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The Effect of CEO Gender on Real Earnings Management

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Abstract

Real Earnings Management involves the deviation from normal business practices to manipulate financial statements. Previous research has shown how higher gender diversity in senior management has led to higher earnings quality, and how firms with female CFOs have less earnings management than male CFOs. This paper will build off previous research and further examine whether CEO gender affects real earnings management and if so, its effects on real earnings management. The main hypothesis of the paper is that the gender of the CEO will affect the extent of real earnings management of a firm; firms with male CEOs will see a higher earnings management, while firms with female CEOs will have lower earnings management. The paper's methodology primarily entails taking a sample of US public firms to measure real earnings management factors of abnormal cash flows, discretionary expenses, and production costs against CEO gender. This involves performing a regression analysis in order to prove the validity of the hypothesis. Results show that the main hypothesis of this paper is not supported by the sample data. Instead, the results suggest that CEO gender does not affect the likelihood of real earnings management. This contributes to the literature by shedding light on the effect of CEO gender on the extent of real earnings management.

1. Introduction

Investors trust the integrity of the financial markets. They invest and trade in stock, because they trust that markets offer them a potential gain in capital. This integrity is upheld by auditors, who ensure the accuracy and reliability of the firms' financial statements, and by management, who has an ethical and professional responsibility to report with a high level of earnings quality. Earnings quality has been defined as "the degree to which reported earnings capture a firm's economic reality" (Krishnan and Parsons 2008). A perfect system would have firms that always release statements containing high earnings quality, however in reality, that is not the financial system that exists.

The earnings quality of a financial statement decreases when management participates in what is known as earnings management. Conversely, the earnings quality increases when management's penchant for earnings management decreases. Earnings management can be defined as actions taken by management to mislead investors about the true nature of financial operations of a firm. Management primarily engages in earnings management to increase the firm's stock price and or increase management's compensations, which is often tied to a company's bottom line or stock price (Lovata et. al 2016). As earnings management is the manipulation of earnings, it is of specific interest then to understand what causes earnings management in order to minimize it.

2. Literature Review and Hypotheses Development

A survey of the literature shows that earnings management manifests in two different ways: accrual and real earnings management. Accrual earnings management is described as management's manipulation of earnings through the usage of accounting estimates and methods (Sun, Lan, & Liu 2014). On the other hand, real earnings management is more focused on

changing the firms' underlying operations to improve the numbers on the financial statement. The important difference between the two methods to manage earnings is that real earnings management has a more direct impact on the firm value. Gunny (2015) describes accruals management is cheaper for the firm, but managers still choose real earnings management for a number of reasons: accruals invite more litigation, are under more auditor scrutiny, and is limited by prior years' business operations and results. It is documented that these two methods work as substitutes of each other; as firms become constricted in their ability to use the accrual method, they start to engage in more real earnings management (Chi, Lisic, and Pevzner, 2011). Because of the focus accrual earnings management has received from prior research, the focus of this paper will primarily be on real earnings management.

Focusing on effects, Gunny (2015) explains that the consequences of real earnings management is more severe, as the operational decisions taken to manage earnings have a greater possibility of negatively affecting subsequent years' performance. It is costlier to the owners of the firm (the stockholders) than to the managers, who are incentivized to manage earnings.

Focusing on incentives, researchers have found that greater audit quality, stricter SOX imposed rules, and impending debt covenant violations have driven firms to engage in real earnings management (Chi, Lisic, and Pevzner, 2011; Järvinen and Myllymäk, 2016). Liu and Espahbodi (2014) depict that dividend-paying firms engage in real earnings management through earnings smoothing, due to dividend-related incentives. In addition, research has found that management utilize real activities when material weaknesses existed and have been discovered by auditors (Jarvinen and Myllymaki 2016). Furthermore, even firm size has an effect on the extent of earnings management; Kim, Liu, and Rhee (2003) finds that smaller and medium sized firms engage in more earnings management, although larger firms are more aggressive in

avoiding a decrease in earnings. This encompasses the research focusing on firm-related factors that drive real earnings management.

