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# Female Directors, Earnings Management, and CEO Incentive Compensation: UK Evidence

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## ABSTRACT

This study examines the effect of the exogenous increase in the presence of female directors on FTSE350 corporate boards in the UK, as mandated by the Davies Report (2011), on the association between earnings management and CEO incentive compensation. We use a hand-collected dataset of FTSE350 UK public companies between 2007 and 2015. The empirical design used is a difference-in-differences methodology where the treatment group is gender-diverse corporate boards and the control group is corporate boards that lack gender diversity. We use two measures of gender diversity that include executive and non-executive female directors. The results show a positive association between earnings management and CEO incentive compensation, and a negative association between female directors and earnings management. Moreover, the results suggest a negative effect for the presence of female directors on CEO incentive compensation. Finally, the main finding of the study is that female directors play a moderating role on the association between earnings management and CEO incentive compensation. Overall, we show some of the economic consequences that the increased presence of female directors on corporate boards carries to public firms.

**Keywords:** CEO Compensation; Corporate Governance; Earnings Management; Gender Diversity.

## 1. Introduction

The extant literature that studies the interplay between corporate governance and financial reporting shows a positive effect for earnings management on bonus and equity-based compensation of executive officers (Carter, Lynch, & Zechman, 2009; Balsam ,1998; Cornett, Marcus, & Tehranian, 2008; Healy, 1985). According to Healy (1985, p.87), bonus schemes and stock options are two executive compensation components that depend on accounting earnings to a large extent. Specifically, a number of studies show that the CEO chooses opportunistic accounting procedures that inflate earnings to (i) maximize bonus compensation (Balsam, 1998; Das, Hong, & Kim, 2013; Healy, Kang, & Palepu, 1987) and (ii) increase stock price, which in turn maximizes equity-based compensation (Beneish & Vargus, 2002; Sloan, 1996). Therefore, CEOs might engage in earnings management activities to inflate earnings, and accordingly, maximize their incentive compensation (Gong, Li, & Yin, 2019).

In this study, we examine incentive compensation, the sum of bonus and equity-based compensation, because Gaver, Gaver, & Austin (1995) document that more than 90% of top executives have an equity-based compensation plan as well as a bonus plan, which makes earnings management decisions determined by both components of compensation (Gong et al., 2019; Guidry, Leone, & Rock, 1999). In addition, prior studies document a negative association between gender-diverse boards and earnings management activities (Arun, Almahrog, & Aribi, 2015; Gull, Nekhili, Nagati, & Chtioui, 2018; Srinidhi, Gul, & Tsui, 2011). Female executive directors are found to be more risk averse than their male counterparts, and accordingly, engage less in earnings management activities (Krishnan & Parsons, 2008). To the extent earnings management activities exacerbate in situations where executive compensation is a function of reported earnings, we expect the increased presence of female directors on boards to have a

negative moderating effect on the association between earnings management activities and incentive compensation.

Gender differences in attitudes related to ethical behavior and risk taking have been studied extensively in social sciences including sociology, psychology, economics, and finance (e.g., Barber and Odean, 2001; Byrnes, Miller and Schafer, 1999). Prior studies have shown that females are more likely to behave ethically compared to men (see the survey of Ford and Richardson, 1994). In an economic setting, prior studies show that females are more risk-averse decision makers than males (Eckel and Grossman, 2008). In a corporate setting, Adams and Ferreira (2009) find that boards with more female directors improve corporate governance due to better ethical behavior but decrease firm performance due to lower risk taking.

In light of the preceding points, we expect a significant change in the corporate environment of firms had they increased the presence of female directors in the boardroom, where this change is expected to have economic consequences on these firms. We examine these consequences based on the critical mass theory of Kanter (1977a) that predicts a more effective role for minorities as they increase in number (i.e., female directors). Nevertheless, the change in the composition of the board structure, also known as the governance structure, is endogenous to the firm because managers choose the structure to face governance issues (Hermalin & Weisbach, 1998). For instance, a firm might increase the presence of female directors on board to enhance reputation and not to optimize risk taking. Thus, an empirical model that examines the effect of female directors on risk taking suffers omitted variable bias by failing to control for managerial intentions (i.e., enhancing reputation). Consequently, empiricists need an exogenous variation in the governance structure to be able to study the causal effect of this variation on the outcome variable of interest (Adams, Hermalin and Weisbach, 2010).

The introduction of the Davies Report (2011) provides an exogenous change in the composition of corporate boards in the UK. Large UK companies, specifically FTSE350 companies, were required to increase the presence of female directors on their boards. The recommendation made by the Davies Report (2011) goes under the "comply or explain" principle. This resulted in a high compliance from the FTSE350 companies with the recommended increase in female directors on board. The Davies Report (2015, p.2) draws on how effective the Davies Report (2011) was by stating "*There are more women on FTSE 350 boards than ever before.*" In this paper, we exploit this exogenous increase in female directors to test the following hypotheses.

First, consistent with prior studies, we predict that the increased presence of female directors on corporate boards is associated with lower levels of earnings management. Second, we expect the increased presence of female directors following the Davies Report (2011) to be associated with lower incentive compensation. The logic behind this prediction is that incentive compensation relies on reported earnings (Smirnova & Zavertiaeva, 2017); therefore, CEOs have enough incentives to manipulate reported earnings and consequently maximize their financial reward. As such, if the increased presence of female directors on boards is associated with lower earnings management and lower CEO incentive compensation, then we expect female directors to play a moderating role on the association between earnings management activities and incentive compensation.

To test our hypotheses, we employ a difference-in-differences methodology where the treatment group comprises FTSE350 companies with gender-diverse boards and the control group includes FTSE350 companies that lack gender diversity in the boardroom. We use two measures of boardroom gender diversity: (i) the presence of female executive director(s) and (ii) the percentage of female directors out of all directors. We select the first measure because the financial reporting practice is mainly determined by executive directors (Adhikari,

Agrawal, & Malm, 2019; Carter, Franco, & Gine, 2017; Garcia Lara, Garcia Osma, Mora, & Scapin, 2017) and the second measure because it is the norm in measuring the boardroom gender diversity (Usman, Zhang, Wang, Sun, & Makki, 2018). Our sample is hand collected and spans the period between 2007 and 2015, where the Davies report was issued in 2011. Our findings are in line with extant literature and theory. Specifically, we find that gender-diverse boards adopt a financial reporting strategy with lower levels of earnings management compared to boards that lack gender diversity. We then find that gender-diverse boards allocate lower incentive compensation to their CEOs compared to boards that lack gender diversity.[1] Finally, our results suggest that earnings management is positively associated with CEO incentive compensation and that female directors play a negative moderating role on this association. In other words, boards that lack gender diversity utilize earnings management tools more than gender-diverse boards to manipulate earnings and accordingly increase CEO incentive compensation.

Our results hold after running a matched difference-in-differences analysis where we match each gender-diverse firm-years to firm-years that lack gender diversity. This is supposed to compare observations that fall on the common support area. In doing so, we use the Coarsened Exact Matching (CEM) technique (Duygan-Bump, Parkinson, Rosengren, Suarez and Willen, 2013; Iacus, King and Porro, 2011, 2012) to match observations based on profitability, firm size, industry, and Davies period (pre- and post-Davies). Finally, we perform our main analysis while conditioning on CEO power as measured by the CEO pay slice (Bebchuk, Cremers, & Peyer, 2011). In sum, our results show that female directors on board play a monitoring role on financial reporting, which might hamper potential expropriation of investors' funds.

[1] We discuss an alternative explanation to this finding in section 4.2.

The remainder of the paper is structured as follows. Section 2 provides a review of the literature and develops a theoretical framework for our hypotheses. Section 3 describes the sample and the applied research methodology. Section 4 discusses the results and section 5 provides the conclusions.

## 2. Literature Review and Hypotheses Development

### *2.1. The role of the board of directors and gender diversity*

One of the main duties assigned to the board of directors is the assessment of the CEO's performance (Adams *et al*., 2010). This duty relates to the fundamental role of the board of directors in protecting shareholders' wealth invested in the firm (Demb & Neubauer, 1992). In the past, some academics believed that the board of directors played a passive (administrative) role (Lorsch & MacIver, 1989). However, more recent studies provide descriptive and statistical evidences which show that the board of directors has become a more active body of the firm as it acts as an independent monitor (MacAvoy & Millstein, 1999). In their study, MacAvoy and Millstein (1999) document a strong positive association between independent and active boards and accounting-based measures of performance (i.e., measures based on financial reporting). Nevertheless, Adams & Ferreira (2009) disentangle the effect of boardroom gender diversity into its impact on firm financial performance on one hand and on the board's monitoring function on the other hand. They find a negative association between boardroom gender diversity and financial performance while documenting a positive association between gender diversity and the monitoring function of the board. Our paper mainly focuses on the monitoring function of the board in disciplining CEO incentive compensation through the channel of financial reporting. In the remainder of this section, we revise the relevant theories and empirical studies to provide a theoretical foundation to our hypotheses and results.

Boards around the world are facing increasing pressure to have females among their directors (Ahern & Dittmar, 2012); however, theories and empirical evidence show contradicting consequences of boardroom gender diversity (see the survey of Post & Byron 2015). Opponent studies argue that more gender diversity in the boardroom might result in a more time-consuming decision making (Ahern & Dittmar, 2012), in a higher discrepancy in the team objectives (Petrovic, 2008), and accordingly, in inefficient boards (Usman, Zhang, Farooq, Makki, & Dong, 2018). This can be explained under the social identity theory (Tajfel & Turner, 1979) and the similarity-attraction theory (Berscheid & Walster, 1969) which propose that people create social categories based on individual differences (i.e., gender) and are attracted to those similar to them. On the other hand, proponent studies find that greater gender diversity brings along positive governance practices to the board (Adams & Ferreira, 2009), such as better attendance records, better monitoring functionality, and, accordingly, lower agency conflicts (Renée Adams et al., 2010). Similarly, Adhikari et al. (2019) provide robust evidence that firms with at least one female executive director on board adopt less risky and less litigation-prone corporate policies, such as aggressive R&D investments and advertising campaigns inimical to other firms. This protects such firms from value-destructive lawsuits and saves their shareholders' value, despite that such risk-averse policies might result in forgoing value-increasing investments. These findings are in line with a longstanding literature that consistently found positive effects for boardroom gender diversity on various aspects of financial reporting (e.g., Garcia Lara et al. 2017). In this study, we mainly focus on the consequences of mandated increase in the boardroom gender diversity following the Davies Report (2011). In particular, we expect an improved monitoring role for the boards due to higher female representation, which is expected to result in restraining the CEO opportunistic behavior, through the channel of financial reporting.

