YES
Year FE	YES	YES

Table 20
Impact of the Financial Crisis
This table reports the results from regressing environmental strengths and concerns on a family firm dummy, a crisis period dummy, the interaction of these two dummies and other covariates. The crisis period dummy equals one if the observation is from 2007-2009 and zero otherwise. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Variables	Strengths (1)	Concerns (2)
Family firm	-0.235***	0.00288
	(0.0347)	(0.0433)
Family firm × crisis	-0.0448	-0.127**
	(0.0541)	(0.0622)
Crisis	0.262***	0.0549
	(0.0680)	(0.0824)
Intercept	-1.333***	-1.154***
	(0.226)	(0.368)
Observations	2,088	2,088
Adjusted R-squared	0.264	0.555
Controls	YES	YES
Industry FE	YES	YES
Year FE	YES	YES

Table 21
Alternative CSR Database
This table reports the regression of environmental strengths and concerns, using data from the Thomson Reuters' ASSET4 database, on the family firm dummy and other covariates. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

VARIABLES	Strengths (1)	Concerns (2)
Family firm	-1.413***	0.00613
	(0.495)	(0.0417)
Log (total assets)	2.270***	-0.0680***
	(0.247)	(0.0155)
Leverage	-3.581	0.624***
	(2.941)	(0.178)
Log (firm age)	-0.310	-0.0429**
	(0.322)	(0.0201)
Institutional ownership	-5.525***	-0.0432
	(1.808)	(0.140)
Officer/director ownership (less family)	-3.498	-0.940***
	(4.680)	(0.325)
CEO equity-based pay	1.980***	-0.00979
	(0.747)	(0.0459)
ROA	7.330***	-0.0298
	(2.568)	(0.138)
R&D/total assets	8.671	-0.134
	(7.036)	(0.278)
CEO duality	-0.133	0.0492
	(0.484)	(0.0346)
Dual class shares	1.527	-0.0424
	(1.023)	(0.0852)
Fraction of independent directors	4.231***	-0.439***
	(1.533)	(0.118)
Tobin's Q	0.0890	0.00796
	(0.260)	(0.0137)
Return volatility	-42.68**	3.349***
	(19.21)	(1.213)
Turnover	0.186	-0.0116
	(0.137)	(0.00846)
Analyst coverage	0.0529	0.000961
	(0.0434)	(0.00276)
S&P dummy	-0.278	0.0304
	(0.578)	(0.0402)
NASDAQ dummy	-0.00502	0.0280
	(0.652)	(0.0406)
Intercept	-13.92***	2.223***
	(3.995)	(0.261)
Observations	1,038	1,038
Adjusted R-squared	0.591	0.291
Industry FE	YES	YES
Year FE	YES	YES

Table 22
Standard Errors
This table reports the regression coefficients on the family firm dummy from the regressions of environmental strengths and concerns. Standard errors are reported in within parenthesis. Each pair of columns correspond to a different approach of calculating standard errors. The control variables are the same as those found in columns (1) and (2) of Table 15. Variable definitions can be found in Appendix B. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

	OLS		Robust		Clustered by Industry		Clustered by Industry and Year	
	Strengths	Concerns	Strengths	Concerns	Strengths	Concerns	Strengths	Concerns
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family firm	-0.249***	-0.0386	-0.249***	-0.0386	-0.249***	-0.0386	-0.249***	-0.0386
	(0.0403)	(0.0466)	(0.0321)	(0.0378)	(0.0540)	(0.0861)	(0.0585)	(0.0904)
Observations	2,088	2,088	2,088	2,088	2,088	2,088	2,088	2,088
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Table 23

Alternative Matched Sample Analysis

This table presents a matched sample analysis where the matching is done on size, leverage, age, institutional ownership, insider ownership, Tobin's Q, return volatility and on the two-digit SIC code. Panel A reports the difference in means between the matched samples of family firms and non-family firms. Panel B reports the regression of environmental strengths and concerns on a family firm dummy and other covariates on the matched sample. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Covariate balance

Variables	Family Firms (1)	Non-Family Firms (2)	Difference (3)
Log (total assets)	8.32	8.38	-0.06
Leverage	0.10	0.10	0.00
Log (firm age)	3.85	3.83	0.02
Institutional ownership	0.75	0.77	-0.02
Officer/director ownership (less family)	0.03	0.04	-0.01
CEO equity-based pay	0.20	0.25	-0.04
ROA	0.15	0.15	0.00
R&D/total assets	0.04	0.04	0.00
CEO duality	0.90	0.89	0.01
Dual class shares	0.30	0.00	0.29***
Fraction of independent directors	0.66	0.76	-0.10***
Tobin's Q	2.18	2.16	0.025
Return volatility	0.03	0.03	0.00
Turnover	2.12	2.32	-0.21
Analyst coverage	13.25	14.20	-0.95
S&P dummy	0.56	0.66	-0.10**
NASDAQ dummy	0.31	0.32	-0.01

Table 23 (contd.)

