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# Do CEO Gratification Preferences Influence Accounting Choices Near Retirement?

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# DO CEO GRATIFICATION PREFERENCES INFLUENCE ACCOUNTING CHOICES NEAR RETIREMENT?

by

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# DO CEO GRATIFICATION PREFERENCES INFLUENCE ACCOUNTING CHOICES NEAR RETIREMENT?

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CEOs near retirement are less motivated to act in shareholders' best interests than those planning to remain indefinitely; this is the horizon problem. Financial reporting that personifies the horizon problem includes an abrupt reduction in discretionary spending and an increase in current accounting earnings; this abrupt change in reporting is potentially detrimental to long-term gains. Gratification preference, defined by observable tendencies, is a personal characteristic reflecting one’s prior life experiences and environments.

This study offers an archival measure of these gratification preferences and examines whether these preferences mitigate or exacerbate the CEO horizon problem. The results suggest that discretionary accounting choices close to CEO retirement are a function of the proposed measure of CEO gratification preferences.

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Dissertation Committee:
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# CHAPTER I. - INTRODUCTION

The horizon problem is the tendency for retiring CEOs to increase short-term earnings to the detriment of long-term gains (Dechow and Sloan 1991). The horizon problem is prevalent when CEOs plan to retire and become less motivated to act in the best interests of shareholders than executives planning to stay with the company (Kalyta 2009). Various academic studies investigate the negative impact of the horizon problem; Baker, Singleton, and Veit (2006) discovered that firms led by CEOs with shorter tenures were less likely to invest in long-term projects, resulting in lower innovation and productivity growth. Likewise, Darouichi, Kunisch, Menz, and Cannella Jr (2021) demonstrated that firms led by short-tenured CEOs were likelier to adopt risky financial strategies, leading to lower future returns. In contrast, Pan, Wang, and Weisbach (2016) found that firms with longer CEO tenures tended to have higher future stock returns, indicating that CEOs' longer-term thinking could result in better outcomes for shareholders. The CEO horizon problem can lead to adverse accounting decisions by promoting short-term thinking. CEO gratification preferences may contribute to these unfavorable accounting decisions immediately before retirement. This study offers an archival measure of these gratification preferences and examines whether these preferences mitigate or exacerbate the CEO horizon problem.

Inefficient compensation agreements allow unexpected changes to discretionary accounting choices before a CEO's retirement (Cadman and Sunder 2014). It is particularly advantageous for CEOs to increase short-term accounting earnings when any potentially adverse effect occurs only after parting from the company (Kalyta 2009). These reporting changes highlight the horizon problem, in which CEOs reduce

discretionary spending to increase accounting earnings at the expense of shareholders over the long term.

Using current compensation based on future performance (i.e., restricted stocks or options) is a common contracting strategy to mitigate the horizon problem. However, even without considering CEO gratification preferences, this mitigating strategy is unlikely to be efficient (Gibbons and Murphy 1992). A CEO who expects compensation based on current performance (for example, cash compensation) would require a delay premium to switch compensation based on future performance (for example, restricted stock units). Adjusting the timing associated with a CEO's compensation generates a subconscious perception of loss, which requires an additional premium to become economically feasible for the CEO (Shelley 1993). Stakeholders often need help to absorb this premium. Some CEOs would only accept delaying compensation (stock options or restricted stock units) with a substantial premium, which is typically too high for stockholders and impractical for compensation committees to implement (Shelley and Omer 1996).

Life experiences and environments form ingrained decision-making tendencies indicative of a preference for immediate or delayed gratification (Kaplan and Gangestad 2015). An individual's gratification preference provides information helpful in evaluating individual choices. Accordingly, psychologists apply Life History Theory (LHT) to identify subconscious decision-making trends and gratification preferences inherent in human behavior (Ellis, Mcfadyen-Ketchum, Dodge, Pettit, and Bates 1999).

LHT describes characteristics with an adaptive function of facilitating instant gratification and identifies personal trends using outcome-based observations

representative of those gratification preferences (Olderbak, Gladden, Wolf, and Figueredo 2014). Individuals allocating more resources toward environment-stabilizing efforts and less toward instant gratification initiatives are “slow” life history strategists (or *delayed gratification* individuals, hereafter *DG*). Those with the opposite resource allocation pattern are “fast” life history strategists (or *instant gratification* individuals, hereafter *IG*).[1] An advantage of LHT is that the framework presents a unique opportunity to explore distinct characteristics that reflect personal discount rates while providing different, observable groupings designated by gratification preferences. CEO gratification preferences would not change quickly and are unlikely to change once established.

LHT complements other theories and frameworks currently employed in academic literature. The Imprinting Theory used in behavioral economics and accounting literature suggests that prior experiences predict recent decisions (He, Kothari, Xiao, and Zuo 2018). However, LHT is more comprehensive than Imprinting Theory. Additionally, LHT-defined gratification preferences are directly related to personal discount rates found in behavioral economics. The natural experiment of the military drawdown in the early 1990s provides support and specific evidence for the proposed measure of gratification preference and its relationship to personal discount rates.

This study investigates whether CEO gratification preferences mitigate or exacerbate the CEO horizon problem, manifesting as abrupt decreases in discretionary spending. Biddle et al. (1987) suggest that CEOs have discretion in determining the level of discretionary spending, particularly concerning research and development (R&D) and

[1] Olderbak et al. (2014), among others, use the terminology Fast and Slow to describe the LHT-defined gratification preference. However, LHT is not associated with decision-making speed and the terms *IG* and *DG* are used rather than "Fast" and "Slow" to mitigate misinterpretation in this study.

advertising expenses, which are components of selling, general, and administrative (SG&A) expenses; consequently, SG&A, R&D and advertising spending act as measures of discretionary spending. As spending outside a company's core operations may also be discretionary,[2] this study includes net investment cash flow as an additional measure of discretionary accounting choices in this study and provides evidence of the flexible nature of this spending. Observations during the final year before CEO retirement designate the horizon period. This study identifies *IG* CEOs as those exhibiting aggressive earnings management under defined circumstances that produce short-term gains but long-term damage.[3]

Companies may be fundamentally different and not comparable when their CEOs have differing gratification preferences; as such, this study uses entropy balancing to mitigate potential differences in the company and reporting characteristics for all observations in the sample. Results from this study indicate that individual gratification preferences influence accounting decisions during the horizon period. *IG* CEOs report a reduction in accumulated discretionary spending when nearing retirement; *IG* CEOs decrease SG&A expenditures and net investment cash flow by 1.7 and 2.2 percent during the horizon period.

Robustness testing examines the strength of discretionary attributes in SG&A and net investment cash flows. The horizon problem is evident for discretionary spending; however, results suggest the horizon problem is also a function of CEO gratification preferences. Even so, all effects of the horizon problem dissipate after substituting the

[2] This assumption is tested in subsequent robustness analysis.
[3] It has been demonstrated empirically that aggressive earnings management strategies during scenarios of raising new debt, loss avoidance, and insufficient cash flow for growth is representative of *IG* CEOs within the LHT framework (Feldhues and Holm 2021).

measures of discretionary spending for measures reflecting obligatory spending; CEO gratification preferences in the horizon period do not impact mandatory expenditures. These results provide evidence of discretionary attributes in SG&A and net investment cash flow measures.

Compensation committees use contracting strategies to mitigate the potentially adverse accounting decisions that CEOs may make when approaching retirement. The theory associated with gratification preferences assumes this is likely ineffective since gratification preferences would designate the motivation of delayed rewards (Bazerman, Loewenstein, and Moore 2002). *IG* CEOs would not be motivated by delayed rewards because delayed gratification is not a proper motivator; *DG* CEOs would be motivated by delayed compensation methods. Confirming this expectation, inferences from robustness testing suggest *IG* CEOs reduce discretionary spending even when their compensation packages include restricted stock units and options. Consequently, these results emphasize that contracting strategies should consider gratification preferences to align investor protections with CEO compensation and proximity to retirement.

Family ownership is associated with greater earnings informativeness and less persistence of transitory loss components in earnings (Wang 2006). To control differing financial statement reporting associated with family firms, I use an indicator variable to control for those firms and rerun my primary analysis. Considering family firm incentives does not change the initial inferences; changes in discretionary accounting choices close to CEO retirement are a function of the proposed measure, and considering gratification preference when analyzing the horizon problem provides additional information.

Findings from this paper suggest that CEO gratification preferences affect CEOs' discretionary spending during the horizon period. In additional analyses, I investigate whether CFO gratification preferences affect discretionary expenditures during the horizon period. While CEO gratification preferences are influential in financial reporting decisions during the horizon period, results suggest that CFO gratification preferences are not; CFOs should not be subject to the same scrutiny of the horizon problem as their CEO counterparts.

Prior studies examining the horizon problem do not consider the decision-making trends defined by LHT gratification preferences. Researchers could benefit from the added precision in estimating CEO effects on shareholders by incorporating the proposed measure of CEO gratification preferences. Compensation committees can use this information better to align CEO gratification preference with proximity to retirement. Ultimately, understanding CEO gratification preferences before a change in company leadership could lessen the potentially adverse effect of a CEO change.

The remainder of this dissertation is as follows, Chapter II presents a review of relevant literature and theoretical frameworks. Chapter III develops the hypothesis to be tested. Chapter IV describes the research design employed to test the hypothesis. Chapter V provides information on the sample selection process and descriptive statistics. Chapter VI presents the results of the empirical analysis of the relationship between CEO gratification preferences, proximity to retirement, and discretionary spending. Chapter VII discusses robustness checks and additional analyses performed to verify the results. Finally, Chapter VIII summarizes the findings and concludes the study. The paper ends with various appendices as described throughout the study and references.

# CHAPTER II. - BACKGROUND LITERATURE

## The Horizon Problem

In settings where CEOs plan to leave their company, they may sacrifice long-term shareholder benefits to boost short-term personal earnings; researchers refer to this phenomenon as the horizon problem (Dechow and Sloan 1991). The CEO horizon problem can harm investors if a company's CEO prioritizes short-term gains over long-term sustainability and growth. In pursuing short-term gains, a CEO may make decisions that sacrifice long-term viability, such as neglecting investment in research and development, product development, or underinvesting in employee advancement and retention. Pursuing short-term gains can lead to a decline in the company's competitive position, decreased revenue and profitability over time, and ultimately lower stock prices and shareholder returns. Additionally, investors could suffer significant losses if a CEO's focus on short-term goals leads to unethical behavior, such as misrepresenting financial results (Denning 2017).

The horizon problem manifests by increasing current accounting earnings at the long-term detriment by decreasing discretionary spending, including changes to SG&A, R&D, advertising, and spending related to non-operating objectives such as investments (Roychowdhury 2006).[4] The horizon problem intensifies when a CEO receives personal income or compensation in retirement based on performance in pre-retirement periods. Consequently, using financial benchmarks from the CEOs' final year as a benchmark for retirement income generates added incentives to reduce discretionary spending during the

[4] The horizon effect also includes diverting resources, such as time, for personal gain as shown by less time in-office and lower meeting attendance (Edmans et al. 2022). Due to a lack-of-data, there is an omission of attendance rates in this study.

last year of employment (Kalyta 2009). CEOs' propensity to reduce discretionary spending when nearing retirement is consistent with compensation arrangements influencing earnings management decisions (Cadman and Sunder 2014).

Although economically inefficient to contract current compensation based on future results (Gibbons and Murphy 1992), firms may incentivize CEOs towards long-term strategies by connecting incentives to long-term profitability. Using restricted stock or options as compensation methods would motivate CEOs to finance projects that would generate long-term profits. However, the necessary incentive for the CEO to change the timing associated with compensation is often exceedingly expensive for stakeholders and challenging to implement (Shelley and Omer 1996). Further, management would prefer short-term bonuses during the horizon period since the payment immediacy reduces the agent's bonding costs (Cadman and Sunder 2014).[5]

Financial reporting changes within the horizon period may be attributable to reduced inherent managerial optimism. Prior research has shown that decision-makers tend to discount losses more heavily than gains or perceive future losses as less credible than gains, i.e., CEOs are likely to make riskier decisions for delayed outcomes (Thaler 1981; Benzion, Rapoport, and Yagil 1989). However, CEOs recognize that delayed consequences are unavailable within the horizon period. In addition, implied risk and time discount rates are higher for losses than gains, mainly because CEOs believe they will eventually master the scenario (Shelley 1994). CEOs approaching retirement would, however, be aware of the limitations of their career and would be unable to master any untried situation.

[5] Bonding costs are expenses typically borne by the agent [the CEO] to build trust with its principal [their company] (Jensen and Meckling 1976).

Discretionary accounting choices near retirement may be attributable to CEOs accepting less risk than stockholders since most of their active income is with the company (Dammon, Spatt, and Zhang 2001). Shareholders tend to have a diverse portfolio of income and investments, thereby ensuring better risk distribution. Thus, CEOs are more likely to lose a higher percentage of their income (compared to shareholders) if a company project fails; consequently, retiring CEOs prefer projects with lower net present value projects and higher current accounting earnings (Jerzemowska 2006). Prior research supports these inferences and suggests CEOs tend to make less costly and more conservative strategic decisions during the horizon period (Cassell, Huang, Sanchez, and Stuart 2012).

**Gratification Preferences and Life History Theory**

Life History Theory (LHT) applies to all life forms, from microbes to CEOs of large corporations. All organisms must decide based on the best-expected outcome for obtaining added resources and improving embodied capital.[6] LHT postulates that organisms allocate resources across various activities to increase personal well-being[7]. The environment in which an organism lives influences these choices made by organisms. The consequences from prior experiences guide[8] an organism to choose a strategy to obtain the desired outcome. LHT does not suggest that a tactic is superior to the others; however, LHT does propose that the outcomes (ex-post experiences) help identify the correct approach for a given instance. These results suggest that an

[6] *Embodied capital* can be described as an organism's abilities and available resources.
[7] There are five main essential resources which require efficient allocation accord to LHT: food, mates, shelter, tools, and tradeable items such as money (Gorelik, Shackelford, and Weekes-Shackelford, 2012).
[8] LHT has identified three main strategies organisms use to obtain and allocate resources to maximize perceived embodied capital - individual, collaborative, and exploitative or deceptive (Buss and Duntley 2008).

organism's environment and prior experiences create subconscious decision-making tendencies.

These subconscious tendencies relate to the organism's observed preference for gratification. Organisms with tendencies to delay gratification tactics do not prioritize reproductive efforts over physical effort - leading to later procreation. However, when organisms prefer instant gratifying methods, the investment into embodied capital increases the reproductive effort sooner – resulting in earlier maturation and subsequent progeny (Kaplan and Gangestad 2004; Reynolds and McCrea 2016; Rushton 1985; Rose and Mueller 1993).

LHT does not imply that delaying gratification is good or bad for organisms; instead, the available resources (ex-post environment) determine how quickly a strategy should adapt to be most advantageous. Fast and slow strategists (Fast and Slow CEOs) are prevalent terminologies in other disciplines to identify a CEO gratification preference type. However, in the accounting literature, this terminology is used in various contexts but not consistently. *IG* and *DG* identify fast & slow strategists in this paper, respectively. *IG* decision-makers are more concerned with short-term benefits and rewards, whereas *DG* decision-makers are more concerned with long-term benefits or outcomes. The faster methods employed by *IG* organisms are advantageous when the environment is rapidly changing; however, *DG* organisms perform better in more stable and predictable circumstances (Hengeveld, MacArthur, and Wilson 2002; White, Li, Griskevicius, Neuberg, Kenrick 2013; Kaplan and Gangestad, 2015).

As biological organisms, humans fall under the scope of LHT, and the same decision-making categories exist for individuals as for organisms. Some individuals act in

ways that result in gratification preferences for satisfaction or dissatisfaction over time (Delayed-Gratifiers or *DG*). Others act rapidly, experiencing consequences almost immediately (Instant-Gratifiers or *IG*). An *IG* CEO is typically a short-term opportunist who prioritizes short-term gains over long-term gains. Typically, *DG* CEOs are individuals who prefer to postpone immediate gratification to achieve maximum long-term benefits. Although these considerations are subconscious and based on prior life experiences and environments, a person's preference for gratification or dissatisfaction can be identified based on situational concessions. As such, many characteristics of one's life involve outcomes constituting LHT.

An individual's number of biological children, the number of partners, reproductive timespan, and relationship duration all define LHT gratification preferences. Individuals with more biological children, more partners, a longer reproductive timespan, and shorter relationship durations indicate *IG* CEOs. *DG* CEOs prefer children with fewer partners, a delayed reproductive timespan, and longer relationship durations (Feldhues and Holm 2021). Further, *The Handbook of Evolutionary Psychology* suggests that people who grow up in unpredictable and severe situations are likelier to have children younger [*IG*] than those in predictable and less harsh environments [*DG*]. Adults from high-income families are more likely to show slower strategic reactions [*DG*] and reduce their impulsiveness and risk tolerance when confronted with uncertainty than those from lower- and middle-income families, who are more likely to act promptly [*IG*].[9] A low socioeconomic level as a child is a good proxy for early life hardship.

[9] Individuals from lower-income families exhibited greater impulsiveness and took more risks in response to the same environmental pressures as individuals from high socioeconomic status families (Kaplan and Gangestad 2015).

Uncertainty relates to adult decision-making trends associated with a preference for instant gratification [*IG*] (Kaplan and Gangestad 2015).[10] Adolescents who prefer higher job security, an unobservable *DG* preference, self-select into accountancy at disproportionately higher rates than other specialties (Leiby and Madsen 2017).

While *IG* and *DG* individuals differ significantly in their ability and preference to put off immediate gratification, LHT does not suggest that one decision-making trend is more advantageous than the other for an individual. Instead, LHT postulates the outcomes to identify the favorable trend for a particular situation. *IG*s are more likely to act quickly in uncertain circumstances, even when no long-term reward assurance exists. *IG* CEOs exhibit faster strategies with higher ability and a preference to introduce flexibility into their process. Conversely, slower solutions become more useful in a more predictable environment and are usually more advantageous for *DG*. (Brommer 2000). LHT further suggests adults from diverse backgrounds may exhibit similar behaviors in low-consequence environments; these otherwise identical individuals deviate from their behavior when faced with stress in their current adult setting strategies (Rauthmann, Senf, Gallardo-Pujol, Hengartner, and Van Der Linden 2017).

Prior studies have examined preferences for quick gratification (Mischel and Gilligan 1964; Mischel, Ebbesen, and Zeiss 1972; Irving 2009; Watts, Duncan, and Qwuan 2018). In the seminal study from 1972, Walter Mischel, a professor at Stanford University, conducted a study of instant gratification versus delayed gratification. In this study, Dr. Mischel offered the children participants the opportunity of a single reward at

[10] Having a low socioeconomic level as a child is a good proxy for early life hardship and uncertainty related to adult decision-making trends – however, due to data limitations, I focus on outcome-based evidence of *IG* individuals.

the beginning of the study or two rewards if the participant elected to wait for the reward.[11] In follow-up research, the study found that children who preferred to wait longer for the additional reward had better SAT scores, educational attainment, body mass index (BMI), and other life measures indicative of achievement (Mischel et al. 1972). However, a more recent study attempted replication with a sample from a more diverse population, over ten times larger than the original study, and found only half the original study's effect (Watts et al. 2018). Researchers conducting the replication study suggest that economic environments rather than willpower and discipline explain half the child's preferences. This explanation regarding economic environments aligns entirely with the LHT model, where economic environments and prior experiences provide a subconscious framework for future decision-making.

The military drawdown program of the early 1990s provides an opportunity to verify the association between LHT-defined gratification preferences and personal discount rates.[12] Warner and Pleeter (2001) provide evidence of significant demographic variation in discount rates for the 66,483 military personnel participating in an optional discharge program; the program allowed participants to receive an annuity or a lump sum payment.[13] Most veterans selected the lump sum despite break-even discount rates exceeding 17 percent.[14] Warner and Pleeter (2001) document that discount rates range

[11] Rewards were either a marshmallow or pretzel stick, depending on the child's preference. The preferred reward was not part of this study.
[12] The 1991 Defense Authorization Act directed the Department of Defense to reduce active-duty strength by 400,000 by FY 1995, a 25-percent reduction. The accompanying separation program provides a large-scale natural experiment representative of the horizon period involving large numbers of individuals making choices over substantial sums of money.
[13] Average after-tax lump-sum is $43,901 and $21,563 for officers and enlisted service-members, respectively. Adjusting these amounts from 01/01/1992 to 10/31/2022 (independent of changes in tax code adjustments), this equates to adjusted values of $94,736 and $46,532 for officers and enlisted service-members, respectively.
[14] It is estimated this decision resulted in $1.7 billion in separation cost savings for taxpayers.

from 0 to over 30 percent and vary with a host of factors, including military rank, education, age, gender, number of dependents, and test scores.

Warner and Pleeter (2001) identify differences in gratification preferences for officers and enlisted personnel. They find enlisted service members have a much higher average propensity to select the lump sum, indicative of IG. Measured by changes in personal discount rates, the tendency for instant gratification varies considerably with individual traits. [15] For example, findings include a relationship between the preference for instant gratification and the education level obtained. Warner and Pleeter estimate that officers with graduate educations have a 0.075 lower discount rate than those without an advanced degree. Officers possessing a college degree have about a 0.03 lower rate. A lower discount rate indicates one prefers the annuity over a lump-sum payment. These findings align with LHT, which supports that *DG* individuals typically have more formal education (Griskevicius, Tybur, Delton, and Robertson 2011; Kaplan and Gangestad 2004).

Additional officer findings include a higher propensity for instant gratification with more dependents.[16] *IG* individuals typically have many dependents in the LHT (Kaplan and Gangestad, 2004). Additionally, there were significant occupational differences in instant gratification; individuals with tactical operations experience also have a higher tendency for *IG* preferences than individuals in most other occupation groups. As a result of the LHT framework, individuals identifying as *IG* are more

[15] While Warner and Pleeter (2001) analyzed the propensity of lump-sum or annuity payouts for the entire sample of approximately 65,000 military personnel, this paper only looks at the results associated with the officers. The assumption is that traits specific to officers are more representative of traits specific to CEOs.
[16] Each dependent increases the discount rate by nearly 0.02. The increase with the number of dependents lends credence to the assumption by Becker et al. (1990) of a positive relationship.

successful in rapidly changing environments, such as tactical operations (Kaplan and Gangestad 2004). LHT has also shown occupation preferences, with *DG* individuals self-selecting into more controlled workplace environments and industries (Leiby and Madsen 2017).

There were no geographic differences in the propensity for *IG* among officers. In somewhat surprising findings, there were no gender differences in officers' tendency *IG* preferences. However, LHT indicates that males are more likely to be *IG* individuals among an entire population. Because males were more likely to prefer *IG* among the 55,271 enlisted participants who participated in this program, the absence of evidence in the 11,212-officer sample is likely attributable to other factors (education, number of dependents, occupational assignment).

LHT decision-making type is an appropriate proxy for decision-making trends. CEOs are inherently conscious of their decisions (March and Shapira 1987). Neoclassical economics supports the notion that a person maximizes resources based on the highest utility associated with the expected outcome. LHT postulates that *IG* and *DG* individuals differ significantly in their preference for immediate gratification based on subconscious bias formed throughout one's life based on experiences and environments.

**Imprinting Theory**

Imprinting is "a process whereby, during a brief period of susceptibility, a focal entity develops characteristics that reflect prominent features of the environment, and these characteristics continue to persist despite significant environmental changes in subsequent periods" (Marquis and Tilcsik 2013).

Consider this simple scenario illustrating the subtle differences between these theories – an external auditor is wary of a particular material transaction; they have never seen a material transaction and must decide whether to investigate the transaction privately or debrief the client about it. According to Imprinting Theory, whichever response this auditor makes will profoundly impact future reactions to situations of transactional uncertainty; this is true even when the person is no longer an auditor.

In contrast, LHT predicts the auditor will either complete the task thoroughly (investigate the transaction further) or quickly (debrief the client) based on past experiences, their environment, and the established preference for immediate or delayed gratification. Both theories supply a framework that predicts decision-making during periods of high uncertainty by observing prior outcomes (when available) indicative of ingrained decision-making tendencies. However, to establish Imprinting Theory, a comparable experience must exist; therefore, Imprinting Theory likely constitutes components of LHT.

## CHAPTER III. - HYPOTHESIS DEVELOPMENT

Buss and Duntley (2008) argue that little empirical work has examined the implications of gratification preferences. This study examines the influence of gratification preferences on accounting choices near CEO retirement. According to the horizon problem, CEOs will reduce discretionary spending near retirement due to inefficient compensation arrangements, an intrinsic reduction in managerial optimism, or inherent risk adjustments.[17] However, differing gratification preferences suggest *DG* CEOs might not decrease discretionary spending since the interruption may lead to long-term instability during the CEO transition; this implies that *DG* CEOs' behavior would not indicate the horizon problem.[18] Based on the paradox provided by differing reactions due to gratification preferences during the horizon period, the formal hypothesis reflects expectations for *IG* CEOs' discretionary accounting choices near retirement in the alternate form.

*$H_1$: IG CEOs will decrease discretionary spending more than DG CEOs during the horizon period.*

This study is subject to similar restrictions as other archival research. For example, while the operationalization of the horizon problem in this paper follows prior research, the actual psychological decision of a CEO to retire may occur before the defined horizon period, thereby impairing the conclusions drawn from the research design. Additionally, various aspects of the horizon problem and gratification preferences

[17] Considering the extensive literature available, no formal hypothesis is proposed to explain the main effect of the horizon problem (that is, a scenario independent of LHT-defined gratification preference variables).

[18] There is no formal hypothesis regarding the differences between *IG* and *DG* CEOs before the horizon period since this study focuses on expected CEO behavior during the horizon period.

are subject to data availability due to unobservable psychological decisions. Further, the variable representing *IG* CEOs may identify inherent differences in CEOs regardless of trends relating to decision-making; the intrinsic characteristics of CEOs and their companies may negate the effect of gratification preferences in discretionary spending changes during the horizon period.

## CHAPTER IV. - RESEARCH DESIGN

The horizon problem suggests a misalignment of interests exists between shareholders and CEOs nearing retirement. An example of the horizon problem is increasing current account earnings by interrupting immediate discretionary accounting choices. Determining choices in discretionary spending requires discretionary expense accounts from the Compustat database. Four measures represent discretionary spending in this study; three immediately affect the income statement (SG&A, R&D, and advertising expenses). The net investment cash flow affects the balance sheet initially and (typically) the income statement in later financial periods. The counterfactual of not investing is typically an increase in available cash that may not be detrimental to investors long-term if not engaged in investing activities. However, a reduction in investment spending before retirement represents the horizon problem since it reflects a scenario in which a CEO intends to leave a company and has a lower incentive to exert effort in the long-term interest of shareholders.

The initial measurement of discretionary spending represents accumulated discretionary spending reported under SG&A (*XSGA [#132]*). Since spending outside a company's primary operations may be inherently discretionary, SG&A is the accumulation of many individual accounts that reflect discretionary expenditures. Specific discretionary accounts included in SG&A and analyzed in this study include R&D (*XRD [#46]*) and advertising expenses (*XAD [#45]*).[19] These variables are scaled

[19] Until an expense is chronologically recorded, blanks are assigned to R&D and advertising expenditures with missing values. After a value is recorded, a zero is assigned to blank variables.

by the lagged variable of the respective account to ensure comparability between firms and multiplied by 100 to facilitate the interpretation of coefficients.[20]

Objectives associated with ventures outside a company's primary operations, such as investment activities, result in inherently discretionary spending; this spending would decrease during the horizon because of executives' increased preference for projects with immediate accounting earnings and lower NPVs. The net cash flow for investments (*IVNCF*) is an additional measure of high-level discretionary spending. This measure differs fundamentally from SG&A and the individual expense measures since the expenditure does not appear immediately in the income statement. Scaling this measure by total assets (lagged) ensures comparability between firms, and multiplying it by 100 facilitates interpretation.[21] The Compustat database reports this cash flow measure in a signed form; consequently, multiplying this variable by a negative one improves the comparability of the regression coefficients between expenditures and this measure.[22]

Indicator variables represent the horizon period (*HORIZON)* and CEO gratification preferences *(IG)*. The indicator variable *HORIZON* represents the intention to retire during the horizon period and is the product of two conditions, *AGE_INDICATOR* and *FINAL*. When the executive's age exceeds 55, *AGE_INDICATOR* is one; *AGE_INDICATOR* is zero otherwise.[23] *FINAL* indicates a CEO leaving the workforce and is one when the CEO is no longer in the Execucomp database following

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[20] $100\ x\ \left(\frac{Var_t}{Var_{t-1}}\right)$

[21] This scalar differs from earlier measures described because investments can be large and sporadic; in addition, investments typically affect the balance sheet when incurred rather than the income statement.

[22] $100\ x\ \left(\frac{-1\ x\ IVNCF}{Total\ Assets_{t-1}}\right)$

[23] A CEO's average retirement age is 62 (Feigen and Williams 2018). Due to requiring age to be greater than 55, the sample of retiring CEOs has a mean age of 62 years old.

the observation (t+1) and zero otherwise.[24] Overall, *HORIZON* is one when a CEO intends to retire by identifying CEOs with enough career experience to retire and who drop from the data set.

The indicator variable for CEO gratification preference type (*IG*) in the primary analysis is one for *IG* CEOs and zero otherwise. *IG* is the product of two conditions that reflect a beneficial scenario *(BENEFIT)* with an aggressive earnings management strategy *(AGGR)*. Accordingly, *IG* is one when both condition variables, *BENEFIT* and *AGGR,* are one. The condition *BENEFIT* represents at least one beneficial situation during the observation year.[25] The identified scenarios follow prior literature and are securing new debt, increasing cash flow for growth, and preventing small reporting losses. Previous literature recognizes these scenarios as situations where *IG* and *DG* CEOs exhibit differences in financial reporting; *IG* CEOs use aggressive earnings management strategies during these scenarios (Feldhues and Holm 2021).[26]

Identifying gratification preferences in scenarios of high uncertainty is crucial since adults from diverse backgrounds may exhibit similar outcomes from decisions made in low-consequence environments. However, the consequences for these otherwise identical individuals vary when they experience stress and uncertainty in their current adult setting (Rauthmann, Senf, Gallardo-Pujol, Hengartner, and Van Der Linden 2017).

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[24] Although the current definition of *FINAL* may include CEOs who involuntarily leave their position, differentiation between retirement or termination is unnecessary since the CEO must meet the age requirement condition (*AGE_INDICATOR*) for the *HORIZON* variable to be one. The notion is that experienced CEOs who involuntarily leave their positions (and are inadvertently captured by *HORIZON*) are prepared for a pseudo-retirement due to age, de facto accumulated wealth, and minimal career concerns.

[25] Three unique indicators represent these three scenarios: *NEW_DEBT, INSUFF_CF,* and *LOSS_AVOID*. Appendix A provides exact details for the measurement of these scenarios.

[26] These situations may be independent, and more than one could occur in any given year; nevertheless, if at least one beneficial scenario occurs, then *BENEFIT* is one; otherwise, *BENEFIT* is zero. Robustness Tests include analysis of each scenario individually.

The condition, *AGGR,* indicates when the observation has a non-negative abnormal accrual or unexpected cash flows ranked in the top decile for the year. The performance-adjusted Jones model (Kothari, Leone, and Wasley 2005) identifies non-negative abnormal accruals; abnormal operating cash flows, as defined by Roychowdhury (2006), identify unexpected cash flows.[27]

When determining *IG* CEO identification, two corrections are necessary. As a result of the horizon problem, there is an inherent expectation for financial reporting changes when a CEO intends to retire; therefore, *IG* is made zero during any observation year in which *FINAL* is one.[28] Secondly, *IG* preferences would not change quickly and are unlikely to change once established. Consequently, the *IG* variable is a personal trait; if a CEO prefers instant gratification during at least one scenario in any year, then *IG* equaling one is necessary throughout the entire study for that CEO.[29] As a result, the final step in determining *IG* CEOs is to assign any non-zero *IG* identifier to all observation years that belong to a specific CEO.[30] With these corrections, *IG* becomes CEO-specific, and *IG* preferences are only present during the horizon period by observing their preferences before the horizon period.

Firm characteristics and operating environments may be a product of a CEO's gratification preference; consequently, an entropy balancing procedure balances these control variables on three points, the mean, variance, and skewness, before any regression

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[27] There are a variety of earnings management techniques available in accounting academic literature; these two models are used to match the Feldhues and Holm study (2021).
[28] For example, if *IG* is equal to one solely during the final year of employment of a particular CEO, then *IG* is forced to be zero, resulting in a *DG* CEO observation for the particular CEO throughout the study.
[29] Robustness tests evaluate the validity of the *IG* time-invariance parameter.
[30] This correction also rectifies observations for *IG* CEOs in observation years where no beneficial situations are observable in the sample (i.e., *BENEFIT*=0).

analysis.[31] The reweighting process achieves balance for all covariates included and can satisfy prespecified balance conditions based on the moments of the sample distribution; this calibrates unit weights. Moreover, this process eliminates the need for continuous balancing and iterative search over propensity score models (Hainmueller 2012). Incorporating the above, the following model tests the hypothesis:

$$Discretionary\ Spending\ Measure = \beta_0 + \beta_1 HORIZON + \beta_2 IG + \beta_3 IG\ x\ HORIZON + \sum Controls$$

A statistically significant negative $\beta_1$ represents the traditional horizon problem. The estimated coefficient would be the change in discretionary spending observed by CEOs near retirement. A statistically significant $\beta_2$ represents differences between *IG* and *DG* CEOs before the horizon period.[32] The coefficient $\beta_3$ represents the formal hypothesis; a negative and statistically significant $\beta_3$ represents an additional decrease in discretionary spending unique to *IG* CEOs during the horizon period.

All models include controls representing firm characteristics and operating environments, including *TENURE*, *SIZE, BTM, OCF, ROA, ATO, ACCR (t-1), ACCR,* Δ*_SALES,* and Δ*_NEG_SALES.*[33] CEOs are more aggressive when career insecurities are high, and earnings management decreases as tenure increases (Ali and Zhang 2015); consequently, all models include a variable (*TENURE)* to control for the length of time

[31] Appendix B provides statistics on the covariates used in the balancing process and descriptive statistics for the balancing variable.
[32] $\beta_1$ does not have a formal hypothesis due to the existing literature on the horizon problem. Additionally, there may be potential for future research regarding differing behaviors between gratification preferences before the horizon period, $\beta_2$ also does not have a formal hypothesis in this study.
[33] Appendix E presents the bivariate relationships of variables used in the regression analysis.

an executive has been a CEO.[34] Including a control for firm size (*SIZE*) mitigates a situation where *IG* or *DG* CEOs differentially exist in larger firms. Likewise, the book-to-market ratio (*BTM)* variable controls company growth opportunities correlated with size and CEO gratification preference type. Operating cash flow (*OCF*) is added to the research design because prior research indicates that operating cash flow is associated with executive compensation preferences (Nwaeze, Yang, and Yin 2006).

Similarly, the return-on-assets ratio (*ROA)* is in the model because executive compensation models often include *ROA,* and studies indicate a correlation between executive compensation and the horizon problem.[35] The asset turnover ratio (*ATO*) reflects a component of asset return and represents asset efficiency (Nissim and Penman 2001). This ratio reflects a CEO's specific operating and managing strategies influenced by their LHT-defined decision-making type.

Unusually good (poor) performance in the current year may be associated with a significant increase in accruals or a reversal of negative (positive) accruals from a prior year (DeAngelo et al. 1994). Including current-year accruals (*ACCR*) and prior-year accruals ($ACCR_{t-1}$) limit the influence of lower-quality earnings from accruals in prior years (Sloan 1996). As sales grow, fixed costs become smaller (per sales dollar). The change in sales ($\Delta\_SALES$) variable holds constant differing cost types; fixed costs are more susceptible to market criticism than variable costs. Anderson, Banker, and Janakiraman (2003) show that costs increase more when activity rises than when activity falls by an equivalent amount; thus, the coefficient on $\Delta\_SALES$ will differ between sales

[34] The variable *TENURE* reflects the amount of time an executive has been a CFO in models investigating the effect CFO gratifications preferences have on the horizon problem.
[35] Robustness testing includes examinations performed to address potential issues with collinearity among the measures of operating cash flows (OCF), accruals (ACCR), and net income (ROA).

increasing and decreasing (Anderson et al. 2003). The research design includes a variable representing a negative change in sales (Δ_*NEG_SALES*) to limit the unbalanced response from sales increasing or decreasing.

This study winsorizes all continuous variables at the 1st and 99th percentiles to remove the effects of outliers. Two-digit Standard Industrial Classification (SIC) and fiscal-year fixed effects control the time-invariant industry-specific and year-specific differences. Lastly, robust standard errors mitigate the possibility of heteroscedasticity and obtain unbiased standard errors.

# CHAPTER V. - SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

## Sample Selection

The primary analysis uses both the Compustat Annual Fundamental and Execucomp databases. The initial sample includes 82,088 CEO or CFO observations (3,910 unique firms) with a GVKEY identifier from the Execucomp database. The sample selection process excludes observations for the final year of each company, which are necessary for identifying the horizon period; this step eliminates 6,403 observations and 129 unique firms. The process eliminates 21,293 observations (925 unique firms) due to missing dependent and independent variables; the process eliminates an additional 11,346 observations (226 unique firms) with missing control variables. After merging the Compustat Annual Fundamental database and removing all observations without the necessary variables for the analysis, the final sample consists of 42,997 observations, including 26,745 CEO observations (2,628 unique firms) and 16,252 CFO observations (1,872 unique firms). Table 1 displays the sample selection process.

**TABLE 1 – SAMPLE SELECTION**

| | Unique Obs. Years | Unique Firms |
|---|---|---|
| Original Execucomp CEO/CFO Observations with GVKEY | 82,088 | 3,910 |
| Less Observations for Last Year of Company Data | -6,403 | -129 |
| Less Observations with Missing (*XSGA* or *IVNCF* Variables) | -13,051 | -527 |
| Less Observations with Missing Independent Variables | -8,242 | -398 |
| Less Observations with Missing Controls (Collective) | -11,346 | -226 |
| Less Observations Dropped Due to: | | |
| Entropy Balancing, Robust Standard Errors, or Fixed Effects | -35 | -2 |
| Less CFO Observations | -16,252 | * |
| Observations Used for Main Analysis | 26,745 | 2,628 |

*1,872 Unique Firms Used for CFO Analysis

**Descriptive Statistics**

Table 2 presents descriptive statistics. On average, a company reports SG&A expenditures that are 110.7 percent of the previous year ($XSGA_{t-1}$), representing an increase of 10.7 percent. Expenses associated with advertising are 111.9 percent of the previous year ($XAD_{t-1}$), an increase of 11.9 percent. Net cash flow for investments represents an average of 10.8 percent of lagged total assets. The average age for the CEOs in the sample is about 56 years old; 8 percent of CEOs intend to retire (*HORIZON*) based on the product of two conditional variables for CEO age (*AGE_INDICATOR*) and CEO-specific observation culmination (*FINAL*). For most companies in the sample (70 percent), beneficial conditions exist; however, only 19 percent of CEOs engaged in aggressive earnings management (*AGGR*). As a result of assigning the *IG* variable to the correct CEO for all observation years, 42 percent of CEOs within the sample are *IG* CEOs.

**TABLE 2 - DESCRIPTIVE STATISTICS**

| | *n* | Mean | Median | Standard Deviation | 25th Percentile | 75th Percentile |
|---|---|---|---|---|---|---|
| *SGA* | 26,745 | 110.70 | 107.10 | 21.92 | 99.43 | 117.50 |
| *INVEST_CF* | 26,745 | 10.81 | 6.62 | 15.67 | 2.60 | 14.12 |
| *RD* | 17,287 | 88.45 | 101.90 | 54.44 | 72.28 | 116.10 |
| *AD* | 11,171 | 111.90 | 104.60 | 45.83 | 92.09 | 120.60 |
| *FISCAL YEAR* | 26,745 | 2008.00 | 2009 | 7.67 | 2002 | 2014 |
| *AGE* | 26,745 | 55.83 | 56 | 7.62 | 51 | 61 |
| *AGE_INDICATOR* | 26,745 | 0.57 | 1 | 0.50 | 0 | 1 |
| *HORIZON* | 26,745 | 0.08 | 0 | 0.27 | 0 | 0 |
| *FINAL* | 26,745 | 0.11 | 0 | 0.31 | 0 | 0 |
| *BENEFIT* | 26,745 | 0.70 | 1 | 0.46 | 0 | 1 |
| *AGGR* | 26,745 | 0.19 | 0 | 0.39 | 0 | 0 |
| *IG* | 26,745 | 0.42 | 0 | 0.49 | 0 | 1 |
| *IG_AEM* | 26,745 | 0.32 | 0 | 0.47 | 0 | 1 |
| *IG_REM* | 26,745 | 0.25 | 0 | 0.43 | 0 | 0 |
| *IG_YS* | 26,745 | 0.13 | 0 | 0.33 | 0 | 0 |
| *IG_ND* | 26,740 | 0.36 | 0 | 0.48 | 0 | 1 |
| *IG_LA* | 26,740 | 0.09 | 0 | 0.28 | 0 | 0 |
| *IG_CF* | 26,740 | 0.30 | 0 | 0.46 | 0 | 1 |
| *TENURE* | 26,745 | 5.29 | 4 | 4.08 | 2 | 7 |
| *SIZE* | 26,745 | 7.23 | 7.07 | 1.60 | 6.07 | 8.23 |
| *BTM* | 26,745 | 0.48 | 0.40 | 0.44 | 0.23 | 0.63 |
| *OCF* | 26,745 | 0.12 | 0.11 | 0.10 | 0.06 | 0.17 |
| *ROA* | 26,745 | 0.04 | 0.05 | 0.11 | 0.01 | 0.09 |
| *ATO* | 26,745 | 2.92 | 1.95 | 3.52 | 1.17 | 3.28 |
| *ACCR* | 26,745 | 0.03 | 0.05 | 0.19 | 0.01 | 0.10 |
| *ACCR (T-1)* | 26,745 | 0.03 | 0.05 | 0.19 | 0.01 | 0.10 |
| *Δ_SALES* | 26,745 | 0.11 | 0.07 | 0.26 | -0.01 | 0.18 |
| *Δ_NEG_SALES* | 26,745 | -0.03 | 0.00 | 0.08 | -0.01 | 0.00 |
| Observations | 26,745 | | | | | |

## CHAPTER VI. - RESULTS

Tables 3 and 4 present the results of the primary regression analysis. Table 3 presents results from regressing the accumulated discretionary expenditure measure. The initial columns present results of SG&A regressed onto *HORIZON* in Column 1 and onto *HORIZON* plus *IG* and the interaction, *HORIZON x IG,* in Column 2. Both columns include all control variables described above. Column 1 results are consistent with the traditional horizon problem; CEOs who intend to retire will react by reducing SG&A expenditures by 0.80 percent (t=-2.44). Column 2 presents results from the gratification preference model[36] and indicates no effect for *HORIZON* (t=-0.59). However, the *HORIZON x IG* interaction coefficient is negative and significant (t=-2.31); *IG* CEOs reduce SG&A expenditures by 1.66 percent when nearing retirement. Column 2 infers a connection between reduced discretionary spending near retirement and CEO gratification preferences.

Columns 3 and 4 present the results using the change in net investment cash flow as the dependent variable. In these columns, a negative coefficient indicates less cash-increasing investment activities. The negative and significant *HORIZON* coefficient in Column 3 indicates that CEOs near retirement will report a net investment cash flow reduction by 1.2 percent (t=-4.27), supporting the traditional horizon problem. Using the gratification preference model, Column 4 shows that the *HORIZON* coefficient becomes insignificant (t=-1.08). However, the negative and significant interaction (*HORIZON x IG)* coefficient suggests that *IG* CEOs reduce net investment cash flows during the

[36] The gratification preference model refers to models containing *IG* and *HORIZON x IG* variables.

horizon period by 2.2 percent (t=-3.97). Column 4 further supports a connection between discretionary spending reductions near retirement and CEO gratification preferences.

**TABLE 3 – ACCUMULATED DISCRETIONARY SPENDING**

| | Accumulated Discretionary Spending Accounts | | | |
|---|---|---|---|---|
| Dependent Variable: | *SGA* | | *INVEST_CF* | |
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -0.804** | -0.229 | -1.162*** | -0.361 |
| | (-2.44) | (-0.59) | (-4.27) | (-1.08) |
| *IG* | | 0.490** | | 0.826*** |
| | | (2.36) | | (4.32) |
| *HORIZON x IG* | | -1.658** | | -2.234*** |
| | | (-2.31) | | (-3.97) |
| *TENURE* | -0.081*** | -0.087*** | -0.075*** | -0.087*** |
| | (-3.27) | (-3.45) | (-3.63) | (-4.12) |
| *SIZE* | -0.126* | -0.109 | -0.152** | -0.121** |
| | (-1.84) | (-1.58) | (-2.53) | (-2.00) |
| *BTM* | -0.788*** | -0.791*** | -0.688*** | -0.693*** |
| | (-2.91) | (-2.92) | (-3.37) | (-3.39) |
| *OCF* | -1.165 | -1.050 | 49.421*** | 49.625*** |
| | (-0.71) | (-0.64) | (30.94) | (31.06) |
| *ROA* | 3.159 | 3.208 | -26.683*** | -26.578*** |
| | (1.40) | (1.42) | (-13.78) | (-13.71) |
| *ATO* | -0.081** | -0.084*** | -0.304*** | -0.311*** |
| | (-2.51) | (-2.60) | (-9.97) | (-10.18) |
| *ACCR* | -16.401*** | -16.355*** | 0.402 | 0.477 |
| | (-10.15) | (-10.12) | (0.34) | (0.40) |
| *ACCR (t-1)* | 26.249*** | 26.270*** | 7.282*** | 7.326*** |
| | (22.02) | (22.06) | (9.79) | (9.84) |
| Δ*_SALES* | 64.374*** | 64.315*** | 26.145*** | 26.039*** |
| | (78.27) | (78.04) | (32.60) | (32.45) |
| Δ*_NEG_SALES* | -11.793*** | -11.616*** | -13.521*** | -13.206*** |
| | (-5.86) | (-5.76) | (-8.76) | (-8.56) |
| *Constant* | 101.170*** | 100.999*** | 6.423** | 6.122** |
| | (46.03) | (46.04) | (2.28) | (2.18) |
| Observations | 26,745 | 26,745 | 26,745 | 26,745 |
| Adjusted R-squared | 0.5784 | 0.5785 | 0.3013 | 0.3019 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

Table 4 presents results from regressing the discretionary spending measure reflecting individual discretionary accounts. Columns 1 and 2 provide results using R&D reporting changes as the dependent variable. Dechow and Sloan (1991) find that R&D

expenses decrease when a CEO intends to retire. Column 1 replicates these results and suggests CEOs reduce R&D by 2.1 percent during the horizon period (t=-2.59). However, results from the gratification preference model in Column 2 indicate an insignificant *HORIZON* coefficient and interaction (*HORIZON x IG)* coefficient. These collective results suggest that previous results in Dechow and Sloan (1991) could be model or situation-specific or that *IG* and *DG* CEOs both reduce R&D expenditures before retirement.

Columns 3 and 4 of Table 4 present the results of models where changes in advertising expenditures act as the dependent variable. The *HORIZON* coefficient is insignificant in Columns 3 and 4 (t=-1.46 and t=-0.76, respectively). There is no evidence of the horizon problem in Column 4; the interaction (*HORIZON x IG)* coefficient in the gratification preference model indicates *IG* CEOs do not report a significant reduction in advertising expenditures differently than *DG* CEOs (t=-0.62).

Table 4 examines individual discretionary spending accounts but does not present statistically significant results. Therefore, this study does not investigate these measures further. Collectively, Tables 3 and 4 show that gratification preferences may influence discretionary spending at the aggregate financial reporting level; however, *IG* and *DG* CEOs do not manage individual discretionary spending accounts differently.

Table 5 presents results from the sample separated by CEO gratification preferences; results for *IG* CEOs are in Columns 1 and 2, and for *DG* CEOs are in Columns 3 and 4. Negative and significant *HORIZON* coefficients indicate that CEOs report discretionary spending differently during the horizon period compared to earlier in their careers. These *HORIZON* coefficients in Columns 1 and 2 suggest *IG* CEOS report

discretionary spending differently during the horizon period. Specifically, *IG* CEOs report 1.8 percent lower SG&A (t=-2.93) and 2.3 percent lower net investment cashflow (t=-5.15) during the horizon period.

**TABLE 4 – INDIVIDUAL ACCOUNT DISCRETIONARY SPENDING**

| | Individual Discretionary Spending Accounts | | | |
|---|---|---|---|---|
| Dependent Variable: | *RD* | | *AD* | |
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -2.056*** | -1.271 | -1.958 | -1.198 |
| | (-2.59) | (-1.31) | (-1.46) | (-0.76) |
| *IG* | | 2.381*** | | 0.681 |
| | | (4.52) | | (0.73) |
| *HORIZON x IG* | | -1.331 | | -1.790 |
| | | (-0.80) | | (-0.62) |
| *TENURE* | 0.035 | -0.018 | -0.055 | -0.063 |
| | (0.57) | (-0.30) | (-0.52) | (-0.60) |
| *SIZE* | -0.567*** | -0.456*** | -0.681** | -0.654** |
| | (-3.35) | (-2.69) | (-2.26) | (-2.16) |
| *BTM* | -1.654** | -1.588** | -0.307 | -0.336 |
| | (-2.30) | (-2.21) | (-0.31) | (-0.34) |
| *OCF* | 0.445 | 1.184 | -10.495 | -10.416 |
| | (0.11) | (0.30) | (-1.62) | (-1.61) |
| *ROA* | -9.297 | -8.443 | -0.703 | -0.750 |
| | (-1.58) | (-1.43) | (-0.08) | (-0.08) |
| *ATO* | -0.089 | -0.113 | 0.011 | 0.006 |
| | (-1.25) | (-1.57) | (0.08) | (0.05) |
| *ACCR* | -26.960*** | -26.929*** | -17.524*** | -17.369*** |
| | (-6.91) | (-6.92) | (-2.63) | (-2.61) |
| *ACCR (t-1)* | 45.964*** | 46.160*** | 36.898*** | 36.965*** |
| | (19.39) | (19.48) | (7.93) | (7.94) |
| Δ*_SALES* | 52.803*** | 52.359*** | 92.913*** | 92.907*** |
| | (26.02) | (25.70) | (23.56) | (23.57) |
| Δ*_NEG_SALES* | -1.692 | -0.459 | -2.864 | -2.641 |
| | (-0.36) | (-0.10) | (-0.35) | (-0.32) |
| *Constant* | 109.401*** | 107.814*** | 96.432*** | 96.229*** |
| | (12.89) | (12.67) | (8.38) | (8.38) |
| Observations | 17,287 | 17,287 | 11,171 | 11,171 |
| Adjusted R-squared | 0.7136 | 0.7140 | 0.2183 | 0.2182 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

In Table 5, Column 3, the *HORIZON* coefficient corresponding to *DG* CEOs is insignificant (t=-0.88), suggesting no change in SG&A reporting during their horizon period. However, in Column 4, the *HORIZON* coefficient corresponding to *DG* CEOs is

significant (t=-1.68); this suggests *DG* CEOs report a lower net investment cash flow when preparing to retire than earlier in their career. These findings support Dechow and Sloan's (1991) findings, which suggest that CEOs may choose not to invest in viable opportunities due to set consequences that contribute to reduced flexibility for future strategic decisions. Moreover, since *DG* CEOs are forward-looking, any reduction in net investment cash flow by *DG* CEOs is likely dependent on their specific situations. Results from Table 5 provide further evidence that gratification preferences affect CEOs' discretionary spending expectations during the horizon period.

**TABLE 5 – GRATIFICATION PREFERENCES COMPARISON**

| | *IG* CEOs | | *DG* CEOs | |
|---|---|---|---|---|
| Dependent Variable: | *SGA* | *INVEST_CF* | *SGA* | *INVEST_CF* |
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -1.777*** | -2.324*** | -0.345 | -0.572* |
| | (-2.93) | (-5.15) | (-0.88) | (-1.68) |
| *TENURE* | -0.142*** | -0.179*** | 0.011 | 0.022 |
| | (-4.15) | (-5.87) | (0.28) | (0.71) |
| *SIZE* | 0.059 | 0.045 | -0.299*** | -0.248*** |
| | (0.53) | (0.44) | (-3.27) | (-3.16) |
| *BTM* | -1.280*** | -1.383*** | -0.517 | -0.071 |
| | (-3.38) | (-4.70) | (-1.33) | (-0.26) |
| *OCF* | -3.941* | 40.468*** | 1.816 | 60.814*** |
| | (-1.81) | (18.58) | (0.73) | (25.84) |
| *ROA* | 8.757*** | -18.471*** | -6.857** | -38.515*** |
| | (2.92) | (-7.63) | (-2.04) | (-11.73) |
| *ATO* | -0.129*** | -0.206*** | 0.003 | -0.408*** |
| | (-2.86) | (-4.61) | (0.06) | (-9.82) |
| *ACCR* | -16.325*** | 0.507 | -16.874*** | 0.159 |
| | (-7.84) | (0.34) | (-6.77) | (0.08) |
| *ACCR (t-1)* | 24.619*** | 7.258*** | 28.283*** | 7.512*** |
| | (16.36) | (7.91) | (15.23) | (5.96) |
| Δ_*SALES* | 61.773*** | 25.360*** | 66.722*** | 26.470*** |
| | (54.41) | (22.29) | (55.92) | (23.27) |
| Δ_*NEG_SALES* | -7.891*** | -15.424*** | -15.676*** | -10.472*** |
| | (-2.86) | (-6.77) | (-5.29) | (-5.01) |
| *Constant* | 102.101*** | 6.682 | 101.279*** | 5.564* |
| | (19.23) | (1.22) | (38.79) | (1.90) |
| Observations | 11,303 | 11,303 | 15,442 | 15,442 |
| Adjusted R-squared | 0.5942 | 0.2912 | 0.5663 | 0.3239 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

Table 6 displays results from the sample separated by the *HORIZON* indicator variable. Columns 1 and 2 represent the results for CEOs not in the horizon period, while Columns 3 and 4 represent those for the horizon period. Negative and significant *IG* coefficients indicate that gratification preferences affect discretionary spending during that specific period in CEOs' careers. The *IG* coefficients in Columns 1 and 2 suggest that *IG* CEOs report discretionary spending differently before the horizon period and may generally be less efficient by reporting 0.5 percent higher SG&A (t=2.34) and 0.8 percent higher net investment cash outflow (t=4.13).

However, during the horizon period, there is a significant decrease in these measures of discretionary spending for *IG* CEOs. Results from Columns 3 and 4 suggest *IG* CEOs decrease SG&A by 1.5 percent (t=-1.76) and report a reduction in net investment cash outflow of 1.8 percent (t=-2.95) when preparing to retire. These results suggest that gratification preferences affect discretionary spending throughout a CEO's career. Moreover, the results from Table 6 support the initial hypothesis that *IG* CEOs decrease discretionary spending more than *DG* CEOs during the horizon period.

**TABLE 6 – HORIZON PERIOD COMPARISON**

| | *NON-HORIZON PERIOD* | | *HORIZON PERIOD* | |
|---|---|---|---|---|
| Dependent Variable: | *SGA* | *INVEST_CF* | *SGA* | *INVEST_CF* |
| | (1) | (2) | (3) | (4) |
| *IG* | 0.485** | 0.794*** | -1.452* | -1.794*** |
| | (2.34) | (4.13) | (-1.76) | (-2.95) |
| *TENURE* | -0.086*** | -0.096*** | -0.110 | -0.050 |
| | (-3.33) | (-4.37) | (-1.14) | (-0.71) |
| *SIZE* | -0.085 | -0.118* | -0.288 | -0.025 |
| | (-1.19) | (-1.86) | (-1.18) | (-0.13) |
| *BTM* | -0.832*** | -0.700*** | -0.639 | -0.737 |
| | (-2.89) | (-3.20) | (-0.79) | (-1.29) |
| *OCF* | -1.204 | 50.576*** | 3.642 | 40.969*** |
| | (-0.70) | (30.25) | (0.66) | (7.54) |
| *ROA* | 3.594 | -27.448*** | -4.585 | -21.240*** |
| | (1.49) | (-13.22) | (-0.79) | (-4.21) |
| *ATO* | -0.085** | -0.317*** | -0.103 | -0.300*** |
| | (-2.52) | (-9.79) | (-0.88) | (-3.77) |
| *ACCR* | -16.521*** | 0.288 | -12.036*** | 2.070 |
| | (-9.46) | (0.22) | (-3.12) | (0.72) |
| *ACCR (t-1)* | 26.333*** | 7.323*** | 24.261*** | 7.982*** |
| | (21.08) | (9.39) | (6.11) | (3.40) |
| Δ_*SALES* | 64.422*** | 26.198*** | 62.112*** | 22.480*** |
| | (76.39) | (31.84) | (16.65) | (6.30) |
| Δ_*NEG_SALES* | -13.224*** | -13.591*** | 5.552 | -4.438 |
| | (-6.19) | (-8.39) | (0.87) | (-0.81) |
| *Constant* | 101.854*** | 6.187** | 86.781*** | -4.366 |
| | (45.86) | (2.17) | (17.62) | (-0.95) |
| Observations | 24,669 | 24,669 | 2,076 | 2,076 |
| Adjusted R-squared | 0.5818 | 0.3028 | 0.5275 | 0.2691 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

# CHAPTER VII. - ROBUSTNESS CHECKS

## Discretionary Spending Measure Falsification Test

Table 7 investigates CEO gratification preferences' effect on discretionary (*SGA* and *INVEST_CF*) and obligatory spending (*COGS* and *OPERATE_CF*), exploring whether spending outside a company's core operations is discretionary. In Column 1, SG&A is the dependent variable, while COGS is the dependent variable in Column 2. The significant interaction coefficient (*HORIZON x IG*) in Column 1 suggests that *IG* CEOs reduce SG&A by 1.6 percent during the horizon period (t=-2.19), consistent with previous findings. Conversely, the positive and significant interaction coefficient (t=1.84) in Column 2 suggests that *IG* CEOs report higher COGS during the horizon period, while *DG* CEOs do not, indicating overall inefficiencies between *IG* and *DG*, as initially suggested by the higher pre-horizon period SG&A spending by *IG* CEOs.

Column 3 examines the effect of gratification preferences on net investment cash flow. The significant *HORIZON x IG* coefficient indicates that *IG* CEOs decrease net investment cash flow by 2.2 percent during the horizon period (t=-3.86), consistent with Table 3.[37] Column 4 focuses on net operating cash flow, which reflects obligatory spending. The insignificant *HORIZON x IG* (t=-0.07) coefficient suggests no evidence of CEO horizon problems as measured by net operating cash flow.

The significant and negative *HORIZON x IG* coefficients in Table 7 (Columns 1 and 3) suggest that *IG* CEOs adjust discretionary spending during the horizon period, while the positive and insignificant *HORIZON x IG* coefficients in Columns 2 and 4,

[37] Although the results are consistent, they are different due to the absence of a control variable for operating cash flow (*OCF*) in Columns 3 and 4. *OCF* is omitted from the analysis due to the similarity between the dependent variable and the control variable in Column 4.

respectively, indicate that CEOs do not adjust obligatory spending during the horizon period. These results provide evidence that the measures for accumulated discretionary accounting choices in this study are inherently nonmandatory.

**TABLE 7 – FALSIFICATION TEST**

| Dependent Variable: | *SGA* | *COGS* | *INVEST_CF* | *OPERATE_CF* |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -0.336 | -0.436 | -0.332 | -0.042 |
| | (-0.85) | (-1.04) | (-0.96) | (-0.24) |
| *IG* | 0.479** | 0.223 | 0.446** | 0.756*** |
| | (2.25) | (0.95) | (2.26) | (7.18) |
| *HORIZON x IG* | -1.585** | 1.801* | -2.228*** | -0.024 |
| | (-2.19) | (1.84) | (-3.86) | (-0.07) |
| *TENURE* | -0.072*** | -0.017 | -0.067*** | -0.042*** |
| | (-2.81) | (-0.55) | (-3.10) | (-3.50) |
| *SIZE* | -0.112 | -0.059 | -0.307*** | 0.355*** |
| | (-1.56) | (-0.70) | (-4.87) | (10.02) |
| *BTM* | -0.819*** | 0.932** | -2.179*** | 2.937*** |
| | (-2.93) | (2.32) | (-10.69) | (23.34) |
| *OCF* | 0.313 | -6.240*** | | |
| | (0.18) | (-2.86) | | |
| *ROA* | 1.972 | 12.185*** | -0.540 | -55.025*** |
| | (0.84) | (3.46) | (-0.34) | (-41.87) |
| *ATO* | -0.104*** | -0.009 | -0.212*** | -0.194*** |
| | (-3.20) | (-0.24) | (-6.79) | (-9.60) |
| *ACCR* | -15.342*** | -43.530*** | -3.030*** | 8.463*** |
| | (-9.23) | (-12.42) | (-2.70) | (11.17) |
| *ACCR (t-1)* | 25.246*** | 35.552*** | 12.030*** | -9.711*** |
| | (20.38) | (16.99) | (15.69) | (-21.00) |
| Δ*_SALES* | 62.983*** | 97.019*** | 27.910*** | -3.874*** |
| | (66.54) | (87.18) | (33.67) | (-10.43) |
| Δ*_NEG_SALES* | -11.761*** | 4.903* | -13.649*** | 1.233 |
| | (-5.43) | (1.78) | (-8.58) | (1.28) |
| *Constant* | 98.839*** | 102.603*** | 11.219*** | -10.112*** |
| | (49.66) | (60.52) | (3.88) | (-6.14) |
| Observations | 24,423 | 24,423 | 26,745 | 26,745 |
| Adjusted R-squared | 0.5528 | 0.7044 | 0.2501 | 0.4746 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

**Strength of the Measurements for the Discretionary Spending Construct**

Dechow and Sloan (1991) contend that CEOs may choose not to invest in viable opportunities due to negative consequences, such as reduced flexibility for future strategic decisions. By refraining from investing, the firm retains greater flexibility to adjust investment plans in response to changes in the business environment, which may be particularly relevant in uncertain or rapidly changing industries. On the other hand, Jensen (1986) argues that the CEO's significant effort is necessary to utilize corporate resources efficiently. Specifically, the CEO oversees the efficient allocation of resources and subsequent value-maximizing investments. Extensive effort is necessary for the CEO to identify, evaluate, and implement investment opportunities. However, this effort may decrease as the CEO prepares to retire under the pretense of the CEO horizon problem. Lastly, Hartzell et al. (2008) suggest that retiring CEOs may not necessarily invest worse than their counterparts. They found no significant difference in investment decisions between retiring and non-retiring CEOs.

Examining how CEO gratification preferences affect the horizon problem begins by identifying discretionary spending. Therefore, net investment cash flow is an additional measure of discretionary spending in this study since spending outside a company's core operations may be inherently discretionary. Prior literature provides mixed results regarding the discretionary nature of net investment cash flow. Consequently, this paper uses Principal Component Analysis (PCA) to explore the relationship between the four proposed measures of discretionary spending and attempts to identify potential patterns suggesting they measure the same construct (Abdi and Williams, 2010).

Table 8 presents results from the PCA process; Panel A shows the eigenvalues for each component extracted from the data. Eigenvalues represent the variance in the original data explained by each component. The first component (Comp1) has an eigenvalue of 1.907, which explains the most variance in the data (47.7 percent). Panel B presents loadings (coefficients) specific to each variable in the four components. Loadings represent the strength and direction of the relationship between each variable and the component. In Comp1, *SG&A* has a strong positive loading of 0.622, while *INVEST_CF* has a positive loading of 0.467, *RD* has a positive loading of 0.354, and *AD* has a positive loading of 0.520. These loadings suggest that the variables all measure the same underlying construct.

Panel C presents the results of a regression analysis in which the initial component obtained from the abovementioned process is the dependent variable in Columns 1 and 2. While the main inferences are consistent and provide evidence that *IG* CEOs reduce discretionary spending, it is essential to note that using a principal component as the dependent variable in a regression model may not be recommended due to the difficulty in interpreting the original variables (Graham 2003). These results are, therefore, supplemental, and it is essential to exercise caution when interpreting them. The results in Table 8 suggest that the four proposed measures of discretionary spending (*SGA, INVEST_CF, RD,* and *AD*) measure the same underlying construct. The results from the regression analysis in Panel C provide further support for this inference.

**TABLE 8 – DISCRETIONARY SPENDING CONSTRUCT MEASURE STRENGTH**

Panel A: Principal Component Analysis

| Component | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Comp1 | 1.907 | 1.010 | 0.477 | 0.477 |
| Comp2 | 0.897 | 0.124 | 0.224 | 0.701 |
| Comp3 | 0.773 | 0.351 | 0.193 | 0.894 |
| Comp4 | 0.422 | . | 0.106 | 1.000 |

Panel B: Principal Components (Eigenvectors)

| VARIABLE | Comp1 | Comp2 | Comp3 | Comp4 |
|---|---|---|---|---|
| *SGA* | 0.622 | -0.063 | -0.063 | -0.778 |
| *INVEST_CF* | 0.467 | -0.434 | 0.686 | 0.352 |
| *RD* | 0.354 | 0.888 | 0.221 | 0.193 |
| *AD* | 0.520 | -0.140 | -0.691 | 0.483 |

Panel C: Regression Results

| Dependent Variable: | *COMPONENT1* | | *SGA* | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -0.105*** | -0.026 | -0.804** | -0.229 |
| | (-3.18) | (-0.67) | (-2.44) | (-0.59) |
| *IG* | | 0.042* | | 0.490** |
| | | (1.83) | | (2.36) |
| *HORIZON X IG* | | -0.202*** | | -1.658** |
| | | (-2.89) | | (-2.31) |
| Observations | 8,010 | 8,010 | 26,745 | 26,745 |
| Adjusted R-Squared | 0.6210 | 0.6214 | 0.5784 | 0.5785 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

## Collinearity Analysis - Lagged Covariates

When collinearity exists between predictor variables, it can lead to several issues that can negatively impact the accuracy and reliability of the regression model. Scaling *ROA*, *ACCR*, and *OCF* with the same variable commonly characterizes collinearity, mainly when a component of net income acts as the dependent variable. In the primary analysis, lagged sales act as the scaler for *ACCR*, total assets are the scaler for *OCF*, and average total assets act as the scaler for *ROA*. However, this analysis uses a lagged version of these measures to address potential collinearity further; specifically, control

variables become $TENURE_t$, $SIZE_t$, $BTM_t$, $OCF_{t-1}$, $ROA_{t-1}$, $ATO_t$, $ACCR_{t-1}$, $ACCR_{t-2}$, $\Delta\_SALES_t$, and $\Delta\_NEG\_SALES_t$.

Table 9 presents results after implementing the appropriate lagged control variables; the statistical inferences stay unchanged. Columns 1 and 2 provide results from regressing the accumulated discretionary expenditure measure, SG&A, on *HORIZON* in Column 1 and onto *HORIZON* plus *IG* and the interaction, *HORIZON x IG,* in Column 2. Both columns include all control variables as listed above. Column 1 presents results consistent with the traditional horizon problem; CEOs intending to retire reduce SG&A expenditures by 0.57 percent (t=-1.70). In Column 2, the gratification preference model shows no results for *HORIZON* (t=0.18) but a negative and significant interaction coefficient (t=-2.13), indicating that *IG* CEOs reduce SG&A expenditures by 1.6 percent when nearing retirement. These results provide further evidence of a connection between gratification preferences and reduced discretionary spending near retirement.

Columns 3 and 4 examine the change in net investment cash flow as the dependent variable. In Column 3, a negative and significant *HORIZON* coefficient (t=2.52) supports the traditional horizon problem, where CEOs nearing retirement report a net investment cash flow reduction of 0.72 percent. In Column 4, the *HORIZON* coefficient becomes insignificant (t=0.21) with the gratification preference model. However, a negative and significant interaction (*HORIZON x IG*) coefficient (t=-3.73) suggests that *IG* CEOs reduce net investment cash flows during the horizon period by 2.2 percent, reinforcing the connection between gratification preferences and lower discretionary spending near retirement.

**TABLE 9 – COLLINEARITY ANALYSIS**

| | Lagged Covariates | | | |
|---|---|---|---|---|
| Dependent Variable: | *SGA* | | *INVEST_CF* | |
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -0.568* | 0.072 | -0.718** | 0.074 |
| | (-1.70) | (0.18) | (-2.52) | (0.21) |
| *IG* | | 1.007*** | | 0.662*** |
| | | (4.63) | | (3.36) |
| *HORIZON x IG* | | -1.555** | | -2.189*** |
| | | (-2.13) | | (-3.73) |
| *TENURE* | -0.099*** | -0.115*** | -0.053** | -0.060*** |
| | (-3.92) | (-4.47) | (-2.46) | (-2.76) |
| *SIZE* | -0.191*** | -0.150** | -0.334*** | -0.311*** |
| | (-2.66) | (-2.07) | (-5.38) | (-4.94) |
| *BTM* | -0.054 | -0.070 | -1.089*** | -1.097*** |
| | (-0.17) | (-0.23) | (-4.92) | (-4.95) |
| *OCF (t-1)* | 11.312*** | 11.498*** | 22.139*** | 22.231*** |
| | (3.82) | (3.87) | (10.67) | (10.67) |
| *ROA (t-1)* | 2.419 | 2.467 | 1.615 | 1.641 |
| | (1.09) | (1.11) | (1.01) | (1.03) |
| *ATO* | -0.152*** | -0.161*** | -0.283*** | -0.287*** |
| | (-4.70) | (-4.94) | (-9.27) | (-9.39) |
| *ACCR (t-1)* | 12.560*** | 12.709*** | 2.053 | 2.121* |
| | (6.66) | (6.74) | (1.64) | (1.69) |
| *ACCR (t-2)* | 0.710 | 0.698 | 0.484 | 0.479 |
| | (1.01) | (0.99) | (0.89) | (0.88) |
| Δ*_SALES* | 62.999*** | 62.854*** | 27.322*** | 27.244*** |
| | (65.58) | (65.35) | (29.79) | (29.71) |
| Δ*_NEG_SALES* | -20.310*** | -19.763*** | -15.053*** | -14.748*** |
| | (-9.61) | (-9.32) | (-9.18) | (-8.98) |
| *Constant* | 97.870*** | 97.481*** | 9.626*** | 9.391*** |
| | (47.62) | (47.73) | (4.43) | (4.32) |
| Observations | 24,373 | 24,373 | 24,373 | 24,373 |
| Adjusted R-squared | 0.5436 | 0.5441 | 0.2530 | 0.2536 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

## Collinearity Analysis – Covariate Principal Component Analysis

Table 10 employs principal component analysis (PCA) to address collinearity concerns within the control variables and presents the results from regressions.[38] In Columns 1 and 2, the accumulated discretionary expenditure measure, SG&A, is

[38] Appendix D presents the results from the PCA process, the loadings, and as well as the explanations for each component.

regressed on *HORIZON* in Column 1 and *HORIZON* plus *IG* and the interaction, *HORIZON x IG*, in Column 2. In Column 1, CEOs intending to retire will reduce SG&A expenditures by 0.67 percent (t=-1.79), consistent with the traditional horizon problem. Column 2, which utilizes the gratification preference model, shows no effect for *HORIZON* (t=0.58). However, the *HORIZON x IG* interaction coefficient is negative and significant (t=-2.70), indicating that *IG* CEOs reduce SG&A expenditures by 2.2 percent nearing retirement. This finding supports a connection between gratification preferences and reduced discretionary spending near retirement.

Columns 3 and 4 examine the change in net investment cash flow as the dependent variable. In Column 3, the negative and significant *HORIZON* coefficient (t=3.69) supports the traditional horizon problem, indicating that CEOs nearing retirement will report a net investment cash flow reduction of 1.1 percent. Column 4, which uses the gratification preference model, shows that the *HORIZON* coefficient becomes insignificant (t=-0.65). However, the negative and significant interaction (*HORIZON x IG*) coefficient (t=-3.84) suggests that *IG* CEOs reduce net investment cash flows during the horizon period by 2.3 percent, providing further support for the connection between gratification preferences and lower discretionary spending near retirement.

**TABLE 10 – COLLINEARITY ANALYSIS**

| | Principal Component Analysis | | | |
|---|---|---|---|---|
| Dependent Variable: | *SGA* | | *INVEST_CF* | |
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -0.671* | 0.259 | -1.066*** | -0.234 |
| | (-1.79) | (0.58) | (-3.69) | (-0.65) |
| *IG* | | 1.992*** | | 1.109*** |
| | | (8.36) | | (5.52) |
| *HORIZON x IG* | | -2.176*** | | -2.257*** |
| | | (-2.70) | | (-3.84) |
| *Financial Performance* | 3.720*** | 3.806*** | 2.260*** | 2.305*** |
| | (39.42) | (39.73) | (35.12) | (34.95) |
| *Size and Stability* | -7.573*** | -7.501*** | -3.003*** | -2.964*** |
| | (-50.24) | (-49.65) | (-26.81) | (-26.42) |
| *Operating Efficiency* | 5.967*** | 5.980*** | 1.675*** | 1.684*** |
| | (40.32) | (40.39) | (15.17) | (15.26) |
| *Reliability* | -1.802*** | -1.893*** | -0.707*** | -0.752*** |
| | (-13.92) | (-14.42) | (-7.41) | (-7.80) |
| *Constant* | 105.947*** | 105.505*** | 9.943*** | 9.708*** |
| | (36.73) | (36.88) | (3.28) | (3.22) |
| Observations | 26,745 | 26,745 | 26,745 | 26,745 |
| Adjusted R-squared | 0.4001 | 0.4017 | 0.1837 | 0.1847 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

## Contracting Strategies

Using compensation packages with built-in contingencies for future performance, such as restricted stock units or options, is a practical strategy for mitigating the horizon problem. However, this mitigation method for the horizon problem is challenging because CEOs have various timing preferences for gratification; it is expensive to adjust expectations associated with CEO compensation. These presumptions suggest that the horizon problem may persist even with implementing built-in contingencies for future performance. Table 11 summarizes models incorporating these expectations. The first and second columns present the results of regressing SG&A on *HORIZON* (Column 1) and *HORIZON*, *IG*, and the corresponding interaction (Column 2). Newly included

variables in the model are restricted stock units (*RESTRICTED*) and stock options (*OPTIONS*); all original control variables remain in the analysis.

The insignificant *HORIZON* coefficient on (t=-1.17) in Column 1 suggests CEOs do not reduce SG&A expenditures in the horizon period, meaning contracting strategies seem to mitigate the traditional horizon problem. However, the gratification preference model suggests the horizon problem persists in Column 2. The negative and significant *HORIZON x IG* coefficient suggests *IG* CEOs will decrease SG&A by 2.3 percent (t=-2.67) during the horizon period.

The significant *HORIZON* coefficient in Column 3 suggests a traditional horizon problem when regressing *INVEST_CF* onto the variable set; CEOs reduce net investment cash flow by 1.2 percent (t=-3.40) when intending to retire. Column 4 provides additional information on the horizon problem with the gratification preference model. The *HORIZON* coefficient loses significance (t=-0.18) in Column 4; however, the significant *HORIZON x IG* coefficient results suggest a reduction in net investment cash flow by 2.9 percent during the horizon period for *IG* CEOs (t=-4.27), consistent with the horizon problem.

Table 11 indicates that contracting techniques cannot effectively mitigate the horizon problem for many CEOs, particularly those who prefer immediate gratification. Even after implementing contracting strategies to minimize aggressive discretionary accounting choices, gratification preferences continue influencing discretionary spending during the horizon period, including SG&A and net investment cash flow. Table 11 suggests that *DG* CEOs react to delayed incentives while *IG* CEOs do not.

**TABLE 11 – CONTRACTING STRATEGIES**

| Dependent Variable: | *SGA* | | *INVEST_CF* | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -0.474 | 0.358 | -1.157*** | -0.079 |
| | (-1.17) | (0.73) | (-3.40) | (-0.18) |
| *IG* | | 0.467* | | 0.723*** |
| | | (1.89) | | (3.10) |
| *HORIZON x IG* | | -2.266*** | | -2.891*** |
| | | (-2.67) | | (-4.27) |
| *OPTIONS* | -0.053** | -0.057** | -0.049** | -0.057** |
| | (-2.10) | (-2.21) | (-2.22) | (-2.53) |
| *RESTRICTED* | 0.000*** | 0.000*** | -0.000*** | -0.000*** |
| | (17.67) | (17.86) | (-12.72) | (-12.48) |
| *TENURE* | 0.079*** | 0.078*** | 0.061 | 0.060 |
| | (3.74) | (3.72) | (1.24) | (1.22) |
| *SIZE* | -0.235*** | -0.219*** | -0.082 | -0.057 |
| | (-3.02) | (-2.79) | (-1.15) | (-0.78) |
| *BTM* | -1.091*** | -1.088*** | -0.169 | -0.165 |
| | (-3.45) | (-3.44) | (-0.67) | (-0.66) |
| *OCF* | 1.126 | 1.163 | 49.075*** | 49.143*** |
| | (0.53) | (0.55) | (24.09) | (24.15) |
| *ROA* | 1.351 | 1.431 | -30.628*** | -30.474*** |
| | (0.52) | (0.55) | (-13.16) | (-13.08) |
| *ATO* | -0.099** | -0.102** | -0.292*** | -0.296*** |
| | (-2.50) | (-2.54) | (-8.36) | (-8.46) |
| *ACCR* | -12.540*** | -12.516*** | 1.947 | 1.981 |
| | (-6.81) | (-6.79) | (1.40) | (1.42) |
| *ACCR (t-1)* | 21.796*** | 21.795*** | 7.826*** | 7.836*** |
| | (16.83) | (16.85) | (8.95) | (8.98) |
| Δ*_SALES* | 60.278*** | 60.238*** | 25.506*** | 25.433*** |
| | (48.72) | (48.65) | (21.79) | (21.74) |
| Δ*_NEG_SALES* | -9.271*** | -9.158*** | -11.846*** | -11.647*** |
| | (-3.57) | (-3.52) | (-5.83) | (-5.74) |
| *Constant* | 107.439*** | 107.269*** | 4.376*** | 4.101*** |
| | (57.14) | (57.60) | (3.21) | (3.06) |
| Observations | 16,882 | 16,882 | 16,882 | 16,882 |
| Adjusted R-squared | 0.5287 | 0.5289 | 0.2591 | 0.2599 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

## Family Firms

Family firms have lower absolute discretionary accruals, report fewer small positive earnings surprises than non-family firms, and have more informative earnings and fewer earnings restatements than non-family firms (Tong 2007). Additionally, family ownership is associated with less persistence of transitory loss components in earnings

(Wang 2006). Consequently, additional controls for family ownership are added to the primary model to explore this effect on the primary inferences.

A Global Family Business Index, compiled by Ernst & Young and the University of St. Gallen, compiles and ranks revenues of 500 family-owned businesses worldwide. This index includes public and private family firms from around the world. By manually identifying firms in the sample listed on this index, I create an indicator variable identifying family firms; this variable (*FF*) is one when the company is included in the Global Family Business Index and zero otherwise.[39] Although the Global Family Business Index includes private and international firms, my sample of public firms from the United States catches nearly 20 percent of the index's revenues.[40]

Table 12 introduces a new indicator variable (*FF*) representing family firms. Columns 1 through 3 report results using *SG&A* as the measure of discretionary spending. Columns 4 through 6 report results using *INVEST_CF* as the measure of discretionary spending. The results from the original variable of interest, *HORIZON x IG,* remain consistent in Table 12; negative and significant coefficients in Columns 1 through 3 suggest *IG* CEOs decrease SG&A spending by 1.7 percent during the horizon period (t=-2.32 through t=-2.39). Further, results from Columns 4 through 6 suggest *IG* CEOs report a reduction in net investment cash flow of 2.2 percent during the horizon period (t=-3.80 through t=-3.39). These results suggest that gratification preferences continue to affect accumulated discretionary spending during the horizon period, even when considering special family ownership incentives, and provide further evidence that

[39] Only public companies whose jurisdiction is the United States are included in this sample; this represents 378 observations (33 unique firms) of firms with substantial family ownership. A list of these firms can be found in Appendix C.
[40] Untabulated.

gratification preferences influence accumulated discretionary spending, regardless of family ownership incentives.

Columns 1 through 3 do not show any statistical significance for any coefficient of *FF* or any interaction between FF and any other variable. In contrast, Columns 4 through 6 suggest that family firms increase investment spending as the CEO prepares for retirement. The positive and significant *FF x Horizon* coefficients (t=-1.69 through t=-2.10) in Columns 4 through 6 indicate that family firms increase net investment cash flow by 4.9 – 5.7 percent during the horizon period, depending upon the desired interactions for *FF*. These results support the previous claim that the lack of significant results in Dechow and Sloan (1991) could be due to sample or situation-specific factors since CEOs of family firms increase investment spending during the horizon period.

**TABLE 12 – FAMILY FIRMS**

| Dependent Variable: | *SGA* | | | *INVEST_CF* | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *HORIZON* | -0.261 | -0.261 | -0.237 | -0.439 | -0.439 | -0.450 |
| | (-0.66) | (-0.66) | (-0.60) | (-1.31) | (-1.31) | (-1.34) |
| *IG* | 0.494** | 0.484** | 0.489** | 0.825*** | 0.828*** | 0.825*** |
| | (2.37) | (2.31) | (2.33) | (4.31) | (4.28) | (4.27) |
| *HORIZON x IG* | -1.666** | -1.669** | -1.747** | -2.248*** | -2.247*** | -2.209*** |
| | (-2.32) | (-2.32) | (-2.39) | (-3.99) | (-3.99) | (-3.89) |
| *FF* | -0.631 | -0.994 | -0.813 | -0.294 | -0.203 | -0.291 |
| | (-1.25) | (-1.16) | (-0.93) | (-0.69) | (-0.33) | (-0.48) |
| *FF x HORIZON* | 2.082 | 2.200 | 0.658 | 4.890** | 4.860** | 5.611* |
| | (1.33) | (1.38) | (0.39) | (2.09) | (2.10) | (1.69) |
| *FF x IG* | | 0.699 | 0.343 | | -0.176 | -0.003 |
| | | (0.73) | (0.35) | | (-0.21) | (-0.00) |
| *FF x HORIZON x IG* | | | 4.327 | | | -2.108 |
| | | | (1.21) | | | (-0.51) |
| *TENURE* | -0.087*** | -0.087*** | -0.087*** | -0.086*** | -0.086*** | -0.086*** |
| | (-3.44) | (-3.45) | (-3.45) | (-4.10) | (-4.10) | (-4.10) |
| *SIZE* | -0.105 | -0.105 | -0.105 | -0.124** | -0.124** | -0.123** |
| | (-1.52) | (-1.52) | (-1.52) | (-2.02) | (-2.02) | (-2.02) |
| *BTM* | -0.786*** | -0.784*** | -0.786*** | -0.694*** | -0.695*** | -0.694*** |
| | (-2.90) | (-2.89) | (-2.89) | (-3.39) | (-3.39) | (-3.39) |
| *OCF* | -1.044 | -1.042 | -1.040 | 49.629*** | 49.628*** | 49.627*** |
| | (-0.64) | (-0.64) | (-0.64) | (31.06) | (31.06) | (31.06) |
| *ROA* | 3.209 | 3.206 | 3.201 | -26.590*** | -26.589*** | -26.587*** |
| | (1.42) | (1.42) | (1.42) | (-13.72) | (-13.72) | (-13.72) |
| *ATO* | -0.084*** | -0.084*** | -0.084*** | -0.311*** | -0.311*** | -0.311*** |
| | (-2.59) | (-2.59) | (-2.59) | (-10.18) | (-10.18) | (-10.18) |
| *ACCR* | -16.359*** | -16.360*** | -16.361*** | 0.475 | 0.475 | 0.475 |
| | (-10.12) | (-10.12) | (-10.12) | (0.40) | (0.40) | (0.40) |
| *ACCR (t-1)* | 26.270*** | 26.269*** | 26.268*** | 7.332*** | 7.332*** | 7.332*** |
| | (22.05) | (22.05) | (22.05) | (9.85) | (9.85) | (9.85) |
| Δ*_SALES* | 64.310*** | 64.311*** | 64.310*** | 26.037*** | 26.036*** | 26.037*** |
| | (78.02) | (78.03) | (78.03) | (32.45) | (32.45) | (32.45) |
| Δ*_NEG_SALES* | -11.595*** | -11.599*** | -11.594*** | -13.193*** | -13.192*** | -13.194*** |
| | (-5.74) | (-5.75) | (-5.74) | (-8.55) | (-8.55) | (-8.55) |
| *Constant* | 101.079*** | 101.150*** | 101.146*** | 6.113** | 6.095** | 6.096** |
| | (46.05) | (45.93) | (45.90) | (2.18) | (2.17) | (2.18) |
| Observations | 26,745 | 26,745 | 26,745 | 26,745 | 26,745 | 26,745 |
| Adjusted R-squared | 0.5785 | 0.5785 | 0.5785 | 0.3020 | 0.3020 | 0.3020 |

Note: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

## Tenure Analysis

CEO reporting aggressiveness decreases with tenure (Ali and Zhang 2015); Table 13 further examines how tenure influences discretionary accounting choices near

retirement. There is evidence in Column 1 that CEOs report lower SG&A as their tenure continues.[41] However, the negative and significant coefficient for *TENURE x HORIZON x IG* (t=-2.48) provides evidence of the horizon problem and suggests an abrupt decrease of SG&A for retiring *IG* CEOs. During their final year, *IG* CEOs decrease discretionary spending, as measured by changes in SG&A, by an average of 0.4 percent each year they hold the CEO position.

There is no evidence that the length of tenure affects changes in net investment cash flow for *DG* CEOs in Column 2. However, when entering the horizon period, *IG* CEOs decrease net investment cash flow by an additional 2.5 percent (t=-2.28), regardless of their tenure as a CEO, as evidenced by the *HORIZON x IG* coefficient. Additionally, results for the *TENURE x IG* coefficient in Column 2 suggest *IG* CEOs decrease net investment cash flow as their tenure increases by 0.14 percent (t=-3.53) each year.

Table 13 study found that CEOs report less SG&A as they gain tenure. However, there is evidence of a horizon problem by retiring *IG* CEOs abruptly reporting a decrease in SG&A spending. Additionally, Results from Column 2 suggest there is a decrease in net investment cash flow during the horizon period, regardless of their tenure.

[41] In this sample, the average *TENURE* for retiring CEOs is 6.7 percent and the average age of retiring CEOs is 62.6.

**TABLE 13 – TENURE ANALYSIS**

| Dependent Variable: | *SGA* | *INVEST_CF* |
|---|---|---|
| | (1) | (2) |
| *HORIZON* | -1.070 | -0.886 |
| | (-1.47) | (-1.58) |
| *IG* | 0.732** | 1.592*** |
| | (2.06) | (5.04) |
| *HORIZON x IG* | 1.596 | -2.495** |
| | (1.00) | (-2.28) |
| *TENURE* | -0.061* | -0.017 |
| | (-1.67) | (-0.55) |
| *TENURE x IG* | -0.046 | -0.144*** |
| | (-1.01) | (-3.53) |
| *TENURE x HORIZON* | 0.135 | 0.075 |
| | (1.35) | (1.04) |
| *TENURE x HORIZON x IG* | -0.416** | 0.043 |
| | (-2.48) | (0.36) |
| Observations | 26,745 | 26,745 |
| Adjusted R-squared | 0.5786 | 0.3022 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

Typical CEO tenure changes every year, reflecting the progressive nature of their tenure. To identify patterns associated with CEO tenure, gratification preferences, and discretionary accounting choices near retirement, Table 14 presents results from additional cross-sectional analyses using cross-sectional tenure variables. The expanded gratification preference model in Table 13 includes indicator variables for low (*TENURE_LOW*) and high (*TENURE_HIGH*) tenure levels. If a CEO ranks in the bottom decile of CEO tenure, *TENURE_LOW* is one, and if a CEO ranks in the top decile of CEO tenure, *TENURE_HIGH* is one; otherwise, these variables are zero. The ranking procedure for *TENURE* occurs for each fiscal year in the sample. All columns except for TENURE include the same control variables as the primary analysis.

The significant *HORIZON x IG* coefficient (t=-2.39) in Column 1 suggests that *IG* CEOs report a reduction in SG&A expenditures by 1.7 percent when intending to retire. Column 2 examines a similar regression model as Column 1; however, Column 2

includes added interactions for CEOs in the top and bottom deciles of the *TENURE* ranking process. Results from Column 2 suggest *IG* CEOs report a reduction in SG&A expenditures by 1.4 percent when intending to retire; however, the column also provides results that *IG* CEOs within the top and bottom deciles do not report SG&A differently. Collectively, Column 2 provides evidence suggesting CEO *TENURE* deciles do not provide added explanatory power to the horizon problem when examining CEO tenure, gratification preferences, and discretionary accounting choices near retirement.

Columns 3 and 4 provide inferences similar to the previous columns, with net investment cash flow as the dependent variable. The significant *HORIZON x IG* coefficient (t=-4.13) in Column 3 suggests that *IG* CEOs report a reduction in net investment cashflow by 2.3 percent when intending to retire. The expanded model in Column 4 suggests ranking CEO *TENURE* into deciles does not provide added information regarding reporting investing cash flows for *IG* CEOs preparing to retire. The results from Column 4 suggest that *IG* CEOs report a reduction in net investment cashflow by 2.5 percent when intending to retire, as shown by the significant *HORIZON x IG* coefficient (t=-3.98).

The *HORIZON x IG* coefficient suggests *IG* CEOs decrease SG&A expenditures when intending to retire, with 1.7 and 2.3 percent reductions in Columns 1 and 3. Further, the results on the *HORIZON x IG* coefficients in the fully interactive model suggest net investment cashflow reductions by retiring *IG* CEOs of 1.4 and 2.5 percent in Columns 2 and 4, respectively. Results in Table 14 suggest that the ranking procedure for CEO tenure does not provide added explanatory power to the horizon problem when

examining CEO tenure, gratification preferences, and discretionary accounting choices near retirement.

**TABLE 14 – TENURE CROSS-SECTION ANALYSIS**

| Dependent Variable: | *SGA* | | *INVEST_CF* | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| *HORIZON* | -0.282 | -0.138 | -0.442 | -0.373 |
| | (-0.72) | (-0.31) | (-1.32) | (-0.98) |
| *IG* | 0.436** | 0.428** | 0.734*** | 0.735*** |
| | (2.12) | (2.07) | (3.84) | (3.84) |
| *HORIZON x IG* | -1.718** | -1.411* | -2.325*** | -2.540*** |
| | (-2.39) | (-1.70) | (-4.13) | (-3.98) |
| *TENURE_LOW* | -0.555* | -0.528 | -0.655** | -0.622** |
| | (-1.69) | (-1.56) | (-2.35) | (-2.18) |
| *TENURE_LOW x HORIZON* | | -0.493 | | -0.713 |
| | | (-0.36) | | (-0.58) |
| *TENURE_LOW x HORIZON x IG* | | 5.635 | | -1.882 |
| | | (1.58) | | (-1.36) |
| *TENURE_HIGH* | -1.241*** | -1.059*** | -0.710*** | -0.746*** |
| | (-4.19) | (-3.39) | (-2.89) | (-2.85) |
| *TENURE_HIGH x HORIZON* | | -0.932 | | -0.047 |
| | | (-0.86) | | (-0.06) |
| *TENURE_HIGH x HORIZON x IG* | | -1.347 | | 0.806 |
| | | (-0.83) | | (0.62) |
| Observations | 26,745 | 26,745 | 26,745 | 26,745 |
| Adjusted R-squared | 0.5786 | 0.5786 | 0.3018 | 0.3017 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

## Individual Scenario Analysis

Aggressive earnings management in at least one designated beneficial scenario in the primary analysis determines *IG* gratification preferences. In contrast, at least one earnings management method (accrual or real earnings management) determines *IG* behavior. Table 15 separately estimates the gratification model's results for each beneficial scenario and earnings management methodology. Panel A presents results using SG&A to represent accumulated discretionary expenditures, while Panel B presents

results using net investment cash flow to represent accumulated discretionary expenditures.