To provide a theoretical framework to our predictions about the monitoring role of female directors, we posit our hypotheses in light of the critical mass theory (Kanter, 1977a). Under this theory, when the number of female directors is small relative to male directors, female directors are treated as "tokens" that represent their group. The case of tokenism works in both directions in our context. Specifically, if the number of female directors is small, then the "tokens" might simply follow the majority and vote yes whenever the majority does in an attempt to seek acceptance (Eagly & Carli, 2003), i.e., female directors have no serious impact. On the other hand, those tokens might have higher incentives to put greater effort to stand out from the majority and to prove themselves worth the position they occupy (Kanter, 1977b).[2] Supporting this explanation of tokenism, Garcia Lara et al. (2017) find that female directors influence earnings management negatively and that this effect is much weaker among firms who do not discriminate against females. To the extent discrimination is more likely to take place among smaller groups of female directors, the findings in Garcia Lara et al. (2017) suggest that tokenism works against fraudulent reporting as female tokens become more determined in maintaining a fine financial reporting practice. In addition, Lee & James (2007) mention that tokenism is one of the incentives for female directors to become better monitors due to the greater efforts they exert to reach the boardroom, where these efforts are explained by being subject to greater scrutiny and bearing higher reputational costs.

To the extent the Davies Report (2011) is expected to significantly increase gender diversity in the boardroom, the critical mass theory lends a greater support to our predictions compared to the case of tokenism. Specifically, the critical mass theory suggests that when the gender diversity exceeds the 20% threshold, female directors will no more get diluted in the male majority and can ally to make a difference (Kanter, 1977b, 1977a). Joecks et al. (2013)

[2] This is also determined by the cultural differences, where it is harder for females to stand out in male-dominated cultures (Firth, Fung, & Rui, 2007).

test the critical mass theory using a German sample that comprises 151 listed firms and spans the period 2000-2005. They find that, in general, gender diversity affects firm performance negatively; however, gender-diverse boards are associated with higher firm performance when they constitute around 30% female directors. In the same vein, Usman, Zhang, Wang, et al. (2018) provide support to the critical mass theory where they find compensation committees that have a "critical mass" of female directors to be more effective in setting the CEO's pay than committees that do not.

The literature reviewed thus far suggests a favorable outcome of boardroom gender diversity on the monitoring aspect of corporate governance. As far as financial reporting is concerned in corporate governance, Farber (2005) provides robust evidence suggesting a significant effect for the board structure on financial reporting quality, which is found to yield better firm performance (Huang & Hilary, 2018). Moreover, studies have established associations between the board structure and risk aversion and risk taking (Bernile, Bhagwat, & Yonker, 2018; Carter et al., 2017), firm performance (Mehran, 1995), stock price informativeness (Sila, Gonzalez, & Hagendroff, 2017), earnings quality (Krishnan & Parsons, 2008), conditional conservatism (Francis, Hasan, Park, & Wu, 2015; Ho, Li, Tam, & Zhang, 2015), and earnings management (Arun et al., 2015; Cheng & Warfield, 2005). In the same vein, our study examines the economic consequences of the major change in the structure of the FTSE350 companies' boards on CEO incentive compensation through the channel of financial reporting (i.e., earnings management).

### *2.2. Female directors and earnings management*

Betz, O'Connell and Shepard (1989) argue that females and males differ significantly in how they behave towards financial matters in which women tend to assist others while men focus mainly on maximizing profits and climbing the career ladder. They find that males are more likely than females to break corporate laws and violate policies regarding expense reports in

order to profit personally. In the same vein, Kaplan, Pany, Samuels and Zhang (2009) document that female directors are less likely to engage in fraudulent financial reporting incidents than their male counterparts. Bernardi and Arnold (1997) find that women in public accounting firms score higher than their male peers on moral measures. Byrnes, Miller and Schafer (1999) show that females are less aggressive and more cautious than males in various decision-making contexts as they are less likely to take risks, especially in a finanical context (Powell & Ansic, 1997). A valid counterargument in this context is that female directors might also be ambitious, and thus, engage in opportunistic accounting procedures to maximize their compensation. However, several studies show that female directors are more risk averse with a more conservative decision-making behavior compared to male directors (Adams & Ferreira, 2009; Carter et al., 2017; Francis et al., 2015). Such differences are mainly attributed to biological differences in hormones and chromosomes (Costa, Terracciano, & McCrae, 2001; Feingold, 1994) in addition to psychological and sociocultural differences between genders (Ely, 1995; Heilman, 2001; Maccoby & Jacklin, 1974). In brief, the longstanding literature on gender differences document that women are less likely to recognize financial gains in immoral ways compared to men due to their higher risk aversion (Betz et al., 1989; Kaplan et al., 2009).

In a financial reporting context, Srinidhi *et al*. (2011) show that female directors can often better improve the earnings quality reported by firms as they tend to have better communication skills, hold more informed discussions, and feature better independent thinking, thereby contributing to better monitoring of the managers (Adams and Ferreira, 2009; Terjesen, Sealy and Singh, 2009). Moreover, Peni and Vähämaa (2010) show that boards that are gender-diverse engage less in earnings manipulation activities that mislead the economic decision making of shareholders. Similarly, Srinidhi *et al*. (2011) provide evidence suggesting that female directors also tend to act more decisively than male directors to enhance earnings quality as they are more sensitive to the risk of lawsuits that result in reputational loss. The

latter finding is confirmed by Adhikari et al. (2019) who find it more prominent among firms with executive female directors on boards. Taken together, it is generally considered that female directors are likely to adopt a highly conservative approach when it comes to earnings management (Gul, Srinidhi, & Ng, 2011). Therefore, if the Davies Report (2011) resulted in more gender-diverse boards and in more powerful presence of female directors in the boardroom, then we would expect a more negative association between gender-diverse boards and earnings management after 2011.

*H1: The effect of gender-diverse boards on earnings management is negative and will increase in magnitude following the Davies Report (2011).*

### *2.3. Earnings management and CEO compensation*

In this paper, we focus on the incentive fraction of the total CEO compensation because this type of compensation is a function of reported earnings (Gaver et al., 1995; Guidry, Leone, & Rock, 1999; Healy, 1985; Smirnova & Zavertiaeva, 2017), which creates an incentive for the CEO to engage in earnings management. Studying earnings management in this context is motivated by its direct effect on reported earnings and that firms use bottom-line earnings as the main criterion to assess the CEO performance because other criteria, such as stock returns, are affected by macroeconomic events that managers cannot control (Murphy, 1999). Moreover, executive compensation in the UK is mainly an earnings-based compensation (Garcia Lara et al., 2017; Kulich, Trojanowski, Ryan, Haslam, & Renneboog, 2011), which increases the importance of studying the effect of earnings management on CEO compensation. In theory, the owner of the firm (principal) uses incentive mechanisms to align the interest of the manager (agent) with their interest (Michael Jensen & Meckling, 1976). The relationship between earnings management and CEO incentive compensation is multifaceted as the CEO gets compensated by cash bonus, stock options, or both (Cheng & Warfield, 2005). For example, the CEO might engage in earnings manipulation in order to inflate reported earnings

and thus maximize the allocated bonus compensation. Healy (1985), Holthausen, Larcker and Sloan (1995), Balsam (1998), and Guidry, Leone and Rock (1999) show that managers maximize their bonus levels through engaging in earnings management practices. Alternatively, the CEO might engage in earnings management to inflate reported earnings and increase the short-term stock price (Sloan, 1996; Stein, 1989). The CEO can then sell their owned stocks at a high price and thus maximize their wealth. This behavior exacerbates as the sensitivity of CEO's utility to current prices increases. Another form of incentives is discussed in Jensen et al. (2004) who document that managers that cannot meet the pre-specified earnings target for the current year tend to manipulate the situation by delaying the revenues for the following year, i.e., earnings management in the form of income smoothing.[3] In this case, the managers make sure that they will meet the target next year. In sum, incentives offered to executives characterize a source of temptation to manipulate earnings and accordingly reduce the informativeness of reporting (Levitt 1998; Wharton 2003).

According to Dechow, Ge and Schrand (2010), the association between the board structure (which affects internal control) and accrual quality is fairly direct and strong, where gender diversity is a main dimension of the board structure. Prior studies find that, in an attempt to maximize their incentive compensation, male executives manipulate earnings more than female executives do (Arun et al., 2015; Cheng & Warfield, 2005; Gull et al., 2018). As such, our paper examines whether the increased presence of female directors in the boardroom, as mandated by the Davies Report (2011), has resulted in lower levels of earnings management and, accordingly, lessens incentive compensation awarded to CEOs.

[3] It is worth mentioning that earnings management is used by managers not only to inflate earnings, but also to smooth earnings and reduce their volatility. Earnings smoothing protects the CEO from the high fluctuation in stock prices, especially when the CEO is one of the main stockholders (Grant, Markarian, & Parbonetti, 2009).

*H2: The effect of gender-diverse boards on CEO incentive compensation is negative and will increase in magnitude following the Davies Report (2011).*

### *2.4. The moderating role of female directors*

The extant literature on gender pay differential at corporate managerial levels documents a gap in the compensation awarded to female compared to male directors. Shin (2012) uses a dataset on 7,711 executives in 831 companies in the US to study whether the presence of female directors in the boardroom has an effect on the gender pay gap. The author shows that the gender gap in executive compensation diminishes when more female directors are present on board. In the UK, Kulich *et al.* (2011) investigate the gender pay gap at the executive level and show that male executives get higher bonus compensations, compared to female executives, as their compensation packages are more performance-sensitive. Recently, Carter, Franco and Gine (2017) show that the greater number of female directors on boards, including the fact that female directors are more risk averse, contributes to the gender pay gap. This might be due to more conservative financial reporting adopted by female directors (Francis et al., 2015).

Based on the evidence disucssed in sections 2.2 and 2.3 (i.e., incentive compensation triggers earnings management activities and the latter is more prominent among male executives) and in light of the evidence discussed in this section that suggests a negative associatiton between female directors and executive compensation, we expect that the increased presence of female directors on boards will restrain earnings management activities and accordingly lower incentive compensation awarded to CEOs. As such, since the Davies Report (2011) resulted in an exogenous increase in the presence of female directors on boards, we expect lower manipulation of earnings and accordingly lower CEO incentive compensation among gender-diverse boards after 2011. In other words, we hypothesize that female directors play a moderating role on the association between earnings management and CEO incentive compensation.

*H3: Gender-diverse boards play a moderating role on the association between earnings management and CEO incentive compensation.*

## 3. Research Methodology

### *3.1. Sample construction*

Our sample includes all FTSE350 UK public companies and spans the period 2007-2015. We apply a few restrictions to our sample following prior studies, which reduce the sample size from 3168 firm-years (352 firms × 9 years) to 1986 firm-years. We first drop all financial firms (112 firms, 1008 firm-years) as financial companies are subject to special financial reporting requirements (Arun et al., 2015; Klein, 2002). We then drop 131 firm-years due to missing financial data. Finally, we require each firm to appear at least once before and once after the Davies Report (2011) in order to satisfy the requirements of the difference-in-differences research design (Roberts and Whited 2013), in which the sample size decreases by 43 firm-years. Our final sample consists of 1986 firm-years. We use two datasets to collect our variables. We manually collect data on executive compensation, executive characteristics and board variables for all FTSE350 companies from BoardEx. We then download all corresponding financial variables from Datastream.

