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The Importance of Executive Effort

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To the Graduate Council:

I am submitting herewith a dissertation written by Lee Edward Biggerstaff entitled "The Importance of Executive Effort." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

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The Importance of Executive Effort

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DEDICATION

This dissertation is dedicated to Robin for allowing me to be a college student for most of a decade.

ABSTRACT

Agency theory stipulates that managerial effort is important to shareholders and costly for managers to provide. Executives may provide sub-optimal levels of effort because shareholders cannot easily observe the day-to-day actions of managers and therefore have difficulties properly monitoring the effort provided by firm management. Researchers also face the challenge of measuring executive effort. In this dissertation, I use an observable measure of leisure consumption to proxy for the effort provided by executives to study the impact of executive effort on firm outcomes.

In the first essay, I focus on Chief Executive Officers ("CEOs") and the impact of their effort on firm performance. I document that equity-based incentives are an important determinant of the effort provided by CEOs and that CEO effort impacts the operating performance of firms, which is highly consistent with agency theory. A series of robustness tests suggest the relation is causal. In the second essay, I focus on the effort provided by Chief Financial Officers ("CFOs") and its impact on financial reporting quality. I document that CFO effort impacts the financial reporting quality of firms and that this variation in reporting quality is observed by auditors and market participants. Overall, these results support the importance of executive effort in determining firm performance.

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Chapter 1: Introduction

This dissertation is composed of two essays that analyze the importance of executive effort in the context of large, publically traded corporations. Executives are thought to create value by exerting effort and the difficulty in observing the effort of managers is a central element of the agency-problem between managers and shareholders. In these essays, I proxy for the effort provided by managers using an observable measure of leisure consumption: the number of golf rounds played by the executive in a year. I utilize the United States Golf Association's ("USGA") handicap system to determine the frequency of golf for CEOs and CFOs that maintain a golf handicap through the USGA. This data provides direct insight into the day-to-day leisure consumption of these executives. Given that time is a finite resource, I assume that effort is reduced as leisure consumption increases.

In the first essay, I focus on CEOs to study the relation between incentives and effort as well as the impact of effort on firm performance. I begin by looking at the determinants of CEO golf frequency to establish the importance of equity-based incentives in a CEO's effort/leisure choice. Consistent with agency theory, I find that stronger incentives lead to greater effort. Next, I analyze the relation between CEO leisure and firm performance and find that higher leisure consumption is correlated with weaker firm performance. This relationship is strongest in industries where CEO effort is thought to be most important, which helps establish causality. Further robustness tests include an instrumental variable analysis and first-difference framework. Finally, I look for evidence of monitoring by directors and find that new CEOs get compensation with a stronger incentive component and are more likely to turnover after years when they

provide less effort. These findings are consistent with the resolution of information asymmetries between the CEO and directors early in the CEOs career.

In the second essay, I turn my focus to CFOs and study the relation between CFO effort and financial reporting quality. CFOs are responsible for the management of the financial reporting process and prior studies have linked CFO characteristics to financial reporting quality, but there are no studies that directly link effort to financial reporting quality. I measure financial reporting quality using information from the financial statements, the auditor, analysts, and market participants. I document that CFO effort is an important determinant of the financial reporting quality of the firm. This result is consistent with the importance of the CFO in the financial reporting process and the consequence of managerial effort on firm outputs. The results do not appear to be driven by unobservable firm culture or managerial skill.

Chapter 2: FORE!

Abstract

Agency and corporate governance theory assume that CEO effort is important for firm profitability and performance, costly for the CEO to provide and difficult for shareholders to monitor (e.g. Jensen & Meckling, 1976). We empirically analyze the relationship between CEO effort, corporate governance and firm performance using a detailed panel of golfing records for a sample of S&P 1500 CEOs from 2008 to 2012. Consistent with the predictions of fundamental models of agency theory, we find that higher CEO ownership and stronger incentives are associated with lower leisure consumption and that high levels of CEO leisure correspond to lower firm profitability and firm-value. We also document that past leisure consumption is an important determinant of the structure of CEO compensation – particularly when the CEO is new – suggesting that boards learn about CEO preferences over time and adjust their incentives accordingly.

I. Introduction

This paper tests a fundamental component of agency theory – the relationship between the incentives and monitoring imposed by the principal and the effort provided by the agent.[1] In the context of a corporation, Jensen and Meckling (1976) suggest that a large potential cost of the agency problem faced by shareholders is lack of effort by the CEO, which can reduce firm value through under investment or poor investment choice.

[1] Numerous models include effort as a costly good provided by the agent that is important to the principal; see Holmstrom, 1979; Grossman and Hart, 1983; Haubrich, 1994; Baker and Hall, 1998; Edmans, Gabaix, and Landier, 2009.

An underlying notion of the agency problem is that effort is costly for the agent to provide, is difficult to monitor, and provides value to the principal.

A key prediction of agency theory is that deviations from value-maximizing effort can be reduced through financial incentives and monitoring by the principal, essentially the raison d'être for corporate governance. However, CEO effort and leisure are difficult to observe and measure, so there is very little direct evidence of the effectiveness of monitoring and incentives in inducing effort. Instead, the existing literature has relied upon firm value and performance to measure CEO effort, which is problematic because these firm-level outcomes represent extremely noisy measures of CEO effort.[2] To our knowledge, this study is the first to measure and exploit the different levels of leisure consumption for a broad sample of CEOs to determine the effectiveness of corporate governance mechanisms, the relation between leisure and firm performance & value, and the ability of the directors to monitor leisure and adjust incentives.

We evaluate the primary predictions of agency theory using a unique database of CEOs' golfing habits to proxy for their levels of leisure consumption. By studying this rich and detailed record of CEO golfing activity, we are able to document that financial incentives are an important determinant of how frequently a CEO is on the golf course. We also find that high levels of golfing activity are associated with weaker operating performance and lower firm value, which confirms the importance of CEO effort. Robustness tests confirm that the relationship between performance and leisure consumption is not driven by unobserved omitted variables. We show that directors adjust their CEOs' incentives in response to revealed preferences for leisure and that this

[2] See Demsetz and Lehn, 1985; Morck, Shliefer, Vishney, 1988; Hermalin and Weisbach, 1991; Woidtke, 2002; Bebchuk, Cremers, and Peyer, 2011.

adjustment is primarily made to the incentives of new CEOs, a group where directors have the least information regarding preferences. Additionally, we find that CEO turnover is related to prior golf frequency and the relationship is driven by CEOs with short tenures. The observed adjustment of incentives and CEO turnover is consistent with the resolution of information asymmetries over time.

To perform the analyses in this study, we utilize a hand-collected dataset of golf records for 363 S&P 1500 CEOs extracted from a database of golf records maintained by the United States Golf Association ("USGA"). This database contains records for each round recorded in the system by participating golfers from 2008 to 2012.[3] For each round of golf the database contains the month and year, difficulty of the course, the player's score, the method through which the round was entered into the database, and if the round was at the golfer's home course. Additionally, the database lists the course memberships of each golfer. This database is used to calculate golfers' handicaps and online access is provided to others in the golfing community.[4]

We use the frequency of golf play as a proxy for the amount time allocated to leisure consumption by the CEO. We argue that golf frequency measures leisure consumption because each round of golf consumes a significant amount of an executive's time and prior studies show that CEO golfing activity is correlated with other forms of leisure consumption, such as the time spent at their vacation homes (Yermack, 2006). The distribution of CEO golf frequency is shown in Figure 1, which demonstrates that many CEOs spend a large amount of time at the golf course. Based on definitions

[3] A round of golf is played over 18 holes. The maximum number of players in a group is generally 4 and it takes approximately 4 hours to complete the round.

[4] A golfer's handicap is a numerical representation of golf skill and lower handicaps are assigned to better golfers. Handicaps are calculated based on prior scores and are used as a mechanism to adjust scores for golfers with different skill levels when they are competing.

provided by the USGA, more than 57% of the CEOs in the sample are classified as "Core" or "Avid" golfers. Although we treat all golf by CEOs as leisure consumption, there are certainly rounds that have a valid business purpose, which is reflected in the commonly held notion that "business gets done on the golf course". However, the distribution of golf frequency has a long tail, with the top quartile (decile) playing a minimum of 22 (37) rounds per year. In fact, some CEOs in the database play in excess of 100 rounds in a calendar year! This observed behavior appears difficult to justify as value maximizing, but is consistent with an agency problem. Additionally, we document a 42% increase in the frequency of golf in the year following a CEO's departure from the firm, suggesting that CEOs enjoy golf as a hobby and are not merely using it for business purposes. We provide a more detailed discussion of golf as a measure of leisure consumption in Section III.

The separation of ownership and control is a hallmark of the modern corporation, leading to a potentially strong agency conflict between executives and shareholders. Jensen and Meckling (1976) argue that the agency problem faced by shareholders can be mitigated by establishing incentives for the manager that align her interests with those of shareholders and by monitoring the managers' activities. In the modern corporation, these incentives are primarily established through stock and options awarded to the CEO (Jensen and Murphy, 1990; Mehran, 1995). In this study, we find evidence that higher levels of equity-based incentives are associated with lower leisure consumption by the CEO, providing some of the first direct evidence of the efficacy of corporate governance in the labor/leisure decision of CEOs. A simple univariate comparison reveals the relationship between equity-based incentives and time spent playing golf: the average

ownership percentage for CEOs in the bottom quartile of golf frequency is 1.82%, which is significantly higher than the 1.09% observed for CEOs in the top quartile.[5] When investigating these relationships in a multivariate framework, we find that CEOs play fewer rounds of golf when they have higher stock ownership or stronger wealth performance sensitivity.

We document that high levels of leisure are associated with lower firm performance, which supports the argument that CEO effort is an important determinant of firm performance. In the years where the CEO played 22 or more rounds, which corresponds to the top quartile of observations, the mean return on assets (ROA) is more than 100 basis points lower than firms where the CEO played less frequently. This result is economically significant as the sample mean ROA is just over 5.3%.

A potential concern regarding the relationship between leisure consumption and performance is that an unobserved variable is responsible for both high leisure consumption and poor firm performance. In order to address this potential endogeneity bias in our study we perform two separate analyses. The first approach uses a first-difference framework in order to alleviate concerns that unobserved CEO quality might be driving the results that we document. For example, low quality CEOs may choose to allocate large amounts of time to golf because the marginal productivity of their labor is low. The second analysis uses a two-stage least squares regression approach in which we specify an instrument for the level of golf play. The instrument that we employ is the number of clear days in the CEO's home state. Results from both analyses support our original findings that CEO leisure is negatively related to firm performance.

[5] The bottom quartile corresponds to observations where the CEO recorded less than 3 rounds in the fiscal year; the top quartile consists of observations where the CEO recorded 22 or more rounds during the fiscal year.

A second potential concern is causality. It is certainly possible that CEOs choose to play more golf because they expect firm performance to be poor. To address this concern, we look at the effect of high levels of leisure in industries where CEO effort is predicted to be most valuable. There should be no differential effect across industries if CEOs choose to play more golf because performance is expected to be poor. The existing literature documents stronger incentives for CEOs in high growth industries (Smith and Watts, 1992), which suggests that CEO effort is most valuable when the industry is growing rapidly. Consistent with this prediction, we document that firms in high growth drive the relationship between CEO leisure consumption and firm performance. This is not consistent with the notion that CEOs react to poor expected performance by allocating more time to leisure consumption.

Finally, we contribute to existing literature that is focused on the information asymmetries that exist between new CEOs and directors and the process by which these asymmetries are resolved. Harris & Holmstrom (1982) provide a model where information asymmetries between principals and agents are reduced as the principals observe the agents over a number of periods. Zajac (1990) argues that superior performance of inside hire CEOs is consistent with lower information asymmetries when the new CEO is promoted internally. Zhang (2008) provides further support for this argument, as newly hired CEOs are more likely to be terminated if they were external candidates, even when controlling for the performance of the firm. We find evidence that directors react to preferences revealed by new CEOs by analyzing adjustments to CEO equity-based incentives. Specifically, we document that new CEOs receive subsequent compensation that features significantly higher pay for performance sensitivity (PPS)

after they reveal strong preferences for leisure consumption. The relationship between past leisure consumption and PPS is significantly weaker for CEOs with longer tenures, which could indicate weaker monitoring by the board as the CEO nominates friendly directors.

This is the first study to empirically measure CEO leisure, which provides direct insight into the effort that CEOs allocate to managing firm resources. This study goes beyond the existing literature by directly linking CEO leisure, corporate governance, and firm performance for a broad sample of large firms. These findings improve our understanding of the importance of corporate governance and the cost of the agency problem. This paper supports and extends two recent studies that provide insight into the relationship between CEO effort and firm performance by identifying external shocks that distract the CEO. Both Bennedsen et al. (2007) and Malmendier and Tate (2009) document that external distractions are associated with lower firm performance, but the Bennedsen et al. (2007) study is limited to extremely small, Danish firms and the evidence in Malmendier and Tate (2009) relating firm performance to CEO distractions is indirect.

This paper continues as follows. In Section II, we discuss the related literature, explain the underlying assumptions and develop the hypotheses that are tested. Section III discusses the data collection, the merits of using golf frequency to measure leisure, and summary statistics. Multivariate results are discussed in Section IV and Section V concludes.

II. Literature Review and Hypothesis Development

Many economic models assume that CEO effort is an important determinant of firm performance and costly for the CEO to provide, yet the existing literature provides little evidence regarding the relationship between CEO effort, governance mechanisms, and firm performance.[6] The lack of empirical research is driven by the difficulty in measuring the effort provided by the CEO. We use a measure of CEOs' leisure consumption to proxy for the effort they provide, which allows us to empirically test theoretical predictions regarding the ability of governance mechanisms to influence CEO effort and the relationship between effort and firm performance.

An essential assumption of this study is that leisure is inversely related to the effort allocated to managing the assets and investments of the firm. Time is a finite resource and the time allocated to playing golf directly reduces the time available to devote to the firm. Additionally, playing a significant amount of golf may reveal an overall preference for leisure consumption, such that CEO golf frequency may be positively correlated with the time allocated to other hobbies or vacations.[7,8]

The primary tool used to align the interest of managers with shareholders is equity ownership, through either stock or options. Early research into the effectiveness of equity based incentives focused on the relationship between the value of the firm and the amount of equity owned by the CEO and/or management. The relationship between ownership concentration and firm performance/value is generally found to be non-

[6] See Jensen and Meckling, 1976; Holmstrom, 1979; Fama, 1980.

[7] James Cayne, the former COB/CEO of Bear Stearns provides an excellent example of this conjecture. Mr. Cayne spent 10 of 21 working days away from the office playing golf or bridge in July 2007 – the same month that two Bear Stearns hedge funds collapsed. See "Bear CEO's Handling Of Crisis Raises Issues", *The Wall Street Journal,* November 1, 2007.

[8] An alternative possibility is that low frequency golfers spend time on different hobbies such as boating or tennis. This possibility biases against finding the relationships documented in this study.

monotonic (Morck, Shliefer, Vishny, 1988; McConnell and Servaes, 1990; Hermalin and Weisbach, 1991). These studies find increasing firm value as managerial ownership increases from low levels, which is consistent with incentive alignment. The decrease in firm value at higher levels of managerial ownership is attributed managerial entrenchment, where managers with high ownership can engage in projects that provide private benefits without discipline from shareholders or financial markets. In a recent study, Tumarkin (2010) attempts to address the endogeneity between CEO incentives and firm value using econometric instruments, which enables him to analyze the exogenous change in firm value from CEO incentives. He documents that firms with the mean level of CEO incentives have Tobin's Q that is 10% higher than counterfactual firms without CEO incentives. Although these studies are generally consistent with the arguments of Jensen and Meckling (1976), they are not fully satisfying because they jointly test the importance of incentives on CEO effort and the importance of CEO effort on performance. This limitation is driven by the difficulty in measuring CEO effort. This study provides a more complete analysis as CEO leisure consumption provides direct insight into CEO effort, which allows us to test the hypotheses separately. Based on the predictions of agency theory, we expect higher CEO ownership and stronger equity-based incentives to be negatively correlated with leisure consumption, as CEOs work harder when they have stronger financial incentives.

Although CEO effort is regarded as an important determinant of firm performance, there is relatively little empirical support for this assumption. Two studies link CEO distractions to declines in performance, which is consistent with the importance of CEO effort in firm performance. Bennedsen et al. (2007) analyzes firm performance following

the death of a relative for a sample of small, Danish firms and documents performance declines following the relative's death. Malmendier and Tate (2009) find that award winning CEOs are more likely to write books and serve on multiple boards, two activities that may distract the CEO from her duties at the firm. They also find that performance declines at firms following CEO awards, but they do not directly link the new extracurricular activities to underperformance. We expect that CEOs devoting the most time to leisure will have weaker firm performance as they allocate less effort and time seeking and evaluating investment opportunities.

The amount of effort required of the CEO to maximize performance is likely to vary significantly by firm because of differences in the competitive environment and corporate structure. Smith and Watts (1992) document stronger incentives for CEOs when firms have more valuable growth options, which is consistent with the notion that strong incentives are needed when CEO effort is more valuable. CEO effort is important in firms with valuable growth options because there are a greater number of new investments to evaluate and these projects have a larger impact on firm performance. This indicates that deviations from optimal CEO effort will have a larger impact on firm performance in industries where CEO effort is most valuable. We expect that high levels of leisure consumption will have the greatest impact on firm performance when the firm operates in an industry with high growth.

Harris & Holmstrom (1982) outline a model where information asymmetries between principals and agents are reduced as the principals observe the agent over a number of periods. Zajac (1990) applied this model to the relationship between directors and CEOs and argues that the superior performance of inside-hire CEOs is consistent

with reduced information asymmetries when the new CEO is promoted internally. Zhang (2008) provides further support for this argument, as newly hired CEOs are more likely to be terminated if they were external candidates. The preferences revealed by the CEO early in her tenure are likely to influence the optimal level of incentives needed to maximize shareholder value. Existing empirical evidence suggests that directors use equity grants to adjust incentives when they deviate from ideal levels (Core and Guay, 1999). We expect that directors will make larger adjustments to CEO incentives early in the CEO's tenure, as information asymmetries are resolved. This indicates that directors will provide compensation with stronger incentives when CEOs reveal preferences for high levels of leisure and that the adjustment to incentives will be the greatest for CEOs with short tenures.

