

ABSTRACT

Title of Dissertation:

***TOP MANAGEMENT TEAM GENDER
DIVERSITY AND ITS EFFECT ON DIFFERENT
TYPES OF ORGANIZATIONAL OFFENDING***

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This study addresses a gap in the current corporate crime literature by giving special attention to the characteristics and role of the top management team (TMT) in facilitating or mitigating illegal conduct. I ask how changes in certain demographic characteristics of the TMT unit, particularly gender composition, affect various forms of corporate offending over time. Specifically, 1) In what ways are changes in TMT gender characteristics related to corporate illegality over time? 2) What is the nature of the relationship between TMT gender diversity, corporate offending, and other key characteristics of women executives? 3) What is the temporal order of these relationships? 4) How do other TMT and corporate characteristics influence the relationships between TMT gender diversity and firm offending? Stemming from the strategic leadership literature, Hambrick and Mason's (1984) Upper Echelons (UE) perspective serves as the primary theoretical framework guiding this study. This dissertation focuses on two types of corporate illegality: environmental and financial (i.e., accounting fraud,

bribery, and anticompetitive acts) using a universe of firms listed on the S&P 1500 from 1996 through 2013.

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by

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Chapter 1: Introduction

1.1 Statement of the Problem

As noted by Jack Katz over 40 years ago (1980), scholarly and public interest in corporate crime tends to wax and wane in the United States. In the early 2000s, a series of corporate financial fraud scandals involving Enron and WorldCom peaked academic and public interest in top management team (TMT) characteristics and corporate crime. In Enron's case, directors and executives fraudulently concealed large losses in projects and overstated earnings (Rezaee, 2005). Their actions eventually led to over 20,000 people losing their jobs, and to countless others losing their life savings. Similarly, after falling share prices, and a failed share buy-back scheme, top executives at WorldCom conspired to inflate firm earnings by nearly \$4 billion in order to push up the stock price. The company went bankrupt, and thousands of people lost their jobs (Simon, 2006). Its chief executive officer was sentenced to 25 years for his role in the scandal, and the chief financial officer was sentenced to five years (Thomas, 2002; Paulsen, 2002). The second development was the 2008 banking crisis, which undoubtedly shook the U.S. and global economy, and placed increased importance on the study of firms and their top executives (Harress & Caulderwood, 2013). Notably, senior *men* executives orchestrated the large majority of these fraudulent mortgage corporate schemes. Yet, in spite of extensive systemic economic disruption and financial consequences for individuals and institutions, only one senior executive at Credit Suisse was prosecuted and held legally accountable for his actions (Garrett, 2014). No top banking executives have been charged with

crimes in the series of frauds associated with the 2008 crisis (Schoen, 2017). These egregious acts affected public perceptions of corporate crime and its consequences (Kaiser, Hogan, & Craig, 2008). Problem #1: Taken together, these two major events raise important questions about corporate leadership and corporate misconduct.

Management scholars have long stressed the importance of studying corporate leadership because it explicitly considers the individuals who have the most direct influence on firms' decisions and outcomes (Hambrick, 1989; Daily & Schwenk, 1996). Nevertheless, the majority of corporate malfeasance research conducted thus far has been hyper-focused on examining the Chief Executive Officer (CEO), either alone or together with the board of directors (the board). Only a few corporate crime researchers have studied other key top managers or the TMT as a unit, which is a small group comprised of the most influential executives at the top of an organization, in conjunction with the board of directors (Finkelstein & Hambrick, 1996; Simsek, Veiga, Lubatkin, & Dino, 2005; Gupta, Mortal, Chakrabarty, Guo, & Turban, 2020). As a result, less is known about the influence of other top executives—or the TMT as a unit, either in isolation or as it relates to other governance entities—such as the board of directors. (See Jensen and Zajac's 2004 study for a test of this relationship.¹)

Problem #2: While other factors such as a firm's resources and economic environments are important, failure to consider other key individuals directly in charge of the direction of the firm results in an incomplete understanding of firm outcomes, including misconduct (Finkelstein et al., 2009).

¹ Jensen and Zajac's 2004 study tests the notion that while differences in individual characteristics of corporate elites may suggest distinct preferences for certain corporate strategies such as acquisitions and diversification, these preferences, when situated in different agency contexts (e.g., CEO, outsider director, non-CEO top executive), produce very different strategic outcomes.

Furthermore, management studies using the Upper Echelons (UE) perspective, which argues that certain executives' demographic characteristics influence the strategic decisions that predict firm outcomes (e.g., performance), rarely include an executive's gender as a characteristic that may influence a firm's offending levels. Instead, this vein of research typically examines how women executives influence strategic decisions that impact firm performance related to profitability, and to survival in the market. Most of these management studies find that women executives exhibit less overconfidence in both decision-making (see, e.g., Estes & Hosseini, 1988) and their abilities (e.g., Furnham et al., 2002), and they tend to adopt less risky corporate policies (see, e.g., Faccio et al., 2016; Francis et al., 2015). Women executives also tend to be more trustworthy and more compliant with rules and regulations (see e.g., Baldry, 1987; Barnett et al., 1994; Bernardi & Arnold, 1997; Fallan, 1999; Beu et al., 2003), suggesting that the decisions taken by women executives could also have an effect on their firms' offending levels. Notwithstanding this somewhat steady increase in women executive representation in recent decades, women are still underrepresented in leadership positions in corporations. This raises the question as to whether increased representation of women executives can divert the corporation from engaging in further crime, and if so, what are the mechanisms?

What is more, feminist criminologists noted long ago a gender ratio disparity in crime involvement (Daly & Chesney-Lind, 1988). Men are disproportionately involved in serious crime relative to women, regardless of crime type, data source, or degree of involvement (Harris, 1977; Kruttschnitt, 1994, 2013; Steffensmeier, 1983; Steffensmeier & Allan, 1996). Several explanations for this difference in crime rates

between men and women have been offered, such as social and cultural factors, crimes going unreported, or biological differences. However, Uniform Crime Reports data reveals that during the past several decades, the gender gap has narrowed but not closed. Some corporate crime scholars argue that gender inequality in the workforce (i.e., glass ceiling and lower participation of women) may explain why women are less involved than men in corporate crime, and that once there is more gender equality in the workforce, there would be more involvement by women in corporate crime (Steffensmeier, Schwartz, & Roche, 2013). However, findings reveal that women are still less likely to take part in corporate crime and fraud, even though more women now work in corporations and serve at higher levels of those organizations (Steffensmeier et al., 2013). Despite the important role of women in both management and criminological studies, relatively few empirical studies in corporate crime specifically examine the role of women executives (Steffensmeier, et al., 2013), and changes in TMT gender diversity, on firm-offending outcomes.

Thus, the first question is, do executives matter? If so, what is it about executives that relate to firm-offending outcomes? Particularly, does the gender composition of a top management team affect the type of decisions that result in corporate malfeasance? Given the gender ratio disparity in crime, it seems critical to continue exploring the role of women executives on firm-offending outcomes.

Another important consideration, however, is that certain TMT characteristics may affect specific types of corporate illegality. The findings that women are more caring and compassionate than men, prompted many management scholars to ask whether this relationship bear any association to how eco-friendly an organization is.

However, the literature examining TMTs characteristics' influence on corporate misconduct has been generally restricted to certain types of offending, particularly fraud, or largely focused on the CEO as a proxy to the entire executive team (See for example: Francis et al., 2014; Williams, Fadil, & Armstrong, 2005; Zahra, Priem, & Rasheed, 2007; Troy, Smith, & Domino, 2011; Beneish, 1999; Burns & Kedia, 2006; Goldman & Slezak, 2006; Peng & Röell, 2008; Armstrong, Jagolinzer, & Larcker, 2010; and Johnson, Ryan, & Tian, 2009). Findings from a structured systematic review of 187 publications revealed that the presence of women in top echelon positions is associated with greater engagement in social and environmental projects (Bannò, Filippi, & Trento, 2021). Though, most of the studies (160 out of 187) in Bannò's et al., (2021) systematic review examined the role of female directors, or the role of female CEOs (13); only 24 examined the presence of female managers. Overall, their review revealed mixed results of the relationship between the presence of women top managers and sustainable activities and strategies, which they attributed to the small number of studies. Importantly, in their review, the studies exploring the TMT either failed to identify the role (title) of the women executive (other than the CEO), or used cross-sectional data, while few employed panel data or longitudinal design (e.g., Lu, Chen, & Chen, 2020). Nevertheless, findings reveal that firms led by female CEOs, invest more into environmental sustainability processes (Jiang & Akbar, 2018), pollute less, receive less environmental penalties and have a higher awareness of environmental protection (Wang & Yu, 2019), suggesting that other female executives may too be especially sensitive to, and may influence, decisions concerning certain organizational practices, such as

environmental politics and corporate social responsibility (Nielsen & Huse, 2010).

Given the scant research analyzing the top management team, it seems critical to understand the specific ways in which TMT are structured and how they change over time—specifically whether and how other women top executives influence specific types of corporate illegality over time.

In sum, corporate crime research would benefit from (1) examining the TMT as a unit, including other key executives, as opposed to the CEO in isolation; and (2) examining changes in TMT gender diversity and its effect on different types of corporate offending (other than fraud). All of these gaps will be discussed at greater length in the next section.

Prior to exploring the TMT as a unit, including other key executives, as opposed to the CEO in isolation, I offer a more detailed explanation of the TMT's role and structure.

1.2 Ambiguity in Studies with Regard to TMT Definition

Firms all across the economic spectrum have some form of top management team. In publicly owned companies, the board of directors and its shareholders elect the CEO, and together they select other top leaders who are responsible for managing one or more areas of the company (Canella & Shen, 2001; Hambrick & Canella, 2004; Marcel, 2009; Menz, 2012; Díaz-Fernández, González-Rodríguez, & Pawlak, 2014). Firms typically maintain a Chief Executive Officer (CEO) and a Chief Financial Officer (CFO) position over their organizational lifespans. Depending on specific business needs, however, the number and type of top managers aside from these two senior officers varies greatly from organization to organization. Aside from

the CEO and CFO, other traditional top executives found in firms are Chief Operations Officer (COO), Chief Marketing Officer (CMO), Chief Information Officer (CIO), and Chief Human Resource Officer (CHRO) (McConnell, 2020). These top leaders are sometimes referred to as executives, upper management, higher management, or simply seniors. Each member of the TMT is in charge of developing goals and plans and overseeing the operations of a different area(s) of the organization (Díaz-Fernández et al., 2014), and is ultimately responsible for the performance of the business unit under their control (Canella & Shen, 2001). Thus, a firm's behavior and performance are mostly a function of its top management team, which has the responsibility and the *power* to make most of the firm's important strategic and organizational decisions (Hambrick & Mason, 1984; Carpenter et al., 2004).

The issue of *power* is key for the study of TMTs because more “powerful” executives will be able to exert their preferences and negotiate an outcome more strongly within the group during the decision-making process (Hambrick, Finkelstein, & Mooney, 2005). Executive power can be defined as an individual's ability to exert their will in, and change, firm strategic choices (Finkelstein, 1992; Hickson, Lee, Schneck, & Pennings, 1971; MacMillan, 1978; Pfeffer, 1981a). In this way, strategic change in an organization is the result of power dynamics among several executives that takes place, and can evolve, gradually as power distributions change over time (Murray, 1978). Hence, to fully appreciate how top managers influence corporate offending, researchers must determine which executives have relatively more decision-making power and which have relatively less. Researchers aiming to

objectively measure the slice of power held by executives often realize that managerial power is a multidimensional concept that requires various objective indicators to facilitate empirical measurement (March, 1966; Finkelstein, 1992; Adhikari et al., 2019; Bebchuk, Cremers, & Peyer, 2011). Finkelstein (1992) outlined four key dimensions of power in dominant coalitions: structural power, ownership power, expert power, and prestige power.

Structurally speaking, an executive can only be influential when they are uniquely positioned to do so. If the executive is not positioned to legislatively exert influence based on the hierarchical level of their role, then the executive's power will be limited (Cozier, 1964). Unless decision-making is decentralized,² top-down structures automatically wield the greatest power and responsibility to the chief executive officer (CEO), and then to other executives close to the CEO. As the highest-ranking executive in an organization, the CEO (or president) has to consider the entire business and determine the best course of action for the firm. Besides being the public face of the company, the CEO is responsible for making major organizational decisions, managing the resources of the firm, and working closely with the board of directors to ensure operations are within compliance. However, the CEO's role can vary depending on the company's size, culture, and structure. In large organizations, for example, the CEO is often in charge of making critical strategic decisions that direct the company's overall performance and growth. While in smaller firms, CEOs also tend to be more involved in day-to-day operations. In these various ways, CEOs can set the vision, direction, performance, and perhaps even the culture

² Firms often prefer top-down hierarchical decision-making structures because decentralized structures are often more cumbersome and more time-consuming than top-down approaches.

of their organizations.

Until recently, management and corporate crime research largely focused solely on the role of the CEO, due to its structurally positioned hierarchical rank (title), in offending and other firm outcomes. However, CEOs typically do not make decisions in a vacuum. Instead, they collaborate with other members of the top management team when setting company policy and strategy that affect the direction of the firm (Hambrick & Canella, 2004). For instance, the CEO and chief financial officer (CFO) work closely to source new business ventures while considering the financial risks and benefits of each opportunity and are also required—together—to certify the firm's financial statements. While both executives can be held criminally accountable for misrepresenting the firm's financial statements,³ CFOs are the head figure when making investment decisions because they are directly responsible for analyzing and making recommendations to improve the firm's financial performance. Relatedly, there has also been growing interest in examining the incentives and role of the CFO in a firm's financial offending outcomes (e.g., accounting manipulations) (Feng et al., 2011). Thus, the CEO and the CFO are often viewed as the two executives who have the greatest influence on a firm's financial outcomes.

As mentioned, other common top executives' titles held in S&P 1500 firms besides CEO and CFO, include chief operations officer (COO), chief information or technology officer (CIO or CTO), and the chief marketing officer (CMO). While the top five executives listed above are those most often observed in the sample of firms

³ If the Securities and Exchange Commission (SEC) finds violations or concludes the statements are inaccurate, both executives may be held individually liable, even though a lower-level manager generates the reports (Sarbanes-Oxley Act, sections 302 and 404).

examined in this study and in other management studies, the number of positions and the kinds of titles within the TMT vary from company to company.⁴ Some firms have a chief compliance officer (CCO), chief security officer (CSO), chief green officer (CGO), chief accounting officer (CAO), chief marketing officer (CMO), and a chief technology officer (CTO), among others. Importantly, positions in the TMT change over time depending on the business needs, and changes in firm' diversification and investments (Guadalupe, Li, & Wulf, 2014). For instance, the chief information officer has become customary over the past couple of decades as businesses rely on technology for a variety of processes, like automation and service delivery. Therefore, the types of executives that make up the TMT continue to evolve as organizations adapt to the changing needs of their environment.

Although the CEO is typically considered the most *powerful* member of the TMT by virtue of the highest title, such is not always the case (Mintzber, 1983). Other factors, such as amount of proprietorship or familial links with the founder, can influence the power dynamics and tip the balance to other executives in the top management team. For instance, top managers with large shareholdings have been found to be potentially more influential than the CEO (Zald, 1969; Mehran, 1995; Finkelstein, 1992). Similarly, founding managers, and those with ties or who are related to the founder of the firm or are founders themselves, can have (or be granted) greater ownership power (i.e., capacity as agents) than the CEO, to act on behalf of shareholders (Adams et al., 2005). For example, executives who are founders may

⁴ Most management studies that examine the TMT focus on the top five executives because the federal securities laws only require publicly owned companies to disclose all compensation paid to CEOs, CFOs, and the three other most highly compensated executive officers.

gain power through their long-standing interaction with the board of directors and may use this bond, as well as inside information (Graham et al., 2017), to implicitly exert control over other executives and board members to achieve their preferred goals (Finkelstein, 1992, p. 509). Ownership then is related to both the dollar value held in the company's stock, as well as the executive's position in the information and social network (Pfeffer, 1992).

Expert power is described as an executive's ability to contribute to organizational success and to effectively deal with situational contingencies (Crozier, 1964; Hambrick, 1981; Hickson et al., 1971; Tushman & Romanelli, 1983; Mintzber, 1983). Managers with relevant expertise can have significant influence on a strategic choice that can prove critical to the organization's outcomes (Hickson et al., 1971; Tushman & Scanlan, 1981). Previous studies find that a TMT's educational level is related to corporate strategies that positively impact firm performance and strategic change (Wu, Wei, & Liang, 2011). Thus, researchers often use educational degree (i.e., achievement) as an indicator of expert power because higher educational achievement is representative of an underlying resource (i.e., human capital) that allows firms to devise and implement strategies that improve efficiency and effectiveness (Barney, 1991). However, it is important to note that in addition to education, certain functional areas inevitably require that executives perform specific duties and responsibilities. These assignments in turn may afford these managers the ability to affect specific decisions and outcomes within their business area. These outcomes are then connected to broader firm outcomes of performance and specific forms or offending.

Prestige or status is also an important source of power for top managers. Executives' reputations in their business environment and among stakeholders influence how other managers perceive them and their level of authority (Dalton, Barnes, & Zaleznik, 1968). Institutions external to the firm, like universities, are often looked to for attributing legitimacy and standing to individuals (D'Aveni, 1990; Scott & Meyer, 1983). Attending prestigious universities provides a certain aura of prominence to executives in the business elite (Clement, 1975; Domhoff, 1967). Top managers with an "elite" educational status send out a powerful message to other executives about their personal importance (Unseem, 1979). These "elite" managers tend to be active in institutional governance (Unseem, 1979) and may gain power from external contacts (Ivy League networks), which may provide value to the organization. In other words, prestige provides power through suggesting that the executive has distinguished qualifications and powerful friends (Finkelstein, 1992). Additionally, results from empirical studies indicate that having a TMT with higher average elite education (i.e., an Ivy League school) is positively associated with a firm's financial performance and strategic growth outcomes (Tulung & Ramdani, 2016; Tihanyi, Ellstrand, Daily, & Dalton 2000). Thus, indicators of elite or Ivy League education among top managers can be an indicator of a top manager's greater amount of influence within the TMT.

In addition to using Finkelstein's (1992) four key dimensions of power in dominant coalitions, researchers have since broadened the brush by utilizing pay slice to empirically test whether compensation can capture the comparative structural power of the CEO to that of other members within the TMT. Bebchuck, Cremers and

Payer (2011) used CEO pay relative to the pay of other top managers to measure the influence the CEO has over major decisions including their own propensity of being fired. Pay slice is defined as the total cash compensation of an executive divided by the compensation of the highest paid manager in the same firm.⁵ They found the average CEO's pay slice to be about 35%, meaning the CEO typically earns more than twice the average pay received by the other top four executives. Moreover, they found that a CEO's pay slice was related to many aspects of a firm's performance and behavior; for example, a CEO with a high pay slice resulted in a firm with lower value for their investors and lower profitability, and worse acquisition decisions. Given that a significant portion of an executive's compensation can be contingent upon reaching firm performance goals, executive compensation may play a unique role as an incentive for positive performance. Thus, investors and corporate boards ought to pay more attention not only to the compensation captured by the firms' top executives, but also to how this compensation is distributed among them. Fewer studies, however, have used pay slice to measure the power and influence of specific members in the top management team and how this relates to corporate offending (Adhikari et al., 2019).

In sum, top management team *power* is a multidimensional concept, where specific kinds and amounts are attributed to certain executives that can be measured with objective indicators. However, to date, most governance and crime research still focuses solely on the CEO to study firm outcomes (Finkelstein et al., 2009; Daily &

⁵ According to the Center on Executive Compensation, there are typically six components that make up executive compensation: salary, annual incentives (bonuses), long-term incentives, benefits, perquisites, and severance agreements.

Johnson, 1997; Daily & Schwenk, 1996). Researchers have often used the CEO as a proxy for the TMT, and rarely examine the TMT independently from, or together with, the CEO (Haidt, 2001; Treviño, Weaver, & Reynolds, 2006; Jaw & Lin, 2009; Richardson, Buchholtz, & Gerard, 2002). These studies assume that the CEO alone either accurately represents the entire TMT, or makes decisions in a vacuum, at which point the values, perspectives, and strategic inclinations of other members of the “team” become irrelevant. In actuality, however, the CEO often heavily collaborates and relies on other top managers when making strategic decisions that may impact firm outcomes, including offending (Arendt, Priem, & Ndofo, 2005; Carpenter et al., 2004; Peterson, Smith, Martorana, & Owens, 2003; Jensen & Zajac, 2004). What is more, recent work finds that the interests of CEOs and other top executives do not always coincide (Jensen & Zajac, 2004). Hence, researchers focusing solely on the CEO may miss the unique values and influence that these other key players have in the direction of the firm. As a result of these gaps, little is known about how changes in the TMT as an aggregate affect corporate misconduct.

When Hambrick and Mason (1984) introduced the UE perspective, they stressed the importance of studying the entire TMT as a unit, as opposed to examining the CEO in isolation. Early studies comparing explained variance using the CEO or a broader group of top managers consistently found that the latter unit of analysis yielded superior results (Bantel & Jackson, 1989; Finkelstein, 1988; Hage & Dewar, 1973; Tushman, Virany, & Romanelli, 1985). As such, management scholars argue that the “characteristics and functioning of the TMT have far greater potential for predicting organizational outcomes than do the characteristics of the CEO

(Hambrick et al., 1996), and, therefore, the TMT as a unit is the most appropriate level of analysis to use when studying firm outcomes (Finkelstein, Hambrick, & Cannella, 2009). The literature on measures of power will be further discussed in Chapter 3 of this dissertation.

In addition to issues of definitional ambiguity regarding the TMT, and the resulting lack of studies on the distribution of power within the team and effects of other executives on corporate offending outcomes, corporate crime research has also raised the issue of the role of women executives, and changes in TMT gender diversity, on firm-offending outcomes.

1.4 Lack of TMT Diversity

Governance researchers exploring the TMT consider executives' diversity a key factor to understand firm performance changes. More so now, the composition of the global workforce is changing, which has resulted in organizations that are increasingly diverse (Valenti & Rockett, 2008; Van Knippenberg & Schippers, 2007; Pitcher & Smith, 2001). Despite this recent progress, women are still underrepresented at the top of the corporate hierarchy (Powell & Butterfield, 1994), which means that TMTs are still not as diverse as the firms they lead. As of 2020, women in S&P 500 companies still account for less than a third of executive- and senior-level managers overall (Catalyst, 2020), and this figure has remained stable in recent years. Nevertheless, groups that are more diverse also tend to have different knowledge and points of view, which allows them to consider a wide-ranging set of solutions, and raise previously unexplored perspectives, in turn leading to better decisions (Hoffman & Maier, 1961; Wiersema & Bantel, 1992). This is particularly

true in decision-making groups tasked with evaluating intricate information, such as the top management team (Van Knippenberg et al., 2004).

Nevertheless, it has been widely recognized that TMT diversity plays a major role in firm performance (Akewushola, Elegunde, & Saka, 2018; Bach & Lee, 2018; Oduor & Kilika, 2018). However, there is still less consensus and continued debate regarding the mechanism(s) underlying the relationship between demographic and managerial traits and firm outcomes (Hope, Eisenhardt, & Xin, 1999; Lawrence, 1997; Simons, Pelled, & Smith, 1999; Boone, Lokshin, Guenter, & Belderbos, 2019; Buyl, Boone, Hendriks, & Matthyssens, 2011; Mohr & Batsakis, 2018; Nielsen & Nielsen, 2013). That is, findings and conclusions from this literature, when considered in aggregate and when focusing on different environmental and methodological issues, are often (and still to date) seemingly contradictory (Pelled, Eisenhardt, & Xin, 1999; Smith et al., 1994; Tihanyi, Ellstrand, Daily, & Dalton, 2000). For instance, using 15 years of panel data on the top management teams of the S&P 1500 firms, Dezsö and Ross (2012) found that representation by women in the TMT was positively associated with a measure of firm performance (i.e., Tobin's Q). They conclude that representation by women in top management is related to improved managerial task performance but only to the extent that a firm's strategy is focused on innovation. Other studies find women executives to be associated with negative financial outcomes in firms. For instance, Lee and James' (2007) study found that hiring a woman CEO is associated with a negative stock price reaction. The results become even more nuanced when introducing other firm factors. For instance, findings indicate that TMT gender diversity has a positive effect on

employee productivity, but only in firms with a low level of board gender diversity (Luanglath, Ali, & Mohannak, 2019). While there may be a clear moral argument for increasing diversity among top management teams (TMTs), such findings regarding TMT gender and firm performance outcomes say more about the complexity of the phenomena of interest than anything else.

Despite the seemingly contradictory findings in the management literature regarding the relationship between women executives and firm performance, criminologists largely agree that gender is a key predictor of criminal outcomes (e.g., Steffensmeier and Allan, 1996). This body of research suggests that women engage in less crime—both street crimes (e.g., robbery) and white-collar crimes (e.g., fraud)—than men. Numerous studies have also shown that women are generally more risk-averse than men (Steffensmeier & Allen, 1996; Brooks, Faff, Mulino, & Schellings, 2009; Palvia, Vähämaa, & Vähämaa, 2015), and they tend to be more trustworthy and more compliant with rules and regulations (see, e.g., Baldry, 1987; Barnett et al., 1994; Bernardi & Arnold, 1997; Fallan, 1999; and Beu et al., 2003). Recent evidence also suggests that women top managers adopt safer corporate policies (see, e.g., Faccio et al., 2016; Francis et al., 2015), and are less likely to take part in corporate crime and fraud (Steffensmeier, Schwartz, & Roche, 2013). At the same time, women's higher degree of risk aversion may explain why, even though more women now work in corporations and serve at higher levels of those organizations, they are still under-represented in high-level positions. Thus, there is reason to believe that if women are less likely to offend, TMTs with a larger proportion of women will have fewer offenses. Furthermore, not only do women seek less risk (Croson & Gneezy,

2009) and possess more prosocial values (Steffensmeier & Allen, 1996), they also have different ways of making decisions (Powell & Ansic, 1997). Explanations for this vary.

These gender differences in decision-making are evident at the biological level. A 2007 study from researchers at the University of Zurich's Department of Economics looked at the areas of the brain that are active when prosocial and selfish decisions are made (Soutschek, et al., 2017). Their findings show that the striatum, which is responsible for the assessment of reward and is active whenever a decision is made, was more strongly activated in women's brains during prosocial decisions than during selfish decisions. Men's brains showed a stronger activation of the reward system when making selfish decisions. However, the researchers state that this finding—that prosocial behavior triggers a stronger reward signal in women, and selfish behavior triggers a stronger reward signal in men—does not mean that these differences are innate or of evolutionary origin. Rather, it may mean that there is cooperation between the reward and learning systems in the brain.

Other explanations for why men are much more involved in corporate crime compared to women are that men and women may have different core values that prompt them to take risks, as well as differential opportunities to engage in such behavior (Steffensmeier et al., 2013). While men may take risks for financial and status reasons, women may not be motivated to take risks for those goals. These differences in goals (by gender) are rooted in gendered focal concerns theory, which argues that women are socialized to a higher ethic of care. That is, men are socialized to be more independent and competitive, while women are socialized with high

expectations of being more responsive to others' needs and more concerned with cultivating social relationships, with a general greater emphasis on moral virtues (England, 2005; Gilligan, 1982). Concern for others, in turn, also translates to women's greater hesitancy to engage in actions that are damaging to others. Thus, women are not necessarily less amenable to risk; rather, they are socialized to take fewer risks for financial and professional advantage. Empirical studies show that, from a young age, girls are rewarded with praise for prosocial behavior, implying that their reward systems learn to expect a reward for helping behavior instead of selfish behavior. Thus, this gender difference could best be attributed to the different socialization and cultural expectations placed on men and women, with society disapproving of women who deviate because they are seen as nurturers, leading to women being socialized to cooperate and be more responsive for the needs of others. In this way, it is more difficult for women to justify legal wrongdoings because this behavior is more compatible with men's focal concerns (Messerschmidt, 1997).

In addition to differences in motivations, risk preferences, or moral stances, women may also have less opportunities for corporate financial fraud partly because they still lack similar access than men to top corporate positions, and have little access to the conspiracy networks executing these acts of fraud and corruption (Steffensmeier et al., 2013). Steffensmeier et al., (2013) finds that these networks are male dominated partly because male criminals have a tendency to not find females to be "trustworthy" criminal partners. In this way, this glass ceiling effect for representation at the top translates into even poorer representation in groups involved in corporate corruption. Thus, this "cultural-social" perspective also allows for

opportunities to learn criminal values and skills, namely in terms of self-fulfilling prophecy effects of imposed social control processes. That is, the gender gap in top-level positions at work results in both women having less access to criminal learning and a greater consistency between male stereotypes and behavioral labels.

Similarly, general strain theorists argue that the gender gap can be explained by looking at how differently each gender responds to various strains (Broidy & Agnew, 1997). The literature suggests that women experience as much or more strain than do males (e.g., Wagner & Compas, 1990; Mirowsky & Ross, 1995; Turner, Wheaton, & Lloyd, 1995), but experience different types of strain (Jordan, 1995; Beutel & Marini, 1995; Jones, 1991) and have adapted to deal with strain in very different ways. Specifically, women are more concerned with family and maintenance of relationships (i.e., interpersonal problems), whereas men are said to be more concerned with material success and extrinsic achievement (i.e., financial stressors) (Conger, Lorenz, Elder, Jr., Simons, & Ge, 1993; Cernkovich & Giordano, 1979). Given these different types of concerns, women are also more likely to have prosocial supports and certain personality characteristics that affect the relationship between anger and crime. All of this produces a situation that, while women may experience similar numbers of strains as men, they are less likely to have the experience of feeling strain, and when they do, they may deal with it in ways that are less conducive to crime. This argument is partially rooted in similar internalizing/externalizing arguments seen in biological theories of crime. Externalizing behavior is more common for men than women. Thus, men are going to just naturally prefer coping mechanisms that affect others, not only themselves. While women may adapt to their

strain by internalizing it into a different emotional response which may lead to depression or drug use, for instance. Moreover, the types of financial strain experienced by men may also be more likely be conducive to criminal and violent outcomes. Thus, men may be more likely to turn to exteriorizing behavior-taking action in the way of crimes, such as property crimes, fraud, embezzlement, not only to mitigate the anger/frustration over the failure to achieve financial goals but also to resolve the matter (i.e., achieve their goal). Nevertheless, Broidy and Agnew argue that several types of strain may lead women to engage in crime under the proper circumstances (1997). Steffensmeier and Allan (1995) find that there has been an increase in property crimes, which corresponds with the finding that women have also experienced increased levels of financial strain in recent decades. As a result, TMT gender diversity may be especially important when firms are faced with factors and situations that have been found to increase the risk of corporate crime.⁶

While excessive diversity may cause problems with communication (Wiersema & Bantel, 1992), this issue may not affect most top management teams because the number of teams with more than a small fraction of women is exceptionally small. Only a handful of TMT studies have examined changes in the *plurality* of women executives in TMTs using longitudinal data (Nielsen, 2010). This is especially problematic for this line of research because TMT members, as a group, change over time, and top management teams have continued to diversify in recent

⁶ Due to its specific position and function in the firm, the TMT is always focused on performance. For example, homogeneity may be problematic during phases of industry-specific economic scarcity, in which companies seeking to survive in their market engage in undue risky decisions (Simpson, 1986). Having more females on the TMT may be beneficial for companies during challenging economic periods but may not be as beneficial during periods of economic affluence, when companies seek to invest in research and development or innovation.

years. In this case, the simple presence of one woman on the TMT may not affect behavior so much as the increasing *plurality* (i.e., plurality) of women on the TMT. Thus, longitudinal data are needed to appropriately examine whether cumulative representation by women influences team decision-making and firm outcomes over time.

In sum, studies have found diversity to be both a benefit and challenge to organizational performance (Bell, Villado, Lukasik, Belau, & Briggs, 2011; Van Knippenberg & Schippers, 2007). However, less is known regarding the effect of TMT gender diversity on corporate offending. Thus, a primary goal of this dissertation is to better understand the nature of the relationship between TMT diversity and firm offending over time.

1.5 Types of Corporate Illegality

Another goal of this dissertation is to investigate whether the TMT offending relationship varies depending on the nature of the corporate illegality, and on certain TMT characteristics. Criminologists and political scientists have separated the types of corporate and white-collar violations into two broad categories: environmental or financial. This division is driven largely because each produce or is related to a different form of regulation and control, either “Social Regulation” (environmental), or “Economic Regulation” (financial) (Simpson & Yeager, 2015). Securities and anti-trust violations, such as anti-competitive, bribery, and accounting violations, are similar in that they deal with violations related to market control and financial manipulations. These violations include reducing competition that results in higher prices, reduced quality or levels of service, or less innovation, price fixing, group

boycotts, and exclusionary exclusive dealing contracts or trade association rules, manipulations of financial statements, payments or anything of value to any person to influence the official in his or her official capacity. Given that these violations require knowledge of the market and access to networks of influential individuals, these violations are often orchestrated and executed by individuals occupying high ranks in organizations who either have the access and decision-making authority or the influence to engage in more complex violations (such as bribing a high government official). Environmental violations, on the other hand, deal with laws intended to protect the environment and human health. Nevertheless, aside from cases of negligence, environmental violations are also at times perpetrated with the intent to save/earn money by behaving in a manner that pollutes the environment, such as postponing investment in water-cleaning equipment or inappropriately disposing of hazardous waste in a river (Cassidy, 2009). However, it is important to note that the two offense types can (and do) result in all three types of government responses (i.e., criminal, civil, and regulatory). Bannò's et al., (2021) systematic review examined the role of female directors, or the role of female CEOs (13); only 24 examined the presence of female managers. Overall, their review revealed mixed results of the relationship between the presence of women top managers and sustainable activities and strategies, which they attributed to the small number of studies. This clear distinction between these violations has prompted many researchers to ask whether different TMT characteristics are related to higher or lower levels of environmental and/or financial violations.

Studies focusing on TMTs often find positive environmental and financial

outcomes such as greater environmental and social commitments (Bannò's et al., 2021; Buil-Fabrega et al., 2017), and better quality of financial disclosures and accounting compliance (Plöckinger, Aschauer, Hiebl, & Rohatschek, 2016) for female managers. However, most of the studies that examine the relationship between executive gender and environmental or financial violations focus solely on the CEO and/or the CFO, either together or in isolation, largely ignoring other key executives (Bannò, Filippi, & Trento, 2021; Plöckinger, Aschauer, Hiebl, & Rohatschek, 2016). What is more, no study (to my knowledge) has explored whether other characteristics of women executives (e.g., educational achievement) are related to fewer future environmental or financial violations. Thus, it is not clear whether, and how other women executives, and their characteristics, affect firm involvement in environmental or financial violations.

Firms often respond to large-scale incidents of publicized misconduct by dismissing senior executives in the organization or a director on the board (Farrell & Whidbee, 2002; Hersel et al., 2019). Adverse media coverage can produce pessimistic public opinions on firm performance (Farrell & Whidbee, 2002), which may affect directors' expected benefit of retaining a CEO. Aside from negative media coverage, CEO turnover also tends to occur after bad firm performance (Gibbons & Murphy, 1990; Jenter & Lewellen, 2019). Despite being underrepresented as CEOs, women CEOs have a greater turnover rate than men CEOs; yet this gender difference in turnover is not explained by firm performance (Gupta et al., 2020). Recent evidence from Ferraro's (2021) empirical study, finds that firms led by women and outsider CEOs receive more negative coverage for negative performance events than when a

company is led by a man or insider CEO. This higher negative coverage explains around 15% of the differential turnover rate in women-led firms, even when women are as effective at running the organization as their male counterparts (Ferraro, 2021). That is, this percentage represents the gap not accounted for by observable firm performance or sorting across firms. Relatedly, Lee and James (2007) found that although a firm's stock prices did not change after the appointment of women to other top executive positions, they did react negatively to the appointment of a woman CEO. The finding that women leaders are perceived and treated more harshly both by the media and by investors than men CEOs, points toward challenges for improving diversity in the top management team, a goal that in fact may increase overall firm efficiency (Hsieh, Hurst, Jones, & Klenow, 2019). Yet, in some cases, the leadership change can signal a change in the firm's direction, such as the need to bring in an executive with a strong background in R&D and innovation, for example. A central research question at the heart of this dissertation asks whether, and how, past changes in women executives characteristics predict changes in environmental or financial violations the next year?

1.6 Dissertation Contributions

This dissertation contributes to the corporate crime literature in several ways. First, my research is guided by key concepts from the Upper Echelons framework. An important implication of UE theories is that executive characteristics affect firm performance. Though the majority of TMT research using this framework has overlooked the importance of gender, characteristics of other key executives', as well as historical changes (e.g., political shifts, economic cycles) in influencing corporate

offending behavior. As a result, little is known regarding the effect of women, and other executives, on firm illegal behavior, limiting practical implications for firms. I not only consider changes in TMT gender diversity, but I also account for key historical changes (i.e., gender pay gap and political party changes) that are most likely to affect corporate offending outcomes, and test this relationship using longitudinal data, which constitutes a more stringent test of theory.

I propose to first identify those unique concepts that underlie the upper echelons theory and how they intersect with what we know about crime and corporations. Specifically, I discuss how and why gender is a key executive characteristic that must be examined when predicting corporate crime. Finally, using this theory, I empirically explore change in the gender diversity of top management teams and consider whether and how those changes are related to corporate involvement in illegal behavior.

The longitudinal data were created as part of a multiyear research project aimed to unite data on firm characteristics; corporate boards; and incidents of accounting fraud, bribery, anticompetitive behavior, and environmental offending. Data are based on approximately 3,300 U.S.-based companies (S&P) that were publicly traded in years 1996-2013. Companies in the sample include both offending and nonoffending companies. There are a number of benefits of using longitudinal data. Unlike a cross-sectional study in which different companies with same characteristics are compared, panel data tracks the same companies over time. Because of the repeated observations at the individual level (companies), panel data has more power than cross-sectional observational studies in terms of being able to

exclude time-invariant, unobserved individual differences (i.e., control for individual heterogeneity) and observing a certain event's temporal order. These data allowed me to address these specific questions while properly accounting for temporal order, which is the first step toward learning about the relationship of cause and effect.

Second, by theorizing and examining TMT power through the lens of changes in TMT gender diversity, I aimed to unpack whether certain characteristics of women executives are part of the mechanism(s) effecting offending or changes in the TMT. My analyses will include assessing the extent to which key salient characteristics (e.g., educational achievement, compensation, gender) of the top executive team impact this relationship, while controlling for other known internal and external antecedents of corporate crime. However, the gender-crime relationship may not be as simple as simply adding one woman to the TMT. Using multiple measures of power, I examined whether women executives become, or are intentionally placed as, a "token" for the firm's "law-abiding" window-dressing strategy (Erkut, Kramer, & Konrad, 2008). The results of this question may give researchers a better understanding of whether and how women leaders influence the way in which firms behave over time. The idea that the skills, knowledge, and experience possessed by executives add value or cost to an organization is consistent with Hambrick and Mason's (1984) Upper Echelons perspective, and with recent research suggesting that a firm's human capital has critical implications for various firm performance outcomes (Crook, Todd, Combs, Woehr, & Ketchen, 2011). I adopted the UE perspective to examine the influence of TMT gender diversity on firm-offending outcomes, while considering and controlling for other factors known to influence

corporate offending. This shift in focus can serve as the launching pad for researchers to provide meaningful insights as to how to motivate firms to select executives in a way that discourages misconduct.

Third, as previously argued by Finkelstein et al. (2009), and in relation to the current study, diversity can be expected to lower the risk of firm offending to the extent that a woman member or female aggregate of TMT has high decision-making power. That is, executives' gender characteristics may influence firm offending generally (Hambrick & Mason, 1984), though this effect should be stronger when executives are given more power. I examined multiple components of power to better understand how the structure (aggregate) of the TMT is changed by the addition of women to it. Specifically, I examined gender diversity tokenism (only one) versus plurality (two or more), and the type and amount of power that women TMT members have within the TMT. This extends prior management work by questioning whether the presence of women alone makes a difference in offending outcomes, or if it is the presence of *more powerful* women within the TMT that affects the relationship.

Fourth, critics argue that demographers often use untested subjective concepts to explain the relationship between demographic variables and various organizational outcomes (Lawrence, 1997), and often fail to explore the mechanisms that facilitate these potential relationships. As such, these concepts remain untested, and their context and timing continue to be unidentified. By considering *power*, I examined a potential mechanism underlying the influence of gender diversity on organizational offending outcomes. This explores the mechanisms behind diversity's effects, rather

than simply testing its existence, thereby enhancing the UE perspective (Hambrick & Mason, 1984).

Finally, little is known about the effect of TMT changes on different types of corporate crime. Moreover, most of the corporate crime research to date has focused on whether individual executives, mainly the CEO and CFO, and their characteristics relate to financial reporting choices exclusively (i.e., accounting fraud) (Plöckinger, Aschauer, Hiebl, & Rohatschek, 2016). Thus, little is known regarding whether and how changes in other top executives and their characteristics may be associated to future increases or decreases in other types of corporate crimes. My dissertation explores this question using a more holistic and general perspective of outcomes, including environmental and financial violations (i.e., anticompetitive, bribery, and accounting). As suggested by Plöckinger and colleagues (2016), if executives pursue earnings or other goals (e.g., diversification, growth), they will likely try to achieve such targets by capitalizing on opportunities other than accounting regulations. Several studies find no evidence of the effect of gender diversity at the top (board and TMT) in curbing corporate crime. However, Adhikari and colleagues (2019) recent study revealed that firms where women have more power in the top management team, as measured by women executives' plurality and pay slice, face fewer operations-related lawsuits. In this dissertation, I shed light on this recent finding by examining whether other forms of illegality, such as environmental, financial, and anticompetitive offenses, are similarly affected.

In sum, many corporate crime scholars have attempted to apply insights from criminological work more generally. As a result, the bulk of studies and explanations

for corporate offending thus far is based on rational choice and deterrence theories (Paternoster & Simpson, 1993, 1996; Simpson & Piquero, 2002; Piquero et al., 2005a; Smith et al., 2007; Bertrand et al., 2014), routine activities (Ocasio, 1999; Ashforth & Anand, 2003; Collins et al., 2009), strain theories (Passass, 1990; Keane, 1993; Simpson & Koper, 1997; Simpson, 2002; Agnew et al., 2009; Mishina et al., 2010; Wang & Holtfreter, 2011), and neutralization (Ashforth & Anand, 2003; Piquero et al., 2005b; Vieraitis et al., 2012), among others (Greve et al., 2010). The challenge in trying to explain corporate crime with such theories is that these efforts centered on how differences across individuals produce changes in criminal activity. The upper echelons theory sees the TMT as a *unit* and emphasizes the continuity and change of this unit (individual) in relation to organizational, industry, and historical forces. In management, the upper echelons theory has been extensively used to examine and explain how particular managerial characteristics are related to changes and differences in firms' strategic choices (e.g., diversification, acquisition) and performance outcomes (e.g., Certo, Lester, Dalton, & Dalton, 2006; Finkelstein et al., 2009; Nielsen, 2010), but applications of upper echelons theory to questions related corporate crime to have emerged only recently (Hiebl, 2014), and have for the most part exclusively examined finance and accounting irregularities (for a review of these studies see Plöckinger, Aschauer, Hiebl, & Rohatschek, 2016). Thus, management and corporate crime researchers could benefit from applying key concepts and findings from upper echelons to study other types of offending, and other top managers, in corporations. Upper echelons theory (traditionally used in management) may offer theoretical and empirical value for explaining changes in the offending of

corporations.

I propose to first identify those unique concepts that underlie the upper echelons theory and how they intersect with what we know about crime and corporations. Specifically, I discuss how and why gender is a key executive characteristic that must be examined when predicting corporate crime. Finally, using Hambrick and Mason's (1984) upper echelons theory, I empirically explore change in the gender diversity of top management teams and consider whether and how those changes are related to corporate involvement in illegal behavior.

In the next chapter, I first define the corporation, and some key corporate crime concepts, and then provide a theoretical framework to understand changes in corporate crime.

Chapter 2: Corporate Crime and the TMT Context

This chapter will first discuss the purpose of corporations, and definitions of corporate crime. Then, I will examine how the entity shares some legal parallels with individuals and whether this mirrors in some ways the findings from the literature on individual offending. The chapter will then expand on the definition of the TMT, and the theory that frames the TMTs firm offending relationship.

2.1 Definition of the Corporation

A corporation is generally defined as a company or group of people authorized to act as a single legal entity (legally a person) that is separate and distinct from its owners and recognized as such in law. Key to this dissertation, is the distinction that corporations can be either public or private entities. Public companies—often referred to as publicly traded companies—are entities whose shareholders have a claim to a portion of the company's profits and assets. Ownership of a public company is allocated among general public shareholders via the free trade of shares of stock on stock exchanges, or over-the-counter (OTC) markets. In addition to trading securities on public exchanges, publicly traded companies are also required by the U.S. Securities and Exchange Commission (SEC) to regularly release its business and financial statements to the public. Pension plans or mutual funds are often invested directly in public companies. However, most public corporations were previously private companies that were often owned by their founders, management, or a group of private investors.