Panel B: Regressions on the matched sample

Variables	Strengths (1)	Concerns (2)
Family firm	-0.222***	-0.120*
	(0.0581)	(0.0664)
Log (total assets)	0.0840*	0.296***
	(0.0449)	(0.0496)
Leverage	-0.191	0.0873
	(0.364)	(0.462)
Log (firm age)	0.103**	0.153**
	(0.0470)	(0.0618)
Institutional ownership	-0.302	-0.381
	(0.281)	(0.306)
Officer/director ownership (less family)	0.0914	-3.843***
	(0.551)	(0.827)
CEO equity-based pay	0.288**	0.184
	(0.121)	(0.158)
Profitability	0.471	0.497
	(0.305)	(0.434)
R&D/total assets	-0.202	0.196
	(0.595)	(0.682)
CEO duality	-0.0322	-0.0966
	(0.0737)	(0.0918)
Dual class shares	0.280***	0.0989
	(0.105)	(0.107)
Fraction of independent directors	-0.344	-0.356
	(0.263)	(0.296)
Tobin's Q	-0.00917	0.0204
	(0.0285)	(0.0340)
Return volatility	0.132	3.606
	(2.449)	(3.610)
Turnover	-0.0105	0.0533**
	(0.0205)	(0.0261)
Analyst coverage	0.00357	-0.0306***
	(0.00614)	(0.00629)
S&P dummy	0.0350	-0.0343
	(0.0668)	(0.0812)
NASDAQ dummy	-0.0604	-0.0372
	(0.0749)	(0.0751)
Intercept	-0.818	-0.245
	(0.564)	(0.779)
Observations	402	402
Adjusted R-squared	0.311	0.529
Industry FE	YES	YES
Year FE	YES	YES

Table 24
Joint Determination of Strengths and Concerns
In this table, columns (1) and (3) reports the regression of the sum of environmental strengths (concerns) on the family firm dummy controlling for concerns (strengths) for the environmental strengths (concerns) regression, in addition to the other covariates. Columns (2) and (4) includes an interaction term between the family firm and strengths/concerns. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Variables	Strengths (1)	Strengths (2)	Concerns (3)	Concerns (4)
Family firm	-0.245***	-0.230***	-0.00377	0.00144
	(0.0320)	(0.0329)	(0.0378)	(0.0385)
Concerns	0.105***	0.111***		
	(0.0299)	(0.0324)		
Family firm × concerns		-0.0560		
		(0.0406)		
Strengths			0.140***	0.143***
			(0.0405)	(0.0430)
Family firm × strengths				-0.0338
				(0.0897)
	(0.0384)	(0.0383)	(0.0343)	(0.0345)
Intercept	-1.205***	-1.231***	-0.943**	-0.946**
	(0.225)	(0.230)	(0.375)	(0.376)
Observations	2,088	2,088	2,088	2,088
Adjusted R-squared	0.274	0.275	0.561	0.561
Controls	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Table 25
Restricted Sample Analysis
This table reports the regression of the sum of environmental strengths and concerns on the family firm dummy and other covariates on a sample that excludes firms that have both strengths and concerns. Variable definitions can be found in Appendix B. Bootstrapped standard errors are reported within parenthesis. The symbols *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Variables	Strengths (1)	Concerns (2)
Family firm	-0.168***	0.0291
	(0.0293)	(0.0313)
Log (total assets)	0.0348**	0.240***
	(0.0161)	(0.0244)
Leverage	-0.170	-0.662***
	(0.149)	(0.194)
Log (firm age)	-0.0166	0.0632**
	(0.0218)	(0.0318)
Institutional ownership	-0.360***	-0.215*
	(0.108)	(0.110)
Officer/director ownership (less family)	0.452**	-0.526**
	(0.213)	(0.252)
CEO equity-based pay	0.0229	-0.0808
	(0.0613)	(0.0729)
ROA	0.0228	0.302
	(0.143)	(0.242)
R&D/total assets	-0.403*	-0.524*
	(0.208)	(0.282)
CEO duality	-0.000884	0.106**
	(0.0336)	(0.0411)
Dual class shares	0.183***	0.0504
	(0.0560)	(0.0656)
Fraction of independent directors	0.0173	0.238**
	(0.0870)	(0.106)
Tobin's Q	0.0100	-0.0270*
	(0.0121)	(0.0163)
Return volatility	-0.842	3.672**
	(1.153)	(1.753)
Turnover	-0.0303***	0.0454***
	(0.00711)	(0.0118)
Analyst coverage	-0.00930***	-0.0202***
	(0.00259)	(0.00310)
S&P dummy	0.0367	0.0831**
	(0.0271)	(0.0376)
NASDAQ dummy	0.126***	0.0867***
	(0.0358)	(0.0310)
Intercept	0.142	-0.0280
	(0.223)	(0.396)
Observations	1,860	1,860
Adjusted R-squared	0.164	0.514
Industry FE	YES	YES
Year FE	YES	YES

Table 26
Observation Count by Year

This Table presents the number of firms in the oil and gas sample with sufficient data available for inclusion in the study.

Year	Firm count
1998	72
1999	69
2000	63
2001	64
2002	68
2003	72
2004	69
2005	69
2006	74
2007	85
2008	87
2009	74
2010	72
2011	73
2012	83
2013	72
2014	67
2015	59
Total	1,292

Table 27
Descriptive Statistics
This Table presents summary statistics for variables used in the rest of the study. Variable definitions can be found in Appendix C.