### *3.2. Empirical modelling*

#### *3.2.1. Earnings management tests*

Following Garcia Lara et al. (2017), Dimitras, Kyriakou, & Iatridis (2015), and Harakeh, Lee, & Walker (2019b, 2019a), among others, we use discretionary accruals to measure the level of earnings management (*EM*) and accordingly to proxy financial reporting quality. We employ the modified cross-sectional Jones (1991) model as described in Dechow *et al*. (1995) in order to calculate discretionary accruals. Owens *et al*. (2017) theorize that idiosyncratic economic shocks affect the measurement of abnormal accruals. They find a strong association between

the proxy for economic shocks and abnormal accruals, which is a main variable in our analysis. Thus, we calculate the proxy for idiosyncratic economic shocks *ECON* following Owens *et al*. (2017) and include it in equation (1). We run the regression equation below for each industry-year cross-section, where we have 10 industry classifications based on the Datastream variable 'INDM2'. Discretionary accruals, our proxy for earnings management (*EM*), are the predicted residuals from the regression model below (Jones, Krishnan and Melendrez, 2008; Kim, Liu and Zheng, 2012).[4]

$$TACC_{it}/TA_{it-1} = \alpha_0 + \alpha_1(1/TA_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it})/TA_{it-1} + \alpha_3 PPE_{it}/TA_{it-1} + \alpha_4 ECON_{it} + \varepsilon_{it} \quad (1)$$

Total accruals (*TACC*) is defined as *NIBX* − *OCF*, where *NIBX* is the net income before extraordinary items and *OCF* is operating cash flow (Hribar and Collins, 2002). The rest of the variables are total assets (*TA*), change in revenues (Δ*REV*), change in receivables (Δ*REC*), and property plant and equipment (*PPE*). Finally, $ECON_{it}$ is the proxy for idiosyncratic economic shocks, defined as the firm-specific stock return variation in year t and year t−1 (Owens *et al*. 2017). It is computed as the mean squared errors of the residuals from the regression of the firm's monthly return on monthly industry return and monthly market return using 2 years of monthly data (year t and year t−1).

To proxy for the effect of female presence in the boardroom, we use two different measures of gender diversity throughout our analysis. The first measure is a dummy variable that takes the value 1 if there is at least one female *executive* director on board (*EXFEM*). This metric of gender diversity is commonly used in the accounting and finance literature because financial reporting practices are mainly determined by executive directors (Adhikari et al., 2019; Carter et al., 2017; Francis et al., 2015; Garcia Lara et al., 2017), who usually have higher

[4] Our results are qualitatively similar when using the absolute value of discretionary accruals as the proxy for earnings management.

financial expertise (Carter et al., 2017). The other measure of board diversity is a more generic measure used in the corporate governance literature which is the percentage of female directors on board (*FEM%*). It is important to include this measure as non-executive directors play an important monitoring role on the management (Usman, Zhang, Wang, et al., 2018).[5] Given that we are examining the moderating effect of female directors, we need to convert the continuous variable *FEM%* into an indicator variable to be capable of interpreting the economic significance of the results (i.e., the differential effect). As such, we split the sample into high and low percentage of female directors on board using the dummy variable *HIGHFEM%* that takes the value 1 if *FEM%* is higher than its annual median value. According to Conley et al. (2018), the subsample analysis (i.e., median-split) is an empirical practice that proved to be a robust strategy in establishing causality.

To model the effect of the presence of female directors on board on earnings management, we regress *EM* on both measures of board diversity separately (*EXFEM* and *HIGHFEM%*), in addition to a vector of control variables. The variables that control for the firm's economic characteristics mainly follow Lobo and Zhou (2010) and Iliev (2008). We include control variables that proxy for firm size using *lnSALES* (Burgstahler and Dichev, 1997), financial leverage using *LEV* (DeFond & Jiambalvo, 1994; Sweeney, 1994), investment opportunities using *TOBINQ* (Kasznik, 1999), loss-making firms using *LOSS* (Burgstahler & Dichev, 1997), change in income using Δ*INCDUM* (Lobo & Zhou, 2006), and operating cash flow using *OCF* (Becker, Defond, Jiambalvo, & Subramanyam, 1998). In addition, we add a proxy of real earnings management, *REM*, which is an alternative method for manipulating

[5] Using other gender diversity measures, such as the Blau Index (Usman, Zhang, Wang, et al., 2018), yields similar inferences to those obtained when using *FEM%* (*HIGHFEM%*). In particular, we calculate the Blau Index as $1 - [(FEM\%)^2 + (1 - FEM\%)^2]$, following Harrison & Klein (2007), and use it as our main independent variable instead of our existing measures of gender diversity. We find qualitatively similar results to those reported in our study.

earnings that might be utilized by firms in order to inflate earnings (Cohen & Zarowin, 2010).[6] Appendix 2 includes a detailed explanation of how we compute the proxy of real earnings management. The regression model that examines the effect of boardroom gender diversity on earnings management around the Davies Report (2011) is depicted in equation (2) below.[7] As mentioned before, we replicate the analysis while replacing *EXFEM* with *HIGHFEM%*.

$$EM_{it} = \beta_0 + \beta_1 EXFEM_{it} + \beta_2 DAVIES + \beta_3 DAVIES \times EXFEM + \sum \beta_i Controls_{it-1}$$

$$+ \sum \beta_j Year\ FE_j + \sum \beta_k Industry\ FE_k + \varepsilon_{it} \qquad (2)$$

*3.2.2. CEO compensation tests*

Several studies show that incentive compensation creates a greater motivation for CEOs to manipulate earnings (e.g., Cheng & Warfield, 2005; Cornett et al., 2008), and accordingly, such studies model earnings management as a function of incentive compensation. On the other hand, other studies have found that managers employ earnings management tools to maximize their incentive compensation that is determined by reported earnings (Abdel-Khalik, 1985; Balsam, 1998; Carter et al., 2009; Das et al., 2013; Healy et al., 1987). Accordingly, such studies model incentive compensation as a function of earnings management. Given that we expect the level of earnings management to decline following the imposed increase in female directors on boards (i.e., exogenous), then our regression equation models incentive compensation as a function of earnings management, board diversity, and other relevant variables. As mentioned previously, we focus on the incentive proportion of the CEO compensation as it forms the main incentive to manipulate reported earnings. Specifically, we compute incentive compensation (*INCCOMP*) as the sum of (cash) bonus and equity

[6] Another alternative to earnings manipulation in classification shifting activities (McVay, 2006); however, such activities are captured in the computation of discretionary accruals (Dechow et al., 2010).

[7] In an additional analysis, we include other governance variables that control for the executive and board characteristics since prior studies show that such variables are correlated with board gender diversity and might affect earnings management at the same time. Our results remain unchanged when performing this test.

compensation awarded to the CEO. To model the effects of boardroom gender diversity and *EM* on *INCCOMP* around the Davies Report (2011), we follow prior studies such as Coles, Daniel and Naveen (2008) in developing our model. We include variables identified in prior studies that control for executive, board, and firm-specific economic characteristics. Specifically, we include executive age as a proxy for professional experience (Kulich *et al*. 2011). We also include the quadratic term for age as the partial derivative on experience (age) is expected to be positive but diminishing over time (Bertrand and Hallock 2001). Murphy (1999), among others, documents that better corporate governance is positively associated with higher compensation reward. Accordingly, we include governance variables in our model, such as board size, board independence, duality role of the CEO, frequency of board meetings, board financial expertise, board diversity, and independence of the compensation committee (Daily, Dalton, & Rajagopalan, 2003).

As far as economic control variables are concerned, we proxy for firm size using *lnSALES,* the natural log of total sales (Bugeja *et al*. 2012). We also control for firm performance using return on equity (*ROE*) and annual stock return (*RET*). We include a proxy for investment opportunities using *TOBINQ* (Bugeja *et al*. 2012; Kulich *et al*. 2011; Tosi, Misangyi, Fanelli, Waldman and Yammarino 2004). We finally control for firm risk by including *PRICEVOL* defined as the annualized stock price volatility (Kulich et al., 2011), for firm leverage using *LEV* (Carter *et al*. 2017), and for real earnings management using *REM* (Cohen & Zarowin, 2010). As such, equation (3) below models the effect of *EXFEM* and *EM* on *INCCOMP*, as well as the moderating effect of *EXFEM* on the association between *EM* and *INCCOMP*. We also replicate all regressions while replacing *EXFEM* with *HIGHFEM%*.

$$INCCOMP_{it} = \gamma_0 + \gamma_1 EXFEM_{it} + \gamma_2 EM + \gamma_3 EXFEM*EM + \sum \gamma_i Controls_{it-1}$$

$$+ \sum \gamma_j Year\ FE_j + \sum \gamma_k Industry\ FE_k + \varepsilon_{it} \qquad (3)$$

We adapt equation (3) to fit our testing requirements where we add the dummy variable *DAVIES* and include its interaction with *EXFEM* (*HIGHFEM%*) and *EM*, each in a separate regression. All variables are defined in Appendix 1. We winsorize all continuous variables at the top and bottom percentiles to remove the effect of outliers.

## 4. Results

### *4.1. Descriptive statistics*

We start our descriptive analysis by providing summary statistics for the variables used in our empirical models pre- and post-Davies, separately. The average of earnings management (*EM*) pre-Davies was 0.010 and decreased to 0.004 in the post-Davies period. This reduction in *EM* is associated with an increase in the percentage of female directors on boards (*FEM%*), which increased from a mean value of 12.9% to 31.1%. This increase in female directors is accompanied with a similar increase in the number of boards with at least one female executive director (*EXFEM*) from 11.4% pre-Davies to 28.7% post-Davies. Moreover, the mean values of incentive compensation (*INCCOMP*) in pre- and post-Davies show a sticky trend over time despite inflation (i.e., compensation is expected to naturally increase over time by the inflation rate). This might be due to our finding that the increased presence of female directors has a negative effect on incentive compensation. On average, FTSE350 companies are profitable with a *ROE* around 20% and annual stock return *RET* around 15%. In addition, the market appears to highly value FTSE350 companies as *TOBINQ* has a value close to 2, on average. Finally, the financial strategy of the FTSE350 companies shows that these companies have a leverage (*LEV*) ratio of 22%, are dividends payers (*DIVDUM*), and generate positive operating cash flows (*OCF*).