A key difference between public and private companies is that publicly traded companies face increased regulatory scrutiny by government agencies, as well as

administrative and financial reporting obligations. Unlike publicly traded companies, the SEC does not require private companies to publicly report information.

Corporations must follow SEC public reporting requirements once they either (1) sell securities in an initial public offering (IPO), or (2) their investor base reaches a certain size, or (3) voluntarily register with the SEC. An IPO is the process by which a private company goes “public” by offering shares to the public in a new stock issuance. While going public often provides a company with the capital needed to grow, it also means that now the company must answer to its shareholders. However, shareholders do not directly supervise the firm’s activities, but instead elect a or appoint board of directors to jointly oversee the company's operations on their behalf. Thus, directors are elected to represent shareholders’ interests, and among other things are in charge of hiring and firing senior executives, handling executive compensation, and dividend and options policies. Members of the board are the primary source of governance and oversight for public companies, whose primary responsibility is to ensure that the firm’s strategic decisions and the implementation of these decisions do not violate the law. Hence, directors are responsible for oversight of management's actions to ensure that the company's vision is being adhered to.

Importantly, by being separate and distinct from its owners, a corporation offers *limited liability* to those shareholders that own a piece of it. In this way, shareholders can receive profits (and losses) through dividends and stock value but are not personally liable for the company’s debts or wrongdoing. Although they are considered owners of the company, and have certain rights such as voting at

shareholder meetings to approve things like dividend distributions, changes in membership of the board of directors, or mergers, shareholders do not manage a firm's operations. Instead, a group of top managers is responsible for making organizational and strategic decisions, and for managing the company's core business operations as a whole. These top executives make collective judgments via open dialogue, conflict resolution, and collective work to come up with broad corporate policies that are mainly focused on achieving specific performance results (e.g., profit, growth). In sum, while many definitions exist, most business scholars agree that corporations are a body of people recognized by law and authorized to act as a single entity (legally a person), through which they can contribute and collaborate toward a specific goal—often, the main purpose is profit maximization (Monks & Minow, 2011). Unlike individuals, however, organizations can continue to exist beyond the people that currently form and manage them.

Similar to individuals, corporations can be and are held accountable for violations of law. However, criminal courts initially restricted the term “person” to entities for which it is possible to attribute intentional attitudes (*mens rea*) and, hence, established that a corporation does not have a mind distinct from its members and therefore cannot be persons for purposes of criminal law. The courts later circumvented this conceptual hurdle by importing vicarious liability from tort law into criminal law (Brickey, 1982). Specifically, the courts used the doctrine of *respondeat superior*, which states that, “a master is subject to liability for the torts of his servants committed while acting in the scope of their employment.” (Restatement (Second) of Agency § 219, 1958). Equating *respondeat superior* to the corporate

context, courts ascribed to the corporation the actions and intentional attitudes of an employee acting in the scope of their employment. Hence, corporate crime is an organizational behavior, and its explanation requires an organizational level of analysis (Kramer, 1982). In fact, early research found that corporate patterns of offending often continue well after the life course of key individuals (e.g., CEOs, founders, owners, directors), which implies there may be a unique criminogenic attribute about the organization which can continue in spite of, and is independent of, the people who work there (Sutherland, 1949).

Still yet, corporations are made up of individuals. Most large corporations are governed jointly by a small group of top managers and a board of directors. However, unlike members of the board, TMTs have direct knowledge of the firm's issues, operations, and mechanisms. Frequently, board meetings are occasions for formal ratification of the policies already approved by the top management team. On occasion, important decisions may be made by management and not put to the board for review or approval.⁷ Many top managers, especially CEOs, often serve on the board of the companies they lead, creating a lack of independence between the board and the top management team (Gulati, Nohria, & Mayo, 2013). Independent directors are better positioned to objectively monitor firm managers and their policies, and to restrain any opportunistic executive behavior (Fama & Jensen, 1983; Hambrick, Misangyi, & Park, 2015; Zahra, Priem, & Rasheed, 2005). Some scholars argue that because directors are not sufficiently independent from the TMT, and because the board is not embedded nor sufficiently knowledgeable of the daily company

⁷ As was claimed during the 1990 Guinness company's acquisition trials of Distillers (Stewart, 1993).

operations, the board is not an effective mechanism to control corporate crime (e.g., Brickley & Coles, 1994; Eisenhardt, 1989; Fama & Jensen, 1983; Finkelstein, Hambrick, & Cannella, 2009; Jensen & Meckling, 1976). Importantly, a major reason why TMTs have the ultimate control for the direction of the firm is that, unlike directors, top managers can be held directly accountable for the firm's misbehavior.⁸ Directors, however, are legally responsible to satisfy their fiduciary duties within the bounds of the law, but they are not legally responsible when the company fails to comply. Most management scholars agreed early on that because top managers are tasked with setting the strategic direction of the firm (Thompson, 1967), they are also responsible for corporate illegal activities that result from their decisions or systems (e.g., incentives) they have put in place (Clinard, 1983; Agrawal et al., 1999; Desai & Dharmapala, 2004). Because of their legal responsibilities, embeddedness in day-to-day company tasks, and strategic duties, I argue that TMTs, not the boards, hold the decision-making power that dictates firm outcomes, including offending.

2.2 Definition of Corporation Crime

The definition of what constitutes “corporate crime” still varies widely in the criminology literature (Rorie, Alper, Simpson, & Schell-Busey, 2018). Some scholars argue that this definitional ambiguity is appropriate to best capture the phenomenon and to increase construct validity (Braithwaite, 2016). Others maintain that a clear

⁸ Under Dodd-Frank, the SEC can now bring a claim for aiding and abetting a violation of any of the federal securities statutes without having to establish that the accused party acted with “actual knowledge.” For instance, the CFO has to certify that the firm's financial reporting is accurate. If the reporting is irregular, they can face penalties for it. However, the CFO does not directly prepare the report. Instead, a team of professionals prepares all of the company's historical financial reports required for the SEC. Thus, a CFO who simply fails to supervise subordinates adequately, or merely certified corporate financial statements that later had to be revised due to another employee's wrongful conduct, can face civil and criminal consequences.

definition of “corporate crime” provides a foundation to examine specific questions, such as which type of sanctions are more effective at deterring different kinds of corporate offending, and allows researchers to build knowledge over time and draw conclusions to guide criminal justice policy (Simpson, 2018; Rorie, et al., 2018). Siding with the later, I define corporate crime in terms of the “conduct of a corporation, or of employees acting on behalf of a corporation, proscribed and punishable by law” (Braithwaite, 1984:6). Specifically, corporate offenses can include such illegal acts directed at competitors, employees, consumers, the government, or society more broadly. This study includes bribery, accounting fraud, environmental, and anticompetitive violations, pursued and sanctioned in criminal, civil, and administrative legal venues.

Acts of wrongdoing, whether they be fraud or just not operating consistently with company mission and values (violating stakeholders’ expectations and societal norms), often persist in the organization’s culture and structure. Organizational culture generally refers to a set of shared beliefs and values established by leaders, including but not limited to management style (Schein, 1990). Findings suggest that organizational culture influences individual norms and social norms concerning illegal behavior (Gorsira, Denkers, and Huisman, 2018). The type of policies that executives endorse can influence the *ethical tone* set at the top of the organization (Clinard, 1983, 1990; Simpson, 1992; Jenkins & Braithwaite, 1993). Therefore, employees who perceive the culture of their firm as being less ethical also tend to experience weaker personal and social norms to refrain from wrongdoing. Guided by these ideas, Simpson and Koper (1997) examined whether managerial succession

influenced the levels of corporate antitrust offending of 43 manufacturing companies over 22 years. Their findings revealed that turnover in top management (CEO change) generally decreased offending levels regardless of the context in which the turnover occurred. “Any turnover in management, whether planned or unplanned, acceptable or conflictual, would affect firm offending for a brief time leading up to and following management turnover,” because employees are waiting to see what the new company “tone” will be (Simpson & Koper, 1997, p. 394). That is, top management’s philosophy affects how the firm defines and tolerates wrongdoing, and, in turn, changes in top management can influence future offending levels. However, Van Rooij and Fine’s (2018) qualitative assessment of major corporate scandals led them to conclude that changing a toxic culture requires a complete overhaul of the values and practices that allowed organizational wrongdoing to take place, and must go beyond holding responsible leaders accountable and replacing them.⁹ Therefore, changes in top management might not be enough to shift the offending patterns of a company. Firms where top management allows misconduct to occur, either through direct involvement in the misconduct or by failing to implement procedures that would minimize wrongdoing, are often caught in patterns of misconduct (Simpson & Schell-Busey, 2009). It is possible that there are stable differences in companies that are related to both top management team structure and offending. Additionally, state dependence on the part of both companies and regulators may mean that firms that previously offended may be more likely to be

⁹ In the past decade, regulators have increasingly highlighted the importance of corporate culture in preventing misconduct and have placed direct oversight responsibility on both top executives and boards of directors, to ensure they promote a sound culture within their firm (Office of the Comptroller of the Currency, 2016).

caught reoffending, artificially widening differences in offending across groups (Simpson & Schell-Busey, 2009). While many incidents of corporate misbehavior result in new laws and policies being put into place to discourage further misconduct, many organizations continue to cross the line.

Similar to findings from studies of criminal careers of individuals, recent research on corporations also suggests both stability and change in offending patterns. However, some early studies did not find these same patterns (See for example: Sutherland, 1949; Clinard & Yeager, 1980). Using longitudinal analyses like those applied to study offending patterns of individuals, recent studies reveal that few firms have well-established and diversified criminal careers, while most offend intermittently, or are mostly compliant (Simpson, Garner, & Gibbs, 2007; Hunter, 2021; Simpson, Layana, & Galvin, forthcoming). This finding is similar to what has been found in patterns of individual offending – few highly diversified offenders commit the bulk of the crime. Simpson and colleagues (forthcoming) utilized trajectory analysis to examine the corporate offending patterns of the same sample of firms included in this dissertation. Their results revealed three distinct patterns of offending among large corporations. The largest group was made up of over 80% of firms that never or very rarely offended (one or two times) during the years observed. This was followed by a second group made up of firms that still rarely offended, but were more consistent in their engagement, at 0.5 or so offenses per year. Over time this group experienced a small decline even at this already low rate. The last group was made up of very few firms that offended at a very high and consistent rate. These firms, however, had a high rate of offending at the beginning of the observation

period but then slowly, and inconsistently, declined in their offending rate. The authors argued that these findings suggest that these changes “are likely predicated by a significant *transition*, serving as *turning points* in their criminal careers.” This observation is grounded on the findings from individual offending patterns, in which major events, like a good marriage or job, cause changes in previously established offending patterns (Laub & Sampson, 2001). Hence, they suggested that these major corporate events, such as malfeasance scandals or changes in TMT, could mark turning points that signal a change in priorities and can have an enduring influence in the firm’s trajectory. They point out, however, that similar events could affect firms differently, depending on when (timing) in the company’s life they occur (if they occur at all).

This next section provides definition of the TMT and a review and justification for using Hambrick and Mason’s (1984) Upper Echelons (UE) theory to examine the relationship between changes in managerial characteristics and firm offending outcomes. The chapter closes with an argument as to why corporate crime scholars can benefit from using this framework to study organizational offending.

2.3 TMT Definition

As briefly mentioned during the introduction, while top executives are individually accountable for the performance of their business unit, they are also primarily responsible for broad corporate strategy, policy, and objectives. Further, because firms’ main goal is often profitability, a team’s purpose and goal is (usually) closely focused on specific performance results (Katzenbach, Anderson, & Thomas,

2019). Additionally, while top executives exercise personal judgment about strategic choices, risks, and resources, as a team, they make collective judgments by means of open dialogue, conflict resolution, and collective work (Katzenbach & Inayat-Khan, 2010). Lastly, top executives are usually chosen and assigned based on the specific skills required by the task at hand and business unit (e.g., A Chief Accounting Officer with a CPA degree is tasked with accounting matters and responsibilities). In these ways, top executives are critical to overall company performance

However, despite over forty years of TMT research, in terms of application, the empirical definition of the TMT varies considerably and often goes undefined in TMT research (Carpenter et al., 2004; Certo, Lester, Dalton, & Dalton, 2006; Krause, Roh, & Whitler, 2022). There is some consensus in that the TMT embodies the small group of top executives with overall strategic responsibility for the organization (Mintzberg, 1979; Finkelstein et al., 2009), but aside from this elusive notion, there is lack of clarity as to what exactly differentiates a TMT within an organization. A recent review of 283 TMT-related papers published in Financial Times 50 (FT50) journals between 1984 and 2019 revealed that, among the few of studies that provided a definition (22%), there was a wide discrepancy in TMT operationalization (Krause et al., 2022). For example, a group of studies define the TMT as including the chairperson of the board (COB), and a variation of other senior executives, usually including the chief executive officer (CEO), president, chief operating officer (COO), and the next highest executive tier (e.g., senior or executive vice-presidents) (Wiersema & Bantel, 1992;1993; Carpenter, 2002; Carpenter & Fredrickson, 2001; Sanders & Carpenter, 1998; Ferrier, 2001; Murray, 1989; Tihanyi et al., 2000). While

others define the TMT as executives who also serve as inside directors (Haleblian & Finkelstein, 1993; Palmer & Wiseman, 1999; Keck, 1997; Michel and Hambrick, 1992; Schwenk, 1993; Weinzimmer et al., 1998). Further, operationalizations were also based more on data availability (i.e., convenience) rather than correspondence with a conceptual definition. Krause and colleagues (2022) concluded that this definitional ambiguity has largely resulted in a lack of clarity in understanding of the TMT phenomenon. Similarly, results from a meta-analysis of 27 studies examining the relationships between TMT size and heterogeneity on firm performance revealed that, different TMT definitions may account for the mixed findings found in the TMT literature (Certo et al., 2006). The study authors concluded that the multiple TMT operationalizations limited researchers' ability to make clear comparisons between studies, and from being able to draw definitive conclusions regarding relationships between the TMT and firm outcomes. And argued that, there could be value in reaching consensus around the conceptualization and operationalization of the TMT across research efforts.

Recent studies using the UE perspective typically define the TMT as the CEO or the president, and at least four of the other most highly paid managers or executives (Adhikari et al., 2019; Dezsö & Ross, 2012; Carpenter, Pollock, & Leary, 2003; Carpenter, Sanders, & Gregersen, 2001; Hambrick, Finkelstein, & Mooney, 2005). This definition is broader than that of the "dominant coalition" of the early Upper Echelons literature, which typically included only managers who also served on the board of directors (Cyert & March, 1963). Researchers who use this broader definition typically argue that higher-level top managers are likely to have an impact

on the firm because they are powerful and collaborate in making choices and enacting policy (Hambrick, Finkelstein, & Mooney, 2005). Based on their review, Krause and colleagues (2022) developed a definition of the TMT: “the executives responsible to the CEO who meet regularly to develop organizational strategy and oversee its implementation.” (pg. 23). They argue that their definition accounts for three key trends they observed: executives of the firm who (1) meet regularly (2) executives who are responsible to the CEO, and (3) those responsible for firm strategy and oversight of the implementation of the strategy. Notably, their definition excludes the CEO from the TMT (as their TMT definition consists of executives responsible to the CEO), and omits several considerations included in some academic or practitioner definitions (i.e., the highest paid executives, and/or the highest ranked executives in the firm). While researchers encourage using a single definition of the TMT, it is important to note that such a conceptual consensus may be more useful for larger firms (e.g. S&P 1500, or Fortune 500) than for smaller firms that may not have a well-defined TMT or may have few top executives upon which to draw when making decisions (Certo et al., 2006; Krause et al., 2022).

Insights from interviews with forty-eight subject matter experts (non-academics) revealed that practitioners’ characterizations of the TMT included significantly more insight into role, operational, and behavioral attributes of the TMT, than the definitions provided by academics (Krause et al., 2022). These practitioners (i.e., CEO, CMO, COO, CFO, board members, and even consultants who work directly with the TMT) also believed that TMTs vary across firms can even change within a firm depending on the specific circumstances. The subject matter experts

recognized that the TMT is often chosen by the CEO, which implies that the CEO has the power to decide who is in the team and who is not. Further, they mentioned that this inclusion is often dependent on who is believed to have both, the functional importance, and the skill set needed, to develop and execute the strategies and projects that are needed to attain the firm's goals (Krause et al., 2022). This suggests that, at least from insiders' points of view, the TMT is indeed thought to be comprised of a *small group of functional top executives who are influential in the firm's main strategic decisions*.

Importantly, the Securities and Exchange Commission only requires firms to report compensation information for the five highest paid executives of S&P 1500 firms, which includes both executive officers and "named executive officers" (NEOs). According to the SEC, executive officers include any president or vice president that oversees a principal area of the company or any individual who performs a policy-making function. NEOs, on the other hand, include the principal executive officer (i.e., CEO), the principal financial officer (i.e., CFO), and at least the next three most highly compensated executive officers in the company.¹⁰ Given I am interested in examining influence with the TMT, and that pay slice has been linked with executives' power (i.e., importance and decision-making influence) (Adhikari et al., 2019; Bebchuk et al., 2011), here the TMT is defined as a small group of the highest top executives occupying the most strategic positions in the firm. This definition is consistent with Hambrick and Mason's (1984) Upper Echelons

¹⁰ Krause and colleagues (2022) found that individual names and job titles between ExecuComp and NEOs are nearly identical (99.6%, 2 out of 483 did not match), and concluded that the ExecuComp database contains NEOs almost exclusively.

perspective and with prior management research (e.g., Adhikari et al., 2019; Dezsö & Ross, 2012; Carpenter, Pollock, & Leary, 2003; Carpenter, Sanders, & Gregersen, 2001). This small group of executives is typically comprised of the heads of the main functional departments, such as marketing, finance, accounting and operations who have the most influence and decision-making authority (Krause et al., 2022).

2.4 Theoretical Framework to Understand Changes in Corporate Crime

Management scholars have long acknowledged the importance of top executives' perception and values in decision-making processes and organizational performance (see Finkelstein & Hambrick, 1996; and Carpenter, Geletkanycz, & Sanders, 2004 for a review). This early recognition that TMTs are in charge of firm strategic decisions and that their characteristics matter in shaping those decisions gave birth to Upper Echelons (UE) Theory.

Upper Echelons theory was influenced by two important developments. First, Cyert and March (1963) developed the concept of the dominant coalition, which emphasized using the entire team of top managers as the unit of analysis to examine organizational leadership, as opposed to the CEO alone. Second, demographers increasingly emphasized using observable demographic characteristics to explore firm outcomes (e.g., Pfeffer, 1983). This later development focused on the study of the changes in the composition—in terms of characteristics such as age, functional track, formal education, length of service, and so forth—of a specific group or population. Hambrick and Mason (1984) united these two lines of research to argue that top executives' characteristics play a key role in shaping major organizational performance outcomes.

UE's core argument is that specific firm strategies and outcomes are associated with top management teams possessing certain demographic characteristics. Specifically, the theory posits that executives' actions are the result of their unique interpretations of the strategic situations they encounter and that, "these personalized construals are a function of the executives experiences, values, and personalities." (Hambrick, 2007, pg. 334). Hambrick and Mason (1984) further suggested that observable attributes, such as age, tenure, and functional background, might serve as reasonable proxies for underlying differences in executive cognitions, values, and perceptions, which influence important strategic actions and future firm performance.

Cognitive behavioral studies indicate that exposure to different opportunities to acquire information, experience cues, and weight rewards shape individuals' cognitive abilities¹¹ and values throughout life and affect the way in which people perceive situations and make decisions (Lange et al., 2018; Toplak, West, & Stanovich, 2014; West, Toplak, & Stanovich, 2008). Cognitive abilities have been linked to a multitude of behaviors and outcomes, including good decision-making (Peters et al., 2006; Toplak et al., 2014; West et al., 2008), academic achievement and earnings (Cawley, Heckman, & Vytlačil, 2001; Heckman, Stixrud, & Urzua, 2006), savings and investment choices (Hung et al., 2017; Christelis, Jappelli & Padula, 2010; McArdle, Smith, & Willis, 2011), and criminality (Heckman et al., 2006; Herrnstein & Wilson; 1985). Thus, demographers argue that characteristics such as age, functional background, and education can be taken as observable proxies for the

¹¹ Cognitive ability can be defined as individual differences in effectively executing tasks that involve processing of mental information (Carroll, 1993), such as inference and reasoning.

psychological constructs that shape the team's cognitive maps. These maps are then used to interpret (and process) information and make strategic decisions (Simon, 1957; Wascher, Kulahci, Langley, & Shaw, 2018), which, in turn, influence the firm's outcomes. The information-processing component is grounded in the concept of bounded rationality, which assumes that executives have to deal with too much information and thus rely on biases grounded in their experiences and preferences (Cyert & March, 1963). However, unlike "attitudes, needs, values, preferences, and cognitions, which are difficult to measure and validate," demographic characteristics are easily testable and can potentially be refuted (Pfeffer, 1983: 301).¹²

Research using Upper Echelons Theory has generated a stream of studies that relies primarily on TMT demographic variables to predict various organizational performance outcomes (Bowman & Ambrosini, 1997; Sutcliffe, 1994; Child, 1972; Finkelstein, 1988; Montanari, 1978; Schwenk, 1988). A set of these studies has focused on financial performance outcomes, such as profitability (Finkelstein & Hambrick, 1990; Halebian & Finkelstein, 1993; Smith, Smith, Olian, Sims, O'Bannon, & Scully, 1994), as well as corporate strategic choices, such as innovation (Dezső & Ross, 2012; Kimberly & Evanisko, 1981) and diversification (Weirsema & Bantel, 1992; Bantel, 1993; Bantel & Jackson, 1989; Finkelstein & Hambrick, 1990), which are considered risky, but value-increasing, strategies. Findings from this literature suggest that younger executives, those with less tenure, and those promoted

¹² Demographic approaches are often criticized because demographic variables are frequently used to make inferences that are based on unmeasured variables that fail to shed light on the mechanism(s) that operates to influence the relationship between TMT characteristics and firm outcomes (e.g., Finkelstein & Hambrick, 1996; Lawrence, 1997; Pettigrew, 1992). Critics also argue that empirical findings have been somewhat ambiguous, leading to poor conclusions that often fail to provide any practical policy recommendations (Priem, Lyon, & Dess, 1999; West & Schwenk, 1996).

from outside of the organization are more likely to engage in risky strategies such as increased spending in research and development, and advertising expenses (Wiersema & Bantel, 1992; Carpenter et al., 2004; Kor, 2006).

Fewer studies, however, have empirically explored these same demographic characteristics of top managers in terms of a firm's illegal behavior (Adhikari et al., 2019; Gande & Lewis, 2009; Kim & Skinner, 2012; Simpson & Koper, 1997). What is more, the bulk of these studies has been limited to examining only certain types of offending, specifically anti-trust (Simpson & Koper, 1997) or fraudulent financial reporting (i.e., accounting manipulations) (Francis et al., 2014) as it relates to specific attributes, such as TMT duality (Dunn, 2004; Finkelstein & Hambrick, 1990; Halebian & Finkelstein, 1993) and religiosity (McGuire, Omer, & Sharp, 2012), or specific executives like the CEO and tenure (Simpson & Koper, 1997) or the CFO and gender (Ge, Matsumoto, & Zhang, 2011; Barua, Davidson, Rama, & Thiruvandi, 2010) to study this relationship.

However, Hambrick and Mason's (1984) propositions were not meant to be exhaustive. Instead, they argued, these propositions were meant to serve as a starting point for continued theory building. Yet, extensions of the Upper Echelon perspective in the criminology context appear to be limited. In a recent theoretical piece, Abdullah and Said (2018) conceptualize a study of financial crime in public-listed companies in Malaysia using demographic and human governance characteristics of directors and TMTs. They proposed expanding the UE perspective with concepts of differential association theory to examine whether certain life experiences of TMTs, such as military service and serving on the board of directors, are linked with

corporate financial misconduct. They argued that educational background can be a proxy for human capital because this is the underlying resource that allows firms to devise and implement strategies that improve efficiency and effectiveness (Barney, 1991). Thus, they hypothesized that firms with a greater proportion of TMTs with higher human capital should have lower levels of corporate financial crime.

Unlike other theories, the UE approach offers corporate criminologists a different framework for thinking about the causes behind firm offending. Instead of seeing crime (or its absence) as resulting from the presence of a risk factor (e.g., low profits, high debts) at any given point, this perspective studies executive characteristics and examines the extent to which changes in theoretically relevant factors (e.g., executives' gender diversity and education) affect future firm offending levels. In light of these gaps, there seems to be potential merit in utilizing and extending the demographic approach to further study other types of corporate crime. I propose to extend Hambrick and Mason's (1984) UE perspective with key concepts and findings from Criminology, which emphasize the effect of gender and official responses (i.e., governmental actions) on influencing corporate offending behavior.

In the next chapter, I first expand on the literature using the UE perspective and explain how gender and power may be integrated to assess whether this approach offers novel insights into the corporate crime phenomenon. Then, I cover key external and internal factors and events that have been found to be associated with corporate crime and with changes in TMTs.

Chapter 3: Literature Review

This chapter provides a review of the literature using Hambrick and Mason's (1984) Upper Echelons (UE) theory to examine the relationship between changes in managerial characteristics and firm offending outcomes. As well as research linking internal and external antecedents to organizational offending behavior and to turnover in a firm's top management team.

3.1 TMT Characteristics and Firm Outcomes

The literature examining TMTs characteristics' influence on corporate misconduct has been generally restricted to certain types of offending, particularly fraud, or largely focused on the CEO as a proxy to the entire executive team (Francis et al., 2014; Williams, Fadil, & Armstrong, 2005; Zahra, Priem, & Rasheed, 2007). Yet, the CEO often heavily collaborates and relies on other top managers when making strategic decisions (Thompson, 1967; Arendt, Priem, & Ndofor, 2005; Carpenter et al., 2004; Peterson, Smith, Martorana, & Owens, 2003; Jensen & Zajac, 2004). Many previous studies examine the characteristics (e.g., tenure, and education) and decision-making processes of the CEO such as environment and social cues, but they fail to address how changes in TMT characteristics and environment in the aggregate and how other uniquely situated executives influence firm's decisions and subsequent offending outcomes (Haidt, 2001; Treviño, Weaver, & Reynolds, 2006). Each member of the TMT is in charge of developing goals and plans, and overseeing the operations of a different area(s) of the organization (Carmen Díaz-Fernández, Rosario González-Rodríguez, & Pawlak, 2014). Thus, each executive is ultimately responsible for the performance of the business unit under their control (Canella &

Shen, 2001). Focusing solely on the CEO may miss the unique values and influence that these other key players have in the direction and outcomes of the firm. The following section reviews TMT demographic characteristics, power, and their relationship to firm outcomes.

3.1.1 TMT Gender

Findings revealing differences between men and women risk tolerance, compliance with rules (including involvement in criminal activities), and values, suggest that increased women representation in TMTs should benefit team dynamics (i.e., decision-making) and thus improve firm performance. Empirical evidence suggests that women executives are more risk-averse and more likely to adopt less risky corporate policies than their male counterparts (Faccio et al., 2016; Francis et al., 2015). Women executives also tend to be more trustworthy and more compliant with rules and regulations (Baldry, 1987; Barnett et al., 1994; Bernardi & Arnold, 1997; Fallan, 1999; Beu et al., 2003), and adopt less risky but more sensible financing and investment strategies (Huang & Kisgen, 2013). Further, Faccio et al. (2016) find that firms with women executives in the TMT have more stable profits and higher survival rates compared to firms with no women executives. Findings reveal that when firms transition from men to women CEOs, there are statistically significant reductions in corporate risk-taking strategies (Faccio et al., 2016). The opposite is true when the transition goes from women to men. Faccio et al., (2016) results are robust to controlling for the endogenous matching between firms and CEOs using a variety of econometric techniques.

Recent empirical findings reveal that firms with more women executives face

fewer operations-related lawsuits (Adhikari et al., 2019). Adhikari and colleagues argue that having more risk averse executives (i.e., more women) should lead to safer firm strategies which in turn should result in fewer future lawsuits. Using filing dates from civil litigation disclosed to the SEC, they examined whether the number of women in TMTs was related to the number of future lawsuits filed against S&P 1500 firms between 2002 to 2011. Their results suggest that firms where there are more women executives (2 or more), and where they have a greater pay slice, face fewer future litigation partly by avoiding strategies that are risky but value-increasing, such as aggressive advertising and R&D. Further, their findings do not appear to be driven by women executives' greater willingness to settle the cases. Yet, they did not find that changes in SEC civil filings lead to hiring of more women executives, suggesting that firms did not appear to hire women executives with the intent to reduce lawsuits. Evidence from their various tests led them to conclude that women executives choose risk averse policies that result in fewer lawsuits, but that they too choose to work for firms that already have a lower risk-taking culture (i.e., selection effect).

Others argue that women executives bring other important diversity benefits, than just lower risk levels, to TMTs. Dezső and Ross (2012) argue that women executives bring with them informational and social diversity to the team, which should positively influence the task performance (i.e., decision-making) of managers throughout the firm, and lead to better firm performance. The increased heterogeneity of viewpoints, knowledge, and solutions offered by women executives should provide these teams with better resources make higher quality strategic decisions, which will reflect in better firm performance outcomes (Van Knippenberg & Schipper, 2007).

Using 15 years of panel data on the top management teams of the S&P 1,500 firms, Dezső and Ross (2012) found that women executives improved innovation intensity, but only when a firm's strategy was already focused on innovation. The benefits to the firm are not trivial. In addition to reporting superior accounting performance, firms with at least one woman executive gained, on average, over \$40 million more in value than firms without any women on their TMT. The findings that women executives improve firm performance raise the question as to whether they could also bring conformity to firms involved in malfeasance.

The inclusion of gender diverse powerful executives in TMT is a particularly crucial event for a company because women are still underrepresented in top management teams. Thus, the inclusion of women executives marks a *shift* in how firms are traditionally managed (male dominated) and can be considered a major event. Top management teams may experience a shift in values and risk preferences (i.e., restraint) as they increase in gender diversity, they may also experience an increase in social control. Moreover, the managerial attribute of gender was chosen for study due to lesser involvement by women in serious crime (including corporate fraud) relative to men. This actual and perceived attribute of women may be attractive to top management teams (and boards) that seek to lower the firm's involvement in wrongdoing or, at least, serve to give the appearance to be managing the crisis given that women executives could become, or be intentionally placed as, a "token" for the firm's "law-abiding" window-dressing strategy (Erkut et al., 2008). Further, the simple presence of a woman on the TMT may not affect behavior so much as the plurality of women on the TMT, or the pay slice they receive (signaling their relative

influence). For this reason, patterns of TMT diversity over time may matter more for offending than nominal cross-sectional indicators of presence by women on the TMT. For these reasons, the *power* component is key in examining whether the woman executive is genuinely valued within the team and has been brought in to effect change in the firm, or has been strategically placed to signal to board members and stakeholders that the organization values law-abiding executives and is taking steps to change the dynamics of the organization. Thus, firms may strategically increase the number of women serving on TMTs as a way to lower enforcement action risks.

Finally, firm specific factors and circumstances may influence whether they include women executives in their TMT. Findings from empirical studies examining the relationship between TMT gender diversity and initial public offerings (IPO), which occur during early stages of entrepreneurship, reveal that there are almost no women-led IPOs (Welbourne, Cychota, and Ferrante, 2007; Nelson & Levesque, 2007). There is even a negative and significant relationship between gender diversity in executive management and IPO success in biotech firms (Quintana-Garcia & Benavides-Velasco, 2016). The finding that women are “practically” absent from CEO and governance roles in most IPO firms compared to Fortune 500 firms suggests that the rates and roles of women’s participation expand as firms move along the road to become large corporations. Specifically, younger firms may have relatively higher enforcement actions than older firms and be more reluctant to hire women executives. In this way, firm age may influence both levels of enforcement actions and gender diversity in firms. Therefore, I control for firm age in my analyses.

In addition to gender, previous research has also provided strong evidence of

the relationship between other TMTs' features and firm outcomes (Anderson & Reeb, 2003; Yetton & Bottger, 1982; Eisenhardt & Bourgeois, 1988). Organizational rewards, like compensation and shares, as well as characteristics (e.g., Ivy League education, tenure), can influence top managers' strategic choices, which, in turn, impact firms' performance and growth (Child, 1972, 1974; Kimberly & Evanisko, 1981; Yetton & Bottger, 1982; Gupta, 1984; Eisenhardt & Bourgeois, 1988; Hambrick and Mason, 1984; Alexander & Cohen, 1999; Anderson & Reeb, 2003). Findings also indicate that executives with relevant functional expertise can significantly influence firms' diversification posture and acquisition decisions (Finkelsten, 1992; Tihanyi et al., 2000). For instance, firms headed by administrative and finance CEOs have higher antitrust offending levels than do firms lead by CEOs from other backgrounds (Simpson & Koeper, 1997). Therefore, this study includes other TMT characteristics previously associated with firm performance and offending outcomes.

3.1.2 TMT Tenure

Among top management characteristics, tenure consistently has been of theoretical interest for management scholars (Taylor, 1975; Carpenter et al., 1004; Crowther & Seifi, 2018). Previous studies find that compared to TMTs with less tenure, executive teams with greater cumulative tenure tend to be more familiar with the surrounding environment and unique strategies of their firms, which, in turn, increases conformity and improves firm effectiveness (Geletkanycz & Hambrick,

1997).¹³ Top management teams with longer tenure acquire specific firm-knowledge and skills (e.g., superior communication, conflict management) that make them better at strengthening competitive advantages, which, in turn, enables them to successfully transform resources into revenue to boost firms' performance (Katz, 1982; Cannella & Hambrick, 1993; Carroll & Harrison, 1998; Kor & Mahoney, 2000). For instance, Bergh (2001) found that the deeper knowledge possessed by longer-tenured executives was positively associated with successful firm acquisition performance. Findings also show that higher average tenure and higher tenure heterogeneity are associated with positive firm performance of international diversification (i.e., international involvement) (Tihanyi et al., 2000). Thus, for various reasons, longer-tenured teams, or those with a mix, appear to perform better than younger-tenured TMTs.

In addition, to deeper knowledge of the firm, tenure also appears to be associated with risk tolerance, a key factor related to offending. Tenured executives may become more risk-averse and supportive of the status quo due to the great time invested at that stage in their careers where risk-taking behaviors may threaten their bond with the organization—consistent with Toby's (1957) concept of stakes in conformity (Toby, 1957; see also Wiersema & Bantel, 1992; Hambrick & Mason, 1984; Finkelstein & Hambrick, 1990). Hence, leadership teams that have been working in the same company for longer periods of time will have a sense of belonging to the firm within which they work. This longevity should strengthen top

¹³ According to Richard et al., (2009), organizational effectiveness is broader than organizational performance because it captures economic valuation plus performance outcomes associated with more effective operations and measures other than profits, such as corporate social responsibility.

manager bonds to conventional society and lessen their participation in corporate crime (Crowther & Seifi, 2018). Empirical findings show that, on average, less-tenured TMTs are more willing to assume risks and engage in misreporting than TMTs that have served longer in their firms (Schrand & Zechman, 2012; Clinard & Yeager, 1980). Firms caught in restatements often have less tenured CFOs (Hazarika, Karpoff, & Nahata, 2012), while firms with longer tenured CEOs tend to have more timely completions of audit reports (Baatwah, Salleh, & Ahmad, 2015).

However, the finding that longer-tenured executives are committed to the status quo and perform better has been challenged by studies that took industry conditions, and CEO turnover, into account (Keck, 1997; Ali & Zhang, 2015; Dechow & Sloan, 1991). Studies find that tenured CEOs are more likely to overstate earnings (Ali & Zhang, 2015) and to reduce R&D spending in their final year in office (Dechow & Sloan, 1991). This is often done to manage earnings upward, which helps not only their reputation but also their performance-based retirement plans. Keck (1997) examined executive tenure and TMT performance while accounting for stability and change in the environment at the industry level. Findings revealed that shorter-tenured, heterogeneous teams had the skills required to address environmental complexities and were more productive in challenging circumstances (i.e., the mini-computer industry). Conversely, longer-tenured, homogeneous teams were found to be more efficient in stable environments (i.e., the cement industry). What is more, using longitudinal data, West and Anderson (1996) found that Top management teams that were diverse in terms of tenure lead to team innovativeness. As such, because women TMTs have just recently started joining top management

teams, it is possible that, by default, they will have less tenure than their male counterparts and, thus, possibly encourage more risk-taking behaviors. On the other hand, the increased tenure heterogeneity brought about by newly hired women executives may lead to better firm performance by means of increased innovation.

3.1.3 TMT Age

TMT average age has been extensively studied and linked to firm performance outcomes (Zimmerman, 2008). Younger TMTs have been found to take more risks and to adopt innovative management styles (Hambrick and Mason, 1984; Boeker, 1988) and are commonly associated with firm international diversification (Tihanyi et al., 2000) and business growth (Child, 1974). Furthermore, findings from 207 new Internet firms that went public between 1996 and 1999 reveal that firms led by a young top management team were less likely to experience financial crisis and more likely to perform well during their initial public offering period (Mudambi and Treichel, 2005). The evidence of the relationship between compliance outcomes and TMT age also suggests a similar beneficial aspect of aging. Using a matched sample of publicly listed firms, Kumar (2020) examined whether and how TMT age related to firms' environmental management strategies of compliance-only and beyond-compliance initiatives. Findings show that aging TMTs supported beyond-compliance initiatives and that this was largely driven by a desire for legacy and a preference for risk-averse decisions. Age diversity, on the other hand, was only helpful in developing compliance-only initiatives, but not in driving beyond-compliance initiatives. Studies of executive age and financial reporting mostly arrive at conclusions in line with the previous ones.

For instance, findings reveal that older CEOs have been found to be less involved in fraudulent activities (Troy, Smith, & Domino, 2011). However, the opposite has also been found. Older CEOs have been found to have a higher tendency to manage earnings upward in the two years before their departure – raising a flag for financial manipulation (Davidson, Xie, Xu, & Ning, 2007). Similarly, findings show that executives born prior to World War II were less likely to voluntarily disclose information than younger executives. Other studies, however, do not find any observable effect between TMT age and fraudulent accounting reporting (Dyreng, Hanlon, & Maydew, 2010; Ge, Matsumoto, & Zhang, 2011; Ran, Fang, Luo, & Chang, 2015; Schrand & Zechman, 2012). The evidence of the relations between TMT age and firm outcomes to date is still mixed, but the bulk of findings suggest that younger TMT may be more likely to take risky strategies, which may in turn increase firm offending outcomes.

In addition to demographic characteristics of average tenure, age, and gender, studies find that executives' education, position in the hierarchy (i.e., rank), and compensation, are associated with firms' financial performance and strategic growth outcomes (Tulung & Ramdani, 2016; Tihanyi et al., 2000; Adhikari et al., 2019). These attributes have been linked to the concept of executive *power* in that highly paid and better educated (i.e., advanced degrees and ivy league educated) executives are better able to exert their influence within the TMT to choose and change firm strategic choices (Finkelstein, 1992; Hickson, Lee, Schneck, & Pennings, 1971; MacMillan, 1978; Pfeffer, 1981a). The following section reviews how these powerful characteristics of top managers relate to firm outcomes.

3.1.4 TMT Ivy League Education

Studies find that having a TMT with higher average elite education (i.e., an Ivy League school) is positively associated with firms' financial performance and strategic growth outcomes (Tulung & Ramdani, 2016; Tihanyi et al., 2000). Management scholars argue that the observed correlation between TMT elite university attendance and firm outcomes may reflect the selection of talented students into both top universities and fast-track careers (Zimmerman, 2013). Individuals attending a more selective institution may accumulate more social capital than they would have accrued at a less selective school. Social capital is an interactive system built from TMT social activities (Sahaym, 2005), that provides advantages of social relations to individual performance (Coleman, 1988). By the time of graduation these individuals are part of an elite network, which may present exclusive opportunities not afforded to other individuals (Ge, Isaac, & Miller, 2019). Thus, start-up companies might benefit from the social connections, ties, and networks afforded by their young recently ivy league graduated entrepreneurs (Hsu, 2007).

There has been a shared perception that for individuals to successfully climb the corporate ladder, they needed to receive their degree from a prestigious school, such as those classified as Ivy League. These elite schools consist of eight private institutions within the United States: Brown, Columbia, Cornell, Dartmouth, Harvard, Penn, Princeton, and Yale, and are considered as having a reputation for academic excellence. Admission into these schools is also known for being very competitive and for having a very low acceptance rate—between 6.9% and 10.9% (Admissions Consultants).

A recent report from Kittleman & Associates (2018) revealed that the university that produced the most CEOs of Fortune 500 companies was in fact not an Ivy League school. The data revealed that the University of Wisconsin produced the most CEOs, with 14 CEOs of Fortune 500 companies. This was closely followed by Harvard University with 12 CEOs, Cornell University with 10, the University of Pennsylvania with six, Princeton and Yale both tied with five, and Dartmouth produced four CEOs on the Fortune 500 list. Finally, Brown and Columbia were not among the top 30 universities for producing the most CEOs of Fortune 500 companies. Nevertheless, six out of the eight Ivy League schools indeed made it to the top 10 schools producing the most 500 Fortune CEOs.

However, when speaking about academic achievement, several studies revealed that students graduating from small liberal arts colleges academically outperform those graduating from Ivy League schools (such as on medical entrance exams), and a higher percentage of liberal arts graduates go on to pursue more advanced degrees (Gottesman & Morey, 2006; Sowell, 2008). Gottesman and Morey (2006) examined whether the kind of university that CEOs graduated from (Ivy League) was in fact an indicator of high quality that should in turn yield high performance for their firms. Their study found very little evidence that firms whose CEOs graduated from Ivy League universities perform better than organizations with CEOs from less prestigious schools. Moreover, they found that firms with CEOs that held an MBA or law (JD) degree also did not perform any better than firms with CEOs without these types of graduate degrees, which suggests that an advanced business or legal education is not related to enhanced company performance.

Findings also suggest that CEOs who graduate from top-ranked universities signal human capital and motivation, and this relates positively to aspects that reflect long-term orientation and commitment, such as R&D expenditure, honest reporting of earnings, as well as stewardship of employees and the community (Miller & Xu, 2019). Hence, some argue that the type of college a person attends is also related to their ambitions and expectations for the future (Finkelstein, 1992; Hambrick & Mason, 1984). This also signals their investment in conventionality or “stakes in conformity” (Toby, 1957), which creates stronger social bonds and, according to Hirschi, influences the decision whether to engage in crime (i.e., people will be less likely to choose crime if they have strong social bonds) (Hirschi, 1969). Attending an elite institution may signal aspirations and a commitment to building a greater investment in conventional work, fostering a stronger sense of commitment to the firm, and avoiding corporate crime. Therefore, TMT with a greater proportion of executives attached to (graduated from) Ivy League institutions may have a stronger investment and commitment to strategic planning which is often a long-term process that provides direction and purpose for the organization, resulting in more favorable firm outcomes, including fewer future enforcement actions.

3.1.5 TMT Educational Achievement

Empirical findings reveal that greater educational levels have the potential to influence individuals’ values (Holland, 1973) and moral development (Rest & Thoma, 1986), with better-educated people exhibiting greater strength of character (Seligman, Steen, Park, and Peterson, 2005). Formal level of education (i.e., educational achievement) denotes increased knowledge and skill base that is

associated with effective decision-making by the TMTs (Hitt & Tyler, 1991), as well as commitment and desire to pursue conventional goals and values (Hambrick et al., 1996). In addition, highly educated executives bring with them differences in skills, knowledge, and capacities, which should enhance the entire productivity and *human capital* of the TMT (Shrader & Siegel, 2007). Productivity, and the experience and characteristics of the TMT have been linked to greater competitive advantage and improved firm performance (Gimeno, Folta, Cooper, & woo, 1997). Prior research demonstrates the importance of executives' knowledge and experience in the strategic decision-making process (e.g., Barker & Mueller, 2002; Walters, Kroll, & Wright, 2007). Research suggests that a TMT's educational level is related to certain corporate strategies that increase firm diversification, acquisition, (Dimov & Shepherd, 2005; Tihanyi et al., 2000; Norburn & Birley, 1988; Smith et al., 1994), innovation (Bantel & Jackson, 1989; Camelo, Fernandez-Alles, & Hernandez, 2010; Hambrick & Mason, 1984; Kimberly & Evanisko, 1981), international diversification (Herrmann & Datta, 2005), and strategic change (Hambrick & Mason, 1984; Wu, Wei, & Liang, 2011).

Recent findings reveal the huge losses that firms can face because of discrimination (Huber, Lindenthal, & Waldinger, 2021). Huber et al. (2021) asked how discrimination may hurt firm performance by examining how firms' outcomes changed after firing highly educated executives (i.e., difficult to replace human capital) based on discrimination. Specifically, they asked how the removal of senior managers of Jewish origin, caused by the rise of anti-Semitism in Nazi Germany, affected various performance outcomes of large German firms. Their results show

that that firms that had removed highly educated (Ph.D. and master's), and well connected, managers of Jewish origin were unable to replace them successfully, leading to a sharp and persistent (decade long) decline in various firm indicators of performance. Their calculation shows that firing managers of Jewish origin led to a decline of the market valuation of firms listed in Berlin by 1.8 percent of German gross national product. This sizable decrease indicates that individual top managers had large effects on firm performance and that discrimination directly resulted in negative financial consequences for those firms. Thus, their findings are suggestive that firms with highly educated executives benefit from the increased knowledge in various measurable ways and that they are not easy to replace, making a long-lasting impression in the firm's outcomes. Their findings provide support for Gary Becker's theory known as "taste-based discrimination", which suggests that excluding particular groups out of hate, dislike, or other bias, not only economically harms the omitted group, but the discriminators as well because they miss out on the talents, knowledge, and expertise, from members of such group (Becker, 1957). And therefore, those firm are going to perform worse. Hence, firms with women executives may benefit from the valuable attributes and positive impact of the heterogeneity that these individuals may bring to the TMT and the firm.

