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Risky Business: CEO Risk Tolerance and Non-GAAP Earnings

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Abstract

CEO influence on non-GAAP earnings is a growing area of research. Risk-taking by CEOs is one way to gauge the extent of CEO influence on firm outcomes, especially non-GAAP earnings. This research examines the association between CEO sports hobbies, a proxy for CEO risk-taking, and their company's non-GAAP earnings. In addition to the risk-proclivity of the CEO, non-GAAP earnings are the result of firm size, equity, return on assets, and changes in revenue. The extent of CEO influence was evaluated by a regression analysis of non-GAAP earnings using firm characteristics with CEO risk-taking measures and control variables such as CEO age, CEO gender, CEO tenure, and board independence. The results indicate that as *SportsRisk* increases, the likelihood of non-GAAP earnings that exceed GAAP earnings decreased. When the data was split into high and low-risk categories, the likelihood of non-GAAP earnings exceeding GAAP earnings was higher for those with high-risk activities, but the magnitude of non-GAAP exclusions was higher for the low-risk activities. Further, the data indicated that non-GAAP exclusions were more persistent for the low-risk activities.

Keywords: non-GAAP earnings, risk-taking, CEO influence, sports, hobbies

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Chapter 1

Introduction

Risk is necessary to get a reward. Taylor (2019) describes the need to evaluate risk versus rewards in deciding to achieve a goal for athletes. Tope Awotonda, CEO of Calendly, attributes his company's success to his ability to take risks (Pompliano, 2021). Sports participants risk physical harm to score points. Businesses take risks to earn higher profits and ensure their company is seen as successful. Whether it is a higher score or a higher profit, participating in sports and business involves risk. Business leaders, and particularly CEOs, must be comfortable with taking risks. As the leader of the business, the CEO takes risks when making strategic decisions, managing rivals, and communicating or disclosing their company's success or minimizing their company's failures. CEOs often practice risk-taking outside the office when participating in hobbies that may include risky sports. Abdel-Meguid et al. (2021) found a connection between CEO narcissism and their firm's non-GAAP earnings, which is a form of communication or disclosure of firm success or failure. Is it possible that the risk CEOs take in sports reflect the risk they willingly take in business?

There is widespread agreement that a CEO influences the tone and culture of their company (Black et al., 2021; Brown et al., 2012; Quigley & Hambrick, 2012), but there is little understanding of the mechanics of how their influence is instilled in the company. When upper management, specifically a CEO, is adventurous, their adventurous nature may encourage risk-taking within the company (Cain & McKeon, 2016). Their personality attributes, like risk tolerance and risk aversion, can influence the company's

innovation process, appetite for corporate mergers, and stakeholders' assessment of the firm (Cain & McKeon, 2016; Ouyang et al., 2022; Sunder et al., 2017).

CEOs who enjoy the sensation of exhilaration from risk-taking may gravitate to risky hobbies. MacCrimmon and Wehrun (1990) report that managers with high achievement are also those most likely to seek risk. Zuckerman (1971) lists several sports that could be risky, such as mountain climbing and race car driving. Luo et al. (2022) list CEOs' top 20 self-disclosed risky hobbies, including rock climbing and hobbies involving motorized vehicles, including race cars and aviation. There is evidence that CEOs enjoy risky hobbies, but little evidence describes how their risk-taking influences their firm. A growing body of literature connects firm outcomes with CEO influences from personality characteristics. One outcome, non-GAAP earnings, may be able to link CEO sports risk to the risk CEOs choose when influencing the firm and disclosing information about the firm.

Historically, firms have provided information for investors to inform their investment decisions, and as the person in charge, the CEO has proprietary information regarding the firm's internal processes (Black & Gao, 2022; Nagar et al., 2003). When the CEO discloses proprietary information, Nagar et al. (2003) suggests that some firms' financial indicators are impacted. For instance, as a result of disclosures, share price and trading volume may increase, and the firm's cost of capital may decrease. When disclosures are made with transparency, the firm and its stakeholders’ benefit. However, if the CEO can influence disclosures to benefit their self-interests, the firm and its stakeholders are at risk. According to Dreman (2001), disclosures that benefit the CEO may lead to “fuzzy” numbers, which lead to “fantasy earnings.” To circumvent these

types of disclosures, the Securities and Exchange Commission (SEC) has implemented regulations to protect investors.

The Securities and Exchange Commission (SEC) mandates that public companies use Generally Accepted Accounting Practices (GAAP) for financial reporting. However, most firms provide information that is considered non-GAAP (Govindarajan et al., 2021). Non-GAAP earnings have been criticized by the SEC as misleading, if not opportunistic (Ciesielski & Henry, 2017). The SEC and critics worry that investors trust unaudited, non-GAAP earnings without understanding the underlying transactions, while firms argue that non-GAAP earnings are more informative for investors (Young, 2014).

Black and Christensen (2018) contend that most non-GAAP disclosures are driven by the desire to provide better information. While delivering better information may seem to imply increased transparency, the result is that non-GAAP earnings complicate the understanding of firm outcomes (Ciesielski & Henry, 2017). Ciesielski and Henry (2017) note that, since non-GAAP earnings can help firms surpass GAAP earnings, reach or exceed earnings goals, and provide enhancements to management compensation, there are incentives to present the firms' outcomes optimistically, if not opportunistically. When firms present opportunistic non-GAAP earnings, they may be trying to improve their market value. Additional complications stem from the various names for non-GAAP reporting (Young, 2014). Depending on the firm or reporting venue, non-GAAP earnings are termed as pro forma earnings, street earnings, or adjusted earnings.

Black and Christensen (2018) argue that the transparency problem stems from regulatory issues. They contend that reducing enforcement of Regulation G would lead to more transparency. They also say auditors should be required to have increased oversight for non-GAAP reporting. Black and Christiansen (2018) may be correct that transparency complications may arise from regulatory constraints, but there is evidence that regulations cause an indirect effect that may offset the direct intent of the regulation (Sivakumar & Waymire, 2003).

Many factors impact the composition of non-GAAP earnings. Firm size, size of equity, and return on assets may impact the exclusions used for non-GAAP earnings (Abdel-Meguid et al., 2021; Frankel et al., 2011; Nagar, 2003). In addition, studies have shown that firms using non-GAAP earnings are more likely to have problems with their financial reporting (Rapoport, 2016). For example, 3.8% of firms that used GAAP had formal earnings restatements, while 6.5% of firms using non-GAAP earnings had restatements. In addition, internal control weaknesses were reported by 7.5% of firms using GAAP and 11% of firms using non-GAAP. According to Olga Usvyatsky, vice president of Audit Analytics, users and analysts who rely on firm outcomes should be cautious when firms apply non-GAAP measures conspicuously. (Rapoport, 2016). Based upon this information, it is no wonder that Howard Scheck, former chief accountant for the SEC's Division of Enforcement, described non-GAAP metrics as a factor for fraud risk (Leone, 2010).

In this study, several ideas will be explored by investigating how the CEO's risk tolerance influences their firm’s non-GAAP earnings. The first idea is whether firms with CEOs involved in risky sports hobbies are an indicator of non-GAAP earnings that

exceed GAAP earnings. Secondly, whether exclusions for non-GAAP earnings for firms with CEOs with risky hobbies are in indicator of a positive association with the increase in CEO risky hobbies. Finally, whether those exclusions for non-GAAP earnings that persist for more than one period are associated with CEOs with risky bobbies. The research question is

How and to what extent is a CEO's sports hobby risk an indicator of non-GAAP earnings?

The study of non-GAAP earnings involves understanding some of the terms used frequently by researchers. It is common to see the terms misleading, optimistic, and opportunistic within disclosure literature. For instance, Arena et al. (2021) refer to situations where disclosures are intended to inform investors and are optimistic, in some cases overly optimistic, about future earnings. In other situations, expense items are excluded from earnings to mislead investors and have them believe future earnings will be higher when future results are uncertain. Those situations are referred to as opportunistic (Arena et al., 2021). Nagar et al. (2003) use the term opportunistic to describe situations where firm managers receiving stock options may disclose unfavorable information to benefit from lower stock prices. In either case, misleading and opportunistic terms imply that the firm or its executive leaders may benefit from earnings disclosures (Miller, 2009).

Additional terms used frequently when referring to non-GAAP disclosures are aggressive, low-quality, or persistent. When GAAP earnings are adjusted to create non-GAAP earnings, certain expenses, considered one-time expenses, may be excluded to

give investors a better picture of company earnings. Black et al. (2017) use the term aggressive when discussing exclusions from GAAP earnings that repeat over several periods. Similarly, Kolev et al. (2008) discuss low and high-quality exclusions. High-quality exclusions are made appropriately when exclusions are transitory or do not repeat. It is common to see references to non-GAAP earnings exclusions that are low-quality or persistent when exclusions are repeated (Abdel-Meguid et al., 2021).

Since non-GAAP earnings arise from financial outcomes, several items from the firm's financial information will be used in the analysis. The size of equity, return on assets, and book-to-market are all items that will help explain the impact of the CEO's propensity for sports risk on non-GAAP earnings. It is possible to use the CEO's age, length of service with the company, and gender to support the research's conclusions. In addition, the lack of board independence indicated by the CEO's duality as board chair may impact the CEO's ability to take risks (Luo et al., 2022).

Despite the interest in non-GAAP measures, the research on the influence of the CEOs' personal characteristics has just begun. There is growing literature on CEO characteristics, including narcissism and hobbies. While CEO personal characteristics like narcissism have been related to non-GAAP earnings, there is a void in the literature for CEO risk-taking and non-GAAP earnings. Research regarding the risk tolerance of CEOs in their personal lives, for instance, their sports hobbies, will provide insight into the CEO's influence on non-GAAP measures. This information will also benefit analysts and practitioners as they assess firm risk and motivation for using non-GAAP disclosures. Policymakers and regulators will also be interested as they attempt to protect investor interests and review ethical standards.