III. Data and Empirical Methods

3.1. Sample Construction

The first focus of this study is to analyze the relationship between the time CEOs spend on the golf course and the strength of governance as measured by ownership and total incentives. We also analyze the relationship between high levels of leisure consumption and firm performance. Finally, we look at CEO pay for performance sensitivity to determine if CEO effort is reflected in structure of compensation selected by the board. These analyses require data collection from a multitude of sources including Compustat (accounting variables), CRSP (firm size, stock returns, and return volatility), Execucomp (compensation and incentives), RiskMetrics (firm governance),

Thompson (institutional ownership), and the United States Golf Assocation (golfing records).

We use the USGA's database of golf handicaps to determine the frequency of golf for a sample of S&P 1500 CEOs. This system, the Golf Handicap and Information Network (GHIN), is designed as a tool to calculate and maintain golfers' handicaps and to provide a method to verify a playing partner's handicap. We identify each CEO in the USGA records by matching based on name, proximity of the club to firm headquarters, and the exclusivity of the club (i.e. private and expensive).[9] The round-by-round history contains all of the rounds entered into the system and includes the month and year of the round, the golfer's score, the course rating and slope, and whether the round was played at the golfer's home course. The GHIN system is widely populated starting in 2008, but the length of each player's history is driven by the date her regional association became affiliated with the USGA. We include firm years where the CEO's first round in the system is prior to the beginning of the second quarter of the fiscal year.[10] We identify 363 CEOs with records in the GHIN system over the period of 2008 to 2012, which corresponds to 1,233 unique CEO-year observations. This represents almost 16% of the universe of S&P 1500 observations over the sample period, which consists of 7,519 CEO-years for 2,282 unique CEOs.

3.2. Golf Frequency as Leisure Consumption

The frequency of golf is a reasonable measure of leisure consumption as many CEOs play a substantial amount of golf, the direct time commitment for a single round is considerable, and numerous rounds are played at vacation destinations. The distribution

[9] For club proximity, we look for clubs within 60 miles of the firm's headquarters.
[10] This truncation eliminates observations where the full year of golf records is not observed.

of golf frequency is displayed in Figure 1 – the long tail of the distribution highlights that CEOs frequently spend a large amount of time playing golf. The time it takes to play a single round is significant as most rounds extend beyond 4 hours, not including any time spent driving to the club, shopping in the pro-shop, changing clothes, warming up, or socializing after the round. It is not unusual for golfers to spend the majority of the day at a golf club to play a single round. Finally, it is common for CEOs to play golf while staying at their vacation properties. Yermack (2006) documents that the presence of an out of state club membership significantly increases the likelihood that a CEO reports using company aircraft for personal travel. In our sample, over 40% of the CEOs are members at multiple clubs and many of the clubs coincide with vacation destinations.[11] Beyond the direct time commitment, high levels of golf may reveal a strong preference for leisure, such that golf consumption may only represent the tip of the iceberg.

Clearly, some of the rounds played by CEOs have a valid business purpose, which leads to a natural critique of using golf to measure leisure consumption. The notion that "business gets done on the golf course" is commonly held and suggests that the observed patterns of golf reflect an attempt to generate or solidify business relationships by the CEO.[12] Although a valid concern, the high level of golf observed for some executives is consistent with a strong leisure component – the CEOs in the top decile played a minimum of 37 rounds per fiscal year, which is difficult to reconcile with value maximizing behavior. In fact, a back-of-the-envelope estimate for the minimum number

[11] Approximately 50% of the CEOs with multiple memberships are members at clubs that belong to different golf associations, with each association representing the clubs in a specific geographic area (commonly a state).

[12] A secondary criticism of golf as leisure consumption is the increase in productivity from smartphones and mobile Internet devices. This criticism is tempered by the fact that many golf courses actually prohibit golfers from using these devices on the course and in the clubhouse. A simple Google search of "country club" and "cell phone policy" reveals more than 3,000 hits and a cursory review indicates these policies are intended to curtail phone usage on the course.

of hours that a CEO in the top decile allocates to golf is more than 220 hours – roughly equivalent to 5.5 weeks of work.[13] We document further evidence supporting the leisure focus of golf by studying the change in golf following CEOs' retirements. In a sample of 80 CEOs that exit their firm during the sample period, we find that the average number of rounds increases from 14 during the last year of employment to 20 in the year following the retirement. This difference is statistically significant at the 1% level and represents an increase of 42%, which is consistent with CEOs allocating more time to leisure when they are no longer employed fulltime. To the extent that some rounds in our sample could be deemed as having a valid business propose, it would bias against finding proposed results.[14] Additionally, we attempt to control for the importance of golf in business by including the number of acquisitions and prior sales growth, as well as industry and year indicator variables in multivariate analyses.[15]

3.3. Variable Construction and Summary Statistics

The primary variables used to measure CEO incentives in this study are *CEO Percent Ownership* and *CEO Wealth-Performance Sensitivity* (*CEO WPS*). Jensen and Murphy (1990) argue that percent ownership is the most appropriate variable to measure a CEO's incentives from stock ownership; we collect *CEO Percent Ownership* from Execucomp for each CEO. CEOs also hold significant numbers of options, which provide financial incentives for increasing shareholder wealth. To measure the combined

[13] We use an estimate of 6 hours per round to account for the time spent playing and practicing

[14] In this study, we assume that golf frequency is inversely related to the effort provided the firm. If the majority of rounds had a valid business purpose, then golf frequency would be positively correlated with effort. We are unaware of any theory that would predict that effort is a decreasing function of incentives and monitoring, that effort destroys value, and that compensation would adjust downward as effort increases.

[15] We use the number of acquisitions and prior sales growth to control for settings where CEO networking and negotiating are expected to most valuable.

incentive strength of stock and options we use *CEO WPS*, which is defined as the change in dollar value of the executive's firm-specific wealth associated with a one thousand dollar change in firm value and is calculated as:

$$WPS_i = \frac{Total\ Share\ Ownership + \sum \Delta \times Number\ of\ Options}{Number\ of\ Shares\ Outsanding} \times \$1{,}000 \qquad (1)$$

For each outstanding option, we calculate an individual delta based on time to expiration, strike price, the fiscal year-end stock price, 3-year average dividend yield and standard deviation of monthly returns over the prior 60 months. We then calculate the total delta of the option portfolio as the summation of the product of each individual delta and the number of underlying shares. The measure of WPS used in this study is analogous with the pay for performance from direct stock holdings and options as calculated in Jensen and Murphy (1990).

Table 1 provides summary statistics for observable firm and CEO characteristics for the sample of firm years linked to golfing records ("the golfer sample") and the overall sample of S&P 1500 firm years over the period of 2008 to 2012. The golfer sample consists of large, profitable firms with highly compensated CEOs. The mean values of sales, enterprise value, MVE, and ROA are larger for the golfing sample, but the importance of these differences is tempered by the fact that 50% of observations in the golfer sample are for S&P 500 firm.[16] For example, the average firm in the S&P 1500 universe has a MVE of $7.2 billion versus $12.6 billion in the golfer sample. When you restrict the samples to firms in the S&P 500, the overall average MVE is $22.0 billion and the average for the golfer sample is $23.5 billion.

[16] In untabulated results, we compare the sample of firm characteristics of golfing CEOs from S&P 500 firms to the universe of S&P 500 firms don't find significant differences with the exception of MTB, which is slightly lower for the golfing sample and significant at the 10% level. Similarly, the differences between the non-S&P 500 golfing sample and the universe of non-S&P 500 firms are insignificant with the exception of MTB, which is slightly lower for the golfing sample and significant at the 10% level.

The leisure activities of CEOs are likely to vary based on personal preferences and we have identified a group with a revealed preference for golf. Because of the inability to observe the leisure consumption of CEOs without records in the GHIN system, we focus my analyses on the sample of CEO-years that are matched to golfing records. Figure 2 shows the distribution of the sample of firm years linked to golfing records and the S&P 1500 universe by Fama-French 12 industry and shows that financial services and manufacturing appear to be overweight in the golfing sample and business equipment is underweight. To account for these systematic differences in the distribution of industries, we include indicator variables for Fama-French 48 industries in all multivariate regressions.

There is significant variation in the time spent playing golf by CEOs, which is highlighted in Table 2, but it is clear that that many CEOs devote a substantial amount of time to playing golf. The golf industry defines a core golfer as an individual that plays 8 to 24 regulation rounds per year and an avid golfer as an individual that plays 25 or more regulation rounds per year – based on these definitions approximately 58 percent of the CEOs in my sample would be considered a core or avid golfer. In the top quartile of CEO-year observations, the minimum number of rounds is 22, which represents a time commitment of 88 to 132 hours annually – this is 2 to 3 weeks of work based on a 40-hour workweek.[17] Additionally, the amount of time spent practicing is likely to be correlated with the frequency of play, such that the time allocated by the most frequent golfers is significantly higher than suggested by their play alone. This is evident as the

[17] This represents a lower bound of the time commitment. It is common for golfers to omit rounds from the GHIN system when they only play 9 holes, practice rounds, and rounds where the format does not follow regulation play (i.e. best ball, scramble, match-play). Additionally, many individuals spend time hitting range balls and practicing chipping/putting on days where they don't play any golf.

average handicap drops from 16.6 in the first quartile to 12.4 in the fourth quartile – a change from the 31% percentile to the 52% percentile.[18]

Figure 3 provides another interesting perspective into the leisure/labor choice during periods of economic uncertainty, as the average number of rounds played is significantly lower in 2008 than over the remainder of the sample period. There is also a slight dip in 2011, a year in which stock returns were largely flat and much lower than the returns in 2009, 2010, or 2012.

We begin our analysis by looking at univariate comparisons of firm characteristics across CEO-years with above/below median golf in Table 3. The median frequency of golf for all CEO-years is 10 rounds, thus we divide the golfer sample into those observations with 0 to 10 rounds and those with 11 or more rounds. Overall, there are very few statistical differences in firm characteristics between the samples of above- and below-median frequency golfers as the mean values of *Sales, Enterprise Value, MTB, MVE, Tobin's Q, Leverage, ROA, Institutional Ownership, E-Index,* and *Blockholder* do not have differences that are statistically significant. The most striking pattern is the difference in compensation measures between the two samples as mean values for *Bonus*, *Total Current Compensation, Total Compensation* are economically and statistically lower for the sample with above median frequency. The average total compensation is $1.31 million higher for the below median sample, an increase of nearly 20%. Additionally, the financial incentives of the CEOs in the above median sample appear lower than the sample of less frequent golfers as the *Wealth Performance Sensitivity* is $8.47 lower (p-value 0.058) and the *CEO Ownership* is .861% lower (p-value = 0.048).

[18] This is based on the overall distribution of handicaps retrieved from the USGA. See http://www.usga.org/handicapping/articles_resources/Men-s--Handicap-Indexes/

Overall, this pattern highlights an important relationship between incentives, compensation, and leisure consumption across firms that appear otherwise similar. CEOs with stronger financial incentives play less golf than CEOs with weaker financial incentives, which is consistent with financial incentives aligning the interests of CEOs with shareholders. The negative relationship between the frequency of golf and compensation is consistent with the conjecture that compensation should be correlated with the effort required of the job. This analysis does not distinguish between a CEO that recorded 11 rounds and one that recorded 30, but there may be important variation in firm and governance characteristics across these observations. To provide a more thorough analysis of the relationship between CEO effort and corporate governance, we utilize a linear regression framework in the next section.

IV. Results

4.1. Determinants of CEO Leisure Consumption

To analyze the importance in governance mechanisms in the labor/leisure decision of CEOs, we perform a series of linear regressions using the natural log of the number of rounds played annually as the dependent variable. Table 4 contains coefficient estimates from multivariate regression analyses of CEO golf frequency on measures of incentives and monitoring along with observable firm and CEO characteristics. Across all specifications, we include CEO- and firm-level variables to control for differences in preferences and job complexity that might influence the consumption of leisure. We draw from the executive compensation literature to determine the appropriate control variables, as executive compensation should reflect the effort provided by the CEO. Following Core,

Holthausen, and Larcker (1999), we include the natural log of beginning of period enterprise value and the natural log of the ratio of market-value to book-value to control for differences related to size and growth opportunities, as effort may be more valuable for a firm with a large base of assets or where new investments are more important.[19] We control for past stock returns and accounting profitability to account for prior performance in the labor/leisure decision. To control for firms where golf may be important for business negotiations, we include sales growth and the number of acquisitions. We include firm age to account for the stage of the business cycle of the firm and CEO tenure to control for horizon concerns that may impact the leisure consumption of CEOs (Gibbons and Murphy, 1992). We include year and Fama-French 48 industry indicator variables to control for unobserved differences across the sample period and across firms in different industries.

Overall, very few control variables are significant determinants of CEO leisure consumption, which is consistent with the similar firm characteristics shown between observations with high and low golf as shown in Table 3.[20] In the first two specifications of Table 4, Panel B we analyze the relationship between CEO incentives and leisure consumption using the percent of equity owned by the CEO and the sensitivity of the CEO's firm-specific wealth to changes in firm value. In all regressions we use lagged values of right hand side variables to help establish causality. In the first specification, the variable of interest is *Wealth-Performance Sensitivity*. This variable captures the dollar change in the CEO's firm specific wealth from a $1,000 change in firm value. The

[19] We use enterprise value following Gabaix and Landier (2008), who conclude that the enterprise value is a high quality measure of firm size. All results are consistent when we measure firm size using MVE.

[20] To facilitate presentation of results, we suppress control variables with insignificant coefficient estimates. These variables include *$Returns_{t-1}$, Leverage, $Return\ Volatility_{t-1}$, Sales Growth, and Number of Acquisitions.*

coefficient on *Wealth-Performance Sensitivity* is -0.00240 and is significant at the 1% level. We document similar results in the second specification when using *CEO Ownership*, which is equal to the CEOs equity ownership percentage excluding options. The coefficient on *CEO Ownership* is -0.0291 and is significant at the 1 percent level, which indicates that CEOs with a larger equity stake allocate less time to leisure consumption. The third and fourth specifications demonstrate that the relation between CEO incentives and leisure consumption is robust to the inclusion of variables that control for differences in monitoring. This pattern is consistent with arguments of Jensen and Meckling (1976), where CEOs allocate more effort to managing firm assets when they bear a higher cost of shirking. Although highly consistent with theory, this is the first evidence that day-to-day CEO leisure consumption is influenced by ownership/incentives.

4.2. Leisure Consumption and Firm Performance

4.2.a. The Level of Firm Performance

Analogous to the lack of evidence linking CEO effort to incentives and monitoring, the current literature provides very little evidence that CEO effort is correlated with firm performance. Shirking by the CEO is a large presumed cost of the agency problem (Jensen and Meckling, 1976) and distracted CEOs have been associated with low performance in a handful of studies (Bennedsen et al., 2007; Malmendier and Tate, 2009). To analyze the relationship between CEO leisure and firm performance, we categorized firm-years into quartiles based on the frequency of golf by the CEO. The primary variables of interest are *Number of Rounds,* which is a continuous variable equal

to the observed number of rounds during the fiscal year and *Frequent Golfer (Q4)*, which is an indicator variable equal to 1 if the CEO played 22 or more rounds during the year.

Although we have documented strong evidence that CEO effort is influenced by equity-based incentives, it remains an open question if high levels of observed leisure are associated with poor performance. Recent research has documented that CEO turnover is tied to the performance of the firm, which could provide a powerful incentive for CEOs to curtail their leisure if it negatively impacts firm performance (Jenter and Lewellen, 2010). Table 5, Panel A provides insight into correlation between firm performance and CEO leisure consumption, where performance is measured by ROA and industry adjusted ROA. Using both measures, firm performance is lower on average for firm-years where the CEOs allocated the most time to leisure, as the average values for *Quartile* 4 are smaller than *Quartiles 1* to *3*. The underperformance is economically significant as the mean ROA for the firms in *Quartile 4* is 110 basis points lower than other firms in the sample (p-value = 0.033). This provides preliminary evidence that shirking by the CEO is associated with weaker performance, but this setting does not control for firm characteristics that might influence firm performance. To provide a more robust analysis of the relationship between leisure and firm performance, we utilize multivariate linear regressions that control for firm and executive characteristics that impact the performance of the firm. In all specifications we include *Enterprise Value* and *MTB* to account for varying profitability that is driven by size and growth opportunities and we include *Return Volatility* to measure the relative risk of the firm. We include *Board Independence* and *Institutional Ownership* to account for performance differences that are driven by the strength of monitoring. We control for past profitability using lagged values of the

dependent variable and capture the different levels of incentives using *CEO Ownership*. Additionally, we control for time- and industry-specific unobservable characteristics using year and Fama-French 48 industry indicator variables.

Panel B of Table 5 contains the coefficient estimates from the multivariate analyses of firm performance. We find higher returns for firms with greater growth options and lower returns for firms with higher stock return volatility; also, we find that past performance is closely tied to future performance. We document lower ROA for firms with higher leverage as interest expense reduces the earnings available to shareholders. We do not find any significant differences in performance from CEO equity based incentives or institutional ownership monitoring.

In the first 3 specifications, we use an ordinary least squares framework to estimate the relation between CEO golf frequency and firm performance. In the first specification, we measure golf frequency using *Number of Rounds*, which has a negative and significant coefficient estimate. In the second specification, we include indicator variables for each quartile of golf frequency (*Quartile 1 – Quartile 4)*, which shows that the most frequent golfers have the lowest performance. This pattern is reinforced in the third specification, where we include an indicator for *Quartile 4*, which corresponds to those firm years where the CEO recorded 22 or more rounds in the GHIN system. The coefficient *Quartile 4* is -0.0110 and significant at the 1% level, which is economically significant as well since the sample mean ROA is 5.3%. These results confirm that shirking by the CEO is strongly correlated with weaker firm performance and emphasizes the importance of strong monitoring and incentives to ensure that CEOs provide sufficient effort to maximize shareholder value.

In the forth and fifth specifications, we employ a two-stage least squares framework to help address concerns of endogeneity. In order to implement this analysis we require an instrumental variable that is correlated with the amount of golf CEOs choose to play, but is uncorrelated with firm profitability (ROA). We believe a valid instrument in this particular setting is the number of clear days in the state in which the company's headquarters are located, which we collect from the National Oceanic Atmospheric Administration (NOAA). Columns 4 and 5 from panel B of Table 5 present the coefficient estimates from second stage regressions, where the dependent variable is ROA. Consistent with our primary results, the coefficient estimates on the fitted values for the *Number of Rounds* and *Quartile 4* are negative and significant.