Recent empirical findings offer strong support to the argument that more experienced and knowledgeable (i.e., older, longer tenured, and better educated) executives are more inclined to develop and impose a stronger orientation toward organizational virtues (Evert, Payne, Moore, & McLeod, 2018). Organizational virtues are a set of integrated and collectively developed values and beliefs (e.g.,

integrity, empathy, and conscientiousness) that are thought to not only support ethical behaviors in organizations (Payne, Brigham, Broberg, Moss, & Short, 2011: 257), but also said to embody and align with the distinct character strengths of its members (Cameron & Winn, 2012). These distinct values that guide the moral and ethical actions of firms also allows them to distinguish themselves from other firms. Evert and colleagues used prospectuses of initial public offering (IPO) firms and 10-K post-IPO filings to examine how TMT composition with respect to executive age, tenure, education, functional background, and gender influences organizational virtue orientation. Their study hypothesized that better-educated executives would be associated with increased organizational virtue orientations within the company. In addition, empirical findings reveal that firms with more educated CEOs have lower involvement in fraudulent actions (Troy et al., 2011). While the findings are nuanced, and have not examined executives other than the CEO, they suggest that educational achievement may help executives better understand how to impose and perpetuate virtuous ideals throughout the organization most effectively.

In essence, the degree (amount) of education a person receives could influence not only their abilities and knowledge, but also their beliefs, and attitudes related to strategic decision-making, or reveal already existing inclinations, values, or traits, within that individual. In this way, the amount of education may not only reflect executives' virtuosity and affect top managers' cognitive models and thereby their strategic decisions, but also increase the costs of losing the gains and investment of advanced education, which may, in turn, prevent executives from violating the law.

For these reasons, I expect that firms with TMT with a larger proportion of highly educated executives to have fewer future enforcement actions.

3.1.6 TMT Pay Slice

There are many layers and forms of executive compensation. As an example of the many ways in which executives can be compensated, the Execucomp database includes a measure of total compensation called TDC2, which is comprised salary + bonus + other annual + restricted stock grants + long-term incentive payments + all other + value of options exercised (i.e., stock options realized). This measure aims to capture the total compensation realized by an executive in a given year. Because financial compensation has been found to be a strong motivator for certain behaviors like productivity (Locke, Feren, McCaleb, Shaw, & Denny, 1980; Guzzo, Jette, & Katzell, 1985; Stajkovic & Luthans, 1997; Jenkins, Mitra, Gupta, & Shaw, 1998), business scholars have also asked whether certain forms of, or changes in, compensation are also tied to other key firm performance outcomes.

Theoretically, there is a clear argument for thinking that executive incentive compensation is tied to firm performance (i.e., incentive alignment). Studies provide evidence that, on average, increased use of option compensation is associated with higher firm value (Yermack, 1995; Mehran, 1995; Frye, 2004; Hillgeist & Peñalva, 2004). Yet, the reality diverges significantly from such a simple and direct relationship. In fact, most contemporary studies have linked corporate fraud to equity compensation for executives (e.g., Beneish, 1999; Burns & Kedia, 2006; Goldman & Slezak, 2006; Peng & Röell, 2008; Armstrong, Jagolinzer, & Larcker, 2010; and Johnson, Ryan, & Tian, 2009). Notably, equity-based incentives are more of a recent

trend in U.S. firms. Back in 1984, less than half of the CEOs of publicly traded U.S. companies were granted stocks or stock options in a given year. And when granted, this form of equity-based compensation accounted for only a small portion of total CEO pay (less than 1%) in the median firm (Hall, 2003). By the turn of the century, however, almost two-thirds of the pay for the CEO of a median company was comprised of equity-based compensation. This rapid increase in the use of stock options as a form of executive compensation has turned this subject into a highly contentious issue in recent years.¹⁴ Advocates of paying executives with options contend that, because stock options directly tie executive compensation with changes in shareholder wealth, increases in this form of compensation for executives should align the interests of the TMT with those of the shareholder and hence reduce agency problems. In this way, proponents argue that stocks represent an investment and a form of ownership interest in a publicly traded company, and not just a form of payment for an executive. Opponents claim, however, that target-based executive compensation systems create a setting in which executives are paid not for what they do, but for what they do relative to some goal (Jensen, 2005). This system incentivizes executives to take excessive risk and to make questionable decisions, such as fraudulently manipulating the company's stock price to increase the value of the options to meet their targets (Denis, Hanouna, & Sarin, 2006). Notably, the crash

¹⁴ It is important to note, however, that options and shares are two different things. An option is a contract that gives someone the right but not the obligation to buy or sell 100 shares at a specific price. For example, if you buy an option to buy shares of “x” company at the price of \$10 this gives you the right but not the obligation to buy 100 shares at \$10 per share at any time between now and whenever the option expires. If the shares go up in price to say \$20, then you can exercise the option and the person who sold you the option is forced to sell you 100 shares at \$10 a piece even though now the shares are worth \$20. Therefore, having options may be more beneficial than actually buying the shares because options generally cost much less than the current share price.

of the stock market in the early 2000s left many executives disenchanted with this system (Bottger & Vanderbroeck, 2008).

Denis et al. (2006) found the likelihood of securities fraud allegations to be positively associated with a measure of executive stock option incentive among a sample of 358 firm in which there was an allegation of fraud between 1993 and 2002. Further, said relationship remained robust even after the inclusion of other components of the compensation structure and to other possible factors associated with fraud allegations. Their findings support the view that stock-based compensation increase executives' incentive to engage in risky behaviors, such as fraud, and that this motivation to engage in wrongdoing is further intensified by institutional and block ownership, possibly because of the owner's ability to exert additional pressure on the executives to meet certain performance goals (Colvin, 1998; Hotchkiss & Strickland, 2003). However, their study was not without limitations. For instance, their sample only included companies that reported option-based compensation, and they were unable to match (find controls) 102 firms from their original sample of 473 fraud firms, both of which might produce a biased sample. Unfortunately, while all S&P U.S. publicly traded companies are required to report total compensation for their top five executives, they are not required, however, to report a breakdown of the amount – specifically, the number of options granted and/or realized. Recently, Al-Shammari (2021) attempted to explore the mechanisms behind executive pay and firm performance by examining whether CEO compensation indirectly influenced firm performance through CEO risk-taking behavior using data from 204 U.S. manufacturing firms. Results revealed a strong, positive relationship between CEO

option pay and a firm's strategic risk, stock returns risk, and income stream risk. While the studies on executives' compensation and firm outcomes are not without flaws, together the findings suggest that tying executive compensation to specific incentives (like options) and to organizational performance is more likely to create motivations and pressures (strain) for top managers to engage in illegitimate means to achieve organizational (and personal) performance goals.

Bebchuk and colleagues (2011) used CEO pay relative to the pay of other top executives to measure the influence the CEO has over major decisions. They find CEO pay slice (and other incentives) to be associated with several dimensions of company behavior and performance that are commonly viewed as reflecting governance problems. Similarly, Prechel and Zheng's (2011) longitudinal quantitative analysis revealed that U.S. financial, insurance, and real estate sector corporations with a more complex organizational structure, larger size, lower dividend payment, and higher executive compensation were more prone to commit financial malfeasance. Motivated by Bebhuk et al. (2011), Adhikari and colleagues (2019) used pay slice (TDC2) to measure the power and influence of women in the top management team and how this relates to operations-related lawsuits. They argue that because female executives adopt safer corporate policies (Faccio et al., 2016; Francis et al., 2015), when given more power in the top management team, they will adopt less risky policies which will result in fewer future lawsuits. They find that firms where women have more power in the top management team, measured by a greater pay slice (total compensation – TDC2), face fewer operations-related lawsuits (i.e., SEC civil litigations). What is more, they do not find that changes in lawsuits lead to

future changes in the number of women executives. The findings in the empirical literature suggest that the amount of pay is an indicator (proxy) for the amount of influence (power) executives have on the TMT. Based on these findings, I expect firms where women executives have more power, measured by total compensation (TDC2), within their team (compared to men executives) to have a positive effect (i.e., decrease) on firm enforcement actions.

3.1.7 TMT Shares

Modern corporate governance theory encourages executives to own significant amounts of stock so that top managers have a personal economic ownership and investment in the firm's well-being, which is meant to align the interests of top executives and shareholders (Papadopoulos, 2019). In fact, this realization has led most U.S. companies, and especially large-capitalization firms, to adopt official guidelines for CEO ownership. Hence, the number of shares owned by executives may determine the balance of power within a top management team and could directly affect strategic decisions and company behavior. Executive shareholdings have often been used in the literature on corporate control because they offer perhaps the most direct way of assessing executives' ownership power (e.g., McEachern, 1975).

However, executives typically have very low ownership in U.S. companies. According to data from the Institutional Shareholder Services (ISS) analytics, executive controlled companies make up only 3.6% of S&P 500. Furthermore, executive ownership also varies by firm size (Papadopoulos, 2019). CEO ownership is more common among smaller firms, with 4% of S&P 500 CEOs having shares of

5% or more, compared to 20% of CEOs in smaller firms that are not part of the S&P 1500 (Papadopoulos, 2019). The association between CEO ownership concentration and firm size reveals variation in ownership trends in different life stages of the organization. Younger and smaller firms are more likely to be managed by founders who have significant ownership stakes, but as firms grow and mature, many founders leave their CEO role, and their ownership stakes are sold and passed on to incoming executives.

Empirical findings reveal that companies where the CEO has greater ownership power do not show better financial performance than firms where CEOs have less ownership (Papadopoulos, 2019), but they are associated with governance issues that may increase violations. Bebchuck, Grinstein, and Peyer (2010) explored corporate governance determinants and implications of backdating practices among public companies during the decade of 1996-2005. They found that CEOs who had been given unscheduled option grants were more likely to maintain power at companies' boards by holding the combined role of chair of the board and CEO. Their findings also revealed that firms (in all market segments except mid-caps) where the CEO amassed the bulk of shares also tended to have fewer women on their boards, and they are less likely to have gender diversity in their top management team, which could in turn affect offending outcomes.

Various empirical studies, however, do not find evidence of a positive association between CEO equity (i.e., ownership) incentives and offending, specifically accounting irregularities (Erickson et al., 2006; Armstrong et al., 2010; Rosenbaum, 2002). Erickson et al.'s (2006) study did not find consistent evidence

that executive equity incentives are associated with fraud when comparing executives' incentives of firms accused of accounting frauds with those of nonoffending firms. However, the literature has not explored (to my knowledge) whether this finding varies by executives' gender or whether it also applies to executives other than the CEO or to other forms of corporate crime. Given women's lesser involvement in crime, and their tendency to adopt safer corporate policies (Faccio et al., 2016; Francis et al., 2015), I expect firms where women executives have more ownership power, measured by shares, within their team (compared to men executives) to have a positive effect (i.e., decrease) on firm offending outcomes.

3.1.8 TMT Rank

Executive rank is based on the formal hierarchical authority and organizational structure (Brass, 1984; Hambrick, 1981; Perrow, 1970; Tushman & Romanelli, 1983). An executive who has a legislative right to make/take certain decisions is influential. In this regard, CEOs have the highest amount of power over other executives because of their official position within the hierarchy. In the words of Finkelstein (1992, p. 509), "This authority allows CEOs to manage uncertainty by controlling (to a degree) the behavior of their subordinates." This has led some to argue that even though CFOs oversee finances, it is possible for the highest ranked executive (CEO) to pressure the executive in charge of finances (CFO) to engage in illegal actions such as intentional financial misreporting. Feng et al. (2011) examined this question using a comprehensive sample of material accounting manipulations disclosed between 1982 and 2005. Their study matched offending and nonoffending firms to assess whether the legal costs and equity incentives (costs and benefits) of

CEOs and CFOs were associated with intentional financial misreporting for CFOs. Their study found that CFOs faced substantial legal costs when involved in accounting manipulations, and these CFOs have similar equity incentives to the CFOs of matched nonmanipulation firms. CEOs of accounting manipulation firms had higher equity incentives and more power than CEOs of nonoffending firms. Their findings suggest that CFOs involved in accounting manipulations were pressured by CEOs, rather than seeking personal financial benefit from their equity incentives. However, their study did not examine the effect of executives' gender in relation to pressure to engage in accounting manipulations.

Studies exploring the effect of the CEO and CFO on financial outcomes, find women CFOs to have a more positive effect on accounting compliance, compared to women CEOs (Plöckinger, Aschauer, Hiebl, & Rohatschek, 2016). For instance, Peni and Vähämaa (2010) find that female CFOs tend to manage earnings downward and report conservatively, but the same is not true for female CEOs. Findings from Ho, Li, Tam, and Zhang's (2015) study reveal, however, that companies with female CEOs tend to report more conservatively only when their company is facing high litigation or takeover risks. Moreover, studies focusing on characteristics of individual executives show that women CFOs exhibit higher accounting conservatism and are associated with higher accrual quality than male CFOs (Francis, Hasan, Wu, & Yan, 2014, 2015; Barua et al., 2010). Francis, Hasan, Park, and Wu (2015) analysis of the impact of CFO gender on accounting conservatism show that newly appointed female CFOs tend to report more conservatively than their predecessors, as compared to newly appointed male CFOs who have succeeded either female or male CFOs.

Their results further indicate that female CFO conservatism is even higher when their firm is facing higher litigation, default, or market risk. Firms with female CFOs are also found to engage in fewer tax sheltering activities (Francis et al., 2014) and have a lower likelihood of financial misreporting than comparable firms with male CFOs (Gupta, Mortal, Chakrabarty, Guo, and Turban, 2020). Gupta et al., (2020) study relied on intersecting six different datasets including Execucomp for CFO gender and management characteristics, Compustat for firm information, and Institutional Shareholder Services for information on firm board of directors. In total, their dataset contained 18,659 firm-year observations covering 2,186 unique U.S.-based firms from 1996 to 2016. They found that women CFOs have a lower likelihood of financial misreporting (i.e., cooking the books) than firms with male CFOs. Further, their results were robust across a number of econometric specifications, including (but not limited to) exogenous shocks; propensity score matching; and modeling treatment-effects, random effects, firm-fixed effects, and hybrid effects. However, other studies do not find any effect of executive gender on financial accounting outcomes (Clikeman, Geiger, & O'Connell, 2001; Ge, Matsumoto, & Zhang, 2011; Schrand & Zechman, 2012; Ye Zhang, & Rezaee, 2010; & Davis, Ge, Matsumoto, & Zhang, 2015).

Yet, recent empirical evidence also reveals that women CEOs are associated with better environmental outcomes and with reduced environmental litigation and penalties (Wang & Ju, 2019; Liu, 2018; Jiang & Akbar, 2018). Drawing on gender socialization and diversity theories, Liu (2018) hypothesized that women CEO would reduce the frequency of environmental violations. Gender socialization theory

suggests that women are more concerned with the welfare of stakeholders, making them more likely to take action to prevent environmental risks that can harm communities (Carlson, 1972; Gilligan, 1977). Under diversity theory, women executives bring different perspectives and offer a wider range of eco-friendly solutions, which improves team decision-making on environmental issues (Erhardt et al., 2003; Westphal & Bednar, 2005; Cumming et al., 2015; Estélyi & Nisar, 2016). The findings revealed that CEO women were indeed associated with fewer environmental litigations, but only in firms with low female board representation (Liu, 2018). Similarly, a study using the upper echelon's theory and theory of feminist care ethics found women CEOs invested more into environmental sustainability processes to try and reduce emissions and pollutants than men CEOs (Jiang & Akbar, 2018). Their findings also revealed that having a woman as CEO or Chair as well as increased representation of women directors on the board committees significantly increased corporate environmental investment. Further, they empirically examined whether female executives' environmental investment was motivated by the presence of government subsidies or to abide with environmental regulations. The results revealed that the environmental investment by women executives was not associated with the acquisition of government subsidies, which led the authors to conclude that an increase in environmental investment by the women executives may instead be a function of their innate commitment towards social responsibility (Jiang & Akbar, 2018). Using a panel data analysis, Wang and Yu (2019) found that firms led by women CEOs produced less air and water pollution and greenhouse gas emissions, received fewer environmental penalties, and

demonstrated higher awareness of environmental protection (reflected in their 10-K filings), compared to firms led by men CEOs. Their difference-in-differences analysis also showed that firms also reduced air and water toxic releases, greenhouse gas emissions, and received fewer environmental penalties after experiencing a transition from male to female CEO. Therefore, I expect firms with women CEOs to have fewer environmental violations than firms where women do not hold this position.

Given that each executive is ultimately responsible for the performance of the business unit under their control, it seems critical to understand whether the role (position) that the woman top manager has on the team affects the firm's involvement in specific corporate crimes.

3.1.9 TMT Functional Area

Given the CEO is, by virtue of having the highest-ranked position, viewed as the most “powerful” executive,¹⁵ corporate crime studies have often ignored other executives in firm-offending outcomes. The responsibilities of each business area uniquely place executives in a position to influence specific firm outcomes, including specific offending outcomes. For instance, relative to other executives, CFOs are in a unique position to set the firm's financial strategies. Further, their financial role requires them to attest to the firm financial statements, but also affords them access and control to the journal entries, to structure transactions, and choose convenient (and improper) accounting methods to inflate their company's revenue, deflate expenses, and fabricate profit. Maksimovic and Titman (1991) indicate that managers

¹⁵ Nevertheless, some empirical findings reveal that executives with greater ownership in the firm (compared to the CEO) can exert greater influence in the TMT decisions than him or her.

may commit fraud when their firms are struggling financially. Survey results provide evidence of CFO's potential motivations and perceptions of earnings manipulations. Findings reveal that of 401 CFOs surveyed, at least 80%, stated that their companies would be willing to delay discretionary spending such as R&D, and advertising, to achieve the desired earnings target. Even worse, almost 40 percent of CFOs said that their companies would log revenues now, as opposed to next quarter, or provide incentives for consumers to buy now. Indeed, these results reflect in the high (and increasing) number of companies that year after year restate their audited financial statements (Glater, 2005). However, market or financial struggles may not be the only motivator leading CFOs to manipulate the numbers. Executives may also be highly motivated to engage in accounting manipulations (fraud) to boost overvalued shares in a competitive and munificent market or may do so to achieve performance targets tied to compensation (Jensen, 2005). While the motivation (e.g., survival or target achievement) may at times change, it is evident that the CFO is uniquely positioned to act upon the fundamental financial pressures experienced by the firm and hence exert the main influence on various types of financial violations and outcomes. Thus, I expect firms with women CFOs to have fewer financial violations compared to firms without women CFOs.

However, there are arguably other executives that also have related financial duties and therefore could be involved in accounting misrepresentations. Prior to the Enron and WorldCom scandals of the early 2000s, CFOs were traditionally involved in the firm's accounting tasks, and hence needed to have a strong accounting background (McCann, 2016; Fisher, 2016). Increased scrutiny and focus on

accounting functions because of these series of scandals, resulted in the separation of the financial and accounting management roles and the creation of the chief accounting officer (CAO) position (Guo, Chi, Cook, & Oler, 2008). Nowadays, CFOs are considered strategic business partners and advisors to the CEO (Mckinsey, 2008), and more occupied with financing, investing, and shareholder relations, rather than with overseeing accounting decisions which are now tasked to the CAO (Guo et al., 2018; Fisher 2016). The CAO, unlike the CFO, is most often an accountant and focused on day-to-day accounting activities, such as creating the budget, and overseeing tax reporting, as well for ensuring that all ledger accounts (i.e., bookkeeping), financial statements, filings with the SEC, and cost control systems are operating effectively (Stack 2015; Zorn 2004; Pearcy 1976). Chief accounting officers (CAO) typically report to the CFO (Sammer, 2006). A study using survey data revealed that CAOs have the technical skills but tend to lack leadership abilities, making them less than ideal candidates to succeed the CFO (Johnson 2015a, 2015b). Yet, both the CFO and the CAO, are legally designated as corporate officers and are therefore required to sign the financial statements and other disclosure documents filed with the Securities and Exchange Commission (SEC). Section 906 of the Sarbanes-Oxley Act of 2002 increased the enforcement risks faced by these executives, because it requires them to personally play a substantial role in the disclosure process (Sarbanes-Oxley Act, 2002). Effectively, corporate malfeasance scandals and the increased financial regulations that followed them, are partly responsible for elevating the role of financial and accounting managers in TMTs.

Despite the potential advantages offered by a CAO's accounting expertise and experience, not all publicly listed firms have this position in their TMT.

Very few studies to date, however, have investigated the effect of CAOs on firms' financial reporting quality, and none to my knowledge have included gender in the equation. Using propensity score matching, Russomanno (2014) examined whether the addition of a Chief Accounting Officer to the TMT improved treatment firms' internal controls and reduced future external auditing. Approximately 20% of the firms in the study's sample had a separate Chief Accounting Officer on their top management team. The findings revealed that, compared to matched control firms, treatment firms reported 85% fewer internal control weaknesses and incurred 12% fewer auditor fees a year after the addition of a CAO. Further, while controlling for the firm's endogenous choice to appoint a CAO, Mitsuda (2020) found that firms with CAOs were less likely to restate financial statements. Chief accounting officer tenure was also negatively related with severe restatements, and other internal control weaknesses, such as abnormal accruals. These findings suggest that having a CAOs is associated with improved internal control over financial reporting and a reduction in the auditors' evaluation of the firms' control risk, which may in turn lead to fewer enforcement actions. However, this relationship has not been parsed by CAO gender. Given the CAO's increased involvement in firm financial matters, and women's lesser involvement in all forms of crimes, I expect firms with women CAOs to have fewer future financial violations than firms without women CAOs.

The chief operating officer (COO) is generally responsible for overseeing all aspects of the firm's day-to-day operations, which includes communicating and

implementing companywide strategies, allocating resources, and settling business conflicts (Hambrick & Cannella, 2004), which, in turn, impact firm performance (March & Simon, 1958; Marcel, 2009). However, findings reveal that there are almost no constants (i.e., similarities or patterns) when it comes to the COO (Bennett & Miles, 2006). Executives with very different backgrounds (i.e., sales, marketing, finance, human resources) occupy and excel in this role. Further, there is no consensus on what the COO job entails. Some companies turn responsibility for all areas of operations including production, sales, marketing, and R&D, to the COO, while others task the COO with specific business needs. This variability has made it difficult to examine exactly what characteristics make COOs better or more successful as it relates to firm outcomes. Importantly, because COOs are often next in line for the CEO role (aka the heir apparent), CEOs often concede some of their leadership duties to this executive (Bennett & Miles, 2006). Some critics argue that this sharing of primary responsibilities creates accountability issues that allow the CEO to deflect and escape culpability for incidents in the organization (Boeker, 1992; Abelson, 1999). Hence, some argue that because the COO's role is not primarily defined in relation to the work or structure of the firm, but rather relative to the CEO, the COO role must be examined from this perspective (Bennett & Miles, 2006). ten Using years of data on 400 firms, Hambrick and Cannella (2004) examined whether companies with CEO-COO duos would outperform industry peers without them. Their results revealed that firms with CEOs that had fewer experience in operational activities were more likely to have COOs, and to perform worse than companies without COOs (Hambrick & Cannella, 2004). This finding could suggest that the dual

structure may not be to blame, but that the CEO was weak and the COO had no positive effect on firm performance. However, findings using data from five different industries suggest the opposite. Marcel (2009) examined whether COOs brought increased information processing to TMTs and, in turn, improved firm performance. Marcel argued that firms benefit when TMTs have diverse backgrounds. Because COOs have wide-ranging backgrounds, they have the potential to increase task-oriented conflict within the TMT, increasing the thoroughness of information-processing, resulting in better strategic decision-making and improved firm outcomes. The findings revealed that firms with COOs had a strong positive impact on two frequently used measures of firm performance: return on asset and market-to-book-ratio. However, the findings also revealed that the likelihood of realizing those benefits were depended on the characteristics of the broader TMT, which highlights the importance of looking at the collective TMT and not just the COO and CEO. The couple of studies on the relationship between the COO and firm performance report mixed findings. There are no studies (to my knowledge) examining how and whether women COOs may affect different types of firms offending outcomes.

The chief marketing officer (CMO) is responsible for providing strategic leadership regarding the marketing activities of a firm. Hence, the CMO typically has sales and/or marketing experience and is often regarded as the most direct guardian of a firm's customers (Court, 2007). The CMO's primary role is to facilitate growth and increase sales by developing comprehensive marketing plans that will help the organization gain a competitive advantage. Thus, the CMO is often skilled at managing social innovation and product development initiatives. Boyd and Cunha

(2010) argued that as a leader with responsibility over marketing, CMOs have unique influence over firm performance because they can better help firms (1) identify new market opportunities and risks to avoid, (2) determine marketing investments to be made, and (3) develop and manage a firm's relationships with external stakeholders. However, they also argued, and found, that these outcomes would be dependent on the amount of customer power on the market value a CMO creates (i.e., the amount of discretion given to the CMO). Findings show that firms that engage in high levels of differentiation and innovation are also more likely to employ a CMO (Nath & Mahajan, 2008). However, in their sample of 167 firms between 2000 and 2004, Nath and Mahajan, (2008) did not find that having a CMOs in the TMT was positively or negatively associated with firm performance. Similarly, other studies find that senior marketing executives have no influence in the boardroom (Simms, 2008). These findings revealed that marketing executives tend to function in highly specialized silos, their role is often not well understood within the team, and that they do not last very long in organizations compared to other executives – 23 months on average (McGirt, 2007). Scholars argue that this separation from their colleagues may signal CMOs' greater loyalty for their discipline, rather than to their employers. Yet, other studies find that CMOs have a positive influence on firm performance outcomes, such as sales growth (Weinzimmer, Bond, Houston, & Nystrom, 2003; Germann, Ebbes, & Grewal, 2015) and stock price (Vafeas & Vlittis, 2009). For example, using data from 155 publicly traded firms from 2000 - 2011, Germann et al. (2015) found that firms with CMOs performed 15% better (in terms of Tobin's q), on average, than firms that did not have a CMO. Their results were robust to the type of model specification

used. Similarly, using data from 1987–1991, Weinzimmer et al. (2003) also found a positive correlation between CMO presence and sales growth. In addition, using the same sample as in their 2008 study, Nath and Mahajan (2011) found that CMOs with additional sales responsibilities (i.e., more powerful CMOs) had a positive impact on sales growth. Recent research further demonstrates how the relationship between the CMO, and other functional head executives and firm performance is more nuanced when accounting for differences by industry and other firm level factors (Nath & Bharadwaj, 2020). While some studies exist regarding the relationship between the CMO and firm outcomes (Weinzimmer et al., 2003; Nath & Mahajan, 2008, 2011; Germann et al., 2015), and CMO presence (Nath & Mahajan, 2008), and turnover (Nath & Mahajan, 2017), less is known (to my knowledge) about CMOs and their impact on firm offending outcomes.

Nowadays, the chief human resources officer's (CHRO) main purpose is to recruit and develop talent, which will in turn, drive performance and wealth of the company (Challah, 2006; Groyser, Kelly, & MacDonald, 2011). In addition, CHROs play a key role in setting the direction of a business strategy that corresponds with labor and workforce trends (Abt & Knyphausen-Aufseß, 2017), and help implement the organizational structures that encourage innovation and collaboration. As such, they must be capable of coaching other top executives on how to implement 'projects for progress' (i.e., influence employee behavior) in their individual departments and improve organizational performance (Bottger & Vanderbroeck, 2008, p. 224). Further, they also play a role with compliance and governance, and must ensure that all activities adhere to laws and regulations, as well as provide board development

and executive succession planning (Abt & knyphausen-Aufseß, 2017). Hence, CHROs must handle operational as well as strategic duties and responsibilities. Thus, for CHROs can be effective strategic contributors by anticipating the strategic needs of the firm and by advising and facilitating interactions between top executives (Bottger & Vanderbroeck, 2008). Currently, many practitioners and researchers see CHROs as key strategic executives (Wright, McKinnon, Sartain, Boudreau, & Pace, 2011) who are equally or even more influential than CFOs (Charan, Barton, & Carey, 2015; Donkin, 1999; Josephson & Reinken, 2008; Welch, 2005). Using survey data from HR officers and firm data from 10-K filings on public U.S. companies, Becker and Huselid (1998) found that firms with strong HR practices that reinforce performance had the highest market value per employee. They argued that HR strategies can influence the market value of firms, and that changes in certain HR practices can produce significant increases in market value. However, their study examined HR practices (i.e., strategies) and not on characteristics of HR executives per se. Further, scholars argue that the importance of CHROs in the TMT is only a recent development (Smith, 2015). Historically, HR executives have not been strategic partners (Lawler, 1995; Brockbank, 1999; Lawler & Mohrman, 2000a), and were rather considered administrative type employees with cost control and administrative duties (Ulrich, 1997). Large scale surveys conducted over two decades ago by Lawler and Mohrman (2003), revealed that the amount of time spent by HR executives being strategic business partners did not increase from 1995 to 2001, but that they did play some role in strategy. A recent study using a unique longitudinal dataset of U.S. firms listed in the S&P 500, found that CHROs' role tenure is

positively associated with firm social performance,¹⁶ while their company tenure is negatively associated with this same outcome (Engels, Fischer-kreer, & Brettel, 2021). However, research on CHRO impact and characteristics is still very limited and has yet to produce insights regarding CHROs' influence on firm performance, examined other outcomes like firm offending, or included CHRO's gender differences in their analyses.

According to upper echelons theory, specific characteristics of TMT members can significantly influence firm performance outcomes (Hambrick & Mason, 1984; Menz, 2012). Previous studies have largely focused on the relationship between the CEO, CFO, and financial fraud (e.g., Plöckinger et al., 2016) and examined the antecedents and performance consequences of CMOs (Germann et al., 2015; Nath & Mahajan 2008, 2011); the role of COOs on firm performance (Hambrick & Cannella, 2004; Marcel, 2009); CAOs impact on firms' financial reporting quality (Russomanno, 2014; Mitsuda, 2020), and CHROs influence on firms' social performance (Engels et al., 2021). However, research has not examined how these other key executives,¹⁷ and certain characteristics like gender, relate to firm offending outcomes. I argue that executives with specific qualities (e.g., gender, educational achievement) may have greater *power* to reduce certain types of enforcement actions (e.g., CFO financial) than the CEOs of the firms they lead. The concept of TMT power (e.g., Finkelstein, 1992) is critical to the study of TMTs. Over 50 years ago,

¹⁶ Defined as an aggregated measure of employment quality, diversity and opportunity, training and development, health and safety, human rights, community, and product responsibility (Reuters, 2015).

¹⁷ Note that, the sample contained other executives, such as Chief Information Officer (CIO) and Chief Technology Officer (CTO) that at times were the in top five highest paid executives in the TMT. However, these two other executive positions had too few firm-years observations to make estimations and for this reason could not be analyzed and included.

Child (1972) suggested that powerful managers are likely to have the greatest impact on strategic choices, yet such research is scarce (Finkelstein et al., 2009). The main concern with studies that ignore power inequalities among executives is the questionable assumption that all TMTs share a similar say in decision-making (e.g., Cannella & Holcomb, 2005; Finkelstein, 1992). An uneven distribution of power may block the benefits of TMT gender diversity. Thus, power distribution is important for TMT research due to its consequences for strategic decision-making. Finkelstein (1992) argued that TMT diversity should have a stronger relationship with firm performance when the relative distribution of power is considered. Hence, I examine whether and how *powerful* characteristics of executives relate to various forms of corporate misconduct. Based on findings from empirical research, I expect firms with women CFOs and CAOs in their TMT to have fewer financial violations compared to firms without women CFOs and CAOs in their TMT; and firms with women CEOs to have fewer environmental violations than firms without women CEOs. The relationships between different kinds of offending and other executive roles, however, are less known and are therefore exploratory in nature.

However, Research also suggests that changes in top management might shift the offending patterns of a company regardless of the characteristics of the new executive. Simpson and Koper (1997) examined whether managerial succession influenced the levels of corporate antitrust offending of 43 manufacturing companies over 22 years. Their findings revealed that turnover in top management (CEO change) generally decreased offending levels regardless of the context in which the turnover occurred. “Any turnover in management, whether planned or unplanned,

acceptable or conflictual, would affect firm offending for a brief time leading up to and following management turnover,” because employees are waiting to see what the new company “tone” will be (Simpson & Koper, 1997, p. 394). That is, top management’s philosophy affects how the firm defines and tolerates wrongdoing, and, in turn, changes in top management can influence future offending levels.

Further, changes in top management might not be enough to shift the offending patterns of a company. Findings suggest that organizational culture influences individual norms and social norms concerning illegal behavior (Gorsira, Denkers, and Huisman, 2018). The type of policies that executives endorse can influence the *ethical tone* set at the top of the organization (Clinard, 1983; Simpson, 1992; Jenkins & Braithwaite, 1993). Therefore, employees who perceive the culture of their firm as being less ethical also tend to experience weaker personal and social norms to refrain from wrongdoing. However, Van Rooij and Fine’s (2018) qualitative assessment of major corporate scandals led them to conclude that changing a toxic culture requires a complete overhaul of the values and practices that allowed organizational wrongdoing to take place, and must go beyond holding responsible leaders accountable and replacing them.¹⁸

In sum, from the studies using similar methods, it can be concluded that women executives tend to report more conservatively, and to disclose additional information voluntarily. Similarly, age, tenure, experience, and education seem to reduce risk-tolerance in financial reporting, though earnings management

¹⁸ In the past decade, regulators have increasingly highlighted the importance of corporate culture in preventing misconduct and have placed direct oversight responsibility on both top executives and boards of directors, to ensure they promote a sound culture within their firm (Office of the Comptroller of the Currency, 2016).

manipulations are sometimes observed in a CEO's first and final years. Importantly, recent studies show that firms with multiple women, and with women TMTs having a greater pay slice in the top management team, face fewer operating lawsuits the following year. This is further supported by empirical evidence (e.g., Torchia et al., 2011) from critical mass theory (e.g., Granovetter, 1978; Kanter, 1977a;1977b) that suggests the ability to create alliances should give women more power to advance their choices and accomplish change. The literature suggests two things: Numbers matter (representation) but so do other leadership qualities.

While the perspective that TMTs are positively and significantly associated with firm outcomes has come to dominate the strategic leadership research, there are also theoretical perspectives and empirical evidence that are less supportive of this relationship. For example, a vein of research finds that the external environment shapes firm performance and that the influence of top executives on firm performance remains weak (e.g., Carpenter, 2002a; Aldrich, 1979; Hannan & Freeman, 1977). Therefore, it is important to highlight factors that might mitigate the gender-TMT relationship with corporate crime or independently affect corporate offending. These factors will be included as control variables in my analyses.

3.2 Antecedents of Corporate Misconduct

Even though individual members of an organization are ultimately the "illegal actors" when corporate crimes occur, top executives are also embedded in a context that enables and justifies their actions (Huising & Silbey 2018). A variety of external and internal factors and events have been found to increase the risk of corporate crime. Empirical research has revealed that certain corporate changes, such as

declines in profitability or shifts in form and/or structure, are associated with offending onset or increased frequency of offending (Simpson & Koper, 1997; Wang & Holtfreder, 2012). Thriving economic conditions may increase offending risks by heightening market share competition, which, in turn, creates opportunities for excessive risk-taking (Benson, 2012; Bianchi & Mohliver, 2016; Gino & Pierce, 2009; Mazar, Amir, & Ariely, 2008).

Conversely, as the economy goes wrong, there is uncertainty and firms may experience more pressure to obtain the resources needed to get ahead (Mulligan, 2009; Staw & Szwajkowski, 1975). Top managers may then adopt riskier strategies and engage in misconduct to achieve said performance goals (Staw & Szwajkowski, 1975; Vaughn, 1999), stay competitive, and maintain the firm's place in the market (Collins et al., 2009). For instance, Lumpkin and Dess (2001) conducted a field study in which 124 executives from 94 firms were surveyed. These executives were actively involved in strategic decision-making at the top level of the firm. Results revealed that firms in hostile environments, or in established industries where competition for customers and resources is intense, were more likely to benefit from competitive aggressiveness—a response to threats. Therefore, both thriving and constrained conditions have the potential to influence the decision-making processes and strategies the firm chooses, but whether market pressures lead to corporate crime depended on the effectiveness of the top management team (Daboub, Rasheed, Priem, & Gray, 1995).

As such, the next section reviews firm-level factors that increase pressures inside firms and may influence managers' decisions to engage in actions or choose

strategies that deliberately violate the law, and then contextual factors that may also influence involvement in corporate crime.

3.2.1 Internal Antecedents to Corporate Crime

Firm factors such as company size, organizational profitability, diversification strategies, and structure and control systems (e.g., the board of directors, family-owned) are associated with corporate malfeasance (Daboub et al., 1995; Simpson & Koper, 1997). The key elements, and their impacts, are discussed below.

Size. Larger companies presumably increase opportunities for corporate crime by increasing the number of “transactions” in which offending may occur. In addition, larger firms tend to decentralize decision-making to various areas of the firm, which erodes controls and oversight (Vaughan, 1982). Empirical investigations of this relationship reveal inconsistent results. Early studies did not find support for the organizational size-crime effect (Lane, 1953, 1954; Conklin, 1977).¹⁹ More recent work, using different conceptual frameworks (e.g., opportunity, organizational and political embeddedness, motive) and measures of size (i.e., number of employees, gross revenues, or assets), shows a positive size-crime relationship. Larger organizations are more likely to engage in illegal activity than smaller firms (Prechel & Zheng, 2012, 2016; Asch & Seneca, 1975; Clinard & Yeager, 1980; Gooding & Wagner, 1985; Simpson, 1986; Cochran & Nigh, 1987; Dalton & Kesner, 1988; Baucus & Near 1991; Grant, Bergesen, & Jones, 2002). For example, Baucus and Near’s (1991) study of Fortune 500 companies revealed that across various industries,

¹⁹ Clinard et al., (1979) found initial support for this relationship, but not when a rate measure was created.

large firms were almost twice as likely as smaller firms to engage in illegal behavior. Yet, using different types of data (survey) and a broader set of companies, Radami and colleagues found that higher levels of competition increased the incidence of bribery, but that competitive intensity is lower in larger firms. Thus, larger firms may be more capable of dealing with the pressures of competition and that outcomes (offense types) may differ by the size of the company.

There are multiple explanations for why company size may affect corporate illegality. Larger firms may not be intrinsically different from smaller firms, but the former may experience less costly consequences of illegal actions because they have more resources to pay fines or legal fees when caught offending (Yeager, 1986). At the same time, due to their standing in the market (increased visibility), larger companies may be under more regulatory scrutiny and, therefore, detection (Asch & Seneca, 1975; Hay & Kelley, 1974). Researchers also argue that illegalities are tolerated, or even encouraged, in larger firms because vertical managerial hierarchies and decentralized forms of accountability make it difficult to assign responsibility for the actions – essentially creating more opportunities for offending and for getting away with it (Perrow, 1997; Tillman & Pontell, 1995). Studies also find that larger firms (e.g., those with more assets, employees, etc.) may have more opportunities to engage in offending (Herbert, Green, & Larrogoite, 1998). For instance, larger firms have more transactions and more people to seize those opportunities. Similarly, offending is more likely to occur in larger companies because these larger structures may be more prone to having unintentional silos of management, breakdowns in communications and sharing of information (i.e., facilitating secrecy), and limiting

oversight (Daboub et al., 1995; Vaughan, 1996; Simpson & Koper, 1997), all of which can be more conducive to offending. While there are a number of potential explanations for “why” firm size matters, generally when it comes to corporate crime, bigger usually means more.

Performance. Since the main goal of corporations is profitability and survival depends on profits, declining or poor financial performance at the firm level has been one of the most common explanations for corporate illegality (Geis, 1967; Baucus, 1994; Baucus & Near, 1991; Clinard & Yeager, 1980; Finney & Lesieur, 1982; Gross, 1978). Findings from various studies suggest that poor firm performance is associated with higher rates of corporate misconduct (Burnham, Jeon, & Zeng, 2018; Asch & Seneca, 1975; Perez, 1978; Clinard & Yeager, 1980). Companies going through periods of economic decline may change strategic initiatives to cut costs or increase earnings (Hambrick & Schechter, 1983; Tushman & Romanelli, 1985). Firms that lack financial resources may have a limited number of strategies that they can adopt (Barney, 1991), which may lead certain firms to engage in illegal behavior as a way to survive (Vaughan, 1983, 1992, 1999; Keane, 1993; McKendall & Wagner 1997; Simpson & Koper 1997).

Using panel data on public corporations, Alexander and Cohen (1996) found that low rate of sales or employment growth by the firms was a good predictor of environmental crime and that this type of crime more frequently took place in industries with high growth rates. However, their findings also revealed weak support for the notion that prior performance affects the incidence of other types of crime, especially fraud. They concluded that the performance of a firm, as opposed to the

industry, was a more relevant predictor of illegality. Others, with different data sources and measures, find no association at all between firm performance and corporate crime (Baucus & Near, 1991; Hill et al., 1992; Simpson, 1986). These findings suggest that an adequate examination of this relationship requires breaking down industry-level and firm-specific scarcity, by crime type.

Firms appear to respond differently to scarcity within their organization, as opposed to industrywide economic declines (Wang & Holtfreter, 2012; Daboub et al., 1995). Wang and Holtfreter's (2012) test of the direct and interactive effects of firm- and industry-level strains and opportunity structures revealed that financially strained firms had even higher violation rates in industries experiencing declining financial trends. Maksimovic and Titman (1991) indicate that managers may commit fraud when their firms are struggling financially. However, their findings also indicated that firms experiencing financial growth had higher violation rates in rapidly growing industries. The finding that corporations operating in munificent environments engaged in more illegal acts is also seen in other studies (Alexander and Cohen 1996; Stretesky 2006). These seemingly contradictory findings support the idea of a curvilinear relationship, in that some kinds of offending may occur during periods of munificence (Simpson, 1986:872), while others may occur during harsh economic times.

Strategies. International diversification strategies provide significant performance benefits to firms (Caves, 1996; Hitt, Hoskisson, & Ireland, 1994; Kim, Hwang, & Burgers, 1993), but this type of company expansion is also associated with increased levels of illegal activity. Diversification strategies often produce a rapid

increase in the size of the firm, which may in turn reduce the effectiveness of control systems and diffuse responsibility when wrongdoing is discovered (Fatemi, 1984; Geringer, Beamish, & daCosta, 1989; Hill et al., 1992). Diversification can also increase communication and coordination problems between departments, which can create chaotic and inefficient work environments (Finney & Lesieur, 1982).

Decisions to diversify, intensify innovation (i.e., more aggressive R&D), or boost marketing are made by the top management team within those firms who are influenced by outside factors (Tihanyi et al., 2000; Athanassiou & Nigh, 1999; Sambharya, 1996; Wiersema & Bird, 1993). Hitt and Tyler (1991) used a telephone survey to examine the extent to which firms' strategic decisions of acquisition made by top managers were constrained and influenced by the firms' industry and by executives' characteristics. They hypothesized that individual executives' characteristics would explain a significant amount of variance in the strategic decisions, above and beyond the variance explained by other variables. Their findings revealed that objective criteria (i.e., the firm's external firm environment and internal operations) explained most of the variance, which varied by industry, but that executive characteristics of age, educational background, years, and type of work experience produced statistically significant but small main effects on strategic decisions. They also found discounted cash flow to be one of the most important predictors of acquisition decision, which supports the idea that "profit-squeeze" plays a critical role in diversification and acquisition decisions.

From this literature, I conclude that studies of firm behavior must account for key industry and firm characteristics and that not all types of corporate offending will

necessarily follow similar patterns. Thus, it will be important to control for these variables when examining corporate offense patterns.

The Board of Directors. In addition to firm-level contextual factors, corporate governance structures jointly affect the type of strategic decisions made by the top management team. One corporate governance structure often examined is the board of directors. Research on corporate governance suggests that firms' boards may also influence the strategic activities of the firms they represent (Chen, Crossland, & Huang, 2016). In recent years, the influence of gender and racial diversity on boards of directors has garnered increasing attention (Franceschet & Piscopo, 2013). Further, findings reveal that the consequences of corporate misconduct are suffered not only by the implicated firm but also by its managers (Karpoff, Lee, & Martin, 2008b; Wiersema & Zhang, 2013; Gangloff, Connelly, & Shook, 2016) and directors (Srinivasan, 2005; Fich & Shivdasani, 2006). Therefore, in this section I review studies that examine whether, and how, the board (and its characteristics) influences the top management team and the offending behavior of the firm.