The remainder of this paper contains sections for the Literature Review, Methods, Results, and Conclusion. Within the Literature Review, I present the theoretical review, literature review, and hypothesis development. In the Methods, I discuss the background for this research, the sample selection, and research model and intended contribution. The Results show the outcome of the analysis with the final data. The conclusion presents the findings with limitations and suggestions for future research.

Chapter 2

Literature Review

Theoretical Review

One theory that explains why CEO personality characteristics impact the strategy that leads to non-GAAP earnings disclosures is the upper echelon theory (Hambrick & Mason, 1984). Some researchers use agency theory to explain the determinants of corporate disclosures and CEO responsibilities, such as Black et al. (2021), Biggerstaff et al. (2017), Healy et al. (2001), and Nagar et al. (2003). Other researchers of non-GAAP and CEO characteristics use upper echelon theory, such as Abdel-Meguid et al. (2021), Bunea (2020), and Plockinger et al. (2016). According to Hambrick and Mason (1984), there are advantages to using an upper echelon overview of a firm over other theories. First, it offers a higher degree of predictive power than other theories; second, it reveals the management style of those who make decisions; and third, it can allow an outsider to predict a firm's strategy. Oreg and Berson (2018) describe how leaders' personalities may shape the firm's outcomes. They posit that firm leaders interpret strategy based on their personality characteristics. These strategy interpretations trickle down the organization and become embedded in the firm's culture and environment (Oreg & Berson, 2018). Given the CEO's role and broad control to influence firm strategy, CEO character traits may affect the firm outcomes and may have advantages and disadvantages for the firm (Hambrick & Quigley, 2014). In this research, upper echelon theory will form the basis for analyzing the CEO characteristic of risk tolerance to non-GAAP earnings.

Non-GAAP Earnings

As of 2017, non-GAAP earnings appear in 97% of S&P 500 firms' financial disclosures (McKeon, 2018). Although non-GAAP earnings appear on most companies' financial disclosures, they are not under the jurisdiction of GAAP rules (Arena et al., 2021; Henry et al., 2020). Disclosing non-GAAP earnings is one way for firms to help investors better understand the company's financial position. However, because management may define non-GAAP earnings to give a more opportunistic view, some, including the SEC, fear that non-GAAP earnings will provide misleading information (Arena et al., 2021). Opportunistic non-GAAP earnings may occur when managers make their firm's earnings look better than regular GAAP earnings. Doyle et al. (2013) discuss how some firms may reclassify expenses that occur regularly as non-recurring. Inexperienced investors may not understand the additional information within non-GAAP earnings and miss the nuances a more sophisticated investor would recognize (Miller, 2009).

The perceived use of non-GAAP disclosures differs among researchers. According to Black et al. (2021), non-GAAP measures are not a clear signal of an overly optimistic earnings presentation. Black et al. (2021) suggest that non-GAAP earnings primarily increase useful information available to investors and other stakeholders. Other researchers criticize non-GAAP earnings because they are usually unique to one company and lack comparability to other companies (Henry et al., 2020).

The SEC regulations prohibit misleading non-GAAP measures. Regulation G, passed in 2003, cautions against the public use of non-GAAP measures without a clear

explanation. When non-GAAP measures have more prominence than GAAP measures, the SEC issues comment letters to request either a basis for its use or that the non-GAAP measure be restated (Adams & Meckfessel, 2021). However, the SEC has not clearly defined a misleading non-GAAP measure.

CEO Influence

Extant literature on CEOs and their influence on non-GAAP earnings has focused on cash holdings and compensation (Black et al., 2021; Lim & Lee, 2019; Tong, 2010). Lim and Lee (2019) examined CEOs of Korean firms and found that increased CEO tenure was related to a decrease in firm cash holdings. Tong (2010) found that CEOs with higher risk incentives were more likely to keep lower amounts of cash holdings, perhaps due to their increased risk incentives.

Proxies provide valuable information when there are no direct measures of CEO influence. Both Black et al. (2021) and Abdel-Meguid et al. (2021) successfully used proxies to explain CEO influence on non-GAAP earnings. Black et al. (2021) used short-term bonuses and long-term incentive plan payments as proxies for CEO short and long-term focus on firm performance. Their study did not show a relationship between short-term bonuses and aggressive non-GAAP earnings. They found a connection between long-term incentive plan payments and aggressive non-GAAP earnings but found a negative association between long-term incentive plan payouts and the likelihood and magnitude of non-GAAP exclusions. Abdel-Meguid et al. (2021) researched CEO characteristics by using the photos of CEOs in annual reports, then measured their size and quantity as a measure of CEO narcissism. They compared their results for CEO

narcissism to firm non-GAAP measures using data from the Institutional Broker Estimate System (I/B/E/S). Abdel-Meguid et al. (2021) found that CEOs with more and larger pictures of themselves in annual reports are narcissistic and tend to exclude items that reduce income from non-GAAP earnings. Using proxies for CEO impact, Black et al. (2021) and Abdel-Meguid et al. (2021) demonstrate how non-GAAP earnings information can be acquired.

Risk Tolerance

Research in sensation seeking by Zuckerman (1971) found that thrill, adventure seeking, experience seeking, and disinhibition are related to risk-taking. Similarly, increased energy levels and impulsivity are closely related to sensation-seeking, also known as risk-taking. Further, the tendency for sensation-seeking declines with age. Research by Fischer et al. (2012) showed that risk-taking behavior escalates when individuals have a lower level of self-control and cognition. Fischer et al. (2012) posit that risk-taking can lead to rewards, such as feeling pleasure and exhilaration.

Some researchers have examined risk-taking by CEOs. Cain and McKeon (2016) examined CEO personal risk-taking and corporate policies using pilot licenses as a proxy for CEO risk-taking. Their work found that risk tolerance by the CEO is related to acquisitions and projects selected by the firm, as well as other corporate strategies. The sports and hobbies preferred by CEOs were investigated by Luo et al. (2022). Their sports-risk measure considers the injuries from various sports over the total amount of people participating in the activity. Their innovative measure uses information from the National Electronic Injury Surveillance System (NEISS) and the U.S. Census Bureau.

Although Luo et al. (2022) applied their sports risk measure to self-reported hobbies, their calculations provide valuable insight into risks taken by CEOs.

CEO risk-taking may also be related to the idea of contagion. Contagion is a term used to describe the phenomena of firms learning about an action that may be misleading, its possible costs, and how that action becomes imitated by a group of firms. Kedia et al. (2015) found evidence of contagion in earnings management for firms within the same industry or in their metropolitan statistical area. Contagion may combine the factors of audience and rivalry if CEOs believe regulatory agencies are not aware or too busy to take action against unusual non-GAAP earnings and feel the need to compete.

Bernile et al. (2017) theorize that CEO risk-taking relates to their experiences with life-threatening disasters. According to their study, CEOs who are bystanders to disasters and potential disasters are more guarded when taking risks. CEOs who have survived near-fatal disasters are more likely to be risk-tolerant (Bernile et al., 2017). This may explain why some CEOs engage in sports that are more likely to cause fatalities, such as skydiving, than other sports.

Some researchers have explored the personality trait of hubris and its relationship to the personality trait of risk-taking (Li & Tang, 2010). Li and Tang (2010) state that hubris is rooted in overconfidence, while risk-taking is related to making decisions. Their study of CEOs in China found that hubris can influence Chinese firms' risk-taking. Cormier et al. (2015) found that hubris can cause irrational decisions that may lead to financial statement fraud or misleading financial statements. While CEO risk-taking may

have many underlying causes, the purpose of this study is not to understand those underlying causes but to understand when risk-taking is present.

Ouyang et al. (2022) researched CEO risky hobbies in relation to the evaluation of firms by credit stakeholders. Their interviews with senior bank officers and loan officers complemented loan data collected from the DealScan database. Findings by Ouyang et al. (2022) indicate that firms with CEOs with a license to fly private aircraft incur a higher cost of debt. The higher cost of debt is due to banks that perceive firms with a risk-taking CEO, in this case flying aircraft, as having a higher default risk. This information may help understand why some CEOs either do not disclose their hobbies or why some corporate policies restrict CEO risky hobbies.

CEO Sports Hobbies

There are many reasons to participate in sports as a hobby. Research on the effect of sports hobbies like golf finds that learning the game increases neural plasticity, which benefits everyone (Shea, 2011). Bunea et al. (2018) note that participating in sports can give the participant a sense of their mortality. Bunea (2020) posits that CEOs use their hobbies as a relief from the stress of their work. As a former CEO, Bunea interviewed 25 CEOs for her qualitative research on CEO hobbies. Most of those interviewed claimed that their serious leisure activities helped them maintain the mental stamina for their work. Bunea (2020) also notes that hobbies can create a sense of fulfillment.

Some researchers have explored why some participants in risky sports activities move to other sports or discontinue risky sports activities altogether. Shoham et al. (2000) theorized that participants in risky sports activities were able to support their

identity construction. Their research implied that moving from one risky sports activity to a new risky sports activity affirmed participants' self-identity and, in some instances, helped it to evolve. In addition, Shoham et al. (2000) found that as participants practice their risky sport and achieve proficiency, the activity may no longer be attractive. According to Shoham et al. (2000), one explanation for those who continue risky sports is the comradery with other participants. The relationships formed when participating in risky sports transcended social status and wealth.