Where there is a gap in the literature is in the area of personal factors and incentives driving real earnings management. For example, Kuang, Qin, and Weilhouwer (2014) illustrate how CEO origin (whether a CEO is hired internally or externally) affects accrual earnings management but not the extent that it affects real earnings management. Others have focused on the friendship of CFO/CEO and the board, and they have found that board independence can be eroded due to these ties (Rose, Rose, Norman, and Mazza, 2014; Krishnan, Raman, Ke, and Wei, 2011). It showed that the existence of a friendship can lead to higher earnings management. This research can be further expanded to detect whether this holds true for accrual or real earnings management specifically. There is also much research done regarding the characteristics of the board of directors and its relationship with extent of real earnings management. The independence of the board of directors has been found to be key in mitigating real earnings management (Talbi et. al 2015). Within the board of directors is the audit committee, which is tasked with oversight of the financial statements and processes. As they monitor the movements of management, there is an expectation that the audit committee can minimize the extent of real earnings management. Visvanathan (2008) illustrates that a larger audit committee is more likely to monitor management, however Sun et. al (2014) has found that the busyness of audit committee is another factor to consider. The more directorships an audit committee member has, the harder it is for them to effectively monitor management. As a result, it could be more difficult to restrain real earnings management.

Rather than looking at firm-specific factors and oversight bodies, this paper will focus on senior management. Cheng, Lee, and Shevlin (2016) examined the factor of internal governance

and its relationship with real earnings management. They find that when key subordinates, e.g. the CFO, COO, President, are able to play a more important role within the company and are in firms where the CEO is less powerful, internal governance is more effective in restricting the extent of real earnings management. In addition, when CEOs have greater career concerns and have more incentives to maintain firm performance, internal governance is also more powerful in restraining the management of earnings. This adds on to prior research that illustrates that older CEOs, who are nearing the end of their career, are more likely to utilize real earnings management, in comparison to their younger counterparts. CEOs are important to the study of real earnings management as they are usually required in deciding whether or not to use real activities to inflate earnings, and they are usually held accountable when a company's performance declines (Lovata et. al 2016). Due to the key role CEOs play within managing earnings, it will be the focus of this paper. Specifically, this study seeks to answer the question of whether or not the gender of the CEO has any effect on the extent of real earnings management, and what kind of effect arises from it.

The CEO characteristic of gender was chosen due to a gap in the literature. As more women enter the C-suite and the highest glass ceiling is shattered, there is a burgeoning interest in how their leadership will affect the business world. Prior research has shown that there is a mixed consensus on the impact of gender on ethical judgement, which is a factor that affects a person's willingness to manage their firm's earnings. Ye, Zhang, and Rezaee (2010) do note that women are generally more ethical than men. In addition, Krishnan and Parson (2008) illustrate that the addition of women creates a diversity in senior management that improves earnings quality. Peni and Vahamaa (2010) note that there is evidence that female CFOs are more conservative than their male counterparts. This is further supported by research that shows firms

with female CEOs are more like to make less risky financing and investment choices (Faccio, Marchica, Mura 2016). Despite less risky choices, female CEOs have also been found to statistically outperform male CEOs on average (Peni 2012). Furthermore, it is interesting how the market seems to judge female CEOs versus their male counterparts. The market seems to hold the stereotype that women are more risk averse than males, as changes in capital market risk measures following a woman's appointment as CEO is lower than if a male CEO had been appointed (Martin, Nishikawa, Williams 2009). Based on prior literature on the factor of gender, capital allocation, and risk aversion, women in management would seem less likely to utilize real earnings management than their counterparts. Other researchers have focused on a mixture of CFO or CEO and gender in their studies but have taken to looking at firms in other countries. For example, Ye, Zhang, and Rezaee (2010) had looked at the gender of top executives in Chinese firms. They had found no significant differences between male and female CEOs performance. In contrast, Duong and Evans (2016) looked at the effect of CFO gender on earnings management in Australian firms. Their results evince that female CFOs engage less in real earnings management.

In summary, while researchers have begun to look at the effect of gender in senior management on earnings management, there is hardly a definitive one. Instead of looking at the CFO position, this study has chosen to specifically look at the CEO position, which is the position that guides most of a firm's decisions.

Based on the gap in literature and building on prior research on gender studies and earnings management, this study will posit three different hypotheses.