As previously mentioned, in publicly owned companies, shareholders elect or appoint directors to jointly oversee the activities of the organization as stipulated in the firm's internal guidelines, and by outside regulations. The board is the primary source of governance and oversight for firms, whose primary responsibility is to ensure that the firm's strategic decisions and the implementation of these decisions do not violate the law. Corporate governance is the way by which boards handle the separation of ownership and control, where executives may not have incentives to act in their shareholders' best interests. Because the behavior of managers can have a

great impact on the performance of a firm, Boards are also expected to take action (such as firing a top manager, sanctioning, and rule setting) when the firm fails to comply with the law. This idea of incentives/penalties or a transaction between two parties ties to principal-agent theory, which focuses on corporate governance arrangements and how the board aligns the interests of executives and shareholders (Fama, 1980; Jensen and Meckling, 1976). Specifically, this theory deals with an explicit social relationship, that is, delegation, in which two individuals are involved in an exchange of resources. The principal is the individual who has certain resources but “not those of the appropriate kind to realize the interests (for example, has money but not the appropriate skills or power)” (Coleman, 1990, page 146). In the case of a firm, the principal (e.g., shareholders, stockholders) needs an agent (e.g., a director), who accepts these resources (i.e., monetary incentives, stocks, etc.) and is willing to further the interests of the principal. In this way, boards can influence the strategic decisions and change the offending patterns of the firms they represent (Carpenter & Westphal, 2001; Westphal & Fredrickson, 2001).

Empirical studies reveal that the most effective variables of “good” governance are board independence, remuneration, duality, and diversity. These variables influence how directors decide on the right governance structures and mechanisms (e.g., monitoring function), which in turn improves firms’ financial and nonfinancial performance. For instance, a higher number of independent directors (nonexecutives) are found to improve the board’s objectivity and ability to represent multiple points of view (Kock, Santaló, & Diestre, 2012). Board compensation policies requiring CEOs to own stocks are shown to have a positive effect on a

company's technical efficiency by aligning top management and shareholders' interests (Bozec, Dia, & Bozec, 2010). CEO duality (where the position of the CEO and chairman of the board are combined) may lead to a weakened monitoring function of the board due to the CEO's enhanced power and control of the board's meeting agendas (Tuggle, Sirmon, Reutzel, & Bierman, 2010). Gul and Leung (2004) and Cerbioni and Parbonetti (2007) investigated the effect of CEO duality on disclosure quality. They found that firms with dual CEOs tend to disclose fewer voluntary information. Recently, companies caught in serious wrongdoing have been deliberately separating these two roles to achieve better outcomes.²⁰

There is large consensus in the corporate community in that diversity is an important goal (Barrett, 2010). Despite growing agreement for achieving diversity, empirical evidence between board diversity and firm performance is mixed. Studies examining ethnicity and racial diversity on boards find that minority representation on boards is significantly and positively associated with return on assets, return on investment, and equity (Erhardt, Werbel, & Shrader, 2003; Carter, D'Souza, Simkins, & Simpson, 2010; Carter, Simkins, & Simpson, 2003). Conversely, Carter et al., (2003) found no significant relationship between financial performance, as measured by Tobin's Q, and the number of minority or women directors on the board or on certain board committees. However, most of the board diversity research to date has focused on the effect of gender diversity on boards. Thus, sufficient and rigorous

²⁰ Such as Wells Fargo Bank's major fake accounts scandal, in which pressured employees asked to achieve unrealistic sales' goals created millions of savings and checking accounts for customers without their knowledge or approval (Premachandra & Filabi, 2018). The CEO was forced to resign, and the Bank paid over \$2.7 billion dollars in civil and criminal lawsuits. <https://www.forbes.com/sites/jackkelly/2020/02/24/wells-fargo-forced-to-pay-3-billion-for-the-banks-fake-account-scandal/?sh=2d2208eb42d2>

research is lacking on the relationship between board ethnic/racial diversity and long-term indicators of firm performance in order to make any definitive conclusion about this relationship.

Cross-sectional work suggests that boards with more women directors have significantly higher firms' level of social responsibility (Boulouta, 2012; Setó-Pamis, 2015) and has been linked to lower levels of, or better monitoring of, corporate risk-taking (Ararat, Aksu, & Cetin, 2010). Greater representation of women on boards also has long-term positive economic consequences (Bugeja, Matolcsy, & Spiropoulos, 2012)—both of which are associated in the corporate crime literature with lower company offending levels (Lenard, Yu, & York, 2017; Steffensmeier, Schwartz, & Roche, 2013; Clinard & Yeager, 1980; Wang & Holtfreter, 2012). A study by the University of Adelaide in Australia, examined the relationship between board gender diversity and environmental violations using a sample of all environmental lawsuits filed (N=1,893) against the Standard and Poor's 1500 (S&P 1500) firms in United States Federal Courts during 2000–2015. The results revealed that for every additional woman director appointed to a board, the firm reduced its chances of being sued over environmental violations by 1.5 per cent (Liu, 2018). The study further revealed that having a women CEOs was also linked to reduced environmental litigation but only in firms with low female board representation.

Evidence that board gender diversity benefits firms' financial performance, however, has been also been challenged.²¹ Post and Byron's 2015 meta-analysis

²¹ For a comprehensive review of studies examining the relationship between racial, ethnic, and gender diversity on corporate boards of directors on firm performance see Rhode, D., and Packel., A. (2014). Diversity on Corporate Boards: How Much Difference Does Difference Make? *Delaware Journal of Corporate Law* (DJCL), Vol. 39, No. 2 pp. 377-426, 2014

examined whether the relationship between female board representation and performance varied by firms' legal/regulatory and socio-cultural contexts. Their study synthesized findings of over 140 research studies with a combined sample of more than 90,000 firms from more than 30 countries. Results from their meta-analysis revealed a *more* positive relationship between female board representation and accounting returns in countries with stronger shareholder protections, as well as a small but positive relationship between female board representation and market performance in countries with greater gender equality (and negative in countries with low gender equality). However, a different meta-analysis has found no relationship to performance at all (Pletzer, Nikolova, Kedzior, and Voelpel, 2015).

Similarly, other studies find no effect for women directors improving firm governance (Erkut et al., 2008; Konrad, Kramer, & Erkut, 2008) once an offending path has been established. The fact that women directors hold fewer positions in key committees, and are still underrepresented, could explain why an increase of women on boards of directors (one or two) has no effect on improving firm governance (Kramer & Konrad, 2008). Yet, compared to men, women consistently report greater moral condemnation for a variety of criminal behavior, as well as more fear of suffering the consequences from engaging in crime (Simpson, 2002; Tibbets & Herz, 1996; Finley & Grasmick, 1985). Importantly, firms caught in wrongdoing scandals often re-structure their board by adding more women directors in an effort to both penalize directors for failing to monitor management and to appease stakeholders' demands by endorsing what are perceived to be more "law-abiding" advisors (i.e., restoring legitimacy). A similar process occurs at the TMT level. Women are also

often hired or promoted to top leadership roles (e.g., CEO) after a scandal has been discovered internally, or when the company is in crisis, so they are later associated with trace of crime or company decline (Cook & Glass, 2014). Rhode and Packel's (2014) extensive review of this literature led them to conclude that despite the mixed findings, well managed diversity can and should indeed improve decision making in firms. They argue that such benefits can only be achieved when companies extend diversity beyond tokenism (just one), and when they are held accountable for their progress. Plausibly the failure to include a critical mass of women and minorities, and the failure of placing them in the "right" role, may at times inhibit the potential benefits of diversity (Fairfax, 2006). Further, corporations have a well-documented history of appointing women and minorities (often just one) and then tasking them with too many board positions, effectively leaving them unable to provide appropriate oversight (O'Connor, 2006; Fairfax, 2006). However, differences and shortcomings in methodological techniques, sample sizes, and issues of endogeneity and reverse causality may be responsible for the mixed results of the relationship between increased gender diversity and firm offending outcomes. As such, in the next section, I link external antecedents to organizational offending behavior and to turnover in a firm's top management team demographic characteristics.

3.2.2 External Antecedents to Corporate Crime

Changes in macroeconomic conditions influence the incidence and type of misconduct in which companies participate. Challenging economic periods impact firm behavior by feeding into the sources of firm "profit-squeeze" (Simpson, 1986), which creates uncertainty on firms' ability to survive in the market and, in turn,

produces pressure to adopt “innovative” strategies to reduce instability (March & Simon, 1958; Aldrich, 1979, 2008; Pfeffer & Salanick, 1978). Previous research has frequently considered economic trend variables at the firm and industry levels when examining organizational illegality (Simpson, 1986; Staw & Sz wajkowski, 1975; Baucus & Near, 1991; Asch & Seneca, 1975). However, as mentioned, economic trends can have a differential impact on industries, with some industries taking a greater shock than others (Wang & Holtfreter, 2012). For this reason, this section discusses the relationship between key cohort effects on firm behavior.

Political Environment. There is general consensus in the literature on compliance and regulatory enforcement that “politics matter” (Haines, 2011, p. 229). Agencies are highly sensitive to the political environment (Kagan, 1994), and adopt “flexible enforcement strategies” when the political costs of enforcing change according to political, economic, and informational context (Gordon, 1999). In addition, politicians can shape the enforcement approaches adopted by regulators by exerting control through direct oversight mechanisms (e.g., monitoring) and administrative actions imposed on the agencies (McCubbins et al., 1987) to benefit their own financial or political interests. As an example of this conflict of interest, politicians and their spouses are allowed to own shares in corporations, which often yield large sums of money. For instance, West Virginia representative Joe Manchin has holdings valued between \$1 million and \$5 million in Enersystems, Inc. - a coal company, and has openly refused to pass legislation to regulate climate emissions. Passing such green legislation may likely harm Manchin’s future earnings in the coal industry. Similarly, Andrew Wheeler a former coal lobbyist, ran the U.S.

Environmental Protection Agency under President Donald Trump. Wheeler is known for his aggressive roll back of environmental regulations under Trump, including weakening vehicle emissions standards and clean power rules. Yet, little research exists regarding the links between special political interests and its association to corporate malfeasance, regulation and deregulation, and accountability. As such, many argue that regulation is a political process that emerges from, and is shaped by, political demands, interests, and ideologies (Short, 2021).²²

Previous studies find that changes in government administrations are linked to changes in punitiveness and enforcement levels against corporations (e.g., Moe, 1982, 1985; Scholz & Wei, 1986; Simpson, 1987; Hutter, 1989; Scholz et al., 1991; Carpenter, 2002; Shrock, 2013; Almond & Esbester, 2018). Specifically, regulatory enforcement is found to be more lenient during republican years where regulation is often publicly vilified for threatening individual liberty (Earnhart, 2004; Innes & Mitra, 2015). Innes and Mitra (2015) isolated the causal effect of political representation on enforcement levels by looking only at U.S. congressional districts where elections were very close (no strong voter preferences) and open (no incumbent running). In this way, they removed the possibilities that regulatory outcomes are driven by strong citizen preferences and/or riddled by selection bias due to potential established preferences towards re-electing an incumbent. Their findings revealed that the election of a Republican (vs. Democratic) representative lead to a 20 to 30 percent reduction in the probability that a local

²² Some further argue that the failure in the regulatory process may be likely entrenched in political corruption and the power that politicians over agencies and policy making (i.e., shaping regulation) to serve their own interests (Shover, Clelland, & Lynxwiler, 1986).

facility would be inspected by the US Environmental Protection Agency under the Clean Air Act in the year after their election. Their results suggest that politicians (and their parties) exert some influence on the agency, independent of constituent preferences. Intuitively, one could argue that firms may perceive lower (or have actual lower) threats of enforcement actions and penalties during lenient government administrations (deregulation), which, in turn, may create a sense of impunity and a disincentive to add women executives to decrease enforcement action levels. Thus, similarly to Simpson (1987), I expect that the relation between enforcement actions and changes in TMTs will be affected by variations in periods of business regulation and deregulation. In other words, levels of governmental responses (i.e., enforcement of criminal, civil, and regulatory laws) to corporate malfeasance are expected to vary by political administration (i.e., democrat or republican party). Specifically, I expect to see higher levels of enforcement (i.e., more enforcement actions) during years in which a democratic president is in power, and lower enforcement levels when a republican president is elected.

Economic Cycles. However, history also shows that the regulatory stance tends to strengthen following recessions and weaken during economic booms. For instance, the 2000s financial boom coincided with a period of financial deregulation, and the post-2008 mortgage crisis response, with a considerable increase in regulation, was mostly implemented during the economic recession. At the same time, economic cycles affect the survival of firms. A general economic slowdown means lesser growth prospects for companies, which puts a lot of stress on TMTs and firm finances. During difficult economic times, some TMTs may turn to strategies

such as innovation and diversification, which are considered risky, but value increasing (Holmstrom, 1989; Manso, 2011; Tian & Wang, 2014; Adhikari & Agrawal, 2016). However, not all companies experience a “profit-squeeze” during scarce economic cycles. Some companies continue to thrive during these times. Baucus and Near (1991) found that illegality is likely to take place in depressed markets, but it was even more prominent during munificent economic cycles supporting a curvilinear relationship. These findings have led various scholars to conclude that market munificence may generate both increased opportunities and higher levels of competition for those markets, which, in turn, may lead firms to use illegal strategies to stay profitable and survive (Alexander & Cohen, 1996; Stretesky, 2006; Clinard & Yeager, 2006). Thus, firms that are performing poorly may not want to add more women executives, who are more risk-averse than male executives, and may prefer to stay focused on strategies that improve financial performance outcomes. Therefore, this dissertation controls for firms’ risky strategies using a proxy measure that taps into firm spending on R&D or innovation.

Board Gender Diversity. Cultural changes towards gender equality and justice, like the feminist revolution or the #MeToo movement, are also thought to impact and shift gender diversity in the workplace. However, evidence from 1970s and early 1980s (during the feminist movement) revealed that despite women entering the workforce in large numbers, they were still unable to advance beyond a certain level of management. This pervasive exclusion of women and minorities in top ranked positions of management and boards became so evident and blatant that it came to be universally known as the “glass ceiling effect”. While more women have

advanced to higher roles since then (Papadopoulos & Mishra, 2019), the gender disparity is still stark. In 2019, the proportion of women in the C-suite roles was 21% (Huang, Krivkovich, Starikova, Yee, & Zanoschi, 2019), and only 6% of CEOs positions in S&P 500 companies are held by women as of 2021 (Catalyst, 2021). As of 2019, post #MeToo movement, 41% of companies still have one woman or less on their boards (2020 WOB, 2019). Nevertheless, 2019 saw the largest increase (46%) in percent of new directors who are women in S&P 500 companies – up from 22 percent in 2016 and 38 percent in 2018 (Papadopoulos & Mishra, 2019). This suggests greatly increased representation of women on corporate boards, but a much slower progress of women representation in the TMT. This increase is thought to be driven partly by evolving social norms manifested in shareholding engagement and pressure, as well as by regulation mandating diversity quotas. Qualitative findings reveal that while the #MeToo movement did not impact companies' structures directly, the movement impacted stakeholders which then influenced firms and their structures. Over sixteen countries, and the state of California, have mandated gender quotas aimed at increasing women's representation on boards, and many more have voluntarily (or due to investors' pressure) established quotas in corporate governance codes. California's regulation requires public companies based on the state (over 700 of them) to have at least one woman on their boards by 2019, and at least three women directors by 2021 for boards with six members or more. While the goal of equality and diversity at the top of corporations appears to be on the right track, these evolving norms, however, may create unintended negative consequences for other firm outcomes.

Recent studies suggest that the pressure to increase gender diversity may have negative consequences to performance and exempt minority directors from consequences after a scandal has taken place. Results from a study that used hand-collected data of directors who served on firms that were accused of accounting fraud by the SEC between 1996 and 2012, reveal that women and ethnic/racial minority directors experience—relative to their White male counterparts—fewer adverse consequences from the penalties in the director labor market that usually follow involvement in corporate wrongdoing (Naumovska, Wernicke, & Zajac, 2020). They conclude that the pressures to staff the board with women and minorities, accompanied by the perception of scarcity of qualified candidates, are major advantages that provide “reputational immunity” to women and minority directors from experiencing consequences post scandals. Further, findings from a recent suggest that policy interventions targeting greater diversity should consider match-specific qualities in forming teams to prevent the potential negative impact of diversity and aim to reduce existing biases against certain groups. Calder-Wang and colleagues (2021) examined whether forced or voluntary diversity in teams produced similar results by studying the performance of groups that were assembled by an algorithm versus groups where the members chose themselves. They used data from nearly 4,000 students from an MBA program at Harvard Business School from 2013 to 2016. Their first finding revealed that when students were allowed to select their teammates, they formed groups that were significantly less racially/ethnically diverse than when the groups were created by the algorithm. Secondly, they found that in the teams that were randomly assigned by the algorithm to be diverse (i.e., forced

diversity), greater racial/ethnic diversity led to significantly worse performance. Though, the negative performance effect of diversity diminished when teams were voluntarily diverse (i.e., when they formed voluntarily). Further, they found that teams with more women performed considerably better when their faculty section leader was also a woman. Finally, their study also revealed that when students were matched with teams that were the same in terms of both gender and ethnicity, their teams performed much better than teams that were different on both dimensions, or on either dimensions. While the results of this study apply to performance, and not to offending, the important take-away is that even well intended policies can have unintended negative consequences. Given the findings regarding women directors and offending, I take into account (i.e., control for) changes in percent women-minority director when examining changes in corporate offending.

Gender Pay Gap. Another macro-level factor that could impact changes in TMT gender diversity is the gender pay gap. The gender pay gap refers to the differences in average pay between men and women. There is no research (to my knowledge) that examines how changes in the pay gap (e.g., an increase in the gap indicating further inequality) affect representation by women in TMT and future firm enforcement actions, but this inclusion is consistent with cultural shifts shaping longitudinal patterns of behavior. While women's labor force participation has grown significantly since the 1950s, there is still a significant difference in earnings between men and women than cannot be explained by a single factor (e.g., differences in industries or jobs worked, years of experience, education, hours worked, and discrimination) (Bureau of Labor Statistics, 2018). Most recent Census Bureau data

from 2017 revealed that women of all races earned, on average, just 82 cents for every \$1 earned by men of all races – 20% less per hour worked, on average. Recent research examining various cohorts of women throughout this past century reveals that a portion of the pay gap is due to occupational sorting. Meaning, a female physician, rather than maybe becoming a cardiologist in a top-tier hospital, because of the demands that make it very difficult to have a family, will sort into, family medicine, for example. That is, many women curtail or adjust their careers as a part of a response or demand for needs at home, such as a career with more flexible hours to pick up kids from school. However, research about gender differences in work outcomes once women reach top management shows a significant pay gap ranging from 5% and 16% between men and women executives, attributable to unobserved factors (Bertrand & Hallock, 2001; Blau & Kahn, 2006, 2006a; Muñoz-Bullon, 2010; Elkinawy & Stater, 2011). This unexplained portion of pay disparities at the top is usually interpreted as evidence of gender inequality (Elvira & Saporta, 2001). While understanding the factors that are known to impact participation by women in the labor force and the gender gap is beyond the scope of this dissertation, taking into account (i.e., controlling for) changes in the gender pay gap may impact the number (plurality), the compensation, and the speed at which women are represented at the top of corporations is key to a comprehensive examination of changes in corporate offending.

In sum, there is large consensus in the management and corporate criminology literature that salient historical events and other experiences (namely cohort effects), such as economic shocks, political changes, and cultural shifts, impact companies’

outcomes and performance, but that companies through strategies and actions also influence the larger environments in which they operate (Daboub et al., 1995; Simpson, Layana, Galvin, forthcoming). In this way, firms' illegality depends partly on the broader circumstances and firm-level characteristics in which they are embedded (Clinard & Yeager, 1980; Baucus & Near, 1991). These changes in the "local life circumstances" of organizations, such as the degree of product diversification, risk preferences, and relationships with other firms, are critical to understanding firms' actions in that they contextualize the environment in which companies operate. Yet, the empirical research also shows that conditions inside (i.e., the characteristics of) top management teams, independent of the environment, also influence firm outcomes (Baucus, 1994).

3.3 Hypotheses Development

Drawing from the TMT and corporate crime literature, I develop several research hypotheses. I first ask, is greater representation (i.e., plurality) of women in TMTs associated with decreased offending in firms over time?

Hypothesis 1a: A firm will have no significant change in enforcement actions when its top management team goes from having no woman executive to one woman executive (token).

Hypothesis 1b: A firm will have significantly fewer enforcement actions when its top management team goes from having exactly one woman executive (token) to having two or more women executives (plurality).

A firm with exactly one woman executive in the TMT could be a sign of tokenism or merely symbolic lip service to stakeholders that diversity and inclusion matters and thus have no effect on future enforcement actions while having more than

one woman executive in the TMT may allow women to form coalitions and have greater influence within the team to affect future enforcement actions.

In addition, simply adding more women to TMTs will not necessarily affect corporate offending. Instead, the sum of the “influential” attributes of these multiple women executives should produce a change within their team choices that gradually shift their firm’s offending patterns. In other words, having *more* women executives that lack “powerful” attributes will not be enough to produce meaningful change in the firm’s offending behavior. In order to exert authority in the group decision-making efforts, executive women also need rank, expertise, ownership, and prestige, and must be paid the same or more than their male counterparts. Therefore, I ask, what is the role of relative power on the TMT? That is, when women have a greater share of power, does that have a stronger influence on offending? And, I argue that diverse TMTs with *more powerful* women members will reduce risky decision-making strategies, which, in turn, will decrease the likelihood of firm enforcement actions. Stated formally:

Hypothesis 2a: A firm will have significantly fewer enforcement actions when its top management team goes from having women executive(s) with less payslice to having women executive(s) with more payslice (structural power).

Hypothesis 2b: A firm will have significantly fewer enforcement actions when its top management team goes from having women executive(s) with less ivy-league education (prestige) to having women executive(s) with more ivy-league education.

Hypothesis 2c: A firm will have significantly fewer enforcement actions when its top management team goes from having women executive(s) with less educational achievement (expertise) to having women executive(s) with more educational achievement.

Hypothesis 2d: A firm will have significantly fewer enforcement actions when its top management team goes from having women executive(s) with less shares (ownership power) to having women executive(s) with more shares.

Hypothesis 2e: A firm will have significantly fewer enforcement actions when its top management team goes from having no woman executive holding a CEO Title (structural power) to having a woman executive with a CEO Title.

Hypothesis 2f: A firm will have significantly fewer enforcement actions when its top management team goes from having women executive(s) with less power in the top management team, measured by women executives' aggregate power (plurality + pay slice + shares + elite education + educational achievement + highest title (CEO)), to having women executive(s) with more power.

Given the empirical evidence showing mostly consistent findings regarding the importance of executives' education in various firm performance outcomes, I expect the two educational components of the *power* construct to have the greatest weight and significance in predicting fewer enforcement actions.

Similar to Dezsó and Ross (2012) and Klein and Harrison (2007), I expect the benefits of gender diversity to be context specific. The position (and function) that the executive occupies within the TMT may establish the type of corporate illegality that they may be able to affect (or influence). The bulk of the evidence suggests, that despite their ranked role, women CEOs may not be as influential in curbing financial violations, but instead may be associated with fewer future environmental violations (Wang & Ju, 2019; Liu, 2018; Jiang & Akbar, 2018.). As a result of having the highest ranked position, women CEOs may not only feel increased responsibility and pressure towards their community to act in greener ways but the power set by this top ranked role may allow them to exert their socially responsible influence on the rest of the TMT to make increased corporate environmental investments and decreased

environmental offending violations.²³ While both the CEO and CFO work closely to find investment prospects while considering the financial risks and benefits of each opportunity, the CFO is often viewed as the head figure when making decisions of investments because they are directly responsible for analyzing and making recommendations to improve the firm's financial performance. Thus, the CFO is a key individual with the bulk of profit-and-loss responsibilities who may also have greater influence than the CEO on a firm's financial decisions and outcomes. However, the CAO financial responsibilities and visibility in the TMT has increased in recent years. The CAO, who typically reports to the CFO, is uniquely positioned to exert detailed control of various accounting and finance matters that could also significantly affect their firm's involvement in financial violations. Given the importance of these roles in the TMT and their unique positions (context) to impact either firm strategic financial decisions or societal practices, I hypothesize:

Hypothesis 3a: A firm will have significantly fewer financial enforcement actions when its top management team goes from having women executive(s) positions with fewer links to financial outcomes (e.g., CFO, CAO) to having more women in positions linked with financial outcomes.

Hypothesis 3b: A firm will have significantly fewer environmental enforcement actions when its top management team goes from having no woman executive holding the highest ranked executive position (i.e., CEO) to having a woman executive holding the highest ranked executive position.

²³ As previously stated, gender socialization theory suggests that women are more concerned with the welfare of stakeholders, making them more likely to take action to prevent environmental risks that can harm communities (Carlson, 1972; Gilligan, 1977). While diversity theory posits that women executives bring different perspectives and offer a wider range of eco-friendly solutions, which improves team decision-making on environmental issues (Erhardt et al., 2003; Westphal & Bednar, 2005; Cumming et al., 2015; Estélyi & Nisar, 2016).

To summarize, Hambrick and Mason (1984) argued that executive characteristics should be related to firm outcomes. To date, however, most of the research has exclusively focused on the relationship between the main executive's (often the CEO) characteristics and firm outcomes, which may provide an incomplete picture of this relationship. The empirical evidence available to date suggests that the composition of the entire TMT has implications for firm outcomes. Some TMT's features (e.g., pay slice) may be related to operations-related lawsuits (Adhikari et al., 2019) and fraudulent financial reporting (Zahra et al., 2005; Lovata, Schoenecker, & Costigan, 2011; Dunn, 2004). Though management research on TMT's characteristics and firm performance exist, less is known regarding the relationship between changes in the TMT's characteristics as an aggregate and its impact on corporate misconduct. This study addresses these gaps mainly by studying the effect that changes in the gender of these five executives may have on various types of corporate illegality over time, while acknowledging and accounting for other TMT characteristics known to be associated with firm performance such as tenure, educational background, and elite education, as well as accounting for the current firm and economic environment in which individual action takes place.

Chapter 4: Methods

4.1. Sample and Data Description

The data used in this dissertation combine administrative data from a number of different sources.²⁴ The companies selected for the study include over 3,000 U.S.-based publicly traded companies listed in the S&P 1500 index each year between 1996 and 2013. Companies in the sample include both offending and nonoffending companies and remain in the sample as long as they are part of the S&P.

Corporate offending data are measured by governmental enforcement actions and are categorized under three types: financial/corruption (i.e., FCPA bribery and accounting violations), environmental, and anticompetitive. A portion of the offending data was collected manually both by (1) graduate students, and by (2) Professor Jerry Martin from American University who collected data on violations of the Foreign Corrupt Practices Act (both accounting and bribery violations) during the same time period (Karpoff, Lee, and Martin, 2008). The sources used to capture enforcement actions include publicly available enforcement releases from the Securities and Exchange Commission (SEC), and case records from the Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) database, the Federal Trade Commission (FTC) and the Department of Justice's Antitrust Division (DOJ-AT). Enforcement actions contained a number of attributes, such as the case filing dates and charges, domain (civil, criminal,

²⁴ Note that most data (except for TMT characteristics) were collected for National Institute of Justice, Office of Justice Programs, and U.S. Department of Justice project #2015-IJ-CX-0008. Citation: Simpson, Sally S., Shapiro, Debra L., Beckman, Christine M., and Martin, Gerald S. Preventing and Controlling Corporate Crime: The Dual Role of Corporate Boards and Legal Sanctions, United States, 1996-2013. Inter-university Consortium for Political and Social Research [distributor], 2021-04-29. <https://doi.org/10.3886/ICPSR37463.v1>

regulatory),²⁵ case outcome, and sanctions (e.g., fine amount). Anticompetitive behaviors included most violations of the FTC Act and the Sherman Act (Section 1 and 2), and Clayton Act violations, such as conspiracy to fix prices; monopolization; and unfair, deceptive, and fraudulent business practices. Accounting violations included financial fraud and other disclosure and reporting violations, securities violations, market manipulation, insider trading, among others. Bribery violations include the bribing of foreign officials. Environmental violations captured a wide variety of offenses, including (among others) violations of the Clean Air Act; the Clean Water Act; the Resource Conservation and Recovery Act (RCRA); and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).²⁶ The offending data were structured by firm offense, which were then linked to a database of firm characteristics by aggregating firm offenses by firm year.

Firm characteristics were extracted from several databases including: ExecuComp, ISS/RiskMetrics, KLD, CRSP, and Compustat. Data about corporate board members came from the Institutional Shareholder Services (ISS, formerly

²⁵ The government can respond to alleged environmental and financial violations in criminal, civil, and/or regulatory venues. Analyses were also performed to ask whether the TMT-offending relationships vary by offense severity (as measured by enforcement action response). Additional analyses were conducted to assess: (1) whether past changes in governmental responses to firm offending predict changes in TMT women executives; (1) whether past changes in punitiveness of enforcement actions (i.e., fines and sanctions) to firm offending predict changes in TMT women executives. These analyses are available upon request.

²⁶ Unlike other enforcement actions, cases from the CERCLA Act 42 U.S.C. §9601 et seq. (1980) -- informally called Superfund, typically involve numerous parties and are handled differently legally. The act empowers the federal government to respond rapidly to address environmental concerns (e.g., toxic waste, spills, and other pollutants), or by ordering responsible parties to do so, with harsh penalties and in some cases steep damages when failing to comply with such orders (United States Environmental Protection Agency, n.d.). Additionally, CERCLA authorizes private parties, as well as federal, state, and local governments to recover the cleanup costs they incur, which often run into millions of dollars. CERCLA is thus considered much broader than any of the other federal environmental statutes and has been described as “undoubtedly a complicated statutory scheme.” (Barr, 1990, p. 924).

RiskMetrics) database. Lastly, details about TMT came from the Execucomp database, which reports information about the five highest paid executives of S&P 1500 firms. This information included a number of attributes, such as university attended, educational level, age, tenure, and compensation. The specific dataset used to obtain TMT pay (TDC2), age, and sex is entitled “Compustat Executive Compensation - Annual Compensation”, and the data for this dataset is collected directly from each company’s annual proxy filed with the SEC (DEF14A SEC). Education data (i.e., University attended, degree, and year of achievement) was obtained from BoardEx – Individual Profile Education: NA - SMDEs Profile - Education & Achievements. As mentioned, data were structured by firm year so that changes in TMT characteristics and other firm indicators (e.g., size) could be tracked from year to year. Linking of information from all of these sources was done via the firm’s *gvkey* (i.e., a unique ID assigned to a publicly traded company) and the fiscal year (additional information about linking datasets will be provided in the next section).

4.2 Data Description

Firm data and offending information were collected for each of the companies on the largest S&P’s 1500 publicly traded companies; however, not all firms appear in the S&P consistently throughout the 18-year period (1996-2013). The majority of firms had no enforcement actions brought against them for the three broad types of offending covered. Approximately 25%, however, had some type of enforcement action filed against them. The initial sample of offending firms included enforcement actions for EPA superfund cases and resulted in a total of 10,812 enforcement

actions. As shown in Figure 1, the most common enforcement type is environmental (72% of cases; superfund cases are included here), followed respectively by FCPA (24%) and anticompetitive (4%).

Figure 1. Total Offense by Type

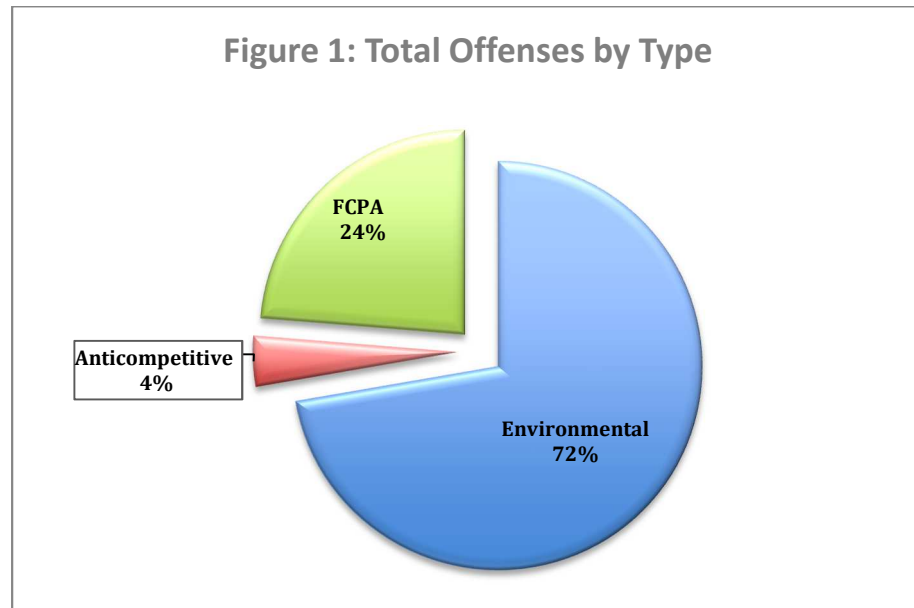


Figure 1 - from NIJ report: Preventing and Controlling Corporate Crime: The Dual Role of Corporate Boards and Legal Sanctions. (2019). Simpson, S.S., Shapiro, D. L., Beckman, C. M., & Martin, G. S. NIJ project #2015-IJ-CX-0008.

Governmental response to offending is also disproportionately distributed. The most common enforcement type (57%) is administrative/regulatory, followed by civil (38%) and criminal adjudications (<5%). There is some variation in these patterns by offense type. Accounting/bribery actions are more likely to be civil (44%) than regulatory (39%), while the opposite is true for environmental and anticompetitive offenses. Across all offense types, criminal adjudication is the least common legal response to corporate offending. In the aggregate, a small number of firms—23%—are responsible for most firm-years in which offending occurs.

Table 1. Offense Type by Legal Regime, N=Firm-Year Observations

	Accounting/ Bribery Offenses		Environmental & Anticompetitive Offenses		Total	
Venue	N	%	N	%	N	%
Administrative	1,097	38.83	5,087	63.68	6,184	57.19
Civil	1,258	44.53	2,859	35.79	4,117	38.07
Criminal	469	16.6	42	0.53	511	4.72
Total	2,824	100 %	7,988	100%	10,812	100%

Table 1 - from NIJ report: Preventing and Controlling Corporate Crime: The Dual Role of Corporate Boards and Legal Sanctions. (2019). Simpson, S.S., Shapiro, D. L., Beckman, C. M., & Martin, G. S. NIJ project #2015-IJ-CX-0008.

An advantage of using administrative data to capture enforcement actions on corporations is that it allows capturing and tracking a large number of firms across many years and linking it with official records that firms are required to report to the SEC regarding performance, boards, and top management, in a largely cost effective and accurate manner. Similarly, data obtained from ExecuComp, ISS/RiskMetrics, KLD, CRSP, and Compustat, on firm, board, and TMT characteristics contain information on a large number of individuals across a number of years but lacks qualitative details regarding the actual mechanisms and the observed relationships between representation of women in top management and firm-offending behavior.

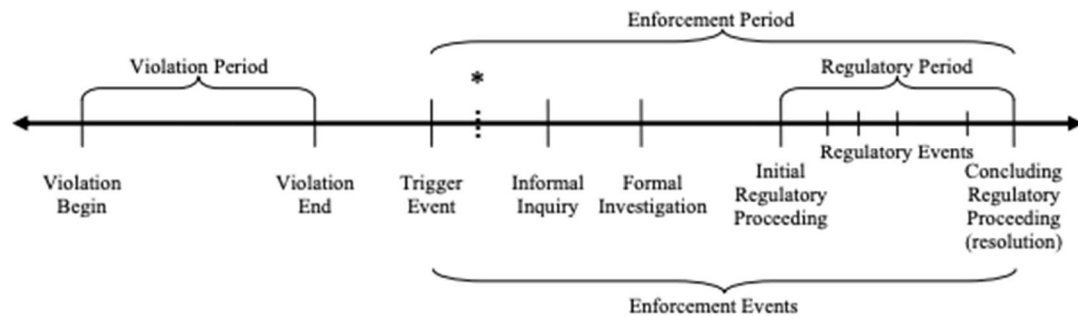
However, enforcement actions are imperfect measures of firm offending because the enforcement data measures when the act was discovered and filed by an agency, as opposed to when the illegal behavior occurred, which may have taken place years prior to the enforcement action being filed. This presents a measurement concern issue because the data captures firm behavior at a later date which, in some cases, may be off by several years. This timing issue can be observed in Karpoff et al., (2008) timeline of the enforcement action (see Figure 2 below). They argue that

the *trigger events*, are the pointers of potential problems, such as self-disclosures of malfeasance, restatements, auditor or executive departures, and agencies' investigations. However, because the incident or offense date is often not captured in the data and happens before the enforcement action is publicly known, changes occurring at the TMT level (i.e., executive changes) may take place prior to the enforcement action filing date. This timing issue may obscure the findings by nullifying the true effect of women (if any) by placing the “addition” of a woman at a point much earlier than when the government agency discovered the incident. For example, the firm is aware an illegal behavior is taking place (violation period), they decide to replace a male executive who is responsible for the violation, and they add a female executive; months later, regulators discover the abuse and file an official enforcement action. In this case, it appears as if the woman executive was associated with an “increased” enforcement action, when in reality the violation took place months before it was actually filed and discovered. I used one-year lags on the independent variables in an effort allow sufficient time for accurately examining the effect of changes of women executives on future enforcement actions.²⁷

²⁷ I also experimented with two-year lags on the main independent variables. In the logistic regressions, the results showed that the *odds ratio* got bigger and the p-value lost significance. For instance, while in the predicted direction, two or more women executives were no longer statistically significantly related with the odds of having fewer future enforcement actions, and exactly one woman was now at an odd ratio of 1.06 and not statistically significantly related (analyses with two-year lags are available upon request). This preliminary analysis led me to conclude that analyses with two-year lags may show that this female executive measure may be too far removed from the violation (i.e., event) and from the enforcement action to be potentially related to the event, compared to a one-year lag. Given that the majority of violations are environmental and firms are required to collect samples and self-report Clean Air and Clean Water violations to the EPA, the one-year lag variable is consistent with these results.

Figure 2. Timeline of an Enforcement Action by Karpoff, Lee, & Martin (2008)

Figure 1: Timeline of an Enforcement Action



* The initial filing of a private lawsuit usually occurs soon after the Trigger Event.

Moreover, the measures of offending are official enforcement data (actions by government, and other regulatory agencies), as opposed to firm behavioral data (actions by firms). Official data only captures a percentage of illegal behavior, likely resulting in an incomplete picture of crime and an undercount of offending (i.e., resulting in a partially known value for the dependent variable (censoring)). Thus, enforcement statistics should not be confused with the number of “crimes” committed by corporations, because in some cases, the enforcement action may account for the discovery of a violation for a series of incidents (i.e., multiple offending behaviors, but caught but just one), and in others may account for just one instance of a violation. Like with arrest data, for some crimes no enforcement actions were filed because the firms’ violations were not discovered. Further, even when discovered, prosecutors will negotiate non-prosecution or deferred-prosecution agreements with firms. These data are not captured in official enforcement actions unless the firm violates the agreement (in the latter case) or not at all (in the first case). Similarly, not all firms who have an enforcement action filed have committed a crime. Firms too can be wrongly accused, and their cases will remain open until they reach a

resolution. Further, some firms may be more (intensely) targeted than others depending on their history of violations.²⁸ Some firms have a max of 42 offenses recorded, while most are non-offenders (a more detailed description will be provided in the next section). Thus, my research likely undercounts offending, and thus the observed relationships may be incomplete and suffer from non-differential measurement error resulting in type II error. This is also a well-known downward-bias, due to partial observability of circumstances that affect individual outcome. Missing valuable information is clearly a limitation of the data and may prevent the observation of actual phenomena. However, similar limitations are observed in other administrative data sources such as official arrest data (Maltz, 1999).

Additionally, because superfund enforcement actions are quite distinct substantively from other enforcement actions, they were dropped from the sample and excluded from analyses. After removing superfund cases (N= 4,756), and prior to merging with the TMT educational data, the sample included 25,311 firm-years that were distributed across 3,257 firms. Of these 25,311 firm years, 23,542 (93%) had no enforcement actions filed, while the remaining firm-years had one or more enforcement actions. Even though the TMT and offending data were merged using

²⁸ To test for persistent heterogeneity, I ran preliminary models controlling for prior enforcement actions. To do this, the logit models included a control that lagged enforcement actions by 2 years. The results revealed that while having a prior enforcement was statistically related to fewer odds of future enforcement actions (Any offense lagged 2 years $OR = 0.656^{***}$, $SE = 0.058$), it did not make a substantial or statistically significant changes to the main explanatory variable(s) coefficients (2 or more women execs_lag1 $OR = 0.644^*$, $SE = 0.159$; exactly 1 woman exec_lag1 $OR = 0.856^+$, $SE = 0.098$), as opposed to when the models did not include this control (2 or more women execs_lag1 $OR = 0.657^*$, $SE = 0.157$; exactly 1 woman exec_lag1 $OR = 0.857^+$, $SE = 0.095$). Importantly, including this control resulted in a reduced the sample size (i.e., fewer observations). Thus, I decided not to include this control because of the rare event of offending and change in female TMT. This analysis is available upon request.

firm gvkey (unique firm identifier) and fiscal year, which produced perfect matches, the merging of the TMT characteristics resulted in a loss of a total of 1,743 firm years (from the initial 25,311). That is, there were data on both the number of women executives and the number and type of enforcement actions for 23,568 (92.76%) distinct firm years only. This represented a loss of a total of 6.89% firm years from an initial 25,311, and a loss of 463 firms (or 14.2%) out of the initial 3,257 firms in the sample. This data loss occurred because the TMT educational and TMT pay datasets use different director IDs. Specifically, the TMT pay data has gvkey, fiscal year, gender, pay, executive name, and a four digit ID, while the TMT educational data also has executive name, but does not have gvkey or the same type of executive ID. Therefore, the linking of these two datasets (prior to linking with the offending dataset) had to be performed using executive's names with the reclink command in Stata. Reclink uses record linkage methods to match observations between two datasets where no perfect key fields exist -- essentially a fuzzy merge. The minimum weights match allowed was .8 for the name variable and this was followed by a manual revision of executives' names close to the threshold to assess any imperfect string matches. Thus, the final sample consisted of 21,861 (92.75%) firm years with no enforcement actions filed during the year, while the remaining 1,707 firm-years had one or more enforcement actions. Two sample t-tests revealed that there were no statistically significant differences in the means of the dependent variables between the initial sample of 25,311 and the final sample of 23,568 firm years (Descriptive statistics in Table 5 in Section 4.4 below are for the final sample of 23,568 distinct firm years). While not ideal, this loss of data was not systematically related to certain

firms or biased in a manner that affected only group of firms differently. Therefore, the results should not be biased due to the loss of this specific data.

However, a description of the panel shows that it was unbalanced. That is, there were firms that were eligible to be in the sample only one time, while others were eligible to be in it the maximum number of 18 times (years). Because firms need to meet certain criteria to be part of the S&P 1500, the sample unavoidably excludes firms that do not make the criteria in a given year. That is, a firm can be in the sample for five years, but then if it fails to meet the S&P 1500 criteria it is no longer included in the sample until (and if) it meets the criteria again. Consequently, there are a number of firms who are only observed for a portion of and not the entirety of the eighteen years. Thus, offending (or compliance) is unknown for the firms that exit the sample as a result of not meeting the S&P 1500 threshold. There were 268 firms that only appeared once in the observation period while 372 firms appeared for all 18 years (see Table 2). The table shows the number of times that firms appear in the sample on a given year. For instance, the table shows that of the 268 firms that only appeared one time in the observation period; 93 of those showed up in 1996, and 55 of those firms that only appeared once showed up in 2013. While not all firms appear in the observation period for all 18 years, most firms appear in consecutive years (N= 22,028; 93.47%) – meaning, with no gaps. This means that even if some firms are only present for three, six, or nine years, it is highly likely (94%) these are all consecutive years, which suggests that a robustness check excluding non-consecutive firms should not have a significant or substantial impact on the results. Only an estimated six percent of firm-years come out and back in once (N=1,410; 5.98%), and

less than one percent of firm-years come in and out of the observation period more than twice²⁹ (3 times: N= 123; 0.52%; 4 times: N= 4; 0.02%; 5 times: N= 3; 0.01%), out of a total 23,568 firm-years.