The fitness of the CEO may be connected to the firm's success (Limbach & Sonnenburg, 2015). Research by Limbach and Sonnenburg (2015) suggests that the fitness of the CEO or the appearance of the fitness of the CEO increases firm value. In addition, they suggest executive recruiters favor more physically fit candidates. While this research has limitations since CEO physical fitness is difficult to measure, it does point to the interest in the hobbies of CEOs.

Research by Biggerstaff et al. (2017) evaluates CEO effort to firm performance using leisure activity to represent a lack of effort. They show that firms with CEOs who spend significant time golfing have lower profitability. Biggerstaff et al. (2017) suggest that some CEOs are incentivized to play golf or shirk their duties when there is no economic reward to motivate them. They also find that leisure activities increase with the length of time the CEO has spent in their job. Within the table of sports risk developed by Luo et al. (2022), golf is a low-risk hobby, and CEOs who look for ways to avoid work may be attracted to a sport they perceive to have low risk. Based on the research by Biggerstaff et al. (Biggerstaff, 2017), firms with CEOs who golf may be too involved with their sport to design and communicate their firm's non-GAAP earnings.

Control Variables

In addition to sports risk and non-GAAP earnings, my research uses control variables to help explain the variations in CEO sports risk. Based partly on Luo et al. (2022), CEO age, tenure, gender, and board independence, my research helps to explain the impact of CEO sports hobbies on non-GAAP earnings.

The longer a CEO stays with a firm, the more they are able to exert power and authority (Chen, 2014). In addition, research by Simsek (2007) suggests that CEO tenure affects the top management team (TMT), specifically on risk-taking. Simsek (2007) posits that a young CEO with less tenure is less likely to partake in riskier business activities. The more experience a CEO has, the more confidence they have in executing strategy even when risky. In addition, the more experience a CEO has, the more likely their TMT will engage in risk-taking activity to carry out the CEO's strategy. CEO age and tenure may be informative in understanding CEO risk tolerance and non-GAAP earnings.

The majority of CEOs are men (Cook, 2021). It is estimated that men outnumber women in the C-suite by seven to one. However, according to Hinchcliffe (2021), the list of Fortune 500 firms has 41 female CEOs. According to Zalata et al. (2018), female CEOs are more risk-averse than their male counterparts. This difference shows in their firm's financial reporting. After the Sarbanes Oxley Act, classification shifting was reduced in female CEO firms while it remained constant for male CEO firms. Zalata et al. (2018) point out that female CEOs may be risk-averse but not necessarily more ethical than male CEOs. Since female CEOs are more likely to be risk averse, they are less likely

to participate in riskier sports activities. Nevertheless, identifying the CEO's gender will confirm how the CEO's risk tolerance influences non-GAAP earnings.

Board independence may impact CEO risk-taking (Frankel et al., 2011; Luo et al., 2022). Frankel et al. (2011) found an association between lower-quality non-GAAP earnings and low board independence. Using board independence for this study will help determine whether CEO sports risk impacts non-GAAP earnings.

Hypothesis Development

According to Govindarajan et al. (2021), firms typically report non-GAAP earnings that are higher than GAAP earnings. Black et al. (2017) posit that there are certain conditions where firms are less likely to report non-GAAP earnings. Among those conditions are that they have avoided earnings management in the past and have earnings that meet current earnings targets. However, when firms choose to report non-GAAP earnings, (Black et al., 2017) suggest that these types of disclosures have a low cost to the firm. According to Trentmann (2021), a selection of 60 publicly-traded firms in 2020 reported non-GAAP earnings in excess of $132 billion of their GAAP earnings collectively. If a firm's CEO's risk-tolerance increases non-GAAP earnings, the first step would be to confirm the probability that firms with a CEO who have a hobby that is a sport with a high risk have non-GAAP earnings higher than GAAP earnings. Therefore, the first hypothesis is as follows:

H1: Firms run by CEOs that engage in riskier sports hobbies are more likely to have non-GAAP earnings that exceed GAAP earnings than firms run by CEOs that do not engage in riskier sports hobbies.

The presentation of earnings using GAAP may be complex and challenging for the general public to understand (Hallas, 2019). When earnings are complex, adjustments may provide a simpler interpretation, thus providing an argument for non-GAAP earnings. However, adjustments for items that decreased GAAP earnings have proliferated since the last SEC pronouncement on non-GAAP adjustments (Linnane, 2022). One example is Bristol Meyers Squibb, whose 2021 non-GAAP adjustments were larger than any other S&P 500 firm at $10 billion, making their non-GAAP earnings per share more than double that of their GAAP earnings per share. According to Frankel et al. (2011), non-GAAP earnings may provide some advantage to management. When non-GAAP adjustments are advantageous to management they are described as opportunistic. Non-GAAP adjustments may impact GAAP revenue or expenses. This study will examine the difference between non-GAAP earnings and GAAP earnings with the assumption that adjustments are related to expenses or income-decreasing items. Based on this information, the second hypothesis is:

> *H2: CEO involvement in risky sports hobbies is positively associated with the magnitude of income-decreasing items excluded from their firm's non-GAAP earnings.*

While non-GAAP earnings may provide extra details to enhance the understanding of the financial statements, exclusions from GAAP earnings could help users see how earnings might appear without non-reoccurring items. (Ciesielski & Henry, 2017). According to Brown, Call, Clement & Sharp (2014), analysts omit some earnings components because they believe it is a one-time occurrence. However, what seems to be

a one-time occurrence may occur more than once and appear persistently in non-GAAP exclusions. Based on this, the last hypothesis is:

H3: Firms led by CEOs with riskier sports hobbies have non-GAAP exclusions that are persistent.

There is a gap in the literature addressing how CEOs' character traits, such as risk tolerance, influence non-GAAP earnings. This study will build on the work of previous researchers who have used proxies when researching non-GAAP earnings and researchers who have studied and collected non-GAAP earnings to fill that gap.

Chapter 3
Research Method

Background

Two previous studies serve as a basis for this research. The first study, by Luo et al. (2022), contains their sports risk measure used to review CEO sports hobbies and tax aggression. Their sports risk measure data came from reports produced by the National Electronic Injury Surveillance System (NEISS) and the U.S. Census Bureau's Statistical Compendia Branch containing the number of sports participants categorized by age. The NEISS report came about from data collected by a national system that reported information from hospitals and patient visits. The U.S. Census Bureau report provided the number of participants for each sport. The number of visits to the hospital was divided by the number of participants. Unfortunately, the NEISS report was available for the last time in 2009. Luo et al. (2022) interpolated the sports injury data after 2009 and performed a robustness test. They found that the data remained unchanged. Based on this information, the sports risk measure created by Luo et al. (2022) is reliable. I used their sports risk measure in this study as an independent variable that will be correlated to CEOs firm's non-GAAP earnings and exclusions. A table showing all sports risk factors available from Luo et al. (2022) is in Appendix A.

The other study important to this research contains the methodology for analyzing non-GAAP earnings. Abdel-Meguid et al. (2022) studied the effect of CEO narcissism on non-GAAP earnings. The work of Abdel-Meguid et al. (2022) follows the work of Doyle et al. (2013), Bentley et al. (2018), and Frankel et al. (2011), who also use I/B/E/S as a proxy for non-GAAP earnings and also report GAAP EPS and non-GAAP EPS. Rather

than relying on press releases for all non-GAAP earnings, Abdel-Meguid et al. (2022) used data from I/B/E/S actuals as a proxy for non-GAAP earnings and hand-gathered data for non-GAAP earnings provided by Bentley et al. (2018). However, my plan for studying non-GAAP measures will rely on the hand-gathered data from Bentley et al. (2018) that resides on a website maintained by Kurt Gee (Bentley et al., 2018). The website contains several data sets, but one was most important for my research. The first data set, Manager Non-GAAP EPS Dataset, contains links to the SEC Edgar database with quarterly filing details for over 8,000 firms and data on whether there were non-GAAP exclusions and the amount of non-GAAP earnings per share.

Luo et al. (2022) and Abdel-Meguid et al. (2021) use Execucomp as a starting point to find CEO names. Luo et al. (2022) used Execucomp to find some CEO hobbies. From their beginning Execucomp sample of CEOs from 1992 through 2016, there were 7,686 CEOs, of whom 801 disclosed hobbies. Abdel-Meguid et al. (2022) and Luo et al. (2021) begin with thousands of names and reduced their sample in different ways. Because my data collection involved hand collection of CEO hobbies and other variables related to CEO characteristics, and is thus more labor intensive, my sample size is smaller than these studies.

Sample Selection

I began my sample selection with the list of CEOs from research performed by Bunea (2020). The names and leisure activities of 50 CEOs were provided by Bunea, along with the web link relating to a quote or other evidence of their hobby. Bunea (2020) studied CEO leisure activity based on evidence of how serious they were about

their leisure activity. For their purpose, Bunea included activities that are not sports, such as music, photography, puzzles, and in one case, making cards. I inspected the CEOs provided by Bunea to determine if their company was listed in the Fortune 500, whether the company was publicly traded, and whether the CEOs' tenure included January 2018 through December 2019. Contained within the review for each company and their CEO was confirmation of their leisure activity on the risk measure developed by Luo et al. (2022).

The search for additional CEOs within the Fortune 500 companies was done by searching the list of companies at the website for the Fortune 500 and then looking for information about their sports interest in their Wikipedia or results from a Google search. Based on Abdel-Meguid et al. (2021), I estimated that 50 firms (10% of 500) of the Fortune 500 would have a CEO with a sports hobby. A random search of firms within the Fortune 500 listing for 2018 resulted in 50 CEOs who met all criteria. Some CEOs had intriguing sports hobbies that had to be discarded for various reasons. One CEO who enjoys jiu-jitsu had been included without checking their firm's listing in the Fortune 500. This particular CEO was listed because they were listed in Bunea's data. After double-checking their ranking for the 2018 Fortune 500, the firm was deleted from my data. Several CEOs from the Fortune 500 were not were not considered because their name was similar to professional sports figures, making research on the CEO more difficult. [1] Another CEO was discarded due to his interest in sports as a spectator.