Variable	*N*	Mean	Std Dev	10th pctile.	Median	90th pctile.
Family variables						
Family firm dummy	1,292	0.539	0.499	0.000	1.000	1.000
Founder CEO	1,292	0.417	0.049	0.000	0.000	1.000
Relatives of Founder	1,292	0.042	0.200	0.000	0.000	0.000
Family controlled	1,292	0.081	0.272	0.000	0.000	0.000
Family directors	1,292	0.779	0.869	0.000	1.000	2.000
Family ownership (%)	1,292	6.587	13.633	0.000	0.440	20.300
Hedging variables						
Aggregate hedging dummy	1,292	0.687	0.464	0.000	1.000	1.000
Oil hedging dummy	1,292	0.539	0.499	0.000	1.000	1.000
Gas hedging dummy	1,292	0.593	0.491	0.000	1.000	1.000
Aggregate hedge ratio 1	1,292	0.362	0.490	0.000	0.174	1.030
Aggregate hedge ratio 2	1,292	0.036	0.049	0.000	0.016	0.099
Oil hedge ratio 1	1,292	0.318	0.530	0.000	0.000	0.989
Oil hedge ratio 2	1,292	0.034	0.061	0.000	0.001	0.101
Gas hedge ratio 1	1,292	0.333	0.511	0.000	0.073	1.003
Gas hedge ratio 2	1,292	0.036	0.056	0.000	0.010	0.098
Firm characteristics						
Institutional ownership (%)	1,190	53.702	30.885	5.959	59.324	90.927
Insider ownership (minus family) (%)	1,292	9.164	13.515	0.720	3.985	25.800
Ln (assets)	1,292	6.592	1.856	4.131	6.474	9.140
Leverage	1,292	0.308	0.239	0.000	0.288	0.604
Market to book	1,292	1.576	0.844	0.882	1.357	2.465
Payout ratio	1,292	0.028	0.158	0.000	0.000	0.091
Quick ratio	1,292	1.356	1.440	0.463	0.939	2.531
Return on Assets	1,292	-0.049	0.243	-0.242	0.018	0.112
Vega	1,292	46.087	123.190	0.000	5.128	111.508
Ln (1+Vega)	1,292	2.007	1.893	0.000	1.813	4.723
Delta	1,292	588.554	1673.364	6.094	117.819	1203.563
Ln (1+Delta)	1,292	4.672	1.988	1.959	4.778	7.094

Table 28

Differences Between Family Firms and Non-Family Firms

This Table compares hedging and firm characteristics for family and non-family firms. It also presents the p-value from a t-test for the difference of means test. Variable definitions can be found in Appendix C.

Variables	Family Firms		P-value for difference of means test	Non-Family Firms	
	N	Mean		*N*	Mean
Family variables					
Family directors	697	1.445	(<0.000)	595	0.000
Family ownership (%)	697	12.211	(<0.000)	595	0.000
Hedging variables					
Aggregate hedging dummy	697	0.756	(<0.000)	595	0.607
Oil hedging dummy	697	0.595	(<0.000)	595	0.472
Gas hedging dummy	697	0.654	(<0.000)	595	0.521
Aggregate hedge ratio 1	697	0.390	0.029	595	0.330
Aggregate hedge ratio 2	697	0.038	0.045	595	0.033
Oil hedge ratio 1	697	0.344	0.060	595	0.288
Oil hedge ratio 2	697	0.036	0.122	595	0.031
Gas hedge ratio 1	697	0.358	0.059	595	0.304
Gas hedge ratio 2	697	0.040	0.005	595	0.031
Firm characteristics					
Institutional Ownership (%)	675	53.310	0. 616	515	54.217
Insider ownership (%)	697	8.130	0.003	595	10.375
Log (assets)	697	6.546	0.327	595	6.647
Leverage	697	0.338	(<0.000)	595	0.274
Market to book	697	1.584	0.718	595	1.567
Payout ratio	697	0.017	0.006	595	0.041
Quick ratio	697	1.232	(<0.000)	595	1.501
Return on assets	697	-0.051	0.837	595	-0.048
Vega	697	35.697	(0.001)	595	58.257
Log (1+ Vega)	697	1.972	0.468	595	2.048
Delta	697	782.171	(<0.000)	595	361.746
Log (1+ Delta)	697	5.027	(<0.000)	595	4.256

Table 29

The Decision to Hedge and Family Firms

Panel A presents linear probability model results for analysis of the decision to hedge while Panel B present the marginal probit results for the same analysis. Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

Panel A

Variables	Aggregate hedging dummy (1)	Oil hedging dummy (2)	Gas hedging dummy (3)	Aggregate hedging dummy (4)	Oil hedging dummy (5)	Gas hedging dummy (6)
Family firm dummy	0.120***	0.109***	0.109***			
	(0.024)	(0.027)	(0.026)			
Family directors				0.065***	0.047***	0.059***
				(0.013)	(0.016)	(0.013)
Log (1+vega)	-0.018**	-0.037***	-0.003	-0.019**	-0.038***	-0.004
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Log (1+delta)	-0.018**	-0.006	-0.031***	-0.014*	-0.001	-0.028***
	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)	(0.008)
Insider ownership	-0.000	0.000	0.000	-0.001	-0.000	0.000
(minus family)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Log (assets)	0.085***	0.097***	0.093***	0.083***	0.094***	0.091***
	(0.010)	(0.011)	(0.011)	(0.010)	(0.011)	(0.011)
Leverage	0.338***	0.259***	0.342***	0.343***	0.268***	0.347***
	(0.059)	(0.063)	(0.060)	(0.058)	(0.063)	(0.060)
Market to book	0.001	-0.025*	-0.007	-0.002	-0.028**	-0.010
	(0.016)	(0.014)	(0.016)	(0.016)	(0.014)	(0.016)
Payout Ratio	-0.060	-0.054	-0.114	-0.069	-0.066	-0.122
	(0.082)	(0.080)	(0.086)	(0.083)	(0.081)	(0.087)
Quick ratio	-0.071***	-0.045***	-0.064***	-0.071***	-0.045***	-0.064***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)
Return on assets	0.215***	0.164***	0.143**	0.212***	0.160***	0.140**
	(0.058)	(0.057)	(0.061)	(0.058)	(0.057)	(0.060)
Constant	0.186*	0.019	-0.110	0.206**	0.043	-0.092
	(0.104)	(0.108)	(0.114)	(0.104)	(0.108)	(0.114)
Observations	1,292	1,292	1,292	1,292	1,292	1,292
Adjusted R-squared	0.257	0.228	0.236	0.257	0.223	0.235
Year FE	YES	YES	YES	YES	YES	YES