[Insert Table 1 about here]

We then move on to the univariate analysis of the main variables used in our models. Panel A and Panel B of Table 2 report Pearson correlation coefficients between the selected variables pre- and post-Davies, respectively. The coefficients show a significantly positive association between *INCCOMP* and *EM*, a significantly negative association between *EXFEM* and *EM*, and a significantly negative association between *EXFEM* and *INCCOMP*. In other words, earnings management appears to be positively associated with incentive compensation and negatively associated with the presence of female directors in the boardroom. This is in line with prior literature and reinforces our hypotheses. Moreover, the change in income dummy *ΔINCOME* is positively associated with *EM* while operating cash flow *OCF* is negatively associated with *EM*. This suggests that managers tend to manipulate their earnings less when they have positive cash flow from operations and manipulate earnings more to achieve a positive change in net income. These initial findings are consistent with prior studies on earnings management, such as Lobo and Zhou (2006).

[Insert Table 2 about here]

### *4.2. Empirical analysis*

Table 3 reports results from two sets of regressions that examine the effect of female directors on earnings management, where the first set uses *EXFEM* to capture the effect of female directors while the second set uses *HIGHFEM%*. In Models 3.1 and 3.4, we test the aforementioned effect in pre-Davies period while in Models 3.2 and 3.5 we test the effect in the post-Davies period. The coefficients on the control variables are consistent with prior studies in all of the regressions of Table 3. Notably, we find that firms experiencing a positive change in income manage their earnings more. This might be due to the fact that such firms need to keep a positive net income in the next period and, accordingly, they turn to manipulate their reported earnings (Jensen et al., 2004). In contrast, firms with higher operating cash flow tend to manipulate their reported earnings less. Moreover, our results show that dividend payers

engage in earnings management more than non-dividend payers and firms with positive stock returns show a higher level of earnings management, where this effect might be simultaneous. Finally, real earnings management activities do not have a significant effect on the level of accrual earnings management, as suggested by the insignificant coefficient on *REM*.

As far as our main variables of interest are concerned, the coefficient on *EXFEM* in Model 3.1 is −0.016, significant at the 5% level; however, the same coefficient in Model 3.2 is −0.028 and significant at the 1% level. The $Chi^2$ test reported at the bottom of the first set of regression in Table 3 infers a significant difference between both coefficients at the 5% level. This suggests that having at least one female executive director on board has a negative effect on earnings management activities, where this effect almost doubled in magnitude following the Davies Report (2011). A similar conclusion can be drawn from Models 3.4 and 3.5 that test the effect of high- and low-diverse boards in the pre- and post-Davies periods. The results show that the coefficient on *HIGHFEM%* increases in magnitude from −0.007 (significant at the 10% level) to −0.02 (significant at the 1% level). The $Chi^2$ test reported at the bottom of the second set of regressions in Table 3 infers a significant difference between both coefficients at the 1% level. This suggests that the impact of the high percentage of female directors on earnings management is significantly negative compared to the low percentage of female directors, where this effect almost tripled in magnitude following the Davies Report (2011). Finally, the interaction terms in Models 3.3 and 3.6, *EXFEM×DAVIES* and *HIGHFEM%×DAVIES* respectively, capture the difference-in-differences effects. Both interaction terms are negative and significant, suggesting a higher impact for boardroom gender diversity on earnings management activities following Davies Report (2011). In brief, Table 3 provides evidence suggesting that the increased presence in female directors on boards contributed to decreasing the level of earnings manipulation in big UK corporations.

[Insert Table 3 about here]

We then move on and test the effect of the presence of female directors in the boardroom on CEO incentive compensation as shown in Table 4, using both measures *EXFEM* and *HIGHFEM%*. In regard to the control variables, we obtain results consistent with prior studies (e.g., Carter *et al*., 2017) where board size has a positive effect on incentive compensation while the number of board meetings shows a negative effect on incentive compensation. This might be due to the fact that larger companies, which usually pay higher compensations, have bigger boards. On the other hand, boards with more meetings are supposed to be more active and less obedient to the CEO, which explains the negative coefficient on *BODMEET*. Finally, also consistent with prior studies, our results show that companies with larger sales and higher annual stock returns tend to pay higher CEO incentive compensation (Dah & Frye, 2017).

Regarding our variables of interest, Models 4.1 and 4.4 examine the effect of female directors on CEO incentive compensation pre-Davies while Model 4.2 and 4.5 examine the effect post-Davies. The coefficient on *EXFEM* in Model 4.1 suggests that boards with executive female directors assign lower incentive compensation to CEOs than boards without executive female directors by 46%. This difference has increased following the Davies Report (2011) to 69% as indicated by the significant coefficient on *EXFEM* in Model 4.2. The $Chi^2$ test reported at the bottom of the first set of regressions in Table 4 infers a significant difference between both coefficients (pre- and post-Davies) at the 1% level. When measuring gender diversity using *HIGHFEM%*, we find a negative but insignificant effect for high-diverse boards on CEO incentive compensation compared to low diverse boards pre-Davies. However, when examining this effect in the post-Davies period, we find that high-diverse boards assign a 33% lower incentive compensation to CEOs compared to low-diverse boards, following the Davies Report (2011). The $Chi^2$ test reported at the bottom of the second set of regressions in Table 4 infers a significant difference between both coefficients at the 1% level. Finally, the difference-

in-differences effects reported in Models 4.3 and 4.6, which are captured by the coefficients on *EXFEM×DAVIES* and *HIGHFEM%×DAVIES*, show that the negative impact of gender diversity on CEO incentive compensation has significantly intensified by 20-30% following the Davies Report (2011). This is consistent with the critical mass theory of Kanter (1977a) who theorizes that when gender diversity exceeds a specific threshold, the effect of female presence starts to become more prominent and observable (i.e., when moving from being a "skewed" group to a "tilted" group). An alternative explanation to this finding is that firms might have shifted from earnings-based to market-based compensation schemes, which causes a decrease in the earnings-based (incentive) compensation. In this case, our findings are not attributed to the increased gender diversity on boards, but to the shift in the structure of the compensation schemes. However, prior studies document that executive compensation in general, and in the UK specifically, is largely dependent on earnings (Garcia Lara et al., 2017; Kulich et al., 2011). As mentioned earlier, the reliance on earnings as the main performance measure instead of stock returns (market-based measure) is due to the reason that the latter measure is affected by several macroeconomic and political factors in which the manager has no influence (Murphy, 1999). As such, the aforementioned alternative explanation is most likely invalid. More importantly, using a difference-in-differences design with a control group of firms that operate in the same market mitigates endogeneity concerns arising from confounding effects (i.e., shifting to a market-based compensation scheme). In other words, the data would have shown a similar shift from an earnings-based to a market-based compensation scheme for the control group had this been the case among the firms in the treatment group.

[Insert Table 4 about here]

After establishing a strong negative association between female directors and earnings management on one hand and female directors and CEO incentive compensation on the other hand, we move on to confirm prior findings related to the effect of earnings management on

incentive executive compensation using our sample. Table 5 reports regression results on the effect of earnings management pre- and post-Davies, along with the difference-in-differences effect. Model 5.1 shows a significantly positive effect for *EM* on *INCCOMP* pre-Davies, while this effect decreases in magnitude following the Davies Report (2011) as shown in Model 5.2. Specifically, the magnitude of the coefficient on *EM* in Model 5.1 is 1.445 while in Model 5.2 is 0.798, both being significant at the 1% level. The $Chi^2$ test reported at the bottom of Table 5 infers a significant difference between both coefficients at the 5% level. The difference-in-differences effect is captured by the interaction term *EM×DAVIES* and shows that the effect of earnings management on CEO incentive compensation has fallen by 63% following Davies Report (2011). This raises the question of whether this reduction in the effect of *EM* on *INCCOMP* is caused by the increased presence of female directors on boards following the Davies Report (2011). We endeavor to answer this question in the following regression analysis.

[Insert Table 5 about here]

Our last and most important analysis examines the moderating role played by female directors on the association between earnings management and CEO incentive compensation. In doing so, we split the sample using both measures of gender diversity, *EXFEM* and *HIGHFEM%*. The dependent variable in Table 6 is *INCCOMP*, where Models 6.1 and 6.2 include observations for boards without executive female directors and with executive female directors, respectively. Model 6.3 mainly captures the moderating role of executive female directors on the association between *EM* and *INCCOMP*. Similarly, Models 6.4 and 6.5 include observations for low-diverse boards and high-diverse boards respectively, while Model 6.6 captures the moderating role of gender diversity on the association between *EM* and *INCCOMP*. The coefficient on *EM* in Model 6.1 is positive and highly significant, suggesting a positive effect of earnings management on CEO incentive compensation among boards

without executive female directors. In stark contrast, the coefficient on *EM* in Model 6.2 shows an insignificant effect for earnings management on CEO incentive compensation among boards with female executive directors. The $Chi^2$ test reported at the bottom of the first set of regressions in Table 6 infers a significant difference between both coefficients at the 1% level, which is consistent with the significance of the coefficient on the interaction term *EM×FEMALE* reported in Model 6.3 (i.e., the difference-in-differences effect). The significantly negative coefficient on *EM×FEMALE* demonstrates the moderating role played by female executive directors on the association between earnings management and CEO incentive compensation. Regarding the other measure of gender diversity, *HIGHFEM%*, the results obtained yield consistent results to those obtained from using *EXFEM*. Specifically, the coefficient on *HIGHFEM%* for the low-diverse boards (Model 6.4) is 1.235 as opposed to 0.810 for the high-diverse boards (Model 6.5), both significant at the 1% level. This suggests that the association between earnings management and CEO incentive compensation is weaker among high-diverse boards. However, the difference-in-differences estimate reported in Model 6.6 and the $Chi^2$ test reported at the bottom of the second set of regressions in Table 6 are insignificant.

[Insert Table 6 about here]

Taken together, our results in Tables 3-6 provide a triangulation of our evidence, suggesting that the presence of female directors play a monitoring role in the boardroom. The results show that female directors mitigate earnings management activities that inflate earnings and accordingly increase incentive executive compensation. At a higher level of analysis, our results suggest that female directors might be a vital factor in the corporate world to restrain executives from indirectly expropriating shareholders' wealth.

*4.2.1. Robustness test*

To strengthen our evidence, we replicate our analyses in Tables 3-6 using a matched sample between boards with and without female executive directors. Prior papers provide evidence suggesting that gender differences in a corporate context disappear after running matched regressions (Bugeja *et al*. 2012). Essentially, matching observations based on relevant variables enables the comparison of observations that fall on the common support and thus better identifies the treatment effect. Having said that, we match each gender-diverse firm-year with a firm-year that lacks gender diversity based on firm size (*lnSALES*), profitability (*ROE*), industry classification, and Davies period using the CEM technique following Iacus, King and Porro (2012, 2011) and Duygan-Bump *et al*. (2013).[8] This matching criterion resulted in 387 firm-years with female executive directors matched to another 387 firm-years without female executive directors on board.