[1] One example is Carlos Rodriguez, CEO of ADP from 2011 through 2022. A Google search will return information on Carlos Rodriguez, the CEO, the cyclist, and another Carlos Rodriguez, a track and field athlete. It is unclear whether Carlos Rodriguez the CEO has any sports interests.

Another potential CEO with a sports hobby could not be included because their tenure did not begin until the end of 2018.

The non-GAAP data came from "hand-gathered" data from Bentley et al. (2018). According to Bentley et al. (2018), one problem with analyzing non-GAAP information is the lack of a large-scale database. However, Kurt Gee, an author who has collaborated on several papers analyzing non-GAAP earnings, has provided a website with publicly available data sets containing firm-specific non-GAAP earnings per share and links to data from the SEC. Bentley et al. (2018) gathered non-GAAP earnings per share data using research assistants trained to read earnings announcements to find non-GAAP metrics and earnings per share. Based on their research assistant's findings, an algorithm enabled a computer program to capture non-GAAP earnings per share. The accuracy of the program was estimated to be 85.9% overall, with separate estimates for accuracy when managers do not report non-GAAP earnings per share of 95.2% and accuracy of 95.3 when managers report non-GAAP earnings per share.

For my study, I used a subset of the Bentley et al. (2018) data set from fiscal 2018 – 2019. This period fulfilled the period of 8 quarters specified by Heflin et al. (2015) for analyzing the persistence of non-GAAP earnings. The use of 2018-2019 avoids the period during the pandemic, which caused fluctuations and possible permanent disruptions in the market (Vera-Valdes, 2022). The data from Bentley et al. (2018) was in SAS format; however, a colleague familiar with SAS retrieved it and saved it in Excel for my use.

Data for GAAP earnings per share, book to market, the size of equity, and return on assets were gathered from Compustat, North America Fundamentals. Most data items were gathered from Compustat Fundamentals Quarterly, but two were retrieved from Compustat Fundamentals Annual. Firms were entered into Compustat's query form by ticker symbol, and after confirming the fiscal period for 2018 and 2019, results were downloaded from Compustat to Excel,

I merged the data into one workbook using two separate Excel workbooks, one containing the Bentley et al. (2021) non-GAAP data and the Compustat variables. The combination of data took several iterations using several worksheets. Since not all firms produce an 8k each quarter but Compustat provided data for every quarter, ensuring each row of Compustat data matched the corresponding data for non-GAAP EPS was critical. When matching the data, some errors from Compustat were noted. The corresponding firm quarter was deleted when Compustat data was incomplete. Finally, firm quarters without non-GAAP EPS were deleted. The final sample size is outlined in Table 1.

Table 1
Sample Selection

	Number of Observations
Beginning number of firm CEOs with sports hobbies	50
Firm-quarter observations (January 1, 2018, to December 2019 quarters multiplied by number of firms) (8 * 51)	400
Less firm-quarters without 8K filings	(71)
Less firm-quarters with Compustat data errors	(2)
Less firm quarters without non-GAAP EPS	(103)
Final firm-quarter sample	227

Research Models

The variables for H1 and H2 were created following Abdel-Meguid (2021). Two dependent variables, *Exceed* and *NonGAAPExclusions,* will use earnings per share (EPS) data. *NonGAAPExclusions* is actual non-GAAP EPS less GAAP EPS. Abdel-Meguid et al. (2021) define GAAP EPS as before extraordinary operations and discontinued operations. The *Exceed* variable is an indicator of non-GAAP EPS. When actual non-GAAP EPS exceeds GAAP EPS, *Exceed* will be equal to 1.

Following Abdel-Meguid (2021), additional control variables are included in the first two models. *BTM* equals the book value of equity divided by the market value of equity or book-to-market ratio. *SizeEquity* is composed of items from Compustat. First, common shares outstanding (Compustat item cshoq) are multiplied by stock price at quarter close (Compustat item prccq). In this model the control for firm performance is *ROA.* It is equal to actual non-GAAP EPS divided by total assets per share for a firm in a

particular quarter. Compustat items for earnings per share from operations (opepsq), total assets (atq) and common shares outstanding (cshoq) are used to calculate *ROA* in my study.

Although Abdel-Meguid et al. (2021) used an indicator variable *Profitable* it is not used in my research. My sample size is much smaller than Abdel-Meguid et al. (2021), and there are sufficient indicator variables for reliable results without using *Profitable*. My study did not use another variable, *SalesGrowth*, used by Abdel-Meguid et al. (2021). *SalesGrowth* required using quarters from the prior year that were unavailable in my data. An additional difference between my model compared to that of Abdel-Meguid et al. (2021) is the inclusion of variables for CEO characteristics such as age, tenure, gender, and whether the CEO is chair of their firm's board of directors. Fixed effects for *SIC* include the first two digits of the standard industry code and *QtrYr*. Subscript notations of i indicate an individual firm, and q indicates an individual quarter.

Model 1: Binary Logistic Regression

The model below will test H1. A positive coefficient is expected on *SportsRisk.*

$$Exceed_{i,q} = \beta_0 + \beta_1 Sports\ Risk_{i,q} + \beta_2 BTM_{i,q} + \beta_3 SizeEquity_{i,q} + \beta_4 ROA_{i,q} + \beta_5 CEOAge + \beta_6 CEOTenure + \beta_7 Gender + \beta_8 BoardIndependence + Industry + Year\text{-}Quarter + \varepsilon_{i,q}$$

Model 2: Multivariate Regression

The model below will test H2. Similar to H1, A positive coefficient is expected on Sports Risk.

$$NonGAAPExclusions_{i,\,q} = \beta_0 + \beta_1 SportsRisk_{i,\,q} + \beta_2\, BTM_{i,\,q} + \beta_3 SizaEquity_{i,\,q} + \beta_4 ROA_{i,\,q} + \beta_5\, CEOAge + \beta_6 CEOTenure + \beta_7 Gender + \beta_8 BoardIndependence + Industry + Year\text{-}Quarter + \varepsilon_{i,q}$$

Descriptive statistics and correlations among the variables for H1 and H2 will assist in analyzing the relationships among the variables in these models. I expect a positive, significant correlation between *Exceed* and *SportsRisk* and between *NonGAAPExclusions* and *SportsRisk*.

The model for H3 follows Frankel (2011) and Abdel-Meguid (2021) and examines exclusions in non-GAAP earnings. Following their model, two dependent variables are created. According to Frankel (2011) and Abdel-Meguid (2021), using two models with two different dependent variables increases the likelihood of discovering the repercussion of exclusions for future earnings. The first dependent variable, *FutureGAAPEarnings* uses earnings per share data from Compustat summed over quarters q + 1 through q + 4 for each year. A second model using the dependent variable, *FutureOperatingIncome*, uses operating income per diluted share then summed over quarters q +1 through q +4. This figure is adjusted with an implied dilution factor for earnings per share. It uses Computstat annual data for weighted average common shares used to calculate earnings per share (cshpri) divided by fully diluted common shares used to calculate earnings per share (cshfd). According to Frankel et al. (2011), FutureGAAPEarnings may contain expenses that occur on a regular basis, such as depreciation. However, FutureOperatingIncome is less likely to contain expenses that occur regularly. A comparison of the coefficients for the two models will help inform the persistence of non-GAAP earnings. In addition, the coefficient of non-GAAP earnings

will signal the relevance and impact on future earnings. According to Frankel et al. (2011), if the coefficient on *NonGAAPExclusions* are zero, the expenses excluded from earnings are irrelevant or non-recurring. Based on prior research, if the coefficient on *NonGAAPExclusions* is negative, it is an indication of expenses that recur. A negative coefficient is expected on *NonGAAPExclusions*. Additionally, a negative interaction is expected for *NonGAAPExclusions*SportsRisk*.

The models for H3 are presented below.

Model 3a: Multivariate Regression

FutureGAAPEarnings H3:

$$FutureGAAPEarnings_{i,q+1\ to\ q+4} = \beta_0 + \beta_1 Non\text{-}GAAPEarnings_{i,q} + \beta_2 NonGAAPExclusions_{i,q} + \beta_3 SportsRisk_{i,q} + \beta_4\ Non\text{-}GAAPEarnings_{i,\ q} * SportsRisk_{i,q} + \beta_5 NonGAAPExclusions_{i,\ q} * SportsRisk_{i,q} + Industry + Year\text{-}Quarter + \varepsilon_{i,q}$$

Model 3b: Multivariate Regression

Future Operating Income H3:

$$Future\ Operating\ Income_{i,q+1\ to\ q+4} = \beta_0 + \beta_1 Non\text{-}GAAPEarnings_{i,q} + \beta_2 NonGAAPExclusions_{i,q} + \beta_3 SportsRisk_{i,q} + \beta_4\ Non\text{-}GAAPEarnings_{i,\ q} * SportsRisk_{i,q} + \beta_5 NonGAAPExclusions_{i,\ q} * SportsRisk_{i,q} + Industry + Year\text{-}Quarter + \varepsilon_{i,q}$$

Based upon the outcome of these calculations, there may be evidence of an association between the CEO's risky hobbies and their firm's non-GAAP earnings.