3. Gender and Real Earnings Management Factors: Hypotheses

This study relies on prior literature to develop our proxies for real earnings management. Cohen, Dey, and Lys (2008) build on prior studies by looking at abnormal levels of cash flow from a firm's operations, discretionary expenses and productions costs, when measuring the extent of real earnings management. First, management can increase the amount of sales by changing company policies. For example, they may provide discounts on price or by lowering their credit. An increase in sales, directly contributes to an increase in net income. This increase in net income is contained within the period where discounts exist, and it decreases the amount of cash flow the company has. As female CEOs are described as more conservative in their strategic decisions, they seem less likely to employ sudden price discounts or creating more lenient credit terms to boost sales. Therefore:

H1. *Ceteris paribus,* firms with female CEOs will exhibit lower sales manipulation.

Second, management can also increase their bottom line, by decreasing one of their biggest expenses: cost of goods sold. This is done through overproduction of inventory; the more units that are produced, management is able to spread fixed costs across a larger amount of units. This can become problematic, as larger amounts of inventory produced may far exceed the demand for it. The company may incur large holding costs and they may experience inventory obsolescence. Hence, higher production costs are a measure of real earnings management. Based on the literature, female CEOs are less likely to make risky decisions, so female CEOs may be less inclined to overproduce inventory to increase the bottom line. Therefore:

H2. *Ceteris paribus,* firms with female CEOs will exhibit lower production costs.

Finally, management may increase earnings through the deferral of discretionary expenses. Discretionary expenses include SG&A expenses, R&D expenses, as well as advertising expenses. The reduction of these expenses will typically increase net earnings,

however, these expenses are usually undertaken as they add value to the firm. One period's earnings may be higher, but as a result, subsequent periods may show a firm suffering due to a decreasing in these value-adding activities. As previous literature has discussed, female CEOs are found to statistically outperform male CEOs, despite their less risky choices. Therefore, it seems likely that female CEOs may not employ deferring discretionary expenses to boost earnings. Thus:

H3. *Ceteris paribus*, firms with female CEOs will exhibit normal levels of discretionary expenses.

4. Research Design

The initial sample used for this research consists of all firms with available financial data from COMPUSTAT. Firms that are part of the financial services industry have been excluded, due to different financial incentives for firms in that industry. In addition, the initial sample includes the firms' annual data from 1999 to 2017. After exclusions have been made due to missing data, the final sample to measure abnormal cash flow, production costs, and discretionary expenses are 23,839, 20,874, and 14,524 firm-year observations, respectively.

Relying on Cohen, Dey, and Lys (2008), I first produced the normal levels of operations from cash flow, production costs, and discretionary expenses. Cash flows from operations (CFO) is expressed as a linear function of sales and change in sales. Next, normal levels of production costs are the sum of cost of goods sold (COGS) and change in inventory during the year. Furthermore, COGS is modeled as a linear function of current year sales, while change in inventory is modeled as the linear function of change in sales and lagged changed in sales. Finally, normal levels of discretionary expenses are expressed as a sum of advertising expenses, SG&A expenses, and R&D expenses. It is modeled as the linear function of lagged sales.

H1 is tested through the model:

$$\mathbf{CFO = \alpha + \beta 1Gender + \beta 2Age + \beta 3Compensation + \beta 4Size}$$

H2 is tested through the model:

$$\mathbf{Prod = \alpha + \beta 1Gender + \beta 2Age + \beta 3Compensation + \beta 4Size}$$

H3 is tested through the model:

$$\mathbf{Disc = \alpha + \beta 1Gender + \beta 2Age + \beta 3Compensation + \beta 4Size}$$

where:

CFO = Abnormal cash flows from operations
Prod = Production costs
Disc = Discretionary expenses
Age = CEO age
Compensation = total compensation package received by the CEO
Size = firm size, measured as the natural log of assets
Gender = 1 if female; 0 if otherwise

CEO control variables were included to mitigate the concerns of potential endogeneity. While a firm related variable was included to capture the impact of a firm characteristic on the extent of real earnings management.

5. Results

Table 1 presents descriptive statistics on the regressed variables, while Tables 2-4 present results of my regression analysis. In my sample, there is an overwhelmingly large number of male CEOs, in comparison to female CEOs. Notably, only an estimated 7% of the sample are female CEOs, which may skew the results.

Table 2 shows the results of the regression analysis on abnormal cash flows against CEO age, gender, compensation, and firm size. Only firm size is shown to have a negative relationship with the dependent variable. Meanwhile, both CEO age, gender, and compensation is shown to have a positive relationship with abnormal cash flows. Older CEOs, higher paid CEOs, as well as

female CEOs are more likely to use sales manipulation techniques, like price discounts or lenient credit terms, to manage earnings. As CEO gender is positively associated with abnormal cash flows, H1 is not supported.