Table 7 replicates Models 3.3, 3.6, 4.3, 4.6, 5.3, 6.3, and 6.6 (i.e., all difference-in-differences regressions) based on the matched sample, where these regressions collectively form the main findings of our paper. Models 7.1 and 7.2 of Table 7 show that the difference-in-differences effect of female directors on earnings management around the Davies Report (2011), as captured by the interaction terms *EXFEM×DAVIES* and *HIGHFEM%DAVIES*, is significantly negative. This suggests that when comparing firms that fall on the common support, our evidence regarding the negative effect of female directors on earnings management activities persists. Models 7.3 and 7.4 of Table 7 show that the negative effect of female directors on CEO incentive compensation persists when using the matched sample, where this effect has increased following the (Davies Report, 2011). In Model 7.5 of Table 7,

[8] Initially, we matched based on a comprehensive vector of economic characteristics that includes financial leverage, cash liquidity, stock return, price volatility, market-to-book ratio, dividend-paying status, and operating cash-flow, in addition to the existing variables. However, this resulted in severe sample attrition. Specifically, we were left with 72 matched pairs compared to the 378 pairs that we currently have. Nevertheless, the results are directionally similar when running the robustness regressions using the 72 matched pairs.

we find that higher levels of earnings management are still associated with higher CEO incentive compensation in FTSE350 companies; however, this association does not show a significant increase following the Davies Report (2011) when using the matched sample. Nevertheless, the main finding of our study is robustly established in Models 7.6 and 7.7 of Table 7, which shows that female directors play a moderating role on the association between earnings management and CEO incentive compensation. This finding is significant when measuring gender diversity using *EXFEM* as well as *HIGHFEM%*, where the interaction term *EM×HIGHFEM%* becomes significant (after being insignificant in Model 6.6) when replicating the analysis using the matched sample. Moreover, the economic significance of the moderating role played by female directors is greater when examined using the matched sample. Specifically, the coefficient on the interaction term *EXFEM×DAVIES* in Model 6.3 is −1.543 whereas in Model 7.6 it is −1.798, both significant at the 1% level. Similarly, the coefficient on the interaction term *HIGHFEM%×DAVIES* in Model 6.6 is −0.106 with no statistical significance, whereas in Model 7.7 the magnitude of the coefficient increases to −1.459 with a statistical significance at the 5% level. This increase in the magnitude of the aforementioned coefficients when comparing observations that fall on the common support suggests that the moderating role of female directors on the association between earnings management and CEO incentive compensation becomes more dominant when comparing companies with similar economic characteristics.

[Insert Table 7 about here]

The last robustness test replicates our main results while conditioning on the CEO pay slice, which is a proxy for CEO power, as prior studies document that powerful CEOs dominate their compensation schemes (Bebchuk et al., 2011). In this case, the interplay of board gender diversity and financial reporting might be ineffective in monitoring CEO incentive compensation. To test this possibility, we first compute the CEO pay slice as the ratio of the

CEO total compensation relative to the total compensation of the top five executives and then split the sample into high and low CPS. All firm-years with a CPS value that falls above the annual median of the CPS variable are assigned to the high CPS subsample, otherwise to the low CPS subsample. Table 8 reports two regressions that replicate the difference-in-differences regression of Table 6, in which we find a moderating role for female executives on the association between earnings management and CEO incentive compensation, using the high and low CPS subsamples separately. The results show that the moderating role of female executives, as captured by the interaction term *EM*×*EXFEM*, for the high CPS sample is smaller in magnitude (−1.409) than for the low CPS sample (−2.228). This finding suggests that powerful CEOs are affected by the interplay between board gender diversity and financial reporting, but to a lower extent compared to less powerful CEOs.

[Insert Table 8 about here]

## 5. Conclusions

Prior studies show that changing the composition of the board structure is endogenous to the firm as it is associated with unidentified managerial intentions (Adams *et al*., 2010; Hermalin and Weisbach, 1998). We exploit the Davies Report (2011) as a source of exogenous variation in the board structure of the FTSE350 companies in the UK. The Davies Report (2011) proved to be effective with a high level of compliance (Davies Report, 2015) as it resulted in a significant increase in the presence of female directors in the boardroom. Using this unique setting and employing a difference-in-differences research methodology, we test whether the increased presence of female directors on boards is associated with a lower level of earnings management and lower incentive compensation awarded to CEOs. More importantly, we test whether gender-diverse boards engage less in earnings management to affect CEO incentive compensation compared to boards that lack gender diversity.

Our findings suggest that there is a negative association between female directors and earnings management, where this association has strengthened following the Davies Report (2011). Moreover, we find that the presence of female directors is associated to a lower CEO incentive compensation, where this association has also increased in magnitude post-Davies. This motivated us to examine the interaction between female directors and earnings management in a regression that models CEO incentive compensation. We find that female directors play a moderating role on the association between earnings management and CEO incentive compensation.

Our study contributes to the literatures of management and financial accounting by showing that board-diversity has positive economic consequences to shareholders through the channel of financial reporting. The results are likely of interest to policy makers who are concerned about the implications of increasing the presence of female directors in the boardroom of public companies. Future studies can examine what the optimal structure of board diversity looks like and which favorable attributes female directors bring to the boardroom that male directors lack.

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## Appendix 1: Variable Definition

| Variable | Definition |
|---|---|
| *AGE* | Natural logarithm of the average of the executives' age. |
| *AGESQ* | Natural logarithm of the squared value of the average of the executives' age. |
| *BODMEET* | Number of board meetings held during the year. |
| *BODSIZ* | Number of directors on the board. |
| *DAVIES* | Dummy variable that takes the value 1 if year is greater than or equal 2011 and zero otherwise. |
| *DIVDUM* | Dummy variable that takes the value 1 if the firm pays dividends and zero otherwise. |
| *DUALBOD* | Dummy variable that takes the value 1 if any of the executives has a duality role on board and zero otherwise. |
| *EM* | Proxy for earnings management calculated following Dechow, Sloan, & Sweeney (1995) as described in detail in section 3.2.1. |
| *EXFEM* | Dummy variable that takes the value 1 when any of the executive directors on board is a female and zero otherwise. |
| *FEM%* | Percentage of female directors on board, including executive and non-executive directors. |
| *FINEXP* | Percentage of board members with financial expertise. |
| *HIGHFEM%* | Dummy variable that takes the value 1 if the value of *FEM%* is higher than its annual median and zero otherwise. |
| *INDPBOD* | Percentage of independent directors on the board. |
| *INDPCOMP* | Percentage of independent directors on compensation committee. |
| *LEV* | Total debt scaled by lagged total assets. |
| *LIQUID* | Ratio of total cash available in the firm scaled by lagged total assets. |
| *LOSS* | Dummy variable that takes the value 1 if the company reports a loss and zero otherwise. |
| *OCF* | Operating cash flow scaled by lagged total assets. |
| *INCCOMP* | Natural logarithm of CEO incentive compensation. It is the total of bonus and equity-based compensation. |
| *PRICEVOL* | Stock price volatility, calculated as the standard deviation of annual returns. |
| *REM* | Proxy of real earnings management as calculated in Appendix 2. |
| *RET* | Raw stock return calculated at the end of the fiscal. |
| *ROE* | Return on equity, calculated as net income scaled by the book value of equity. |
| *SALES* | Natural logarithm of sales. |
| *TOBINQ* | Sum of firm equity value, book value of long-term debt, and current liabilities divided by total asset. |
| *ΔINCOME* | Dummy variable that takes the value 1 if the change in net income is positive and zero otherwise. |

## Appendix 2: Calculation of Real Earnings Management (*REM*)

We follow Roychowdhury (2006) in constructing the proxy for real earnings management as applied in Cohen & Zarowin (2010). The proxy is the sum of the following three components: (a) abnormal level of operating cash flow, (b) abnormal level of production costs, and (3) abnormal level of discretionary expenses.

We first generate the normal levels of operating cash flow, production costs, and discretionary expenses using the equations below (Roychowdhury, 2006). We run the regressions by each industry-year separately, where the industry classification is based on the Datastream variable 'INDM2'.

Operating cash flow (*OCF*) is a linear function of sales (*SALES*) and change in sales ($\Delta SALES$). In order to estimate the normal level of operating cash flow, we run the model below:

$$OCF_{it}/TA_i = b_1\,(1/TA_i) + b_2\,SALES_{it}/TA_i + b_3\,\Delta SALES_{it}/TA_i + e_{it} \qquad (A2.1)$$

The firm's abnormal *OCF* is the actual *OCF* minus the estimated normal *OCF* in Equation (A2.1).

Production cost (*PROD*) is the sum of cost of goods sold (*COGS*) plus change in inventory ($\Delta INV$). Cost of goods sold (*COGS*) is a linear function of sales (*SALES*). Change in inventory ($\Delta INV$) is a linear function of lagged and current change in sales ($\Delta SALES$). In order to estimate the normal level of production cost, we run the model below:

$$PROD_{it}/TA_i = b_1\,(1/TA_i) + b_2\,SALES_{it}/TA_i + b_3\,\Delta SALES_{it}/TA_i + b_4\,\Delta SALES_{it-1}/TA_i + e_{it} \qquad (A2.2)$$

The firm's abnormal *PROD* is the actual *PROD* minus the estimated normal *PROD* in Equation (A2.2).

Finally, discretionary expenses (*DISX*) are defined as the sum of (1) research and development expenses (*RND*) and (2) general, selling and administrative expenses (*SGA*). Discretionary expenses are a linear function of lagged sales. In order to estimate the normal level of discretionary expenses, we run the model below:

$$DISX_{it}/TA_i = b_1\,(1/TA_i) + b_2\,SALES_{it-1}/TA_i + e_{it} \qquad (A2.3)$$

The firm's abnormal *DISX* is the actual *DISX* minus the estimated normal *DISX* in Equation (A2.3).