Table 2. Number of Times Firms Appear During the Observation Period

Times	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
1	93	26	21	11	9	8	3	1	4	6	8	8	5	7	1	2	0	55	268
2	57	89	48	28	22	26	20	14	13	12	9	15	15	7	2	2	30	31	440
3	72	86	96	42	23	20	21	26	20	13	5	12	16	15	14	85	82	81	729
4	65	77	86	94	36	35	25	28	27	21	15	18	19	19	56	45	45	45	756
5	41	62	68	75	82	53	38	33	33	22	22	18	20	74	78	71	68	67	925
6	38	45	58	64	67	74	41	35	24	21	17	23	98	97	98	96	95	89	1,080
7	18	24	29	32	38	41	44	31	28	29	29	193	190	186	186	179	175	172	1,624
8	31	43	49	55	61	66	63	64	42	32	60	57	52	52	47	43	45	42	904
9	28	37	47	51	55	61	62	63	66	73	67	61	60	56	56	48	45	45	981
10	29	42	47	48	49	55	48	52	90	88	65	56	54	55	55	50	49	48	980
11	44	54	60	62	64	64	69	104	107	108	103	67	61	58	53	53	52	49	1,232
12	28	31	36	42	45	53	70	70	72	73	75	70	54	50	49	43	44	43	948
13	20	21	29	31	41	71	67	71	69	68	69	67	70	55	53	49	50	48	949
14	18	27	30	35	66	66	68	68	67	67	66	67	65	65	55	47	46	43	966
15	17	21	34	61	60	58	57	58	59	61	60	61	61	60	58	46	46	37	915
16	13	29	69	72	70	72	70	70	72	69	69	68	70	72	70	68	65	64	1,152
17	43	114	117	116	119	119	118	119	119	114	117	110	117	116	118	118	118	111	2,023
18	372	372	372	372	372	372	372	372	372	372	372	372	372	372	372	372	372	372	6,696
	1,027	1,200	1,296	1,291	1,279	1,314	1,256	1,279	1,284	1,249	1,228	1,343	1,399	1,416	1,421	1,417	1,427	1,442	23,568

Table 3 below shows the proportion of consecutive firm-years sizes in the sample. That is, as you can see the largest consecutive set of observations with no gaps is the entire eighteen-year period (28.4%). This means that a third of firms were in the panel for all eighteen years with no gaps.

Table 3. Consecutive (no-gaps) Panel Firm Observation Sizes

Consecutive Size	Firm-Years	Percent
1	387	1.64

²⁹ As an example of one of the few firms that come in and out more than twice, there was a firm that showed up in 1997, and then was not there in 1998, and came back from 1999 to 2005. Then, the firm was not there in 2006, but re-appeared from 2007 and was included consistently until 2013. So, even though this firm has two good-sized consecutive years (seven years each), the firm came in and out more than twice from the observation period.

2	578	2.45
3	825	3.5
4	908	3.85
5	1,010	4.29
6	1,398	5.93
7	1,855	7.87
8	928	3.94
9	1,062	4.51
10	1,000	4.24
11	1,276	5.41
12	852	3.62
13	793	3.36
14	868	3.68
15	840	3.56
16	864	3.67
17	1,428	6.06
18	6,696	28.41
Total	23,568	100

Evidently, when a firm appears only once, the firm is automatically excluded from the analysis because there is no change to be measured. However, observations coming in and out of the sample, is a common occurrence in panel data, and often call for conducting a robustness check. This can be done multiple ways, such as by excluding the firms that come in and out several times. For instance, firms that are in the observation period for 18 years are kept, but a threshold is established where if a firm is there for 5 or more years continuously, the firm can also be kept; but if a firm is there for two years, drops out for two, comes back in for three, and so one, is dropped. In this way, we can examine if there is a difference between firms that are in the data for 5 years continuously, compared with the other with a gap. A second option is to keep observations that have a minimum of 3 or 5 years of continuous data. Similarly, one can create a dummy that captures “Firm with Gaps” = 1 if the

firm appears twice in the data, with a gap between observations. And use that dummy as a control. The robustness check (1) keeping observations that have a minimum of 3 years of continuous data and (2) adding a dummy for non-consecutive firm-years in the sample (N= 1,540), revealed that the firms with gaps were not statistically significantly associated with lower or higher odds of future enforcement actions, and that the odds ratio for the main independent variables were not substantially or statistically affected when controlling for this firms that exit the sample³⁰ (Robustness analyses are available upon request). As predicted earlier (by the high number of firms with consecutive years) the results were not affected by the few number of firms that exited and came back into the sample.

Furthermore, the TMT data suffers from two limitations: (1) incomplete TMT size, and hence (2) inability to calculate an accurate proportion of women representation within the team. A large number of studies have presented evidence on the importance of the size of the TMT on various firm performance outcomes (See Certo et al., 2006 for a comprehensive review of findings). Although the evidence on some of the outcomes is still mixed (some have reported no relationship see e.g., Iaquinto & Fredrickson, 1997; Hambrick et al., 1996; Ensley et al., 2002), it seems important to include TMT size as a control. However, as previously mentioned, publicly owned firms are only required to report on their top five paid executives in a given year. Yet, firms often have *more* than five executives in a year, and they also

³⁰ The results are nearly identical in the second robustness test when I reduce the sample by keeping observations that have a minimum of 3 years of continuous data (from 23,568 to 22,603 firm-years); we also have fewer number of observations (N=7,065) and fewer number of groups (N=576) in the logistic FE model, but the *OR* and significance for the main independent variables remain nearly the same.

can, and often *chose*, to report on more than five executives in a given year (Execucomp, one of my data sources, will collect up to thirteen). Thus, the TMT size measure (gathered from the pay data) is inaccurate and would produce likely biased results. Thus, my analyses do not control for TMT size, and an executive is only included if they were one of the top five paid-functional NEO executives in the firm in a given year. Second, it is likely that having two or more women as opposed to only one *matters* depending on how many people are on the team. Even though the median TMT size is five (see section 4.4 below for a descriptive information of the TMT), there are firms in this data that reported having teams with only two people (7.09% of firm-years), for example. Thus, this is where the difference between *saturation* and *plurality* can be explained - on the basis of proportions. In this context, a measure of saturation refers to the percentage representation of women executives in the team (an ideal measure), while plurality means two or more (i.e., plural) women executives in the team. Because I am unable to obtain an accurate measure of the TMT size, I am unable to measure saturation. Thus, my measure of women's presence in the team captures plurality (two or more women executives). The inability to capture the proportion of the presence of women in the TMT is certainly a weakness in that it is likely that two women executives may matter more in a team of five people, compared to a team of ten or fifteen male executives. However, if the results here show that they matter, regardless of TMT size, then perhaps this will provide evidence of a stronger signal that the female executive has caused a *shift* and is truly an agent of change within the firm. Finally, an omitted variable (i.e., TMT size) can produce a bias downwards or upwards. Here the direction of the bias would

be dictated by the tendency of those firms who tend to report more TMT members and if they also tend to engage in more (or less) offenses. Prior research shows that larger firms, also have larger TMTs (Certo et al., 2006), and may have more resources disposable to report required statements and figures to government agencies (such as the number of top executives to the SEC). At the same time, larger firms may have more opportunities to commit more offenses and are also more in the radar of regulators (for enhanced enforcement). However, larger firms also have the means to fight these offenses and to potentially settle or have non-prosecution agreements (NPA). Thus, I am unable to make a definitive prediction of the direction of the bias.

4.3 Main Variables

There were several key variables of interest in the study.

Offending: First, I explored firm-year enforcement actions filed against a firm in a given year based on the date the enforcement action was filed (*number of enforcement actions*). Types of corporate illegalities were then classified as either financial or environmental depending on the kind of offense (see Table 4 for variable definitions). Descriptive statistics for these variables are reported in Table 3.

Table 4. Variable Definitions

Category	Variable Definitions
Offending	
Number of Enforcement Actions	The number of all enforcement actions (bribery, accounting, environmental, and anticompetitive) per year
Financial Enforcement Actions	The number of all bribery or accounting cases brought by the SEC plus the number of all anticompetitive cases brought by either the FTC or DOJ-AT filed in a given year filed in a given year
Environmental Enforcement Actions	The number of all environmental cases brought by the EPA in a given year
TMT (Exec.) Characteristics	

Women Execs ≥ 2	An indicator variable that = 1 if a firm has two or more women executives in a given year in its TMT, 0 otherwise: from Execucomp
Women Execs = 1	An indicator variable that = 1 if a firm has exactly one woman executive in a given year in its TMT, 0 otherwise: from Execucomp
Women Exec. Pay Slice	The sum of all women TMT total compensation (TDC2), divided by the sum of all TMT total compensation in a given year: from Execucomp
Women Exec. Expertise	The sum of the total level of educational degree(s) obtained by women executives divided by the total educational degree(s) of all executives in a given year: from Execucomp
Women Exec. Prestige	The sum of all Ivy League institutions in the “Best National Universities” list per U.S. News & World Report (2020) attended by women executives divided by the sum of all executives’ Ivy League attendance in a given year: from Execucomp
Women Exec. Ownership	Total shares owned by women executives divided by the total stock ownership of all top executives in a given year: from Execucomp
Women Power	Plurality + Ownership + Prestige + Expertise + Pay Slice + Rank (title)
Women CEO	A dummy variable indicator that = 1 if a firm has a woman chief executive officer in a given year in its TMT, 0 otherwise: from Execucomp
Women CFO	A dummy variable indicator that = 1 if a firm has a woman chief financial officer in a given year in its TMT, 0 otherwise: from Execucomp
Controls	
<i>Board of Directors</i>	
Board Dir. Independent	The percent of the board that is independent in a given year
Board Dir. Minority & Women	The percent of a company board that is comprised of minority & women in a given firm year
Board Dir. Average Tenure	The average length of time that the members of the board have served in a given year
Board Dir. Average Size	The number of individuals on a company’s board in a given year
Dual-Role CEO (Duality)	Dummy variable indicating whether the CEO was also chair of the board in a given year
<i>TMT (Exec.)</i>	
Exec. Age	The average age of executives in a given year
Exec. Tenure	The average length of time that the top managers have served in a given year
<i>Women Exec. Minority</i>	Percent of women ethnic minority directors in a given year
<i>Firm</i>	
Firm age	Firm age from its first appearance on the Compustat database
Number of employees	The number of employees in a firm in a given year (value is logged due to extreme rightward skew)

Stock return	Stock return for the year: from CRSP
ROA - Return on assets	Net income/total assets: from Compustat
Book leverage	Short-term plus long-term debt divided by total assets: from Compustat
Gross margin	Sales minus cost of goods sold, divided by sales: from Compustat
Ln(Tobin's Q)	$\text{Tobin's Q2} = \text{Ln} \frac{\text{AT} + (\text{CSHO} * \text{PRCC_F}) - \text{CEQ}}{\text{AT}}$
Ln(assets)	Natural log of total assets in a given year: from Compustat
F-score	F-score of a firm in a given year
<i>Market-to-Book Ratio</i>	The market-to-book ratio in a given year

Top Management Team: I operationalized the TMT as the top five paid executives (NEOs) that firms are legally required to report to the SEC.³¹ That is, NEOs who are (1) the top five highest paid, including the CEO, and (2) who are heads of the main functional departments, such as marketing, finance, accounting, and operations who have the most influence in firms' strategic decisions and decision-making authority. Using NEOs to reflect TMT membership is appropriate when studying executive compensation, as it would be difficult to obtain compensation information on any executive not reported to the SEC. However, some argue that NEO samples may be adequate because they exclude lower paid executives who may have overall decision-making responsibility for the firm (Krause et al., 2022). In this case, pay may not be associated with the amount of responsibility or influence because there are market-based standards that likely regulate the

³¹ This definition aligns with the definition used in the majority of papers (18 out of 30) reviewed by Krause and colleagues (2022), where out of the 30 papers that just used an executive's presence in ExecuComp to determine TMT membership, 18 of those papers conceptually defined the TMT as the highest paid individuals in the firm (pg. 19).

compensation of functional executives. For instance, certain functions have pay scales that may make the compensation in one function (e.g., finance/accounting) more than another function (e.g., human resources) across industries and firms. Thus, some argue that such differences in pay may not be reflective of the amount of strategic responsibility held by the executive (Krause et al., 2022). However, I side with those that argue that the individuals who are paid the most are also most likely to have the highest influence within the TMT because it explicitly shows that they were highly sought-after by the firm (i.e., the firm was willing to pay more for them), and thus they likely represent the TMT (Adhikari et al., 2019; Bebchuk et al., 2011).

TMT Characteristics: The next set of variables captured relative *power* of the women in the team using gender diversity (women plurality), pay slice, prestige (elite education), expertise (educational achievement), and ownership (stock ownership). Plurality was measured as the presence of more than 30% of women in the top management team. The operationalization for this variable drew on the critical mass theory (e.g., Granovetter, 1978; Kanter, 1977a,b) and empirical evidence (e.g., Torchia et al., 2011), which suggests that the ability to form alliances should give women more power to pursue their preferences. Based on the list of top executives reported for a firm in ExecuComp, representation by women in management was calculated as the presence of two or more women in the TMT ($women\ execs \geq 2$), which was the measure of plurality. Pay slice was defined as the sum of the total compensation (pay percentages) of all women top executives scaled by the total compensation of all top five executives. Prestige was defined as the sum of all Ivy League institutions in the “Best National Universities” list per U.S. News & World

Report (2020) attended by women executives scaled by the total Ivy League attendance of all top executives. The official use of the term Ivy League started in 1954. However, most of the Ivy League schools in the list, with the exception of Cornell, were founded during the colonial period. The eight universities in the Ivy League list have remained unchanged since its official inception in 1954. Expertise was defined as the sum of the total level of educational degree(s) obtained by the woman executive scaled by the total educational degree(s) of all top executives, with Ph.D. accounting for the highest value, followed by a master's degree, then a bachelor's degree, and other as the lowest value.³² The Ph.D. category also included all types of medical degrees, such as DVSc (Doctor of Veterinary Science), Doctor of Pharmacy, medical doctors, doctor of dental surgery, doctor of medical science, as well as postdoctoral fellows and studies, and JSD (Doctor of science in law)/Doctor of Laws or Legum Doctor (LLD). While Juris Doctor (JD) (commonly referred to as attorney) means a Doctor of Law, the same was placed under the master's degree category because it technically falls one rank below of the Doctor of Laws, Doctor of Juridical Science, (SJD or JSD), or Legum Doctor (LLD) degree.³³ Professional licenses and certificates (e.g., Certified Fraud Examiner, Certified Compensation Professional), and military achievements (e.g., vice admiral) were added into the "other" category. Executive ownership was measured as the total shares owned by women executives divided by the total stock ownership of all top executives in a

³² See Appendix B for additional information on the expertise and prestige measures.

³³ Almost all universities would count JD as a terminal degree for accreditation and other purposes, exactly as they would a PhD. However, the law does have a true PhD equivalent called Doctor of Juridical Science, (SJD or JSD & LLD), which is generally offered by law-school invitation and requiring many years' research and writing.

given year.

Finally, the aggregate power of women was measured by combining all five indicators of authority. Women executives' *power* was operationalized as the sum of the following influential elements: plurality (coalitions) + ownership (stock share ownership) + prestige (Ivy League education) + expertise (educational achievement) + pay slice (influence).

TMT Titles: These are a set of variables that denotes the rank (CEO) and the business area that the executive oversees for the top five paid executives in a firm in a given year, which includes the CFO, CAO, CMO, COO, and CHRO. That is, the title is only relevant (included in the analyses) if the executive was one of the top five paid executives in the firm in a given year. As previously stated, firms often have centralized top-down hierarchical decision-making structures. These top-down structures automatically wield the greatest power and responsibility to the CEO, and then to other executives close to the CEO. Thus, researchers often use the CEO as a proxy to objectively measure the highest rank of "structural" power held by executives. In line with previous research, the title/rank measure was captured by the role of CEO. Given the CFO's unique control over the firm's finances, and that they often report directly to the chief executive officer, the financial strategic risk control measure was captured by the role of the CFO. Other common top five high paid executives' titles were included in the equation such as chief operating officer, chief marketing officer, head of human resources, and chief accounting officer. Chief accounting officers handle the more day-to-day activities, while chief financial officers are responsible for planning the financial future of a company.

Control Variables: In addition to the gender measures, certain TMT characteristics (e.g., tenure, age) are associated with risk-aversion preferences (Wiersema & Bantel, 1992; Hambrick & Mason, 1984; Finkelstein & Hambrick, 1990) and with pursuing less-aggressive strategies, which are also interrelated with various firm-performance outcomes. Therefore, I added controls for TMT average age and tenure. In addition, I controlled for board independence, board of director size (number of directors on the board), board of director minority ethnic/racial & women, and director tenure, which is associated with good governance and based on findings that firms with more independent and tenured boards have fewer offenses of different kinds (Simpson, Galvin, & Layana, 2018; Malm & Mobbs, 2016). Finally, I created measures of the presence of women on the board of directors to assess whether gender diversity at the board level enhanced the effect of TMT diversity offending levels.

Historical Changes: To control for the effect of changes in the regulatory environment, the sample years (1996-2013) were coded as either Democratic (10 years) or Republican (eight years), to control for the presidential administration (a dummy variable=1 denotes a Republican year). Risky firm strategies were measured by tapping into firm spending on R&D and innovation (crsp_rd_intensity). An additional control variable for risky policies includes gross margin, because a higher margin potentially leaves room to spend more on promotion and advertising. Excessive and aggressive advertising spending has been found to lead to greater regulatory action (David, Markowitz, & Richards-Shubik, 2010) and to more operating lawsuits (Adhikari et al., 2019). To control for time trend changes in the

gender pay gap in my analyses, I used earnings data (women's earnings as a percentage of men) from the U.S. Bureau of Labor Statistics.

Other control variables included: (1) firm assets ($\text{Ln}(\text{Total Assets})$) and the number of employees (EMPL) to capture firm size because larger firms face more enforcement actions on average. This is possibly because larger firms have more complex operations that give rise to more opportunities for wrongdoing, while also having increased relevance and visibility for heightened regulation. Another measure of firm size is market capitalization, which refers to the total dollar market value of a firm's outstanding shares of stock; (2) firm age because knowledge of various markets gained from years of experience can affect enforcement actions, and because younger firms may be more likely to pursue profit at the expense of illegal behavior; (3) stock returns, and ROA because company offending may be a consequence of poor financial performance, which can make the organization break its contracts with other stakeholders; and (4) cash holding because firms with deep pockets are not only more likely to be targets of enforcement actions, but also better able to pay steep fines. On the other hand, debt (book leverage) limits firms' discretionary cash holdings and has been found to negatively predict operating lawsuits (Adhikari et al., 2019). Therefore, I include debt as a risk control because the increased financial risk of debts could affect executives' risk perceptions and motivations from taking more operational risk, resulting in fewer offending outcomes. While I used accounting measures of firm performance—such as ROA, assets, and stock returns—there may be value in adding a more forward-looking and holistic performance measure. For instance, Market to book value is a metric commonly used to evaluate a company's

current market value relative to its book value. Tobin's Q ratio, on the other hand, expresses the relationship between market valuation and intrinsic value. That is, the Tobin Q ratio is sometimes preferred over the Market to book value because it is said to estimate whether a given business or market is overvalued or undervalued.³⁴ In essence, Tobin's Q ratio asserts that a firm (or a market) is worth what it costs to replace.³⁵ Similarly, the F-score is a scale that uses nine different factors to assess a company's financial strength – a high score represents good value.

4.4 Descriptive Information

As previously mentioned, the final sample consisted of 21,861 (92.75%) firm years with no enforcement actions filed during the year, while the remaining 1,707 firm-years had one or more enforcement actions. These were distributed in 1,293 firm-years with one or more environmental violation, and 481 firm-years with one or more financial violation - 76 firm-years had one or more of both. Some firms have a max of 42 offenses recoded, while notably most are nonoffenders

Table 5. Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max
<i>Offending</i>				
Number of Enforcement Actions	0.137	0.711	0	42
Number of Environmental Actions	0.083	0.515	0	42
Number of Financial Actions	0.022	0.163	0	3
<i>TMT (Exec.)</i>				
Women Execs ≥ 2	0.048	0.214	0	1
Women Execs = 1	0.208	0.406	0	1
Average Exec. Age	58.79	12.47	18	96

³⁴ A Tobin's Q lower than 1 means that the cost to replace a firm's assets is greater than the value of its stock, suggesting that the stock is undervalued. Conversely, a Tobin's Q greater than 1 implies that a firm's stock is more expensive than the replacement cost of its assets (i.e., stock is overvalued).

³⁵ This measure does not subtract deferred taxes and investment tax credit. Adhikari et al., (2019) Tobin's Q was the natural log of (book value of total assets + market value of equity–book value of equity) / book value of total assets ($\ln(AT-CEQ + CSHO*(PRCC_F-TXDITC)/AT)$)

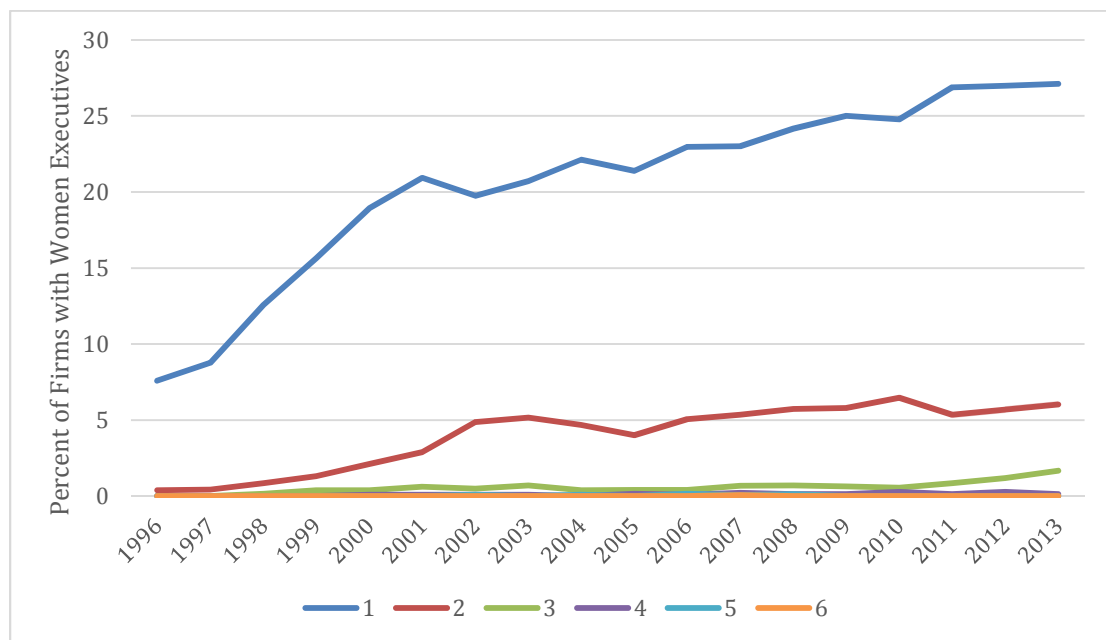
Women Executive CEO	0.018	0.131	0	1
Women Executive CFO	0.042	0.201	0	1
Women Executive COO	0.013	0.114	0	1
Women Executive CMO	0.009	0.094	0	1
Women Executive CAO	0.016	0.125	0	1
Women Executive Head of HR	0.015	0.122	0	1
Women Miscellaneous Exec.	0.174	0.379	0	1
Women Exec. Pay slice	0.051	0.121	0	1
Women Exec. Expertise	0.066	0.136	0	1
Women Exec. Prestige	0.031	0.152	0	1
Women Exec. Power	0.217	0.548	0	5
<i>TMT & Board of Directors</i>				
Average Board Tenure	8.823	4.685	0	31
Average Board Size	9.526	2.765	3	39
Number Independent Directors	6.648	2.632	0	28
% Women & Racial/Ethnic Min. Director	0.171	0.150	0	1.22
Dual Role CEO	0.837	0.368	0	1
Average Executive Age	58.79	12.47	18	96
<i>Firm</i>				
Firm Age	21.44	13.16	0	51
Stock Return	1.145	0.508	0.009	14.04
ROA - Return on assets	0.033	0.162	-6.056	0.872
Book Leverage (debt)	0.186	0.167	0	1.384
Gross Margin	0.378	0.542	-32.94	0.972
Tobin's Q (Logged)	0.491	0.485	-0.914	4.363
Average Assets (Logged)	7.826	1.693	1.835	14.69
Average F-score	1.151	1.042	0.128	36.69
Average Employees (Logged)	1.741	1.616	-6.214	7.696
Market Capitalization (Logged)	7.664	1.569	0.392	13.34
Market-to-Book Value	1.751	1.768	-2.662	79.28
Regulatory Environment	0.561	0.496	0	1
Women Pay Gap (scaled)*	79.11	2.36	74.4	82.2

*(scaled) Gender Pay Gap was scaled by *100

The sample of firm-years had an average of 4.569 (SD= 1.596) executives in their TMT (min 1, max 13) and a median of 5. Descriptive statistics indicated that there were no women executives in 17,503 of the firm years in the sample; 6,065 firm years had one or more women executives; 4,921 firm years had exactly one woman executive; and 1,144 firm years had two or more women executives. As shown in Figure 3, only 7.6% of firms had a woman executive in 1996, and 0.4% had two

women executives (see Appendix I for corresponding Table (#4) and for additional descriptive patterns of how females in TMT are distributed among the firms and offending). Only in 1998 were there firms with three women executives; in 2000 were there firms with four; 2002 with five; and only one company had six women executives in 2007.³⁶ By 2013, at least 27.12% had at least one or more women executive in their TMT, 6% had two women; 1.6% had 3, and 0.14% of firms in the sample had four women executives in the TMT - a considerable increase from 1996.

Figure 3. Patterns of Changes in Women TMT Over Time



The women executive mean *pay slice* was 0.05, SD= 0.12 (N=23,553), and the median= 0. The *prestige* (Ivy League education) variable showed that approximately 17% of the executives attended an Ivy League school in the United

³⁶ This California based financial company had a total of eight executives in 2007. Of those, only one was a male executive. The company had a woman CEO (60 years of age at the time); The male executive was the CFO (75 years of age at the time). This company did not have any enforcement actions that year. The woman CEO made slightly more than twice the total pay that of the male CFO.

States. A slightly lower proportion of women executives (16%) attended an Ivy League school compared to men executives (17%). These proportions were consistent with other studies showing approximately one-sixth of executives in S&P 1500 companies held a degree from an Ivy League school (Bonet et al., 2020).

The *expertise* (educational achievement) variable was the sum of the total level of educational degree(s) obtained by the woman executive scaled by the total educational degree(s) of all top executives, with Ph.D. accounting for a value of 4, followed by a master's degree (3), then a bachelor's degree (2), and other (1) as the lowest value in a given year. Altogether, 82.49% of executives had a bachelor's degree or more. Out of that ~82%, 21.94% had a master's and 4.38% had a Ph.D. or advanced degree (e.g., MD). A greater proportion of women executives (25.79%) had a master's degree, compared to 21.65% of men executives. More men (4.5%) than women executives (2.84%) had a doctorate or advanced degree in this sample of firm-years. These figures were consistent with research reporting on the educational achievement of top executives in Fortune 500 companies (Martelli & Abels, 2010). Approximately 32% of the sample of executives had a business-related degree (i.e., a bachelor's, master's, or other advanced business degree). The sample of executives was, on average, more educated than the general U.S. population, which was the kind of over-representation that would be expected if individuals have an edge in rising to the top in the business world.

According to U.S. Census 2013 data, approximately one-third of U.S. adults (over the age of 25) have at least a bachelor's degree. About 12% have a master's degree or higher, and 1.68% have a Ph.D., with professional degrees such as MD or

DDS making up 1.48% of the U.S. population (total 3.16% advanced degrees). As of 2013, among people with a degree in the general population, women held a slightly greater proportion of bachelor's and master's degrees, with a lesser percent of doctorate or professional degrees (38%) when compared to men (i.e., women held 38% of doctoral or advanced degrees and men held 62%). This mirrors the master's and doctorate results seen in the sample, where women had a greater percentage of master's degree, but a lesser percentage of doctorates or other advanced degrees.

The mean for women executive *title (CEO highest rank)* was 0.018 and SD= 0.132 (see Table 6). Out of 23,568 firm years, only 417 (1.77%) had a woman CEO. Between 1996 and 2013, a total of 94 firms had a woman CEO in at least one of the years, and only one firm had a woman CEO in all 18 years of the observation period. Representation of women CEO increases from 0.29% in 1996 to 3.74% in 2013 – suggesting a trend towards adding more women CEOs in TMTs. A total of 259 firms had a woman CFO in at least one of the years between 1996 and 2013. Only two firms had a woman CFO in 17 years of the observation period. No firm had a woman CFO in all 18 years. Women CFOs are present in more firm years (N=990) compared to women CEOs (N=417).

Table 6. Descriptive Statistics for Women Executive Titles (N= 23,568).

Women TMT Titles	Mean	Std. Dev.	N of Firm-Years
Women Chief Executive Officer	0.018	0.131	417
Women Chief Financial Officer	0.042	0.201	990
Women Chief Operations Officer	0.013	0.114	308
Women Chief Accounting Officer	0.016	0.125	377
Women Chief Human Resource Officer	0.015	0.122	360
Women Chief Marketing Officer	0.009	0.094	212

Misc. Women Executive ³⁷	0.174	0.379	4,105
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The woman executive *power* measure was the sum of the following influential elements: plurality (coalitions) + prestige (Ivy League education) + expertise (educational achievement) + pay slice + title (CEO rank). The *power* of women executive mean was 0.217 and SD= 0.548 (N=23,460) minimum= 0 and maximum= 5.

Prior to proceeding to the analytical approach, I discuss two important issues that impact the initially proposed hypotheses and models: (1) exclusion of three variables due to a large number of missing values; and (2) exclusion of one component of the power measure and one hypothesis.

Exclusion of three variables. Two control variables (i.e., executives' tenure, R&D and innovation) and one main independent variable (i.e., ownership) could not be included in the analyses due to having a large number of missing values. Approximately 40% of executives were missing the start date with their company, which made it impossible to calculate their tenure with the company. Using either the options Granted \$ - Compustat Black Scholes, Restricted Stock Grant (\$), or the Value of Stock Awards - FAS 123R (\$) information resulted in over half the values missing to create the ownership measure. However, a small part of ownership is reflected in the pay slice measure (TDC2) under the Value Realized from Stock Option Exercises. As previously mentioned, the pay slice measure is comprised of the following: Salary, Bonus, Non-Equity Incentive Plan Compensation, Value Realized from Stock Option Exercises, Grant-Date Fair Value of Stock Awards, Deferred

³⁷ This variable contains firm years for all other executives not identified in Table 4.

Compensation Earnings Reported as Compensation, and Other Compensation. Nevertheless, the measure of ownership could not be included either separately or under the final measure of power. Finally, the main R&D measure from CRSP-Compustat (crsp_rd_intensity) merged database was also missing over half the values. Including the R&D control measure in the logistic FE models revealed significant differences in the results.³⁸ For these reasons, the final proposed hypotheses and analyses are more limited in nature as they exclude the ownership hypothesis, as well as exclude the ownership measure from the aggregate power measure; and exclude executives' tenure and firm R&D intensity (crsp_rd_intensity) from the controls.

4.5 Proposed Analyses

Given the research questions that guided this study and the specific hypotheses tested, three different analyses are utilized. First, regarding hypothesis 1a—*A firm will have no significant change in enforcement actions when its top management team goes from having no woman executive to one woman executive (token)* — and Hypothesis 1b— *A firm will have significantly fewer enforcement actions when its top management team goes from having exactly one woman executive (token) to having two or more women executives (plurality)*— I examined the relation between the number of women executives and future offending in a regression framework. My main dependent variable of interest, the *number of*

³⁸ The number of groups and observations in the models were cut almost in half; the p-values for the main independent variables became significant; and the odd ratio became smaller (e.g., in one model Odd Ratios went from 0.90 to 0.68, and p-values from 0.36 to 0.02, respectively). It is possible that there are differences between firms that reported R&D figures and those that did not report this value.

enforcement actions filed against a firm in a given year was count data. A negative binomial firm-fixed effects (NB FE) model relates within-firm variation in presence by women in management to variation in firm-offending levels. Negative binomial firm-fixed effects models allow for overdispersion in the dependent variable, and are appropriate for count and panel data, respectively. The fixed effects model accounts for 1) firm-specific observable and unobservable factors, such as firm culture, which also tends to evolve gradually and therefore is not likely to change within the sample period; 2) any-year time trends in offending. However, several scholars have found problems with inconsistency when using fixed effects negative binomials (Hilbe, 2011; Allison & Waterman, 2012; Greene, 2011). Allison and Waterman (2012) argued that fixed effects negative binomial is not a true fixed effects model because it does not control for all stable covariates, and it is only valid under very restrictive distributional assumptions. Given these potential shortcomings in NB FE models, I used logistic fixed effects as my primary models and a binary indicator of enforcement actions to analyze my hypotheses, and used the NB FE models as a sensitive analysis only. Any discrepant results between the logistic and NB models are identified, but the tables (NB results) can be found in the Appendix D. I also control for other known correlates of corporate offending such as firm size, firm age, ROA, leverage, and women directors, among others. Main explanatory variables are lagged by a year relative to the date of the enforcement action. I controlled for firm and year fixed effects (the year FE were added as dummy variables) to account for other possible time trends in offenses during this period.³⁹

³⁹ Year fixed effects are included because when top executives join or leave the team, they bring (and leave) with them a different value for age and a different value for Tenure. Therefore, these two values

Hypotheses 1 analyses present the results for any offense (logit), with the main dependent variables (1) women execs = 1, which indicated the presence of exactly one woman in the top executive team in year t – 1; and (2) women execs ≥ 2, which indicated the presence of two or more women executives in the TMT in year t – 1. Where i refers to the firm and t to time (i.e., years):

$$\begin{aligned} \text{Any Enforcement Action}_{it} = & \beta_0_{it} + \beta_1 (\text{FemaleExecs} \geq 2)_{t-1} + \beta_2 (\text{FemaleExecs} = 1)_{t-1} + \beta_3 (\text{StockReturn})_{it} + \beta_4 (\text{BookLeverageDebt})_{it} + \beta_5 (\text{ROA})_{it} + \\ & \beta_6 (\text{LnTobinQ})_{it} + \beta_7 (\text{LnAssets})_{it} + \beta_8 (\text{GrossMargin})_{it} + \beta_9 (\text{FirmAge})_{it} + \\ & \beta_{10} (\text{Avg. Dir. Tenure})_{it} + \beta_{11} (\text{BoardSize})_{it} + \beta_{12} (\text{CEODuality})_{it} + \\ & \beta_{13} (\% \text{Dir. Female \& Racial Ethnic Minority})_{it} + \beta_{14} (\text{FBoardIndependence})_{it} + \\ & \beta_{15} (\text{Avg. Execs Age})_{it} + \beta_{16} (\text{RegulatoryEnvironment})_{it} + \\ & \beta_{17} (\text{FemalePayGap})_{it} + a_t (\text{YearFixedEffects}) + \alpha_i (\text{Firm Fixed Effects}) + \mu_{it} \end{aligned}$$

Hypotheses 1 analyses are also performed using financial and environmental violations as the dependent variable.

Similarly to hypotheses 1, to examine hypotheses 2— *A firm will have significantly fewer enforcement actions when its top management team goes from having women executive(s) with less power in the top management team, measured by women executives' (1) plurality, (2) pay slice, (3) elite education, (4) educational achievement, (5) highest title (CEO)), and (6) aggregate power, to having women executive(s) with more power*—I first used a set of logit models regressing whether an enforcement action (binary) was filed against the firm in year t on each of the

would not necessarily just increase by one year unless there is no turnover in the TMT. Some statisticians may argue that the firm age and regulatory environment could be overstated. Arguments for including both individual fixed effects and individual time trends, state that this is the best way for accounting for individual-specific heterogeneity that change at a constant rate over time (Jacobson, LaLonde, & Sullivan 2005). Further, most strategic management papers include firm age while using firm FE. This appears to be a standard practice in the field. I ran models to check if the results would change when excluding regulatory environment and firm age. The results indicated that the odd ratios and p-values for the main independent variables remained unchanged (These analyses are available upon request).

power measures (separately) (i.e., pay slice, expertise, prestige, and aggregate power) in the top management team in year t-1. I also ran a model using the aggregate measure of *power*. Similar to hypothesis 1, these analyses were then performed using financial and environmental violations as the dependent variable. As an illustration, below are shown the equations for pay slice and aggregate power. The equations for the other power measures are similar, but the explanatory variable is different.

Hypothesis 2a – Pay Slice

$$\begin{aligned} \text{Any Enforcement Action}_{it} = & \beta_0_{it} + \beta_1 (\text{FemaleExecsPaySlice})_{t-1} + \beta_2 (\text{StockReturn})_{it} + \beta_3 (\text{BookLeverageDebt})_{it} + \beta_4 (\text{ROA})_{it} + \beta_5 (\text{LnTobinQ})_{it} + \\ & \beta_6 (\text{LnAssets})_{it} + \beta_7 (\text{GrossMargin})_{it} + \beta_8 (\text{FirmAge})_{it} + \beta_9 (\text{Avg. Dir. Tenure})_{it} + \beta_{10} (\text{BoardSize})_{it} + \beta_{11} (\text{CEODuality})_{it} + \\ & \beta_{12} (\% \text{Dir. Female \& Racial Ethnic Minority})_{it} + \beta_{13} (\text{FBoardIndependence})_{it} + \beta_{14} (\text{Avg. ExecsAge})_{it} + \beta_{15} (\text{RegulatoryEnvironment})_{it} + \beta_{16} (\text{FemalePayGap})_{it} + \\ & \alpha_t (\text{YearFixedEffects}) + \alpha_i (\text{Firm Fixed Effects}) + \mu_{it} \end{aligned}$$

Hypothesis 2f – Aggregate Power

$$\begin{aligned} \text{Any Enforcement Action}_{it} = & \beta_0_{it} + \beta_1 (\text{FemaleExecs} \geq 2 + \text{FemaleExecsPaySlice} + \text{FemaleExecsEliteEducation} + \text{FemaleExecsEducationalAchievement} + \\ & \text{FemaleExecCEO})_{t-1} + \beta_2 (\text{StockReturn})_{it} + \beta_3 (\text{BookLeverageDebt})_{it} + \beta_4 (\text{ROA})_{it} + \beta_5 (\text{LnTobinQ})_{it} + \beta_6 (\text{LnAssets})_{it} + \beta_7 (\text{GrossMargin})_{it} + \\ & \beta_8 (\text{FirmAge})_{it} + \beta_9 (\text{Avg. Dir. Tenure})_{it} + \beta_{10} (\text{BoardSize})_{it} + \beta_{11} (\text{CEODuality})_{it} + \beta_{12} (\% \text{Dir. Female \& Racial Ethnic Minority})_{it} + \\ & \beta_{13} (\text{FBoardIndependence})_{it} + \beta_{14} (\text{Avg. ExecsAge})_{it} + \beta_{15} (\text{RegulatoryEnvironment})_{it} + \beta_{16} (\text{FemalePayGap})_{it} + \\ & \alpha_t (\text{YearFixedEffects}) + \alpha_i (\text{Firm Fixed Effects}) + \mu_{it} \end{aligned}$$

Second, I used a change analysis approach to examine the relation between lagged changes in women's power on changes in enforcement actions. This consisted of regressions of changes in the number of enforcement actions against a firm on changes in women executives' *power* (various measures). The dependent variable was the difference in the natural log of 1 plus the number of enforcement actions

from t to $t + 1$.⁴⁰ Percent change ($\% \Delta$) denotes the first difference in the natural log of one plus the number of respective enforcement actions. The results presented the first difference model separately for the number of all enforcement actions, and then for financial and environmental violations. The explanatory variables were the indicator for changes in the power of women measure(s) (e.g., plurality, expertise, etc.) in year t from year $t - 1$, and changes in control variables in year t from year $t - 1$. This test can provide additional evidence of an effect of women's power in management on type of enforcement actions filed against a firm. The results reveal whether a change in women's power in the top executive team predicts a significant decrease in specific type of enforcement actions against a firm the following year. Below is the equation for the model using female executive expertise (educational achievement) as the main explanatory variable for illustrations purposes. The change equations for other power measures (e.g., elite education, payslice, etc.) are similar to the one below, except that the main IV (β_1) changes respectively. Where α_i denote clusters for firms (as opposed to firm FE) in the change analysis model. The choice for this analyses and to cluster firm SE instead of using firm FE was made to ensure the results held up to different specifications and analytical methods. Specifically, there was the possibility of having too many singletons (or firms with only one observation (i.e., enforcement action)) and by keeping those singletons that would make the FE computationally

⁴⁰ $DV = \ln(1 + \text{number of enforcement actions in year } t+1) - \ln(1 + \text{number of enforcement actions in year } t)$. Where Ln denotes natural logarithm, I add 1 before taking the natural log because of a large number of years with zero enforcement actions, and because Ln of 0 is undefined. Doing $\ln(1+0)$ returns the value of 0 and preserves the observation.

inefficient and overstate the statistical significance of the coefficients and potentially lead me to an incorrect inference.⁴¹

Hypothesis 2c – Expertise

$$\begin{aligned} \% \Delta \text{Enforcement Actions}_{t+1} = & \beta_0 \Delta(FemaleExecsExpertise)t - 1_{it} + \\ & \beta_2 \Delta(StockReturn)t - 1_{it} + \beta_3 \Delta(BookLeverageDebt)t - 1_{it} + \beta_4 \Delta(ROA)t - 1_{it} + \\ & \beta_5 \Delta(LnTobinQ)t - 1_{it} + \beta_6 \Delta(LnAssets)t - 1_{it} + \beta_7 \Delta(GrossMargin)t - 1_{it} + \\ & \beta_8 \Delta(FirmAge)t - 1_{it} + \beta_9 \Delta(Avg. Dir. Tenure)t - 1_{it} + \beta_{10} \Delta(BoardSize)t - 1_{it} + \\ & \beta_{11} \Delta(CEODuality)t - 1_{it} + \beta_{12} \Delta(\%Dir. Female \& Racial Ethnic Minority)t - 1_{it} + \\ & \beta_{13} \Delta(FBoardIndependence)t - 1_{it} + \beta_{14} \Delta(Avg. Execs Age)t - 1_{it} + \\ & \beta_{15} \Delta(RegulatoryEnvironment)t - 1_{it} + \beta_{16} \Delta(FemalePayGap)t - 1_{it} + \\ & \alpha_t(YearFixedEffects) + \alpha_i(Cluster at firm level) + \Delta\mu_{it} \end{aligned}$$

To examine Hypothesis 3a—*A firm will have significantly fewer financial enforcement actions when its top management team goes from having women executive(s) positions with fewer links to financial outcomes (e.g., CFO, CAO) to having more women in positions linked with financial outcomes— and Hypothesis 3b— A firm will have significantly fewer environmental enforcement actions when its top management team goes from having no woman executive holding the highest ranked executive position (i.e., CEO) to having a woman executive holding the highest ranked executive position—* I also use a set of logit models regressing whether an enforcement action (binary) was filed against the firm in year t on the CFO, CEO, and CAO in year t-1. All models included controls and firm and year fixed effects. These tests examined the relation of lagged changes in the CFO, CEO, and CAO title on the various types of enforcement actions and violations.

Hypothesis 3 – Woman CFO

$$\begin{aligned} \text{Any Enforcement Action}_{it} = & \beta_0 \Delta(FemaleExecsCFO)t - 1_{it} \\ & + \beta_2 \Delta(FemaleExecsCEO)t - 1_{it} + \beta_3 \Delta(FemaleExecsCOO)t - 1_{it} + \end{aligned}$$

⁴¹ When I tried a few models with the firm FE, the SE were slightly bigger (i.e., higher or larger), with FE you throw away a lot of the variance which may be useful. I ran a few models with FE and the results did not substantially or statistically change.

$$\begin{aligned}
& \beta_4 (FemaleExecsCMO)_{t-1\ it} + \beta_5 (FemaleExecsCAO)_{t-1\ it} + \\
& \beta_6 (FemaleExecsHeadofHR)_{t-1\ it} + \beta_7 (FemaleExecsMiscells)_{t-1\ it} + \\
& \beta_8 (StockReturn)_{it} + \beta_9 (BookLeverageDebt)_{it} + \beta_{10} (ROA)_{it} + \\
& \beta_{11} (LnTobinQ)_{it} + \beta_{12} (LnAssets)_{it} + \beta_{13} (GrossMargin)_{it} + \beta_{14} (FirmAge)_{it} + \\
& \beta_{15} (Avg. Dir. Tenure)_{it} + \beta_{16} (BoardSize)_{it} + \beta_{17} (CEODuality)_{it} + \\
& \beta_{18} (\%Dir. Female\&RacialEthnicMinority)_{it} + \beta_{19} (FBoardIndependence)_{it} + \\
& \beta_{20} (Avg. ExecsAge)_{it} + \beta_{21} (RegulatoryEnvironment)_{it} + \\
& \beta_{22} (FemalePayGap)_{it} + a_t(YearFixedEffects) + \alpha_i(Firm Fixed Effects) + \mu_{it}
\end{aligned}$$

Similarly, these initial tests were followed by a change analysis approach. The dependent variable was the difference in the natural log of 1 plus the number of enforcement actions from t to $t + 1$. The results presented the first difference model separately for number of any enforcement actions, and then for financial and environmental violations. The main explanatory variables were the indicator for changes in the women CFO in year t from year $t - 1$, and changes in control variables in year t from year $t - 1$. For each type of enforcement action my analysis included models that used the full sample. Below is an illustration of the models for the CFO, the models for CAO, and CEO are similar. Where α_i denote clusters for firms (as opposed to firm FE) in the change analysis model.