Table 3 presents the results of regressions of abnormal production costs against the CEO age, gender, compensation, and the firm's size. The results show that there only is a significantly negative relationship between abnormal production costs and the firm size. This may simply show that larger firms are less likely to increase production costs to manage earnings. However, H2 is not supported, given that the results show a positive relationship between the CEO's gender and abnormal production.

Finally, Table 4 shows the regression analysis results of abnormal discretionary expenses against the independent variables. Results reveal that within our sample, CEO age and compensation show a negative but statistically insignificant relationship with abnormal discretionary expenses. Meanwhile, both CEO gender and firm size are shown to have a positive relationship with abnormal discretionary expenses. In regard to firm size, this might show that larger firms are more likely to decrease discretionary expenses to manage earnings. This could be that larger firms may do have more discretionary expenses, thus the decrease of such may have a larger impact. As for CEO gender, the results are not statistically significant and do not support H3, implying that female CEOs are not different from their counterparts in the tendency of managing earnings through decreasing discretionary expenses.

6. Conclusion

The results of this study suggest that CEO gender does not affect the extent of real earnings management in firms. Specifically, female CEOs are not different from male CEOs when it comes to engaging in real earnings management activities. This shows a different result

from prior studies. However, the research performed for this paper does have several limitations. First, the sample size only contains 7% female CEOs, which means that while the sample size is large, it is overwhelmingly skewed due to the uneven amount of male and female CEOs. Second, the R^2 for each model was relatively low, indicating that there are additional variables that can explain these results. Third, the amount of control variables used in tandem with CEO is relatively small in comparison to prior studies done. The results might not show as complete of a picture. Nevertheless, the research done expands upon both literature of real earnings management as well as gender studies. As more women take more roles in senior management, especially in CEO roles, it is of interest to do this study again and further broaden research in the area.

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Table 1					
Variables	Mean	Median	Standard Deviation	Minimum	Maximum
Gender	0.07408938	0	0.261925302	0	1
Production Costs	1817.67812	6.8705	12894.00296	-68147	362727
Lagged Sales	2626.03169	4.8175	16791.53012	-1269.295	483521
Change in Sales	100.227619	0	2187.299159	-101586.5	60931.538
Lagged Change in Sales	100.402915	0	2089.497549	-101586.5	65072.866
CFO	329.596598	-0.107	2072.028524	-42287	58540
Discretionary Expenses	1628.00259	129.37	5524.432827	0	104284
Age	57.6336156	57	7.644163596	33	97
Compensation	3436.88388	1698.131	6761.636803	0	255,355.676
Firm Size	2.49357189	2.79958072	1.801085362	-3	6.5244648

Table 2: CFO				
	Coefficients	Standard Error	t Stat	P-value
Gender	20.061701	59.16415973	0.33908537	0.73455122
Age	2.28883837	2.105383092	1.08713629	0.27699793
Compensation	0.00417608	0.002411148	1.73199008	0.08330046
Firm Size	-16.384543	8.802308786	-1.8613915	0.0627128

- Multiple R: .02491989
- R Squared: .000621
- Adjusted R Squared: .00029523

Table 3: Production Expenses				
	Coefficients	Standard Error	t Stat	P-value
Gender	66.9912793	112.6802156	0.59452566	0.55217155
Age	-1.0070788	4.009775882	-0.2511559	0.8016978
Compensation	-0.0058001	0.004592116	-1.2630651	0.20658978
Firm Size	-40.155598	16.76430556	-2.3953034	0.01662151

- Multiple R: .02512462
- R Squared: .00063125
- Adjusted R Squared: .0003548

Table 4: Discretionary Expenses				
	Coefficients	Standard Error	t Stat	P-value
Gender	97.6333983	100.811345	0.9684763	0.33282564
Age	-4.0376679	3.587416812	-1.1255084	0.26039565
Compensation	-0.0013204	0.004108417	-0.321396	0.74791581
Firm Size	65.1628398	14.99848205	4.34462898	1.4063E-05

- Multiple R: .04182998
- R Squared: .00174975
- Adjusted R Squared: .00142435