Table 30
Hedge Ratios and Family Firms
This Table presents results from Tobit regression analysis of the amount of hedging. The dependent variable for model 1 (2) is the sum of the oil and gas delta positions for the firm at the end of the fiscal year end divided by total oil and gas production reported on the next fiscal year (reserves reported on the current fiscal year). For model 3 (4) the dependent variable is the sum of the oil delta positions reported at the end of the fiscal year end divided by total oil production reported on the next fiscal year end (reserves reported on the current fiscal year end). Finally, for model 5 (6), the dependent variable is the sum of the gas delta positions reported at the end of the fiscal year end divided by total gas production reported on the next fiscal year end (reserves reported on the current fiscal year end). Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

Variables	Aggregate hedge ratio 1 (1)	Aggregate hedge ratio 2 (2)	Oil hedge ratio 1 (3)	Oil hedge ratio 2 (4)	Gas hedge ratio 1 (5)	Gas hedge ratio 2 (6)
Family firm dummy	0.096**	0.012***	0.154***	0.017***	0.113**	0.018***
	(0.040)	(0.004)	(0.057)	(0.006)	(0.046)	(0.005)
Ln (1+vega)	-0.021	-0.001	-0.064***	-0.004**	0.001	-0.000
	(0.013)	(0.001)	(0.018)	(0.002)	(0.015)	(0.002)
Ln (1+delta)	-0.029**	-0.004***	-0.028	-0.003*	-0.044***	-0.006***
	(0.014)	(0.001)	(0.019)	(0.002)	(0.017)	(0.002)
Insider ownership	-0.001	0.000	0.001	0.000	-0.001	0.000
(minus family)	(0.002)	(0.000)	(0.002)	(0.000)	(0.002)	(0.000)
Ln (assets)	0.094***	0.009***	0.161***	0.014***	0.112***	0.013***
	(0.018)	(0.002)	(0.024)	(0.003)	(0.020)	(0.002)
Leverage	0.729***	0.054***	0.800***	0.073***	0.816***	0.069***
	(0.102)	(0.009)	(0.134)	(0.014)	(0.118)	(0.012)
Market to book	-0.001	-0.002	-0.033	-0.007*	-0.032	-0.005
	(0.027)	(0.003)	(0.040)	(0.004)	(0.032)	(0.003)
Payout ratio	-0.365***	-0.013	-0.360*	-0.018	-0.449***	-0.021
	(0.135)	(0.014)	(0.194)	(0.021)	(0.166)	(0.018)
Quick ratio	-0.151***	-0.014***	-0.162***	-0.017***	-0.173***	-0.016***
	(0.021)	(0.002)	(0.030)	(0.003)	(0.026)	(0.003)
Return on assets	0.265**	0.026**	0.400***	0.042**	0.151	0.018
	(0.125)	(0.013)	(0.150)	(0.017)	(0.156)	(0.017)
Constant	-0.479**	-0.029	-1.069***	-0.071***	-0.730***	-0.062**
	(0.198)	(0.019)	(0.247)	(0.026)	(0.247)	(0.026)
Observations	1,292	1,292	1,292	1,292	1,292	1,292
Year FE	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.129	-0.193	0.119	-0.779	0.125	-0.340

Table 31
Hedge Ratios and Family Directors

This Table presents results from Tobit regression analysis of the amount of hedging. The dependent variable for model 1 (2) is the sum of the oil and gas delta positions for the firm at the end of the fiscal year end divided by total oil and gas production reported on the next fiscal year (reserves reported on the current fiscal year). For model 3 (4) the dependent variable is the sum of the oil delta positions reported at the end of the fiscal year end divided by total oil production reported on the next fiscal year end (reserves reported on the current fiscal year end). Finally, for model 5 (6), the dependent variable is the sum of the gas delta positions reported at the end of the fiscal year end divided by total gas production reported on the next fiscal year end (reserves reported on the current fiscal year end). Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