## Tables:

**Table 1: Summary statistics**

| | *DAVIES*=0 | | | | | | *DAVIES*=1 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | S.D. | Q1 | Median | Q3 | N | Mean | S.D. | Q1 | Median | Q3 |
| *EM* | 878 | 0.010 | 0.071 | −0.029 | 0.011 | 0.048 | 1108 | 0.004 | 0.071 | −0.033 | 0.006 | 0.035 |
| *INCCOMP* | 878 | 15.838 | 0.664 | 15.384 | 15.837 | 16.256 | 1108 | 15.745 | 0.701 | 15.272 | 15.732 | 16.213 |
| *EXFEM* | 878 | 0.114 | 0.318 | 0.000 | 0.000 | 0.000 | 1108 | 0.287 | 0.453 | 0.000 | 0.000 | 1.000 |
| *FEM%* | 878 | 0.129 | 0.073 | 0.083 | 0.125 | 0.188 | 1108 | 0.311 | 0.192 | 0.200 | 0.286 | 0.444 |
| *HIGHFEM%* | 878 | 0.484 | 0.500 | 0.000 | 0.000 | 1.000 | 1108 | 0.468 | 0.499 | 0.000 | 0.000 | 1.000 |
| *AGE* | 878 | 3.943 | 0.083 | 3.892 | 3.945 | 3.995 | 1108 | 3.940 | 0.083 | 3.892 | 3.942 | 3.989 |
| *AGESQ* | 878 | 26.959 | 4.545 | 24.010 | 26.729 | 29.485 | 1108 | 26.775 | 4.495 | 24.010 | 26.523 | 29.160 |
| *BODSIZE* | 878 | 9.137 | 2.163 | 8.000 | 9.000 | 10.000 | 1108 | 9.119 | 2.184 | 8.000 | 9.000 | 10.000 |
| *INDPBOD* | 878 | 0.672 | 0.113 | 0.600 | 0.667 | 0.750 | 1108 | 0.666 | 0.115 | 0.600 | 0.667 | 0.750 |
| *DUALBOD* | 878 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 1108 | 0.101 | 0.302 | 0.000 | 0.000 | 0.000 |
| *BODMEET* | 878 | 8.621 | 2.643 | 7.000 | 8.000 | 10.000 | 1108 | 8.687 | 2.728 | 7.000 | 8.000 | 10.000 |
| *FINEXP* | 878 | 0.507 | 0.264 | 0.290 | 0.520 | 0.733 | 1108 | 0.505 | 0.265 | 0.285 | 0.517 | 0.722 |
| *INDPCOMP* | 878 | 0.940 | 0.127 | 1.000 | 1.000 | 1.000 | 1108 | 0.926 | 0.158 | 0.878 | 1.000 | 1.000 |
| *SALES* | 878 | 14.105 | 1.555 | 13.066 | 13.924 | 14.912 | 1108 | 14.075 | 1.577 | 13.043 | 13.891 | 14.896 |
| *ROE* | 878 | 0.222 | 0.387 | 0.087 | 0.154 | 0.240 | 1108 | 0.224 | 0.391 | 0.087 | 0.157 | 0.243 |
| *RET* | 878 | 0.158 | 0.316 | −0.032 | 0.150 | 0.329 | 1108 | 0.147 | 0.320 | −0.050 | 0.134 | 0.307 |
| *TOBINQ* | 878 | 1.988 | 1.303 | 1.182 | 1.598 | 2.347 | 1108 | 1.976 | 1.295 | 1.182 | 1.592 | 2.323 |
| *PRICEVOL* | 878 | 25.583 | 8.044 | 19.940 | 24.775 | 29.940 | 1108 | 26.077 | 8.134 | 20.315 | 25.330 | 30.500 |
| *LEV* | 878 | 0.220 | 0.171 | 0.073 | 0.209 | 0.324 | 1108 | 0.221 | 0.171 | 0.073 | 0.208 | 0.326 |
| *ΔINCOME* | 878 | 0.571 | 0.495 | 0.000 | 1.000 | 1.000 | 1108 | 0.554 | 0.497 | 0.000 | 1.000 | 1.000 |
| *LOSS* | 878 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 1108 | 0.090 | 0.287 | 0.000 | 0.000 | 0.000 |
| *LIQUID* | 878 | 0.084 | 0.093 | 0.025 | 0.054 | 0.109 | 1108 | 0.081 | 0.091 | 0.024 | 0.052 | 0.103 |
| *DIVDUM* | 878 | 0.891 | 0.290 | 1.000 | 1.000 | 1.000 | 1108 | 0.913 | 0.281 | 1.000 | 1.000 | 1.000 |
| *OCF* | 878 | 0.108 | 0.085 | 0.053 | 0.096 | 0.146 | 1108 | 0.104 | 0.082 | 0.050 | 0.092 | 0.141 |
| *REM* | 878 | 0.025 | 0.116 | −0.002 | 0.001 | 0.062 | 1108 | 0.024 | 0.081 | −0.011 | 0.015 | 0.061 |

This table reports summary statistics for all the variables used in our analysis. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1.

**Table 2: Correlation matrices**

Panel A: Pearson correlation pre-Davies

| | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* | *(8)* | *(9)* |
|---|---|---|---|---|---|---|---|---|---|
| *EM (1)* | 1.000 | | | | | | | | |
| *INCCOMP (2)* | **0.152** | 1.000 | | | | | | | |
| *EXFEM (3)* | **−0.081** | **−0.172** | 1.000 | | | | | | |
| *FEM% (4)* | **−0.073** | **0.098** | **0.273** | 1.000 | | | | | |
| *HIGHFEM% (5)* | −0.062 | **0.098** | **0.198** | **0.690** | 1.000 | | | | |
| *ΔINCOME (6)* | **0.201** | **0.147** | 0.000 | 0.015 | −0.016 | 1.000 | | | |
| *RET (7)* | **0.116** | **0.140** | −0.004 | −0.038 | 0.013 | **0.285** | 1.000 | | |
| *DIVDUM (8)* | 0.031 | **0.144** | 0.021 | **0.096** | **0.104** | −0.022 | **0.126** | 1.000 | |
| *OCF (9)* | **−0.393** | **−0.066** | **0.124** | 0.035 | 0.024 | **0.135** | **0.133** | **0.108** | 1.000 |

Panel B: Pearson correlation post-Davies

| | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* | *(8)* | *(9)* |
|---|---|---|---|---|---|---|---|---|---|
| *EM (1)* | 1.000 | | | | | | | | |
| *INCCOMP (2)* | **0.127** | 1.000 | | | | | | | |
| *EXFEM (3)* | **−0.224** | **−0.374** | 1.000 | | | | | | |
| *FEM% (4)* | **−0.179** | **−0.143** | **0.677** | 1.000 | | | | | |
| *HIGHFEM% (5)* | **−0.164** | **−0.134** | **0.564** | **0.711** | 1.000 | | | | |
| *ΔINCOME (6)* | **0.159** | **0.106** | −0.021 | 0.028 | −0.010 | 1.000 | | | |
| *RET (7)* | **0.119** | **0.130** | −0.049 | −0.011 | −0.020 | **0.207** | 1.000 | | |
| *DIVDUM (8)* | 0.013 | **0.116** | 0.054 | **0.072** | **0.083** | −0.005 | **0.082** | 1.000 | |
| *OCF (9)* | **−0.381** | **−0.026** | **0.076** | 0.057 | 0.039 | **0.152** | **0.109** | **0.109** | 1.000 |

Panel A and Panel B of this table report the Pearson correlation matrix between the main variables used in our analysis in pre-Davies and post-Davies periods, respectively. Coefficients in bold indicate significance at the 5% level. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1.

**Table 3: Female directors and earnings management**

| | Model 3.1 | Model 3.2 | Model 3.3 | | Model 3.4 | Model 3.5 | Model 3.6 |
|---|---|---|---|---|---|---|---|
| | *DAVIES*=0 | *DAVIES*=1 | DiD | | *DAVIES*=0 | *DAVIES*=1 | DiD |
| | *EM* | *EM* | *EM* | | *EM* | *EM* | *EM* |
| *EXFEM* | −0.016** | −0.028*** | −0.015** | *HIGHFEM%* | −0.007* | -0.020*** | -0.007* |
| | (−2.28) | (−7.26) | (−2.23) | | (−1.77) | (−5.66) | (−1.82) |
| *DAVIES* | | | −0.003 | *DAVIES* | | | 0 |
| | | | (−0.50) | | | | (0.05) |
| *EXFEM×DAVIES* | | | −0.013** | *HIGHFEM%×DAVIES* | | | −0.013*** |
| | | | (−2.55) | | | | (−5.64) |
| *SALES* | −0.003** | −0.002 | −0.002 | *SALES* | −0.003 | −0.001 | −0.002 |
| | (−2.08) | (−1.13) | (−1.60) | | (−1.56) | (−0.96) | (−1.25) |
| *ROE* | 0.008 | 0.012 | 0.01 | *ROE* | 0.008 | 0.012 | 0.01 |
| | (0.68) | (1.35) | (1.04) | | (0.71) | (1.37) | (1.06) |
| *RET* | 0.034*** | 0.028*** | 0.030*** | *RET* | 0.033*** | 0.028*** | 0.030*** |
| | (4.63) | (4.33) | (4.67) | | (4.56) | (4.29) | (4.63) |
| *TOBINQ* | 0.019*** | 0.015*** | 0.016*** | *TOBINQ* | 0.018*** | 0.015*** | 0.016*** |
| | (4.18) | (4.06) | (4.16) | | (4.01) | (4.00) | (4.05) |
| *PRICEVOL* | −0.000 | −0.000 | −0.000 | *PRICEVOL* | −0.000 | −0.000 | −0.000 |
| | (−1.19) | (−0.57) | (−0.85) | | (−1.21) | (−0.40) | (−0.76) |
| *LEV* | −0.019 | −0.023* | −0.021 | *LEV* | −0.02 | −0.023* | −0.021 |
| | (−1.26) | (−1.76) | (−1.56) | | (−1.35) | (−1.73) | (−1.59) |
| *ΔINCOME* | 0.025*** | 0.021*** | 0.023*** | *ΔINCOME* | 0.025*** | 0.021*** | 0.023*** |
| | (6.30) | (6.50) | (6.88) | | (6.39) | (6.73) | (7.09) |
| *LOSS* | −0.081*** | −0.075*** | −0.078*** | *LOSS* | −0.081*** | −0.077*** | −0.079*** |
| | (−9.96) | (−8.48) | (−9.58) | | (−9.93) | (−8.41) | (−9.52) |
| *LIQUID* | −0.001 | 0.017 | 0.009 | *LIQUID* | −0.002 | 0.015 | 0.008 |
| | (−0.04) | (0.51) | (0.28) | | (−0.06) | (0.45) | (0.24) |
| *DIVDUM* | 0.021** | 0.019** | 0.020** | *DIVDUM* | 0.021** | 0.019** | 0.020** |
| | (2.36) | (2.35) | (2.47) | | (2.34) | (2.26) | (2.41) |
| *OCF* | −0.711*** | −0.667*** | −0.683*** | *OCF* | −0.711*** | −0.673*** | −0.687*** |
| | (−14.52) | (−14.62) | (−15.08) | | (−14.56) | (−14.40) | (−15.00) |
| *REM* | −0.021 | −0.011 | −0.018 | *REM* | −0.02 | −0.001 | −0.014 |
| | (−1.05) | (−0.43) | (−0.90) | | (−1.00) | (−0.01) | (−0.69) |
| *Intercept* | 0.095*** | 0.033 | 0.078** | *Intercept* | 0.089*** | 0.021 | 0.074** |
| | (3.00) | (1.21) | (2.53) | | (2.79) | (0.75) | (2.38) |
| Adj. $R^2$ | 48.83% | 45.75% | 46.90% | Adj. $R^2$ | 48.57% | 44.61% | 46.16% |
| N | 878 | 1108 | 1986 | N | 878 | 1108 | 1986 |
| H0: (*EXFEM* \| *DAVIES*=0) = (*EXFEM* \| *DAVIES*=1) | | | | H0: (*HIGHFEM%* \| *DAVIES*=0) = (*HIGHFEM%* \| *DAVIES*=1) | | | |
| $Chi^2$ = 4.62; *p*-value = 0.03 | | | | $Chi^2$ = 7.32; *p*-value = 0.00 | | | |