Chapter 4

Results

This study analyzes the impact of CEO sports risk on their firm's non-GAAP earnings. Three models are used for this analysis. The first analysis examines the probability of firms with CEOs with a sports hobby having non-GAAP earnings exceeding GAAP earnings. The second analysis examines whether CEO SportsRisk is positively associated with the likelihood of non-GAAP earnings. The last analysis compares FutureGAAPEarnings to FutureOperatingIncome, both based on earnings, to determine whether non-GAAP earnings are persistent.

Descriptive statistics in Table 2, Panel A show the fundamental characteristics of the data in Model 1 and Model 2. In addition, Table 2, Panel B show the correlations which describe the relationship among the variables. Table 2 shows the descriptive statistics and crosswise correlations for H1 and H2 variables. To confirm outliers did not influence data, continuous variables were winsorized at the 1% and 99% levels. Winsorizing variables was done rather than deleting multiple rows of data that may provide additional explanation of the persistence of non-GAAP earnings.

Table 2 Panel A shows the mean of *Exceed* is .674 suggesting that 67.4% of firm-quarters had non-GAAP earnings that exceeded GAAP earnings. The mean found during this research is larger than the mean found by Abdel Meguid et al. (2021) where 44% of firm-quarters excluded some GAAP expenses from GAAP earnings. Two differences between my study and Abdel-Meguid et al. (2021) may account for the variation in means for the two data sets. First, Abdel-Meguid et al. (2021) used a sample

of 19,092 firm quarters for the years 1996 through 2014. My sample used 227 firm quarters for the years 2018 through 2019. My sample, which is more recent, may indicate increased use of non-GAAP earnings. Second, Abdel-Meguid et al. (2021) had no restrictions on their sample other than the availability of an annual report, compensation data, and CEOs with at least four years of tenure. My sample required CEO firms to rank within the Fortune 500 list for 2018 and have a publicly identified sports hobby. Ranking among the Fortune 500 is a requirement for this study; therefore, firms in the Fortune 500 may have higher motivation to have non-GAAP earnings that are higher than GAAP earnings.

Table 2 Panel A also shows that *NonGAAPExclusions* has a mean of 0.294. Frankel et al. (2011) analyzed *NonGAAPExclusions* in their study of board independence pre- and post-SEC scrutiny. They found the mean of *NonGAAPExclusions* pre-SEC scrutiny using first quarter 1998 through second quarter 2001 of 0.24 and post-SEC scrutiny using third quarter 2001 through fourth quarter 2005 of 0.15 . It should be noted that this study's mean of *NonGAAPExclusions* is closer to pre-SEC scrutiny.

Table 2 Panel B crosswise correlations display a negative but not significant relationship between the variables *SportsRisk* and *NonGAAPExclusions*. This correlation is different from what was expected in Hypothesis 2. The relationship suggests that as the magnitude of exclusions from GAAP earnings increases, *SportsRisk* decreases. *SportsRisk* is negatively but not significantly associated with *Exceed*. This relationship indicates that as firms are more likely to have non-GAAP earnings that exceed GAAP earnings, their CEO sports hobby has a decreased risk. *SizeEquity* is negatively and significantly correlated with *SportsRisk*, suggesting that as firms increase in size, their

CEO sports risk decreases. *CEOIndependence* is negatively and significantly associated with *SportsRisk* using Pearson's correlation. This implies that as CEOs become their firm's board chair, they are less likely to have publicly identified risky sports hobbies. However, Spearman's correlation for the same relationship is positive and nonsignificant, leaving a question about this relationship.

Table 2

Descriptive Statistics and Correlations H1 and H2

Panel A: Descriptive Statistics H1 and H2

	Mean	Median	Std. Deviation	Minimum	Maximum
NonGAAPExclusions	0.294	0.160	0.785	-1.910	3.520
Exceed	0.674	1.000	0.470	0.000	1.000
SportsRisk	0.199	0.070	0.246	0.000	1.190
BTM	0.292	0.209	0.284	-0.265	1.181
SizeEquity	4.789	4.786	0.462	3.841	5.879
ROA	0.022	0.018	0.015	0.000	0.079
CEOAge	57.767	58.000	4.233	49.000	68.000
CEOTenure	7.335	6.000	4.161	2.000	25.000
CEOMale	0.943	1.000	0.233	0.000	1.000
CEOIndependence	0.542	1.000	0.499	0.000	1.000

All variables are as defined in Appendix A with the exception of CEOAge and CEOTenure. In Appendix A, CEOAge and CEOTenure used the log of age and tenure. This set of descriptives uses actual age and tenure. N = 227.

Panel B: Correlations H1 and H2

		1	2	3	4	5	6	7	8	9	10
1	*NonGAAPExclusions*	1	.345**	-0.056	0.105	0.087	-.140*	0.039	-0.007	-0.075	-0.056
2	*Exceed*	.539**	1	-0.021	.189**	0.089	-.235**	-0.087	.201**	-0.091	-0.017
3	*SportsRisk*	-0.040	0.021	1	.147*	-.386**	-0.069	-.222**	-.239**	0.111	0.036
4	*BTM*	.191**	.137*	-0.042	1	-.214**	-.690**	.321**	.232**	-0.064	0.039
5	*SizeEquity*	.130*	0.115	-.140*	-.252**	1	0.013	-0.023	.227**	-0.102	0.055
6	*ROA*	-.204**	-.188**	0.038	-.729**	0.050	1	-.273**	-.233**	0.127	-0.077
7	*CEOAge*	0.032	-0.084	-.388**	.316**	-0.023	-.345**	1	.228**	-.148*	.153*
8	*CEOTenure*	0.115	.187**	-.262**	.286**	.229**	-.264**	.138*	1	-0.082	.350**
9	*CEOMale*	-0.114	-0.091	0.037	-0.057	-0.115	0.129	-.169*	-0.094	1	-.227**
10	*CEOIndependence*	-0.001	-0.017	-.145*	0.026	0.086	-0.042	0.104	.365**	-.227**	1

Table 2, Panel B presents Pearson (above the diagonal) and Spearman (below the diagonal). All variables are as defined in Appendix A.
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
N = 227.

Table 3 contains the frequency of *SportsRisk*. There were 227 firm quarters analyzed. CEOs participated in various sports hobbies, classified into 11 different risk categories. Golf was the most popular sport for this sample of CEOs. Out of a total of 38 CEOs, 34% play only golf. Several CEOs played golf but played other sports too. Therefore, more CEOs may play golf, but because they play another sport with a higher risk, the sport with a higher risk is reported in this study.

Table 3

Frequency of SportsRisk

	SportsRisk	Qtr Frequency	Qtr%	CEO Frequency	CEO%
Name of Sport	(1)	(2)	(3)	(4)	(5)
Running	0.00	18	7.90	3	7.80
Bowling	0.01	3	1.3	1	2.60
Golf	0.04	73	32.20	13	34.00
Racquet games	0.07	24	10.60	4	10.50
Skiing	0.11	4	1.80	1	2.60
Martial Arts, Swimming	0.12	22	9.70	3	7.80
Hockey	0.19	3	1.30	1	2.60
Basketball, Soccer	0.29	13	5.70	2	6.00
Cycling (non-motor)	0.31	30	13.20	4	10.50
Football	0.52	30	13.20	5	13.00
Motorized Vehicles- including aircraft	1.19	7	3.10	1	2.60
Total		227	100.00	38	100.00

Table 3 lists the sports played by my sample of CEOs. Column 1 is the value of *SportsRisk* in ascending order Column 2 presents the frequency the sport appeared in firm quarters. Column 3 displays the percentage of the sport per total quarters. Column 4 presents the number of CEOs who played each sport. Column 5 lists the percentage of CEOs that play each sport.

Model One

Model 1 was analyzed using binary logistic regression in SPSS. The analysis reviewed the likelihood that firms with CEOs with a hobby with a high risk are more

likely to have non-GAAP earnings that exceed GAAP earnings. *Exceed,* the dependent, variable equals one when non-GAAP earnings per share exist and when non-GAAP earnings exceed GAAP earnings per share. If non-GAAP earnings per share do not exist or exist but are less than GAAP earnings per share, then 0 is the indicator. The independent variables were *SportsRisk, BTM, SizeEquity, ROA, CEOMale, CEOAge, CEOTenure, and CEOIndependence*. *SIC* and *QtrYr* were used as fixed effects.

Table 4, Panel A shows the omnibus test of model coefficients of step 1 in Model 1. It contains a statistical test of the null hypothesis that all the coefficients are zero. The result was significant at .000, indicating the null hypothesis should be rejected. An additional insight is that the independent variables significantly differentiate between firm quarters where non-GAAP earnings exceed GAAP earnings (Meyers, 2017).

The logistic regression, presented in Table 4 Panel A, indicated that the model showed statistically significant prediction of non-GAAP earnings exceeding GAAP earnings of X^2 (10, N=227) = 38.615, p< .001. Table 4, Panel B shows the -2 log-likelihood of 247.997, and Cox & Snell R-square of .156. Table 4 Panel B also displays the Nagelkerke R-square of .218. Based on the Nagelkerke pseudo R-square results, the variables in model one explain about 21.8% of the model variance (Meyers, 2017). Additional support for this model is the Hosmer and Lemeshow test shown in Table 4 Panel C. This test assesses whether the predicted probabilities match the observed probabilities. The result of a nonsignificant p-value provides more support for this model since there is not a significant difference between predicted and observed values (Meyers, 2017). In this case, the Hosmer Lemeshow test is p = 0.391.

Table 4

Evaluation of Model 1

Panel A: Omnibus Test of Model 1 Coefficients

		Chi-square	df	Sig.
Step 1	Step	38.615	10	0.000
	Block	38.615	10	0.000
	Model	38.615	10	0.000

N = 227
Significance less than .05 indicates the null hypothesis should be rejected.

Panel B: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	247.997[a]	0.156	0.218

Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Panel C: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	8.445	8	0.391

Non-significance of Hosmer and Lemeshow indicates a better-fit model.
Dependent variable: Exceed

Table 5 below presents the classification output for this model. The predictive ability of this model was moderately high, with an overall correct prediction rate of 73.6%. The prediction rate for quarters where non-GAAP earnings were equal to or did not exceed GAAP earnings was 35.1%, and when non-GAAP earnings were higher than GAAP earnings, the prediction rate was 92.2%.

Table 5

Classification Table for Binary Regression

			Predicted Exceed		
	Observed		Not Exceed	Exceeds GAAP	Percentage Correct
Step 1	Exceeds GAAP	1 NotExceed	260	48.0	35.1
		1 Exceed	12.0	141.0	92.2
	Overall Percentage				73.6

a. The cut value is .500

Table 6 presents each predictor's partial regression coefficients, the Wald test, and the odds ratio [Exp(B)]. Here *SportsRisk*, *ROA*, *CEOAge*, *CEOMale,* and *CEOIndepencence* had negative coefficients, indicating that as these variable*s* increase, the likelihood of non-GAAP earnings exceeding GAAP earnings decreases. *CEOAge* was the only statistically significant variable. Although not statistically significant, both *BTM* and *SizeEquity* were positive coefficients indicating that the probability of non-GAAP earnings exceeding GAAP earnings increases as firm value and size increase.

Table 6

Coefficients for Model 1

Variables	b	S.E.	Wald	df	Sig.	Exp(B)
SportsRisk	-0.189	0.706	0.072	1	0.789	0.828
BTM	1.770	0.947	3.498	1	0.061	5.874
SizeEquity	0.504	0.400	1.581	1	0.209	1.655
ROA	-24.216	15.076	2.580	1	0.108	0.000
CEOAge	-13.352	5.914	5.098	1	0.024	0.000
CEOTenure	1.143	0.894	1.634	1	0.201	3.135
CEOMale	-0.248	0.898	0.076	1	0.783	0.780
CEOIndependent	-0.037	0.408	0.008	1	0.927	0.963
Constant	20.844	10.988	3.599	1	0.058	1128314042.409

Variable(s) entered on step 1: SportsRisk, BTM, SizeEquity, ROA, CEOAge, CEOTenure, CEOMale, CEOIndependent, SIC, QtrYearCategory.
Dependent variable: Exceed.
All continuous variables are winsorized at the 1% and 99% levels. N = 227

Model Two

Model 2 predicted the magnitude of *NonGAAPExclusions* using regression analysis using variables *SportsRisk, BTM, SizeEquity, ROA, CEOAge, CEOTenure, CEOMale, CEOIndependence, SIC,* and *QtrYr*. *NonGAAPExclusions* are the difference between non-GAAP earnings and GAAP earnings. Table 7, Panel A shows that the model accounted for slightly more than 10% of the variance of *NonGAAPExclusions* (R^2 = .050, adjusted R^2 = .117) but was not statistically significant, F(10, 216) = 1.126, p = .344.

Table 7

Model 2 Summary and ANOVA

Panel A: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.223[a]	0.050	0.006	0.782469

Dependent Variable: *NonGAAPExclusions*.
Predictors: *SportsRisk, BTM, SizeEquity, ROA, CEOAge, CEOTenure*, *CEOMale, CEOIndependent, SIC, QtrYear*
N = 227

Panel B: ANOVA

Model 2		Sum of Squares	df	Mean Square	F	Sig.
	Regression	6.893	10	0.689	1.126	0.344[b]
	Residual	132.248	216	0.612		
	Total	139.14	226			

All continuous variables were winsorized at the 1% and 99% levels.
Dependent Variable *NonGAAPExclusions*
Predictors: *SportsRisk, BTM, SizeEquity, ROA, CEOAge, CEOTenure CEOMale, CEOIndependence, SIC, QtrYear*
N = 227

The correlations of variables in Model 2 are shown in Table 8. The relationship between *SportsRisk* and *NonGAAPExclusions* is negative and not statistically significant. *NonGAAPExclusions* is negative and statistically significant for the relationship with *ROA*. Based on the relationship between *NonGAAPExclusions* and *ROA* it may be surmised that as *ROA* increases, *NonGAAPExclusions* decrease. SportsRisk is statistically significant and positively related to *BTM* but is statistically significant and negatively related to *SizeEquity, ROA, CEOAge,* and *CEOTenure*. Based on these relationships, it can be inferred that as *SportsRisk* increases, so does *BTM*. Another inference may be that as *SportsRisk* increases, *NonGAAPExclusions SizeEquity, ROA, CEOAge,* and *CEOTenure* decreases.

Table 8

Correlations for Model 2

Variables	1	2	3	4	5	6	7	8	9
1 *NonGaapExclusions*	1	-0.056	0.105	0.087	-.140*	0.039	-0.007	-0.075	-0.056
2 *SportsRisk*		1	0.147*	-0.386**	-0.069	-0.222**	--0.239**	0.111	0.036
3 *BTM*			1	-0.214**	-.690**	0.321**	0.232**	-0.064	0.039
4 *SizeEquity*				1	0.013	-0.023	0.227**	-0.102	0.055
5 *ROA*					1	-0.273**	-0.233**	0.127	-0.077
6 *CEOAge*						1	0.228**	-0.148*	0.153*
7 *CEOTenure*							1	-0.082	0.350**
8 *CEOMale*								1	-0.227**
9 *CEOIndependent*									1

*. Correlation is significant at the 0.05 level (1-tailed).
**. Correlation is significant at the 0.01 level (1-tailed).
N = 227
All variables are winsorized at the 1% and 99% levels.
Variables are defined in Appendix A.

The coefficients from Model 2 are shown in Table 9. The coefficient for *SportsRisk* is negative, suggesting that as *SportsRisk* increases, *NonGAAPExclusions* decrease. The coefficient for *SizeEquity* is positive, suggesting that as firm size increases, so do the items excluded from GAAP earnings. The coefficient for *SportsRisk* is negative in both Model 1 and Model 2.

Table 9

Coefficients Model 2

Variables	b	SE-b	Beta	t	Sig.
(Constant)	1.926	3.594		0.536	0.593
SportsRisk	-0.129	0.249	-0.041	-0.520	0.604
BTM	0.101	0.288	0.037	0.351	0.726
SizeEquity	0.143	0.131	0.084	1.093	0.275
ROA	-5.304	4.894	-0.103	-1.084	0.280
CEOAge	-0.898	1.915	-0.037	-0.469	0.640
CEOTenure	-0.001	0.307	0.000	-0.005	0.996
CEOMale	-0.344	0.257	-0.102	-1.339	0.182
CEOIndependent	-0.187	0.135	-0.119	-1.382	0.169

All continuous variables are winsorized at the 1% and 99% levels.
Dependent variable is *NonGAAPExclusions*
N = 227

To identify support for Model 1 and Model 2, following Abdel-Meguid et al. (2021), the data was placed in two groups based on high and low *SportsRisk*. The median rate for *SportsRisk* of .070 determined the groups. Table 10 shows the variables from H1 and H2 with means from high and low *SportsRisk,* their t-statistic, and p-value. Because each firm-quarter is a unique combination, with some firms having multiple firm-quarter observations and others having one or two firm-quarter observations, there is a difference in the number of observations in each group. In the low-risk group, which includes golf, running, bowling, and other low-risk sports, the number of observations is 94. The high-risk group, including hockey, basketball, motorized vehicles, flying airplanes, and other high-risk sports, has 133 observations. Table 10 shows that, on average firms are more likely to exclude income-decreasing items from non-GAAP earnings (*Exceed*) when the CEO has a high-risk sports hobby (p-value <-.05). Although it is not significant, the

magnitude of *NonGAAPExclusions* are lower for firm quarters for CEOs with higher sports risk. The mean for *CEOIndependent* is larger and significant ($p < .001$) in the low *SportsRisk* group. This relationship may indicate that CEOs who are their firm's board chair take less risks with their choice of sports hobbies.

Table 10

Comparison of High and Low SportsRisk Observations

Variables	High *SportsRisk* Sample Mean n = 133	Low *SportsRisk* Sample Mean n = 94	Difference	t-statistic	p-value
NonGaapExclusions	0.248	0.358	-0.110	-1.007	0.315
Exceed	0.740	0.580	0.160	2.376	< .05
BTM	0.266	0.329	-0.063	-1.638	0.103
ROA	0.022	0.022	0.000	-0.186	0.852
SizeEquity	4.805	4.766	0.039	0.627	0.532
CEOAge	1.749	1.777	-0.028	-7.745	< .001
CEOTenure	0.751	0.877	-0.126	-4.398	< .001
CEOMale	0.940	0.950	-0.010	-0.223	0.825
CEOIndependent	0.440	0.690	-0.250	-3.961	< .001

Variables from model 1 and model 2 included.
All variables were winsorized at the 1% and 99% levels.
N = 227

Model Three A and Model Three B

The final model was tested using two dependent variables, *FutureGAAPEarnings* and *FutureOperatingIncome*. Descriptive statistics and correlations for Models 3a and 3b are in Table 11, Panel A, and Panel B. The descriptive statistics in Panel A show that non-GAAP earnings and *NonGAAPExclusions* both have a positive mean and a negative minimum value. While it is useful to review the means and minimums of this data, a more in-depth evaluation of the data can provide more insight. A review of the formula for *NonGAAPExclusions* and my sample data helps illustrate the heterogeneity of non-

GAAP earnings. *NonGAAPExclusions* is the difference between non-GAAP earnings and GAAP earnings. Some firms report positive non-GAAP earnings per share. For instance, in their 2019 4th quarter earnings announcement, Ford reported a non-GAAP earnings per share of 0.12, a GAAP loss of -0.42 resulting in *NonGAAPExclusions* of 0.54. Another example firm is Boeing, who reported 4th quarter 2019 non-GAAP earnings per share loss of $2.33 and GAAP earnings per share loss of $1.79. The result for Boeing's *NonGAAPExclusions* for 4th quarter 2019 would be -0.54. These examples demonstrate the variation that can be found in non-GAAP earnings and *NonGAAPExclusions*.

Panel B shows *SportsRisk* has a positive and significant relationship with both *FutureGAAPEarnings* and *FutureOperatingIncome*. These relationships show that, in general, the CEO's sports hobby risk increases with future earnings and income. In addition, non-GAAP earnings is positively and significantly correlated to both *FutureGAAPEarnings* and *FutureOperatingIncome*. This relationship suggests that as future earnings and income increase, so do non-GAAP earnings.

Table 11

Descriptive Statistics and Correlations for Model 3a and Model 3b

Panel A: Descriptive Statistics Model 3a and Model 3b

Variables	Mean	Median	Std. Deviation	Minimum	Maximum
FutureGAAPEarnings	5.848	4.680	5.037	-0.270	22.590
NewFTOpInc	6.679	5.320	5.181	0.920	23.050
NonGAAPEarnings	2.004	1.700	2.217	-5.820	20.950
NonGAAPExclusions	0.294	0.160	0.785	-1.910	3.520
SportsRisk	0.199	0.070	0.246	0.000	1.190
*NonGAAPEarnings*SportsRisk*	0.411	0.086	0.643	-1.804	3.130
*NonGAAPExclusions*SportsRisk*	0.048	0.013	0.207	-0.993	1.830

All variables were winsorized at the 1% and 99% levels.
N = 227.

Panel B: Correlations for Model 3a and Model 3b

Variables	1	2	3	4	5	6	7
1 *FutureGAAPEarnings*	1.000	0.932**	.741**	-0.033	0.155*	0.619**	0.004
2 FutureOperatingIncome	0.865**	1.000	.702**	0.011	0.187**	0.603**	0.034
3 *NonGAAPEarnings*	0.780**	0.818**	1.000	0.110	0.021	0.488**	0.084
4 *NonGAAPExclusions*	0.066	0.105	0.177**	1.000	-0.056	0.027	0.643**
5 *SportsRisk*	0.144*	0.213**	0.121	-0.040	1.000	0.658**	0.250**
6 *NonGAAPEarnings*SportsRisk*	0.488**	0.513**	0.584**	0.041	0.803**	1.000	0.244**
7 *NonGAAPExclusions*SportsRisk*	0.054	0.076	0.103	0.790**	0.407**	0.396**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 12, Panel A, and Panel B show the Model Summary and ANOVA for Model 3a. The model was statistically significant, $F(7, 219) = 62.918$, $p < .001$, and accounted for approximately 66% ($R^2 = .668$, adjusted $R^2 = .657$). of the variance of *FutureGAAPEarnings*.

Table 12

Model Summary and ANOVA for Model 3a

Panel A: Model Summary for Model 3a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3a	0.817[a]	0.668	0.657	2.949028

Predictors: (Constant), *NonGAAPEarnings, NonGaapExclusions, SportsRisk, NonGAAPExclusion*SportRisk*, *NonGAAPEarnings*SportRisk, QtrYear, SIC*

Dependent variable: FuturetGAAPEarnings N = 227

Panel B: ANOVA for Model 3b

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3830.276	7	547.182	62.9180	<.001[b]
Residual	1904.591	219	8.697		
Total	5734.868	226			

Dependent Variable: FutureGAAPEarnings
Predictors: (Constant), *NonGAAPEarnings, NonGaapExclusions, SportsRisk, NonGAAPExclusion*SportRisk, NonGAAPEarnings*SportRisk, QtrYear, SIC*
N = 227

The model for *FutureOperatingIncome* was also statistically significant as shown in Table 13, Panel A, and Panel B. Panel A shows the model accounted for approximately 60% of the variance for *FutureOperatingIncome* (R^2 = .602, adjusted R^2 = .590). Panel B displays F(7, 219) 47.391, p < .00.

Table 13

Model Summary and ANOVA for Model 3b

Panel A: Model Summary for Model 3b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3b	.776[a]	0.602	0.590	3.319209

Panel B: ANOVA for Model 3b

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3654.763	7	522.109	47.391	<.001[b]
Residual	2412.755	219	11.017		
Total	6067.519	226			

Table 14 contains the comparison of coefficients for Model 3a and 3b. The focal variables are *NonGAAPExclusions* and *SportsRisk*. According to Abdel-Meguid et al. (2021), a negative significant coefficient for *NonGAAPExclusions* and a positive coefficient for Narcissism confirmed lower quality non-GAAP earnings with more persistent exclusions when the CEO is more narcissistic. In my research, the coefficients for *NonGAAPExclusions* and *SportsRisk* are negative, but not significant, when they interact with *FutureGAAPEarnings*. Based on these relationships, it may be inferred that *NonGAAP exclusions* are less likely to reoccur from one quarter to the next when the CEO has a lower-risk sports hobby.

The coefficients for *FutureOperatingIncome* show that *NonGAAPExclusions* and *SportsRisk* are negative but not significant. When considering *FutureOperatingIncome*, if CEOs have lower *SportsRisk,* then *NonGAAPExclusions* are not as likely to reoccur, and if CEOs have higher *SportsRisk*, then *NonGAAPExclusions* are more likely to reoccur, or persist across future earnings.

Table 14

Comparison of Coefficients for Model 3a and 3b

Variables	*FutureGAAP Earnings Coefficient*	*t*	*Sig.*	*FutureOperating Income Coefficient*	*t*	*Sig.*
NonGAAPEarnings	*1.178*	*10.205*	*0.000*	*1.180*	*9.085*	*0.000*
NonGAAPExclusions	*-0.358*	*-1.041*	*0.299*	*-0.055*	*0.141*	*0.888*
SportsRisk	*-3.319*	*-2.717*	*0.007*	*-2.079*	*-1.512*	*0.132*
*NonGAAPEarnings*SportRisk*	*3.885*	*7.407*	*0.000*	*3.536*	*5.989*	*0.000*
*NonGAAPExclusion*SportRisk*	*-2.071*	*-1.539*	*0.125*	*-2.340*	*-1.545*	*0.124*

Dependent variable: *FutureGAAPEarnings*
N = 227

NonGAAPExclusions are the difference between non-GAAP earnings and GAAP earnings, and if the income decreasing items that comprise *NonGAAPExclusions* occur only when necessary, the exclusions are considered to be high quality (Frankel et al., 2011) When the income-decreasing items that comprise *NonGAAPExclusions* occur repeatedly, the exclusions are considered to be low quality. Frankel et al. (2011) inspected the coefficient for *NonGAAPExclusions* * *Independence* in their research on non-GAAP earnings and board independence. Frankel et al. (2011) expected the coefficient to be positive for firms with independent boards that had higher-quality non-

GAAP exclusions. In this research, *NonGAAPExclusions*SportsRisk* is negative, indicating that firms with CEOs with a higher SportsRisk tend to have lower quality *NonGAAPExclusions.*

As an additional step towards the analysis of non-GAAP earnings within Model 3a and 3b, I split my sample into groups of high *SportsRisk* and low *SportsRisk* in Table 15. Similar to Table 10, the high-sports risk group had 133 CEO firm quarters and the low-risk group had 94 CEO firm quarters. In addition to the means for high and low sports risk, the t-statistic and p-value are provided in Table 15. The variances in the means for the two groups show that there is evidence for behavioral variance between the groups. The means for non-GAAP earnings and *NonGAAPExclusions* are higher in the low-sports risk group, indicating CEOs who participate in low-risk sports like golf, running and bowling are more likely to have firms that have non-GAAP profits. It is also likely that their non-GAAP profits include larger amounts that are excluded from GAAP earnings. The high-risk group has a higher mean for both *FutureGAAPEarnings* and *FutureOperatingIncome*. It should also be noted that *NonGAAPEarnings*SportsRisk* and *NonGAAPExclusions*SportsRisk* are both higher and positive for the high SportsRisk group.

Table 15

High Low SportsRisk Comparison for Model 3a and 3b

Variables	HighSportsRisk n = 133	LowSportsRisk n = 94	Difference	t-statistic	p-value
FutureGAAPEarnings	6.467	4.972	1.495	2.371	0.019
FutureOperatingIncome	7.437	5.606	1.830	2.840	0.005
NonGAAPEarnings	1.975	2.046	-0.071	0.220	0.826
NonGAAPExclusions	0.248	0.358	-0.110	-1.007	0.315
*NonGAAPEarnings*SportsRisk*	0.654	0.068	0.586	8.919	0.000
*NonGAAPExclusions*SportsRisk*	0.074	0.011	0.063	2.714	0.007

Variables from model 3a and model 3b included.
All variables were winsorized at the 1% and 99% levels.
N = 227

Chapter 5

Conclusion

The purpose of this study was to examine the impact of CEO's sports activity on their firm's non-GAAP earnings. My hypotheses assumed higher CEO sports risk would relate to an increased likelihood of non-GAAP earnings that exceed GAAP earnings.The outcomes of my analysis did not entirely support this relationship. SportsRisk was negatively related in each model, indicating that as CEO sports risk increased, CEO firm's non-GAAP earnings tended to decrease. The implications of my analysis can be related to findings in the literature, but these connections were not anticipated.

My first hypothesis was that firms with CEOs who participate in riskier sports hobbies are more likely to have non-GAAP earnings that exceed GAAP earnings than firms run by CEOs that do not participate in riskier sports hobbies. The model for this hypothesis was tested using binary logistic regression. The dependent variable was 1 when non-GAAP earnings per share exceeded GAAP earnings per share and 0 when non-GAAP earnings per share did not exceed GAAP earnings per share or when an earnings announcement existed but did not provide non-GAAP earnings per share information. The model accurately predicted group memberships for *Exceed* and notExceed with a moderately high rate of 73.6%. However, *SportsRisk* was negatively associated with *Exceed*, indicating that as *SportsRisk* increases, the probability of non-GAAP earnings exceeding GAAP earnings decreases.

My second hypothesis posited that CEO involvement in risky sports would be positively associated with the magnitude of income-decreasing items excluded from their

firm's non-GAAP earnings. My model used regression and used *NonGAAPExclusions* as the dependent variable. Here, the interaction between *SportsRisk* and *NonGAAPExclusions* was negative indicating that CEO involvement in riskier sports would be negatively associated with the magnitude of income decreasing items excluded from their firm's non-GAAP earnings. As an example, a firm with a CEO who has the high-risk hobby of driving race cars could have non-GAAP earnings of $200 and GAAP earnings of $150 producing *NonGAAPExclusions* of $50. However, a firm with a CEO who plays golf may have non-GAAP earnings of $200, GAAP earnings of $100 and *NonGAAPExclusions* of $100.

To further understand the outcome of my first two models, I divided the firm quarters into high-risk and low-risk sports groups, using the median for *SportsRisk*. While Model 1 was able to predict the likelihood of non-GAAP earnings exceeding GAAP earnings, this analysis of means differentiated between the high and low-risk groups. The mean for *Exceed* was higher for the higher-risk sports group. However, the mean for *NonGAAPExclusions* was higher for the lower-risk sports group, which agrees with the outcome for model 2. Perhaps firms with CEOs with a higher risk sports activity are more likely to have non-GAAP earning*s* that *Exceed* GAAP earnings. However, when firms with CEOs with a lower risk sports activity have non-GAAP earnings that exceed GAAP earnings, their exclusions are of greater magnitude.

. My third hypothesis was that firms led by CEOs with riskier sports hobbies have *NonGAAPExclusions* that are persistent. A negative coefficient was expected on *NonGAAPExclusions* and a negative interaction for *NonGAAPExclusions*SportsRisk*. Because both the coefficient for *NonGAAPExclusions* and the interaction for

*NonGAAPExclusions*SportsRisk* were negative, non-GAAP earnings appear to be persistent and support my hypothesis. My model used two equations to identify the interaction of *SportsRisk* and *NonGAAPExclusions* with *FutureGAAPEarnings* and *FutureOperatingIncome*. Both *SportsRisk* and *NonGAAPExclusions* are negatively related with future earnings and income, meaning that as the CEO sports risk activity and *NonGAAPExclusions* decrease, *FutureGAAPEarnings* and *FutureOperatingIncome* increase. To find support for this outcome, the variables for model 3a and 3b were placed into groupings of high-risk sports and low-risk sports and their means and significance were analyzed. Here again, *NonGAAPExclusions* was higher in the low-risk sports group. The inference is that firms with CEOs who engage in low-risk sports like golf, bowling, and running have *NonGAAPExclusions* that are more likely to occur over time or are more persistent.

Intended Contribution and Future Research

Although non-GAAP literature has gained popularity as a topic for research in the past few years, there are topics within this area left to explore (Arena et al., 2021). There has been research on CEOs' sports hobbies and tax aggressiveness (Luo et al., 2022), and research has been conducted on the CEO's personal characteristics of narcissism and non-GAAP earnings (Abdel-Meguid et al., 2021). However, the influence of the CEO's personality attributes, specifically their tolerance for risky hobbies and its association with non-GAAP earnings, has not received as much attention. My research provides insight into the relationship between the CEO's personal risk tolerance through their sports hobby risk and firm non-GAAP earnings. This topic is relevant to protecting investor interests. Analysts and practitioners may find this research helpful when

reviewing firms for risk assessment. Policymakers and regulators will also find this research relevant as they determine future policies.

The outcomes of my research may have connections to other accounting literature. There are also opportunities to use this study's outcomes for additional research. Regulations may influence non-GAAP reporting, but there is a debate on whether or not to increase regulations. Black et al. (2017) suggest that SOX and Regulation G have achieved their goal of limiting deceptive non-GAAP disclosures. Their research concludes that managers seem to exclude fewer recurring items from GAAP earnings, although managers who approve aggressive *NonGAAPExclusions* still exist. My study supports the work of Black et al. (2017) since it appears that managers who engage in low-risk sports activities approve aggressive *NonGAAPExclusions*. Additional research with a larger group of CEOs over a longer period of time could corroborate that firms with CEOs with lower-risk sports hobbies are more likely to have aggressive *NonGAAPExclusions*. In addition, since the mean of nonGAAPExclusions in my study is closer to the Frankel et al. (2011) mean for *NonGAAPExclusions* pre-SEC scrutiny, the impact of regulations on non-GAAP disclosures should continue to be explored.

An additional area of future research could explore contagion, non-GAAP earnings and CEO sports risk. Kedia et al. (2015) researched contagion in earnings management. When firms learn about actions that may be misleading and discover its cost, then imitate the action, there must be a conduit for the information. Perhaps CEO participation in sports like golf or bowling, where there are groups who play together may create a community as indicated by Shoham et al. (2000). While participating in

these sports, there may be time to discuss business, thus creating contagion. Research within the context of sports and contagion could lead to further understanding of how firms share information. Additional research may pursue the frequency of participation in risky sports activity, whether the frequency leads to continuation of the sports activity or a substitution with a different sports activity or something entirely different.

Limitations

As with most research, there are several limitations for this study. The data for CEO sports hobbies was partially gathered by a Google search and partially from data generously shared by Bunea. Other researchers who have examined CEO sports hobbies have used information from Execucomp and other databases that were not available for this research. The use of databases like Execucomp may have provided a larger sample for this study.

An additional limitation for this study was the selection of Fortune 500 CEOs. Although this limitation was necessary to limit the sample size and the time needed to find CEO data, a broader sample of CEOs with firms outside the Fortune 500 may produce different results.

Another limitation was the use of the sports risk measure by Luo et al. (2021). Some sports were not included in the measure because the calculations of risk are tied to the NAIS data. Sports like riding horses were not included because it was not included in NAIS data.

Finally, the study of non-GAAP earnings and exclusions has limitations that are inherent to the nature of non-GAAP disclosures. Most non-GAAP disclosures occur in

earnings announcements, but because these disclosures are created on an as needed basis, there may be several firm quarters where non-GAAP earnings are nonexistent, making comparability between quarters difficult. In addition, because non-GAAP earnings can be stated in different ways, their existence becomes more difficult to find, as evidenced by the errors in the algorithm developed by Bentley et al. (2018).

General Conclusion

There are many factors influencing CEO behavior and non-GAAP earnings. This research provides additional insight to the "black box" of corporate decision-making. Investors and analysts may benefit from observing the sports activities of CEOs and be aware that low-risk sports may lead to higher *NonGAAPExclusions*.

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Appendix A

Sport Hobbies Sorted by SportsRisk Factor

Name of Sport	SportsRisk Factor
Motorized Vehicles	1.19
Windsurfing	0.53
Football	0.52
Non-motorized cycling	0.31
Basketball	0.29
Soccer	0.29
Hockey	0.19
Baseball	0.18
Hunting	0.16
Skating	0.15
Martial arts	0.12
Swimming	0.12
Skiing	0.11
Volleyball	0.08
Racquet games	0.07
Mountain/rock climbing	0.07
Wrestling	0.05
Golf	0.04
Waterskiing	0.03
Running/jogging	0.00
Boating motor/power	0.00

Note. Adapted from "CEO Sports Hobby and Firm's Tax Aggressiveness." by Luo, S., Shevlin, T., Shi, L., Shih, A. (2022), *Journal of American Taxation,* 44(1).

Appendix B

Variable Definitions

Variable	Definitions
NonGAAPExclusions	Hand-gathered Non-GAAP EPS - GAAP EPS.
BTM	BTM is calculated as the book value of equity, using items from Compustat. Item seqq over the product of items eshoq and prccq.
SizeEquity	Log of market value of equity at quarter-end (Compustat data item eshoq multiplied by data item prccq)
ROA	Calculated as items from Compustat opepsq, atq and eshoq. Item atq will be divided by item eshoq. Opepsq will be divided by the result of atq divided by eshoq.
FutureGAAPEarnings	Item epsfxq summed over quarters q + 1 through q + 4.
FutureOperatingIncome	Items from Compustat opepsq, cshpri and cshfd. The calculation will be opepsq summed over quarters 1 + 1 through q + 4. To calculate an implied dilution factor, cshpri over cshfd
Exceed	Specifies whether non-GAAP earnings exist. If it is equal to 1 non-GAAP earnings are reported in Gee data, otherwise it is 0
SIC	Two digit SIC – fixed effects
CEOTenure	Natural logarithm of the CEO's tenure (in years)
SportsRisk	Based on the CEO sports hobby risk as defined in Appendix A
CEOAge	Natural logarithm of the CEO's age during the data collection period starting in 2018
CEOMale	An indicator variable equal to 1 if male and 0 if female
BoardIndependence	If the CEO is also the chairperson of the board this variable will be equal to 1 and 0 if the CEO is not the chairperson of the board.