4.2.b. Firm Performance when CEO Effort is Most Important

A potential concern regarding the relationship between firm performance and CEO leisure consumption is the direction of causality. A potential interpretation of the negative relationship between high levels of leisure consumption and firm performance is that CEOs choose to allocate a significant amount of time to leisure when they expect firm performance to be poor, possibly because there are few projects to evaluate.

To address this concern, we look at the relationship between firm performance and CEO leisure consumption in firms where CEO effort is expected to be most valuable. If CEO effort is driving firm performance, then high levels of leisure should have the greatest effect on firms where effort is expected to be most valuable. Conversely, if CEOs are simply reacting to poor expected performance, then the relationship between operating performance and leisure consumption should be relatively constant across different types of firms. The existing literature documents stronger incentives for CEOs

in high growth (Smith and Watts, 1992), which suggests that CEO effort is most valuable in rapidly expanding industries.

We analyze the differential effect of leisure consumption on firm performance for firms based on industry growth. Firms in high growth industries are expected to have a greater number of investment opportunities that merit evaluation and thus have a higher demand for CEO effort. Firms in low growth industries are expected to focus on the efficiency of existing operations, which requires less effort from the CEO.

We conduct this analysis by analyzing the relationship between CEO leisure consumption and firm performance in high and low growth industries in Table 6. We first construct an indicator variable, *High Growth Industry*, which is equal to 1 if the firm is in an industry where the industry median sales growth is above the overall median sales growth. In the first specification we separately analyze the relationship between golf frequency and firm performance using the *Number Rounds – High Growth* and *Number Rounds – Low Growth*. The coefficient on *Number Rounds – High Growth* is negative and significant, while the coefficient on *Number Rounds – Low Growth* is very close to zero. This indicates that the negative relation between CEO golf frequency and firm performance is concentrated in firms in high growth industries.

In the second specification, we construct indicator variables based on the frequency of golf and the growth of the industry. *Frequent Golfer (Q4) – High Growth*, is equal to 1 if the CEO played 22 or more rounds during the year and the firm is in a high growth industry. *Frequent Golfer (Q4) – Low Growth*, is equal to 1 if the CEO played 22 or more rounds during the year and the firm is in a low growth industry. The coefficient on *Frequent Golfer (Q4) – High Growth* is negative and significant, while the coefficient

estimate for *Frequent Golfer (Q4) – Low Growth* is negative and insignificant. The third and fourth columns demonstrate that the results robust when instrumenting for the frequency of golf using the number of clear days.

4.2.c. Endogeneity

It is certainly possible that the relationship between CEO leisure and firm performance is endogenous. If unobservable/omitted variables drive both golf play and firm performance, such a relationship would certainly cloud inference in our study. In order to address this potential endogeneity bias we analyze the relation between CEO leisure and firm performance in a first-difference framework. This alleviates concerns that unobserved CEO quality might be driving the relationships that we document.

CEOs with low inherent quality may be associated with weak performance, and these low quality CEOs may choose to consume large amounts of leisure because the marginal productivity of their effort is low. Quality is unobservable, which indicates that the estimated relationship between leisure consumption and performance may suffer from an omitted variable bias. We use a first-difference framework to address this potential bias and report our results in Table 7. In this framework, the dependent variable and independent variables are measured as differences across firm year observations. Across both specifications, the dependent variable is *Change in ROA*, which is constructed as $ROA_t - ROA_{t-1}$. In the first specification of Table 7 the variable of interest is *Change in Rounds Played*, which is equal to *Number of Rounds Played*$_t$ – *Number of Rounds Played*$_{t-1}$. In the second specification, the variable of interest is *Change in Frequent Golfer (Q4)* and is equal to *Frequent Golfer (Q4)*$_t$ - *Frequent Golfer (Q4)*$_{t-1}$. This allows *Change in Frequent Golfer (Q4)* to take the value of -1, 0, and 1.

We document that firm performance declines after the enterprise value of the firm grows and changes in the market-to-book ratio lead changes in firm performance. Additionally, firms appear to experience performance declines following increases in return volatility. In both specifications, the coefficient on the variable of interest is negative and significant, which indicates that firm performance declines significantly when the CEO begins allocating a large amount of time to golf and that firm performance improves significantly when the CEO stops allocating a large amount of time to golf. Overall, these results indicate that CEO effort is important for firm performance and the relationship is not driven by low quality CEOs allocating large amounts of time to leisure consumption.

4.3. Firm Value and CEO Golf Frequency

We study the relation between CEO leisure consumption and firm value to establish the impact of CEO effort on a firm's stakeholders. We measure firm value using *Tobin's Q*, which represents the ratio of the market value a firm's assets to their replacement value. Table 8 presents coefficient estimates from regressions of Tobin's Q on CEO golf frequency and control variables that account for past performance, size, and leverage. In the first column, golf frequency is measured by *Number of Rounds* and the coefficient estimate is negative and significant. In the second and third columns, indicator variables are used and they provide additional evidence of lower firm value when the CEO allocates a large amount of time to leisure consumption. We demonstrate that these results hold in a 2 stage-least squares framework in the fourth and fifth columns. Overall, these results are consistent with the argument that high levels of CEO leisure consumption impacts firm performance and ultimately firm value.

4.4. Evidence of Monitoring by Directors

Monitoring the performance of the CEO is one of the primary responsibilities of firms' directors along with implementing a compensation structure that aligns the incentives of the CEO with shareholders. Additionally, directors are responsible for terminating and replacing CEOs that are not performing sufficiently. Core and Guay (1999) provide evidence that directors use equity grants in response to deviations from the optimal level CEO incentives; additionally the authors document that CEO incentives increase over her tenure. High levels of leisure consumption by the CEO potentially indicate that the existing level of incentives are too weak and need to be adjusted via equity based compensation grants. Adjustments to CEO incentives are most likely to be necessary early in her tenure, because her existing level of incentives are likely to be low and the directors of the firm learn more about her preferences and abilities.

To measure the strength of incentives from CEO compensation, we use pay-for-performance sensitivity (PPS) which measures the change in the value of the CEO's equity based compensation for the $1,000 change in firm value. Table 10 provides coefficient estimates from linear regressions of PPS on prior leisure consumption and an array of control variables. Consistent with prior literature, we document lower PPS at larger firms and increased PPS at firms with greater risk. We also find that PPS is significantly lower for new CEOs, which is consistent with Core and Guay (1999). We control for the tenure of the CEO using indicator variables that are constructed using the quartile breakpoints of the sample distribution of tenure.

We measure the prior leisure consumption of the CEO using *Ln(Number of* $Rounds_{t-1}$*)*, which captures the frequency of golf during the prior fiscal year. In the first

specification, the coefficient on *Ln(Number of Rounds$_{t-1}$)* is 0.0208 (p-value = 0.677). This indicates that overall, directors do not adjust incentives based on the consumption of leisure by CEOs. This is surprising, but it could reflect that existing incentives are optimal for many CEOs. Information asymmetry between the CEO and directors regarding talent and preferences is likely to be greatest early in the CEOs tenure, such that directors may make large adjustments to CEO incentives when leisure preferences are originally revealed.

To test this possibility, we interact the frequency of golf with the tenure quartile indicators, which allows the relationship between prior leisure and incentives to change over a CEO's career. The specifications with these interactions are found in column 2 of Table 10. The coefficient estimate on *Ln(Number of Rounds$_{t-1}$) * Tenure_Q1,* is positive and significant at the 1% level, while the coefficient estimates on the other interactions are insignificant. This indicates that directors provide strong incentive adjustments to CEOs early in their tenure after they reveal a strong preference for leisure consumption. Overall, this pattern is consistent the reduction of information asymmetries between CEOs and directors over time and directors adjusting incentives for CEOs based on revealed preferences.

We also look for evidence of directors monitoring by looking at CEO turnover events. If CEOs that play a large amount of golf are shirking from their firm-related responsibilities, then it may be in shareholders interest to replace the existing CEO. In the third and forth columns of Table 10, we analyze this possibility. The dependent variable is *CEO Turnover*, which is equal to one of a different CEO is observed at the firm in the next fiscal year. In the third column, the coefficient estimate on *Ln(Number of Rounds$_{t-1}$)*

is 0.216 (p-value = 0.0517), which shows that boards to tend to replace CEOs that allocate a large amount of time to golf. In the fourth specification, we examine how this relationship changes over a CEOs career and find that the relation between past CEO leisure consumption and CEO turnover is concentrated in CEOs with short tenures. This is consistent with the notion that directors resolve information asymmetries early in CEOs careers and new CEOs have little power over directors.

V. Conclusion

Financial models generally assume that CEO effort is important for firm performance and costly for the CEO to provide, but difficulty in measuring effort has limited financial economists' ability to test these theories. We measure CEO leisure using the frequency of golf during the fiscal year, which provides a proxy for the level of effort provided by the CEO. This measure allows us to test the power of incentives and monitoring in CEOs labor/leisure decision, the importance of CEO effort in firm performance, and the existence of ex-post settling between the CEO and shareholders.

We document that CEO leisure consumption is lower for firms where the CEO has stronger incentives. This confirms the importance of these governance mechanisms in preventing shirking as predicted by Jensen and Meckling (1976). Specifically, we find that higher CEO ownership is associated with lower leisure consumption. The relationship between CEO leisure consumption and corporate governance is incomplete without analyzing the performance of the firm. It's possible that existing incentives and governance are optimal for all firms, such that observed levels of leisure consumption are consistent with maximizing shareholder value. Alternatively, high levels of leisure consumption could reflect shirking by the CEO as a result from sub-optimal governance,

which would result in underperformance. In this study, we find evidence of the latter as we also document that high levels of leisure by the CEO are associated with lower firm performance. We find that ROA is 1.10% lower in firm-years where the CEO played 22 or more rounds during the year, which is highly economically significant, as mean ROA is 5.30% over the sample period. The relationship between leisure and performance is most pronounced in high growth and non-regulated industries, which is consistent with the hypothesis that CEO effort is more important in these industries. This provides evidence that shirking by the CEO can represent a problem for shareholders.

Ideally compensation should reflect the effort of the CEO in generating returns for shareholders, but there is existing evidence that CEO compensation reflects rent seeking by powerful CEOs. We analyze the composition of CEO compensation as a function of prior leisure consumption and observable firm and CEO characteristics. We find that PPS is higher for CEOs who allocate more time to leisure consumption, but this relationship is muted as the tenure of the CEO increases.

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Appendix
Table 1 – Summary Statistics

Table 1 provides descriptive statistics for the fiscal years 2008 to 2012 for the intersection of firms covered by Execucomp, CRSP, and Compustat along with the sample of observations where the CEOs golfing records were identified in the USGA's GHIN database. *Sales, Enterprise Value, Tobin's Q, Leverage, ROA,* and *Firm Age* were collected from Compustat; *MVE* was collected from CRSP; *Institutional Ownership* and *Blockholder* were collected from Thompson Financial; *CEO/*Chairman were collected from Riskmetrics. *Salary, Bonus, Salary+Bonus, Total Compensation, WPS, CEO Ownership, and Age* were collected from Execucomp.

	S&P 1500 Firms					Golfing Sample				
	N	Mean	Median	P10	P90	N	Mean	Median	P10	P90
Sales	7,519	6,448	1,412	226.992	12,988	1,233	11,376	2,812	348.524	23,754
Enterprise Value	7,519	20,868	3,521	492.9142	34,452	1,233	35,111	8,245	873.6846	71,042
MVE	7,519	7,228	1,610	267.6574	15,220	1,233	12,578	3,641	367.7115	26,539
Tobin's Q	7,518	1.64	1.31	0.93	2.73	1,233	1.60	1.31	0.95	2.60
Leverage	7,519	22.10%	18.92%	0.00%	48.62%	1,233	23.54%	20.66%	0.13%	48.52%
ROA	7,519	4.36%	4.29%	-3.87%	14.33%	1,233	5.15%	4.54%	-1.00%	14.19%
Institutional Ownership	7,519	68.22%	78.24%	0.00%	100.00%	1,233	68.90%	78.03%	0.00%	99.18%
Blockholder (1/0)	7,519	0.80	1	0	1	1,233	0.786	1	0	1
Firm Age	7,519	27.61	22	11	58	1,233	30.66	24	12	59
Salary	7,519	814	760	412.5	1,217	1,233	963	915	516.923	1,417
Bonus	7,519	232	0	0	450	1,233	462	0	0	682.5
Salary + Bonus	7,519	1,046	830.77	438.66	1,530	1,233	1,425	954.8	545.069	2,000
Total Compensation	7,519	5,348	3,621	960.892	11,392	1,233	7,491	5,364	1409.006	14,851
CEO/Chairman (1/0)	6,541	0.54	1	0	1	1,140	0.62	1	0	1
WPS	7,518	27.81	9.53	1.29	65.20	1,233	21.54	7.94	1.30	49.23
CEO Ownership	7,519	1.99	0.351	0	4.52	1,233	1.43	0.299	0	3.118
Age	7,513	56.00	56	47	65	1,233	56.51	56	49	64
Tenure	7,519	9.27	7	3	18	1,233	9.92	8	3	19

Table 2 – Descriptive Statistics – CEO Golf Characteristics

Table 2, Panel A provides summary statistics for the overall sample of firm years for the 363 CEOs that were identified in the USGA's GHIN database for the period of 2008 to 2012; all statistics are calculated based on the firm's fiscal year. *Number of Rounds* is equal to the number of days where the CEO recorded a round of golf during the firm's fiscal year. Observations are limited to those where the CEO's first round in the GHIN system occurs prior to the start of the fiscal year or in the first 90 days of the fiscal year. Panel B reports the observations for each quartile of frequency; *Quartile 1* is limited to observations with 0 to 2 rounds; *Quartile 2* is limited to observations with 3 to 10 rounds; *Quartile 3* is limited to observations with 11 to 21 rounds; *Quartile 4* limited to observations with 22 or more rounds.

Panel A – Full Sample

	N	Mean	S.D.	Median	P25	P75	Max
Number of Rounds	1,233	15.74	18.60	10	2	23	146
Number of Rounds - Away	1,233	4.31	8.27	1	0	5	76
Number of Rounds - Home	1,233	11.43	14.52	6	1	17	88

Panel B – Sample by Quartile

	N	Mean	S.D.	Median	P25	P75	Max
Quartile = 1							
Number of Rounds	325	0.44	0.75	0	0	1	2
Number of Rounds - Away	325	0.06	0.25	0	0	0	2
Number of Rounds - Home	325	0.38	0.69	0	0	1	2
Average Score	92	93.91	9.52	94	86	100	127
Quartile = 2							
Number of Rounds	302	6.24	2.35	6	4	8	10
Number of Rounds - Away	302	1.67	2.35	1	0	3	10
Number of Rounds - Home	302	4.57	2.60	4	3	6	10
Average Score	302	93.64	7.04	93	89	97	118
Quartile = 3							
Number of Rounds	277	15.35	3.03	15	13	18	21
Number of Rounds - Away	277	4.69	4.75	3	0	7	20
Number of Rounds - Home	277	10.66	5.35	11	7	15	21
Average Score	277	91.29	5.72	91	87	95	110
Quartile = 4							
Number of Rounds	329	39.92	19.62	34	26	48	146
Number of Rounds - Away	329	10.62	12.97	6	2	14	76
Number of Rounds - Home	329	29.30	16.61	25	20	35	88
Average Score	329	89.12	6.12	89	85	92	110

Table 3 – Univariate Comparison by Frequency of CEO Golf

Table 3 provides summary statistics for the sample of firm years from Execucomp for the 363 CEOs that were identified in the USGA's GHIN database for the period of 2008 to 2012 separately for the firm-years where the CEO recorded more than 11 rounds (*Above Median*) and where the CEO recorded 10 or less rounds (*Below Median*).

	Comparison of Mean Values			
	Above Median	Below Median	Difference	P-Value
Size & Age				
Sales	12,843	9,958	2,885	(0.193)
Enterprise Value	31,426	38,671	-7,245	(0.492)
MVE	13,208	11,970	1,238	(0.650)
Leverage	0.23	0.24	-0.0109	(0.572)
SP500	0.52	0.48	0.0398	(0.415)
Firm Age	31.79	29.59	2.197	(0.186)
Valuation				
MTB	1.23	1.23	0.00477	(0.959)
Tobin's Q	1.63	1.57	0.0536	(0.549)
ROA	0.05	0.05	0.000612	(0.931)
Governance				
Institutional Ownership	0.69	0.69	-0.00170	(0.954)
E-Index	3.10	3.10	0.00149	(0.988)
Blockholder (1/0)	0.79	0.79	0.00409	(0.914)
CEO/Chairman (1/0)	0.61	0.63	-0.0120	(0.800)
Compensation				
Salary	945	980	-35.22	(0.412)
Bonus	174	740	-565.9**	(0.0353)
Salary + Bonus	1,119	1,720	-601.1**	(0.0322)
Total Compensation	6,824	8,135	-1,311*	(0.0734)
CEO Incentives				
WPS	17.24	25.69	-8.447*	(0.0583)
CEO Ownership	0.99	1.85	-0.861**	(0.0475)
Age	56.72	56.29	0.431	(0.453)
Tenure	9.76	10.09	-0.335	(0.615)

Table 4 – Determinants of CEO Golf Frequency

Table 4, presents coefficient estimates from linear regressions of the frequency of golf on measures of CEO equity based incentives during the period of 2008 to 2012. *Ln (Number of Rounds)* is equal to the natural log of 1 plus the number of rounds recorded by the CEO during the fiscal year; WPS_{t-1} is calculated as the dollar value change in the CEOs stock and option portfolio for a $1,000 change in firm value; *CEO Ownership*$_{t-1}$ is collected from Execucomp and represents the CEO percentage ownership. All specifications include year and Fama-French 48 industry indicator variables.