Variables	Aggregate hedge ratio 1 (1)	Aggregate hedge ratio 2 (2)	Oil hedge ratio 1 (3)	Oil hedge ratio 2 (4)	Gas hedge ratio 1 (5)	Gas hedge ratio 2 (6)
Family directors	0.064***	0.005**	0.034	0.005	0.093***	0.011***
	(0.021)	(0.002)	(0.030)	(0.003)	(0.025)	(0.003)
Ln (1+vega)	-0.022	-0.001	-0.067***	-0.004**	0.001	-0.000
	(0.013)	(0.001)	(0.018)	(0.002)	(0.015)	(0.002)
Ln (1+delta)	-0.027**	-0.004***	-0.017	-0.002	-0.044***	-0.005***
	(0.013)	(0.001)	(0.018)	(0.002)	(0.016)	(0.002)
Insider ownership	-0.001	0.000	0.001	0.000	-0.001	0.000
(minus family)	(0.002)	(0.000)	(0.002)	(0.000)	(0.002)	(0.000)
Ln (assets)	0.093***	0.009***	0.154***	0.013***	0.112***	0.012***
	(0.018)	(0.002)	(0.024)	(0.003)	(0.020)	(0.002)
Leverage	0.727***	0.055***	0.830***	0.076***	0.805***	0.070***
	(0.101)	(0.009)	(0.135)	(0.014)	(0.115)	(0.012)
Market to book	-0.003	-0.002	-0.038	-0.008*	-0.033	-0.006*
	(0.027)	(0.003)	(0.040)	(0.004)	(0.032)	(0.003)
Payout ratio	-0.366***	-0.014	-0.393**	-0.021	-0.441***	-0.022
	(0.135)	(0.014)	(0.194)	(0.021)	(0.166)	(0.019)
Quick ratio	-0.150***	-0.014***	-0.166***	-0.018***	-0.169***	-0.015***
	(0.021)	(0.002)	(0.030)	(0.003)	(0.026)	(0.003)
Return on assets	0.264**	0.026**	0.391***	0.041**	0.152	0.017
	(0.123)	(0.012)	(0.150)	(0.017)	(0.153)	(0.016)
Constant	-0.474**	-0.027	-1.018***	-0.066**	-0.734***	-0.060**
	(0.197)	(0.019)	(0.246)	(0.026)	(0.244)	(0.026)
Observations	1,292	1,292	1,292	1,292	1,292	1,292
Year FE	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.130	-0.191	0.116	-0.764	0.128	-0.343

Table 32
Type of Family Firm and Hedge Ratios
This Table presents results from Tobit regression analysis of the amount of hedging. The dependent variable for model 1 (2) is the sum of the oil and gas delta positions for the firm at the end of the fiscal year end divided by total oil and gas production reported on the next fiscal year (reserves reported on the current fiscal year). For model 3 (4) the dependent variable is the sum of the oil delta positions reported at the end of the fiscal year end divided by total oil production reported on the next fiscal year end (reserves reported on the current fiscal year end). Finally, for model 5 (6), the dependent variable is the sum of the gas delta positions reported at the end of the fiscal year end divided by total gas production reported on the next fiscal year end (reserves reported on the current fiscal year end). Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

Variables	Aggregate hedge ratio 1 (1)	Aggregate hedge ratio 2 (2)	Oil hedge ratio 1 (3)	Oil hedge ratio 2 (4)	Gas hedge ratio 1 (5)	Gas hedge ratio 2 (6)
Founder CEO	0.135***	0.015***	0.203***	0.023***	0.157***	0.023***
	(0.044)	(0.004)	(0.063)	(0.007)	(0.049)	(0.005)
Relatives of founder	-0.083	-0.006	-0.096	-0.011	-0.062	0.001
	(0.088)	(0.008)	(0.106)	(0.012)	(0.103)	(0.013)
Family controlled	0.051	0.009	0.121	0.015	0.043	0.011
	(0.071)	(0.007)	(0.092)	(0.010)	(0.079)	(0.009)
Ln (1+vega)	-0.016	-0.001	-0.057***	-0.003	0.007	0.001
	(0.013)	(0.001)	(0.018)	(0.002)	(0.015)	(0.002)
Ln (1+delta)	-0.036**	-0.005***	-0.036*	-0.004**	-0.052***	-0.007***
	(0.014)	(0.001)	(0.020)	(0.002)	(0.017)	(0.002)
Insider ownership	-0.001	0.000	0.002	0.000	-0.001	0.000
(minus family)	(0.002)	(0.000)	(0.002)	(0.000)	(0.002)	(0.000)
Ln (assets)	0.097***	0.009***	0.165***	0.014***	0.115***	0.013***
	(0.018)	(0.002)	(0.024)	(0.003)	(0.020)	(0.002)
Leverage	0.707***	0.052***	0.769***	0.070***	0.793***	0.067***
	(0.101)	(0.009)	(0.133)	(0.014)	(0.117)	(0.012)
Market to book	-0.001	-0.002	-0.035	-0.008*	-0.031	-0.005
	(0.027)	(0.003)	(0.040)	(0.004)	(0.032)	(0.003)
Payout ratio	-0.367***	-0.013	-0.365*	-0.018	-0.451***	-0.021
	(0.135)	(0.014)	(0.193)	(0.021)	(0.166)	(0.019)
Quick ratio	-0.154***	-0.014***	-0.165***	-0.018***	-0.176***	-0.016***
	(0.021)	(0.002)	(0.030)	(0.003)	(0.027)	(0.003)
Return on assets	0.261**	0.026**	0.394***	0.041**	0.147	0.017
	(0.124)	(0.012)	(0.150)	(0.017)	(0.155)	(0.017)
Constant	-0.461**	-0.028	-1.048***	-0.069***	-0.715***	-0.061**
	(0.197)	(0.019)	(0.246)	(0.025)	(0.245)	(0.026)
Observations	1,292	1,292	1,292	1,292	1,292	1,292
Year FE	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.132	-0.197	0.121	-0.795	0.127	-0.345

Table 33
Family Ownership and Hedge Ratios
This Table presents results from Tobit regression analysis of the amount of hedging. Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