Hypothesis 3a – Woman CFO – part 2

$$\begin{aligned}
\% \Delta \text{ Enforcement Actions }_{t+1} = & \beta_0_{it} + \beta_1 \Delta (FemaleExecsCFO)_{t-1\ it} \\
& + \beta_2 \Delta (FemaleExecsCEO)_{t-1\ it} + \beta_3 \Delta (FemaleExecsCOO)_{t-1\ it} + \\
& \beta_4 \Delta (FemaleExecsCMO)_{t-1\ it} + \beta_5 \Delta (FemaleExecsCAO)_{t-1\ it} + \\
& \beta_6 \Delta (FemaleExecsHeadofHR)_{t-1\ it} + \beta_7 \Delta (FemaleExecsMiscells)_{t-1\ it} + \\
& \beta_8 \Delta (StockReturn)_{t-1\ it} + \beta_9 \Delta (BookLeverageDebt)_{t-1\ it} + \beta_{10} \Delta (ROA)_{t-1\ it} + \\
& \beta_{11} \Delta (LnTobinQ)_{t-1\ it} + \beta_{12} \Delta (LnAssets)_{t-1\ it} + \beta_{13} \Delta (GrossMargin)_{t-1\ it} + \\
& \beta_{14} \Delta (FirmAge)_{t-1\ it} + \beta_{15} \Delta (Avg. Dir. Tenure)_{t-1\ it} + \beta_{16} \Delta (BoardSize)_{t-1\ it} + \\
& \beta_{17} \Delta (CEODuality)_{t-1\ it} + \beta_{18} \Delta (\%Dir. Female\&RacialEthnicMinority)_{t-1\ it} + \\
& \beta_{19} \Delta (FBoardIndependence)_{t-1\ it} + \beta_{20} \Delta (Avg. ExecsAge)_{t-1\ it} + \\
& \beta_{21} \Delta (RegulatoryEnvironment)_{t-1\ it} + \beta_{22} \Delta (FemalePayGap)_{t-1\ it} + \\
& a_t(YearFixedEffects) + \alpha_i(Cluster at Firm Level) + \Delta \mu_{it}
\end{aligned}$$

Chapter 5: Results

The first step in the analysis was to examine bivariate correlations (See Appendix C). There were several independent variables that had a medium to high correlation: (1) log of market capitalization and log of number of employees (0.603); (2) log of Tobin's Q and market-to-book value (0.844); (3) board size and log of assets (0.572); (4) log of assets and log of market capitalization (0.813); and (5) log of assets and log of employees (0.600). Given that several measures tap into similar concepts, I ran a main set of analyses without the log of market capitalization, log of employees, market to book value, and F score, but kept in the main analyses the log of Tobin Q, log of assets, and board size.⁴²

I used four proxies to measure women's power in management (i.e., pay slice, expertise, prestige, and CEO title) to ensure that the results provided a comprehensive measure of women's power and to ensure that the results are not sensitive to a single variable choice. However, the two of the measures are not quite independent with $\text{Female Execs} \geq 2$. The correlation between women executive expertise and pay slice is high at 0.802, and expertise and $\text{Female Execs} \geq 2$ at 0.561. When I include the variables in the same regression,⁴³ $\text{Female Execs} \geq 2$ take opposite signs for financial violations and expertise takes the opposite sign for environmental violations, while payslice takes opposite signs for all enforcement actions (any, financial, and environmental), likely reflecting multicollinearity. However, I have argued that

⁴² As previously mentioned, a set of analyses were performed including these indicators. They are available upon request. The results for the main independent variables remain largely similar.

⁴³ When all power measures are analyzed together in one equation, see table titled *Logistic FE for Each Women Executive Power Measure on Enforcement Action (Yes - No) in Appendix*

women plurality (Female Execs ≥ 2) on TMT is a different mechanism than having powerful women on a TMT. Due to the high correlation between these variables, the results shown include separate models with each measure (as proposed) and the final aggregate power measure. Women executive prestige and expertise were only correlated at 0.338.

Next, I discuss the findings for my hypotheses.

In hypothesis 1a— *A firm will have no significant change in enforcement actions when its top management team goes from having no woman executive to one woman executive (token)*—and hypothesis 1b— *A firm will have significantly fewer enforcement actions when its top management team goes from having exactly one woman executive (token) to having two or more women executives (plurality)*—the measures of the number of women executives are lagged by 1 year (t-1).

Therefore, the logistic regression results speak to whether a firm that goes from having no women executives to having exactly 1 or ≥ 2 in year t – 1 reduces the odds of having a new enforcement action in year t. The dependent variables consist of binary indicators for (1) any enforcement action (i.e., DV=1 if any enforcement actions for each company in each year=1), as well as any (1) financial or (2) environmental violations for each company in each year. All models include fixed effects for year and firms, but they do not show the year FE dummies in the models for space (Models in showing Year FE dummies are available upon request). These analyses compare changes within firms.

The logistic FE models for hypothesis 1, reveal that when a firm goes from having only woman executive to having two or more, the firm experiences fewer odds

of facing any enforcement action, compared to if the firm did not experience this change. Specifically, the presence of two or more women executives in year $t - 1$ negatively predicts the odds of facing any type of enforcement actions ($OR=0.657^*$) to a larger extent than the presence of only one woman ($OR=0.857+$) in year t (see Table 7). Contrary to hypothesized, however, one woman executive is associated with a decrease in the odds of facing financial kinds of enforcement actions in year t ($OR=0.596^{**}$), but two or more women do not predict a statistically significant decrease in financial enforcement actions.

These reductions are nontrivial, considering that the odds ratio on women execs ≥ 2 suggests that when a firm adds two or more women executives the firm reduces the odds of having *any* enforcement action the following year by 34.2% (compared to the same firm not adding), while having exactly one woman executive in the previous year reduces the firm's odds of having *any* enforcement action the following year by 14.3%. Finally, having exactly one woman executive reduces the firm's odds of having a financial violation the following year by 40.4%. The Negative Binomial FE models showed that the significance for financial violations remained, but the effect of exactly one woman on *any* enforcement action was no longer statistically significant. This partially support the hypothesis that TMTs that add women executives (plurality) do appear to reduce any future enforcement action, compared to TMTs that add only one woman executive. However, the results also highlight the existence of an effect of adding only one woman in the executive team (not token) in reducing any future financial violation.

Among the controls, more assets are associated with increased odds of having any future enforcement action, as well as any environmental and financial violation; Tobin's Q with decreased odds of any future enforcement actions and any environmental violation; debt leverage with increased odds of any future actions and any financial violation; and average director tenure associated decreased odds of any financial violation. The finding that larger firms (log assets) have higher odds of facing any enforcement action (of all kinds) is not surprising. This result is consistent with their more complex operations that give rise to more violations, and their visibility and deeper pockets that make them more attractive targets for regulators. Book leverage (debt) also predicts higher enforcement actions, and financial violations—plausibly because financial risk posed by higher leverage encourages executives to take more operational risk in the quest of survival in the market, resulting in more enforcement actions. As expected, firms that are appropriately valued (Tobin Q) have decreased odds of facing any enforcement action and any environmental action.

Table 7. Hypothesis 1b. Logistic FE for the Number of Women Executives on Enforcement Action (Yes-No) – *Odd Ratios*

	(1) Any Enforcement Action	(2) Any Environmental	(3) Any Financial
N of Observations	7,097	5,164	3,553
Number of Firms (FE)	579	411	283
<i>Odd Ratios</i>			
<i>Women Execs</i> ≥ 2 (<i>Lagged</i>)	0.657* (0.157)	0.731 (0.201)	0.677 (0.286)
<i>Women Execs</i> = 1 (<i>Lagged</i>)	0.857+ (0.095)	1.012 (0.132)	0.596** (0.110)
Leverage ratio (debt)	1.752+ (0.739)	1.151 (0.594)	3.049* (2.064)
Return on assets	0.885 (0.437)	1.221 (0.856)	0.536 (0.382)

Ln (Tobin's Q)	0.742*	0.684*	0.967
	(0.120)	(0.140)	(0.238)
Ln (Total Assets)	1.335**	1.180+	1.715**
	(0.138)	(0.150)	(0.282)
Gross Margin	1.297	0.846	3.753+
	(0.494)	(0.400)	(3.270)
Firm Age	1.004	0.976	1.061+
	(0.020)	(0.022)	(0.038)
Average Director Tenure	0.988	1.010	0.945*
	(0.017)	(0.020)	(0.027)
Board Size	1.011	1.013	1.027
	(0.025)	(0.028)	(0.039)
CEO Duality	1.206	1.221	1.325
	(0.284)	(0.343)	(0.530)
% Women Minority Board	0.900	0.931	1.392
	(0.400)	(0.486)	(1.016)
% Independent Board	0.808	0.658	1.297
	(0.301)	(0.283)	(0.835)
Average Executive Age	1.000	1.000	1.002
	(0.004)	(0.004)	(0.006)
Regulatory Envir. (Dem=1)	0.863	0.975	0.659
	(0.250)	(0.338)	(0.313)
Women Pay Gap	1.006	1.051	0.885
	(0.058)	(0.070)	(0.089)
Year FE	Yes	Yes	Yes
Model Chi Square	48.03**	47.30**	50.75**

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Hypotheses 2 – logistic

In Hypothesis 2—*A firm will have significantly fewer enforcement actions when its top management team goes from having women executive(s) with less power in the top management team, measured by women executives' (1) plurality, (2) pay slice, (3) elite education, (4) educational achievement, (5) highest title (CEO)), and (6) aggregate power, to having women executive(s) with more power—* all measures of women's TMT power are lagged by one year (t-1). Therefore, the logistic regression results speak to whether a firm that increases women's various power measures (lagged one year) changes the odds of having a new enforcement

action in year t .⁴⁴ The models include controls and fixed effects for year, but they do not show these effects in the models for space (see expanded models in Appendix E).

The results from the logistic FE for women executive pay slice on enforcement action (hypothesis 2a) indicate that, while in the predicted hypothesized direction, a firm that increases women executives' pay slice is unassociated to having higher or decreased odds of facing enforcement actions of any kind the following year (see Table in appendix E).

The results from the logistic FE for women executive prestige (ivy league education) on enforcement action also indicate mixed support for hypothesis 2b (see Table 8). A firm where women executives increase in prestige power, as measured by attending a U.S. Ivy League school, have decreased odds of facing “any” enforcement action ($OR=0.499^{**}$), and environmental violations ($OR=0.412^{**}$) the following year. However, a firm that increases in women executives' prestige is unrelated to next years' changes in the odds of facing financial enforcement actions. In terms of significance, hypothesis 2b logistic FE results suggest that a firm where women executive increase expertise, face a 50% decrease in the odds of getting “any” enforcement action, which is almost twice the size of the effect observed for women execs ≥ 2 ; and a 58.8% decrease in the odds of getting an environmental enforcement action the following year. Similar to hypothesis 1 results, Tobin's Q (decreased odds) and log of assets (increased odds) are also significant almost across the board; and as

⁴⁴ Note that, I argue that women (plurality) on TMT is a different mechanism than having powerful women on a TMT. Hence, I expect to see greater decreases in enforcement actions from the other measures of women power compared to the measure of plurality.

expected higher average director tenure is associated with decreased odds, but only for financial violations.

Table 8. Logistic FE for Women Executive Ivy-League Education (Prestige) on Enforcement Action (Yes or No)

	(1) Any Enforcement Action	(2) Any Envir. Action	(3) Any Financial Action
N of Observations	7,160	5,204	3,582
Number of Firms (FE)	586	416	285
<i>Odd Ratios</i>			
Women Prestige (Lagged)	0.499** (0.150)	0.412** (0.144)	1.001 (0.476)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Model Chi Square	51.64**	55.11**	42.85*

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

The logistic FE for hypothesis 2c- *women executive expertise (educational achievement) on enforcement action* - indicate that when a firm's increase in women executive expertise, the firm has decreased odds of facing any financial violation ($OR=0.360+$) the following year (see Table 9). However, an increase in women executives' expertise is not statistically significantly related to a firm's decrease odds of facing any enforcement actions, or any environmental enforcement actions the following year. In terms of significance, when a firm experiences an increase in women executives' expertise, it has a 64% decrease in the odds of getting any financial violation the following year.⁴⁵ The controls for Tobin Q and assets again show similar relationships as in the previous models; now higher debt (leverage ratio debt) is as expected associated with increased odds of facing any enforcement action,

⁴⁵ The models with additional controls yielded even smaller odd ratios and p values for civil and anticompetitive, accounting, and bribery enforcement action. Similar to the pay slice model, most control variables assume the expected direction; Tobin's Q and log of assets are again significant almost across the board.

and any financial violation, the following year. Gross margin, an indicator of risky policies (because a higher margin potentially leaves room to spend more on promotion and advertising) is now statistically significantly associated with increased odds of facing any financial violations the following year; and as expected higher average director tenure is again significantly associated with decreased odds, but only for financial violations.

Table 9. Logistic FE for Women Executive Educational Achievement (Expertise) on Enforcement Action (Yes or No)

	(1) Any Enforcement Action	(2) Any Envir.	(3) Any Financial
N of Observations	7,088	5,157	3,551
Number of Firms (FE)	578	410	283
<i>Odd Ratios</i>			
Woman Expertise (Lagged)	0.600 (0.247)	0.788 (0.380)	0.360+ (0.254)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Model Chi Square	45.44*	46.06*	44.62*

Robust SE parentheses

** p<0.01, * p<0.05, + p<0.1

The results from the logistic FE for women executive title (CEO) on enforcement action indicate no support for hypothesis 2e (see Table in appendix E). That is, a firm where a women executive increases power, as measured by gaining the title of CEO, is unassociated with the firm facing fewer or more enforcement actions in year $t + 1$.

The results from the logistic FE for women executive power (aggregate measure) on enforcement action indicate that when a firm increases in women executives' aggregate power, as measured by the aggregate of *plurality* + *pay slice* + *expertise* + *prestige* + *title*, the firm has decreased odds of facing "any" enforcement

action ($OR=0.806^*$), and environmental ($OR=0.805^*$) violations the following year (see Table 10). However, an increase in women executives' power is unrelated to next years' financial actions. In terms of significance, the results suggest that in a firm where women executive increase aggregate power, there is a 19.4% decrease in the odds of facing "any" enforcement action, and a 19.5% decrease in the odds of having an environmental enforcement action the following year. Again, Tobin Q, assets, leverage ratio debt, and average director tenure, again show similar statistically significant relationships as in the previous models.

Table 10. Logistic FE for Women Executive Power on Enforcement Action (Yes - No)

	(1) Any Enforcement Action	(2) Any Envir.	(3) Any Financial
N of Observations	7,086	5,159	3,547
Number of Firms (FE)	578	410	283
<i>Odd Ratios</i>			
Women Power (Lagged)	0.806*	0.805*	0.892
	(0.083)	(0.094)	(0.161)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Model Chi Square	48.32**	49.62**	43.20*

Robust SE in parentheses

** $p<0.01$, * $p<0.05$, + $p<0.1$

In sum, the logistic FE models for women executive power measures in Table 11 indicate that a TMT that increases in women executives' expertise (educational achievement) experiences decreased odds of facing any financial violations the following year, compared to if the same firm did not increase women executives' expertise. The odds for having any enforcement action, as well as any environmental violation, the next year, decrease in a firm where women executives increase in prestige (ivy league education). Finally, the results from the aggregate power measure

show that when firm increases women executives' aggregate power, the firm experiences decreased odds of facing any enforcement actions the following year, and any environmental violations, compared to when the firm does not experience an increase in women executives' aggregate power. While the magnitude of the decrease in odds for the measures of expertise, and prestige, are considerably larger than the odds from women executives' plurality, the aggregate measure performed worse in actual decrease in odds than the plurality measure ($\text{Women Execs} \geq 2$). This result suggests that the educational qualities of women executives appear to have greater influence in decreasing the odds of enforcement actions than their structural power (e.g., title and pay slice), and their plurality (i.e., more women in TMT).

Table 11. Summary of Logistic FE for Women Executive Power Measures on Enforcement Action (Yes or No)

	Any Enforcement Action	Any Envir.	Any Financial
<i>Odd Ratios</i>			
<i>Women Execs ≥ 2 (Lagged)</i>	0.657*	0.731	0.677
<i>Women Pay slice (Lagged)</i>	0.650	0.741	0.562
<i>Women Prestige (Lagged)</i>	0.499**	0.412**	1.001
<i>Women Expertise (Lagged)</i>	0.600	0.788	0.360+
<i>Women Title (CEO) (Lagged)</i>	0.844	0.702	1.228
<i>Women Exec. Power (Lagged)</i>	0.806*	0.805*	0.892

** $p < 0.01$, * $p < 0.05$, + $p < 0.1$

Notable differences between the logistic FE and the negative binomial FE are the following: in the NB models (see Appendix F), women executive plurality (i.e., $\text{Women Execs} \geq 2$) is now associated with a decrease in environmental enforcement actions, while women executive prestige is now unassociated with facing fewer enforcement actions counts. And aggregate women power is now unassociated enforcement actions counts, or financial or environmental violation counts. Thus, in

both models the coefficient for plurality (i.e., Women Execs ≥ 2) remains significant for enforcement actions; prestige (ivy league education) for environmental violations; and expertise (educational achievement) for financial violations.

Hypotheses 2– Change Analysis

The change analysis approach examines the relation between women’s power in the TMT and changes in enforcement actions the following year. Specifically, these analyses present *ordinary least squares* regressions of the percentage change in the number of enforcement actions filed against a firm in year $(t + 1)$ from year t on changes in the various measures of women power (i.e., pay slice, expertise, prestige, title, and aggregate power) in year t from year $t - 1$, and changes in control variables in year t from year $t - 1$. Percent change ($\% \Delta$) denotes the first difference in the natural log of one plus the number of respective enforcement actions. Model (1) is for all enforcement actions; model (2) is for environmental violations; and model (3) is for financial violations. Standard errors are corrected for heteroscedasticity and clustered within a firm; all equations include all controls and year FE (firms are clustered), but the coefficients were not included in the tables below for visualization and space purposes (see Appendix G for complete Tables).

While in the predicted hypothesized direction (i.e., decrease), the change analysis approach found that an increase in women executives’ numbers ≥ 2 (plurality), pay slice, or title (CEO)⁴⁶ with a firm, was not predictive of a significant

⁴⁶ The change analysis for Women CEO Title on financial violations was the only test not in the predicted direction - increase (was not statistically significant). See Table 15 in appendix G.

decrease in enforcement actions of any type the next year – and for those reasons the tables were not included in the body of the results (see Appendix G for Tables).

As seen in Table 12, when a firm experienced a change increase in women’s prestige (ivy league education) in the top executive team there was a significant decrease in overall enforcement actions, and in environmental violations, the next year, compared to if the firm did not experience this increase. Specifically, a one-unit increase in women prestige corresponds to an 8.8% decrease in overall enforcement actions the next year; and a 6.6% decrease in environmental enforcement actions the next year.

Table 12. Summary of Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Prestige (Ivy League Educ.) *(OLS estimates reported)*

	(1)	(2)	(3)
	%Δ Enforcement Actions t+1	%Δ Environmental Violations t+1	%Δ Financial Violations t+1
Year FE	Yes	Yes	Yes
N of Observations	16,472	16,472	16,472
R-squared	0.003	0.003	0.002
Δ Women Prestige	-0.088** (0.033)	-0.066** (0.024)	-0.016 (0.014)

Standard errors are corrected for heteroscedasticity and clustered within a firm (Robust standard errors in parentheses). All equations have all controls ** p<0.01, * p<0.05, + p<0.1

Similarly, as shown in Table 13, when a firm experienced a positive change in women’s expertise in the top executive team, the firm had a significant decrease in overall enforcement actions—administrative; environmental; and anticompetitive, bribery, and accounting enforcement actions—the next year. In model 1, a one-unit increase in women expertise corresponds to a 7.8% decrease in overall enforcement actions the next year; (model 2) a 4% decrease in environmental; and (model 3) a 2.7% decrease in financial violations.

Table 13. Summary of Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Expertise (Educational Achievement) (*OLS estimates reported*)

	Model (1)	Model (2)	Model (3)
	%Δ Enforcement Actions t+1	%Δ Environmental Violations t+1	%Δ Financial Violations t+1
Year FE	Yes	Yes	Yes
Observations	16,417	16,417	15,289
R-squared	0.002	0.003	0.002
Δ Women Expertise	-0.078** (0.032)	-0.041* (0.021)	-0.027* (0.016)

Standard errors are corrected for heteroscedasticity and clustered within a firm (Robust standard errors in parentheses). All equations have all controls ** p<0.01, * p<0.05, + p<0.1

Finally, as shown in Table 14, when a firm increases in women's aggregate power in the top executive team, the firm has a statistically significant decrease in overall enforcement actions (compared to if the same firm did not increase in women's aggregate power), as well as for environmental violations, the next year. However, the change is a small one magnitude wise. Thus, one-unit increase in women aggregate power corresponds to a 2% decrease in overall enforcement actions the next year, and (model 2) a 1.3% decrease in environmental enforcement actions the next year.

Table 14. Summary of Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Aggregate Power (*OLS estimates reported*)

	Model (1)	Model (2)	Model (3)
	%Δ Enforcement Actions t+1	%Δ Environmental Violations t+1	%Δ Financial Violations t+1
Year FE	Yes	Yes	Yes
N of Observations	16,414	16,414	16,414
R-squared	0.003	0.003	0.002
Δ Women Power	-0.020** (0.009)	-0.013* (0.006)	-0.004 (0.004)

Standard errors are corrected for heteroscedasticity and clustered within a firm (Robust standard errors in parentheses). All equations have all controls ** p<0.01, * p<0.05, + p<0.1

Overall, both tests for hypotheses 2 find support that a firm has significantly fewer enforcement actions when the firm increases in women executive expertise, prestige, and aggregate power (see Table 15). Results indicate that increases in women's expertise in the TMT are related to decreases in financial actions the following year. Similarly, increases in women's prestige in the TMT are related to decreases in environmental enforcement actions the following year. Finally, increases in women's overall power in the TMT are related to decreases in environmental enforcement actions the next year within the firm. As predicted, both power measures linked to women executive education, are related to future decreases in enforcement actions within the firm. From the controls, the most notable result is that, almost across all models, changes in regulatory environment (i.e., when democratic) is now associated with sizable decreases in overall enforcement actions, and in financial violations; and a smaller decrease for environmental violations.

Table 15. Summary of Results for Hypotheses 2
Yes= statistically significant decrease, No= Not statistically significant

H2	Test	Enforcement Action	Environmental	Financial
<i>Women Execs ≥ 2</i>	<i>Logistic FE</i>	Yes	No	No
	<i>Change Analysis</i>	No	No	No
<i>Women Pay Slice</i>	<i>Logistic FE</i>	No	No	No
	<i>Change Analysis</i>	No	No	No
<i>Women Expertise</i>	<i>Logistic FE</i>	No	No	Yes
	<i>Change Analysis</i>	Yes	Yes	Yes
<i>Women Prestige</i>	<i>Logistic FE</i>	Yes	Yes	No
	<i>Change Analysis</i>	Yes	Yes	No

<i>Women Title (CEO)</i>	<i>Logistic FE</i>	No	No	No
	<i>Change Analysis</i>	No	No	No
<i>Women Power</i>	<i>Logistic FE</i>	Yes	Yes	No
	<i>Change Analysis</i>	Yes	Yes	No

Hypothesis 3 - Results

In Hypothesis 3a— *A firm will have significantly fewer financial enforcement actions when its top management team goes from having women executive(s) positions with fewer links to financial outcomes (e.g., CFO, CAO) to having more women in positions linked with financial outcomes*—and hypothesis 3b— *A firm will have significantly fewer environmental enforcement actions when its top management team goes from having no woman executive holding the highest ranked executive position (i.e., CEO) to having a woman executive holding the highest ranked executive position*— the executive title measures are lagged by one year (t-1). Therefore, the logistic regression results of Hypothesis 3 speak to whether a firm that experience a change (adds a) in women executives CFO, CAO, and CEO, (lagged one year) have reduced odds of having a new enforcement action in year t (the following year). The models include fixed effects for year, but they do not show these effects in the models for space, but these are available upon request.

The results from the logistic FE in Table 16 for women executive CFO on enforcement action indicate that when firm adds a women CFO, the firm experiences a 43.5% decrease in the odds of getting any enforcement action the following year, and a 42.7% decrease in the odds of having any environmental violation the next year. Contrary to hypothesized, while in the predicted direction, adding a women CFO was not associated with facing financial violations the following year. Results

for the woman executive CEO revealed no association with any enforcement actions the following year. On the other hand, when a firm adds a women executive CAOs the firm experiences increased odds of facing any enforcement actions ($OR = 1.856+$), and environmental violations ($OR = 3.808^{**}$) the following year, but a decreased odds of facing financial violations ($OR = 0.332+$) the following year. Further, the results show that when a firm adds a women miscellaneous executive in TMTs this is associated with decreased odds of facing any enforcement action ($OR = 0.807^*$) and financial violations ($OR = 0.611^{**}$) the following year; and a firm that adds women head of human resources is associated with a 60% increase in the odds of facing any enforcement action ($OR = 1.607+$)

Table 16. Logistic FE for Women Executive CFO, CAO, and CEO, on Enforcement Action (Yes - No)

	(1) Any Enforcement Action	(2) Any Environmental	(3) Any Financial
N of Observations	7,120	5,172	3,568
Number of Firms (FE)	582	413	284
<i>Odd Ratios</i>			
Women CFO (Lagged)	0.565* (0.143)	0.573* (0.178)	0.612 (0.248)
Women CEO (Lagged)	0.793 (0.327)	0.678 (0.308)	0.995 (0.681)
Women COO (Lagged)	0.746 (0.469)	0.606 (0.497)	0.240 (0.359)
Women CMO (Lagged)	0.910 (0.497)	1.187 (0.756)	0.758 (0.839)
Women CAO (Lagged)	1.856+ (0.812)	3.808** (2.034)	0.332+ (0.275)
Women Head HR (Lagged)	1.607+ (0.574)	1.547 (0.702)	1.103 (0.644)
Misc. Women Exec. (Lagged)	0.807* (0.092)	0.945 (0.126)	0.611** (0.118)
Stock Return	1.038 (0.0921)	1.078 (0.119)	0.956 (0.138)
Leverage ratio (debt)	1.755+ (0.739)	1.144 (0.591)	2.954+ (1.998)
Return on assets	0.867 (0.426)	1.200 (0.841)	0.569 (0.401)
Ln (Tobin's Q)	0.739*	0.684*	0.969

	(0.120)	(0.140)	(0.239)
Ln (Total Assets)	1.344**	1.190+	1.718**
	(0.139)	(0.151)	(0.283)
Gross Margin	1.294	0.839	3.678+
	(0.491)	(0.396)	(3.199)
Firm Age	1.003	0.975	1.061+
	(0.020)	(0.022)	(0.038)
Average Director Tenure	0.989	1.011	0.945*
	(0.017)	(0.020)	(0.027)
Board Size	1.012	1.014	1.028
	(0.025)	(0.029)	(0.039)
CEO Duality	1.218	1.251	1.306
	(0.288)	(0.352)	(0.521)
% Women Minority Board	0.910	0.965	1.354
	(0.405)	(0.504)	(0.992)
% Independent Board	0.791	0.649	1.307
	(0.294)	(0.279)	(0.838)
Average Executive Age	1.000	1.000	1.002
	(0.004)	(0.004)	(0.006)
Regulatory Envir. (Dem=1)	0.844	0.919	0.682
	(0.245)	(0.320)	(0.323)
Women Pay Gap	1.004	1.047	0.888
Year FE	Yes	Yes	Yes

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

The results largely aligned in both the logistic FE and the NB FE models, with a few exceptions. The NB FE model, unlike the logistic FE, show that when a firm adds a woman CFO, the firm has a lower risk of facing financial violations (*IRR*=0.571+). Adding a women CAOs and Head of HR are now unassociated with higher risk of enforcement action (*counts*). However, for women CAO the NB remains significant in predicting higher risk of environmental actions. Further, firms that add miscellaneous women executives are no longer associated with fewer enforcement actions (*counts*) (see appendix H for NB FE Tables).

The change analyses approach indicates when a firm experiences a change increase in women CFO in the top executive team, this did not predict a statistically significant decrease in enforcement actions the next year (see Table 17 for a summary

of all three H3 tests results; and see appendix H for complete Tables). Further, change increases in women CAO and in miscellaneous women executive are significantly related to changes in enforcement actions the following year within the firm. Specifically, a change increase in women CAO predicts a significant increase in enforcement actions the following year in the firm (change analysis 0.032+); as well as a significant increase in environmental enforcement actions the following year (change analysis 0.031+). On the other hand, a change increase in women miscellaneous executives predict a significant decrease in enforcement actions the following year in the firm (change analysis -0.017*); and in financial violations the following year (change analysis -0.004*).

Table 17. Summary of Hypothesis 3 Results
Bold indicates a decrease in enforcement actions

H3	Test	Enforcement Action	Environmental Violations	Financial Violations
Δ Women CFO	<i>Logistic FE (OR)</i>	0.565*	0.573*	–
	(1) Change Analysis t+1	–	–	–
Δ Women CAO	<i>Logistic FE (OR)</i>	1.856+	3.808**	0.332+
	(1) Change Analysis t+1	0.0323*	0.0309+	–
Δ Women CEO	<i>Logistic FE (OR)</i>	–	–	–
	(1) Change Analysis t+1	–	–	–
Δ Women COO	<i>Logistic FE (OR)</i>	–	–	–
	(1) Change Analysis t+1	–	–	-0.0109+
Δ Women CMO	<i>Logistic FE (OR)</i>	–	–	–
	(1) Change Analysis t+1	–	–	–
Δ Women CHRO	<i>Logistic FE (OR)</i>	1.607+	–	–
	(1) Change Analysis t+1	–	–	–
	<i>Logistic FE (OR)</i>	0.807*	–	0.611**

<i>Δ Women Misc. Exec.</i>	(1) Change Analysis	-0.0178*	-0.0086+	-0.0048*
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Only statistically significant results are reported; controls and year FE included

In sum, both logistic and NB tests support the premise that firms that add women CFOs have fewer enforcement actions and fewer environmental violations the following year, compared to when those same firms do not add or have women CFOs. However, only the NB test supported the premise that firms with women CFOs have fewer risk of financial violations. Furthermore, the change analysis approach, while in the predicted direction, was not statistically significant. The tests also show that when a firm adds a women CAO, the firm has more enforcement actions and more environmental violations the following year, compared to when the firm does not have a women CAO. Finally, when a firm adds a miscellaneous women executive, the firm has fewer enforcement actions and fewer financial violations the following year.

Moreover, the results of the change analysis approach show that changes in other firm-level variables (not tabulated for brevity, see appendix H) in these models may point to “triggering events” that lead to changes in enforcement actions. Generally, but not significant in all models, changes in stock return, return on assets, average executive age, closing of the pay gap (i.e., towards more equal pay), average executive age, and a democrat political regime are associated with fewer enforcement actions the following year. Conversely, changes in Tobin Q, average director tenure, gross margin, and percent of women and minority directors is associated with increased enforcement actions.

To recap, increases in women executives in TMTs are associated with decreases in firm enforcement actions. Further, increases in women executive’s expertise (higher educational achievement) and prestige (ivy league education) are

associated with decreases in financial and environmental violations, respectively. Further, not all tests consistently predicted an association between women CFOs and CAOs and decreases in financial violations (only associated with a decrease in the NB for CFO; only associated with a decrease in the Logistic FE for CAO). Similarly, firms that add women CEOs are unassociated with future environmental enforcement actions. The exploratory results revealed that, miscellaneous women executives are associated with decreases in financial violations, however. And that, adding a women CAO in a TMT is associated with increases in environmental enforcement actions within firms.

Chapter 6: Discussion

6.1 Overview of Findings

In a society where women are still underrepresented in firms' top executive positions (Catalyst, 2017; ISS, 2017), and underpaid for the same work men do, there is no question as to whether it is morally right to address and bring about workplace gender equality. Despite these moral arguments, in most top management teams, there is only one woman or a small minority of women. As such, they are often considered tokens (Kanter, 1977a) that are unlikely to have much influence over corporate policies. Multiple women executives, however, may be able to form coalitions that give them greater power and influence over firm policies and actions. Given that women are generally involved in much less crime (of all kinds) as compared to men, increasing gender diversity in top management teams could not only be the morally right thing to do, but could prove beneficial in decreasing corporate offending. Hence, I examine the first question: Do firms where there are *more* women TMT executives have lower enforcement actions than firms with fewer? The results from this study suggest the answer is *overall, yes – and even one woman can make a difference*. That is, the presence of two or more women executives is associated with a greater decrease in the odds of facing any future enforcement action than only one woman executive. Therefore, one woman executive can make a difference, but more women appear to be even more beneficial. This finding is consistent with critical mass theory (e.g., Granovetter, 1978; Kanter, 1977a,b), in that it suggests that adding a higher count of women in the TMT appears to substantially decrease future enforcement actions, than adding just one. Thus, the benefits of adding women to the TMT are

enhanced by a critical number of executive women who can affect policy and make changes not as a token but as an influential body. Thus, there is modest support to say that an increased presence of women executives in the top management team does appear to decrease firm misconduct.

However, effects were not uniform across offense types. Specifically, two women were not significantly predictive of decreased financial violations, but only one woman on the TMT did lower these actions. What is more, in the logistic regression framework, the coefficient increased when there were two or more women in the team, suggesting that perhaps increased gender diversity in this case may be detrimental (i.e., can increase) or have a curvilinear relationship with diminishing returns, for financial violations. Indeed Post, Lokshin and Boone's (2022) recent study found a pattern of diminishing returns to adding women to a TMT when women executive incumbency was already high within that team. For instance, the results from their threshold interactions showed that, once a TMT has four or more women, adding more women executives no longer changed the TMT's risk-taking propensity. Additionally, the nature of environmental violations is quite different from financial violations (i.e., anticompetitive, bribery, and accounting). The former involves operating decisions and is heavily information based on inspections, public complaints, and self-reported noncompliance (Simpson, Garner, and Gibbs, 2007), while the latter usually deals with governance issues (e.g., leadership, true independence of directors, executive compensation, oversight and disclosures). These results are generally consistent with research by Adhikari and colleagues (2019), who found that executive women's power, measured by plurality (two or more) and pay

slice, negatively predicts only operating lawsuits (civil SEC filings) but had no significant effect on securities lawsuits, which unlike the former also mainly involve disclosure and governance issues. Further, they found that these lawsuits were a function of risky firm policies that are value increasing (excess R&D and advertising intensity), and that firms where women had more power appear to reduce litigation risk partly by avoiding such policies. My results revealed that book leverage (debt) is associated with increased financial violations, plausibly because financial risk posed by higher debts puts increased pressure on managers to ensure the survival of the firm by whatever means necessary and hence take more risk (i.e., further increasing governance issues) resulting in more of these enforcement actions. Like Adhikari and colleagues (2019), my results also show that gross margin, a measure of advertising intensity, also is associated with an increase in these violations. Excessive advertising is a risky but value-increasing firm policy. Aggressive advertising can increase the chance of deceptive advertising and attract regulatory scrutiny and action (Joshi & Hanssens, 2010).

Further, while increased executive gender diversity in the TMT might allow for more perspectives to be considered and improve operating complexity, perhaps a TMT with greater gender diversity—in essence, too many women—may increase the likelihood that fraud within the team (or the firm) will be disclosed to regulators. That is, this new coalition of women executives could feel safe, empowered, and supported by other women executives to “do the right thing” and may indeed empower whistleblowers to willingly disclose fraud, bribery, and other violations to the FTC, SEC, DOJ, and other regulatory agencies (Rehg, Miceli, Near, & Van Scotter, 2008).

Alternatively, another view is that the increased heterogeneity within the team may increase leadership and communication ambiguity regarding who is making what decision or taking what action. This is consistent with previous studies finding that, the increased heterogeneity fractures previous essential processes such as communication, coordination, cohesion and trust. This in turn, increases the potential for conflicts in a team (Pelled, Eisenhardt, & Xin (1999) and ineffective strategies that result in more offending outcomes or more disclosure about it (Pearsall, Ellis, & Evans, 2008: 225). For instance, Marx, Pons, and Suri (2021) found that increased racial and ethnicity diversity in teams decreased team performance because individuals in heterogeneous teams were more likely to complain about their colleagues. However, results from field experiments suggest that the benefit of information sharing is greater than communication cost in more diverse teams (Hoogendoorn & Praag, 2012; Hoogendoorn, Oosterbeek, & Van Praag, 2013). Future research could further examine this finding by integrating faultlines, which are a recommended criterion that divide a TMT into homogeneous subgroups based on alignment of multiple demographic characteristics (e.g., Bezrukova, Jehn, Zanutto, & Thatcher, 2009). This perspective could help explain why increased representation of women in the TMT is beneficial for negatively predicting some forms of enforcement actions, but not others.

The finding that adding one woman lowered financial violations, but adding two or more women did not, is important because it suggests a potentially different dynamic process of risk adjustment among incumbent women executives. That is, as women executives grow in numbers, competition may also increase between women

executives. One possibility is that incumbents may feel the need to stand out among their female peers, prompting them to make riskier financial decisions, in turn, diminishing the benefits of conservatism. Research shows that female executives are aware that, as women authorities, they are perceived to have a lower status than their male counterparts (Vial, Napier, & Brescoll, 2016), and more likely to be seen as less valuable within the team (Duguid, Lloyd, & Tolbert, 2012). As a result, women executives are more likely to pursue opportunities and strategies that allows them to demonstrate remarkable performance (Smith, Watkins, Ladge, & Carlton, 2019), and enables them to prove their value, obtain support and appreciation within their team (Bowles, 2012). The fact that diminishing returns show in financial violations and not in environmental violations suggests that this potential rivalry could be displayed in changes risk taking behavior and not to wavering in women's social responsibility levels. Alternatively, the incumbent woman executive may perceive the new woman may bring with her risk averse preferences and she may upturn her own risk preferences accordingly (Masclet, Colombier, Denant-Boemont, & Loheac, 2009; Stoner, 1968). In essence, when a firm goes from having one to having two women executives, they might affect strategic decisions by changing the orientation and risk-taking propensity of the women executives, and in turn of the entire TMT. Thus, women, and specially more women, do not have a uniform-beneficial effect on various types of firms offending outcomes. This means that a firm looking to reduce financial violations may benefit from adding a woman executive and placing her in the right position, but that adding more women (with the same goal in mind) without placing her in an equally relevant role, or with the sake of achieving diversity but

without considering the appropriate expertise needed to achieve this goal, or without understanding how the TMT dynamics unfold after a women's appointments, may not produce the same beneficial (desired) effect on a firm's future enforcement outcomes. However, the mechanism and how the linkage takes place remains obscured. Without a dynamic approach, research on women executives and firm offending outcomes remains elusive and descriptive at best. This lack of in-depth understanding of the female executive-firm offending relationship may set firms and women executives up for failure, if shareholders, executives, and directors believe that simply having (more) women executives will lower all enforcement actions equally and are oblivious of how the TMT dynamics evolve after women executives are added in the team. I side with management scholars that call for studies that identify and explore other models linking female entry into TMTs with firm decisions via changes in the team's cognitions (Post, Lokshin, & Boone, 2022). For instance, women executive appointments may influence the team's moral sensitivities (in turn increasing corporate social responsibility over time) (Post, Lokshin, & Boone, 2022, pg. 294), given documented evidence linking women with greater care and justice ethical orientations (Jaffee & Hyde, 2000), but have diminishing returns on risk-taking behaviors, which could explain the differences between environmental and financial violations.

Drilling down on specific characteristics or mechanisms associated with female executives and reduced enforcement actions, my results reveal more circumscribed associations. Higher educational achievement was significantly associated with a decreased in financial violations (i.e., anticompetitive, bribery, and

accounting). These actions often involve formal administrative actions, complicated criminal and civil lawsuits filed against the firm or against specific employees, as well as monetary fines in the form of civil penalties, settlements, and/or injunctive relief, and are thus considered complex actions that are difficult for firms to navigate. This initial result may suggest that women executives who are more educated within their team are more skilled in influencing and enacting crucial firm strategies that may be able to divert firms from a more serious (i.e., damaging) financial offenses. This result is consistent with results from a panel study of 2500 Danish firms showing that the positive effects of women in top management on firm performance depend on the qualifications of female CEOs (Smith, Smith, & Verner, 2005), even after controlling for numerous characteristics of the firm and direction of causality. In other words, the positive performance effects are mainly related to female CEOs with a university degree while female CEOs who do not hold a university degree have a much smaller or insignificant effect on firm performance. Thus, the “expert” skills that these women executives gain through their advanced education (a proxy for expertise and knowledge) may allow them to create and advance their preferred strategic decisions within the TMTs. This result is also indicative that having the expertise and knowledge is required to effectively navigate the complexities associated with compliance to statutory or regulatory requirements associated with difficult anticompetitive, bribery, and accounting violations.

Environmental enforcement actions significantly decreased in firms where women executives’ ivy league education (prestige) increased within their team. As previously stated, environmental violations are often the result of operating decisions

and are often brought by other parties. Additionally, the bulk of environmental actions in this sample are administrative (~90%), with only 10% or less being civil or criminal actions. This could suggest that an ivy league education, may not give women executives the actual set of “skills” or knowledge to choose better strategies that eventually reduce potentially more complicated and consequential actions (i.e., financial) in their firms, but it may still afford women executives the human capital (Ge, Isaac, & Miller, 2019) needed to negotiate and influence administrative and environmental actions, which may be less harmful to a firm’s reputation and future than civil actions. An ivy league education may not only reflect (be a good proxy for) the powerful ties to elite networks of individuals and organizations gained through attending “elite” institution, that grant women managers the “access” (i.e., connections) to work with those in charge (e.g., powerful politicians) of bringing their firms into administrative and environmental compliance when a statute has been violated, but also other unique talents of these women executives—talents that got them into Ivy League schools and into influential top level executive positions within S&P 1500 firms (Zimmerman, 2013). Relatedly, some argue that the type of college a person attends reflects his or her ambitions and expectations for the future (Finkelstein, 1992; Hambrick & Mason, 1984), and signals investment in conventionality or “stakes in conformity” (Toby, 1957), both of which influence a decision to engage in crime (Hirschi, 1969). In essence, different aspects of education contribute to changes in specific types of enforcement actions. For example, educational achievement (expertise) may be reflective of experience, or professional skills, that contribute to changes in financial violations, but an ivy league educated

female TMT (prestige) may reflect social capital and other unique talents that are related to changes in environmental violations (largely administrative).⁴⁷

Further, the change analysis did not find that a change in women executives' plurality (more than two women executives), CEO title, or pay slice predicted a significant decrease in any type of enforcement actions the next year. Still, there were three relationships that consistently, significantly, and robustly, predicted a negative relation to future enforcement actions in all three models:

1. Women executive expertise and financial violations (anticompetitive, bribery, and accounting).
2. Women executive prestige and any enforcement actions, and environmental enforcement actions; and
3. Women executive *aggregate* power and any enforcement actions, and environmental violations.

The combined results provide initial evidence to suggest that these three observed relations could then be the result of two nonmutually exclusive processes. The first involves a process of self-selection, by which firms and executives select each other based on preferences, such as risk preferences and firm culture (Francis et al., 2015). In this case, some firms may have an existing culture of lower tolerance for risky strategies to avoid enforcement actions. Women executives, who tend to be more risk-averse than men executives, may elect to work for this type of company, which at the same time, may be more likely to hire women because they fit the firm's low-risk culture more than men do. The alternative explanation involves a causal

⁴⁷ Recall, accounting/bribery actions are more likely to be civil (44%) than regulatory (39%), while the opposite is true for environmental and anticompetitive offenses.

effect, in which women's power in the TMT leads their firm to adopt strategies and/or policies that avoid the risk of enforcement actions. However, these initial tests do not provide conclusive evidence for either one. Using more rigorous tests, Adhikari and colleagues (2019), found some evidence of both a selection effect of women executives choosing to work for firms with a lower risk-taking profile and a treatment effect of women executives adopting lower-risk policies that invite fewer future lawsuits. Additional and more rigorous tests, such as a propensity score matching (PSM) to create matched samples of firms with men and women executives and a treatment-effects approach that relies on identification from a suitable instrumental variable, are needed to mitigate residual selection bias concerns. Nevertheless, the overall results from the first hypothesis suggest that indeed it is not just the presence of more women in the team, but also the added desirable educational (Ivy League and advanced degrees) assets of these women that make them influential and a change catalyst to various future offending outcomes within their firms.

This first set of results raises an important question: Does the position (role) that the woman executive occupies within the TMT matter for future offending outcomes? Given firms are mainly financially motivated organizations, it only makes sense to examine the influence and characteristics of the executive who has control over the central area of the firm. Financial statements illustrate how well a firm is doing financially, and CFOs wield power (and are largely responsible) over them. Hence, do firms where women occupy a CFO role (a key strategic financial role, as opposed to an administrative position) in the top management team have fewer enforcement actions levels than firms where males occupy that position in the top

management team? Logistic FE and NB FE results support the hypothesis that increases in women CFO are associated with next year decreases in all types of enforcement actions, but logistic results did not find this for financial violations – contrary to predicted. The same analysis indicates that increases in women CEOs were unrelated to changes in enforcement actions. The finding that women CFOs are associated with decreased offending outcomes, but not women CEO, is consistent with recent findings indicating that do not find any effect of executive gender on financial accounting outcomes (Clikeman, Geiger, & O’Connell, 2001; Ge, Matsumoto, & Zhang, 2011; Schrand & Zechman, 2012; Ye Zhang, & Rezaee, 2010; & Davis, Ge, Matsumoto, & Zhang, 2015). However, the finding that women CFOs, unlike women CEOs, have an impact on enforcement actions, also suggests that women CFOs (although technically ranked below CEOs in the hierarchy of the TMT) may be more powerful than women CEOs within the TMT. The women CFO financial expertise, skills, abilities, specific duties and fiduciary responsibilities, may uniquely position them within the team to push for, and set, their preferred strategies and policies for the firm – including environmental practices (Huang and Kisgen, 2013), above and beyond those desired by the CEO. Thus, it is plausible that TMTs with women CFOs are lowering their risk levels by positioning a woman (more risk averse) as the key decision-maker for setting the firm’s priorities. In this way, she (CFO) would establish less risky types of policies and strategies, which in turn result in fewer future offending outcomes. Thus, women CFOs may indeed have a greater influence than women CEOs as it relates to offending outcomes.