This table reports OLS regressions that examine the effect of the presence of female directors on earnings management around the introduction of the Davies Report (2011). Models 3.1 and 3.2 use *EXFEM* to test the aforementioned effect in the pre- and post-Davies periods, respectively, and Model 3.3 tests the difference-in-differences effect. Models 3.4 and 3.5 use *HIGHFEM%* to test the aforementioned effect in the pre- and post-Davies periods, respectively, and Model 3.6 tests the difference-in-differences effect. All regressions include industry and year fixed effects. The *t*-statistics in parentheses are calculated based on clustered standard errors at the firm level. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 4: Female directors and CEO incentive compensation**

| | Model 4.1 | Model 4.2 | Model 4.3 | | Model 4.4 | Model 4.5 | Model 4.6 |
|---|---|---|---|---|---|---|---|
| | *DAVIES*=0 | *DAVIES*=1 | DiD | | *DAVIES*=0 | *DAVIES*=1 | DiD |
| | *INCCOMP* | *INCCOMP* | *INCCOMP* | | *INCCOMP* | *INCCOMP* | *INCCOMP* |
| *EXFEM* | −0.459*** | −0.695*** | −0.457*** | *HIGHFEM%* | −0.041 | −0.333*** | −0.035 |
| | (−7.49) | (−16.57) | (−8.07) | | (−1.11) | (−9.93) | (−1.03) |
| *DAVIES* | | | 0.090** | *DAVIES* | | | 0.169*** |
| | | | (2.48) | | | | (3.06) |
| *EXFEM×DAVIES* | | | −0.236*** | *HIGHFEM%×DAVIES* | | | −0.301*** |
| | | | (−5.64) | | | | (−6.66) |
| *AGE* | 3.226 | 3.698* | 3.489* | *AGE* | 3.623** | 4.818*** | 4.272*** |
| | (1.45) | (1.89) | (1.70) | | (2.03) | (2.92) | (3.49) |
| *AGESQ* | −0.052 | −0.063* | −0.058 | *AGESQ* | −0.058* | −0.083*** | −0.072*** |
| | (−1.32) | (−1.80) | (−1.59) | | (−1.84) | (−2.79) | (−3.28) |
| *BODSIZE* | 0.127*** | 0.127*** | 0.127*** | *BODSIZE* | 0.139*** | 0.125*** | 0.123*** |
| | (8.84) | (9.13) | (9.16) | | (14.18) | (13.53) | (17.91) |
| *INDPBOD* | −0.515* | −0.410* | −0.452* | *INDPBOD* | −0.261 | −0.238 | −0.266* |
| | (−1.82) | (−1.69) | (−1.77) | | (−1.23) | (−1.21) | (−1.77) |
| *DUALBOD* | 0.008 | 0.017 | 0.013 | *DUALBOD* | 0.002 | 0.116** | 0.097** |
| | (0.11) | (0.26) | (0.20) | | (0.04) | (2.15) | (2.44) |
| *BODMEET* | −0.026*** | −0.022*** | −0.023*** | *BODMEET* | −0.022*** | −0.020*** | −0.021*** |
| | (−3.52) | (−3.21) | (−3.45) | | (−3.29) | (−3.41) | (−4.77) |
| *FINEXP* | 0.118 | 0.095 | 0.109 | *FINEXP* | 0.146* | 0.152** | 0.121** |
| | (1.46) | (1.28) | (1.45) | | (1.73) | (2.08) | (2.22) |
| *INDPCOMP* | −0.08 | 0.125 | 0.056 | *INDPCOMP* | −0.049 | 0.059 | −0.015 |
| | (−0.49) | (1.04) | (0.43) | | (−0.37) | (0.55) | (−0.17) |
| *SALES* | 0.158*** | 0.166*** | 0.163*** | *SALES* | 0.110*** | 0.169*** | 0.169*** |
| | (6.31) | (7.19) | (6.93) | | (7.01) | (10.18) | (13.57) |
| *ROE* | 0.037 | 0.057 | 0.049 | *ROE* | 0.016 | 0.045 | 0.039 |
| | (0.68) | (1.35) | (1.08) | | (0.39) | (1.08) | (1.29) |
| *RET* | 0.415*** | 0.370*** | 0.387*** | *RET* | 0.437*** | 0.387*** | 0.393*** |
| | (7.22) | (7.27) | (7.65) | | (8.05) | (7.31) | (10.10) |
| *TOBINQ* | 0.032 | 0.041** | 0.037** | *TOBINQ* | −0.012 | 0.036** | 0.028** |
| | (1.52) | (2.30) | (1.98) | | (−0.88) | (2.32) | (2.53) |
| *PRICEVOL* | −0.005 | −0.004 | −0.004 | *PRICEVOL* | −0.007*** | −0.002 | −0.003 |
| | (−1.49) | (−1.30) | (−1.40) | | (−3.38) | (−0.64) | (−1.51) |
| *LEV* | 0.006 | −0.077 | −0.04 | *LEV* | −0.087 | −0.07 | −0.057 |
| | (0.04) | (−0.54) | (−0.27) | | (−0.80) | (−0.68) | (−0.77) |
| *Intercept* | 1.658 | −0.328 | 0.455 | *Intercept* | 0.848 | −4.298 | −2.45 |
| | (0.22) | (−0.05) | (0.06) | | (0.14) | (−0.75) | (−0.58) |
| Adj. $R^2$ | 51.62% | 58.51% | 55.73% | Adj. $R^2$ | 43.43% | 46.29% | 46.81% |
| N | 878 | 1108 | 1986 | N | 878 | 1108 | 1986 |
| H0: (*EXFEM* \| *DAVIES*=0) = (*EXFEM* \| *DAVIES*=1) | | | | H0: (*HIGHFEM%* \| *DAVIES*=0) = (*HIGHFEM%* \| *DAVIES*=1) | | | |
| $Chi^2$ = 17.80; *p*-value = 0.00 | | | | $Chi^2$ = 35.34; *p*-value = 0.00 | | | |

This table reports OLS regressions that examine the effect of the presence of female directors on CEO incentive compensation around the introduction of the Davies Report (2011). Models 4.1 and 4.2 use *EXFEM* to test the aforementioned effect in the pre- and post-Davies periods, respectively, and Model 4.3 tests the difference-in-differences effect. Models 4.4 and 4.5 use *HIGHFEM%* to test the aforementioned effect in the pre- and post-Davies periods, respectively, and Model 4.6 tests the difference-in-differences effect. All regressions include industry and year fixed effects. The *t*-statistics in parentheses are calculated based on clustered standard errors at the firm level. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 5: Earnings management and CEO incentive compensation**

| | Model 5.1 | Model 5.2 | Model 5.3 |
|---|---|---|---|
| | *DAVIES*=0 | *DAVIES*=1 | DiD |
| | *INCCOMP* | *INCCOMP* | *INCCOMP* |
| *EM* | 1.444*** | 0.822*** | 1.461*** |
| | (5.10) | (2.91) | (5.20) |
| *DAVIES* | | | 0.187*** |
| | | | (4.05) |
| *EM×DAVIES* | | | −0.645*** |
| | | | (−3.99) |
| *AGE* | 3.712* | 4.883** | 4.348** |
| | (1.72) | (2.31) | (2.07) |
| *AGESQ* | −0.061 | −0.085** | −0.074** |
| | (−1.59) | (−2.23) | (−1.97) |
| *BODSIZE* | 0.124*** | 0.135*** | 0.130*** |
| | (8.20) | (9.59) | (9.19) |
| *INDPBOD* | −0.226 | −0.197 | −0.214 |
| | (−0.86) | (−0.87) | (−0.91) |
| *DUALBOD* | 0.054 | 0.069 | 0.059 |
| | (0.73) | (0.96) | (0.84) |
| *BODMEET* | −0.022*** | −0.022*** | −0.022*** |
| | (−2.90) | (−3.05) | (−3.07) |
| *FINEXP* | 0.095 | 0.163** | 0.135* |
| | (1.06) | (2.08) | (1.70) |
| *INDPCOMP* | −0.161 | 0.113 | 0.03 |
| | (−0.90) | (0.80) | (0.21) |
| *SALES* | 0.171*** | 0.171*** | 0.174*** |
| | (6.51) | (6.93) | (7.10) |
| *ROE* | 0.037 | 0.046 | 0.041 |
| | (0.77) | (1.08) | (1.02) |
| *RET* | 0.359*** | 0.386*** | 0.373*** |
| | (5.98) | (6.66) | (6.76) |
| *TOBINQ* | 0.027 | 0.037* | 0.033 |
| | (1.13) | (1.82) | (1.57) |
| *PRICEVOL* | −0.004 | −0.003 | −0.003 |
| | (−1.14) | (−0.75) | (−0.97) |
| *LEV* | −0.033 | −0.052 | −0.041 |
| | (−0.21) | (−0.35) | (−0.28) |
| *REM* | −0.001 | 0.279 | 0.102 |
| | (−0.01) | (1.32) | (0.62) |
| *Intercept* | −0.417 | −4.458 | −2.906 |
| | (−0.06) | (−0.61) | (−0.40) |
| Adj. $R^2$ | 50.04% | 49.37% | 49.59% |
| N | 878 | 1108 | 1986 |

H0: (*EM* | *DAVIES*=0) = (*EM* | *DAVIES*=1)