Variables	Aggregate hedge ratio 1 (1)	Aggregate hedge ratio 2 (2)	Oil hedge ratio 1 (3)	Oil hedge ratio 2 (4)	Gas hedge ratio 1 (5)	Gas hedge ratio 2 (6)
Family ownership	0.010**	0.001**	0.004	0.001	0.013**	0.001*
	(0.005)	(0.000)	(0.006)	(0.001)	(0.006)	(0.001)
Family ownership squared	-0.000**	-0.000**	-0.000	-0.000	-0.000**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln (1+vega)	-0.019	-0.001	-0.064***	-0.004**	0.004	0.000
	(0.014)	(0.001)	(0.018)	(0.002)	(0.015)	(0.002)
Ln (1+delta)	-0.032**	-0.005***	-0.023	-0.003	-0.050***	-0.006***
	(0.016)	(0.001)	(0.022)	(0.002)	(0.018)	(0.002)
Insider ownership (minus family)	-0.000	0.000	0.001	0.000	-0.001	0.000
	(0.002)	(0.000)	(0.002)	(0.000)	(0.002)	(0.000)
Ln (assets)	0.101***	0.010***	0.158***	0.013***	0.120***	0.013***
	(0.019)	(0.002)	(0.026)	(0.003)	(0.021)	(0.002)
Leverage	0.723***	0.054***	0.829***	0.076***	0.802***	0.070***
	(0.101)	(0.009)	(0.136)	(0.014)	(0.116)	(0.012)
Market to book	0.002	-0.001	-0.035	-0.007	-0.027	-0.005
	(0.028)	(0.003)	(0.041)	(0.005)	(0.032)	(0.003)
Payout ratio	-0.383***	-0.016	-0.410**	-0.022	-0.471***	-0.026
	(0.136)	(0.014)	(0.195)	(0.021)	(0.166)	(0.019)
Quick ratio	-0.153***	-0.014***	-0.165***	-0.018***	-0.174***	-0.016***
	(0.021)	(0.002)	(0.030)	(0.003)	(0.026)	(0.003)
Return on assets	0.262**	0.026**	0.391***	0.041**	0.149	0.017
	(0.124)	(0.012)	(0.151)	(0.017)	(0.154)	(0.016)
Constant	-0.492**	-0.030	-1.030***	-0.067**	-0.749***	-0.062**
	(0.200)	(0.020)	(0.251)	(0.026)	(0.249)	(0.026)
Observations	1,292	1,292	1,292	1,292	1,292	1,292
Year FE	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.129	-0.191	0.116	-0.760	0.125	-0.331

Table 34
Analysis Excluding 2008
This table presents results from the analysis of the decision to hedge and of the amount of hedging when the year 2008 is excluded from the sample. Models 1 to 3 present results from the marginal probit model results for analysis of the decision to hedge. Models 4 to 9 present the Tobit regression analysis of the amount of hedging. Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

	Probit			Tobit					
	Aggregate hedging dummy	Oil hedging dummy	Gas hedging dummy	Aggregate hedge ratio 1	Oil hedge ratio 1	Gas hedge ratio 1	Aggregate hedge ratio 2	Oil hedge ratio 2	Gas hedge ratio 2
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family firm dummy	0.153***	0.125***	0.145***	0.093**	0.146**	0.121**	0.011***	0.016**	0.019***
	(0.031)	(0.034)	(0.033)	(0.042)	(0.057)	(0.048)	(0.004)	(0.007)	(0.005)
Log (1+vega)	-0.025**	-0.047***	-0.002	-0.018	-0.068***	0.008	-0.001	-0.004**	0.000
	(0.011)	(0.012)	(0.011)	(0.014)	(0.018)	(0.015)	(0.001)	(0.002)	(0.002)
Log (1+delta)	-0.020*	-0.002	-0.037***	-0.026*	-0.025	-0.043**	-0.004***	-0.003	-0.005***
	(0.011)	(0.012)	(0.011)	(0.015)	(0.019)	(0.017)	(0.001)	(0.002)	(0.002)
Insider ownership	-0.001	-0.000	0.000	-0.001	0.001	-0.002	-0.000	0.000	-0.000
(minus family)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)
Log (assets)	0.096***	0.109***	0.108***	0.088***	0.156***	0.104***	0.008***	0.013***	0.012***
	(0.014)	(0.015)	(0.015)	(0.018)	(0.024)	(0.021)	(0.002)	(0.003)	(0.002)
Leverage	0.381***	0.307***	0.399***	0.697***	0.732***	0.790***	0.051***	0.067***	0.068***
	(0.078)	(0.080)	(0.080)	(0.106)	(0.136)	(0.123)	(0.010)	(0.014)	(0.013)
Market to book	0.019	-0.025	0.003	0.011	-0.017	-0.021	-0.001	-0.005	-0.004
	(0.020)	(0.022)	(0.022)	(0.028)	(0.041)	(0.033)	(0.003)	(0.004)	(0.004)
Payout ratio	-0.064	-0.087	-0.125	-0.371***	-0.366*	-0.451***	-0.013	-0.018	-0.021
	(0.100)	(0.106)	(0.108)	(0.137)	(0.194)	(0.167)	(0.015)	(0.021)	(0.019)
Quick ratio	-0.110***	-0.087***	-0.121***	-0.156***	-0.170***	-0.174***	-0.014***	-0.018***	-0.016***
	(0.015)	(0.015)	(0.017)	(0.023)	(0.031)	(0.028)	(0.002)	(0.003)	(0.003)
Return on assets	0.286***	0.330***	0.223***	0.282**	0.491***	0.198	0.026*	0.050***	0.021
	(0.075)	(0.087)	(0.086)	(0.142)	(0.165)	(0.173)	(0.014)	(0.019)	(0.018)
Constant				-0.431**	-0.956***	-0.666***	-0.024	-0.060**	-0.056**
				(0.208)	(0.249)	(0.257)	(0.020)	(0.026)	(0.027)
Observations	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205
Pseudo R-squared	0.242	0.202	0.213	0.124	0.121	0.121	-0.185	-0.730	-0.331
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 35
FAS 123R