VARIABLES	Ln (Number of Rounds)			
Enterprise Value	-0.00844	-0.00370	0.000222	0.00584
	(0.785)	(0.903)	(0.995)	(0.864)
MTB	0.0387	0.0313	0.0717	0.0662
	(0.623)	(0.688)	(0.398)	(0.430)
$Returns_{t-1}$	-0.135	-0.134	-0.128	-0.126
	(0.131)	(0.133)	(0.200)	(0.210)
ROA_{t-1}	0.596	0.562	0.381	0.341
	(0.303)	(0.329)	(0.566)	(0.606)
Leverage	-0.203	-0.196	-0.234	-0.236
	(0.386)	(0.401)	(0.364)	(0.357)
Return $Volatility_{t-1}$	-0.316	-0.310	-0.142	-0.138
	(0.216)	(0.222)	(0.646)	(0.655)
Sales Growth	-0.0301	-0.0320	-0.0447	-0.0511
	(0.878)	(0.870)	(0.833)	(0.810)
Number of Acquisitions	0.0379	0.0380	0.0373	0.0374
	(0.303)	(0.301)	(0.307)	(0.306)
Firm Age	0.0828	0.0870	0.0897	0.0948
	(0.257)	(0.233)	(0.246)	(0.220)
Tenure	0.0637	0.0702	0.0226	0.0278
	(0.383)	(0.332)	(0.792)	(0.744)
Institutional Ownership			-0.0811	-0.0991
			(0.705)	(0.644)
Blockholder (1/0)			0.0849	0.0968
			(0.581)	(0.531)
Board Independence			-0.122	-0.235
			(0.865)	(0.743)
CEO/Chairman (1/0)			-0.0255	-0.0239
			(0.802)	(0.814)
WPS_{t-1}	-0.00240***		-0.00216**	
	(0.00383)		(0.0165)	
CEO $Ownership_{t-1}$		-0.0291***		-0.0260***
		(0.000260)		(0.00244)
Industry and Year FE?	Yes	Yes	Yes	Yes
Observations	1,233	1,233	1,140	1,140
R-squared	0.168	0.170	0.168	0.170

Table 5 – Firm Performance & CEO Effort

Table 5, Panel A provides mean levels of firm performance from 2008 to 2012 for the sample of SP1500 firms where the CEO's golf records were identified in the USGA's GHIN database. Average performance measures are reported separately based on the frequency of golf by the CEO during the fiscal year; *Quartile 1* is limited to observations with 0 to 2 rounds; *Quartile 2* is limited to observations with 3 to 10 rounds; *Quartile 3* is limited to observations with 10 to 21 rounds; *Quartile 4* limited to observations with 22 or more rounds. Panel B presents coefficient estimates from multivariate linear regressions of firm performance on variables that control for past levels of performance and observable firm and CEO characteristics. *ROA* is calculated as earnings before extraordinary items over beginning of period assets; *Number of Rounds* is equal to the number of rounds recorded by the CEO during the fiscal year; *Frequent Golfer (Q4)* is an indicator variable that is equal to 1 if the CEO recorded 22 or more rounds during the fiscal year. In the fourth and fifth specifications of Panel B, a 2 stage-least squares framework is employed, where the number of clear days in the firm's headquarter state is used as an instrumental variable for the frequency of golf. All regressions include year and industry indicator variables and p-values are presented in parentheses.

Panel A – Average Firm Performance by Golf Frequency

	ROA	FF48 Adj. ROA
Average Values		
Quartile 1 (0 to 2 rounds)	5.54%	1.17%
Quartile 2 (3 to 10 rounds)	5.73%	1.14%
Quartile 3 (11 to 21 rounds)	5.53%	1.07%
Quartile 4 (22+ rounds)	4.50%	0.00%
Differences		
Quart. 4 - Quart. 1	-0.0104*	-0.0117*
	(.0885)	(0.0551)
Quart. 4 - Quart. 1, 2, 3	-0.0110**	-0.0105**
	(0.0337)	(0.0351)
Observations	1,208	1,208

Panel B – Multivariate Analysis of Firm Performance

VARIABLES	Return on Assets				
Enterprise Value$_{t-1}$	0.00200	0.00194	0.00193	-0.00505	-0.00452
	(0.253)	(0.264)	(0.268)	(0.286)	(0.265)
MTB$_{t-1}$	0.040***	0.040***	0.0398***	0.0393***	0.0383***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Return on Assets$_{t-1}$	0.300***	0.299***	0.300***	0.292***	0.290***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
(Dividend/Asset)$_{t-1}$	0.193**	0.185**	0.182**	0.783**	0.435**
	(0.0154)	(0.0171)	(0.0194)	(0.0381)	(0.0283)
Return Volatility$_{t-1}$	-0.0283*	-0.0283*	-0.0281*	-0.00917	-0.00587
	(0.0517)	(0.0529)	(0.0544)	(0.729)	(0.820)
Tenure	-0.00166	-0.00137	-0.00134	0.00728	0.00805
	(0.545)	(0.613)	(0.625)	(0.245)	(0.178)
SP500 (1/0)	0.00369	0.00425	0.00427	0.0298*	0.0303**
	(0.508)	(0.452)	(0.449)	(0.0576)	(0.0426)
Institutional Ownership	-0.00448	-0.00459	-0.00465	0.00632	-0.000180
	(0.555)	(0.545)	(0.539)	(0.553)	(0.985)
Leverage$_{t-1}$	-0.051***	-0.052***	-0.052***	-0.084***	-0.073***
	(<0.001)	(<0.001)	(<0.001)	(0.00169)	(<0.001)
Board Independence	-0.0547**	-0.0521*	-0.0519*	-0.0919*	-0.0133
	(0.0417)	(0.0508)	(0.0511)	(0.0843)	(0.768)
CEO Ownership	0.000119	8.94e-05	9.71e-05	-0.00153	-0.00123
	(0.779)	(0.832)	(0.817)	(0.133)	(0.116)
Number of Rounds	-0.0002**			-0.0045**	
	(0.0346)			(0.0454)	
Quartile 1		0.0497*			
		(0.0620)			
Quartile 2		0.0493*			
		(0.0617)			
Quartile 3		0.0478*			
		(0.0659)			
Quartile 4		0.0379	-0.011***		-0.153**
		(0.137)	(0.00894)		(0.0266)
Year and Industry FE	Yes	Yes	Yes	Yes	Yes
Model	OLS	OLS	OLS	2SLS	2SLS
Instrument				Clear Days	Clear Days
Observations	1,208	1,208	1,208	1,159	1,159
R-squared	0.528	0.680	0.528		

Table 6 – Firm Performance & CEO Effort by Industry Growth

Table 6 presents coefficient estimates from multivariate linear regressions of firm performance on variables that control for past levels of performance and observable firm and CEO characteristics from 2008 to 2012 for the sample of SP1500 firms where the CEO's golf records were identified in the USGA's GHIN database. *ROA* is calculated as earnings before extraordinary items over beginning of period assets. *High Growth Industry* is an indicator that equals 1 if the firm operates in an industry with above median sales growth; *Number of Rounds – High Growth* is equal to the number of rounds recorded by the CEO for firms in high growth industries; *Number of Rounds – Low Growth* is equal to the number of rounds recorded by the CEO for firms in low growth industries. *Frequent Golfer (Q4) - High Growth* is an indicator that equals 1 if the CEO plays 22 or more rounds of golf during the fiscal year and the firm operates in a high growth industry; *Frequent Golfer (Q4) - Low Growth* is an indicator that equals 1 if the CEO plays 22 or more rounds of golf during the fiscal year and the firm does not operate in a high growth industry. In the fourth and fifth specifications, a 2 stage-least squares framework is employed, where the number of clear days in the firm's headquarter state is used as an instrumental variable for the frequency of golf. All regressions include year and industry indicator variables and p-values are presented in parentheses.

VARIABLES	Return on Assets			
Enterprise Value$_{t-1}$	0.00209	0.00196	0.00319*	0.00264
	(0.226)	(0.255)	(0.0903)	(0.154)
MTB$_{t-1}$	0.0384***	0.0384***	0.0400***	0.0403***
	(<0.001)	(<0.001)	(0)	(0)
Return on Assets$_{t-1}$	0.309***	0.308***	0.306***	0.305***
	(<0.001)	(<0.001)	(7.77e-06)	(5.34e-06)
(Dividend/Assets)$_{t-1}$	0.208***	0.193**	0.147*	0.169**
	(0.00888)	(0.0122)	(0.0610)	(0.0198)
Return Volatility$_{t-1}$	-0.0304**	-0.0297**	-0.0336**	-0.0306*
	(0.0368)	(0.0426)	(0.0337)	(0.0522)
Tenure	-0.00230	-0.00209	-0.00342	-0.00318
	(0.413)	(0.452)	(0.249)	(0.295)
SP500 (1/0)	0.00288	0.00332	-0.000192	0.000694
	(0.605)	(0.555)	(0.975)	(0.910)
Institutional Ownership	-0.00491	-0.00501	-0.00628	-0.00506
	(0.514)	(0.503)	(0.430)	(0.520)
Leverage$_{t-1}$	-0.0496***	-0.0495***	-0.0470***	-0.0491***
	(<0.001)	(<0.001)	(0.000316)	(0.000105)
Board Independence	-0.0488*	-0.0480*	-0.0484	-0.0552*
	(0.0717)	(0.0731)	(0.105)	(0.0640)
CEO Ownership	0.000142	0.000116	0.000292	0.000185
	(0.726)	(0.772)	(0.482)	(0.655)
High Growth Industry	0.0200***	0.0181***	0.0348***	0.0237***
	(<0.001)	(<0.001)	(5.27e-06)	(7.34e-05)
Number Rounds - High Growth	-0.000425**		-0.000360**	
	(0.0104)		(0.0425)	
Number Rounds - Low Growth	-0.00001		0.000992**	
	(0.896)		(0.0352)	
Frequent Golfer (Q4) - High Growth		-0.0193***		-0.0174***
		(0.00171)		(0.00777)
Frequent Golfer (Q4) - Low Growth		-0.00251		0.0198
		(0.625)		(0.326)
Year and Industry Fixed Effects	Yes	Yes	Yes	Yes
Model	OLS	OLS	2SLS	2SLS
Instrument			Clear Days	Clear Days
Observations	1,208	1,208	1,159	1,159
R-squared	0.535	0.536		

Table 7 – Change in Firm Performance

Table 7 presents coefficient estimates from multivariate linear regressions of changes in firm performance on variables that control for past changes in performance and changes in observable firm and CEO characteristics. *Change in ROA* is calculated as $ROA_t - ROA_{t-1}$; *Change in Number of Rounds* is calculated as the change in the number of rounds played by the CEO during year t from year t-1. *Change in Freq. Golfer (Q4)* is equal to *Freq. Golfer (Q4) - Freq. Golfer (Q4)*$_{t-1}$.

VARIABLES	Change in ROA	
Constant	0.00368*	0.00370*
	(0.0982)	(0.0960)
Change in Ent. Value$_{t-1}$	-0.0236**	-0.0240**
	(0.0326)	(0.0308)
Change in MTB$_{t-1}$	0.0692***	0.0699***
	(<.001)	(<.001)
Change in Return Vol.$_{t-1}$	-0.0570*	-0.0567*
	(0.0900)	(0.0906)
Change in ROA$_{t-1}$	-0.234***	-0.231***
	(<.001)	(<.001)
Change in Div/Assets	0.0669	0.0517
	(0.336)	(0.408)
Change in Instit. Ownership	-0.0376	-0.0376
	(0.206)	(0.205)
Change in Leverage$_{t-1}$	-0.00454	-0.00627
	(0.889)	(0.845)
Change in Board Independence	0.0230	0.0159
	(0.681)	(0.783)
Change in CEO Ownership	-0.000983	-0.000965
	(0.204)	(0.217)
Change in CEO/COB	-0.00378	-0.00443
	(0.566)	(0.502)
Change in Number of Rounds	-0.000622**	
	(0.0141)	
Change in Freq. Golfer (Q4)		-0.0102**
		(0.0426)
Observations	976	976
R-squared	0.140	0.135

Table 8 – Tobin's Q

Table 8 presents coefficient estimates from multivariate linear regressions of Tobin's Q on variables that control for past levels of performance and observable firm and CEO characteristics. *Number of Rounds* is equal to the number of rounds recorded by the CEO during the fiscal year; *Quartile 1* is equal to 1 for observations with 0 to 2 rounds; *Quartile 2* is equal to 1 for observations with 3 to 10 rounds; *Quartile 4* is equal to 1 for observations with 10 to 21 rounds; *Quartile 4* is equal to 1 for observations with 22 or more rounds. In the fourth and fifth specifications, a 2 stage-least squares framework is employed, where the number of clear days in the firm's headquarter state is used as an instrumental variable for the frequency of golf. All regressions include year and industry indicator variables and p-values are presented in parentheses.

VARIABLES	Tobin's Q				
Enterprise Value$_{t-1}$	0.00253	0.00237	0.00272	-0.111*	-0.103**
	(0.878)	(0.887)	(0.870)	(0.0705)	(0.0402)
MTB$_{t-1}$	0.746***	0.746***	0.745***	0.747***	0.732***
	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)
Return on Assets$_{t-1}$	1.534**	1.542**	1.533**	1.372**	1.346**
	(0.0260)	(0.0262)	(0.0260)	(0.0227)	(0.0145)
(Dividend/Asset)$_{t-1}$	7.040***	6.849***	6.924***	15.93***	10.82***
	(<.001)	(<.001)	(<.001)	(0.00206)	(<.001)
Return Volatility$_{t-1}$	0.617***	0.634***	0.618***	0.974***	1.023***
	(<.001)	(<.001)	(<.001)	(0.00477)	(0.00179)
Tenure	0.0211	0.0211	0.0224	0.158*	0.169**
	(0.378)	(0.374)	(0.348)	(0.0627)	(0.0354)
SP500 (1/0)	0.113**	0.116**	0.115**	0.529***	0.536***
	(0.0279)	(0.0250)	(0.0268)	(0.00911)	(0.00398)
Institutional Ownership	-0.140*	-0.145*	-0.142*	-0.00149	-0.0969
	(0.0711)	(0.0630)	(0.0676)	(0.991)	(0.424)
Leverage$_{t-1}$	-0.82***	-0.81***	-0.82***	-1.359***	-1.194***
	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)
Board Independence	0.280	0.302	0.300	-0.244	0.910
	(0.268)	(0.235)	(0.240)	(0.730)	(0.131)
CEO Ownership	-0.0074*	-0.00691*	-0.0074*	-0.0312**	-0.0268***
	(0.0650)	(0.0836)	(0.0656)	(0.0185)	(0.00677)
Number of Rounds	-0.00179*			-0.0665**	
	(0.0596)			(0.0265)	
Quartile 1		0.743***			
		(0.00187)			
Quartile 2		0.720***			
		(0.00296)			
Quartile 3		0.800***			
		(0.000743)			
Quartile 4		0.685***	-0.0703*		-2.240**
		(0.00338)	(0.0820)		(0.0103)
Year and Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Model	OLS	OLS	OLS	2SLS	2SLS
Instrument				Clear Days	Clear Days
Observations	1,208	1,208	1,208	1,159	1,159
R-squared	0.656	0.920	0.656		

Table 9 – Pay Performance Sensitivity & CEO Turnover

Table 9 presents coefficient estimates from multivariate regressions of pay performance sensitivity and CEO turnover on prior golf frequency and other observable firm and CEO characteristics. The sample consists of SP1500 firms from 2008 to 2012 where the CEOs golf records were identified in the USGA's GHIN database. The dependent variable, *Pay Performance Sensitivity*, is equal to the dollar value change in the CEOs stock and option portfolio for a $1,000 change in firm value. *Tenure (Q1)* is an indicator that is equal to 1 for firms-years were the tenure of the CEO is 4 or less years; *Tenure (Q2)* is an indicator that is equal to 1 for firms-years were the tenure of the CEO is 5 to 8 years. *Tenure (Q3)* is an indicator that is equal to 1 for firms-years were the tenure of the CEO is 9 to 12 years; *Tenure (Q4)* is an indicator that is equal to 1 for firms-years were the tenure of the CEO is 13 or more years. *Ln(Number of Rounds$_{t-1}$)* is equal to the natural log of the number of rounds recorded by the CEO in the prior fiscal year. *Ln(Number of Rounds$_{t-1}$)*Tenure(Q1), Ln(Number of Rounds$_{t-1}$)*Tenure(Q2), Ln(Number of Rounds$_{t-1}$)*Tenure(Q4), Ln(Number of Rounds$_{t-1}$)* Tenure(Q4)* allow the impact of prior golf vary based on CEO tenure.