However, the relationship between women CFOs and decreased offending was not significant in the change analysis approach. As previously mentioned, I used “detected misrepresentations” (i.e., enforcement actions), which has been found to underestimate the actual prevalence of fraudulent activities (Harris & Bromiley, 2007). Certain measures of offending could be problematic, because they are either too inclusive or not inclusive enough. For example, Pakaluk (2012) argues that financial enforcement actions under the SEC and/or DOJ umbrella could bring no enforcement actions in cases where the evidence is too weak and settlements may be encouraged instead, or when government agents are too busy and lack the capacity to undertake a deep dive into large amounts of accounting and financial records. On the other hand, they can be over inclusive because not every firm charged with such violation is actually guilty of it but decides to defensively settle. Moreover, firms caught engaging in fraud would be different from fraudulent firms that are not caught (Amiram, Bozanic, Cox, Dupont, Karpoff, & Sloan, 2018). For instance, the results here are consistent with that of other studies in that larger firms face more enforcement actions on average than smaller firms (see e.g., Adhikari et al., 2019). The Gupta et al., (2020) study used two different measures for financial violations: earning reinstatements and the financial statement deviation (FSD). Earning reinstatements have been described as violations of accounting rules and hence used as a “proxy for fraud” (Harris & Bromiley, 2007: 351). The FSD score has been shown to correlate well with various accounting measures traditionally used to identify financial misrepresentations and to consistently identify the likelihood of misreporting (Amiram, Bozanic, and Rouen, 2015). Importantly, the FSD measure

allows for acts of fraud “to be identified *ex ante* in the population of firms, rather than only in those who get caught.” (Gupta et al., 2020: 825). Thus, it is possible that the lack of significance in the change analysis reported here is partly the result of the measure used, as opposed to a true lack of relationship. Pakaluk (2012) however, fairly argues that any claims and criticisms that enforcement outcome data are flawed should be accompanied with proper evidence that they in fact are inaccurate. That approach is not possible here.

Other less expected results—in this case, next year reductions in enforcement actions—were observed between increases in women executives occupying miscellaneous roles in the TMT and next year decreases in all types of enforcement actions, and financial violations. Importantly, these results were also, for the most part, supported by the change analysis approach. Indeed, in this sample, miscellaneous women executives represented most of the positions that women executives held in the TMT at 4,213 of the firm years, compared to only 990 firm years for women CFOs; 417 firm years for women CEOs; and 377 firm years for women CAOs. It is unclear from my sources and coding, however, exactly what roles these women occupy, or whether they are more or less educated than other executives.

Another notable result from this analysis is that having a woman CAO was significantly, robustly, and positively predictive of next year environmental violations in all models, and that the logistic model supported a relationship between adding a woman CAO and fewer future financial violations. Importantly, adding a women CFO was not associated to fewer future financial violations, which indicates that

women CAOs day-to-day accounting tasks and insights may indeed afford them the influence and/or responsibilities in firm strategic decisions that in turn affect financially related offending outcomes (i.e., anticompetitive, bribery, and accounting violations). Regarding the relationship between increases in women CAOs and increases in environmental actions, it is unclear how the accounting responsibilities of women executives—such as overseeing ledger accounts, financial statements, and cost control systems, or their role within the team—could influence strategies or decisions that in turn increase environmental violations in their firms. This result is somewhat puzzling, and could perhaps be better explained by practitioners or with qualitative data.

Finally, there were no consistent or robust findings for women executives in the roles of CFO, CEO, COO, CMO, and head of HR – meaning all three tests did not reveal a statistically significant relationship. Future corporate crime studies should use additional analyses such as structural equations models to explore these relationships. These models allow to develop complex path models with direct and indirect effects to model the causal mechanisms we are interested in more accurately, and hence better explain the relationships among multiple variables. Future studies ought to also explore whether and how important characteristics of women executives vary by role in order to better understand perhaps why these executives appear to exert no influence on various offending outcomes in firms. For instance, similar to the panel study of 2500 Danish firms (which only examined education of CEOs), future studies can ask whether the positive effects (decrease offending) of women in top management depend on the educational qualifications of the female executives by

title (i.e., CFO, CAO, etc.). In sum, only two relationships were supported in all three models: (1) women executive CAOs increased environmental violations; and (2) women miscellaneous executives decreased financial violations.

6.2 Implications

This dissertation adds to the corporate crime literature in a fundamental way by empirically examining if gender and educational executive characteristics of the TMT influence an organization's overall orientation toward compliance, as well as whether women executives are hired as a result of (and perhaps with the intention of reducing) enforcement actions. These results provide initial support for the assertion that women executives, and their educational characteristics, play an important role in changing an organization's offending outcomes. While I find general support for the main question associated with this dissertation, the nuances of the findings require more extensive discussion, particularly given several counterintuitive findings. Generally, the findings support the argument that more knowledgeable (i.e., higher educational achievement) women executives are associated with lower organizational future offending outcomes, which concurs with prior research that demonstrates the importance of executive knowledge and expertise in the strategic decision-making process (e.g., Barker & Mueller, 2002; Walters, Kroll, & Wright, 2007). The main finding is that while more women do matter in lowering future enforcement actions, it is their educational attributes that most benefit the firms in terms of reducing future enforcement actions.

Policy wise, the results that firms where there are more women, and more educated women, are associated with future decreased enforcement actions, raise

some important questions: specifically, if increased educated-gender diversity in the TMT reduces future enforcement actions, would instituting diversity policies or even requiring that firms hire more highly qualified women executives yield the same positive results? Many firms and institutions are trying to undo and reverse the discrimination that prevailed for most of history and have adopted a diversity, equity, and inclusion (DEI) programs, which often include some form of diversity mandate outlining clear targets for minority hires (e.g., at least 30% women executives and directors). These policies are a clear attempt to change the outcome without fully understanding the cause (e.g., misogyny, racism, status quo) and hence may not actually eliminate the problem and lead to better outcomes. Hence, policy interventions targeting greater diversity should consider match-specific qualities in forming teams to prevent the potential negative impact of diversity and aim to reduce existing biases against certain groups (Calder-Wang et al., 2021). As findings suggest, forced diversity in groups may be counterproductive and damaging to other goals of firms (e.g., performance, compliance). Instead, adopting a “team” approach may produce better results. In other words, while previous literature focuses on performance, and not offending or enforcement actions per se, the important take-away is that even well intended policies can have negative unintended consequences. Thus, it is important to understand exactly *what changes* in firms lead to both increased gender diversity and better future outcomes. Until those questions are further explored and better understood, I side with Calder-Wang and colleagues’ (2021) conclusion that policy interventions targeting greater diversity should consider

match-specific qualities in forming teams to prevent the potential negative impact of diversity and aim to reduce existing biases against certain groups.

Certain corporate crime scandals often result in the firing of top executives and directors, as well as in new laws and policies being put into place to deter further misconduct, yet corporations continue to push the envelope. Empirical studies find little evidence of a deterrent effect for either punitive (Schell-Busey, Simpson, Rorie, & Alper, 2016) or cooperative intervention strategies (Simpson, Garner, & Gibbs, 2007). Schell-Busey et al.'s (2016) meta-analysis found little support for the hypothesis that policies and laws aimed at deterring corporate offending are effective, but that multiple interventions had positive effects. Simpson et al.'s (2007) analysis of the firm-level data also found that formal legal sanctions and compliance strategies that build on ethical evaluations of managers and effective internal compliance systems had a substantial effect on managerial decision-making. Further, as Yeager (2016) noted, the increased use of deferred and non-prosecution agreements has lowered the risk (and the perceived risks) of formal legal sanctions for corporations or for individuals within corporations, effectively making the gains for corporate crime more rewarding than the potential punishment. Given the potential detrimental effects of forcing TMT diversity, and the complexities of the legal system, legislators and regulators should work on strengthening the system and sanctions intended to discourage offending, to work alongside with the internal audits and other oversight mechanisms within firms that are intended to encourage compliance.

Most corporate crime studies have examined the TMT effect on firm offending using only the CEO or CFO, or in a way that works for a particular time

and place but may not work very well after that. My findings in this dissertation also advance research on TMT characteristics' influence on misconduct, as well as the types of misconduct studied. While this research examines the characteristics of individuals who are responsible for firms' misconduct, little research still exists on the motivation and actions of TMT members on minimizing wrongdoing. Therefore, a deeper understanding of TMTs is needed regarding minimizing misconduct to gain insights into the relationship between the motivation of executives and corporate offending.

Similarly, Upper Echelons theory research has mostly focused on the CEO and the top management team (Hambrick, 2007), largely overlooking the crucial roles of other senior executives in the strategic decisions of the firm. What is more, the importance of CFOs, specifically, has risen drastically in modern corporations (Zorn, 2004), yet organizational and corporate crime researchers continue to largely ignore the CFO as a key decision-maker (Uhde, Klarner, & Tuschke, 2017). My dissertation contributes to the management and corporate crime literature by providing insights on the role (and the characteristics) of other key executives on previously unexplored firm outcomes (i.e., different types of enforcement actions). Specifically, I advance research on the impact of CFOs and other key executives (i.e., CAO) on corporate misconduct by examining whether gender, executive role, education, and pay, affects various forms of corporate offending. By examining the relationship between other previously unexamined types of corporate offending (i.e., environmental, and anticompetitive, bribery, and accounting violations) and the gender of the executive in specific roles, I add to the corporate crime literature findings indicating gender

diversity is negatively associated with corporate misconduct such as securities fraud (Cumming et al., 2015), and operational lawsuits (Adhikari et al., 2019). My research also advances Upper Echelons theory by highlighting the impact of executive gender on corporate malfeasance. Given the increasing pressure on companies to hire more women executives (Adams, 2016) and their slow, but increasing, representation on TMTs, understanding how executive gender may affect various forms of corporate offending can inform researchers, regulators, policymakers, and the general public (Cumming, Leung, & Rui, 2015). As such, I add to the small, but emergent, body of research on top managers that are responsible for specific functional areas and equally or more influential than the CEO to firm outcomes (Menz, 2012).

6.3 Limitations and Future Steps

Data, Sample, and Methods

While my empirical approach in this dissertation has clear strengths, these data and this sample are methodologically limited. First, my sample only includes large publicly traded companies. Thus, these results are only generalizable to U.S. publicly owned S&P 1500 firms, and not to privately owned companies or to internationally housed companies. Second, as previously mentioned, the measures of offending are official enforcement data, as opposed to offending data (actions by firms), which create a timing measurement issue. In this case, actions are recorded when the act was discovered or reported, resulting in a case being filed, as opposed to when the illegal behavior occurred. Thus, the data likely captures firm behavior at a later date which, in some cases, could be off by several years, which in turn, results in changes occurring at the TMT level (i.e., executive changes) to be taking place

(captured) prior to the enforcement action filing date (i.e., incorrectly order of the relationship). Third, official data capture only a percentage of illegal behavior resulting in a partially known value for the dependent variable (censoring). Thus, my research likely undercounts offending, and relationships may be unobserved consequently.

Another limitation has to do with the inability to include possible industry effects. In this dissertation, due to the fixed effects machinery, adding industry fixed effects would make sense if and only if some firms change industry as time goes by, and if there are sufficient observations in each group. In this case, because firms rarely (if ever) change industry (time invariant), adding industry FE into the logistic FE model results in all the industries being omitted because of collinearity (no within-group variance). That is, the FE mechanism wipes out any time-invariant predictor. Additionally, adding dummies to the NB or the logistic model will not be a valid approach unless you have a lot of observations in each group.⁴⁸ Other models such as hierarchical modeling (Byrk & Raudenbush, 1987, 1992), latent curve analysis (e.g., Muthén, 1989; Willett & Sayer, 1994), and group-based trajectory modeling (Nagin & Land, 1993; Nagin & Tremblay, 2005) may provide a better solution for the inclusion of industry, as well as for visualizing and examining differences across population members in their life course. These methods share the common goal of modeling individual-level differences in behavior over time and thus have been used to describe the progression of delinquency and criminality. Future analysis should use these models to better explore the possibility of multiple distinct groupings of

⁴⁸ See appendix I for a basic descriptive analysis of the relationship between executive women and enforcement action by industry 4- and 2-digit SIC.

developmental trajectories that are the product of distinct set of causes (Nagin & Tremblay, 2005). However, industry classifications can also suffer from erroneous grouping. U.S. firms primarily rely on classification for industries that contain many errors. For instance, a firm may be classified under a general industry, but because it is so diversified, the firm truly belongs to more than one industry.

Importantly, industry trends may indirectly affect corporate wrongdoing by influencing the composition of the firm's internal decision-making structure—the top management team. Higher levels of financial strain within a particular industry, for instance, have been associated with increased illegal behavior of firms that operate within that industry (e.g., Clinard & Yeager, 1980, 2006; Simpson, 1986; Simpson & Koper, 1997; Wang & Holtfreter, 2012). There are also significant differences across industries in regulation and government monitoring that further contribute to certain industries having higher offending levels than others. For example, the financial crisis of 2008 in the U.S. financial services and mortgage industries was said to be caused by an increase in the pressure to meet bottom-line demands prompted by increased competition and deregulation of these industries. This also led regulators to enact a series of financial reforms and new laws focused on these industries in the years following the crisis. This type of increased enforcement creates “state dependence” since regulations depend on the firm's previous compliance status (Cohen, 1998).

TMT diversity is also structurally constrained because its manifestation in teams is determined by the industry context in which these teams operate (Joshi and Neely, 2018). Industry settings exert different regulatory and competitive pressures on firms, which can have implications for how attitudes toward risk and gender are

shaped (Hirsh & Kornrich, 2008). For example, competitive pressures to innovate in the tech industry may lead to proactive strategies to hire male managers who are less risk-averse than women managers and more willing to adopt this type of strategy. At the same time, regulatory pressures may also make firms more attuned to implementing antidiscrimination laws and adopting affirmative action plans (Edelman et al., 2001). For example, some leading firms in the high-technology industry have started to address the long-standing gender gap in pay and promotions. This change was prompted by recent media scandals that brought attention to incidents of sex discrimination and harassment, which are often a function of the types of climates fostered by the firm's leadership. Therefore, industry context is often incorporated as a moderator of the relationship between TMT composition and firm performance (e.g., Hambrick, 2007, Hambrick et al., 1996; Hambrick & Finkelstein, 1987; Keck, 1997). Future analyses will need to be sensitive to industry classification issues.

Lack of variability: Because there is not a lot of variability in change in women in the top management team or in enforcement actions (i.e., offending)—the large majority of companies in the sample do not offend—the analyses run the risk of yielding a null effect. Specifically, the lack of variability in the dependent variable could be responsible for some of the null effects observed here. However, it is difficult to determine whether this effect is because the relationship is truly nonexistent or whether there is simply not enough variability to be able to detect any existing effect. Additionally, the high number of zero values (lack of offending) limits the types of models (estimator) that can be used with a limited dependent variable to measure this relationship.

Furthermore, my analyses combined three different types of violations (i.e., bribery, accounting, and anticompetitive) into one measure of financial violations. The merging between the firm/board-offending data and the TMT education data resulted in a loss of 1,743 (6.88%) firm-years (out of 25,311). After adding all predictors to the models (some predictors had 5% to 8% missing values), bribery and accounting dependent variables (separately) did not appear to exhibit enough variation within each company over time. That is, there are simply not enough of these events (i.e., these violations are too rare) to get reliable estimates of the odds ratios.⁴⁹ That is, even with a sample size of 25,000 firm-years, if there are only 50 *enforcement actions* in the sample, there can still be substantial bias (King & Zeng, 2001).⁵⁰ Combining types of corporate illegality with a similar category, such as anti-competitive, bribery, and accounting, and comparing it against the environmental type, provided an alternative for analyzing changes in these “financial” enforcement actions. These groups of violations can arguably be lumped together and analyzed against environmental violations because the latter deals with laws intended to protect the environment and human health,⁵¹ while the former deals with various forms of violations that are often directly related to market control and financial manipulations.⁵² In addition, anti-competitive, bribery, and accounting violations are

⁴⁹ Bribery (N= 48), and accounting (N=157).

⁵⁰ Fixed-effects models depend on there being variation *within* each higher-level unit of analysis. If there is no variation within a company’s observations (level 2), fixed-effects models cannot be used because these models are meant to exploit within-firm variation. Specifically, the maximum likelihood estimation of the logistic model suffers from small-sample bias. The degree of bias is strongly dependent on the number of cases in the less frequent of the two categories.

⁵¹ These violations are often perpetrated with the intent to save/earn money by behaving in a manner that pollutes the environment, such as postponing an investment in water-cleaning equipment or inappropriately disposing of hazardous waste in a river.

⁵² These violations include reducing competition and lead to higher prices, reduced quality or levels of service, or less innovation, price fixing, group boycotts, and exclusionary exclusive dealing contracts

for the most part orchestrated and executed by individuals occupying high-ranks in organizations who either have the access or the influence to engage in more complex violations (such as bribing a high government official), as opposed to environmental violations which can involve employees of all ranks (Cassidy, 2009). However, future studies should try to examine the TMT gender and offending relationship by each type of financial violation.

Additionally, the concept of power is difficult to measure or estimate. I am using *pay slice* as a proxy for power in this dissertation based on the work of others (Adhikari et al., 2019; Bebchuk et al., 2011). In those studies, pay slice appears to correlate well with the objective concept of power. However, proxy measures are not without methodological challenges or issues. Even when the pay slice itself can be estimated with confidence (i.e., no measurement error), proxy indicators could obscure the mechanisms that affect relationship between the proxy (pay slice) and the endpoint (power). Therefore, additional measures⁵³ may offer greater insight into this multidimensional construct (Finkelstein, 1992).

Given the empirical evidence showing a relationship between board diversity and offending outcomes, I suggest adding insights from principal agent theory to

or trade association rules, manipulations of financial statements, payments or anything of value to any person to influence the official in his or her official capacity.

⁵³ For instance, early on, scholars used perceptual measures of power in studies of organizational power for what they can tell us about shared judgments among social actors in organizations (Pfeffer, 1981; Perrow, 1970; Hinings and colleagues, 1974; Pfeffer & Salancik, 1974; Hambrick, 1981; Tushman & Romanelli, 1983). However, because power is a sensitive subject for many managers, perceptual measures may not always reliably and accurately represent how power is truly shared within the firm. That is, perceptual measures assume that managers are knowledgeable about the power distribution within their team and that others are willing to share how this power is distributed (Pfeffer, 1981a). Thus, while perceptual measures are important for what they tell us about shared judgments among social actors in an organization, overreliance on perceptual measures may result on a lack of objectivity in the resulting measures (Pfeffer, 1981). Objective measures do not suffer from the same perceptual issues, and may allow assessing managerial power more objectively than perceptual measures.

jointly examine the impact of changes in gender diversity of the TMT and the board of directors (the other corporate elite) on enforcement actions. Combining insights from both perspectives may enhance our understanding of the relationship between corporate offending and corporate elites by incorporating and examining an important governance structure alongside the TMT. Future research may ask whether and how future offending outcomes of firms vary when men directors are replaced with a woman director as opposed to when this change happens in the TMT (i.e., men executives are replaced with a woman executive)? By considering both corporate elites, future studies may account for some of the mixed empirical results revealed in this dissertation grounded solely in upper-echelons theory. Finally, future research should further dive into this “black box” and deeply examine the underlying processes that influence executives to behave differently by attempting to directly measure executives’ ethical attitudes or risk-taking behaviors, and thereby addressing Hambrick’s (2007) concern that relying on demographic indicators such as gender does not quite examine the real psychological and social processes behind executive behavior.

Further, future studies can expand on the educational power measures in two ways: (1) a broader examination of ivy league education (prestige), and (2) a closer examination of other specific educational degrees (expertise). First, by examining (adding) international ivy-league institutions. This dissertation only examined (i.e., added, coded) U.S. ivy-league institutions. Given the growing globalization and international diversification of companies, there may be potential merit in examining whether executives with degrees from foreign ivy-league institutions have the same

effect on firm offending outcomes as those U.S. based ivy-league executives. Second, it is possible that certain executives are more likely to hold certain educational degrees, which may be theoretically associated with certain firm performance outcomes. For instance, it is likely that CPA and accounting degrees provide the skills necessary to either commit or prevent certain corporate enforcement actions. Future studies could further explore this measure and explore whether (and which) women executives with certain educational titles may be associated with changes in future firm offending outcomes.

There also is untapped potential in the miscellaneous women executive finding and measure. The finding “miscellaneous” women executives have such positive (i.e., decreasing) influence on anticompetitive, bribery, and accounting enforcement actions indeed requires additional exploring. Specifically, a clearer understanding of exactly what positions/roles these miscellaneous women executives are occupying. It is possible that the women executives are in fact serving in legal (general counsel) or other key roles in the TMT that require *expertise* for handling anticompetitive, bribery, and accounting matters. Future corporate crime studies should explore whether and how educational characteristics of women executives vary by role (CEO, CFO, CMO, etc.) and how these differences may in turn affect various offending outcomes in firms. For instance, asking whether women CFOs have a higher graduation rate from Ivy league schools than women CMOs? And whether there is a women executive that tends to have the highest level of education in the TMT? These questions could shed light into why certain executives, like the CFO and the CAO, may be influential in future firm enforcement actions.

Finally, while various important relationships were revealed in this dissertation, of course, such correlations do not demonstrate causation. Causal relationships are extremely difficult to determine. A few studies have claimed to show that increased gender diversity in entrepreneurial teams leads to improved performance (Calder-Wang, Compers, & Huang, 2021), and that firing of highly educated and connected top executives (prompted by discrimination) leads to worse firm performance (Huber et al., 2021), but no study to date (to my knowledge) has rigorously directly tested causal linkages between gender diversity in the TMT and firm offending outcomes. As other studies have suggested, it could be that lower offending outcomes leads to increased executive diversity rather than the reverse. More successful firms may be better positioned to attract women and other minority candidates in high demand for top management positions. Similarly, larger and better-performing companies may face more pressure from the public and investors to increase diversity on the top management team, but also may likely have more resources to dedicate to pursuing this demand for diversity. Finally, some third factor could be causing both lower enforcement actions and greater TMT gender diversity. Therefore, it seems critical to understand the specific ways in which TMT are structured and how they change over time—specifically what changes prompt firms to hire more women executives (e.g., aggressive media attention after scandals, government responses to offending – criminal, civil, or regulatory).

6.4 Conclusion

Inspired by Hambrick and Mason's Upper Echelons Theory, in this dissertation I explored how top executives' characteristics, particularly gender and

education, affect other types of corporate offending. Considering the importance of women executives in today's corporate environment, it is surprising that organizational and corporate crime researchers have largely ignored the central role of gender and other key characteristics in firm misconduct. Although executive characteristics have long been theorized to influence firms' strategic choices (Hambrick & Mason, 1984), little research has specifically examined whether executive gender influences corporate offending outcomes, presumably because only few women have risen to top management positions. By conceptually elaborating and empirically validating the impact of executive gender on firm differences in offending outcomes, my research advances Upper Echelons theory as it has historically overlooked gender as a managerial characteristic that can influence corporate actions.

Overall, I advance scholarship on the intersection of strategic leadership, executive gender, and corporate misconduct—an exciting area of study that has recently drawn renewed interest, concern, and controversy (Simpson, Layana, & Galvin, forthcoming; Hunter, 2021). I hope that my research, conducted in the context of large publicly owned firms in the United States, inspires further inquiry into the influence of top executive characteristics on additional forms (types) of corporate crime, and in other countries with different social and cultural contexts.

Appendix A. Data Quality

A data-quality assessment revealed that nearly all of the collected case information was consistent and without discrepancy across the data sources. For data assurance purposes, the research team tracked the universe of *criminal* anticompetitive/environmental cases (N=42) and a random sample of 100 *civil* anticompetitive/environmental cases in PACER.⁵⁴ PACER is an electronic public access service that contains case and docket information from U.S. district, bankruptcy, and appellate courts. The team of researchers that collected the data (including myself) searched each designated case in PACER. When a case was confirmed in PACER, we extracted and downloaded relevant case/docket information. These details were compared with information in the offending dataset as a validation procedure. This check is particularly important because a particular government entity, like the EPA, for example, could have improper controls in place to either update the results of cases in their system, or to file them with the court system. Thus, this check ensures that cases found in the agency site have all up to date information and are accurately representing the enforcement action that took place.

Comparisons revealed that nearly all of the collected case information was consistent and without discrepancy across the data sources. When sources differed, it was primarily due to differences in final order dates or because cases could not easily be found in PACER without extensive searching and additional costs.⁵⁵ Discrepancies

⁵⁴ The FCPA data were cross-checked in PACER prior to their integration into our database. The research team selected a limited number of cases to compare due to the cost of PACER searches.

⁵⁵ Nineteen (19) civil cases, for instance, were not found in PACER after the initial search. The research decided not to incur additional costs necessary for a deeper dive.

in dates across sources are likely due to when a final decision is “lodged” versus when the final order is “approved.” Generally, the time discrepancy is not large and, given that the project data are structured by fiscal year and not by days or months, differences are unlikely to affect overall findings or interpretations unless it moves a case conclusion to a different fiscal year (only five cases in our assessment). When we discovered discrepancies, we recoded cases to be consistent with the PACER database.

Appendix B. TMT Education: Expertise and Prestige Measure

Expertise. This measure is defined as the sum of the total level of educational degree(s) obtained by the woman executive scaled by the total educational degree(s) of all top executives; with Ph.D. and medical doctor accounting for the highest value (4), followed by a master's degree (3), then a bachelor's (2), other (1), and no expertise (0). There were a number of institutions in the executive education data, including: armed forces, clubs, sporting groups, charities, government, and universities. Universities comprised the majority of the education data (87%), followed by private institutions at 10%.

There were categories like “graduated,” “diploma,” and “completed” that could not be counted as an educational degree because it was unclear if a degree or a certification or other was obtained. Similarly, the categories of “studied” and “attended” were not counted as any degree. Certificates, professional licenses, and military achievements were added into an “other” category.

The category of doctorate degree includes JSD (Doctor of science in law), DVSc (Doctor of Veterinary Science), Doctor of Pharmacy, postdoctoral fellows and studies, medical doctors, Ph.D., doctor of dental surgery, doctor of medical science, MBBS (bachelor of medicine, bachelor of surgery—an international medical degree equivalent to an M.D. in the U.S. system, also abbreviated as M.B., Ch.B., M.B., B.Ch., M.B., and B.Chir.), and doctor of business administration. Due to ambiguity, the titles of “postgraduate degree,” “graduate diploma,” and “graduate certificate” were placed under the master's degree category. JD and attorney were placed under

the master's degree category. A comprehensive list of all categories included can be provided upon request.

Prestige. Ivy League schools are considered to be the most prestigious of all colleges in the United States; these schools are primarily located in the northeastern part of the country. There are eight Ivy League schools in the United States: Brown University, Harvard University, Cornell University, Princeton University, Dartmouth College, Yale University, Columbia University, and the University of Pennsylvania. There are numerous universities in other countries considered to be comparable to the Ivy League schools in the United States (e.g., University of Cambridge, University of Oxford). However, only Ivy League schools based in the U.S. are used because these are U.S.-based companies. Future analyses can explore this question using a variable that includes Ivy League schools from around the globe.

Appendix C. Pearson correlations among key variables of interest

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
Any Enforcement Action	(1)	1															
Admin. Enforcement	(2)	0.8976*	1														
Civil Enforcement	(3)	0.5252*	0.2145*	1													
Environmental Enforcement	(4)	0.8632*	0.8613*	0.2597*	1												
Anticomp, Bribery, & Acct	(5)	0.5147*	0.3370*	0.6378*	0.0635*	1											
Female Execs >=2	(6)	-0.0212*	-0.0181*	-0.0111	-0.0197*	-0.0103	1										
Female Execs = 1	(7)	-0.009	-0.0057	-0.0126	-0.0059	-0.0114	-0.1160*	1									
Female Agg. Power	(8)	-0.0133*	-0.0109	-0.0117	-0.0109	-0.0103	0.8221*	0.3114*	1								
Female Prestigie	(9)	0.0238*	0.0206*	0.0064	0.0247*	0.0035	0.2692*	0.2415*	0.6146*	1							
Female Expertise	(10)	-0.0288*	-0.0242*	-0.0208*	-0.0246*	-0.0180*	0.5617*	0.5888*	0.8386*	0.3381*	1						
Female Pay Slice	(11)	-0.0296*	-0.0248*	-0.0200*	-0.0260*	-0.0172*	0.5396*	0.4788*	0.8102*	0.2996*	0.8029*	1					
Ln(Employees)	(12)	0.1949*	0.1723*	0.1132*	0.1615*	0.1233*	0.0164*	0.0097	0.0173*	0.0244*	-0.0098	-0.0265*	1				
Ln(Market Cap)	(13)	0.2058*	0.1814*	0.1273*	0.1696*	0.1349*	-0.0098	0.0297*	0.0114	0.0529*	-0.0267*	-0.0507*	0.6030*	1			
Market-to-book Value	(14)	-0.0454*	-0.0411*	-0.0278*	-0.0507*	-0.0049	-0.0086	0.0052	0.0034	0.0171*	-0.0011	-0.0066	-0.1064*	0.1692*	1		
F Score	(15)	-0.0469*	-0.0461*	-0.0158*	-0.0576*	0.0051	-0.0203*	-0.0133	-0.0218*	-0.0066	-0.0227*	-0.0249*	-0.0184*	0.0566*	-0.0725*	1	
Stock Return	(16)	-0.0058	-0.0053	-0.0066	-0.0035	-0.0036	-0.0163*	-0.0094	-0.0102	0.0004	-0.0143*	-0.0144*	-0.0016	0.1821*	0.3116*	0.0007	
Leverage Ratio (Debt)	(17)	0.0772*	0.0690*	0.0272*	0.0743*	0.0277*	-0.0171*	-0.0083	-0.0263*	0.0051	-0.0264*	-0.0289*	0.0483*	-0.0044	-0.2800*	-0.0165*	-0.0465*
ROA	(18)	0.0168*	0.0160*	0.0057	0.0164*	0.0068	0.0049	0.0088	0.0156*	0.0017	0.0131*	0.0032	0.1191*	0.2103*	0.1827*	-0.0345*	0.1659*
Ln(Tobin)	(19)	-0.0204*	-0.0159*	-0.0188*	-0.0291*	0.0085	-0.0121	0.0094	0.0036	0.0203*	0.000	-0.0101	-0.0149*	0.3058*	0.8448*	-0.0744*	0.3356*
Ln(Assets)	(20)	0.2015*	0.1755*	0.1303*	0.1694*	0.1256*	-0.0013	0.0233*	0.011	0.0496*	-0.0240*	-0.0451*	0.6004*	0.8134*	-0.2920*	0.1270*	-0.0016
Gross Margin	(21)	-0.0112	-0.0113	-0.0021	-0.0188*	0.0092	0.0087	0.011	0.009	-0.0141*	0.0150*	0.0167*	-0.0131*	0.0887*	0.0559*	0.0301*	0.0221*
Firm Age	(22)	0.1570*	0.1504*	0.0632*	0.1608*	0.0464*	0.0026	0.0131*	0.0189*	0.0395*	-0.0088	-0.0189*	0.3097*	0.2732*	-0.1519*	-0.0695*	-0.0095
Average Dir. Tenure	(23)	-0.0385*	-0.0325*	-0.0328*	-0.0314*	-0.0256*	-0.0162*	0.0313*	0.0145*	0.0042	0.0185*	0.0068	-0.0141*	0.0078	0.0103	-0.0173*	-0.0419*
Board Size	(24)	0.1227*	0.1099*	0.0687*	0.1119*	0.0656*	0.0037	-0.0096	-0.0068	0.0140*	-0.0262*	-0.0408*	0.3835*	0.4285*	-0.2393*	0.0674*	-0.0180*
CEO Duality	(25)	0.0247*	0.0247*	0.0057	0.0272*	0.0065	-0.0276*	-0.0267*	-0.0456*	-0.0207*	-0.0344*	-0.0336*	0.0230*	-0.0097	0.0307*	-0.0205*	0.1502*
% Women Min Board	(26)	0.0867*	0.0785*	0.0481*	0.0759*	0.0505*	0.1503*	0.1375*	0.2142*	0.1278*	0.1856*	0.1945*	0.3242*	0.3540*	-0.0758*	-0.0177*	-0.0028
% Independent Board	(27)	0.0547*	0.0490*	0.0317*	0.0477*	0.0288*	0.0813*	0.0886*	0.1130*	0.0618*	0.0915*	0.0775*	0.0868*	0.1962*	-0.0876*	-0.0251*	-0.0088
Average Exec Age	(28)	-0.0009	-0.0006	0.0038	0.0014	-0.0043	-0.0226*	-0.0375*	-0.0313*	-0.0155*	-0.0285*	-0.0318*	0.0239*	0.0495*	-0.0591*	0.0431*	-0.0024
Regulatory Environment	(29)	-0.0064	-0.0197*	0.0149*	-0.0107	0.0074	-0.0249*	-0.0224*	-0.0323*	-0.0251*	-0.0092	-0.005	-0.0037	-0.0113	0.0115	0.0017	0.1311*
Gender Pay Gap	(30)	-0.0212*	-0.0242*	-0.0045	-0.0273*	0.0019	0.1001*	0.1236*	0.1510*	0.0631*	0.1360*	0.1249*	-0.0116	0.1766*	-0.0177*	0.0433*	0.0197*

Appendix D. Negative Binomial FE Tables for Hypothesis 1a and 1b

Table 1

Hypothesis 1b. Negative Binomial FE for the Number of Women Executives on Enforcement Action Counts (Reported in IRR)

	(1) Enforcement Action Count	(2) Envir. Count	(3) Financial Count
<i>Women Execs ≥ 2 (Lagged)</i>	0.731*	0.788	0.712
	(0.140)	(0.175)	(0.289)
<i>Women Execs = 1 (Lagged)</i>	0.952	1.076	0.628**
	(0.079)	(0.107)	(0.109)
Stock Return	1.001	1.055	0.957
	(0.073)	(0.095)	(0.130)
Leverage ratio (debt)	1.777+	0.841	3.965*
	(0.573)	(0.344)	(2.453)
Return on assets	1.096	0.893	0.544
	(0.473)	(0.510)	(0.364)
Ln (Tobin-Q)	0.800*	0.691**	1.094
	(0.0970)	(0.108)	(0.245)
Ln (Total Assets)	1.300**	1.150*	1.860**
	(0.064)	(0.080)	(0.224)
Gross Margin	1.029	1.101	3.229*
	(0.186)	(0.386)	(2.271)
Firm Age	1.011*	0.997	1.007
	(0.006)	(0.009)	(0.017)
Average Director Tenure	0.992	1.012	0.936**
	(0.013)	(0.016)	(0.025)
Board Size	0.993	1.009	1.007
	(0.018)	(0.022)	(0.035)
CEO Duality	1.182	1.159	1.235
	(0.224)	(0.258)	(0.457)
% Women Min. Board	1.171	1.419	1.338
	(0.370)	(0.555)	(0.894)
% Independent Board	0.804	0.809	1.053
	(0.228)	(0.271)	(0.616)
Average Executive Age	1.002	1.003	1.003
	(0.003)	(0.003)	(0.006)
Regulatory Envir. (Dem=1)	1.128	0.837	0.0006+
	(2.573)	(2.293)	(0.003)
Gender Pay Gap	0.955+	0.985	0.999
	(0.029)	(0.037)	(0.067)
Year FE	Yes	Yes	Yes
Model chi Square	158.63**	58.21**	80.63**
Observations	7,115	5,180	3,553
Number of Firms	586	417	283

Robust SE in parentheses; ** p<0.01, * p<0.05, + p<0.1

Appendix E. Logistic FE – Hypotheses 2 Part 1

Table 1

Hypothesis 2a. Logistic FE for Women Executive Pay Slice on Enforcement Action (Yes or No) (Odd Ratios Reported)

	(1) Any Enforcement Action	(2) Any Envir.	(3) Any Financial
Women Pay Slice (Lagged)	0.650 (0.323)	0.741 (0.445)	0.562 (0.444)
Stock Return	1.044 (0.093)	1.080 (0.119)	0.983 (0.140)
Leverage ratio (debt)	1.732+ (0.731)	1.137 (0.586)	3.019+ (2.051)
Return on assets	0.891 (0.441)	1.229 (0.863)	0.587 (0.418)
Ln (Tobin-Q)	0.733* (0.119)	0.681* (0.139)	0.942 (0.231)
Ln (Total Assets)	1.340** (0.139)	1.190+ (0.151)	1.694** (0.278)
Gross Margin	1.278 (0.480)	0.836 (0.395)	3.084+ (2.640)
Firm Age	1.003 (0.020)	0.976 (0.022)	1.058+ (0.038)
Average Director Tenure	0.989 (0.017)	1.011 (0.020)	0.947* (0.027)
Board Size	1.014 (0.025)	1.013 (0.029)	1.035 (0.039)
CEO Duality	1.210 (0.285)	1.219 (0.341)	1.365 (0.545)
% Women Minority Board	0.855 (0.380)	0.925 (0.483)	1.234 (0.903)
% Independent Board	0.842 (0.314)	0.677 (0.291)	1.365 (0.880)
Average Executive Age	1.000 (0.004)	1.000 (0.004)	1.002 (0.0065)
Regulatory Envir. (Dem=1)	0.864 (0.250)	0.988 (0.343)	0.629 (0.298)
Gender Pay Gap	1.001 (0.058)	1.050 (0.069)	0.878+ (0.088)
Year FE	Yes	Yes	Yes
Model Chi Square	44.70*	46.11*	43.21*
Observations	7,077	5,160	3,537
Number of Firms	577	410	282

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 2

Hypothesis 2b. Logistic FE for Women Executive Ivy League Education (Prestige) on Enforcement Action (Yes or No) (Odd Ratios Reported)

	(1) Any Enforcement Action	(2) Any Envir.	(3) Any Financial
Women Prestige (Lagged)	0.499** (0.150)	0.412** (0.144)	1.001 (0.476)
Stock Return	1.041 (0.092)	1.073 (0.118)	0.985 (0.140)
Leverage ratio (debt)	1.840+ (0.772)	1.233 (0.634)	2.996+ (2.017)
Return on assets	0.943 (0.471)	1.322 (0.939)	0.609 (0.436)
Ln (Tobin-Q)	0.737* (0.119)	0.690* (0.141)	0.931 (0.227)
Ln (Total Assets)	1.364** (0.140)	1.202+ (0.152)	1.745** (0.284)
Gross Margin	1.292 (0.493)	0.836 (0.398)	2.866 (2.439)
Firm Age	0.996 (0.019)	0.968+ (0.021)	1.028 (0.029)
Average Director Tenure	0.989 (0.017)	1.008 (0.020)	0.952* (0.027)
Board Size	1.011 (0.025)	1.010 (0.029)	1.038 (0.039)
CEO Duality	1.265 (0.298)	1.259 (0.351)	1.380 (0.551)
% Women Min. Board	0.939 (0.416)	0.994 (0.517)	1.421 (1.034)
% Independent Board	0.792 (0.293)	0.625 (0.267)	1.295 (0.822)
Average Executive Age	1.001 (0.004)	1.001 (0.004)	1.002 (0.006)
Regulatory Envir. (Dem=1)	0.819 (0.236)	0.943 (0.325)	0.638 (0.302)
Gender Pay Gap	1.013 (0.057)	1.074 (0.067)	0.916 (0.082)
Year FE	Yes	Yes	Yes
Model Chi Square	51.64**	55.11**	42.85*
Observations	7,160	5,204	3,582
Number of Firms	586	416	285

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 3

Hypothesis 2c. Logistic FE for Women Executive Educational Achievement (Expertise) on Enforcement Action (Yes or No) (Odd Ratios Reported)

	(1) Any Enforcement Action	(2) Any Envir.	(3) Any Financial
Women Expertise (Lagged)	0.600 (0.247)	0.788 (0.380)	0.360+ (0.254)
Stock Return	1.039 (0.0922)	1.079 (0.119)	0.970 (0.139)
Leverage ratio (debt)	1.736+ (0.731)	1.137 (0.586)	3.008+ (2.034)
Return on assets	0.893 (0.442)	1.250 (0.880)	0.573 (0.408)
Ln (Tobin-Q)	0.737* (0.120)	0.679* (0.139)	0.959 (0.235)
Ln (Total Assets)	1.338** (0.138)	1.185+ (0.150)	1.701** (0.279)
Gross Margin	1.288 (0.488)	0.830 (0.393)	3.338+ (2.882)
Firm Age	1.003 (0.020)	0.976 (0.022)	1.058+ (0.038)
Average Director Tenure	0.989 (0.017)	1.010 (0.020)	0.947* (0.027)
Board Size	1.012 (0.025)	1.014 (0.029)	1.029 (0.039)
CEO Duality	1.215 (0.286)	1.221 (0.342)	1.382 (0.553)
% Women Min. Board	0.887 (0.394)	0.921 (0.480)	1.340 (0.976)
% Independent Board	0.820 (0.305)	0.674 (0.289)	1.283 (0.824)
Average Executive Age	1.000 (0.004)	1.000 (0.004)	1.002 (0.006)
Regulatory Envir. (Dem=1)	0.858 (0.248)	0.979 (0.339)	0.626 (0.297)
Gender Pay Gap	1.002 (0.058)	1.051 (0.069)	0.880 (0.088)
Year FE	Yes	Yes	Yes
Model chi Square	45.44*	46.06*	44.62*
Observations	7,088	5,157	3,551
Number of Firms	578	410	283

Robust SE parentheses

** p<0.01, * p<0.05, + p<0.1

Table 4

Hypothesis 2e. Logistic FE for Women Executive Title (CEO) on Enforcement Action (Yes - No) (Odd Ratios Reported)

	(1) Any Enforcement Action	(2) Any Envir.	(3) Any Financial
Women Title (CEO) (Lagged)	0.844 (0.344)	0.702 (0.317)	1.228 (0.830)
Stock Return	1.049 (0.093)	1.088 (0.119)	0.982 (0.140)
Leverage ratio (debt)	1.714 (0.721)	1.141 (0.588)	2.897+ (1.952)
Return on assets	0.904 (0.448)	1.253 (0.885)	0.599 (0.429)
Ln (Tobin-Q)	0.725* (0.118)	0.670* (0.137)	0.941 (0.230)
Ln (Total Assets)	1.343** (0.139)	1.184+ (0.150)	1.717** (0.281)
Gross Margin	1.254 (0.463)	0.816 (0.386)	2.956 (2.519)
Firm Age	1.003 (0.020)	0.976 (0.022)	1.058+ (0.037)
Average Director Tenure	0.990 (0.017)	1.011 (0.020)	0.950* (0.027)
Board Size	1.015 (0.025)	1.014 (0.029)	1.035 (0.039)
CEO Duality	1.217 (0.287)	1.224 (0.343)	1.384 (0.552)
% Women Min. Board	0.918 (0.408)	0.970 (0.507)	1.354 (0.989)
% Independent Board	0.818 (0.304)	0.660 (0.283)	1.322 (0.844)
Average Executive Age	1.000 (0.004)	1.000 (0.004)	1.001 (0.006)
Regulatory Envir. (Dem=1)	0.860 (0.249)	0.984 (0.341)	0.624 (0.296)
Gender Pay Gap	0.995 (0.057)	1.048 (0.069)	0.869+ (0.087)
Year FE	Yes	Yes	Yes
Model Chi Square	44.30*	46.61*	42.96*
Observations	7,120	5,172	3,568
Number of Firms	582	413	284

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 5

Hypothesis 2f. Logistic FE for Women Executive Aggregate Power on Enforcement Action (Yes - No) (Odd Ratios Reported)

	(1) Any Enforcement Action	(2) Any Envir.	(3) Any Financial
Women Exec. Power (Lagged)	0.806* (0.083)	0.805* (0.094)	0.892 (0.161)
Stock Return	1.043 (0.092)	1.077 (0.119)	0.985 (0.140)
Leverage ratio (debt)	1.730+ (0.731)	1.150 (0.594)	2.884+ (1.955)
Return on assets	0.914 (0.455)	1.281 (0.906)	0.597 (0.427)
Ln (Tobin-Q)	0.726* (0.118)	0.676* (0.138)	0.934 (0.229)
Ln (Total Assets)	1.326** (0.137)	1.176 (0.149)	1.686** (0.277)
Gross Margin	1.269 (0.474)	0.821 (0.388)	2.965 (2.530)
Firm Age	1.003 (0.020)	0.976 (0.022)	1.058+ (0.038)
Average Director Tenure	0.989 (0.017)	1.010 (0.020)	0.948* (0.027)
Board Size	1.012 (0.025)	1.011 (0.029)	1.036 (0.039)
CEO Duality	1.220 (0.287)	1.221 (0.341)	1.381 (0.552)
% Women Min. Board	0.905 (0.402)	0.987 (0.515)	1.280 (0.935)
% Independent Board	0.825 (0.307)	0.646 (0.278)	1.403 (0.900)
Average Executive Age	1.000 (0.004)	1.000 (0.004)	1.001 (0.006)
Regulatory Envir. (Dem=1)	0.859 (0.248)	0.989 (0.342)	0.624 (0.296)
Gender Pay Gap	1.006 (0.058)	1.059 (0.070)	0.875+ (0.088)
Year FE	Yes	Yes	Yes
Model Chi Square	48.32**	49.62**	43.20*
Observations	7,086	5,159	3,547
Number of Firms	578	410	283