This table presents the analysis of the decision to hedge and of the amount of hedging separately for the period before and after the adoption of FAS 123R. Panel A presents results from the analysis of the decision to hedge and of the amount of hedging from 1998-2004 while Panel B presents the same results for 2005-2015. Models 1 to 3 present marginal probit model results for the analysis of the decision to hedge. Models 4 to 9 present the Tobit regression analysis of the amount of hedging. Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

Panel A: 1998 to 2004

	Probit			Tobit					
	Aggregate hedging dummy	Oil hedging dummy	Gas hedging dummy	Aggregate hedge ratio 1	Oil hedge ratio 1	Gas hedge ratio 1	Aggregate hedge ratio 2	Oil hedge ratio 2	Gas hedge ratio 2
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family firm dummy	0.213***	0.163***	0.213***	0.174***	0.197**	0.251***	0.025***	0.024***	0.037***
	(0.056)	(0.055)	(0.057)	(0.053)	(0.080)	(0.060)	(0.005)	(0.008)	(0.007)
Log (1+vega)	-0.014	-0.040*	0.000	-0.027	-0.057**	-0.019	-0.001	-0.005*	0.001
	(0.023)	(0.022)	(0.024)	(0.021)	(0.027)	(0.026)	(0.002)	(0.003)	(0.003)
Log (1+delta)	-0.014	-0.016	-0.017	0.024	-0.013	0.018	0.001	-0.002	0.002
	(0.021)	(0.021)	(0.022)	(0.020)	(0.028)	(0.025)	(0.002)	(0.003)	(0.003)
Insider ownership (minus family)	-0.001	-0.000	0.001	-0.003	0.000	-0.002	-0.000	0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)
Log (assets)	0.117***	0.125***	0.121***	0.059***	0.119***	0.083***	0.006***	0.012***	0.009***
	(0.025)	(0.024)	(0.026)	(0.022)	(0.033)	(0.026)	(0.002)	(0.004)	(0.003)
Leverage	0.343***	0.213*	0.343***	0.400***	0.418***	0.416***	0.025**	0.031**	0.031**
	(0.114)	(0.119)	(0.116)	(0.101)	(0.151)	(0.126)	(0.010)	(0.015)	(0.015)
Market to book	0.035	-0.015	0.051	-0.003	-0.056	0.029	-0.002	-0.004	-0.001
	(0.033)	(0.035)	(0.036)	(0.032)	(0.048)	(0.038)	(0.003)	(0.004)	(0.005)
Payout ratio	-0.158	-0.237	-0.130	-0.111	-0.218	-0.102	-0.003	-0.012	-0.006
	(0.156)	(0.164)	(0.164)	(0.172)	(0.325)	(0.182)	(0.022)	(0.035)	(0.025)
Quick ratio	-0.079***	-0.051**	-0.072***	-0.101***	-0.082***	-0.109***	-0.009***	-0.008***	-0.012***
	(0.019)	(0.020)	(0.020)	(0.024)	(0.032)	(0.029)	(0.002)	(0.003)	(0.003)
Return on assets	0.165	0.324**	0.146	0.173	0.336*	0.124	0.008	0.026	0.002
	(0.125)	(0.137)	(0.132)	(0.111)	(0.187)	(0.149)	(0.012)	(0.018)	(0.022)
Constant				-0.279*	-0.501**	-0.623***	-0.031*	-0.057***	-0.072***
				(0.155)	(0.204)	(0.190)	(0.016)	(0.021)	(0.024)
Observations	477	477	477	477	477	477	477	477	477
Pseudo R-squared	0.219	0.173	0.199	0.160	0.134	0.140	-0.154	-0.381	-0.281
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 35 (Continued)