VARIABLES	Pay Performance Sensitivity		CEO Turnover (1/0)	
Enterprise Value$_{t-1}$	-0.352***	-0.354***	0.428***	0.439***
	(<.001)	(<.001)	(<.001)	(<.001)
MTB$_{t-1}$	-0.112	-0.103	0.498*	0.521**
	(0.347)	(0.394)	(0.0507)	(0.0362)
Returns$_{t-1}$	0.135	0.142	-1.035**	-1.061***
	(0.773)	(0.762)	(0.0139)	(0.00962)
Return Volatility$_{t-1}$	4.098**	4.112**	1.800*	1.816*
	(0.0117)	(0.0112)	(0.0550)	(0.0556)
Sales Growth	-0.237	-0.228	-1.131	-1.096
	(0.684)	(0.694)	(0.127)	(0.140)
Tenure (Q1)	-0.752**	-1.685**	-0.330	-1.649*
	(0.0484)	(0.0179)	(0.470)	(0.0859)
Tenure (Q2)	-0.433	-0.781	-0.270	-0.326
	(0.196)	(0.178)	(0.478)	(0.656)
Tenure (Q3)	0.201	-0.123	-0.0883	0.00205
	(0.647)	(0.864)	(0.812)	(0.998)
Ln(Number Rounds$_{t-1}$)	0.0208		0.216*	
	(0.677)		(0.0517)	
Ln(Number Rounds$_{t-1}$) * Tenure Q1		0.327***		0.700**
		(0.00734)		(0.0225)
Ln(Number Rounds$_{t-1}$) * Tenure Q2		0.0234		0.130
		(0.753)		(0.525)
Ln(Number Rounds$_{t-1}$) * Tenure Q3		0.0154		0.0926
		(0.884)		(0.671)
Ln(Number Rounds$_{t-1}$) * Tenure Q4		-0.161		0.108
		(0.272)		(0.621)
Industry and Year FE?	Yes	Yes	Yes	Yes
Observations	1,095	1,095	703	703
R-squared	0.141	0.144	0.151	0.159

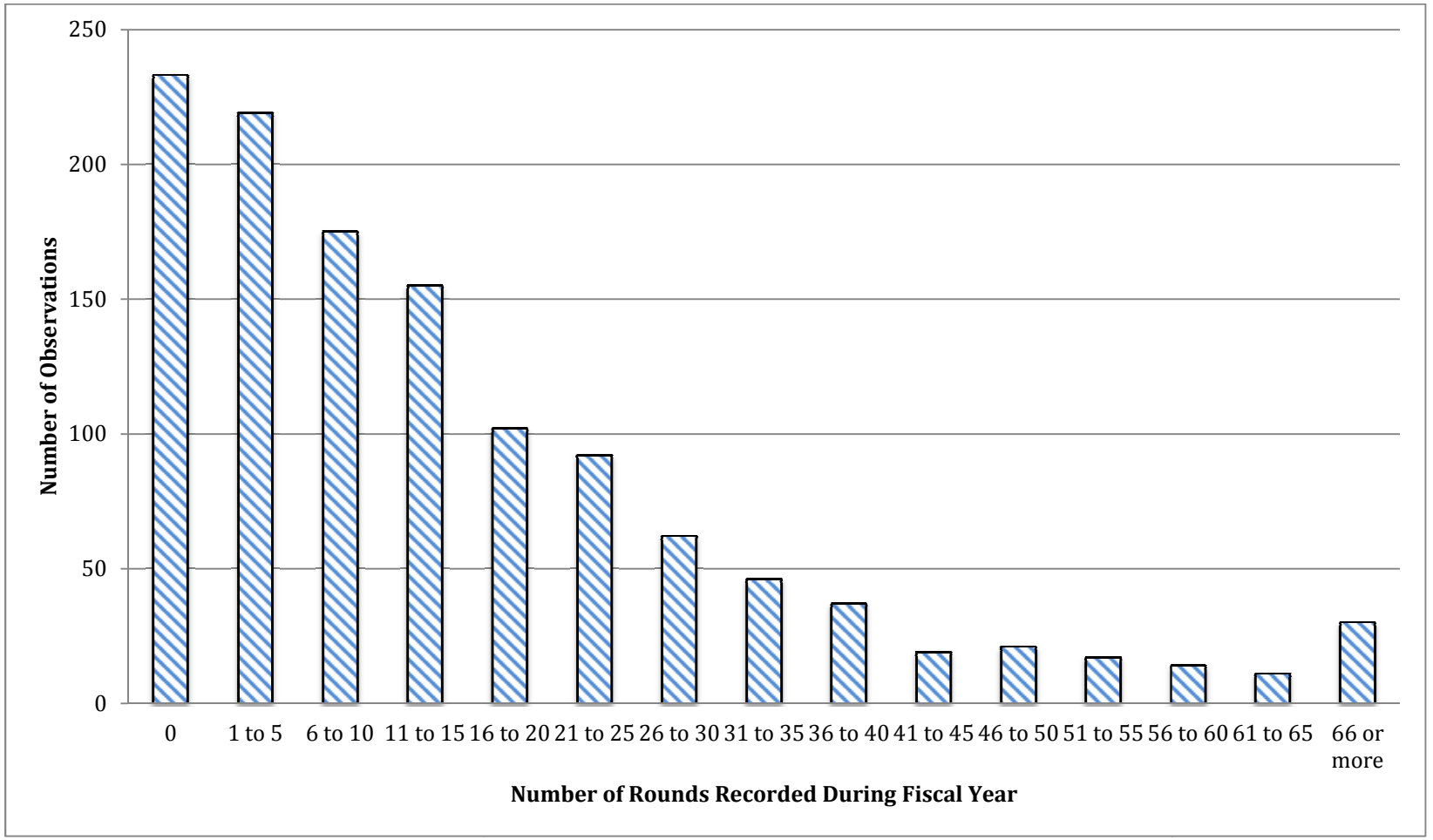

Figure 1 – Distribution of Observations by Frequency of Golf

Figure 1 shows the distribution of firm-year observations by the frequency of golf for 363 CEOs of S&P 1500 firms from 2008 to 2012. Rounds for each CEO-year are summed over the fiscal year to determine the aggregate number of rounds played.

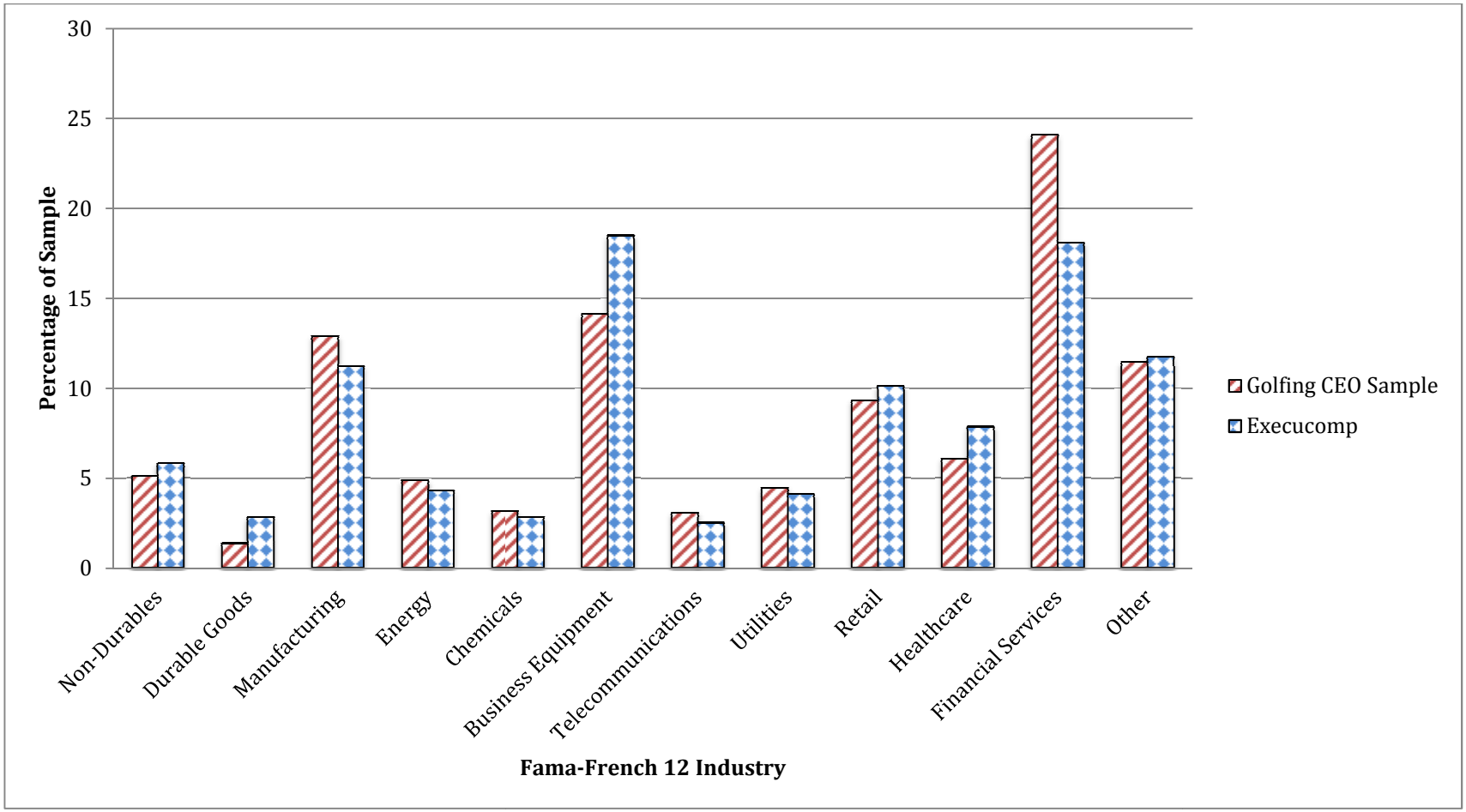

Figure 2 – Distribution of Samples by Industry

Figure 2 shows the distribution of firm-year observation by Fama-French 12 industry for 363 CEOs of S&P 1500 firms and the universe of S&P 1500 firms from 2008 to 2012.

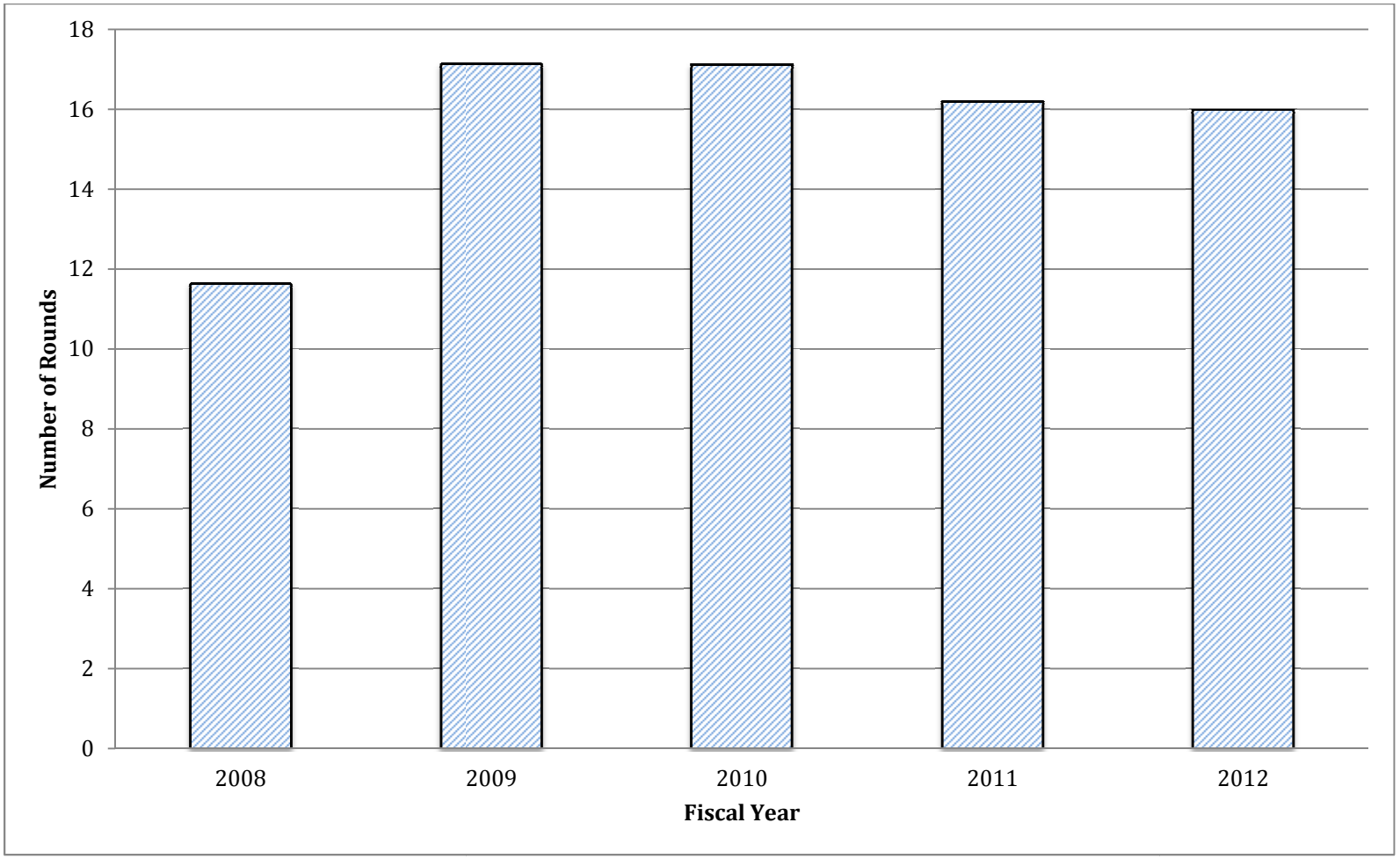

Figure 3 – Average Frequency of Golf by CEOs – 2008 to 2012

Figure 3 shows the average number of golf rounds recorded by 363 CEOs of S&P 1500 firms from 2008 to 2012. Rounds for each CEO-year are summed over the fiscal year to determine the aggregate number of rounds played.

Chapter 3: Chipping Away at Financial Reporting Quality

Abstract

The separation of ownership and control is a defining characteristic of the modern corporation and investors rely on accurate and timely financial statements to monitor the performance of the firm and its managers. The management of the financial reporting process is widely considered the responsibility of the chief financial officer (CFO) and the quality of a firm's financial reports is a function of the ability and the effort of the CFO. Prior studies have linked CFO ability to reporting quality, but the difficulty of observing executive effort has prevented prior studies from linking effort to reporting quality. In this study, I use CFO golf records to measure leisure consumption, which serves as a proxy for effort. I document that high levels of leisure consumption are associated with lower quality financial reporting, which supports the argument that CFO effort is an important determinant of financial reporting quality.

I. Introduction

The separation of ownership and control is a defining characteristic of the modern corporation and investors rely on accurate and timely financial statements to monitor the performance of the firm and its managers (Jensen and Meckling 1976). The management of the financial reporting process is widely considered the responsibility of the chief financial officer (CFO) and prior studies provide empirical evidence supporting the importance of individual CFOs in the financial reporting process (Aier et al. 2005; Chava and Purnanandam 2010; Ge et al. 2011; Li et al. 2010). Despite the importance of high quality financial reports, the underlying process by which these reports are created is a

"black box" to investors. Therefore, stakeholders rely on the individuals involved in the process to provide quality information.

Existing literature documents the impact of CFO gender, experience, compensation structure, and professional qualifications on the financial reporting quality of a firm (Aier et al. 2005; Chava and Purnanandam 2010; Jiang et al. 2010; Li et al. 2010). The impact of the CFO on the financial reporting quality of a firm, however, is driven by both the skill set of the CFO as well as the effort provided by the individual. Because of the difficulty in measuring executive effort, prior research has been unable to examine the impact of CFO effort on financial reporting quality. To overcome this measurement hurdle, I use CFO leisure consumption as a direct proxy for CFO effort.

To measure the leisure consumption of CFOs, I use a detailed database of golf records maintained by the United States Golf Association (USGA). This database, the Golf Handicap and Information Network (GHIN), is used to maintain and track the handicaps of participating golfers. Peer review is an important component of the USGA handicapping program and participating golfers are expected to maintain an accurate handicap by entering all of their rounds played into the system. For this study, I identify and hand collect golf records for 385 CFOs from 2008 to 2012 to proxy for their leisure consumption and inversely, the effort they provide in fulfilling their fiduciary responsibilities to their firm and its shareholders.

These golf records provide unique insight into the time allocated by CFOs to leisure activities. The database contains round-by-round records from 2008 to 2012 and for each round, the system contains the calendar month and year of the round, the player's score, the relative difficulty of the course, if the round was played where the

golfer maintains a membership, and if the round was played as part of a tournament. The high level of detail in the database along with the length of the sample period provides unique insight into the labor/leisure tradeoff of these CFOs. I argue that golf frequency is a valid measure of leisure consumption because of the popularity of the sport among executives and the significant time commitment represented by a single round of golf. The average CFO in this sample records 20 rounds of golf per fiscal year in the GHIN system, which represents a substantial amount of time away from the office. Assuming an average round takes five hours, this translates to 2.5 weeks of the year allocated to playing golf. The data also reveals considerable variation in the time allocated to golf as 13.4 percent of those in the sample do not record any rounds in a year and 10 percent record 46 or more rounds in a year. To the extent that observations with few recorded rounds are associated with under-reporting or allocation of time to other leisure activities, this measure underestimates the leisure consumed by executives and therefore, biases against finding results.

Using this sample of golf records, I directly test how the CFO's effort impacts her performance as judged by the generation of high quality financial reports (the outcome of her primary fiduciary duty). In particular, I perform two related analyses using golf records of CFOs. First, I examine the effect of CFO effort on the financial reporting quality of a firm. Second, I investigate the effect of CFO effort on the market's perception of corporate financial reporting quality.

Given the vital role that the CFO performs in the financial reporting process of a firm, I predict that both the actual and perceived financial reporting quality of a firm will be higher as the CFO exerts more effort. Using the absolute value of abnormal accruals

and unexplained audit fees to measure actual reporting quality (Hribar et al. 2013; Chen et al. 2011; Dehaan et al. 2013; Johnson et al. 2002), I document that greater leisure consumption by the CFO is associated with lower quality financial reporting. This finding is consistent with the importance of the CFO in the financial reporting process and the impact of her effort on the firm's financial reporting quality. The impact of CFO effort on financial reporting quality is also economically meaningful. Based on the model coefficients, a one standard deviation decrease in golf frequency is associated with a 6.9 percent reduction in the use of discretionary accruals.

Furthermore, market participants appear to be aware of the difference in financial reporting quality based on the effort provided by CFOs. Specifically, I find a significant relation between increased CFO effort and the market's perception of reporting quality as indicated by higher earnings response coefficients and less dispersion in analysts' forecasts (Baber et al. 2014; Behn et al. 2008; Dehaan et al. 2013). These analyses provide evidence that the more time the CFO spends fulfilling his firm responsibilities, the greater the perceived financial reporting quality of the firm. Furthermore, CFO effort is related to the provision of timely financial information to investors and other stakeholders as evidenced by a positive association between CFO leisure consumption and number of days to file an annual earnings announcement. On average, it takes firms 2 days longer to announce annual earnings when the CFO has played more than the median amount of golf during the fiscal year.

Endogeneity is a perpetual concern for empirical researchers as it is impossible to fully observe and control for all relevant information. In this study, I address endogeneity driven by unobservable firm characteristics using models that employ firm fixed effects. I

find that the relation between golf frequency and financial reporting quality is robust to the inclusion of firm-fixed effects. These results reduce concerns that CFO golf frequency is correlated with firm characteristics that drive financial reporting quality.

The findings of this study make several contributions to the accounting and corporate governance literature. First, this is the only study, to my knowledge, that directly examines one of the most crucial determinants of a CFO's performance – the effort the CFO puts into his duties as the financial reporting process manager of the firm. Second, I present evidence of variation in CFO effort, which has not been previously explored. Third, this study confirms the critical role that an individual CFO plays in the creation and distribution of a firm's financial reports by revealing the positive association between CFO effort and actual as well as perceived financial reporting quality.

The remainder of the paper is organized as follows. Section II develops hypotheses. Section III outlines the research method and Section IV presents the results. The final section concludes.

II. Development of Hypothesis

Due to the separation of ownership and control in corporations, financial reports are relied upon to transmit information from managers to company shareholders (Jensen and Meckling 1976). Investors use firms' annual reports to judge the performance of the firm and its management. Given investor reliance on financial reporting, the accuracy and overall quality of the information provided is of utmost importance. Prior literature documents the benefits of high quality financial reporting, including capital allocation efficiency (Biddle and Hilary 2006; Biddle et al. 2009) and lower debt and equity cost of capital (Aboody et al. 2005; Francis et al. 2005). Furthermore, low quality financial

reporting can be a leading indicator of financial statement fraud, accounting restatements, and regulatory issues, which have significant consequences for shareholder value and often result in executive turnover (Hribar et al. 2013).

Within an organization, the individual with the most influence over the financial reporting process is the CFO. Although CEOs and other executives are involved in firm reporting, the "primary responsibility for the management of the financial system lies with the CFO" (Mian 2001). The importance of the CFO in financial reporting was underscored in the passage of the Sarbanes-Oxley Act of 2002 (SOX). In particular, Section 302 of SOX mandates that the CFO of publicly traded companies personally certify the appropriateness of financial statements and disclosures (Marden et al. 2006). Certifying financial statements that do not fairly present the operations and financial condition of the company could cause CFOs to face up to five years in prison, fines, and SEC bars against serving as a corporate officer or director (Marden et al. 2006). This requirement provides a regulatory acknowledgement of an individual CFO's influence over the financial reporting process of firms.

While prior literature has established the important role that individual CFOs play in the financial reporting practices of companies, many of these studies focus on characteristics of CFOs, such as gender, financial expertise, and incentive structure, and link these traits to various firm-level outputs. For instance, Huang and Kisgen (2013) find that firms with female executives are associated with lower levels of growth and are less likely to issue debt.[21] Barua et al. (2010) also examine the effects of CFO gender on the firm and reveal that companies with female CFOs have lower discretionary accruals.

[21] Although the authors include CEOs and CFOs in their study, they note that the vast majority of the female executives in their sample are CFOs (Huang and Kisgen 2013).

Other studies investigate the impact of individual CFO's qualifications on a firm's financial reporting practices. This research reports a reduced likelihood of financial restatements for firms led by CFOs with more work experience as a CFO, advanced degrees (i.e., MBA), and professional designations (i.e., CPA) (Aier et al. 2005). In addition, companies with more experienced and better qualified CFOs (as measured by longer tenure as a CFO and a CPA designation) are associated with a lower propensity to receive an adverse SOX 404 opinion (Li et al. 2010).

Furthermore, prior literature documents the impact of a CFO's personal wealth portfolio on the financial reporting quality of the firm (Chava and Purnanandam 2010). More specifically, stronger equity incentives for the CFO are associated with a greater use of discretionary accruals (Jiang et al. 2010). In recent years, public companies have reduced the percentage of CFO bonuses contingent on financial performance in hopes of properly aligning the CFO's incentives with her significant fiduciary responsibility of reporting accurate financial results (Indjejikian and MatĚJka 2009).

In addition to examining the effects of *observable* CFO attributes on a firm's financial reporting, researchers have acknowledged the presence of *unobservable* CFO characteristics that likely account for significant differences among companies' accounting and reporting practices. Prior studies rely on methods such as manager fixed effects, executive turnover, and surveys to examine unobservable CFO traits that comprise an executive's "style". Ge et al. (2011), for example, find that CFO fixed effects significantly explain firms' discretionary accruals, accounting for leases, pension return estimates, and financial restatement likelihood. Similarly, Bertrand and Schoar (2003) demonstrate that individual manager fixed effects significantly impact firm

performance as well as investment and organizational practices of companies, including acquisition decisions and dividend policies. Prior research also uses manager fixed effects to document that CFOs exert a greater influence on abnormal accruals than CEOs (Dejong and Ling 2013).

Additionally, Geiger and North (2006) exploit CFO turnover to reveal that an individual CFO impacts a firm's financial reports as evidenced by a significant decrease in discretionary accruals after the appointment of a new CFO. Surveys and interviews of CFOs also reveal that executives admit to managing earnings despite recognizing the negative long-term consequences to firm value (Graham et al. 2005). Finally, Demerjian et al. (2013) measure managerial ability by computing a score based on the portion of a firm's total efficiency (i.e., the generation of revenues given a set of resources) that is not explained by observable firm characteristics. The authors reveal a positive association between managerial ability and earnings quality as demonstrated by fewer restatements, more persistent earnings, lower errors in the allowance for doubtful accounts, and higher quality accruals for firms with "better" managers.[22]

The quality of a CFO's work is not only a function of her training and experience, but is also a direct product of the effort the CFO provides fulfilling her responsibilities. While prior literature has documented the impact of the CFO's expertise, experience, incentives, and "style" on a company's financial reporting practices, no study to my knowledge has looked at the effort the CFO exerts in performing his or her duties. I therefore seek to fill this void by examining how the CFO's effort is associated with the

[22] The managerial ability measure is calculated for the entire management team, including the CFO. While the authors note that they would like to focus on CFOs and their delegates, they explain that they cannot disentangle the ability score for members of the executive team. In additional analysis, however, the authors examine CFO switches and find that firms that acquire a more able CFO experience an improvement in earnings quality (Demerjian et al. 2013).

firm's financial reporting quality. Given that "CFOs are the direct producers of earnings quality", "make the key decisions on how to apply accounting standards in their company", and determine "whether to use or abuse discretion in financial reporting", I expect the level of an individual's CFO effort to significantly impact the firm's financial reporting quality (Dichev et al. 2013). As such, I state the following hypothesis in its alternative form:

H1: *The financial reporting quality of a firm is higher when the CFO exerts more effort.*

A CFO's effort to perform his duties is likely to not only impact a firm's actual financial reporting quality, but is also apt to affect the market's perception of a company's reporting quality. Prior literature demonstrates that market participants consider the individual occupying the CFO position of a firm in their decisions. Brochet et al. (2014), for instance, reveal that analysts follow executives, the majority of which are CFOs, who move between publicly listed firms. Specifically, the authors find that analysts covering the manager's previous firm initiate coverage of the executive's new firm after an executive switches companies (Brochet et al. 2014). Investors also seem to react to the profiles of individual executives as evidenced by the decline in earnings response coefficients after the firm hires an individual affiliated with the firm's external auditor (Baber et al. 2014). Given market participants' interest in the individuals holding executive positions and the critical role that CFOs serve in the financial reporting of firms, I expect that the market will consider the quality of a firm's financial reporting to be higher when the CFO spends more time fulfilling her responsibilities. I therefore state the following hypothesis in its alternative form:

H2: *Market participants perceive the financial reporting quality of a firm as higher when the CFO exerts more effort.*

III. Methodology

3.1. Measure of CFO Effort

The difficulty in monitoring the effort provided by management is a central component of the agency problem faced by shareholders. This monitoring problem also prevents financial economists from analyzing the relation between executive effort and firm-level outputs. A direct measure of effort, such as hours spent at the office, is not currently feasible to collect for executives. In this study, I use an observable measure of leisure consumption to proxy for the effort provided by CFOs. Given that time is a finite resource, the amount of time allocated to leisure directly reduces the pool of time that can be devoted to firm related tasks.

I utilize a detailed database of self-reported golf records to measure the leisure consumption for a sample of CFOs. The GHIN system is maintained by the USGA and serves as a tool for the calculation and verification of golfers' handicaps. A golfer's handicap is calculated based on her prior scores and maintaining a handicap allows a golfer to compete with other golfers with different skill levels. Golfers that maintain a handicap are strongly encouraged to enter all permissible rounds into the GHIN system to ensure an accurate handicap and to facilitate verification by other golfers. The round-by-round history found in the GHIN system contains all of the rounds submitted by the golfer and includes the month and year of the round, the golfer's score, the course rating and slope, and whether the round was played at the golfer's home course. The GHIN system is widely populated starting in 2008, but the length of each player's history is driven by the date her regional association became affiliated with the USGA.

A single round of golf consists of 18 holes and represents a significant time commitment. The pace-of-play at a typical golf course is 4 hours and 15 minutes from start to finish, not including any time spent checking in or practicing prior to the round. A total time commitment of 5 to 6 hours is a reasonable estimate for a single round given time spent commuting to the course, practicing prior to the round, and socializing after the round. Prior literature has found that many executives maintain golf course memberships at vacation destinations away from their corporate headquarters (Yermack 2006), which indicates that some rounds may constitute an even greater time commitment.

Golf is a popular leisure activity among CFOs with approximately 20 percent of CFOs covered by Execucomp maintaining a GHIN account. Further evidence of the popularity of golf among CFOs is found in a 1998 survey, which reveals that the most popular past time for CFOs is golf with 21 percent of the sample reporting it as their favorite activity (Accountemps 1998). The widespread popularity of golf allows for a broad cross-section of firms to be included in the analysis, which assists in validating golf frequency as a measure of CFO leisure consumption.

A potential critique of using golf to measure executive leisure consumption is the notion that golf provides valuable networking and business discussion opportunities. To the extent that CFOs are discussing business on the golf course, this would bias against finding results linking high leisure consumption to low quality financial reporting. Furthermore, it is difficult to justify the high golf frequency of many CFOs as necessary in the function the executive serves in the firm given that an increase in networking or business opportunities is unlikely to impact financial reporting quality. A secondary critique of using golf to measure leisure consumption is the possibility that CFOs that

play little golf are consuming other types of leisure such as tennis. This possibility would result in overestimating the effort provided by CFOs with infrequent golf, which would ultimately bias against finding results.[23]

3.2. Financial Reporting Quality Analysis

I use two proxies found in prior literature to measure financial reporting quality, namely the absolute value of discretionary accruals and unexplained audit fees (Chen et al. 2011; Hribar et al. 2013; Johnson et al. 2002; Dehaan et al. 2013). Total accruals are comprised of nondiscretionary accruals and discretionary accruals. Nondiscretionary accruals reflect the portion of accruals created by a firm's growth and its operating cycle while discretionary accruals represent management choices outside of a firm's business conditions. Therefore, discretionary accruals are used as proxy for the quality of a firm's financial reporting within management control. Higher levels of discretionary accruals represent lower financial reporting quality.[24] Following Chen et al. (2011), I compute the absolute value of discretionary accruals as managers have incentives to manage earnings both up and down. I estimate discretionary accruals using the modified Jones model with an adjustment for firm performance as suggested by Kothari et al. (2005) and run the following regression for each combination of two-digit SIC industry codes and years with at least 20 observations:

$$\frac{Total\ Accruals_{i,t}}{Total\ Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Total\ Assets_{i,t-1}} + \alpha_2 \frac{\Delta Sales_{i,t}}{Total\ Assets_{i,t-1}} + \alpha_3 \frac{Net\ PPE_{i,t}}{Total\ Assets_{i,t-1}} + \alpha_4 ROA_{i,t} + \varepsilon_{i,t} \qquad (1)$$

[23] A related critique is that golfers with few recorded rounds are more likely to be under-reporting their rounds. This would also bias against finding results.

[24] A potential concern with using discretionary accruals to measure financial reporting quality is the notion that discretionary accruals can proxy for earnings manipulations by a firm's managers. To address this concern, I analyze the relation between CFO golf frequency and the propensity to meet or just beat earnings targets and fail to document a significant relation.

Discretionary accruals (*DA*) are represented by the difference between the fitted values of accruals estimated by equation (1) and the firm's actual accruals. In order to capture both income-increasing and income-decreasing accruals, I use the absolute value of discretionary accruals i.e., *ABS(DA)*. All variables in equation (1) are defined in Appendix 1.

The second proxy for financial reporting quality is unexplained audit fees. Hribar et al. (2013) developed this measure to leverage the firm-specific knowledge possessed by the auditor. By removing the explained portion of a firm's audit fees, the remaining portion represents additional testing required by the auditor and/or a larger risk-premium being charged by the auditor due to poor financial reporting quality. Therefore, higher unexplained audit fees are associated with lower quality financial reporting. Hribar et al. (2013) document that unexplained audit fees are incrementally predictive of fraud, restatements, and SEC comment letters when controlling for other measures of financial reporting quality. To compute unexplained audit fees, I first run the following audit fee model from Hribar et al. (2013) for each year and total assets decile:

$$\begin{aligned} Ln(AuditFee_{i,t}) = {} & \beta_0 + \beta_1 Big4_{i,t} + \beta_2 Ln(Assets_{i,t}) + \beta_3 BusSeg_{i,t} + \beta_4 FGN_{i,t} + \beta_5 INV_{i,t} \\ & + \beta_6 REC_{i,t} + \beta_7 CR_{i,t} + \beta_8 BTM_{i,t} + \beta_9 LEV_{i,t} + \beta_{10} EMPLS_{i,t} + \beta_{11} MERGER_{i,t} \\ & + \beta_{12} DecYE_{i,t} + \beta_{13} ROA_{i,t} + \beta_{14} Loss_{i,t} + \beta_{15} AudOpin_{i,t} + \beta_{16} Client_{i,t} + \beta_{17} IPO_{i,t} \\ & + \beta_{18} LitRisk_{i,t} + \Sigma IND_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

The residual from equation (2) represents the unexplained audit fee (*UAF*) for each observation. Please refer to Appendix 1 for the definitions of the variables found in equation (2).

The following model is used to perform a multivariate analysis of the relation between a CFO's effort and the firm's financial reporting quality:

$$ABS(DA)_{i,t} \text{ or } UAF_{i,t} = \beta_0 + \beta_1 Number\ Rounds_{i,t} + \beta_2 Ln(MVE_{i,t}) + \beta_3 Ln(MTB_{i,t}) + \beta_4 Leverage_{i,t} + \beta_5 Std.\ CFO_{i,t\text{-}4 \text{ to } t} + \beta_6 ROA_{i,t} + \beta_7 ROA_{i,t-1} + \beta_8 Growth_{i,t} + \beta_9 Inst.\ Own._{i,t} + \beta_{10} BigN_{i,t} + \beta_{11} Numest_{i,t} + \beta_{12} Ext.\ Fin._{i,t} + \Sigma IND_{i,t} + \Sigma Year + \varepsilon_{i,t}$$

(3)

As explained in the previous section, I measure CFO effort by capturing the CFO's leisure consumption, which represents the inverse of his or her effort. CFO leisure consumption is operationalized through the use of the individuals' annual golf frequency. The variable of interest in equation (3) is *Number_Rounds*, which equals the number of rounds of golf a CFO plays in a given year. The dependent variables, *ABS(DA)* and *UAF*, represent the absolute value of discretionary accruals and unexplained audit fees, respectively. The greater the absolute value of discretionary accruals and the higher the unexplained audit fees, the lower the financial reporting quality of the firm. Therefore, as described in Section II, I predict that the coefficient on *Number_Rounds* will be positive and statistically significant because I expect that greater CFO leisure consumption effort to be associated with lower financial reporting quality as proxied by higher discretionary accruals and unexplained audit fees. This expectation is consistent with a positive impact of CFO effort on financial reporting quality.

Following Yu (2008), equation (3) controls for firm size (*LnMVE*), market-to-book ratio (*LnMTB*), leverage (*Leverage*), cash flow volatility (*Std.CFO*), profitability (*ROA*), growth rate of assets (*Growth*), ownership structure (*Inst.Own*), auditor (*BigN*), analyst coverage (*Numest*), and external financing activity (*Ext.Fin*). In addition, I include industry and year fixed effects to take into account differences in financial reporting quality across industries and time. All variables are defined in Appendix 1.

3.3. Market Perception Analysis

To examine the effects of CFO effort on the market's perception of financial reporting quality, I utilize two proxies found in prior studies: analyst forecast dispersion and earnings response coefficients (Baber et al. 2014; Dehaan et al. 2013; Behn et al. 2008). Analyst forecast dispersion provides insight into analysts' information environment. If the dispersion in analysts' forecasts is lower, the perceived quality of the financial reporting process is considered to be greater as the analysts are placing more reliance on this information in their forecasts (Dehaan et al. 2013). Earnings response coefficients are estimated on the assumption that unexpected earnings should be quickly priced into a firm's stock price. If the market has greater confidence in the earnings reported by management, then the stock price reaction to unexpected earnings should be larger in magnitude (Dehaan et al. 2013).

I use the following model to test the relation between CFO effort and the market's perception of a company's financial reporting process:

$$\begin{aligned} Dispersion_{i,t} = {} & \beta_0 + \beta_1 Number\ Rounds_{i,t} + \beta_2 Numest + \beta_3 Ln(MVE_{i,t}) + \beta_4 Beta_{i,t} \\ & + \beta_5 Std.\ CFO_{i,t\text{-}4\ \text{to}\ t} + \beta_6 BigN_{i,t} + \beta_7 Horizon_{i,t-1} + \beta_8 Surprise_{i,t} \\ & + \beta_9 Inst.\ Own._{i,t} + \beta_{10}\text{Restatement}_{i,t} + \Sigma IND_{i,t} + \Sigma Year + \varepsilon_{i,t} \end{aligned} \quad (4)$$

Dispersion equals the standard deviation of analyst forecasts from the most recent consensus forecast prior to the earnings announcement scaled by the stock price at the end of the fiscal year (Behn et al. 2008; Dehaan et al. 2013). As in the previously described financial quality analysis, the variable of interest is *Number_Rounds*. Following H2, I expect the market's perception of financial reporting quality to improve as the CFO's effort increases. I therefore predict that the coefficient on *Number_Rounds*

will be positive and statistically significant, as more leisure consumed by a CFO (i.e., less effort) should be related to greater forecast dispersion among analysts (i.e., lower perceived financial reporting quality).

As in Behn et al. (2008) and Dehaan et al. (2013), I control for the number of analysts covering the firm (*Numest*), firm size (*LnMVE*), risk (*Beta*), cash flow volatility (*StdCFO*), auditor (*BigN*), the forecast horizon (*Horizon*), year-over-year earnings surprise (*Surprise*), ownership structure (*InstOwn*), and the announcement of a restatement during the fiscal year (*Restatement*). In addition, I include industry and year fixed effects to capture potential changes in analyst forecast dispersion over time and across industries. Please see Appendix 1 for complete variable definitions.

The second analysis for the market's perception of the financial reporting process uses earnings response coefficients. Following Baber et al. (2014), I employ the following regression to examine the impact of CFO effort on the market's perception of a firm's financial reporting process:

$$\begin{aligned} CAR_{i,t} = {} & \beta_0 + \beta_1 SUE_{i,t} + \beta_2 Number\ Rounds_{i,t} + \beta_3 (SUE_{i,t} \times Number\ Rounds_{i,t}) \\ & + \beta_4 Ln(MVE_{i,t}) + \beta_5 Loss_{i,t} + \beta_6 Ln(MTB_{i,t}) + \beta_7 Leverage_{i,t} + \beta_8 Beta_{i,t} + \beta_9 \text{Restatement}_{i,t} \\ & + SUE_{i,t} \left(\beta_{10} Ln(MVE_{i,t}) + \beta_{11} Loss_{i,t} + \beta_{12} Ln(MTB_{i,t}) + \beta_{13} Leverage_{i,t} + \beta_{14} Beta_{i,t} + \beta_{15} \text{Restatement}_{i,t} \right) \\ & + \Sigma IND_{i,t} + \Sigma Year + \varepsilon_{i,t} \end{aligned} \quad (5)$$

The dependent variable (*CAR*) is the two-day market adjusted return beginning on the annual earnings announcement date. Earnings surprise (*SUE*) is the difference between the actual earnings per share of the firm minus the mean consensus forecast scaled by the stock price at the beginning of the quarter. The variable of interest (*Number_Rounds*) is interacted with *SUE* in order to test the earnings response to the CFO's leisure consumption. In line with H2, I predict the coefficient on the interaction of *Number_Rounds* and *SUE* (β_3) to be negative and statistically significant as I expect the

market to perceive financial reporting quality as lower when there is greater CFO leisure consumption (i.e, less CFO effort).

Equation (5) also includes controls for firm size (*LnMVE*), negative earnings per share (*Loss*), market-to-book ratio (*LnMTB*), leverage (*Leverage*), firm risk (*Beta*), and the announcement of a restatement during the fiscal year (*Restatement*). Each of these control variables is interacted with the earnings surprise (*SUE*). As in the prior analyses, I include year and industry fixed effects given likely variations in earnings response coefficients across time and industries.

3.4. Sample Construction

To construct my sample of CFOs and their golfing records, I first identify all CFOs in the Execucomp database from 2008 to 2012. I then match these 2,846 individuals to the Golf Handicap and Information Network (GHIN) website, which is maintained by the United States Golf Association (USGA) and provides the largest handicap computation service to over 2.3 million golfers worldwide (GHIN 2014). The golf handicap records for the CFOs are identified by manually searching for the individual's first and last name as well as the state where the firm's corporate headquarters is located. Possible matches are evaluated based on the distance from corporate headquarters to the golf club identified.[25] In addition, CFOs with multiple matches in the general proximity of corporate headquarters are excluded from the sample given the difficulty in identifying the appropriate individual's record. Based on these requirements, 595 CFOs are matched to golf records on the GHIN website.

[25] Club proximity is evaluated using a cut-off of 60 miles from the firm's headquarters. I exclude matches that identified municipal courses or courses with a low cost daily fee to ensure that only exclusive club memberships are included in the sample.

Of these 595 CFOs, however, 80 individuals either did not input any rounds of golf or played their first round after their tenure as CFO. I only include the 515 individuals with golf records overlapping with their time as a CFO, which corresponds to 1,594 firm-year observations. To be included in the analysis, the observations must contain sufficient data to compute the variation in prior cash flows from Compustat and the analyst information from I/B/E/S. Additionally, observations related to firms in the financial industry are excluded due to the documented differences in regulatory and accounting practices of these companies. The final sample is comprised of 1,126 firm-year observations related to 385 CFOs. Please refer to Table 10 for more detail on the sample selection procedures as well as information on the samples used in each analysis.

IV. Results

4.1. Descriptive Statistics

Panel A of Table 11 presents the descriptive statistics of the firm-year observations used in this study. The average CFO records 20 rounds of golf per year in the GHIN system, which represents a significant time commitment to leisure activity. The minimum number of rounds in the top quartile (decile) of the sample distribution is 30 (46) rounds and the maximum number of rounds is 148. Based on definitions provided by the USGA, more than 66 percent of the CFOs in the sample are classified as "Core" or "Avid" golfers. Additionally, the average (median) firm-year reports sales of $8 billion ($2 billion), assets of $9 billion ($2.5 billion), and market value of equity of $9 billion ($2 billion). Although the sample is biased toward large firms, there is significant variation in company size with the bottom 10 percent of observations documenting sales less than $360 million and the top 10 percent documenting sales in excess of nearly $17

billion. Furthermore, the firms analyzed in this study are profitable with an average and median return on assets of approximately 6 percent. The sample firms also have a high level of institutional ownership (greater than 67 percent) and are followed by an average of 11 analysts.

In addition, the sample of firm-years matched to CFO golf records appears to be representative of the overall population of firms covered by the Execucomp database. As shown in Panel B of Table 11, there are few significant differences between firms employing golfers as CFOs compared to firms with non-golfers as CFOs. The firms in the sub-samples are similar in size and report comparable leverage, profitability, growth, and institutional ownership. However, the firms employing CFOs with golfing records do appear to be more mature as they have substantially less variation in cash flows, are significantly older firms, and have greater analyst coverage, which is consistent with the sport's popularity among the more traditional, old economy actors.

Panel C of Table 11 compares the characteristics of firm-years during which the CFO played at or above the median frequency of golf rounds to the firm-years where the CFO played below the median frequency. This analysis reveals that there are no reportable variations in firm size, sales, return on assets, leverage, cash flow volatility, and institutional ownership. Given this analysis, there does not appear to be a systematic sorting of high-leisure CFOs to small firms where they may have a greater opportunity to consume leisure due to less demanding or stringent regulatory and reporting requirements.

4.2. Results of Financial Reporting Quality Analysis

Table 12 reports the results of the financial reporting quality examination. Column 1 presents the regression analysis of equation (3) with the absolute value of discretionary accruals (*AbsDA*) as the dependent variable. As predicted, the coefficient on *Number_Rounds* is positive and statistically significant at the $p<0.05$ level. This indicates that as CFOs allocate more time to leisure, the quality of financial reporting decreases. The coefficient estimate of 0.000168 indicates that a one standard deviation increase in the frequency of golf by the CFO is associated with 6.85 percent higher use of accruals, which highlights the economic significance of CFO effort on financial reporting quality. Using unexplained audit fees (*UAF*) as an additional proxy for financial reporting quality, column 2 reveals similar results as the coefficient estimate for the number of golf rounds is 0.00146 and statistically significant at the $p<0.05$ level. These results provide evidence that as the CFO's consumption of leisure increases (or the CFO's effort decreases), the financial reporting quality of the firm decreases as proxied by higher absolute discretionary accruals and unexplained audit fees. The model estimates indicate that a 1 standard deviation increase in golf frequency is associated with a 3% increase in unexplained audit fees.

4.3. Results of Market Perception Analysis

Table 13 presents the results of the regression analysis of equation (4), which uses analyst forecast dispersion as a proxy for the market's perception of financial reporting quality. Column 1 reports the results without controlling for the use of a Big 4 auditor, the announcement of a restatement in the fiscal year, the consensus horizon, or the year-over-year earnings surprise. From this base specification, column 2 adds controls for the

auditor, the consensus horizon, and the year-over-year earnings surprise. Column 3 presents the results of this analysis using the full set of control variables as listed in equation (4). Across all three specifications, the coefficient on *Number_Rounds* is positive and significant at the $p<0.05$ level, suggesting that the greater the leisure consumption by the CFO (or the lower the CFO's effort), the lower the market's perception of financial reporting quality as measured by higher analyst forecast dispersion. In the third specification, the coefficient estimate on *Number_Rounds* is 0.0000566, which indicates that a one standard deviation change in the frequency of golf is associated with a 41.5 percent increase in analyst dispersion (based on the sample mean). This increase is highly economically significant and demonstrates the importance of CFO effort on analysts' perception of financial reporting quality.

The results of the earnings response coefficient analysis are reported in Table 14. Column 1 provides results for equation (5) without including the control variables while column 2 reports the results of the full specification. In both columns, the coefficient on the interaction between the number of rounds of golf and the earnings surprise (*Number_Rounds X SUE*) is negative and highly significant at the $p<0.01$ level. This indicates that market participants have significantly less faith in the earning surprise as they incorporate less of the surprise into the price of the stock. This finding supports H2 as it provides evidence that the market perceives financial reporting quality as lower when the CFO provides less effort.

V. Additional Analysis and Robustness

To provide further evidence on the impact of CFO effort on financial reporting quality, I examine another aspect of reporting quality – the timeliness of firm filings.

Market participants view earnings announcements and 10-K filings as important information events and prior studies report negative market reactions to late filings (Impink et al. 2012). I use two related measures of timeliness: (1) the number of days between the end of the fiscal year and the earning announcement date and (2) firm notification to the SEC that it is unable to comply with the regulatory 10-K filing deadline. I use multivariate regressions to analyze the relation between CFO leisure consumption and the timeliness of financial reporting.

In the first specification, the dependent variable is *Reporting Lag*, which equals the number of days between the end of the firm's fiscal year and the date of the annual earnings announcement. As in the previous analyses, the variable of interest is the CFO's golf frequency (*Number_Rounds*). I also control for differences in timeliness driven by firm characteristics, including size (*Ln_MVE*), market-to-book ratio (*Ln_MTB*), leverage, cash flow volatility (*Std_CFO*) current and lagged return on assets (*ROA*), asset growth (*Growth*), institutional ownership (*InstOwn*), Big 4 auditor (*Big4*), analyst following (*Numest*), and external financing activities (*ExtFin*).

As reported in Table 15, I find a positive and significant association between CFO leisure consumption and a firm's reporting lag. Specifically, the coefficient estimate on *Number of Rounds* is 0.0894 (p-value <0.001), which indicates that the reporting lag increases as CFO effort decreases. The coefficient estimate indicates that a one standard deviation increase in golf frequency increases the time it takes to bring earnings to market by almost two days. This analysis demonstrates that CFO effort is correlated with the time it takes the company to provide value-relevant information to market participants, but it does not establish that high-leisure CFOs are more likely to have trouble compiling

with regulatory filing requirements. I explore this possibility in the second specification where the dependent variable, *Report Late*, is an indicator variable equal to one if the firm notified the SEC that the 10-K would not be filed prior to the regulatory deadline. The coefficient on *Number of Rounds* is positive and significant (pvalue=0.081). The results from the late filing analysis have to be tempered by the relative infrequency in which sample firms actually file late (14 times over the sample period). These additional analyses reveal another potential consequence of low CFO effort on the firm and its stakeholders – less timely information dissemination.

Endogeneity is a concern in empirical studies because of the difficulty of observing and quantifying all potentially relevant information. In this study, an unobservable firm characteristic could drive the relation between CFO golf frequency and financial reporting quality. For instance, it could be that a firm's culture allows for excessive golfing and also does not prioritize financial reporting quality. To mitigate the concern that an unobservable firm effect, such as firm culture, is driving the results, I rerun the analyses of discretionary accruals, unexplained audit fees, and analyst forecast dispersion using models that control for unobservable, time-invariant firm effects. The coefficient estimates from these analyses are found in Table 16.

In Panel A, I repeat the discretionary accruals and unexplained audit fees tests replacing industry fixed effects with firm fixed effects. The dependent variable in the first specification is absolute value of discretionary accruals (*AbsDA*). Consistent with the results presented in Table 3, the coefficient on *Number_Rounds* is positive and significant (p-value=0.023). In column 2, the dependent variable is unexplained audit fees (*UAF*) and in line with the findings from Table 3, the coefficient estimate for *Number_Rounds* is

positive and significant (p-value=0.0402). In Panel B, I rerun the analyst forecast dispersion analysis with firm fixed effects rather than industry fixed effects. Across all three specifications, the coefficient estimate on *Number_Rounds* is significant and positive at the $p<0.05$ level. These findings are consistent with the results presented in Table 4. Overall, these analyses provide evidence that the relation between CFO golf frequency and financial reporting quality is not driven by an unobservable firm characteristic.

VI. Conclusion

The separation of ownership and control imposes the need for management to provide high quality financial reports (Jensen and Meckling 1976). The CFO is the member of the executive team directly charged with the financial reporting process and this study provides insight into the relationship between CFO effort and financial reporting quality. I use a measure of CFO leisure consumption to proxy for the effort that she provides to her firm and I gauge CFO leisure consumption using a detailed database of golf records from 2008 to 2012.

I examine accounting- and market-based measures of financial reporting to analyze the importance of CFO effort. I find statistically significant evidence consistent with the notion that greater CFO effort is related to higher financial reporting quality. Specifically, I find a positive relation between CFO leisure consumption and the use of discretionary accruals and unexplained audit fees. This result indicates that the more time the CFO spends consuming leisure (the less time spent fulfilling her duty to the firm), the lower the financial reporting quality of the firm.

Market participants also appear to recognize the effects of CFO effort on the relative quality of company financial reports as greater CFO leisure consumption is associated with higher analyst forecast dispersion and lower earnings responses. This result provides evidence that analysts as well as investors perceive the financial reporting quality of the firm to be higher when the CFO exerts more effort. As an additional analysis, I investigate the impact of CFO effort on the timeliness of financial reports. I find that higher CFO leisure consumption is associated with increased time to bring information to market participants and an increased likelihood of violating regulatory filing requirements.

These findings contribute to our understanding of a significant determinant of financial reporting quality – CFO effort. As market participants and regulators seek to improve the quality of financial reporting, this study provides important information regarding the individual responsible for the management of this firm process. In particular, regulators and other monitors may be able to use the results of this study when determining how to better align individual executive's incentives with those of the firm's stakeholders.

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Appendix 1
Table 10 – Sample Selection

Overview of Sample Selection

Number of CFOs in Execucomp from 2008 to 2012	2,846
- CFOs that could not be matched to GHIN records	2,251
Number of CFOs matched to GHIN records	595

	Firm-Year Observations	# of CFOs
Firm-years matched to CFO Golfing Records	1,594	515
- Firm-years missing prior 4 years of cash flow from operations	112	34
- Financial firms-years	265	77
- Firm years missing IBES data	91	19
Overall Sample Size	1,126	385
Discretionary Accruals Sample		
Overall Sample Size	1,126	385
- Firm-years missing discretionary accruals	35	10
Discretionary Accruals Sample	1,091	375
Unexplained Audit Fee Sample		
Overall Sample Size	1,126	385
- Firm-years missing unexplained audit fees	31	13
Unexplained Audit Fee Sample	1,095	372
Forecast Dispersion Sample		
Overall Sample Size	1,126	385
- Firm-years with only 1 analyst following	32	9
Forecast Dispersion Sample	1,094	376
ERC Sample		
Overall Sample Size	1,126	385
- Firm-years missing ERC required information	20	4
ERC Sample	1,106	381

Table 11 – Summary Statistics

Panel A provides summary statistics for the sample of firm-years with CFO golf records collected from the USGA. *Panel B* reports mean values of firm characteristics for the sample of firm-years with CFO golf records and the sample of firm-years from Execucomp that could not be linked to golf records. The difference between the samples is also reported along with the associated p-values. *Panel C* reports mean values of firm characteristics for the sample of firm-years associated with at or above median golf the firm-years associated with below median golf along with the difference between the two samples and p-values.

Panel A – Golf Sample

	Mean	Median	p10	p90	N
Sales	7,869	1,972	329	16,824	1,126
Assets	8,903	2,465	342	22,250	1,126
MVE	8,840	2,288	383	18,756	1,126
MTB	1.51	1.22	0.65	2.68	1,126
Tobin's Q	1.81	1.48	0.96	3.01	1,126
Leverage	22.03%	20.46%	0.00%	43.72%	1,126
ROA	5.75%	5.76%	-1.90%	15.20%	1,126
Std. CFO (5 years)	0.040	0.032	0.012	0.073	1,126
Institutional Ownership	67.81%	79.11%	0.00%	96.78%	1,126
ABS(Discretionary Accruals)	5.08%	3.68%	0.65%	10.54%	1,091
Number of Analyst	11	10	3	21	1,126
Unexplained Audit Fees	0.024	0.016	-0.479	0.520	1,095
10-K Reporting Lag	41	40	25	57	1,125
Number of Rounds of Golf	20	14	0	45	1,126

Panel B – Firm Characteristics by Golf versus Non-Golf

	Golf Sample	Non-Golf Sample	Difference	P-Value	N
Sales	7,869	6,825	1,043	(0.548)	6,408
Assets	8,903	8,723	180.0	(0.906)	6,408
MVE	8,840	7,599	1,240	(0.415)	6,408
MTB	1.51	1.43	0.0746	(0.245)	6,408
Tobin's Q	1.81	1.72	0.0846	(0.190)	6,408
Leverage	22.03%	21.74%	0.00285	(0.796)	6,408
ROA	5.75%	5.03%	0.00725	(0.145)	6,408
Std. CFO (5 years)	3.99%	4.62%	-0.00631***	(0.00146)	6,408
Institutional Ownership	67.81%	66.17%	0.0164	(0.386)	6,408
ABS(Discretionary Accruals)	5.08%	5.62%	-0.00542**	(0.0147)	6,190
Number of Analyst	11.35	10.42	0.937**	(0.0266)	6,408
Unexplained Audit Fees	2.38%	4.36%	-0.0197	(0.372)	6,234
10-K Reporting Lag	41	42	-1.471*	(0.0517)	6,403

Panel C – Firm Characteristics by Golf Frequency

	High Golf	Low Golf	Difference	P-Value	N
Sales	7,916	7,818	98.55	(0.958)	1,126
Assets	8,724	9,096	-371.4	(0.841)	1,126
MVE	9,301	8,343	957.8	(0.623)	1,126
MTB	1.54	1.47	0.0699	(0.479)	1,126
Tobin's Q	1.84	1.77	0.0721	(0.463)	1,126
Leverage	22.32%	21.71%	0.00612	(0.721)	1,126
ROA	5.52%	6.00%	-0.00478	(0.531)	1,126
Std. CFO (5 years)	4.09%	3.88%	0.00216	(0.467)	1,126
Institutional Ownership	67.33%	68.33%	-0.0100	(0.739)	1,126
ABS(Discretionary Accruals)	5.03%	4.95%	0.000747	(0.830)	1,091
Number of Analyst	11.46	11.24	0.226	(0.739)	1,126
Unexplained Audit Fees	5.06%	-0.49%	0.0555	(0.134)	1,095
10-K Reporting Lag	41.75	39.84	1.905	(0.124)	1,125

Table 12 – Financial Reporting Quality and CFO Effort

This table reports coefficient estimates from regressions of proxies of financial reporting quality on CFO golf frequency and known determinants of financial reporting quality. The dependent variable in the first specification is ABS(Disc. Acc.), which is calculated as the absolute value of discretionary accruals from a modified Jones model. The dependent variable in the second specification is Unexplained Audit Fees, which is calculated consistent with Hribar et al (2013); higher values of UAF are associated with lower quality financial reporting. The variable of interest is the Number of Rounds of Golf, which equal to the number of rounds of golf recorded in the GHIN system by the CFO of the firm during the fiscal year. Other control variables are defined in the Appendix. All regressions include indicator variables for the fiscal year and industry and standard errors are adjusted for clustering at the firm level. P-values are reported in parentheses and significance is denoted as follows: *** p<0.01, ** p<0.05, * p<0.1. Coefficients with directional predictions are reported using one-tailed tests, otherwise two-tail tests are used.

VARIABLES	Prediction	ABS(Disc. Acc.)	Unexplained Audit Fees
Number of Rounds of Golf	+	0.000168**	0.00146**
		(0.0147)	(0.0321)
Ln(MVE)	?	-0.00312	0.0528**
		(0.139)	(0.0198)
Ln(MTB)	?	-0.00484	-0.155*
		(0.557)	(0.0605)
Leverage	?	-0.00615	0.386***
		(0.581)	(0.00573)
Std. Dev. $CFO_{t-4 \text{ to } t}$	?	0.374***	0.804
		(7.27e-05)	(0.254)
ROA_t	?	-0.173***	-0.0139
		(2.24e-05)	(0.938)
ROA_{t-1}	?	0.102***	-0.0774
		(3.43e-08)	(0.485)
Asset Growth $Rate_{t-1 \text{ to } t}$	?	0.0191	-0.0313
		(0.111)	(0.543)
Institutional Ownership	?	-0.0151**	0.00415
		(0.0157)	(0.962)
Big 4 Auditor (1/0)	?	0.00378	-0.371***
		(0.711)	(0.000535)
Number of Analyst Following	?	-0.000181	-0.00530
		(0.631)	(0.131)
External Financing Activity	?	0.00270	-0.372**
		(0.925)	(0.0394)
Industry & Year Fixed Effects		Yes	Yes
Observations		1,091	1,095
R-squared		0.353	0.483

Table 13 – Analyst Forecast Dispersion and CFO Effort

This table reports coefficient estimates from OLS regressions of analyst forecast dispersion on CFO golf frequency and known determinants of dispersion. The dependent variable is Analyst Forecast Dispersion, which is the standard deviation of analyst forecast from the newest consensus forecast prior to the release of actual earnings scaled by the stock price at the fiscal year end. Number of Rounds of Golf is equal to the number of rounds of golf recorded in the GHIN system by the CFO of the firm during the fiscal year. Other control variables are defined in the Appendix. All regressions include indicator variables for the fiscal year and industry and standard errors are adjusted for clustering at the firm level. P-values are reported in parentheses and significance is denoted as follows: *** p<0.01, ** p<0.05, * p<0.1. Coefficients with directional predictions are reported using one-tailed tests, otherwise two-tail tests are used.

VARIABLES	Prediction	Analyst Forecast Dispersion		
Number of Rounds of Golf	+	0.0000527**	0.0000564**	0.0000566**
		(0.0186)	(0.0227)	(0.0224)
Number of Analyst Following	?	0.000117	0.000109	9.30e-05
		(0.188)	(0.206)	(0.221)
Ln(MVE)	?	-0.00165**	-0.00174**	-0.00169**
		(0.0238)	(0.0243)	(0.0242)
Loss (1/0)	?	0.00809***	0.00752**	0.00763**
		(0.00619)	(0.0117)	(0.0108)
Ln(MTB)	?	-0.00177	-0.00157	-0.00149
		(0.229)	(0.287)	(0.316)
Beta	?	-0.000997	-0.000873	-0.000758
		(0.724)	(0.770)	(0.799)
Std. Dev. $CFO_{t-4 \text{ to } t}$	?	0.00810	0.00949	0.00882
		(0.660)	(0.611)	(0.642)
Big 4 Auditor (1/0)	?		0.00279	0.00271
			(0.137)	(0.162)
Consensus Horizon	?		-7.06e-05*	-6.81e-05*
			(0.0838)	(0.0885)
Y-o-Y Earning Surprise	?		-0.00544	-0.00508
			(0.184)	(0.185)
Institutional Ownership	?			-0.00205
				(0.378)
Restatement (1/0)	?			0.00266
				(0.384)
Industry & Year Fixed Effects		Yes	Yes	Yes
Observations		1,094	1,076	1,076
R-squared		0.272	0.283	0.288

Table 14 – Earnings Response Coefficients and CFO Effort

This table reports coefficient estimates from OLS regressions of earnings announcement abnormal returns on the earning surprise, CFO golf frequency, and known determinants of announcement returns. The dependent variable is Earning Announcement CAR, which is the cumulative return of the announcing firm minus the return of the market on the day of the earnings announcement and the following day. Scaled Surprise is the difference between the actual EPS and the analyst consensus EPS scaled by the stock price at the beginning of the 4th quarter. Number of Rounds of Golf is equal to the number of rounds of golf recorded in the GHIN system by the CFO of the firm during the fiscal year. Number of Rounds of Golf * Scaled Surprise is the interaction between the two variables. Control variables include Ln(MVE), Negative EPS, Leverage, Beta, and Restatement; these control variables are defined in the Appendix. All control variables are also interacted with Scaled Surprise. All regressions include indicator variables for the fiscal year and industry and standard errors are adjusted for clustering at the firm level. P-values are reported in parentheses and significance is denoted as follows: *** p<0.01, ** p<0.05, * p<0.1. Coefficients with directional predictions are reported using one-tailed tests, otherwise two-tail tests are used.

VARIABLES	Prediction	Earnings Announcement CAR	
Scaled Surprise	?	0.188	-0.483
		(0.133)	(0.342)
Number of Rounds of Golf	?	-0.000201	-0.000195
		(0.146)	(0.160)
Number of Rounds of Golf * Scaled Surprise	-	-0.00773***	-0.0178***
		(0.000142)	(0.000291)
Control Variables & Interactions		No	Yes
Industry & Year Fixed Effects		Yes	Yes
Observations		1,106	1,106
R-squared		0.172	0.204

Table 15 – Timeliness of Financial Reports and CFO Effort

This table reports coefficient estimates from regressions financial reporting timeliness on CFO golf frequency and known determinants of financial reporting quality. The dependent variable in the first specification is *10-K Reporting Lag*, which is calculated as the number of days between the end of the fiscal year and the date of the earnings announcement. The dependent variable in the second specification is *Report Late*, which is an indicator variable equal to 1 if the company filed a NT 10-K with the SEC indicating that they are unable to comply with the regulator filing deadline. The variable of interest is the *Number of Rounds of Golf*, which equal to the number of rounds of golf recorded in the GHIN system by the CFO of the firm during the fiscal year. Other control variables are defined in the Appendix. All regressions include indicator variables for the fiscal year and industry and standard errors are adjusted for clustering at the firm level. P-values are reported in parentheses and significance is denoted as follows: *** p<0.01, ** p<0.05, * p<0.1. Coefficients with directional predictions are reported using one-tailed tests, otherwise two-tail tests are used.

VARIABLES	Prediction	10-K Reporting Lag	Report Late (1/0)
Number of Rounds of Golf	+	0.0894***	0.000229*
		(<0.001)	(0.081)
Ln(MVE)	?	-3.071***	0.00210
		(<0.001)	(0.613)
Ln(MTB)	?	-1.174	-0.0138
		(0.587)	(0.516)
Leverage	?	0.680	0.0969*
		(0.829)	(0.0654)
Std. Dev. $CFO_{t-4 \text{ to } t}$	?	54.83**	0.0926
		(0.0138)	(0.555)
ROA_t	?	0.374	-0.0984
		(0.932)	(0.288)
ROA_{t-1}	?	0.700	0.0577
		(0.804)	(0.307)
Asset Growth $Rate_{t-1 \text{ to } t}$	?	3.310**	0.00370
		(0.0250)	(0.811)
Institutional Ownership	?	-0.103	-0.0100
		(0.966)	(0.566)
Big 4 Auditor (1/0)	?	-4.009	-0.000841
		(0.176)	(0.934)
Number of Analyst Following	?	-0.0870	-0.000501
		(0.466)	(0.584)
External Financing Activity	?	6.179	-0.135
		(0.198)	(0.252)
Industry & Year Fixed Effects		Yes	Yes
Observations		1,126	1,125
R-squared		0.621	0.246

Table 16 – Firm Fixed Effects

This table analyzes the relation between financial reporting quality and CFO golf frequency while controlling for firm-fixed effects. In panel A, I repeat the analyses found in Table 12. The dependent variable in the first specification is ABS(Disc. Acc.), which is calculated as the absolute value of discretionary accruals from a modified Jones model. The dependent variable in the second specification is Unexplained Audit Fees, which is calculated consistent with Hribar et al (2013); higher values of UAF are associated with lower quality financial reporting. The variable of interest is the Number of Rounds of Golf, which equal to the number of rounds of golf recorded in the GHIN system by the CFO of the firm during the fiscal year. Other control variables are defined in the Appendix. In Panel B, I repeat the analyses from Table 13. The dependent variable is Analyst Forecast Dispersion, which is the standard deviation of analyst forecast from the newest consensus forecast prior to the release of actual earnings scaled by the stock price at the fiscal year end. All regressions include indicator variables for the fiscal year and firm fixed effects. P-values are reported in parentheses and significance is denoted as follows: *** p<0.01, ** p<0.05, * p<0.1. Coefficients with directional predictions are reported using one-tailed tests, otherwise two-tail tests are used.

Panel A – Financial Reporting Quality with Firm Fixed Effects

VARIABLES	Prediction	ABS(Disc. Acc.)	Unexplained Audit Fees
Number of Rounds of Golf	+	0.000330**	0.00127**
		(0.0234)	(0.0402)
Ln(MVE)	?	-0.00442	-0.0217
		(0.606)	(0.568)
Ln(MTB)	?	-0.00877	-0.0240
		(0.646)	(0.779)
Leverage	?	-0.0268	0.0828
		(0.325)	(0.493)
Std. Dev. $CFO_{t-4 \text{ to } t}$	?	0.423***	0.707
		(0.000163)	(0.148)
ROA_t	?	-0.171***	-0.0714
		(2.78e-10)	(0.548)
ROA_{t-1}	?	0.0734***	-0.0230
		(0.000192)	(0.792)
Asset Growth $Rate_{t-1 \text{ to } t}$	?	0.0282***	0.0317
		(0.000711)	(0.387)
Institutional Ownership	?	-0.0357	-0.117
		(0.189)	(0.331)
Big 4 Auditor (1/0)	?	0.0674***	-0.128
		(0.00177)	(0.181)
Number of Analyst Following	?	-0.000250	0.00338
		(0.679)	(0.199)
External Financing Activity	?	-0.0140	-0.172
		(0.602)	(0.147)
Firm & Year Fixed Effects		Yes	Yes
Observations		1,091	1,095
R-squared		0.148	0.023

Panel B – Analyst Dispersion with Firm Fixed Effects

VARIABLES	Prediction	Analyst Forecast Dispersion		
Number of Rounds of Golf	+	0.0000455**	0.0000455**	0.0000461**
		(0.0325)	(0.0262)	(0.0246)
Number of Analyst Following	?	0.0000841*	0.0000584	0.0000635
		(0.349)	(0.495)	(0.459)
Ln(MVE)	?	-0.00693***	-0.00523***	-0.00539***
		(3.30e-08)	(1.48e-05)	(9.57e-06)
Loss (1/0)	?	-0.00150	-0.00448***	-0.00447***
		(0.272)	(0.000793)	(0.000814)
Ln(MTB)	?	0.00829***	0.00581**	0.00602**
		(0.00405)	(0.0358)	(0.0296)
Beta	?	-0.00310***	-0.00304***	-0.00310***
		(0.00391)	(0.00291)	(0.00245)
Std. Dev. $CFO_{t-4 \text{ to } t}$	?	-0.0206	-0.0227	-0.0242
		(0.207)	(0.153)	(0.128)
Big 4 Auditor (1/0)	?		0.000977	0.00130
			(0.775)	(0.705)
Consensus Horizon	?		-7.30e-05**	-7.21e-05**
			(0.0348)	(0.0369)
Y-o-Y Earning Surprise	?		-0.0150***	-0.0146***
			(0)	(0)
Institutional Ownership	?			0.00451
				(0.310)
Restatement (1/0)	?			0.00186
				(0.121)
Firm & Year Fixed Effects		Yes	Yes	Yes
Observations		1,094	1,076	1,076
R-squared		0.076	0.186	0.190

Appendix 2
Variable Definitions

Variables	Source(s)	Definition
ABS(Discretionary Accruals)	Compustat	Absolute value of discretionary (residual) accruals calculated using a modified Jones model
Analyst Forecast Dispersion	I/B/E/S	Standard Deviation of Analyst Forecast / Stock Price
Asset Growth Rate$_{t-1 \text{ to } t}$	Compustat	(Total Assets$_t$ - Total Assets$_{t-1}$)/Total Assets$_t$
Aud Opin		A dummy variables that is equal to one if the firm receives a modified audit opinion, and zero otherwise, where a modified opinion is defined as anything other than a standard unqualified audit opinion coded as one by Compustat;
Beta	CRSP	Coefficient Estimate from Firm-Fiscal Year Regression of firm excess return (Ret - RF) on the market risk premium (vwretd - RF)
Big 4 Auditor (1/0)	Compustat	Takes value of 1 if the Compustat variable for auditor ("AU") is equal to 4, 5, 6, or 7
Client		Square root of the number of years that the firm has been a client of their current auditor
Consensus Horizon	I/B/E/S	actual_date - statpers
Debt	Compustat	Sum of short-term debt and long-term debt scaled by lagged total assets
Earning Announcement CAR	CRSP	Cumulative Market Adjusted Return from day t to t+1
External Financing Activity	Compustat	(SSTK-PRSTKC)/AT + (DLTIS-DLTR+DLCCH)/AT
FGNi,t	Compustat	Ratio of foreign sales to total sales
Income	Compustat	Operating income after depreciation scaled by lagged total assets
Institutional Ownership	Thomson	min(1,max(0,instown_perc))
IPO	CRSP	Indicator variable equal to one if in the year of the IPO
Leverage	Compustat	(LT Debt + ST Debt) / Total Assets
Lit. Risk	Compustat	Indicator variable equal to one for

		high litigation risk industries, as defined in Francis et al. (1994).
Ln(Assets)	Compustat	Log of total assets
Ln(AUDIT FEE)i,t	Audit Analytics	Log of audit fee
Ln(MTB)	CRSP/Compustat	(MVE+ LT Debt + ST Debt) / Total Assets
Ln(MVE)	CRSP	Ln(ABS(prc) * shrout)
Loss (1/0)	I/B/E/S	=1 if acutal_eps < 0
Loss History	Compustat	A dummy variable that is equal to one if income before extraordinary items and discontinued operations is negative in the current or two previous years, and zero otherwise;
Number of Analyst Following	I/B/E/S	Numest
Number of Rounds of Golf	GHIN	The number of rounds of golf recorded in the GHIN system by the firm's CFO during the fiscal year
REC	Compustat	Receivables scaled by lagged total assets
Restatement (1/0)	Audit Analytics	=1 if Audit Analytics reports a restatement being filed during the fiscal year
ROA	Compustat	Earnings before Extraordinary Items / Total $Assets_{t-1}$
Scaled Surprise	I/B/E/S	(Actual EPS - Consensus EPS) / Beg. Qtr. Stock Price
Std. Dev. $CFO_{t-4 \text{ to } t}$	Compustat	The standard deviation of Cash Flow from Operations scaled by Total Assets for years t-4 to t
Unexplained Audit Fee	Compustat	Residual from model of audit fees on firm characteristics (Hribar et al 2013)
Y-o-Y Earning Surprise	I/B/E/S	Actual EPS_t - Actual EPS_{t-1}

Chapter 4: Conclusion

The effort provided by the top managers of a firm has long been recognized as important to the performance of the organization, but the difficulty in directly measuring effort prevented researchers from fully exploring the impact of executive effort. In this dissertation, I use an observable measure of leisure consumption to proxy for the effort provided by the CEO and CFO of large, publically traded corporations. To measure individuals' leisure consumption, I use a detailed database of golf rounds to determine the frequency of golf, which provides direct insight into their day-to-day leisure consumption.

I begin by focusing on CEOs and find that the strength of equity-based incentives is a significant determinant of CEO leisure consumption, which is consistent with agency theory. After establishing that incentives do influence the effort provided by the CEO, I look to firm performance to determine if high levels of leisure are detrimental to shareholders. Consistent with the notion that agents may "shirk" from value maximizing effort, I find that high levels of leisure consumption are associated with weaker firm performance and lower firm value. Finally, I look for evidence of monitoring by the directors of firms and find that directors appear to monitor the effort provided by the CEO, especially when the CEO is new and information asymmetries are greatest.

In my second essay, I focus on the importance of effort provided by CFOs by analyzing different aspects of financial reporting quality. CFOs are responsible for the systems and processes involved with financial reporting – both internal and external. High quality financial reporting is integral to efficient capital markets to help monitor the performance of firms and allocation of financial resources. I document that CFO effort is an important determinant of firms' financial reporting quality and that market participants

are cognizant of the quality of financial reports provided by management. Specifically, I document that accrual usage and abnormal audit fees are lower when the CFO consumes less leisure. Analyst forecast dispersion is also lower when the CFO plays fewer rounds of golf and the time it takes to provide the market with value relevant information is reduced.

Vita

Lee Biggerstaff was born in Morganton, North Carolina. He is a graduate of Freedom High School and he received his B.S. and an M.B.A. from Appalachian State University. Lee will complete his Ph.D. from the University of Tennessee in August 2014. At that time he will join the Farmer School of Business at Miami University in the Finance Department.

Lee is the recipient of several academic honors and awards. As an undergraduate majoring in Economics, Lee received the Top Economics Student award. As a graduate student, Lee was the recipient of a Chancellor's Fellowship. As a doctoral student, Lee was awarded a College of Business Administration-ESPN scholarship and was the recipient of the J. Wallace & Katie Dean Graduate Fellowship.

Before beginning the doctoral program, Lee was employed by Mesirow Financial Consulting in Charlotte, North Carolina. During graduate school, Lee worked as a Graduate Assistant in the Economics Department at Appalachian State University. Lee has worked as a Research Assistant for the Department of Finance at the University of Tennessee since 2010.