$Chi^2$ = 3.71; *p*-value = 0.05

This table reports OLS regressions that examine the effect of earnings management on CEO incentive compensation around the introduction of the Davies Report (2011). Models 5.1 and 5.2 test the aforementioned effect in the pre- and post-Davies periods, respectively, and the third regression tests the difference-in-differences effect. All regressions include industry and year fixed effects. The *t*-statistics in parentheses are calculated based on clustered standard errors at the firm level. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 6: The moderating role of female directors on the effect of EM on CEO incentive compensation**

| | Model 6.1 | Model 6.2 | Model 6.3 | | Model 6.4 | Model 6.5 | Model 6.6 |
|---|---|---|---|---|---|---|---|
| | *EXFEM*=0 | *EXFEM*=1 | DiD | | *HIGHFEM%*=0 | *HIGHFEM%*=1 | DiD |
| | *INCCOMP* | *INCCOMP* | *INCCOMP* | | *INCCOMP* | *INCCOMP* | *INCCOMP* |
| *EM* | 1.055*** | −0.573 | 1.069*** | *EM* | 1.254*** | 0.808*** | 1.150*** |
| | (3.91) | (−1.11) | (4.01) | | (5.89) | (2.68) | (5.51) |
| *EXFEM* | | | −0.618*** | *HIGHFEM%* | | | 0.041 |
| | | | (−14.84) | | | | (1.20) |
| *EM×EXFEM* | | | −1.550*** | *EM×HIGHFEM%* | | | −0.112 |
| | | | (−2.82) | | | | (−0.32) |
| *AGE* | 2.618 | 8.198*** | 3.895* | *AGE* | 2.443 | 6.375*** | 4.389*** |
| | (1.02) | (4.61) | (1.91) | | (1.13) | (6.84) | (3.61) |
| *AGESQ* | −0.042 | −0.140*** | −0.065* | *AGESQ* | −0.038 | −0.111*** | −0.075*** |
| | (−0.90) | (−5.12) | (−1.80) | | (−0.98) | (−7.16) | (−3.41) |
| *BODSIZE* | 0.123*** | 0.151*** | 0.129*** | *BODSIZE* | 0.129*** | 0.115*** | 0.131*** |
| | (8.10) | (7.63) | (9.47) | | (13.59) | (11.84) | (19.37) |
| *INDPBOD* | −0.513 | 0.007 | −0.434* | *INDPBOD* | −0.536** | −0.008 | −0.216 |
| | (−1.55) | (0.03) | (−1.70) | | (−2.02) | (−0.06) | (−1.52) |
| *DUALBOD* | −0.008 | 0.006 | 0.002 | *DUALBOD* | −0.001 | 0.07 | 0.058 |
| | (−0.12) | (0.06) | (0.04) | | (−0.03) | (1.05) | (1.49) |
| *BODMEET* | −0.027*** | −0.011 | −0.024*** | *BODMEET* | −0.025*** | −0.023*** | −0.022*** |
| | (−3.51) | (−1.06) | (−3.54) | | (−3.79) | (−4.46) | (−5.19) |
| *FINEXP* | 0.138 | 0.143 | 0.140* | *FINEXP* | 0.052 | 0.248*** | 0.136** |
| | (1.63) | (1.30) | (1.85) | | (0.73) | (3.36) | (2.58) |
| *INDPCOMP* | 0.089 | 0.062 | 0.064 | *INDPCOMP* | 0.196** | −0.343** | 0.037 |
| | (0.63) | (0.35) | (0.49) | | (2.01) | (−2.37) | (0.44) |
| *SALES* | 0.163*** | 0.148*** | 0.160*** | *SALES* | 0.159*** | 0.184*** | 0.173*** |
| | (5.86) | (5.33) | (6.81) | | (7.66) | (13.11) | (14.24) |
| *ROE* | −0.006 | 0.111 | 0.038 | *ROE* | −0.033 | 0.058* | 0.038 |
| | (−0.11) | (1.44) | (0.84) | | (−0.43) | (1.72) | (1.30) |
| *RET* | 0.348*** | 0.428*** | 0.368*** | *RET* | 0.282*** | 0.476*** | 0.375*** |
| | (6.23) | (5.46) | (7.40) | | (5.16) | (8.77) | (9.62) |
| *TOBINQ* | 0.034* | 0.041 | 0.039** | *TOBINQ* | 0.031* | 0.032** | 0.033*** |
| | (1.69) | (1.21) | (2.18) | | (1.94) | (1.99) | (2.96) |
| *PRICEVOL* | −0.006 | −0.003 | −0.004 | *PRICEVOL* | −0.004 | −0.006*** | −0.003** |
| | (−1.56) | (−0.84) | (−1.47) | | (−1.49) | (−2.61) | (−2.01) |
| *LEV* | −0.032 | 0.071 | −0.016 | *LEV* | −0.105 | 0.052 | −0.039 |
| | (−0.20) | (0.31) | (−0.11) | | (−0.96) | (0.54) | (−0.54) |
| *REM* | −0.004 | 0.057 | −0.005 | *REM* | 0.112 | −0.013 | 0.093 |
| | (−0.03) | (0.13) | (−0.03) | | (0.58) | (−0.10) | (0.78) |
| *Intercept* | 3.617 | −17.225*** | −1.051 | *Intercept* | 4.375 | −8.906*** | −3.047 |
| | (0.41) | (−2.75) | (−0.15) | | (0.58) | (−2.73) | (−0.72) |
| Adj. $R^2$ | 49.53% | 67.30% | 56.36% | Adj. $R^2$ | 46.56% | 59.31% | 49.53% |
| N | 1568 | 418 | 1986 | N | 1042 | 944 | 1986 |
| H0: (*EM* \| *EXFEM*=0) = (*EM* \| *EXFEM*=1) | | | | H0: (*EM* \| *HIGHFEM%*=0) = (*EM* \| *HIGHFEM%*=1) | | | |
| $Chi^2$ = 15.51; *p*-value = 0.00 | | | | $Chi^2$ = 1.51; *p*-value = 0.21 | | | |

This table reports OLS regressions that examine the moderating effect of the presence of female directors on the association between earnings management and CEO incentive compensation. Models 6.1 and 6.2 use *EXFEM* to test the association between earnings management and CEO incentive compensation for boards without and with female executive directors, respectively. Model 6.3 uses *EXFEM* to test the moderating role of female directors on the observed association between earnings management and CEO incentive compensation. Models 6.4 and 6.5 use *HIGHFEM%* to test the association between earnings management and CEO incentive compensation for boards with high and low gender diversity, respectively. Model 6.6 uses *HIGHFEM%* to test the moderating role of female directors on the observed association between earnings management and CEO incentive compensation. All regressions include industry and year fixed effects. The *t*-statistics in parentheses are calculated based on clustered standard errors at the firm level. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 7: Matched difference-in-differences regressions**

| **Model 7.1** | | | **Model7.2** | **Model 7.3** | | | **Model 7.4** | **Model 7.5** | | **Model 7.6** | | | **Model 7.7** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *EM* | | | *EM* | *INCCOMP* | | | *INCCOMP* | *INCCOMP* | | *INCCOMP* | | | *INCCOMP* |
| *EXFEM* | −0.01 | *HIGHFEM%* | 0.003 | *EXFEM* | −0.316*** | *HIGHFEM%* | 0.015 | *EM* | 1.018* | *EM* | 1.111*** | *EM* | 1.654*** |
| | (−1.32) | | (0.43) | | (−4.25) | | (0.21) | | (1.88) | | (3.42) | | (4.00) |
| *DAVIES* | −0.012 | *DAVIES* | −0.001 | *DAVIES* | 0.260*** | *DAVIES* | 0.494*** | *DAVIES* | 0.400*** | *EXFEM* | −0.574*** | *HIGHFEM%* | −0.305*** |
| | (−1.20) | | (−0.13) | | (2.76) | | (4.84) | | (4.19) | | (−11.79) | | (−5.84) |
| *EXFEM*× | −0.019** | *HIGHFEM%*× | −0.017** | *EXFEM*× | −0.337*** | *HIGHFEM%*× | −0.432*** | *EM*× | −0.347 | *EM*× | −1.798*** | *EM*× | −1.459** |
| *DAVIES* | (−2.55) | *DAVIES* | (−2.33) | *DAVIES* | (−4.94) | *DAVIES* | (−5.99) | *DAVIES* | (−0.68) | *EXFEM* | (−3.25) | *HIGHFEM%* | (−2.37) |
| ***Controls*** | YES | | YES | | YES | | YES | | YES | | YES | | YES |
| Adj. $R^2$ | 52.02% | Adj. $R^2$ | 49.24% | Adj. $R^2$ | 60.62% | Adj. $R^2$ | 51.69% | Adj. $R^2$ | 53.04% | Adj. $R^2$ | 60.50% | Adj. $R^2$ | 51.40% |
| N | 774 | N | 774 | N | 774 | N | 774 | N | 774 | N | 774 | N | 774 |

This table reports results from all difference-in-differences regressions in tables 3, 4, 5, and 6 based on matched observations between gender-diverse boards and boards that lack gender diversity. Observations are matched using CEM matching technique based on profitability, firm size, industry, and Davies period. All regressions include the control variables that were used in the original corresponding model, but the coefficients are not reported for exposition purposes. All regressions include industry and year fixed effects. The *t*-statistics in parentheses are calculated based on clustered standard errors at the firm level. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 8: The moderating role of female directors conditioning on CEO pay slice (CPS)**

| | Low CPS | High CPS |
|---|---|---|
| | *INCCOMP* | *INCCOMP* |
| *EM* | 1.230*** | 0.978*** |
| | (3.87) | (3.66) |
| *EXFEM* | −0.629*** | −0.597*** |
| | (−14.05) | (−14.09) |
| *EM×EXFEM* | −2.228*** | −1.409** |
| | (−3.91) | (−2.54) |
| *AGE* | 2.154* | −1.281 |
| | (1.89) | (−0.62) |
| *AGESQ* | −0.032 | 0.034 |
| | (−1.61) | (0.86) |
| *BODSIZE* | 0.133*** | 0.125*** |
| | (12.59) | (22.89) |
| *INDPBOD* | −0.610*** | −0.572*** |
| | (−4.47) | (−3.42) |
| *DUALBOD* | 0.057 | −0.009 |
| | (0.95) | (−0.18) |
| *BODMEET* | −0.046*** | −0.012 |
| | (−5.40) | (−1.34) |
| *FINEXP* | 0.061 | 0.013 |
| | (1.35) | (0.23) |
| *INDPCOMP* | 0.034 | 0.192 |
| | (0.21) | (1.65) |
| *SALES* | 0.216*** | 0.151*** |
| | (19.87) | (9.31) |
| *ROE* | 0.182*** | 0.005 |
| | (3.67) | (0.21) |
| *RET* | 0.264** | 0.432*** |
| | (3.34) | (4.58) |
| *TOBINQ* | 0.011 | 0.076*** |
| | (0.68) | (6.90) |
| *PRICE_VOL* | −0.002 | −0.012*** |
| | (−0.87) | (−8.88) |
| *LEV* | −0.856*** | 0.075 |
| | (−3.82) | (0.55) |
| *REM* | 0.348 | −0.01 |
| | (1.58) | (−0.07) |
| *Intercept* | 4.556 | 17.349** |
| | (1.08) | (2.52) |
| Adj. $R^2$ | 70.52% | 61.80% |
| N | 990 | 996 |

This table reports OLS regressions that examine the moderating effect of the presence of female directors on the association between earnings management and CEO incentive compensation for high and low CEO pay slice (CPS) subsamples. All firm-years with a CPS value that falls above the annual median of the CPS variable are assigned to the high CPS subsample, otherwise to the low CPS subsample. All regressions include industry and year fixed effects. The *t*-statistics in parentheses are calculated based on clustered standard errors at the firm level. All continuous variables are wisorized at the top and bottom 1%. All variables are defined in Appendix 1. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.