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 6

Logistic FE for Each Women Executive Power Measure on Enforcement Action (Yes - No) (Odd Ratios Reported)

	(1) Any Enforceme nt Action	(2) Any Envir.	(3) Any Financial
<i>Women Execs ≥ 2 (Lagged)</i>	0.793 (0.203)	0.747 (0.221)	1.175 (0.535)
Women Pay Slice (Lagged)	1.360 (1.070)	1.605 (1.708)	1.111 (1.248)
Women Expertise (Lagged)	0.816 (0.519)	1.207 (0.976)	0.279 (0.279)
Women Prestige (Lagged)	0.520* (0.170)	0.399** (0.152)	1.191 (0.605)
Women Title (CEO) (Lagged)	0.963 (0.445)	0.825 (0.445)	1.167 (0.859)
Stock Return	1.036 (0.0921)	1.069 (0.118)	0.975 (0.139)
Leverage ratio (debt)	1.739+ (0.735)	1.165 (0.602)	2.851+ (1.941)
Return on assets	0.932 (0.466)	1.354 (0.970)	0.563 (0.401)
Ln (Tobin-Q)	0.741* (0.121)	0.687* (0.141)	0.953 (0.234)
Ln (Total Assets)	1.339** (0.139)	1.191+ (0.151)	1.692** (0.279)
Gross Margin	1.303 (0.501)	0.825 (0.394)	3.386+ (2.927)
Firm Age	1.003 (0.020)	0.976 (0.022)	1.059+ (0.038)
Average Director Tenure	0.988 (0.017)	1.008 (0.020)	0.946* (0.027)
Board Size	1.011 (0.025)	1.009 (0.029)	1.034 (0.039)
CEO Duality	1.225 (0.289)	1.219 (0.341)	1.381 (0.553)
% Women Minority Board	0.879 (0.393)	0.986 (0.517)	1.190 (0.874)
% Independent Board	0.847 (0.316)	0.677 (0.292)	1.379 (0.892)
Average Executive Age	1.001 (0.004)	1.000 (0.004)	1.002 (0.006)
Regulatory Envir. (Dem=1)	0.854 (0.247)	0.985 (0.341)	0.629 (0.299)

Gender Pay Gap	1.007	1.060	0.882
	(0.058)	(0.071)	(0.088)
Year FE	Yes	Yes	Yes
Model Chi Square	50.68*	54.08**	0.0972*
Observations	7,068	5,153	3,535
Number of Firms	576	409	282

Robust SE in parentheses
** p<0.01, * p<0.05, + p<0.1

Appendix F. Hypotheses 2 NB FE – Part 1

Table 1

Hypothesis 2a. Negative Binomial FE for Women Executive Pay Slice on Enforcement Action Counts (Reported in IRR)

	(1) Enforceme nt Action Count	(2) Envir. Count	(3) Financial Count
Women Pay Slice (Lagged)	0.861 (0.316)	0.970 (0.424)	0.584 (0.437)
Stock Return	1.005 (0.073)	1.056 (0.095)	0.972 (0.131)
Leverage ratio (debt)	1.760* (0.567)	0.829 (0.339)	3.980* (2.472)
Return on assets	1.107 (0.479)	0.921 (0.529)	0.583 (0.393)
Ln (Tobin-Q)	0.796 (0.096)	0.688** (0.107)	1.083 (0.242)
Ln (Total Assets)	1.302** (0.064)	1.155* (0.080)	1.857** (0.224)
Gross Margin	1.024 (0.184)	1.079 (0.375)	2.935+ (2.054)
Firm Age	1.011* (0.006)	0.997 (0.009)	1.007 (0.017)
Average Director Tenure	0.993 (0.013)	1.012 (0.016)	0.938** (0.025)
Board Size	0.995 (0.018)	1.010 (0.022)	1.014 (0.035)
CEO Duality	1.180 (0.224)	1.147 (0.256)	1.281 (0.471)
% Women Minority Board	1.123 (0.355)	1.387 (0.544)	1.225 (0.821)
% Independent Board	0.831 (0.235)	0.840 (0.280)	1.100 (0.645)
Average Executive Age	1.002 (0.003)	1.003 (0.004)	1.003 (0.006)
Regulatory Envir. (Dem=1)	1.469 (3.327)	0.813 (2.213)	0.00144+ (0.007)
Gender Pay Gap	0.951+ (0.029)	0.985 (0.037)	0.986 (0.067)
Year FE	Yes	Yes	Yes
Model Chi Square	156.57**	56.15**	73.95**
Observations	7,095	5,176	3,537
Number of Firms	584	416	282

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 2

Hypothesis 2b. Negative Binomial FE for Women Executive Ivy League Education (Prestige) on Enforcement Action Counts (Reported in IRR)

	(1) Enforcement Action Count	(2) Envir. Count	(3) Financial Count
Women Prestige (Lagged)	0.840 (0.168)	0.716+ (0.171)	1.042 (0.450)
Stock Return	1.008 (0.073)	1.055 (0.095)	0.974 (0.132)
Leverage ratio (debt)	1.820* (0.584)	0.866 (0.353)	3.948* (2.434)
Return on assets	1.141 (0.495)	0.935 (0.538)	0.604 (0.410)
Ln (Tobin-Q)	0.794* (0.096)	0.693** (0.108)	1.073 (0.239)
Ln (Total Assets)	1.314** (0.065)	1.166* (0.081)	1.886** (0.227)
Gross Margin	1.019 (0.180)	1.086 (0.380)	2.799+ (1.951)
Firm Age	1.010* (0.006)	0.995 (0.009)	1.001 (0.016)
Average Director Tenure	0.994 (0.013)	1.010 (0.016)	0.944* (0.025)
Board Size	0.996 (0.018)	1.007 (0.022)	1.017 (0.035)
CEO Duality	1.226 (0.233)	1.195 (0.268)	1.296 (0.477)
% Women Min. Board	1.214 (0.383)	1.507 (0.589)	1.383 (0.922)
% Independent Board	0.800 (0.225)	0.786 (0.261)	1.104 (0.641)
Average Executive Age	1.003 (0.003)	1.003 (0.004)	1.003 (0.006)
Regulatory Envir. (Dem=1)	1.561 (3.517)	0.571 (1.548)	0.00156+ (0.00757)
Gender Pay Gap	0.949* (0.027)	0.989 (0.037)	0.984 (0.066)
Year FE	Yes	Yes	Yes
Model Chi Square	165.40**	59.82**	75.34**
Observations	7,178	5,220	3,582
Number of Firms	593	422	285

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 3

Hypothesis 2c. Negative Binomial FE for Women Executive Educational Achievement (Expertise) on Enforcement Action Counts (Reported in IRR)

	(1) Enforcement Action Count	(2) Envir. Count	(3) Financial Count
Women Expertise (Lagged)	0.809 (0.253)	0.982 (0.362)	0.381+ (0.254)
Stock Return	1.003 (0.073)	1.056 (0.095)	0.963 (0.130)
Leverage ratio (debt)	1.763* (0.568)	0.829 (0.339)	3.944* (2.440)
Return on assets	1.104 (0.478)	0.923 (0.530)	0.572 (0.384)
Ln (Tobin-Q)	0.798* (0.097)	0.687** (0.107)	1.092 (0.244)
Ln (Total Assets)	1.301** (0.064)	1.153* (0.080)	1.857** (0.224)
Gross Margin	1.032 (0.188)	1.089 (0.381)	3.049+ (2.141)
Firm Age	1.011* (0.006)	0.997 (0.009)	1.007 (0.017)
Average Director Tenure	0.993 (0.013)	1.012 (0.016)	0.938** (0.025)
Board Size	0.995 (0.018)	1.010 (0.022)	1.009 (0.035)
CEO Duality	1.184 (0.225)	1.149 (0.256)	1.297 (0.478)
% Women Minority Board	1.143 (0.361)	1.381 (0.540)	1.321 (0.881)
% Independent Board	0.810 (0.229)	0.830 (0.277)	1.048 (0.611)
Average Executive Age	1.002 (0.003)	1.003 (0.004)	1.003 (0.006)
Regulatory Envir. (Dem=1)	1.336 (3.046)	0.779 (2.134)	0.00120+ (0.006)
Gender Pay Gap	0.953+ (0.029)	0.985 (0.037)	0.990 (0.067)
Year FE	Yes	Yes	Yes
Model Chi Square	157.25**	55.49**	75.55**
Observations	7,106	5,173	3,551
Number of Firms	585	416	283

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 4

Hypothesis 2d. Negative Binomial FE for Women Executive Title (CEO) on Enforcement Action Counts (Reported in IRR)

	(1) Enforcement Action Count	(2) Envir. Count	(3) Financial Count
Women Title (CEO) (Lagged)	0.950 (0.244)	0.897 (0.262)	1.140 (0.730)
Stock Return	1.011 (0.074)	1.063 (0.095)	0.970 (0.131)
Leverage ratio (debt)	1.757* (0.565)	0.832 (0.340)	3.860* (2.381)
Return on assets	1.117 (0.484)	0.919 (0.528)	0.597 (0.404)
Ln (Tobin-Q)	0.788* (0.095)	0.680** (0.106)	1.079 (0.241)
Ln (Total Assets)	1.304** (0.064)	1.153* (0.080)	1.867** (0.226)
Gross Margin	1.017 (0.180)	1.061 (0.369)	2.828+ (1.974)
Firm Age	1.011* (0.006)	0.997 (0.009)	1.006 (0.017)
Average Director Tenure	0.994 (0.013)	1.012 (0.016)	0.941* (0.025)
Board Size	0.996 (0.018)	1.010 (0.022)	1.014 (0.035)
CEO Duality	1.185 (0.225)	1.147 (0.256)	1.303 (0.479)
% Women Min. Board	1.169 (0.371)	1.436 (0.564)	1.328 (0.889)
% Independent Board	0.813 (0.229)	0.820 (0.274)	1.077 (0.626)
Average Executive Age	1.002 (0.003)	1.003 (0.004)	1.003 (0.006)
Regulatory Envir. (Dem=1)	1.854 (4.189)	0.867 (2.356)	0.003 (0.013)
Gender Pay Gap	0.948* (0.029)	0.984 (0.037)	0.978 (0.066)
Year FE	Yes	Yes	Yes
Model Chi Square	159.54**	56.63**	73.60**
Observations	7,138	5,188	3,568
Number of Firms	589	419	284

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 5

Hypothesis 2f. Negative Binomial FE for Women Executive Power on Enforcement Action Counts (Reported in IRR)

	(1) Enforcement Action Count	(2) Envir. Count	(3) Financial Count
Women Power (Lagged)	0.913 (0.066)	0.909 (0.075)	0.904 (0.153)
Stock Return	1.005 (0.073)	1.053 (0.095)	0.973 (0.132)
Leverage ratio (debt)	1.762* (0.568)	0.837 (0.343)	3.831* (2.374)
Return on assets	1.107 (0.479)	0.913 (0.524)	0.591 (0.400)
Ln (Tobin-Q)	0.795* (0.096)	0.689** (0.107)	1.075 (0.240)
Ln (Total Assets)	1.301** (0.064)	1.153* (0.080)	1.849** (0.223)
Gross Margin	1.025 (0.184)	1.090 (0.381)	2.843+ (1.987)
Firm Age	1.011* (0.006)	0.997 (0.009)	1.007 (0.017)
Average Director Tenure	0.993 (0.013)	1.011 (0.016)	0.939** (0.025)
Board Size	0.995 (0.018)	1.008 (0.022)	1.015 (0.035)
CEO Duality	1.182 (0.224)	1.145 (0.255)	1.298 (0.477)
% Women Min. Board	1.183 (0.375)	1.466 (0.576)	1.266 (0.848)
% Independent Board	0.818 (0.231)	0.811 (0.271)	1.128 (0.658)
Average Executive Age	1.002 (0.003)	1.003 (0.004)	1.003 (0.006)
Regulatory Envir. (Dem=1)	1.239 (2.818)	0.574 (1.570)	0.00182+ (0.009)
Gender Pay Gap	0.953+ (0.029)	0.990 (0.037)	0.984 (0.066)
Year FE	Yes	Yes	Yes
Model Chi Square	160.13**	57.17**	73.63**
Observations	7,104	5,175	3,547
Number of Firms	585	416	283

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 6

Negative Binomial FE for Each Women Executive Power Measure on Enforcement Action Counts (Reported in IRR)

	(1) Enforcement Action Count	(2) Envir. Count	(3) Financial Count
<i>Women Execs</i> ≥ 2 (Lagged)	0.746+ (0.156)	0.715+ (0.173)	1.202 (0.525)
Women Pay Slice (Lagged)	1.287 (0.801)	1.364 (1.136)	1.160 (1.218)
Women Expertise (Lagged)	0.965 (0.488)	1.401 (0.916)	0.274+ (0.261)
Women Prestige (Lagged)	0.861 (0.196)	0.670+ (0.186)	1.258 (0.579)
Women Title (CEO) (Lagged)	0.977 (0.305)	0.975 (0.367)	1.063 (0.736)
Stock Return	1.000 (0.073)	1.046 (0.095)	0.967 (0.131)
Leverage ratio (debt)	1.767* (0.570)	0.852 (0.349)	3.769* (2.344)
Return on assets	1.120 (0.486)	0.928 (0.535)	0.561 (0.377)
Ln (Tobin-Q)	0.804* (0.097)	0.701* (0.110)	1.087 (0.244)
Ln (Total Assets)	1.300** (0.064)	1.156* (0.081)	1.852** (0.224)
Gross Margin	1.031 (0.187)	1.096 (0.387)	3.064 (2.150)
Firm Age	1.011* (0.006)	0.996 (0.009)	1.007 (0.017)
Average Director Tenure	0.992 (0.013)	1.011 (0.016)	0.937** (0.025)
Board Size	0.994 (0.018)	1.006 (0.022)	1.013 (0.035)
CEO Duality	1.191 (0.226)	1.155 (0.257)	1.300 (0.480)
% Women Min. Board	1.150 (0.367)	1.466 (0.579)	1.202 (0.809)
% Independent Board	0.806 (0.229)	0.812 (0.272)	1.116 (0.656)
Average Executive Age	1.002 (0.003)	1.002 (0.003)	1.003 (0.006)
Regulatory Envir. (Dem=1)	1.078 (2.457)	0.524 (1.436)	0.001+ (0.005)
Gender Pay Gap	0.956+ (0.956+)	0.991 (0.991)	0.990 (0.990)

	(0.029)	(0.038)	(0.067)
Year FE	Yes	Yes	Yes
Model Chi Square	159.00**	59.81**	75.87**
Observations	7,086	5,169	3,535
Number of Firms	583	415	282

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Appendix G. Change Analysis Approach Hypothesis 2 Results – Part 2

Table 1

Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Number of Women Executives (Plurality) (OLS estimates reported)

	(1)	(2)	(3)
	%Δ Enforcement Actions t+1	%Δ Env. Enforcement Actions t+1	%Δ Financial Actions t+1
Δ Women Execs ≥ 2	-0.00942 (0.0129)	-0.00490 (0.0106)	-0.00104 (0.00518)
Δ Stock Return	-0.00879* (0.00412)	-0.00569* (0.00316)	-0.00290+ (0.00220)
Δ Leverage ratio (debt)	-0.0234 (0.0294)	-0.0154 (0.0212)	-0.00934 (0.0160)
Δ Return on assets	-0.0302+ (0.0217)	-0.00640 (0.00926)	-0.0140 (0.0113)
Δ Ln (Tobin-Q)	0.0189* (0.0114)	0.00796 (0.00752)	0.00989+ (0.00646)
Δ Ln (Total Assets)	0.0109 (0.0128)	0.00549 (0.00871)	0.00101 (0.00740)
Δ Gross Margin	0.000416 (0.00131)	-0.000607 (0.00117)	0.000750 (0.000696)
Δ Firm Age	-0.000602 (0.00130)	0.000527 (0.000883)	-0.00108+ (0.000840)
Δ Average Director Tenure	0.000238 (0.00107)	-0.000246 (0.000781)	0.000204 (0.000603)
Δ Board Size	-0.00289 (0.00283)	-0.00186 (0.00218)	-0.00163 (0.00134)
Δ CEO Duality	-0.0108 (0.0136)	-0.0118 (0.0101)	-0.00310 (0.00570)
Δ % Women Min. Board	0.0469 (0.0423)	0.0485+ (0.0323)	-0.00672 (0.0206)
Δ % Independent Board	-0.0142 (0.0289)	-0.0235 (0.0227)	0.00928 (0.0127)
Δ Average Executive Age	-0.000640+ (0.000408)	-2.88e-05 (0.000302)	-0.000411* (0.000185)
Δ Regulatory Envir. (Dem=1)	-0.0543+ (0.0375)	-0.0102 (0.0186)	-0.0447+ (0.0333)
Δ Gender Pay Gap	-0.00873+ (0.00635)	0.000366 (0.00448)	-0.00505+ (0.00364)
Year FE	Yes	Yes	Yes
Observations	16,461	16,461	16,461
R-squared	0.002	0.002	0.002

Robust standard errors in parentheses; Std. err. adjusted for clusters in firms

** p<0.01, * p<0.05, + p<0.1

Table 2

Hypothesis 2a. Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Pay Slice (OLS estimates reported)

	(1)	(2)	(3)
	%Δ Enforcement Actions t+1	%Δ Env. Enforcement Actions t+1	%Δ Financial Actions t+1
Δ Women Pay Slice	-0.0408 (0.0379)	-0.0167 (0.0281)	-0.00916 (0.0184)
Δ Stock Return	-0.00864* (0.00411)	-0.00571* (0.00315)	-0.00274 (0.00219)
Δ Leverage ratio (debt)	-0.0224 (0.0294)	-0.0158 (0.0212)	-0.00797 (0.0159)
Δ Return on assets	-0.0305+ (0.0218)	-0.00654 (0.00925)	-0.0142 (0.0114)
Δ Ln (Tobin-Q)	0.0187+ (0.0114)	0.00808 (0.00752)	0.00948+ (0.00645)
Δ Ln (Total Assets)	0.0114 (0.0128)	0.00562 (0.00871)	0.00135 (0.00740)
Δ Gross Margin	0.000418 (0.00131)	-0.000619 (0.00117)	0.000763 (0.000699)
Δ Firm Age	-0.000588 (0.00129)	0.000532 (0.000882)	-0.00108+ (0.000839)
Δ Average Director Tenure	0.000249 (0.00107)	-0.000240 (0.000782)	0.000214 (0.000603)
Δ Board Size	-0.00303 (0.00283)	-0.00188 (0.00218)	-0.00174+ (0.00133)
Δ CEO Duality	-0.0108 (0.0135)	-0.0118 (0.0101)	-0.00307 (0.00570)
Δ % Women Min. Board	0.0494 (0.0423)	0.0488+ (0.0323)	-0.00483 (0.0206)
Δ % Independent Board	-0.0144 (0.0289)	-0.0236 (0.0227)	0.00916 (0.0127)
Δ Average Executive Age	-0.000652+ (0.000409)	-3.26e-05 (0.000303)	-0.000415* (0.000186)
Δ Regulatory Envir. (Dem=1)	-0.0535+ (0.0376)	-0.00992 (0.0186)	-0.0445+ (0.0333)
Δ Gender Pay Gap	-0.00875+ (0.00636)	0.000357 (0.00449)	-0.00510+ (0.00364)
Year Fe	Yes	Yes	Yes
Observations	16,448	16,448	16,448
R-squared	0.002	0.002	0.002

Robust standard errors in parentheses; Std. err. adjusted for clusters in firms ** p<0.01, * p<0.05, + p<0.1

Table 3

Hypothesis 2b. Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Executive Ivy League Education (Prestige) (OLS estimates reported)

	(1)	(2)	(3)
	%Δ Enforcement Actions t+1	%Δ Env. Enforcement Actions t+1	%Δ Financial Actions t+1
Δ Women Prestige	-0.0888** (0.0332)	-0.0663** (0.0239)	-0.0161 (0.0136)
Δ Stock Return	-0.00923* (0.00412)	-0.00603* (0.00316)	-0.00297+ (0.00220)
Δ Leverage ratio (debt)	-0.0239 (0.0294)	-0.0164 (0.0211)	-0.00900 (0.0159)
Δ Return on assets	-0.0301+ (0.0217)	-0.00651 (0.00925)	-0.0139 (0.0113)
Δ Ln (Tobin-Q)	0.0210* (0.0115)	0.00963 (0.00756)	0.0101+ (0.00645)
Δ Ln (Total Assets)	0.0112 (0.0128)	0.00571 (0.00867)	0.00104 (0.00738)
Δ Gross Margin	0.000309 (0.00129)	-0.000699 (0.00116)	0.000738 (0.000695)
Δ Firm Age	-0.000588 (0.00131)	0.000623 (0.000885)	-0.00114+ (0.000846)
Δ Average Director Tenure	2.64e-05 (0.00108)	-0.000421 (0.000796)	0.000189 (0.000601)
Δ Board Size	-0.00289 (0.00283)	-0.00181 (0.00218)	-0.00166 (0.00133)
Δ CEO Duality	-0.0126 (0.0135)	-0.0124 (0.0100)	-0.00378 (0.00570)
Δ % Women Min. Board	0.0478 (0.0425)	0.0508+ (0.0323)	-0.00754 (0.0207)
Δ % Independent Board	-0.0135 (0.0290)	-0.0240 (0.0226)	0.0100 (0.0127)
Δ Average Executive Age	-0.000659+ (0.000409)	-5.13e-05 (0.000303)	-0.000411* (0.000185)
Δ Regulatory Envir. (Dem=1)	-0.0996* (0.0463)	-0.0287 (0.0241)	-0.0604* (0.0354)
Δ Gender Pay Gap	-0.00691 (0.00643)	0.00183 (0.00462)	-0.00488+ (0.00362)
Year FE	Yes	Yes	Yes
Observations	16,472	16,472	16,472
R-squared	0.003	0.003	0.002

Robust standard errors in parentheses; Std. err. adjusted for clusters in firms ** p<0.01, * p<0.05, + p<0.1

Table 4

Hypothesis 2c. Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Executive Educational Achievement (Expertise) (OLS estimates reported)

	(1) %Δ Enforcement Actions t+1	(2) %Δ Env. Enforcement Actions t+1	(3) %Δ Financial Actions t+1
Δ Women Expertise	-0.0778** (0.0320)	-0.0408* (0.0213)	-0.0273* (0.0156)
Δ Stock Return	-0.00898* (0.00413)	-0.00585* (0.00316)	-0.00294+ (0.00221)
Δ Leverage ratio (debt)	-0.0226 (0.0294)	-0.0147 (0.0212)	-0.00924 (0.0160)
Δ Return on assets	-0.0297+ (0.0217)	-0.00625 (0.00925)	-0.0138 (0.0113)
Δ Ln (Tobin-Q)	0.0191* (0.0115)	0.00806 (0.00755)	0.00994+ (0.00648)
Δ Ln (Total Assets)	0.0109 (0.0128)	0.00544 (0.00872)	0.00105 (0.00741)
Δ Gross Margin	0.000506 (0.00131)	-0.000540 (0.00115)	0.000769 (0.000708)
Δ Firm Age	-0.000578 (0.00129)	0.000538 (0.000880)	-0.00107 (0.000837)
Δ Average Director Tenure	0.000160 (0.00107)	-0.000301 (0.000780)	0.000186 (0.000604)
Δ Board Size	-0.00297 (0.00283)	-0.00191 (0.00219)	-0.00166 (0.00134)
Δ CEO Duality	-0.0108 (0.0135)	-0.0118 (0.0101)	-0.00310 (0.00570)
Δ % Women Min. Board	0.0492 (0.0424)	0.0498+ (0.0324)	-0.00597 (0.0206)
Δ % Independent Board	-0.0146 (0.0290)	-0.0238 (0.0227)	0.00924 (0.0127)
Δ Average Executive Age	-0.000680* (0.000412)	-4.69e-05 (0.000305)	-0.000428* (0.000187)
Δ Regulatory Envir. (Dem=1)	-0.0523+ (0.0376)	-0.00930 (0.0187)	-0.0439+ (0.0334)
Δ Gender Pay Gap	-0.00787 (0.00638)	0.00109 (0.00449)	-0.00494+ (0.00366)
Year FE	Yes	Yes	Yes
Observations	16,417	16,417	15,289
R-squared	0.002	0.003	0.002

Robust standard errors in parentheses; Std. err. adjusted for clusters in firms ** p<0.01, * p<0.05, + p<0.1

Table 5

Hypothesis 2e. Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Executive Title (CEO) (OLS estimates reported)

	(1)	(2)	(3)
	%Δ Enforcement Actions t+1	%Δ Env. Enforcement Actions t+1	%Δ Financial Actions t+1
Δ Women Title (CEO)	-0.0243 (0.0348)	-0.0254 (0.0417)	0.0121 (0.0287)
Δ Stock Return	-0.00900* (0.00412)	-0.00588* (0.00316)	-0.00289+ (0.00220)
Δ Leverage ratio (debt)	-0.0237 (0.0294)	-0.0162 (0.0211)	-0.00902 (0.0159)
Δ Return on assets	-0.0302+ (0.0217)	-0.00660 (0.00922)	-0.0139 (0.0113)
Δ Ln (Tobin-Q)	0.0201* (0.0115)	0.00898 (0.00757)	0.00993+ (0.00645)
Δ Ln (Total Assets)	0.0111 (0.0128)	0.00561 (0.00867)	0.00104 (0.00737)
Δ Gross Margin	0.000413 (0.00131)	-0.000621 (0.00118)	0.000756 (0.000698)
Δ Firm Age	-0.000566 (0.00131)	0.000642 (0.000885)	-0.00114+ (0.000846)
Δ Average Director Tenure	2.04e-05 (0.00108)	-0.000427 (0.000796)	0.000190 (0.000600)
Δ Board Size	-0.00302 (0.00283)	-0.00190 (0.00219)	-0.00169 (0.00133)
Δ CEO Duality	-0.0126 (0.0136)	-0.0123 (0.0101)	-0.00380 (0.00572)
Δ % Women Min. Board	0.0459 (0.0423)	0.0496+ (0.0323)	-0.00841 (0.0206)
Δ % Independent Board	-0.0134 (0.0290)	-0.0239 (0.0227)	0.0101 (0.0127)
Δ Average Executive Age	-0.000635+ (0.000408)	-3.25e-05 (0.000302)	-0.000407* (0.000185)
Δ Regulatory Envir. (Dem=1)	-0.0966* (0.0465)	-0.0263 (0.0243)	-0.0603* (0.0354)
Δ Gender Pay Gap	-0.00716 (0.00643)	0.00164 (0.00462)	-0.00491+ (0.00362)
Year FE	Yes	Yes	Yes
Observations	16,472	16,472	16,472
R-squared	0.002	0.003	0.002

Robust standard errors in parentheses; Std. err. adjusted for clusters in firms ** p<0.01, * p<0.05, + p<0.1

Table 6

Hypothesis 2f. Regressions of Changes in the Number of Enforcement Actions Against a Firm on Changes in the Women Executive Aggregate Power (OLS estimates reported)

	(1)	(2)	(3)
	%Δ Enforcement Actions t+1	%Δ Env. Enforcement Actions t+1	%Δ Financial Actions t+1
Δ Women Power	-0.0205** (0.00872)	-0.0132* (0.00639)	-0.00369 (0.00391)
Δ Stock Return	-0.00907* (0.00413)	-0.00608* (0.00317)	-0.00277 (0.00220)
Δ Leverage ratio (debt)	-0.0224 (0.0294)	-0.0158 (0.0212)	-0.00789 (0.0159)
Δ Return on assets	-0.0302+ (0.0216)	-0.00648 (0.00923)	-0.0141 (0.0113)
Δ Ln (Tobin-Q)	0.0200* (0.0115)	0.00929 (0.00760)	0.00953+ (0.00646)
Δ Ln (Total Assets)	0.0112 (0.0128)	0.00552 (0.00870)	0.00131 (0.00739)
Δ Gross Margin	0.000429 (0.00131)	-0.000600 (0.00116)	0.000760 (0.000700)
Δ Firm Age	-0.000479 (0.00129)	0.000643 (0.000883)	-0.00108+ (0.000838)
Δ Average Director Tenure	2.89e-05 (0.00108)	-0.000461 (0.000797)	0.000220 (0.000601)
Δ Board Size	-0.00301 (0.00283)	-0.00190 (0.00219)	-0.00172+ (0.00133)
Δ CEO Duality	-0.0115 (0.0135)	-0.0125 (0.0101)	-0.00306 (0.00568)
Δ % Women Min. Board	0.0513 (0.0424)	0.0504+ (0.0324)	-0.00463 (0.0206)
Δ % Independent Board	-0.0145 (0.0290)	-0.0237 (0.0227)	0.00916 (0.0127)
Δ Average Executive Age	-0.000677* (0.000411)	-5.12e-05 (0.000304)	-0.000420* (0.000186)
Δ Regulatory Envir. (Dem=1)	-0.0707* (0.0401)	-0.0273 (0.0248)	-0.0437+ (0.0324)
Δ Gender Pay Gap	-0.00693 (0.00645)	0.00224 (0.00463)	-0.00519+ (0.00363)
Year FE	Yes	Yes	Yes
Observations	16,414	16,414	16,414
R-squared	0.003	0.003	0.002

Robust standard errors in parentheses; Std. err. adjusted for clusters in firms ** p<0.01, * p<0.05, + p<0.1

Appendix H. Complete Tables for Hypothesis 3

Table 1

Logistic FE for Women Executive CFO, CAO, & CEO, on Enforcement Action (Yes - No) (Odd Ratios Reported)

	(1) Any Enfor. Action	(2) Any Envir.	(3) Any Financial
Women CFO (Lagged)	0.565* (0.143)	0.573* (0.178)	0.612 (0.248)
Women CEO (Lagged)	0.793 (0.327)	0.678 (0.308)	0.995 (0.681)
Women COO (Lagged)	0.746 (0.469)	0.606 (0.497)	0.240 (0.359)
Women CMO (Lagged)	0.910 (0.497)	1.187 (0.756)	0.758 (0.839)
Women CAO (Lagged)	1.856+ (0.812)	3.808** (2.034)	0.332+ (0.275)
Women Head HR (Lagged)	1.607+ (0.574)	1.547 (0.702)	1.103 (0.644)
Misc. Women Exec. (Lagged)	0.807* (0.0919)	0.945 (0.126)	0.611** (0.118)
Stock Return	1.038 (0.0921)	1.078 (0.119)	0.956 (0.138)
Leverage ratio (debt)	1.755+ (0.739)	1.144 (0.591)	2.954+ (1.998)
Return on assets	0.867 (0.426)	1.200 (0.841)	0.569 (0.401)
Ln (Tobin-Q)	0.739* (0.120)	0.684* (0.140)	0.969 (0.239)
Ln (Total Assets)	1.344** (0.139)	1.190+ (0.151)	1.718** (0.283)
Gross Margin	1.294 (0.491)	0.839 (0.396)	3.678+ (3.199)
Firm Age	1.003 (0.0201)	0.975 (0.0223)	1.061+ (0.0385)
Average Director Tenure	0.989 (0.0170)	1.011 (0.0205)	0.945* (0.0272)
Board Size	1.012 (0.0250)	1.014 (0.0298)	1.028 (0.0388)
CEO Duality	1.218 (0.288)	1.251 (0.352)	1.306 (0.521)
% Women Minority Board	0.910 (0.405)	0.965 (0.504)	1.354 (0.992)
% Independent Board	0.791	0.649	1.307

	(0.294)	(0.279)	(0.838)
Average Executive Age	1.000	1.000	1.002
	(0.00388)	(0.00453)	(0.00654)
Regulatory Envir. (Dem=1)	0.844	0.919	0.682
	(0.245)	(0.320)	(0.323)
Gender Pay Gap	1.004	1.047	0.888
	(0.0585)	(0.0699)	(0.0894)
Year FE	Yes	Yes	Yes
Model Chi Square	55.62**	55.90**	0.0232*
Observations	7,120	5,172	3,568
Number of Firms	582	413	284

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 2
*Negative Binomial FE for Women Executive CFO, CAO, & CEO on
Enforcement Action Counts (Incidence Rate Ratios Reported)*

	(1) Enfor. Action Count	(2) Envir. Count	(3) Financial Count
Women CFO (Lagged)	0.657* (0.132)	0.628* (0.154)	0.571+ (0.224)
Women CEO (Lagged)	0.924 (0.238)	0.895 (0.263)	0.956 (0.616)
Women COO (Lagged)	0.961 (0.496)	0.858 (0.575)	0.587 (0.637)
Women CMO (Lagged)	0.943 (0.406)	1.140 (0.505)	1.251 (1.110)
Women CAO (Lagged)	1.415 (0.464)	2.275* (0.812)	0.356 (0.290)
Women Head HR (Lagged)	1.262 (0.395)	1.331 (0.531)	1.100 (0.616)
Misc. Women Exec. (Lagged)	0.924 (0.0810)	1.046 (0.107)	0.635** (0.116)
Stock Return	1.007 (0.0733)	1.059 (0.0952)	0.953 (0.129)
Leverage ratio (debt)	1.749* (0.563)	0.820 (0.336)	3.755* (2.321)
Return on assets	1.086 (0.468)	0.878 (0.503)	0.561 (0.374)
Ln (Tobin-Q)	0.792* (0.0961)	0.684** (0.107)	1.101 (0.247)
Ln (Total Assets)	1.307** (0.0647)	1.153* (0.0814)	1.867** (0.226)
Gross Margin	1.021 (0.182)	1.103 (0.388)	3.160+ (2.226)
Firm Age	1.011* (0.00575)	0.995 (0.00927)	1.007 (0.0174)
Average Director Tenure	0.993 (0.0131)	1.014 (0.0160)	0.936** (0.0250)
Board Size	0.996 (0.0179)	1.012 (0.0219)	1.008 (0.0347)
CEO Duality	1.185 (0.226)	1.190 (0.266)	1.205 (0.442)
% Women Minority Board	1.162 (0.369)	1.422 (0.560)	1.365 (0.916)
% Independent Board	0.808	0.828	1.042

	(0.229)	(0.278)	(0.608)
Average Executive Age	1.002	1.003	1.003
	(0.00286)	(0.00339)	(0.00600)
Regulatory Envir. (Dem=1)	1.146	0.882	0.000417+
	(2.622)	(2.434)	(0.00205)
Gender Pay Gap	0.954+	0.984	1.004
	(0.0295)	(0.0377)	(0.0679)
Year FE	Yes	Yes	Yes
Model Chi Square	163.56**	63.45**	83.37**
Observations	7,138	5,188	3,568
Number of Firms	589	419	284

Robust SE in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 3

Regressions of changes in the number of enforcement actions against a firm on changes in the Women Executive CFO, CAO, and CEO (OLS Estimates Reported)

	(1) %Δ Enforcement Actions t+1	(2) %Δ Env. Enforcement Actions t+1	(3) %Δ Financial Actions t+1
Δ Women CFO	-0.0271 (0.0253)	-0.0104 (0.0172)	-0.0121 (0.0135)
Δ Women CEO	-0.0335 (0.0359)	-0.0292 (0.0412)	0.00686 (0.0294)
Δ Women COO	-0.0216 (0.0212)	-0.00981 (0.0223)	-0.0109+ (0.00827)
Δ Women CMO	-0.0205 (0.0185)	-0.00870 (0.00981)	0.00529 (0.0205)
Δ Women CAO	0.0323* (0.0193)	0.0309+ (0.0191)	0.000578 (0.00304)
Δ Women Head HR	0.00919 (0.0172)	0.0123 (0.0120)	-0.0107 (0.0118)
Δ Women Misc. Exec.	-0.0178* (0.00885)	-0.00860+ (0.00661)	-0.00948* (0.00468)
Δ Stock Return	-0.00916* (0.00412)	-0.00598* (0.00316)	-0.00294+ (0.00221)
Δ Leverage ratio (debt)	-0.0240 (0.0294)	-0.0163 (0.0211)	-0.00883 (0.0160)
Δ Return on assets	-0.0296+ (0.0218)	-0.00618 (0.00924)	-0.0139 (0.0114)
Δ Ln (Tobin-Q)	0.0199* (0.0115)	0.00885 (0.00758)	0.00998+ (0.00644)
Δ Ln (Total Assets)	0.0110 (0.0128)	0.00568 (0.00866)	0.000875 (0.00737)
Δ Gross Margin	0.000286 (0.00132)	-0.000687 (0.00119)	0.000706 (0.000687)
Δ Firm Age	-0.000461 (0.00129)	0.000689 (0.000879)	-0.00108+ (0.000836)
Δ Average Director Tenure	-0.00002 (0.00108)	-0.000446 (0.000796)	0.000163 (0.000601)
Δ Board Size	-0.00304 (0.00283)	-0.00191 (0.00218)	-0.00170 (0.00133)
Δ CEO Duality	-0.0120 (0.0136)	-0.0119 (0.0101)	-0.00381 (0.00571)
Δ % Women Min. Board	0.0466 (0.0423)	0.0497+ (0.0323)	-0.00781 (0.0205)
Δ % Independent Board	-0.0133 (0.0290)	-0.0238 (0.0226)	0.00993 (0.0127)
Δ Average Executive Age	-0.000678* (0.000409)	-0.00004 (0.000304)	-0.000433** (0.000186)
Δ Regulatory Envir. (Dem=1)	-0.0943* (0.0468)	-0.0257 (0.0244)	-0.0589* (0.0355)
Δ Gender Pay Gap	-0.00672 (0.00643)	0.00181 (0.00462)	-0.00465+ (0.00362)
Year FE	Yes	Yes	Yes
Observations	16,472	16,472	16,472
R-squared	0.003	0.003	0.003

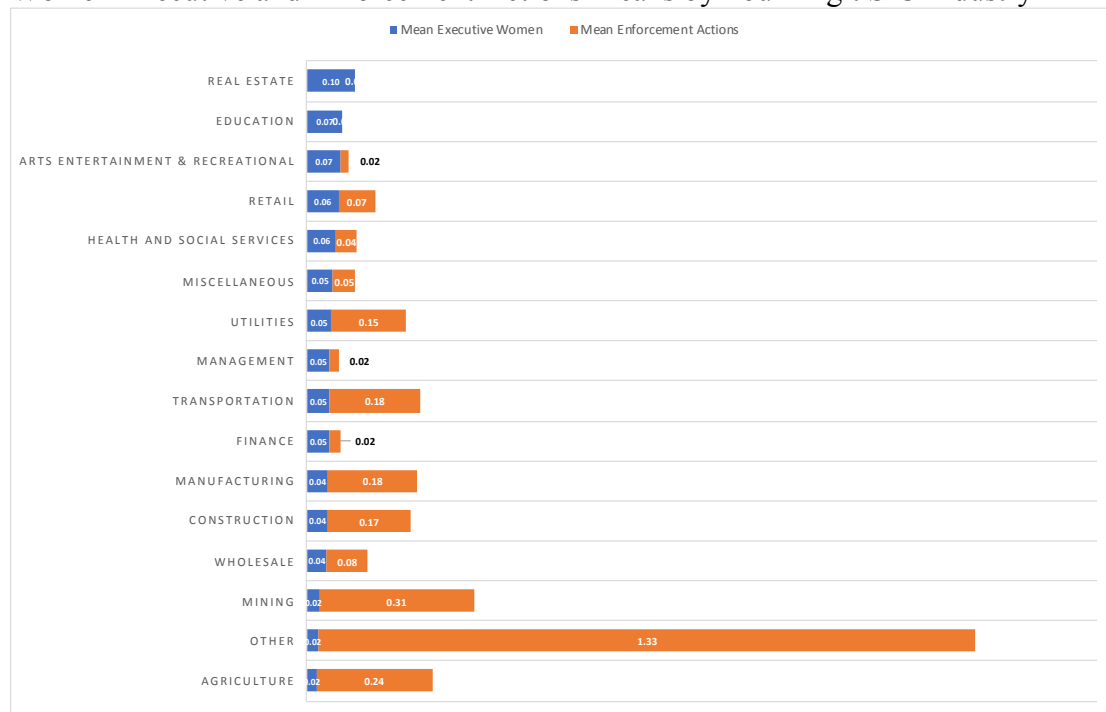
Robust standard errors in parentheses

** p<0.01, * p<0.05, + p<0.1

Appendix I. Descriptive Analyses of Enforcement Actions & Women Executive Representation by 4- and 2-Digit Industry SIC

While unable to include industry as a fixed effect, it is possible to at least describe the association between industries with higher and lower averages of women TMTs and enforcement action levels. Figure 1 and Table 1 show women executive means and total enforcement action means by industry. These descriptive statistics reveal that industries with the top three highest enforcement action means (agriculture, other, and mining) also have the lowest average of women executives. Industries with the top three highest average of women executives (real estate, education, and arts entertainment & recreation) have the lowest enforcement action averages.

Figure 1
Women Executive and Enforcement Actions Means by Four-Digit SIC Industry



These two variables are negatively correlated at -0.5842, indicating that decreases in women executive means are associated with increases in enforcement actions means by industry, and vice versa.

Table 1

Women Executive and Enforcement Actions Means by Four-Digit SIC Industry

	Executive Women Mean	Enforcement Actions Mean	N of Firm Years
Real Estate	0.0966	0	48
Education	0.0714	0	98
Arts Entertainment & Rec.	0.0681	0.0155	129
Retail	0.0632	0.0744	2,015
Health and Social Services	0.0586	0.0415	386
Miscellaneous	0.0527	0.0451	2,860
Utilities	0.0486	0.1525	1,620
Management	0.0457	0.0175	687
Transportation	0.0457	0.1832	1,228
Finance	0.0452	0.0223	3,317
Manufacturing	0.0424	0.1806	10,700
Construction	0.0423	0.1662	331
Wholesale	0.0389	0.0846	792
Mining	0.0246	0.3133	980
Other	0.0230	1.3333	69
Agriculture	0.0182	0.2353	51

When using two-digit SIC codes, the mining, agriculture, construction, and manufacturing industries have the lowest mean of women executives and the highest mean of enforcement actions. The measure of industry using four-digit SIC codes appears to provide a clearer, more accurate descriptive picture of differences in enforcement actions by industry compared to using two-digit SIC codes.

Table 2*Number of firm-years by 2 Digit Industry SIC*

	N of Firm-Years	Percent	Cum.
Agriculture	51	0.23	0.23
Mining	980	4.5	4.74
Construction	331	1.52	6.26
Manufacturing	10,700	49.15	55.41
Transportation	2,848	13.08	68.49
Wholesale	792	3.64	72.13
Retail	2,015	9.26	81.39
Finance Insurance & Real Estate	4,052	18.61	100
Total	21,769		

Table 3*Enforcement Actions & Women Executive Means by 2 Digit Industry SIC*

	Mean Executive Women	Mean Enforcement Actions	N of Firm-Years
Agriculture	0.0182	0.2353	51
Mining	0.0246	0.3133	980
Wholesale	0.0389	0.0846	792
Construction	0.0423	0.1662	331
Manufacturing	0.0424	0.1806	10,700
Finance Insurance & Real Estate	0.0458	0.0212	4,052
Transportation	0.0474	0.1657	2,848
Other	0.0539	0.0675	3,542
Retail	0.0632	0.0744	2,015
	Total		25,311

Table 4. Patterns of Changes of Women Executives in TMT Over Time

# of Women	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
0	92.02	90.83	86.42	82.65	78.5	75.49	74.76	73.34	72.74	74.06
1	7.59	8.75	12.58	15.65	18.92	20.93	19.75	20.72	22.12	21.38
2	0.39	0.42	0.85	1.32	2.11	2.89	4.86	5.16	4.67	4
3	0	0	0.15	0.39	0.39	0.61	0.48	0.7	0.39	0.4
4	0	0	0	0	0.08	0.08	0.08	0.08	0	0.16
5	0	0	0	0	0	0	0.08	0	0.08	0
6	0	0	0	0	0	0	0	0	0	0

# of Women	2006	2007	2008	2009	2010	2011	2012	2013
0	71.34	70.59	69.12	68.43	67.91	66.76	65.87	65.05
1	22.96	23.01	24.16	25	24.77	26.89	26.98	27.12
2	5.05	5.36	5.72	5.79	6.47	5.36	5.68	6.03
3	0.41	0.67	0.71	0.64	0.56	0.85	1.19	1.66
4	0.08	0.22	0.14	0.14	0.28	0.14	0.28	0.14
5	0.16	0.07	0.14	0	0	0	0	0
6	0	0.07	0	0	0	0	0	0

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