Panel B: 2005 to 2015

	Probit			Tobit					
	Aggregate hedging dummy	Oil hedging dummy	Gas hedging dummy	Aggregate hedge ratio 1	Oil hedge ratio 1	Gas hedge ratio 1	Aggregate hedge ratio 2	Oil hedge ratio 2	Gas hedge ratio 2
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family firm dummy	0.108***	0.109***	0.079*	0.033	0.123	0.001	0.003	0.012	0.005
	(0.035)	(0.040)	(0.041)	(0.055)	(0.075)	(0.064)	(0.005)	(0.009)	(0.007)
Log (1+vega)	-0.031***	-0.048***	-0.013	-0.026	-0.065***	-0.004	-0.002	-0.004	-0.002
	(0.012)	(0.013)	(0.012)	(0.017)	(0.022)	(0.019)	(0.002)	(0.002)	(0.002)
Log (1+delta)	-0.031**	-0.007	-0.054***	-0.057***	-0.042*	-0.076***	-0.007***	-0.005*	-0.010***
	(0.013)	(0.013)	(0.013)	(0.018)	(0.023)	(0.021)	(0.002)	(0.002)	(0.002)
Insider ownership (minus family)	-0.000	-0.000	-0.000	0.000	0.002	-0.001	0.000	0.000	0.000
	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.000)	(0.000)	(0.000)
Log (assets)	0.089***	0.111***	0.108***	0.116***	0.184***	0.132***	0.011***	0.015***	0.015***
	(0.016)	(0.018)	(0.018)	(0.024)	(0.032)	(0.028)	(0.002)	(0.003)	(0.003)
Leverage	0.419***	0.377***	0.499***	0.958***	1.048***	1.119***	0.072***	0.097***	0.098***
	(0.098)	(0.101)	(0.105)	(0.151)	(0.195)	(0.172)	(0.013)	(0.019)	(0.017)
Market to book	-0.002	-0.034	-0.030	0.005	-0.008	-0.061	-0.002	-0.007	-0.008*
	(0.022)	(0.025)	(0.027)	(0.038)	(0.054)	(0.044)	(0.003)	(0.006)	(0.005)
Payout ratio	0.017	0.057	-0.092	-0.504***	-0.384*	-0.718***	-0.013	-0.013	-0.025
	(0.126)	(0.140)	(0.136)	(0.182)	(0.215)	(0.244)	(0.018)	(0.023)	(0.026)
Quick ratio	-0.113***	-0.097***	-0.151***	-0.185***	-0.220***	-0.227***	-0.016***	-0.023***	-0.019***
	(0.018)	(0.019)	(0.025)	(0.031)	(0.045)	(0.040)	(0.003)	(0.004)	(0.004)
Return on assets	0.301***	0.223**	0.241**	0.329*	0.457**	0.196	0.035**	0.050**	0.026
	(0.083)	(0.097)	(0.100)	(0.175)	(0.199)	(0.217)	(0.017)	(0.023)	(0.022)
Constant				-0.577**	-1.262***	-0.762**	-0.028	-0.076**	-0.059*
				(0.271)	(0.325)	(0.329)	(0.025)	(0.033)	(0.032)
Observations	815	815	815	815	815	815	815	815	815
Pseudo R-squared	0.264	0.208	0.247	0.126	0.103	0.140	-0.224	-0.691	-0.460
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 36
Institutional Ownership

This table presents results with the additional control of institutional ownership. Models 1 to 3 present marginal probit model results for the analysis of the decision to hedge. Models 4 to 9 present the Tobit regression analysis of the amount of hedging. Variable definitions can be found in Appendix C. We present results based on heteroskedasticity consistent standard errors. ***, **, and * represent significance of the coefficient at the 1%, 5% and 10% level.

	Probit			Tobit					
	Aggregate hedging dummy	Oil hedging dummy	Gas hedging dummy	Aggregate hedge ratio 1	Oil hedge ratio 1	Gas hedge ratio 1	Aggregate hedge ratio 2	Oil hedge ratio 2	Gas hedge ratio 2
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family firm dummy	0.155***	0.115***	0.125***	0.083*	0.124**	0.074	0.011**	0.015**	0.015***
	(0.032)	(0.035)	(0.034)	(0.042)	(0.058)	(0.048)	(0.004)	(0.007)	(0.005)
Institutional ownership	0.004***	0.003***	0.003***	0.003***	0.003**	0.004***	0.000**	0.000**	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Log (1+vega)	-0.033***	-0.047***	-0.023**	-0.034**	-0.067***	-0.024	-0.002	-0.004**	-0.002
	(0.011)	(0.012)	(0.011)	(0.014)	(0.018)	(0.015)	(0.001)	(0.002)	(0.002)
Log (1+delta)	-0.027**	-0.007	-0.040***	-0.025*	-0.024	-0.038**	-0.005***	-0.004*	-0.006***
	(0.011)	(0.012)	(0.012)	(0.015)	(0.020)	(0.017)	(0.001)	(0.002)	(0.002)
Insider ownership	-0.000	-0.001	0.001	-0.002	-0.000	-0.001	-0.000	0.000	-0.000
(minus family)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)
Log (assets)	0.056***	0.072***	0.086***	0.054***	0.110***	0.068***	0.007***	0.009***	0.010***
	(0.015)	(0.017)	(0.016)	(0.019)	(0.026)	(0.022)	(0.002)	(0.003)	(0.003)
Leverage	0.418***	0.371***	0.389***	0.756***	0.879***	0.794***	0.054***	0.079***	0.064***
	(0.079)	(0.086)	(0.082)	(0.108)	(0.144)	(0.124)	(0.010)	(0.015)	(0.013)
Market to book	0.007	-0.015	-0.008	-0.002	0.002	-0.046	-0.001	-0.004	-0.006
	(0.022)	(0.025)	(0.025)	(0.034)	(0.045)	(0.039)	(0.003)	(0.005)	(0.004)
Payout ratio	-0.034	-0.037	-0.133	-0.247**	-0.254	-0.322**	-0.018	-0.020	-0.030*
	(0.093)	(0.106)	(0.105)	(0.122)	(0.186)	(0.151)	(0.014)	(0.022)	(0.018)
Quick ratio	-0.108***	-0.094***	-0.112***	-0.147***	-0.170***	-0.163***	-0.014***	-0.019***	-0.015***
	(0.015)	(0.016)	(0.017)	(0.022)	(0.031)	(0.027)	(0.002)	(0.003)	(0.003)
Return on assets	0.231***	0.238***	0.168*	0.183	0.368**	0.069	0.018	0.038*	0.014
	(0.076)	(0.091)	(0.087)	(0.140)	(0.165)	(0.176)	(0.014)	(0.019)	(0.018)
Constant				-0.410*	-0.957***	-0.599**	-0.026	-0.064**	-0.048*
				(0.212)	(0.255)	(0.262)	(0.021)	(0.027)	(0.027)
Observations	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190
Pseudo R-squared	0.275	0.213	0.221	0.135	0.123	0.122	-0.183	-0.688	-0.285
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES