

## **WORKING PAPER SERIES-2014**

**WORKING PAPER 2014-002**

### **CEO Bonus: Alternative Performance Measurement versus Gamesmanship**

Crocker H. Liu and Desmond Tsang

January 10, 2014

This working paper is preliminary in nature. Please do not quote or cite without the expression of the lead author.



**Cornell University**  
**School of Hotel Administration**

# **CEO Bonus: Alternative Performance Measurement versus Gamesmanship**

Crocker H. Liu and Desmond Tsang\*

January 2014

## **Abstract**

Although CEO bonus plans traditionally use net income as the standard performance measure, there is an increasing trend that CEOs influence directors to adopt alternative non-GAAP performance metrics in setting bonuses. In this study, we analyze the managerial consequences of this alternative bonus contract design in the Real Estate Investment Trusts (REITs) industry. REITs provide a unique setting since most firms have been using FFO, an industry-specific non-GAAP performance measure, rather than net income, to determine CEO bonuses. Essentially, FFO consists of two components: net income, which is a GAAP measure, and a non-GAAP component that includes adjustments from net income made by firms. We examine to what extent CEO bonus arises as the result of manipulating these components. We also examine whether regulatory standards related to non-GAAP reporting and bonus disclosures are effective in mitigating such manipulation. Lastly, we analyze if good corporate governance constrains managerial opportunistic behavior. Our findings show, when given a choice to manipulate a GAAP versus a non-GAAP component, firms primarily choose to manage the non-GAAP component to increase bonuses. We further show that regulatory compensation disclosure standards and good governance mechanisms are important in reducing such manipulation. In additional analysis, we find that firms report less manipulation for bonus purposes in the post-financial crisis period, and CEO bonuses are higher at firms that report positive manipulations. Moreover, we do not find any association between FFO manipulation and other forms of compensation that are not directly linked to the FFO measure in compensation contract design. Finally, we show that capital market participants penalize firms' manipulative activities on FFO, especially when such activities are accompanied by large CEO bonuses.

**Keywords:** Performance Measurement, CEO Bonus Compensation, Non-GAAP Reporting, Earnings Management, Regulation, Corporate Governance, Financial Crisis

\*Crocker Liu, Cornell, School of Hotel Administration, 440 Statler, Ithaca, NY 14853, Tel : (607) 255-3739, [chl62@cornell.edu](mailto:chl62@cornell.edu) and Desmond Tsang, McGill University, Bronfman Building, 1001 Sherbrooke Street West, Montreal, Quebec, H3A 1G5, Tel: (514) 398-5417, [desmond.tsang@mcgill.ca](mailto:desmond.tsang@mcgill.ca). We acknowledge financial support from Cornell University and McGill University. We thank Jing Zhang and our undergraduate students for their able research assistance. We also wish to acknowledge Walter Boudry, Michael Highfield, Nils Kok, Qing Li and Liang Peng for their helpful comments.

## I. INTRODUCTION

Although prior literature shows that audited, GAAP financial information provides a more credible signal than unaudited information,<sup>1</sup> the reporting of alternative non-GAAP performance measures such as EBITDA has become an increasingly common occurrence in recent years (Bradshaw and Sloan 2002). Also labeled as “pro forma” or “street” earnings, managers typically exclude some unusual or unexpected nonrecurring items (e.g., restructuring charges, extraordinary items) from GAAP net income in arriving at these alternative performance measures. The underlying premise is that these measures are more representative of a firm’s sustainable earnings. Prior research supports the view that non-GAAP disclosures contain useful and value relevant information for investors and analysts,<sup>2</sup> and anecdotal evidence shows other stakeholders are also increasingly reliant on these non-GAAP metrics for decision-making.<sup>3</sup> However, studies also find that opportunistic reporting of non-GAAP performance measures exists.<sup>4</sup>

Recently, management has used variations of EBITDA not only as a supplementary signal of performance but also in compensation contract design. According to a recent Grant Thornton (2012) publication entitled “Financial Executive Compensation Survey”, the use of EBITDA (EBIT) in executive compensation plans, particularly bonus contracts, in public companies increased from 16% (15%) in 2008 to

---

<sup>1</sup>See, for example, Libby (1979), Pany and Smith (1982) and Johnson, Pany and White (1983).

<sup>2</sup>Examples of studies that support the usefulness of non-GAAP measures include Bradshaw and Sloan (2002); Brown and Sivakumar (2003); Bhattacharya, Black, Christensen, and Larson (2003); Gu and Chen (2004); Bowen, Davis, and Matsumoto (2005); Bhattacharya, Black, Christensen, and Mergenthaler (2007).

<sup>3</sup>For instance, investment firms such as Credit Suisse, McKinsey and Goldman Sachs tend to include Economic Value Added (EVA) along with other earnings and sales information as investment tools when analyzing deals. Rating agencies such as Moody’s and S&P commonly use EBITDA and EBIT in calculating interest coverage ratios to assess a firm’s financing ability.

<sup>4</sup>Examples of studies that find opportunistic reporting of non-GAAP performance measures include Doyle, Lundholm and Soliman (2003); Johnson and Schwartz (2005); Abarbanell and Lehavy (2007); Cohen, Hann, and Ogneva (2007); and Black and Christensen (2009).

30% (23%) in 2012. Notable examples of firms that adopt non-GAAP performance measures in determining executive bonus include Time Warner Inc. and Flower Foods.<sup>5</sup> Two recent studies (Isidro and Marques 2010; Black, Black, Christensen, and Waagelein, 2011) show that executive compensation can significantly influence a firm's decision to report alternative performance measures, even when compensation contracts are not explicitly linked to these measures. The intuition of these studies is that managers attempt to influence investors' perception of firm performance through choosing to report these measures. Hence, it is highly plausible that the official adoption of non-GAAP alternative performance measures in determining bonus could further increase the risks of firms manipulating these non-GAAP measures, as evident in companies such as Nortel Network Corp.<sup>6</sup>

The purpose of this study is to analyze the potential managerial consequences when the compensation contract explicitly ties the CEO bonus to a non-GAAP alternative performance measure. We utilize the unique setting of Real Estate Investment Trusts (REITs) where firms commonly report a variant of EBITDA known as Funds from Operations (FFO),<sup>7</sup> and most firms use FFO in their bonus contract design.<sup>8</sup> To better

---

<sup>5</sup>For example, in the 2009 proxy statement (DEF 14A) of Time Warner Inc., the company explicitly states that its "bonus pool to be determined for any calendar year based on a percentage of the amount by which the Company's EBITDA for such year exceeds the Company's average EBITDA for the preceding three years." As another example, Flower Foods, a leading producer and marketer of packaged bakery food in the United States that trades on the New York Stock Exchange (NYSE), states on its website that "EBITDA is used as the primary performance measure in the company's Annual Executive Bonus Plan."

<sup>6</sup>Nortel Network Corp. distributed huge bonuses to its top executives while the company was reporting net losses under GAAP. The bonuses were triggered when the company maneuvered its pro forma measure to achieve its income targets (Sturgeon 2012).

<sup>7</sup>Since REITs are tax-exempt entities and FFO excludes depreciation and amortization, the main component of FFO is in essence similar to EBITDA (except for interest costs). In the REIT industry, FFO has long been recognized as the industry-wide standard alternative performance measure (Sloan 1998). Prior academic evidence also shows that FFO is universally valued by investors (e.g., Vincent 1999; Fields, Rangan, and Thiagarajan 2001; Baik, Billings, and Morton 2008).

<sup>8</sup>This is based on the annual compensation survey by the National Association of Real Estate Investment Trusts (NAREIT). NAREIT is the trade organization for the REIT industry and has conducted the annual

align management behavior with shareholder interests, the REIT industry has established voluntary FFO guidelines. According to this recommended NAREIT definition, the calculation of FFO excludes (from net income) depreciation and amortization expenses related to real estate properties, their associated disposal gains and losses, and items that are unusual and/or nonrecurring in nature, namely extraordinary items, impairment write-downs of depreciable real estate properties, discontinued operations, and cumulative effects of accounting changes.<sup>9</sup> In essence, FFO consists of two components: net income, which is a GAAP measure, and a non-GAAP component that includes adjustments to net income. While incentive compensation contracts can effectively align the interests of managers and shareholders (e.g., Smith and Watts 1982; Jensen and Murphy 1990), the prior literature (e.g., Healy 1985; Holthausen, Larcker, and Sloan 1995; Gaver, Gaver, and Austin 1995; Cheng and Warfield 2005; Bergstresser and Philippon 2006) recognizes that managers have incentives to engage in earnings management activities and to potentially manipulate net income when CEO compensation is linked to firm performance. Given that the adjustment items in FFO are unaudited (i.e., non-GAAP), there is a greater temptation for REIT managers to manage expectations using this FFO component.<sup>10</sup>

---

survey for 15 consecutive years. It is considered the industry's most comprehensive compensation report. We also verify this claim with our hand-collected sample and find that a whopping 82% of our sample firms have explicitly stated in their proxy statements the use of FFO in determining bonus. The remainder of the firms could also be using FFO in bonus determination though they do not specifically highlight this issue in their proxy statements. Lastly, academic evidence also lends support to this claim and shows compensation of REIT CEOs is significantly related to FFO (e.g., Pennathur and Shelor 2002; Pennathur, Gilley, and Shelor 2005; Griffin, Najand, and Weeks 2012).

<sup>9</sup> See the "White Paper on Funds from Operations" published by NAREIT in 2002.

<sup>10</sup> However, two countervailing factors can temper this behavior. First, when firms make adjustments to net income to derive their non-GAAP measures, these ad-hoc exclusions could be quite transparent. Second, it is also questionable as to how much discretionary expenses a firm can exclude for managers to achieve the intended earnings management effect. Hence, in some cases, managers may still need to manipulate net income (i.e., the GAAP component of FFO) to achieve their bonus targets.

However, it is not obvious that managers will necessarily choose to manage expectations vis-à-vis the FFO component since disciplining mechanisms do exist to curtail FFO manipulative activities particularly those driven by bonus concerns. In addition to NAREIT's continuous effort to encourage REIT firms in following its voluntary guidelines in FFO reporting (NAREIT 1999; 2002), the Securities and Exchange Commission (SEC) enacted Regulation G in 2003 to curtail the misreporting of non-GAAP information. The SEC also mandated new rules in 2006 to further govern compensation disclosure which includes incentive-based executive compensation. Firms also have the ability to inhibit inappropriate management behavior through internal corporate governance.<sup>11</sup> Lastly, the stock market provides yet another mechanism to deter FFO manipulation through penalizing firms with a valuation discount. We therefore investigate the extent to which these various disciplinary mechanisms – voluntary NAREIT guidelines, mandatory government standards, internal corporate governance, and the stock market – are effective in mitigating opportunistic managerial behavior that is related to the firms' non-GAAP performance measures which is motivated by bonus considerations.

To test if CEO bonus compensation is related to FFO manipulation we use a sample of 436 CEO-firm-year observations over the 2006 to 2011 period. Our salient findings include the following: (1) Managers, as predicted, are more likely to manipulate the non-GAAP component (i.e., adjustment items) rather than the GAAP component (i.e.,

---

<sup>11</sup> Prior evidence (e.g., Klein 2002; Xie, Davidson III, and DaDalt 2003; Bowen, Rajgopal, and Venkatachalam 2008) shows that opportunistic management on net income is associated with weak governance quality. If corporate governance is also effective in improving the quality of non-GAAP reporting (Mbagwu 2007), we should expect managers at firms with stronger corporate governance mechanisms would be less tempted to engage in manipulating their non-GAAP measures to boost CEO bonuses.

net income) of FFO for bonus purposes to “game the system” when given the opportunity. Nonetheless, the insignificance of discretionary accruals (a common proxy of managerial manipulation in net income) in affecting bonus payoff is in striking contrast to prior literature (e.g., Holthausen et al. 1995). (2) While most firms disclose the use of NAREIT guidelines and adhere to Regulation G in reporting FFO, both voluntary industry guidance and mandatory regulation with regard to non-GAAP reporting are ineffective in constraining managerial manipulation for bonus purposes. (3) Although compensation disclosure regulations improve the transparency of the performance measure and are more effective in controlling FFO manipulation, not all firms adhere to these regulations. (4) General corporate governance mechanisms do constrain FFO manipulation. In additional analysis, we also find that (5) opportunistic financial reporting for bonus purposes is lower in the post-financial crisis period. Ex-ante, one would expect that less opportunities exist to manipulate performance after the crisis due to increased scrutiny and improved governance. (6) FFO manipulation for bonus purposes is concentrated at firms that report positive differences of actual FFO and NAREIT definition. (7) We do not find any significant relation between FFO manipulation and other forms of compensation, indicating it is the specific design of bonus compensation contract, and not the perception of better non-GAAP performance in general (Isidro and Marques 2010; Black et al. 2011), that drives our results. Finally, (8) firms with larger manipulation for bonus purposes have lower equity valuation,<sup>12</sup> which suggests that the capital market also acts as a disciplining mechanism.

---

<sup>12</sup>This is consistent with the previous literature which has examined the capital market consequences of earnings management and generally finds firms that are of lower quality and more susceptible to earnings manipulating activities have higher cost of capital (e.g., Francis, LaFond, Olsson, and Schipper 2005).

Our study utilizes an ideal setting that allows us to explore the manipulation of a non-GAAP performance measure for compensation purposes. As previously mentioned, firms in the REIT industry uniformly adopt FFO in performance reporting. Many REITs also use FFO to explicitly determine their executive bonus compensation. Equally important is the fact that NAREIT provides a recommended FFO definition, enabling us to proxy for the magnitude of manipulation on a non-GAAP performance measure. To the best of our knowledge, we know of no other industry that has issued similar guidelines. Although one could argue that FFO is not used in other industries as a performance measure and thus our study represents a special case, we believe that the REIT setting offers generalizable insights on managerial behavior for other firms that also use non-GAAP performance measures for incentive compensation since FFO is essentially a variant of EBITDA.

We contribute to the literature in several ways. Most importantly, we provide novel evidence of opportunistic managerial behavior when a non-GAAP performance measure is explicitly incorporated into compensation contracts. In particular, we decompose the alternative performance measure into its GAAP and non-GAAP components and show how managers “game the system.”<sup>13</sup> Despite the increasing trend of firms adopting non-GAAP performance measures in bonus contract design, limited research currently exists which examines how CEO bonuses can distort non-GAAP

---

<sup>13</sup> To the best of our knowledge, there exists only one study by Zhu (2009) that looks into a similar issue. However, the author finds no result of REIT managers using FFO to increase CEO bonus. We attribute to the differences in our findings to the fact that the prior study uses a sample period of 1996-2000 which is prior to the adoption of the recommended FFO definition by NAREIT in 2000 and prior to most REITs incorporating FFO as a benchmark in compensation contracts. Baik et al. (2008) point out that the NAREIT definition of FFO in 2000 has greatly improved uniformity of the measure. The findings in the prior study thus suffer from serious measurement errors in quantifying FFO discretions. Moreover, the prior study does not consider how REIT managers use the GAAP or non-GAAP components for manipulative purposes and how regulatory mechanisms imposed subsequent to 2000 could mitigate this possibility, which we believe are the important issues addressed in our study.

reporting. Two recent studies look into how compensation concerns affect pro forma earnings (Isidro and Marques 2010; Black et al. 2011). Unfortunately, a severe data limitation with pro forma studies is that it is difficult to determine if these firms are in fact using an alternative performance measure in their compensation contracts. Consequently, it is difficult to directly link CEO compensation to a non-GAAP metric. There is also little consensus on how firms define pro forma earnings in different industries thus making it problematic to quantify the extent of pro forma manipulation.

Another distinguishing feature of our study is that we show that the design of the CEO bonus contract based on a non-GAAP performance measure can provide incentives for managers to manipulate earnings through an innovative form of classification shifting.<sup>14</sup>

We also contribute to the economic literature on regulation by evaluating the effectiveness of various disciplining mechanisms to control managerial opportunistic behavior. Although NAREIT guidance and Regulation G both govern the reporting of FFO, the former represents voluntary self-regulation while the SEC enforces the latter. The SEC is also responsible for enforcing the new compensation disclosure requirements that govern executive compensation. Limited literature currently exists on disclosure regulation (see Healy and Palepu 2001), particularly related to both non-GAAP financial

---

<sup>14</sup>Unlike findings on accrual and real earnings management, evidence of earnings management with classification shifting is relatively scant. For instance, McVay (2006) shows firms may engage in earnings management using classification shifting of special items such that their “core” (pro forma) earnings meet analyst forecast. Fan, Barua, Cready, and Thomas (2010) show classification shifting of special items happens more often in the fourth quarter when managers are less able to manipulate accruals. Other studies show that firms exercise discretion in defining extraordinary items to achieve classification shifting for income smoothing (See for example Beattie et al. (1994); Godfrey and Jones (1999); and Athanasakou, Strong, and Walker (2007)).

reporting<sup>15</sup> and compensation disclosure.<sup>16</sup> Our research responds to the call of Leuz and Wysocki (2008) for further studies that evaluate the complementary nature among different disclosure regulations.

Lastly, we contribute to the growing literature on corporate governance and non-GAAP reporting.<sup>17</sup> Two recent studies (Jennings and Marques 2011; Frankel, McVay, and Soliman 2011) specifically examine Regulation G and show that the regulation has reduced the association between corporate governance and opportunistic non-GAAP reporting. We show that internal corporate governance mechanisms continue to act as important safeguards in constraining manipulative managerial behavior. Moreover, increased scrutiny subsequent to the financial crisis could also be attributed to improved governance by corporate boards, resulting in lower manipulative activities post-financial crisis.

The remainder of the paper is organized as follows. The next section provides the institutional background for our research setting. Section three develops the hypothesis and outlines our research design while section four outlines the sample selection process and presents descriptive statistics. Our empirical results are presented in the fifth section while the final section summarizes our conclusions.

---

<sup>15</sup>E.g., Marques (2006); Heflin and Hsu (2008); Kolev, Marquardt, and McVay (2008); and Fortin, Liu, and Tsang (2011).

<sup>16</sup>E.g., Vefas and Afexentiou (1998); Ke, Petroni, and Safieddine (1999); Lo (2003); Craighead, Magnan, and Thorne (2004); Robinson, Xue, and Yu (2009).

<sup>17</sup>This literature includes but is not limited to Klein (2002); Xie et al. (2003); and Bowen et al. (2008).

## II. INSTITUTIONAL BACKGROUND

The REIT industry has long argued that GAAP net income does not accurately reflect firm performance given the mandatory inclusion of accounting depreciation<sup>18</sup> and several nonrecurring items that provide little information in evaluating REIT performance. To address this concern, NAREIT introduced the concept of FFO in 1991 as an alternative non-GAAP performance measure to supplement net income in measuring firm profitability. Since then, FFO has become the standard industry-wide measure. Prior research generally shows that both net income and FFO provide useful information that market participants value.<sup>19</sup> However, continued concerns exist that REIT managers use FFO to mislead investors since FFO is a non-GAAP measure. In an effort to improve the uniformity and transparency of FFO, NAREIT issued a “White Paper on Funds from Operations” in 2002 that provided a recommended FFO definition and published reporting guidelines that its member firms are encouraged to follow when presenting FFO in their financial statements. Baik et al. (2008) show that these increased industry efforts at self-regulation have reduced managerial discretion and increased the uniformity and improved the transparency of FFO reporting. However, anecdotal evidence suggests that REIT managers’ compliance to the NAREIT-recommended FFO is far from perfect (Romanek 2003).

Concerned that companies provide non-GAAP performance measures to mislead investors, the SEC adopted Regulation G in 2003 to govern non-GAAP reporting. The

---

<sup>18</sup> For instance, Ben-Shahar, Sulganik, and Tsang (2011) show accounting depreciation reported by REITs suffer from huge measurement errors, thereby distorting the value relevance of REIT net income. Kang and Zhao (2010) show REIT accounting depreciation deviates from economic depreciation to a greater extent than other industries.

<sup>19</sup>In the accounting literature, see Fields, Rangan, and Thiagarajan (1998) and Vincent (1999). The real estate literature provides further evidence as in Graham and Knight (2000); Stunda and Typpo (2004); and Hayunga and Stephens (2009).

regulation requires firms to explain why management believes the non-GAAP information is beneficial to investors. The regulation also states that when firms report non-GAAP performance measures, these measures must not contain any untrue statement of a material fact. More importantly, the regulation requires firms that report non-GAAP information to disclose the most directly comparable GAAP financial measure with a reconciliation schedule of the non-GAAP measure to this GAAP measure. Research that examines the effect of Regulation G largely focuses on pro forma earnings. These findings generally indicate a decreased likelihood of firms reporting pro forma earnings (e.g., Marques 2006) but an overall improvement in the reporting quality of pro forma earnings (e.g., Heflin and Hsu 2008; Kolev et al. 2008). In the context of the REIT industry, Fortin et al. (2011) finds a uniform improvement in the quality of FFO disclosures subsequent to the enactment of Regulation G. Interestingly, focusing on a much later time period of 2006-2011, our sample still shows that some firms have not complied fully (namely, by providing reconciliation) with this regulation.

In 2006, the SEC mandated new rules on compensation disclosures in 2006 under Item 402 of Regulation S-K that require a new Compensation Discussion and Analysis (CD&A) section in the proxy statements to improve the quality and quantity of executive compensation information that management presents. The amended regulation requires disclosures in five categories: (a) option disclosures, (b) compensation discussion and analysis, (c) a summary compensation table, (d) exercises and holdings of previously awarded equity interests, and (e) post-employment compensation. Companies are required to disclose specific quantitative or qualitative performance-related targets in the CD&A unless such disclosure involves confidential information and disclosing the

information will have an adverse effect on the company. However, if the company uses targets that it does not disclose, the company must provide detailed discussions on how difficult or likely it will be for the company to achieve the undisclosed targets. The new rule covers all forms of performance targets, so if the company decides to use performance targets based on a non-GAAP financial measure, the company must also disclose how the measures are derived in the audited financial statements. A recent study by Robinson et al. (2009) shows non-compliance with the new compensation disclosure requirement is associated with excessive CEO compensation and higher media criticisms of CEO compensation.

### **III. HYPOTHESIS DEVELOPMENT AND RESEARCH DESIGN**

#### **3.1 Hypothesis Development**

Healy (1985) shows that management bonuses tied to an accounting number can create incentives for manipulation. Research has subsequently shown that net income is subject to more severe manipulation when it is used as the benchmark to determine the bonus (e.g., Holthausen et al. 1995). In the REIT industry, the bonus is directly linked to FFO. Given that FFO is a non-GAAP unaudited performance measure, it is susceptible to more management discretion than the GAAP-governed net income measure. Hence, it is possible for firms to opportunistically use FFO to enhance firm performance to increase performance-based compensation.

If REIT managers do manipulate FFO for compensation purposes, an interesting question regards the strategy chosen to achieve their goals. Unlike the net income measure, managers who intend to manipulate a non-GAAP alternative performance

measure have the option of exercising discretion in the calculation of the non-GAAP component, the GAAP component, or both. As firms' adherence to the recommended NAREIT definition of FFO is voluntary, managers can choose to report an ad-hoc, firm-defined FFO that adjusts (from net income) for additional items that managers deem appropriate. In fact, NAREIT has specifically stated that firms have the discretion to exclude items from FFO if managers have a good justification (NAREIT 2003).<sup>20</sup> However, this flexibility also increases the potential of managers to manipulate FFO through the selective inclusion or exclusion of items in their firm-defined FFO measure. As a result, we expect firms to have a greater incentive to manipulate these adjustment items, i.e., the non-GAAP component of FFO, to increase bonus compensation. However, since Regulation G has made these non-GAAP adjustments more transparent to financial statement users, managers may not be as motivated to include too many ad-hoc adjustments in the non-GAAP component. This gives rise to our first hypothesis:

*H<sub>1A</sub>: CEO bonus compensation tied to an alternative non-GAAP performance measure is positively associated with the level of manipulation in the non-GAAP component of this measure.*

While REIT managers can manipulate the non-GAAP adjustments in FFO to increase performance-based compensation, they can also engage in earnings management of the GAAP component in FFO to affect the non-GAAP performance measure. Note non-GAAP performance measures (e.g., pro forma earnings, EBITDA, FFO) are typically derived as the result of adjustments to a GAAP measure (i.e., usually net income). Hence, earnings management on the GAAP measure can affect both GAAP and

---

<sup>20</sup>This is due to the diversity of the nature of nonrecurring items, hence some items (e.g., debt restructuring expenses, straight-line rent expense) that are not commonly reported by REITs are not considered in the recommended exclusions.

non-GAAP performance measures. For REITs, managers can thus affect FFO through manipulating net income. One could argue that managers may not want to manipulate the GAAP-governed net income measure for compensation purposes when they have the alternative choice of manipulating the non-GAAP component. However, prior research (e.g., Doyle et al. 2003) shows that large GAAP-non-GAAP differences are a detrimental signal to future firm value. Consequently, managers are somewhat constrained in taking too much liberties with the non-GAAP component. This is especially true for the REIT industry, given the recommended FFO definition that affords investors an approximation of FFO-net income differences. Moreover, it is also questionable how much discretionary expenses a firm can exclude from FFO for REIT managers to achieve the intended earnings management effect. Therefore, managers might still have an incentive to pursue earnings management of the GAAP component in order to increase CEO bonuses. Our next hypothesis is therefore defined as follows:

*H<sub>1B</sub>: CEO bonus compensation tied to a non-GAAP measure is positively associated with the level of manipulation in the GAAP component of this measure.*

We next consider the effectiveness of regulatory mechanisms to constrain potential FFO manipulation. While few, if any, standards exist as to how pro forma earnings are defined, the REIT industry provides detailed FFO guidelines. These self-regulatory efforts have proved useful in improving the transparency of the FFO measure. For instance, Baik et al. (2008) show that the frequency of managers using FFO to meet or beat analysts forecast has declined subsequent to increased industry efforts to promote a uniform definition of FFO. However, since industry guidance is voluntary, managers who wish to manipulate FFO for bonus purposes aren't likely to adhere to the industry

definition. We therefore expect a lower association between CEO bonus and FFO manipulation when firms voluntarily disclose their adherence to the NAREIT industry guidance;<sup>21</sup> we thus define the first part of our second hypothesis as follows:

*H<sub>2A</sub>: The adherence to industry self-regulatory efforts reduces the association of CEO bonus compensation tied to a non-GAAP performance measure and the level of manipulation in the measure.*

Prior research shows that Regulation G is effective in constraining opportunistic reporting behavior of pro forma earnings (e.g., Kolev et al. 2008) as well as FFO (e.g., Fortin et al. 2011). Until recently however, the SEC had not initiated any enforcement action for the noncompliance of Regulation G.<sup>22</sup> Our sample shows that some firms did not comply with the key requirement of Regulation G to provide a reconciliation of the non-GAAP measure and the GAAP measure. Both Baik et al. (2008) and Fortin et al. (2011) have shown reconciliation is an effective device to improve the transparency of FFO reporting. We conjecture that managers who have less intention to manipulate FFO to affect CEO compensation will follow Regulation G and disclose the reconciliation schedule. Managers who want to manipulate FFO have a stronger incentive to omit the disclosure of such important information. Hence, we expect a lower association between CEO bonus and FFO manipulation when firms comply with the reconciliation disclosure requirement of Regulation G. We therefore define the second part of our second hypothesis as follows:

---

<sup>21</sup> Note firms can still make ad-hoc adjustments (with justification) to their reported FFO measure even if they disclose the use of NAREIT FFO definition. Hence, we are not claiming that firms that state the use of NAREIT FFO definition should report an actual and NAREIT-defined FFO difference of zero. In essence, we conjecture firms that voluntarily disclose the use of NAREIT FFO definition would want to convey a greater signal of transparency, and these firms should be less likely to manipulate FFO.

<sup>22</sup> The SEC filed its first enforcement action under Regulation G on November 12, 2009 to SafeNet, Inc., claiming that the company made improper adjustments to the company's recurring expenses without factual support (Katz 2009).

*H<sub>2B</sub>: The compliance to Regulation G's reconciliation requirement reduces the association of CEO bonus compensation tied to a non-GAAP performance measure and the level of manipulation in the measure.*

Anecdotal evidence shows that even with mandatory compensation disclosure and severe compliance penalties, some firms still provide incomplete and even fraudulent compensation disclosure, eventually resulting in SEC enforcement actions (Wood and Missal 2006).<sup>23</sup> We conjecture that managers who want to manipulate FFO to increase CEO bonuses have stronger incentives to obscure compensation disclosure. We focus on the disclosure of benchmarks as they are the most relevant and quantifiable factors for bonus determination (Indjejikian and Nanda 2002). We expect a lower association between CEO bonus and FFO manipulation for firms that comply with the SEC compensation disclosure requirement, i.e., revealing their benchmarks used and formulae in determining the bonus. We define the final part of our second hypothesis as follows:

*H<sub>2C</sub>: The compliance to the SEC compensation disclosure requirements reduces the association of CEO bonus compensation tied to a non-GAAP performance measure and the level of manipulation in the measure.*

Finally, a natural question that arises is whether the board of directors disciplines managers for actions taken especially those that mis-align owner-management incentives. Much empirical research (e.g., Klein 2002; Xie et al. 2003; Bowen et al. 2008) has examined whether earnings management, as measured by accrual (Bhattacharya et al. 2003; Francis et al. 2005) and real activities (e.g., Roychowdhury 2006; Gunny 2010), is mitigated at firms with good internal governance. We conjecture that good corporate

---

<sup>23</sup> For example, the SEC has initiated enforcement proceedings against General Electric Co. in 2004 and against Tyson Foods Inc. in 2005.

governance hinders FFO manipulation that is motivated by CEO bonus considerations. This leads to our final hypotheses in alternative form, as follows:

*H<sub>3</sub>: Better corporate governance results in lower manipulation in the non-GAAP performance measure driven by bonus purposes.*

### 3.2 Research Design

Our first two hypotheses ( $H_{1A}$  and  $H_{1B}$ ) examine whether REIT managers manipulate different components of FFO to increase CEO bonuses. We use the following regression models:

$$BONUS = \alpha + \beta_1 FFOMANI + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (1)$$

$$BONUS = \alpha + \beta_1 DACC + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (2)$$

Where the dependent variable is total annual bonus (in thousands) awarded to the CEO. Our key variables of interest are *FFOMANI* and *DACC*. *FFOMANI* measures the level of manipulation in the non-GAAP component of FFO. We follow the real estate literature (e.g., Zhu, Ong and Yeo 2010; Anglin, Edelstein, Gao, and Tsang 2013) and measure *FFOMANI* as the deviation of actual FFO from normal FFO. Normal FFO is defined, as in Fortin et al. (2011), as net income adjusted for depreciation and amortization expenses related to real estate properties, their associated disposal gains and losses, and items that are unusual and/or nonrecurring in nature, namely extraordinary items, discontinued operations, and cumulative effects of accounting changes (as in the NAREIT definition).<sup>24</sup> *DACC* represents manipulation in net income, the GAAP component of

---

<sup>24</sup> We follow NAREIT's further guidance on FFO in 2003 that advises firms should no longer exclude impairment write-downs from FFO in accordance with SEC position (NAREIT 2003).

FFO. We use the level of discretionary accruals to estimate the level of manipulation in net income. We measure *DACC* using the modified Jones model, as proposed in Dechow, Sloan, and Sweeney (1995).<sup>25</sup> We use the signed instead of the absolute discretionary accruals since firms should have positive discretionary accruals if managers want to increase CEO bonus compensation. Given that CEO bonuses are typically determined by firm performance on a per-share basis, both variables are scaled by average common shares outstanding. If managers manipulate both components of FFO to increase CEO bonus compensation, we should observe positive and significant coefficients for both *FFOMANI* and *DACC*.

We include control variables that affect the level of CEO bonus compensation. Not surprisingly, prior research shows that REITs' CEO bonuses are directly tied to FFO.<sup>26</sup> We use normal FFO per share<sup>27</sup> (*NAREIT\_FFO*) as our proxy for FFO performance. We include firm size measured as the log of beginning-of-year total assets and expect a positive coefficient on this variable.<sup>28</sup> Since prior research (e.g., Davis and Shelor 1995) shows that firm growth has a positive impact on CEO compensation, we include Tobin's q measured as the market-to-book ratio of equity (*MTB*) to capture future growth opportunities. We also include variables that capture CEO characteristics. These variables include *CEO\_DIR* (a dummy variable equal to one if the CEO serves a dual role

---

<sup>25</sup> For the accounting and finance literature on alternative measurement of accruals, please see Bergstresser and Philippon (2006); and Cohen, Dey, and Lys (2008). In unreported robustness analysis, we also conduct our study using alternative accrual measures in Dechow and Dichve (2002) and Kothari et al. (2005) and obtain similar results.

<sup>26</sup> See for example Pennathur and Shelor (2002); Pennathur et al. (2005); and Griffin et al. (2012).

<sup>27</sup> This measure ideally excludes the non-GAAP component in FFO, but it is possible that *NAREIT\_FFO* may still contemplate the effect of *DACC* since it encompasses net income. In our robustness check, we conduct further test by including only the component of FFO performance that is not affected by *DACC* as our performance control variable. Our findings remain the same.

<sup>28</sup> For the reasons why we expect positive coefficient please refer to Ghosh and Sirmans (2005); Feng, Ghosh and Sirmans (2007); Eichholtz, Kok, and Otten (2008); and Feng et al. (2010).

as director of the board and zero otherwise), *CEO\_COMP* (a dummy variable equal to one if the CEO serves as a member on the compensation committee, zero otherwise), and *CEO\_TENURE* (measured as the number of years the CEO has served the firm). We expect each of these variables to have a positive effect on the CEO bonus.<sup>29</sup> Since property types of REITs are important determinants of a REIT's operating structure and they also affect CEO compensation (e.g., Hardin 1998), we include property type dummies in the regressions. We also include year dummies in our regressions given that our sample period covers the volatile period of 2006-2011.

To account for the possibility that a REIT manager may manipulate *both* the GAAP and non-GAAP components when they have exhausted either option, we include the interaction of *FFOMANI* and *DACC* in the following model and expect a positive coefficient for the interaction term:

$$BONUS = \alpha + \beta_{1A} FFOMANI + \beta_{1B} DACC + \beta_{1C} FFOMANI * DACC + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (3)$$

Next, we examine the effect of regulatory forces on the association of CEO bonus and FFO manipulation. Regulatory guidance can be implemented on the reporting of non-GAAP measures and on the disclosure of compensation contracts. We postulate both forces should be effective in constraining the manipulation of non-GAAP reporting that arises from bonus concerns. To test these hypotheses, we first augment models (1) and (2), introducing additional variables to capture firms' compliance to non-GAAP reporting, i.e., the NAREIT industry guidance of FFO and SEC's Regulation G:

$$BONUS = \alpha + \beta_{1A} FFOMANI/DACC * (D\_NAREIT) + \beta_{1B} FFOMANI/DACC * (1 - D\_NAREIT) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (4.1)$$

---

<sup>29</sup>Previous REIT studies that have looked at these CEO variables include Feng, Ghosh, and Sirmans (2007), Feng et al. (2010) and Griffin et al. (2012).

$$BONUS = \alpha + \beta_{1A} FFOMANI/DACC*(D\_RECON) + \beta_{1B} FFOMANI/DACC*(1-D\_RECON) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (4.2)$$

In specification (4.1),  $D\_NAREIT$  is a dummy variable equal to one (zero otherwise) when REIT managers disclose that they have adopted the NAREIT definition of FFO. Our coefficients of interest are  $\beta_{1A}$  and  $\beta_{1B}$ . We expect a significantly lower positive coefficient for  $\beta_{1A}$  as compared to  $\beta_{1B}$ , since voluntary disclosure of the use of the NAREIT definition acts as a signal that managers are more committed to the transparency of FFO reporting. These managers should be less likely to manipulate FFO to increase CEO bonus.<sup>30</sup> In specification (4.2),  $D\_RECON$  is a dummy variable equal to one (zero otherwise) when REIT managers comply with Regulation G and provide a reconciliation between FFO and net income. We also expect a lower positive coefficient for  $\beta_{1A}$  (as compared to  $\beta_{1B}$ ) since the provision of a reconciliation schedule reduces management opportunity to manipulate FFO and in turn affect the CEO bonus.

We examine the impact of the new compensation disclosure regulation in specifications (5.1) and (5.2):

$$BONUS = \alpha + \beta_{1A} FFOMANI/DACC*(D\_FFOTARGET) + \beta_{1B} FFOMANI/DACC*(1-D\_FFOTARGET) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (5.1)$$

$$BONUS = \alpha + \beta_{1A} FFOMANI/DACC*(D\_WFFO) + \beta_{1B} FFOMANI/DACC*(1-D\_WFFO) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (5.2)$$

Specifically, we focus on the disclosure of benchmarks with regard to bonus determination.  $D\_FFOTARGET$  is a dummy variable equal to one (zero otherwise) if

---

<sup>30</sup> We choose to present our regulation dummies as  $D\_NAREIT$  and  $(1-D\_NAREIT)$  instead of an interaction model interacting  $FFOMANI/DACC$  with  $D\_NAREIT$  in order to compare the coefficients across two subgroups of firms. Using the alternative model does not change our conclusions since the two model specifications are variants of each other.

firms have a target FFO level and/or growth and managers decide to disclose this target. In addition, we find that a substantial portion of our sample firms also disclose the weights they use on different factors when determining CEO bonus.<sup>31</sup> We include *D\_WFFO*, a dummy variable equal to one (zero otherwise) if firms report their bonus weighting scheme.

Lastly, we examine the impact of internal corporate governance on the association of FFO manipulation and CEO bonus. Prior evidence (e.g., Klein 2002; Xie et al. 2003; Bowen et al. 2008) shows that opportunistic earnings management is associated with weak governance quality. Extant research (e.g., Boyd 1994; Core, Houlthausen, and Larcker 1999; Cyert, Kang, and Kumar 2002) also shows weaker corporate governance structure is associated with greater agency problem and higher executive pay. In the context of non-GAAP reporting, Mbagwu (2007) shows that board independence is positively associated with quality of non-GAAP measures. However, Jennings and Marques (2011) and Frankel et al. (2011) show that subsequent to Regulation G, the association between corporate governance and the level of opportunism on non-GAAP reporting declines; regulation is an effective substitute for internal corporate governance.

We thus include a corporate governance index *CG\_INDEX* in the following model:

$$\begin{aligned}
 \text{BONUS} = & \alpha + \beta_{1A} \text{FFOMANI/DACC} + \beta_{1B} \text{CG\_INDEX} + \beta_{1C} \\
 & \text{FFOMANI/DACC*CG\_INDEX} + \beta_2 \text{NAREIT\_FFO} + \beta_3 \text{SIZE} + \beta_4 \text{MTB} + \beta_5 \text{CEO\_DIR} + \\
 & \beta_6 \text{CEO\_COMP} + \beta_7 \text{CEO\_TENURE} + \varepsilon
 \end{aligned}
 \tag{6}$$

This corporate governance index is discussed in the next section.

---

<sup>31</sup> In fact, the compensation disclosure requirement states that firms should address in their CD&A how each element of compensation is determined in terms of the amount and formula, if applicable. Hence, the weighting of factors in determining bonus is also a required, albeit less explicit, disclosure requirement.

## IV. DATA AND SAMPLE SELECTION

Our sample includes 157 REITs in the U.S. over the 2006-2011 period taken from the Capital IQ database for which we can obtain compensation data. Since detailed compensation disclosure is relatively scarce prior to the passage of compensation disclosure regulation, the start year of 2006 is chosen. We exclude 38 mortgage REITs from our sample given that these REITs use a different performance metric and FFO is typically not reported for this sub-sector. Our sample thus includes 119 equity REITs (both active and inactive) with 603 distinct firm-year observations, of which 540 CEO-firm-years have bonus information.<sup>32</sup> We match this sample with firm data from SNL Financials. We obtain FFO information for 517 observations and are able to calculate discretionary accruals (using the modified Jones model) for 444 observations. We require non-missing data on other firm variables. Our final sample contains 436 CEO-firm-year observations. Our sample is further reduced to 405 observations once CEO characteristics are included from Capital IQ. We present our results using both the full sample (436 observations) and the reduced sample (405 observations) in the empirical analysis section. We hand-collect information on firms' compliance to three different voluntary and mandatory regulatory standards (industry FFO guidelines, Regulation G, and compensation disclosure). Firms' disclosure on whether they use the NAREIT definition of FFO and FFO reconciliation are found in the Management Discussion and Analysis (MD&A) section in the 10-K filings. We obtain disclosure information on executive compensation in the Compensation Discussion and Analysis (CD&A) section from the annual proxy statements (DEF-14A). Finally, the Corporate Governance Index Score is

---

<sup>32</sup> Our sample size is comparable to prior REIT studies on CEO compensation. For example, Feng et al. (2010) use a sample of 124 REITs for the year 1998, while Ertugrul et al. (2008) use 100, 100, and 112 REITs respectively for the 1999-2001 period in their study.

obtained from Institutional Shareholder Services (ISS). We obtain our measure of overall firm-specific corporate governance from ISS based on their most recent 2013 measures.

Table 1 provides descriptive statistics for the total sample. On average, the CEO bonus amounts to \$442.47 (in thousands).<sup>33</sup> *FFOMANI* and *DACC* have means of 0.43 and 0.90 (per share) respectively. The sample firms report an average *NAREIT\_FFO* of \$1.89 per share, *SIZE* of 14.56 and *MTB/Tobin's q* of 1.71. On average, 47% of CEOs serves as the chairman of the board, and 5% of CEOs also serves as a member of the compensation committee. A CEO has an average tenure of 9.62 years. For the regulatory variables, we find that 74% of firms on average explicitly state they follow the NAREIT FFO definition.<sup>34</sup> An average of 82% of firms adhere to Regulation G (e.g., the provision of a reconciliation schedule between FFO and a GAAP performance measure). *D\_FFOTARGET* has a mean of 0.50. An average of 39% of the firms also disclose their weighting of FFO in setting their CEO bonus. Finally, the *CG\_INDEX* measure ranges from 1 to 10, and our sample firms report a mean (median) of 5.46 (6).

Pearson correlations of the regression variables are reported in Table 2. We find that *BONUS* is positively correlated with *FFOMANI*. Surprisingly, it is negatively correlated with *DACC*. We find that the *BONUS* is also negatively related to all regulatory disclosure variables with statistically significant correlation coefficients for

---

<sup>33</sup> Capital IQ defines cash compensation as the sum of salary, bonus and non-equity incentive compensation; and non-cash compensation as the sum of stock awards, option awards, non-equity incentives, pension change and other compensation. Our sample firms report an average CEO cash compensation of \$1576.17 (in thousands) and non-cash compensation of \$1631.95 (in thousands). Hence, bonus represents 13.79% of total CEO compensation.

<sup>34</sup> We acknowledge there is a possibility that firms are actually following the NAREIT definition of FFO without explicitly disclosing the use of the NAREIT definition. On the other hand, firms that disclose the use of NAREIT FFO definition nonetheless report actual FFOs that can be substantially different from *NAREIT\_FFO*. However, as mentioned, our variable *D\_NAREIT* is not intended to capture actual conformance to the NAREIT definition. Instead, *D\_NAREIT* measures the disclosure quality with regard to the industry self-regulation assuming all REITs follow the NAREIT definition of FFO to a certain extent.

*D\_NAREIT*, *D\_FFOTARGET* and *D\_WFFO*. As expected, *D\_NAREIT* and *D\_RECON* are significantly correlated with a correlation coefficient of 0.64, and *D\_FFOTARGET* and *D\_WFFO* are also significantly correlated (coefficient of 0.50).

## V. EMPIRICAL RESULTS

### 5.1 Main Findings

Table 3 presents the empirical results for regression equation (1) through equation (3). All regressions are estimated using ordinary least square (OLS) with robust standard errors. Columns I and II report the results of specification (1) with *FFOMANI* as our key variable of interest for our full sample and reduced sample (with the inclusion of CEO characteristics) respectively. We find that *FFOMANI* is significant and positively related to CEO bonus. The findings suggest that when bonus is explicitly tied to a non-GAAP measure, managers are tempted to manipulate the non-GAAP component. More specifically, REIT managers deviate from the recommended NAREIT definition of FFO by incorporating discretionary positive exclusions. We also find that *NAREIT\_FFO*, *SIZE*, *MTB* as well as *CEO\_COMP* have the expected signs and are significantly associated with the CEO bonus.

Columns III and IV in Table 3 present the results of specification (2). We find that signed discretionary accruals are unrelated to bonus compensation, implying that REIT managers do not manage discretionary accruals to affect CEO bonus when the bonus contract is tied to a non-GAAP performance measure. Our results contrast the extant literature that documents a positive association between CEO compensation and

discretionary accruals when compensation is directly linked to a GAAP measure (e.g., Holthausen et al. 1995; Balsam 1998).

We obtain the same findings when both *DACC*, *FFOMANI* and their interaction are included in the same regressions in model (3) with the results reported in columns V and VI. *DACC* remains insignificant while *FFOMANI* remains significant. The interaction term *FFOMANI*\**DACC* is insignificant which indicates that REIT managers do not manipulate both GAAP and non-GAAP components.

We next examine the impact that regulatory constraints exert on managerial behavior in terms of the association of FFO manipulation to CEO bonus. Given our findings that REIT managers only manipulate the non-GAAP component of FFO to increase their bonus, we simply present the results with *FFOMANI* as the explanatory variable in subsequent analysis.<sup>35</sup> Table 4 reports the results of regression specification (4.1) and (4.2). Columns I and II present results of the regression specification (4.1). We find significant and positive associations between bonus and *FFOMANI* for both groups of firms that choose to voluntarily disclose and not disclose the adoption of NAREIT FFO definition. It is interesting that firms that choose to disclose that they follow the NAREIT FFO definition report a lower association between bonus and *FFOMANI*, although the differences between  $\beta_{IA}$  and  $\beta_{IB}$  are not statistically significant. The next two columns of Table 4 report the results of the regression specification (4.2). Although we do not find that the provision of a reconciliation schedule between FFO and net income affects the impact of FFO manipulation on bonus (as evident by the slightly higher

---

<sup>35</sup> We find that the inclusion of the disclosure variables does not change our conclusions with regard to the insignificance of *DACC*. Hence, the results with *DACC* as the explanatory variable are not tabulated but are available from the authors upon request.

coefficients for  $\beta_{1A}$  as compared to  $\beta_{1B}$ ), we continue to find positive associations between CEO bonus and FFO manipulation for all firms.

Table 5 reports the results of regression specifications (5.1) and (5.2). We find that regulatory mechanisms with respect to compensation disclosures have a statistically significant effect with *FFOMANI* on CEO bonus. The impact of FFO manipulation on CEO bonus is no longer significant for firms that disclose their FFO targets and the weighing formulae to determine bonus (i.e.,  $D\_FFOTARGET = 1$  and  $D\_WFFO = 1$ ). On the other hand, *FFOMANI* remains positively significantly related to CEO bonus for the group of firms that do not adhere to the compensation disclosure regulation. Overall, our findings suggest that disclosure of the FFO targets and weights in bonus calculation plays an important role in improving the transparency of the performance measure. Our results extend the recent findings by Robinson et al. (2009) that show noncompliance with the new compensation disclosure is associated with excess CEO compensation.

In Table 6, we report results of regression specification (6). Consistent with the prior literature (e.g., Boyd 1994; Core et al. 1999; Cyert et al. 2002), we find that the level of corporate governance has a significant impact on CEO compensation. In our particular setting, we find that good corporate governance constrains the opportunistic reporting of FFO for bonus purposes, as the impact of FFO manipulation on CEO bonus is mitigated for firms with a higher level of good corporate governance. To ensure the robustness of our findings, in unreported analysis we also adopt an alternative corporate governance measure and find similar results.<sup>36</sup> Our findings provide an interesting

---

<sup>36</sup> Since 2000s, ISS calculates and reports corporate governance scores from time to time. Unfortunately, the scores are not time-variant and the scoring scheme has also changed each time ISS conducts a new survey study. We elect to use the 2013 measure to proxy for corporate governance as this is the most recent

contrast to recent REIT studies that find that corporate governance has little effect on accruals earnings management (Anglin et al. 2013) and that corporate governance is only weakly related to firm performance (e.g., Hartzell, Sun, and Titman 2006; Bauer, Eichholtz, and Kok 2010). The difference in our results could arise as the consequence of a different sample period as our sample covers the recent financial crisis.

In summary, our empirical analysis on the determinants of CEO bonus shows that when bonus compensation is tied to a performance measure consisting of a non-GAAP component and a GAAP component, managers are motivated to use manipulation of the non-GAAP adjustments to achieve a given level of bonus compensation if managers choose to behave opportunistically. We further find that mandatory SEC regulations that apply specifically to bonus determination are more effective than general regulations (both voluntary and mandatory) with regard to non-GAAP reporting in constraining opportunistic financial reporting for bonus purposes. Lastly, corporate governance continues to serve as a control mechanism on managerial manipulative behavior.

## **5.2 Additional Analysis**

The recent financial crisis revealed severe shortcomings in corporate governance when it was most needed (Kirkpatrick 2009). Since then, companies have been under greater scrutiny and are under enormous pressure to improve their corporate governance and financial reporting practices. As discussed, our sample period overlaps with the recent financial crisis, when REITs experienced perhaps one of the largest disasters in its

---

and most complete measure. Alternatively, we also adopt the 2005 Corporate Governance Quotient from ISS and obtain weaker but similar results with a reduced sample of 238 observations.

history. We therefore examine whether the crisis had an impact on CEO bonus compensation and FFO manipulation in the following model:

$$BONUS = \alpha + \beta_{1A} FFOMANI + \beta_{1B} POST\_CRISIS + \beta_{1C} FFOMANI*POST\_CRISIS + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (7)$$

Prior research (e.g., Devos, Ong, Spieler, and Tsang 2013; Devos, Spieler, and Tsang 2012) indicates that the REIT industry was hit hard over 2007 and 2008 before bouncing back in 2009. Hence, we define *POSTCRISIS* as a dummy variable equal to one (zero otherwise) for firm-year observations from 2009 onwards. Table 7 reports the results of regression specification (7). We find that the impact of FFO manipulation on CEO bonus is significantly reduced in the post-crisis period. The results imply that increased scrutiny on firms after the market downturn has limited the opportunity for managers to manipulate the performance measure and in turn to affect CEO compensation. We also find the coefficient of *POSTCRISIS* is positive and significant, consistent with anecdotal evidence the CEO bonus generally increases in the post-crisis period.

One interesting extension of our findings is that, if the non-GAAP portion of FFO is being manipulated for bonus purposes, firms should be expected to make less negative adjustments than positive adjustments from the NAREIT-defined FFO measure to boost CEO bonuses. Hence, our findings that FFO manipulation is associated with CEO bonus should be more apparent for firms that report positive FFO deviation from NAREIT definition. We therefore examine the following model:

$$BONUS = \alpha + \beta_{1A} NEG\_FFOMANI + \beta_{1B} POS\_FFOMANI + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (8)$$

Where  $NEG\_FFOMANI$  ( $POS\_FFOMANI$ ) is  $FFOMANI$  that is smaller (greater) than 0. Results reported in Table 8 show that when we partition FFO manipulation into positive and negative amounts, positive FFO manipulations are highly associated with CEO bonus in both columns while negative manipulations are not related to CEO bonus.

Thus far, our study has focused on the examination of CEO bonus as it is *directly* linked to the non-GAAP performance measure in the REIT industry. Prior studies (Isidro and Marques 2010; Black et al. 2011) suggest that CEO compensation is related to opportunistic non-GAAP reporting even when the non-GAAP measures are *not* used in compensation contracts, as managers may try to overstate the non-GAAP measures to affect market perceptions. If this conjecture is true, we should observe a positive relationship between FFO manipulation and other components of CEO compensation.

We test this conjecture with the following model:

$$CEO\_COMP = \alpha + \beta_1 FFOMANI + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (9)$$

Where  $CEO\_COMP$  represents CEO total cash compensation (excluding bonus) and CEO total noncash compensation reported in the Capital IQ database. Regression results of specification (9) are presented in Table 9. The first two columns report results using CEO total cash compensation (excluding bonus) as the dependent variable. We do not find  $FFOMANI$  to have a significant influence on other cash component of compensation.<sup>37</sup> We also find a negative coefficient for  $NAREIT\_FFO$ , possibly because a high fixed payment for CEO compensation may discourage CEOs to exert more effort.

---

<sup>37</sup> We attribute differences of results in our study and the above-mentioned pro forma studies to sample differences. Firms that report the pro forma measure may have used the non-GAAP measure, or some adjusted net income measures that are highly correlated to pro forma, in determining components of CEO compensation. Unfortunately, it is rather difficult for authors of these pro forma studies to identify which firms in their samples tie which components of CEO compensation directly to pro forma performance. In fact, Isidro and Marques (2010) have acknowledged this data limitation in their study.

Columns III and IV show *FFOMANI* is also not related to non-cash compensation (which includes mainly stock and option awards). These findings reinforce the notion that it is specifically the inclusion of the non-GAAP measure in bonus contract design that motivates opportunistic reporting of FFO in our sample firms.

Lastly, we examine the capital market effects of FFO manipulation. We employ *Tobin's q*, measured as the market-to-book ratio of shareholders' equity (i.e., *MTB*), as a proxy for firms' equity valuation. We follow the assumption that a higher *Tobin's q* reflects higher growth expectations and/or lower discount rates (e.g., Servaes 1991; Lang and Stulz 1994), and that better reporting transparency could increase such growth expectations (Daske et al. 2008). We estimate the following model:

$$Tobin's\ q = \alpha + \beta_{1A} FFOMANI + \beta_{1B} BONUS + \beta_{1C} BONUS * FFOMANI + \beta_2 LEV + \beta_3 SIZE + \beta_4 ASSETGROWTH + \varepsilon \quad (10)$$

We expect that higher FFO manipulation (i.e., worse reporting transparency) is associated with lower values of *Tobin's q*, and that the association is stronger for firms with high CEO bonus. We also include leverage, firm size, and asset growth as control variables in our estimation of model (10) (Doidge et al. 2004; Lang, Lins, and Miller 2004; Daske et al. 2008).<sup>38</sup>

Our results presented in Table 10 and Column I show that FFO manipulation has an adverse effect on equity valuation. The coefficient for *FFOMANI* is negative and marginally significant at 10%. However, in Column II, we show that the interaction of *FFOMANI* and *BONUS* is marginally negatively significant at 10%. The findings provide

---

<sup>38</sup> Golec (1994) shows formula REITs (i.e., REIT managers that are paid solely through advisory contracts and receive no direct compensation from the REIT) have larger dividend yield and smaller premium of market-to-book ratios. Over our sample period, formula REITs are no longer common practice in the REIT industry. Nonetheless, in unreported analysis we consider the possible correlations between dividend yield and *Tobin's q* by including dividend yield as an additional control variable in (10). We find a significantly negative relation between the two variables as in the prior study, and our conclusions of the relationship of *Tobin's q* and manipulation of FFO remain robust.

weak evidence (10% significance) that the market penalizes manipulative managerial actions. These actions appear to be more apparent at firms that offer high CEO bonus.

### 5.3 Robustness Analysis<sup>39</sup>

In our sensitivity analysis, we examine alternative proxies for *FFOMANI* and *DACC*. We measure *FFOMANI* as the percentage deviation from NAREIT FFO definition instead of on a per-share basis to alleviate the concerns of a scale effect. We measure *DACC* following Dechow and Dichev (2002) and Kothari et al. (2005). Since some parts of *FFOMANI* may be recurring, we replace *NAREIT\_FFO* with FFO in the previous year as control for performance. Given that *NAREIT\_FFO* inevitably includes some manipulation of accruals, we “normalize” the measure by subtracting *DACC* from *NAREIT\_FFO*. We also include other control variables such as leverage, asset growth and CEO age in our regressions of bonus determinants. We repeat our analysis controlling for outliers by eliminating bonus observations below the 1<sup>st</sup> and above the 99<sup>th</sup> percentiles. Given that *BONUS* is a truncated variable, we replicate the analysis with the truncated regression model (with lower bound of zero) instead of OLS in our regression analysis. Our main findings continue to hold.

An interesting issue is how various regulatory forces interact with one another to constrain opportunistic financial reporting for bonus purposes. To address this issue, we run an augmented regression model including *D\_NAREIT*, *D\_RECON*, *D\_FFOTARGET*, and *D\_WFFO*. We find that the effects of *D\_FFOTARGET* and *D\_WFFO* with *FFOMANI* remain highly significant. The findings indicate that imposing external

---

<sup>39</sup> Results in this section are not reported but are available upon request.

compensation regulation represents the most important safeguard in warranting the proper use of non-GAAP measures in bonus determination.

## **VI. CONCLUDING REMARKS**

In recent years, the reporting of non-GAAP performance measures along with audited GAAP performance measures has slowly evolved into a norm for many firms and in many industries. Our study utilizes the unique setting where almost an entire industry has incorporated its industry-specific performance measure consisting of a GAAP component and a non-GAAP component in the bonus compensation contract. Even though FFO is commonly considered a more reliable metric compared to other non-GAAP pro forma measures given the guidance of an industry organization (NAREIT), we find that REIT managers nonetheless manipulate FFO upwards in order to increase CEO bonus compensation. In particular, these managers manipulate the non-GAAP component of FFO by making ad-hoc adjustments to the NAREIT FFO definition. We show that mandatory SEC regulations regarding compensation disclosures are the most effective mechanisms in curbing the extent to which managers manipulate FFO to increase the CEO bonus. Moreover, good corporate governance and increased scrutiny on the REIT market after the financial crisis also appear to provide added safeguards to deter managerial manipulative actions. Finally, we find that capital market participants also penalize firms that manipulate FFO. In particular, firms with larger manipulation have a lower Tobin's q especially when these manipulative activities are accompanied by high CEO bonus.

While non-GAAP performance measures can provide a more representative benchmark of firm performance and is a consideration in the design of compensation contract, our study highlights the concern of aggressive non-GAAP reporting when these measures are also used to determine CEO compensation. We show that, in this situation, external regulatory oversights are required to ensure fair reporting of non-GAAP information.

## REFERENCES

- Abarbanell, J., and R. Lehavy. 2007. Letting the “Tail Wag the Dog”: The Debate over GAAP versus Street Earnings Revisited. *Contemporary Accounting Research* 24 (3): 675-723.
- Anglin, P., R. Edelstein, Y. Gao, and D. Tsang. 2013. What is the Relationship between REIT Governance and Earnings Management? *Journal of Real Estate Finance and Economics* 47 (3): 538-563.
- Athanasakou, V.E., N.C. Strong, and M. Walker. 2007. Classificatory Income Smoothing: The Impact of a Change in Regime of Reporting Financial Performance. *Journal of Accounting and Public Policy* 26: 387-435.
- Baik B., B.K. Billings, and R.M. Morton. 2008. The Effect of Increased Transparency on Manipulation and Value Relevance of Non-GAAP Disclosures by Real Estate Investment Trusts (REITs). *The Accounting Review* 83 (2): 271-301.
- Balsam, S. 1998. Discretionary Accounting Choices and CEO Compensation. *Contemporary Accounting Review* 15 (3): 229-252.
- Bauer, R., P. Eichholtz, and N. Kok. 2010. Corporate Governance and Performance: The REIT Effect. *Real Estate Economics* 38 (1): 1-29.
- Beattie, V., S. Brown, D. Ewers, B. John, S. Manson, D. Thomas, and M. Turner. 1994. Extraordinary Items and Income Smoothing: A Positive Accounting Approach. *Journal of Business Finance and Accounting* 21: 791-811.
- Ben-Shahar, D., E. Sulganik, and D. Tsang. 2011. FFO versus Net Income: Examining the Dividend Relevance of REIT Performance Measures. *Journal of Real Estate Research* 33 (3): 415-441.
- Bergstresser, D.B., and T. Philippon. 2006. CEO Incentives and Earnings Management. *Journal of Financial Economics* 80 (3): 511-529.
- Bhattacharya, N., E. Black, T. Christensen, and C. Larson. 2003. Assessing the Relative Informativeness and Permanence of Pro-forma Earnings and GAAP Operating Earnings. *Journal of Accounting and Economics* 36: 285-319.
- Bhattacharya, N., E. Black, T. Christensen, and R. Mergenthaler. 2007. Who Trades on Pro-forma Earnings Information? *The Accounting Review* 82 (3): 581-619.
- Black, D.E., E.L. Black, T.E. Christensen, and J.F. Waeglein. 2011. *The Effect of Executive Compensation Contracts and Auditor Effort on Pro Forma Reporting Decisions*. Working paper, Duke University, Brigham Young University and Emporia State University.

- Black, D.E., and T. Christensen. 2009. U.S. Managers' Use of "Pro-forma" Adjustments to Meet Strategic Earnings Benchmarks. *Journal of Business Finance and Accounting* 36 (3-4): 297-326.
- Bowen, R.M., A.K. Davis, and D.A. Matsumoto. 2005. Emphasis on Pro Forma versus GAAP Earnings in Quarterly Press Releases: Determinants, SEC Intervention, and Market Reactions. *The Accounting Review* 80 (4): 1011-1038.
- Bowen, R.M., S. Rajgopal, and M. Venkatachalam. 2008. Accounting Discretion, Corporate Governance, and Firm Performance. *Contemporary Accounting Research* 25 (2): 351-405.
- Boyd, B.K. 1994. Board Control and CEO Compensation. *Strategic Management Journal* 15: 335-344.
- Bradshaw, M., and R. Sloan. 2002. GAAP versus the Street: An Empirical Assessment of Two Alternative Definitions of Earnings. *Journal of Accounting Research* 40: 41-66.
- Brown, L., and K. Sivakumar. 2003. Comparing the Quality of Two Operating Income Measures. *Review of Accounting Studies* 8: 561-572.
- Cheng, Q., and T. Warfield. 2005. Equity Incentives and Earnings Management. *The Accounting Review* 80 (2): 441-476.
- Cohen, D.A., A. Dey, and T.Z. Lys. 2008. Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *The Accounting Review* 83 (3): 757-787.
- Cohen, D.A., R.N. Hann, and M. Ogneva. 2007. Another Look at GAAP versus The Street: An Empirical Assessment of Measurement Error Bias. *Review of Accounting Studies* 12 (2/3): 271-303.
- Core, J.E., R. Houlthausen, and D.F. Larcker. 1999. Corporate Governance, Chief Executive Officer Compensation, and Firm Performance. *Journal of Financial Economics* 51: 371-406.
- Craighead, J., M. Mangan, and L. Thorne. 2004. The Impact of Mandated Disclosure on Performance-Based CEO Compensation. *Contemporary Accounting Research* 21 (2): 369-398.
- Cyery, R.M., S-H Kang, and P. Kumar. 2002. Corporate Governance, Takeovers, and Top-Management Compensation: Theory and Evidence. *Management Science* 48 (4): 453-469.

- Daske, H., L. Hail, C. Leuz, and R. Verdi. 2008. Mandatory IFRS Reporting Around the World: Early Evidence on the Economic Consequences. *Journal of Accounting Research* 46 (5): 1085-1142.
- Davis, B.J., and R.M. Shelor. 1995. Executive Compensation and Financial Performance in the Real Estate Industry. *Journal of Real Estate Research* 10 (2): 141-151.
- Dechow P.M., and I.D. Dichev. 2002. The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The Accounting Review* 77 (Supplement): 35-59.
- Dechow, P.M., R. Sloan, and A. Sweeney. 1995. Detecting Earnings Management. *The Accounting Review* (70): 193-225.
- Devos, E., S.E. Ong, A. Spieler, and D. Tsang. 2013. REIT Institutional Ownership Dynamics and the Financial Crisis. *Journal of Real Estate Finance and Economics* 47 (2): 266-288.
- Devos, E., A. Spieler, and D. Tsang. 2012. Elective Stock Dividends and REITs: Evidence from the Financial Crisis. *Real Estate Economics* (forthcoming).
- Doidge, C., G.A. Karolyi, and R. Stulz, 2004. Why Are Foreign Firms Listed in the U.S. Worth More? *Journal of Financial Economics* 71: 205-238.
- Doyle, J.T., R.J. Lundholm, and M.T. Soliman. 2003. The Predictive Value of Expenses Excluded from Pro-forma Earnings. *Review of Accounting Studies* 8: 145-174.
- Eichholtz, P.M., N. Kok, and R. Otten. 2008. Executive Compensation in UK Property Companies. *Journal of Real Estate Finance and Economics* 36: 405-426.
- Ertugrul, M., O. Sezer, and C.F. Sirmans. 2009. Financial Leverage, CEO Compensation, and Corporate Hedging: Evidence from Real Estate Investment Trusts. *Journal of Real Estate Finance and Economics* 36: 53-80.
- Fan, Y., A. Barua, W.M. Cready, and W. Thomas. 2010. Managing Earnings Using Classification Shifting: Evidence from Quarterly Special Items. *The Accounting Review* 85 (4): 1303-1323.
- Feng, Z., C. Ghosh, and C.F. Sirmans. 2007. Director Compensation and CEO Bargaining Power in REITs. *Journal of Real Estate Finance and Economics* 35: 225-251.
- Feng, Z., C. Ghosh, F. He, and C.F. Sirmans. 2010. Institutional Monitoring and REIT CEO Compensation. *Journal of Real Estate Finance and Economics* 40: 446-479.

- Fields, T., S. Rangan, and R. Thiagarajan. 1998. An Empirical Evaluation of the Usefulness of Non-GAAP Accounting Measures in the Real Estate Investment Trust Industry. *Review of Accounting Studies* 3: 103-130.
- Fortin, S., P. Liu, and D. Tsang. 2011. *The Effect of SEC Intervention on Non-GAAP Disclosures in the Presence of Industry Guidance*. Working paper, McGill University, and Cornell University.
- Francis, J., R. LaFond, P. Olsson, and K. Schipper. 2005. The Market Pricing of Accruals Quality. *Journal of Accounting and Economics* 39: 295-327.
- Frankel, R., S. McVay, and M. Soliman. 2011. Non-GAAP Earnings and Board Independence. *Review of Accounting Studies* 16: 719-744.
- Gaver, J., K. Gaver, and J. Austin. 1995. Additional Evidence on Bonus Plans and Income Management. *Journal of Accounting and Economics* 19: 29-74.
- Ghosh, C., and C.F. Sirmans. 2005. On REIT CEO Compensation: Does Board Structure Matter? *Journal of Real Estate Finance and Economics* 30: 397-428.
- Godfrey, J.M., and K.L. Jones. 1999. Political Cost Influences on Income Smoothing via Extraordinary Item Classification. *Accounting and Finance* 39: 229-254.
- Golec, J.H. 1994. Compensation Policies and Financial Characteristics of Real Estate Investment Trusts. *Journal of Accounting and Economics* 17: 177-205.
- Graham, C.M., and J.R. Knight. 2000. Cash Flows vs. Earnings in the Valuation of Equity REITs. *Journal of Real Estate Portfolio Management* 6 (1): 17-25.
- Grant Thornton. 2012. Financial Executive Compensation Survey 2012. United States.
- Griffin, J.M., M. Najand, and H.S. Weeks. 2012. What Influences the Changes in REIT CEO Compensation? Evidence from Panel Data. *Journal of Real Estate Research* (forthcoming).
- Gu, Z., and T. Chen. 2004. Analysts' Treatment of Nonrecurring Items in Street Earnings. *Journal of Accounting and Economics* 39: 129-170.
- Gunny, K. 2010. The Relation Between Earnings Management Using Real Activities Manipulation and Future Performance: Evidence from Meeting Earnings Benchmarks. *Contemporary Accounting Research* 27 (3): 855-888.
- Hardin III, W.G. 1998. Executive Compensation in ERITs: EREIT Size is but One Determinant. *Journal of Real Estate Research* 16 (3): 401-409.

- Hartzell, J.C., L. Sun, and S. Titman. 2006. The Effect of Corporate Governance on Investment: Evidence from Real Estate Investment Trusts (REITs). *Real Estate Economics* 34 (3): 343-376.
- Hayunga, D.K., and C.P. Stephens. 2009. Dividend Behavior of US Equity REITs. *Journal of Property Research* 26 (2): 105-123.
- Healy, P. 1985. The Effect of Bonus Schemes on Accounting Decisions. *Journal of Accounting and Economics* 7: 85-107.
- Healy, P., and K. Palepu. 2001. Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature. *Journal of Accounting and Economics* 31 (1-3): 405-440.
- Heflin, F., and C. Hsu. 2008. The Impact of the SEC's Regulation of Non-GAAP Disclosures. *Journal of Accounting and Economics* 46: 349-365.
- Holthausen, R., D. Larcker, and R. Sloan. 1995. Annual Bonus Schemes and the Manipulation of Earnings. *Journal of Accounting and Economics* 19: 29-74.
- Indjejikian, R.J., and D.J. Nanda. 2002. Executive target Bonuses and What They Imply about Performance Standards. *The Accounting Review* 77 (4): 793-819.
- Isidro, H., and A. Marques. 2010. *The Effect of Managers' Compensation and Board Quality on Non-GAAP Reporting Decisions*. Working paper, City University of London, and Universidad Nova de Lisboa.
- Jennings, R., and A. Marques. 2011. The Joint Effect of Corporate Governance and Regulation on the Disclosure of Manager-Adjusted Non-GAAP Earnings in the US. *Journal of Business Finance and Accounting* 38 (3-4): 364-394.
- Jensen, M., and K. Murphy. 1990. Performance Pay and Top-Management Incentives. *Journal of Political Economy* 98 (2): 225-264.
- Johnson, D., K. Pany, and R. White. 1983. Audit Reports and the Loan Decision: Actions and Perceptions. *Auditing: A Journal of Practice & Theory* (Spring): 38-51.
- Johnson, B., and W. Schwartz. 2005. Are Investors Misled by "Pro-Forma" Earnings? *Contemporary Accounting Research* 22: 915-963.
- Kang, S-H, and Y. Zhao. 2010. Information Content and Value Relevance of Depreciation: A Cross-Industry Analysis. *The Accounting Review* 85 (1): 227-260.
- Katz, D.A. 2009. SEC Brings First Regulation G Enforcement Action. *The Harvard Law School Forum on Corporate Governance and Financial Regulation*.

- Ke, B., K. Petroni, and A. Safieddine. 1999. Ownership Concentration and Sensitivity of Executive Pay to Accounting Performance Measures: Evidence from Publicly and Privately-Held Insurance Companies. *Journal of Accounting and Economics* 28 (2): 185-210,
- Kirkpatrick, G. 2009. The Corporate Governance Lessons from the Financial Crisis. *OECD Steering Group on Corporate Governance*.
- Klein, A. 2002. Audit Committee, Board of Director Characteristics, and Earnings Management. *Journal of Accounting and Economics* 33 (3): 375-400.
- Kolev, K., C.A. Marquardt, and S. McVay. 2008. SEC Scrutiny and the Evolution of Non-GAAP Reporting. *The Accounting Review* 83 (1): 157-184.
- Kothari, S.P., A.J. Leona, and C.E. Wasley. 2005. Performance Matched Discretionary Accrual Measures. *Journal of Accounting and Economics* 39: 163-197.
- Lang, L., and R. Stulz. 1994. Tobin's Q, Corporate Diversification, and Firm Performance. *Journal of Political Economy* 102: 1248-1280.
- Lang, M., K. Lins, and D. Miller. 2004. Concentrated Control, Analyst Following, and Valuation: Do Analysts Matter Most When Investors Are Protected Least? *Journal of Accounting Research* 42: 589-623.
- Leuz, C., and P. Wysocki, 2008, *Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research*. Working paper, University of Chicago, and University of Miami.
- Libby, R. 1979. Bankers and Auditors Perceptions of the Message Communicated by the Audit Report. *Journal of Accounting Research* 17 (Spring): 99-122.
- Lo, K. 2003. Economic Consequences of Regulated Changes in Disclosure: The Case of Executive Compensation. *Journal of Accounting and Economics* 35: 285-314.
- Marques, A. 2006. SEC Intervention and the Frequency and Usefulness of Non-GAAP Financial Measures. *Review of Accounting Studies* 11: 549-574.
- Mbagwu, C. 2007. *Essays on the Value Relevance of Earnings Measures*. PhD Dissertation, University of Saskatchewan.
- McVay, S. 2006. Earnings Management Using Classification Shifting: An Examination of Core Earnings and Special Items. *The Accounting Review* 81 (3): 501-531.
- National Association of Real Estate Investment Trusts. 2003. *NAREIT Financial reporting Alert: Further Guidance on Reporting FFO*. Washington, D.C., United States.

- National Association of Real Estate Investment Trusts. 1999. *National Policy Bulletin: November 1999*. Washington, D.C., United States.
- National Association of Real Estate Investment Trusts. 2002. *White Paper on Funds from Operations*. Washington, D.C., United States.
- Pany, K., and C. Smith. 1982. Auditor Association with Quarterly Financial Information: An Empirical Test. *Journal of Accounting Research* (Autumn): 472-481.
- Pennathur, A.K., O.W. Gilley, and R.M. Shelor. 2005. An Analysis of REIT CEO Stock-Based Compensation. *Real Estate Economics* 33 (1): 189-202.
- Pennathur, A.K., and R.M. Shelor. 2002. The Determinants of REIT CEO Compensation. *Journal of Real Estate Finance and Economics* 25 (1): 99-113.
- Robinson, J.R., Y. Xue, and Y. Yu. 2009. *Mandated Compensation Disclosures and CEO Pay*. Working paper, The University of Texas at Austin, and George Washington University.
- Romanek, B. 2003. Regulation G's Mixed Blessing for REITs. [www.corporatecounsel.net](http://www.corporatecounsel.net).
- Roychowdhury, S. 2006. Earnings Management through Real Activities Manipulation. *Journal of Accounting and Economics* 42 (3): 335-370.
- Servaes, H. 1991. Tobins's Q and Gains from Takeovers. *Journal of Finance* 46: 409-419.
- Sloan, R. 1998. Discussion of "Evaluating Non-GAAP Performance Measures in the REIT Industry." *Review of Accounting Studies* 3: 131-135.
- Smith, C., and R. Watts. 1982. Incentive and Tax Effects of Executive Compensation Plans. *Australian Journal of Management* 7: 139-157.
- Stunda, R.A., and E. Typpo. 2004. The Relevance of Earnings and Funds Flow from Operations in the Presence of Transitory Earnings. *Journal of Real Estate Portfolio Management* 10 (1): 37-45.
- Sturgeon, J. 2012. Dunn Discussed "Optics" of Bonus Payments, Trial Told. *The Financial Post* January 30.
- Vafeas, N., and Z. Afexentiou. 1998. The Association between the SEC's 1992 Compensation Disclosure Rule and Executive Compensation Policy Changes. *Journal of Accounting Public Policy* 17 (1): 27-54.

- Vincent, L. 1999. The Information Content of Funds from Operations for Real Estate Investment Trusts. *Journal of Accounting and Economics* 26: 69-104.
- Wood, R.E., and M.J. Missal. 2006. The SEC's New Executive Compensation Disclosure Rules: Liability Concerns for Officers and Directors. *Corporate Officers and Directors Liability* 22 (6).
- Xie, B., W.N. Davidson III, and P.J. DaDalt. 2003. Earnings Management and Corporate Governance: The Roles of the Board and the Audit Committee. *Journal of Corporate Finance* 9: 295-316.
- Zhu, H.. 2009. Is Funds from Operations Managed to Maximize REIT CEO's Cash Bonuses? *European Journal of Management* 9 (2): 193-202.
- Zhu, Y.W., S.E. Ong, and W.Y. Yeo. 2010. Do REITs Manipulate their Financial Results around Seasoned Equity Offerings? Evidence from US Equity REITs. *Journal of Real Estate Finance and Economics* 40 (4): 412-445.

**TABLE 1**  
**Descriptive Statistics of Total Sample**

Descriptive Statistics for Total Sample						
Variables	N	Mean	Median	Standard Dev.	Min	Max
<i>BONUS</i>	436	442.47	25.00	907.71	0.00	7500.00
<i>FFOMANI</i>	436	0.43	0.14	1.53	-6.01	9.99
<i>DACC</i>	436	0.90	-0.51	15.51	-130.98	51.69
<i>NAREIT_FFO</i>	436	1.89	1.63	2.01	-7.15	10.11
<i>SIZE</i>	436	14.56	14.61	1.32	9.13	17.20
<i>MTB/ Tobin's q</i>	436	1.71	1.42	1.67	-5.01	18.45
<i>CEO_DIR</i>	405	0.47	0.00	0.50	0.00	1.00
<i>CEO_COMP</i>	405	0.05	0.00	0.22	0.00	1.00
<i>CEO_TENURE</i>	405	9.62	9.00	5.70	1.00	27.00
<i>D_NAREIT</i>	436	0.74	1.00	0.44	0.00	1.00
<i>D_RECON</i>	436	0.82	1.00	0.38	0.00	1.00
<i>D_FFOTARGET</i>	436	0.50	0.00	0.50	0.00	1.00
<i>D_WFFO</i>	436	0.39	0.00	0.49	0.00	1.00
<i>CG_INDEX</i>	426	5.46	6.00	2.78	1.00	10.00

This table reports sample statistics for 436 CEO-firm-year observations for 2006-2011. *BONUS* is total bonus (in thousands) awarded to CEO in a particular year. *FFOMANI* is per-share deviation of actual FFO from the NAREIT definition of FFO. *DACC* is signed discretionary accruals calculated using the modified Jones model, scaled to per-share basis. *NAREIT\_FFO* is FFO, as defined according to the NAREIT definition, divided by average common shares outstanding. *SIZE* is log of beginning-of-year total assets. *MTB/ Tobin's q* is market value to book value of shareholders' equity. *CEO\_DIR* is a dummy variable equal to one if the CEO also serves as the director of the board. *CEO\_COMP* is a dummy variable equal to one if the CEO also serves as a member on the compensation committee. *CEO\_TENURE* is the number of years that the CEO has served the firm. *D\_NAREIT* is a dummy variable equal to one if the firm discloses the use of the NAREIT definition of FFO in reporting its alternative performance measure, zero otherwise. *D\_RECON* is a dummy variable equal to one if the firm reports a reconciliation schedule between net income and FFO, zero otherwise. *D\_FFOTARGET* is a dummy variable equal to one if the firm discloses its target FFO or FFO growth for compensation purpose, zero otherwise. *D\_WFFO* is a dummy variable equal to one the firm discloses the weight assigned to FFO when setting bonus, zero otherwise. *CG\_INDEX* is defined as the corporate governance score reported by the ISS in 2013.

**TABLE 2**  
**Pearson Correlations**

<i>Variables</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>
<i>1. BONUS</i>	1.00													
<i>2. FFOMANI</i>	0.26 ***	1.00												
<i>3. DACC</i>	-0.10 **	0.03	1.00											
<i>4. NAREIT_FFO</i>	0.07	-0.47 ***	0.04	1.00										
<i>5. SIZE</i>	0.34 ***	0.21 ***	-0.05	0.22 ***	1.00									
<i>6. MTB/Tobin's q</i>	0.03	-0.01	0.07	0.23 ***	-0.10 **	1.00								
<i>7. CEO_DIR</i>	-0.02	-0.02	0.01	0.03	-0.03	-0.05	1.00							
<i>8. CEO_COMP</i>	0.00	-0.03	-0.06	-0.07	-0.03	-0.08 *	-0.09 *	1.00						
<i>9. CEO_TENURE</i>	-0.04	-0.03	0.06	0.25 ***	0.04	0.11 **	0.47 ***	-0.12 **	1.00					
<i>10. D_NAREIT</i>	-0.11 **	0.08 *	0.13 ***	0.08 *	-0.02	0.02	0.09 *	0.13 ***	0.05	1.00				
<i>11. D_RECON</i>	-0.03	0.10 **	0.00	0.06	0.05	0.00	0.08 *	0.10 **	0.05	0.64 ***	1.00			
<i>12. D_FFOTARGET</i>	-0.13 ***	0.04	-0.12 ***	-0.14 ***	0.10 **	-0.15 ***	-0.10 **	0.01	-0.09 *	0.14 ***	0.12 **	1.00		
<i>13. D_WFFO</i>	-0.13 ***	-0.02	-0.08 ***	-0.10 **	0.23 ***	-0.16 ***	-0.04	-0.18 ***	-0.09 *	0.07	0.12 ***	0.50 ***	1.00	
<i>14. CG_INDEX</i>	-0.02	-0.07	-0.01	0.07	-0.13 ***	0.04	0.19 ***	0.11 **	0.20 ***	0.01	-0.10 **	-0.27 ***	-0.24 ***	1.00

See Table 1 for variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively.

**TABLE 3**  
**The Impact of FFO and Accrual Manipulation on CEO Bonus**

$$BONUS = \alpha + \beta_1 FFOMANI + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (1)$$

$$BONUS = \alpha + \beta_1 DACC + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (2)$$

$$BONUS = \alpha + \beta_{1A} FFOMANI + \beta_{1B} DACC + \beta_{1C} FFOMANI*DACC + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (3)$$

	I	II	III	IV	V	VI
Constant	-1922.55 ***	-1032.33 *	-2629.24 ***	-2518.25 ***	-1921.54 ***	-1131.15 *
<i>FFOMANI</i>	174.90 **	179.81 **			160.83 ***	162.60 ***
<i>DACC</i>			-3.82	-3.28	-0.98	-0.28
<i>FFOMANI*DACC</i>					-2.90	-2.95
<i>NAREIT_FFO</i>	81.85 ***	80.65 ***	-2.08	-17.52	82.86 ***	80.78 **
<i>SIZE</i>	116.16 ***	127.07 ***	189.59 ***	210.62 ***	120.67 ***	132.17 ***
<i>MTB</i>	42.25 *	84.23 **	61.77 **	121.87 ***	40.27 *	81.18 *
<i>CEO_DIR</i>		54.68		65.79		57.45
<i>CEO_COMP</i>		326.78 **		279.07 *		315.86 *
<i>CEO_TENURE</i>		-10.99		-5.19		-10.92
Property Type Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	436	405	436	405	436	405
R <sup>2</sup>	0.26	0.28	0.22	0.23	0.27	0.28

This table reports results of OLS regression for model specification (1), (2) and (3). See Table 1 for variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).

**TABLE 4**  
**The Impact of FFO Manipulation & Non-GAAP Reporting Regulation on CEO Bonus**

$$BONUS = \alpha + \beta_{1A} FFOMANI*(D\_NAREIT) + \beta_{1B} FFOMANI*(1-D\_NAREIT) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (4.1)$$

$$BONUS = \alpha + \beta_{1A} FFOMANI*(D\_RECON) + \beta_{1B} FFOMANI*(1-D\_RECON) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (4.2)$$

	I	II	III	IV
Constant	-1909.06 ***	-1012.25 *	-1931.88 ***	-1213.96 *
<i>FFOMANI*(D_NAREIT)</i>	173.91 **	178.85 **		
<i>FFOMANI*(1-D_NAREIT)</i>	190.08 **	195.70 **		
<i>FFOMANI*(D_RECON)</i>			175.40 **	180.71 **
<i>FFOMANI*(1-D_RECON)</i>			166.43 *	163.47 *
<i>NAREIT_FFO</i>	81.83 ***	80.71 ***	81.80 ***	80.50 **
<i>SIZE</i>	114.90 ***	125.66 ***	117.00 ***	128.80 ***
<i>MTB</i>	42.36 *	84.28 **	42.24 *	84.32 **
<i>CEO_DIR</i>		53.10		56.68
<i>CEO_COMP</i>		325.53 **		327.98 **
<i>CEO_TENURE</i>		-11.04		-11.02
Property Type Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
N	436	405	436	405
R <sup>2</sup>	0.26	0.28	0.26	0.28

This table reports results of OLS regression for model specification (4.1) and (4.2). See Table 1 for variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).

**TABLE 5**  
**The Impact of FFO Manipulation & Compensation Disclosure Regulations on CEO Bonus**

$$BONUS = \alpha + \beta_{1A} FFOMANI*(D\_FFOTARGET) + \beta_{1B} FFOMANI*(1-D\_FFOTARGET) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (5.1)$$

$$BONUS = \alpha + \beta_{1A} FFOMANI*(D\_WFFO) + \beta_{1B} FFOMANI*(1-D\_WFFO) + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (5.2)$$

	I	II	III	IV
Constant	-1926.63 ***	-1042.18 *	-1977.03 ***	-1045.16
<i>FFOMANI*(D_FFOTARGET)</i>	248.20	263.00		
<i>FFOMANI*(1-D_FFOTARGET)</i>	140.75 **	142.97 **		
<i>FFOMANI*(D_WFFO)</i>			61.42	65.09
<i>FFOMANI*(1-D_WFFO)</i>			198.52 **	203.04 **
<i>NAREIT_FFO</i>	85.00 ***	84.47 ***	81.68 ***	80.15 ***
<i>SIZE</i>	114.02 ***	125.60 ***	120.89 ***	130.82 ***
<i>MTB</i>	43.77 *	85.75 **	44.78 *	88.54 **
<i>CEO_DIR</i>		57.35		60.46
<i>CEO_COMP</i>		317.79 **		315.48 *
<i>CEO_TENURE</i>		-10.96		-10.79
Property Type Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
N	436	405	436	405
R <sup>2</sup>	0.27	0.29	0.27	0.28

This table reports results of OLS regression for model specification (5.1) and (5.2). See Table 1 for variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).

**TABLE 6**  
**The Impact of FFO Manipulation & Corporate Governance on CEO Bonus**

$$BONUS = \alpha + \beta_{1A} FFOMANI + \beta_{1B} CG\_INDEX + \beta_{1C} FFOMANI*CG\_INDEX + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon$$

(6)

	I	II
Constant	-1136.74 *	-1330.20 **
<i>FFOMANI</i>	466.94 **	471.39 **
<i>CG_INDEX</i>	10.49	3.64
<i>FFOMANI*CG_INDEX</i>	-55.42 **	-55.41 **
<i>NAREIT_FFO</i>	81.13 ***	76.21 **
<i>SIZE</i>	129.67 ***	143.59 ***
<i>MTB</i>	45.85 **	91.18 **
<i>CEO_DIR</i>		54.85
<i>CEO_COMP</i>		316.26 **
<i>CEO_TENURE</i>		-9.67
Property Type Dummies	Yes	Yes
Year Dummies	Yes	Yes
N	426	395
R <sup>2</sup>	0.32	0.34

This table reports results of OLS regression for model specification (6). See Table 1 for variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).

**TABLE 7**  
**The Impact of FFO Manipulation and Financial Crisis on CEO Bonus**

$$BONUS = \alpha + \beta_{1A} FFOMANI + \beta_{1B} POST\_CRISIS + \beta_{1C} FFOMANI*POST\_CRISIS + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (7)$$

	I	II
Constant	-2056.92 ***	-1218.84 *
<i>FFOMANI</i>	274.69 ***	280.62 **
<i>POST_CRISIS</i>	213.63 ***	236.85 ***
<i>FFOMANI*POST_CRISIS</i>	-241.88 **	-243.85 **
<i>NAREIT_FFO</i>	67.34 **	66.88 **
<i>SIZE</i>	116.46 ***	127.47 ***
<i>MTB</i>	39.17 *	72.05 *
<i>CEO_DIR</i>		30.99
<i>CEO_COMP</i>		289.82 **
<i>CEO_TENURE</i>		-11.62 *
Property Type Dummies	Yes	Yes
Year Dummies	No	No
N	436	405
R <sup>2</sup>	0.30	0.31

This table reports results of OLS regression for model specification (7). *POST\_CRISIS* is a dummy variable equal to 1 (0 otherwise) when year is 2009 or after. See Table 1 for other variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).

**TABLE 8**  
**The Impact of Positive & Negative FFO Manipulation on CEO Bonus**

$$BONUS = \alpha + \beta_{1A} NEG\_FFOMANI + \beta_{1B} POS\_FFOMANI + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon \quad (8)$$

	I	II
Constant	-1922.74 ***	-1057.62 *
<i>NEG_FFOMANI</i>	-81.10	-80.91
<i>POS_FFOMANI</i>	247.95 ***	254.34 ***
<i>NAREIT_FFO</i>	89.78 ***	87.81 ***
<i>SIZE</i>	109.51 ***	121.82 ***
<i>MTB</i>	46.72 **	90.02 **
<i>CEO_DIR</i>		53.97
<i>CEO_COMP</i>		314.88 ***
<i>CEO_TENURE</i>		-9.60
Property Type Dummies	Yes	Yes
Year Dummies	Yes	Yes
N	436	405
R <sup>2</sup>	0.29	0.31

This table reports results of OLS regression for model specification (8). We partition FFOMANI into positive and negative amounts. See Table 1 for other variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).

**TABLE 9**  
**The Impact of FFO Manipulation on Other Components of CEO Compensation**

$$CEO\_COMP = \alpha + \beta_1 FFOMANI + \beta_2 NAREIT\_FFO + \beta_3 SIZE + \beta_4 MTB + \beta_5 CEO\_DIR + \beta_6 CEO\_COMP + \beta_7 CEO\_TENURE + \varepsilon$$

(9)

	I	II	III	IV
Constant	-7781.47 **	-8381.96 **	-10945.45 ***	-11044.87 ***
<i>FFOMANI</i>	-253.23	-254.56	21.37	19.33
<i>NAREIT_FFO</i>	-268.17 *	-260.47 **	123.10	134.95
<i>SIZE</i>	614.02 **	620.32 **	745.84 ***	770.25 ***
<i>MTB</i>	71.89 *	155.44	43.68	69.42
<i>CEO_DIR</i>		57.82		348.10
<i>CEO_COMP</i>		2316.72		-239.42
<i>CEO_TENURE</i>		-23.84		
Property Type Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
N	436	405	436	405
R <sup>2</sup>	0.09	0.13	0.29	0.28

This table reports results of OLS regression for model specification (9). CEO\_COMP represents CEO cash compensation (excluding bonus) in columns (I) and (II), and CEO noncash compensation in columns (III) and (IV). See Table 1 for other variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).

**TABLE 10**  
**The Impact of FFO Manipulation on Equity Valuations**

$$\text{Tobin's } q = \alpha + \beta_{1A} \text{ FFOMANI} + \beta_{1B} \text{ BONUS} + \beta_{1C} \text{ BONUS* FFOMANI} + \beta_2 \text{ LEV} + \beta_3 \text{ SIZE} + \beta_4 \text{ ASSETGROWTH} + \varepsilon \quad (10)$$

	I	II
Constant	4.83 ***	5.54 ***
<i>FFOMANI</i>	-5.46 *	-4.82
<i>BONUS</i>		0.0003 ***
<i>BONUS*FFOMANI</i>		-0.00002 *
<i>SIZE</i>	-0.09	-0.15 *
<i>LEV</i>	0.14	0.19
<i>ASSETGROWTH</i>	-0.0006	-0.0015
Property Type Dummies	Yes	Yes
Year Dummies	Yes	Yes
N	436	436
R <sup>2</sup>	0.15	0.17

This table reports results of OLS regression for model specification (10). See Table 1 for variable definitions. \*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively (two-sided test).