In Panel A, the results on *HORIZON x IG* in Column 1 indicate that when the new debt scenario identifies *IG* CEOs, they decrease SG&A by 2.8 percent (t=-3.90) during the horizon period. The *HORIZON* coefficient in Panel A, Column 2 suggests that all CEOs decrease discretionary spending during the horizon period, evidenced by a 0.7 percent reduction in SG&A when only the loss avoidance scenario identifies *IG* CEOs. When the insufficient cashflow scenario identifies *IG* CEOs in Column 3, the *HORIZON x IG* coefficient suggests CEOs decrease SG&A by 2.3 percent (t=-2.92) during the horizon period. Similarly, when the accruals earnings management methodology identifies *IG* CEOs (Column 4), *IG* CEOs decrease SG&A by 1.8 percent (t=-2.11) during the horizon period.

In Panel B, the results on *HORIZON x IG* in Column 1 indicate that when the new debt scenario identifies *IG* CEOs, they decrease net investment cashflow by 2.1 percent (t=-3.61) during the horizon period. The *HORIZON* coefficient in Column 2 of Panel B suggests that all CEOs decrease net investment cashflow by 1.1 percent (t=-2.05) during the horizon period when only the loss avoidance scenario identifies *IG* CEOs. The *HORIZON x IG* coefficients in Columns 3 and 4 suggest that when the insufficient cashflow scenario (Column 3) or the accruals earnings management methodology (Column 4) identify *IG* CEOs, there is evidence of a horizon problem as observed by a reduction in net investment cashflow of 2.4 percent (t=-4.01) and 2.7 percent (t=-4.27), respectively.

The results in Column 5 are inconsistent between these two measures of discretionary spending. While Column 5 in Panel A does not provide evidence that gratification preferences affect discretionary spending, results in Column 5 of Panel B suggest that gratification preferences affect discretionary spending. The *HORIZON* coefficient in Column 5 of Panel B suggests CEOs report a net investment cash flow reduction of 0.8 percent (t=-2.72). However, when *IG* CEOs are defined solely by aggressive real earnings management during one of the three beneficial scenarios, the *HORIZON x IG* coefficient suggests a further reduction of net investment cash flow by 1.4 percent (t=-2.05) during the horizon period.

Results from Table 15 are generally consistent with established academic theory and support the measure of identifying gratification preferences using observed financial reporting decisions before the horizon period. Furthermore, the findings support the triangulation of multiple scenarios and methodologies to identify CEOs who prefer instant gratification.

## TABLE 15 – SPECIFIC BENEFICIAL SCENARIO ANALYSIS

*Panel A:*

| Dependent Variable: | *SGA* | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| *HORIZON* | 0.064 | -0.687** | -0.208 | -0.317 | -0.589 |
| | (0.16) | (-2.05) | (-0.56) | (-0.90) | (-1.62) |
| *Specific IG Measure* | 0.739*** | 0.230 | 0.637*** | 0.628*** | 0.001 |
| | (3.51) | (0.74) | (2.69) | (2.77) | (0.01) |
| *HORIZON x Specific IG Measure* | -2.759*** | -1.768 | -2.257*** | -1.848** | -1.288 |
| | (-3.90) | (-1.11) | (-2.92) | (-2.11) | (-1.50) |
| Observations | 26,740 | 26,740 | 26,740 | 26,745 | 26,745 |
| Adjusted R-squared | 0.5786 | 0.5782 | 0.5784 | 0.5786 | 0.5784 |
| *Specific IG Measure* | *IG* Type: Beneficial Scenario - New Debt | *IG* Type: Beneficial Scenario - Loss Avoidance | *IG* Type: Beneficial Scenario - Insufficient Cashflow | *IG* Type: Accruals Earnings Management | *IG* Type: Real Earnings Management |

*Panel B:*

| Dependent Variable: | *INVEST_CF* | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| *HORIZON* | -0.463 | -1.125*** | -0.505 | -0.449 | -0.824*** |
| | (-1.43) | (-3.96) | (-1.58) | (-1.45) | (-2.72) |
| *Specific IG Measure* | 0.830*** | -0.241 | 1.003*** | 0.929*** | 1.070*** |
| | (4.27) | (-0.79) | (4.67) | (4.45) | (4.51) |
| *HORIZON x Specific IG Measure* | -2.123*** | -0.726 | -2.376*** | -2.704*** | -1.403** |
| | (-3.61) | (-0.76) | (-4.01) | (-4.27) | (-2.05) |
| Observations | 26,740 | 26,740 | 26,740 | 26,745 | 26,745 |
| Adjusted R-squared | 0.3015 | 0.3009 | 0.3016 | 0.3021 | 0.3019 |
| *Specific IG Measure* | *IG* Type: Beneficial Scenario - New Debt | *IG* Type: Beneficial Scenario - Loss Avoidance | *IG* Type: Beneficial Scenario - Insufficient Cashflow | *IG* Type: Accruals Earnings Management | *IG* Type: Real Earnings Management |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

**CFO Analysis**

Gratification preferences influence CEO accounting choices during the horizon period; further analysis examines whether there is a similar association between CFO gratification preferences and discretionary spending. CFO characteristics may affect earnings management activities since they have different career concerns than CEOs (Liu, Ouyang, Zhang, and Li 2018). The insignificant *HORIZON* coefficients in Column 1 (t=0.10) and Column 3 (t=0.05) suggest CFOs may not be subject to the same criticism as their CEO counterparts associated with the traditional horizon period.

The insignificant *HORIZON* coefficients in Column 2 (t=-0.51) and Column 4 (t=1.09) provide evidence that CFOs do not report discretionary spending differently in the horizon period. The insignificant *HORIZON x IG* coefficients in Column 2 (t=1.08) and Column 4 (t=-1.47) suggest that *IG* CFOs do not report discretionary spending differently in the horizon period compared to *DG* CFOs. Table 16 indicates that CFO gratification preferences do not influence discretionary accounting choices as CFOs approach retirement.

**TABLE 16 – CFO ANALYSIS**

| | Accumulated Discretionary Spending Accounts | | | |
|---|---|---|---|---|
| Dependent Variable: | *SGA* | | *INVEST_CF* | |
| | (1) | (2) | (3) | (4) |
| *HORIZON* | 0.046 | -0.265 | 0.019 | 0.527 |
| | (0.10) | (-0.51) | (0.05) | (1.09) |
| *IG* | | -0.023 | | 0.927*** |
| | | (-0.08) | | (3.76) |
| *HORIZON x IG* | | 1.198 | | -1.370 |
| | | (1.08) | | (-1.47) |
| *TENURE* | -0.039 | -0.041 | -0.069* | -0.081** |
| | (-0.92) | (-0.98) | (-1.81) | (-2.11) |
| *SIZE* | -0.223*** | -0.221*** | -0.094 | -0.068 |
| | (-2.67) | (-2.67) | (-1.25) | (-0.90) |
| *BTM* | -1.144*** | -1.145*** | -0.259 | -0.236 |
| | (-3.68) | (-3.68) | (-1.02) | (-0.93) |
| *OCF* | -0.102 | -0.109 | 47.974*** | 48.137*** |
| | (-0.05) | (-0.05) | (23.14) | (23.28) |
| *ROA* | 2.486 | 2.530 | -29.100*** | -28.861*** |
| | (0.93) | (0.95) | (-12.22) | (-12.10) |
| *ATO* | -0.107*** | -0.108*** | -0.298*** | -0.304*** |
| | (-2.60) | (-2.62) | (-8.21) | (-8.33) |
| *ACCR* | -12.499*** | -12.517*** | 1.954 | 1.965 |
| | (-6.83) | (-6.84) | (1.37) | (1.38) |
| *ACCR (t-1)* | 21.463*** | 21.488*** | 7.181*** | 7.208*** |
| | (16.81) | (16.82) | (8.05) | (8.09) |
| Δ*_SALES* | 60.484*** | 60.473*** | 25.361*** | 25.293*** |
| | (48.32) | (48.31) | (21.34) | (21.30) |
| Δ*_NEG_SALES* | -9.781*** | -9.781*** | -11.338*** | -11.118*** |
| | (-3.68) | (-3.69) | (-5.48) | (-5.38) |
| *Constant* | 108.954*** | 108.971*** | 4.457*** | 4.339*** |
| | (54.55) | (54.66) | (3.06) | (2.98) |
| Observations | 16,252 | 16,252 | 16,252 | 16,252 |
| Adjusted R-squared | 0.5327 | 0.5327 | 0.2550 | 0.2556 |

Notes: The table presents OLS regression results. Each regression includes industry and year-fixed effects with robust standard errors. Coefficient estimates are above the t-statistics. Appendix A provides definitions for all variables. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels (respectively).

**Effect Size**

In complex regression models that include transformations, interactions, and polynomials, it can be challenging to interpret the meaning of individual coefficients in a straightforward way. As a result, it may not be easy to understand how big of a practical difference exists between certain variables. In these cases, a pairwise comparison of margins can provide more useful information by considering all of the model terms and the sample proportions of the covariates (Shaw 2022).

A pairwise comparison of margins is a statistical method used to compare the marginal effects of two or more variables in a regression model. The marginal effect refers to the change in the predicted outcome variable when one of the independent variables is changed while holding all other variables constant (Ai and Norton 2003). In a pairwise comparison of margins, the marginal effects of the variables of interest are estimated for each level or value of the covariates and then compared to one another; this allows for a more nuanced understanding of how the variables of interest interact and how their effects vary across different levels or values of the covariates.

Assuming we want to examine how annual discretionary spending changes for CEOs who prefer instant gratification (*IG*), the focus is on the variables *SGA* and *INVEST_CF*. This analysis will involve controlling for the same variables as used in the primary analysis and provide the following results:

| Discretionary Spending | *SGA* | *INVEST_CF* |
|---|---|---|
| | (1) | (2) |
| *HORIZON* | -0.242 | -0.312 |
| | (-0.62) | (-0.88) |
| *IG* | 0.409* | 0.791*** |
| | (1.76) | (3.69) |
| *HORIZON x IG* | -1.608** | -2.025*** |
| | (-2.12) | (-3.32) |
| Observations | 25,220 | 25,220 |
| Adjusted R-squared | 0.5829 | 0.2997 |

For all model predictors, margins report that *IG* CEOs in the sample have an SG&A annual change 0.29 percent higher than *DG* CEOs. Additionally, on average, *IG* CEOs in the sample have a net investment cashflow reduction of 0.63 percent higher than *DG* CEOs.

| Pairwise comparisons of predictive margins | | Delta-method | | Unadjusted | |
|---|---|---|---|---|---|
| *IG (1 vs. 0)* | Observations | Contrast | Std. Err. | [95% Conf. | Interval] |
| *SGA* | 25,220 | 0.2851 | 0.2262 | -0.1584 | 0.7285 |
| *INVEST_CF* | 25,220 | 0.6342 | 0.2061 | 0.2303 | 1.0382 |

This difference is statistically significant, but there is still no reported effect size, and very small p-values do not indicate a large effect. The table below reports the pairwise comparison of margins between *IG* and *DG* CEOs on the reported discretionary spending measures after adjusting for all the predictors in the regression equation.

Effect size based on the mean comparison, unequal variances

| | | | |
|---|---|---|---|
| Observations per group: | | | |
| *DG* CEOs | 14,643 | | |
| *IG* CEOs | 10,577 | | |
| *SGA* | Estimate | [95% Conf. | Interval] |
| Cohen's d | 0.0383 | 0.0133 | 0.0633 |
| Hedges' g | 0.0383 | 0.0133 | 0.0633 |
| *INVEST_CF* | Estimate | [95% Conf. | Interval] |
| Cohen's d | 0.0127 | -0.0123 | 0.0377 |
| Hedges' g | 0.0127 | -0.0123 | 0.0377 |

The regression-adjusted difference between *IG* and *DG* CEOs on the reported discretionary spending measures is approximately 0.04 standard deviations for *SGA* and 0.01 standard deviations for *INVEST_CF*. Conventional benchmarks signal that these LHT-defined gratification preferences are considered minor.

# CHAPTER VIII. - CONCLUSION

The horizon problem is a documented scenario where CEOs sacrifice long-term shareholder benefits to increase short-term earnings. Life History Theory (LHT) suggests that ingrained tendencies contribute to observable differences in decision-making expectations based on one's gratification preference. According to LHT, there are two types of decision-makers, Instant-Gratifiers (*IG*) and Delayed-Gratifiers (*DG*). The focus of *IG* decision-makers is on maximizing short-term profits, often to the detriment of others. Long-term benefits are the focus of *DG* decision-makers; these consequences minimize the adverse effects on others. The accounting literature has not examined the association between CEO gratification preference and discretionary accounting choices near CEO retirement. This study aims to fill a gap in the academic literature by examining the horizon problem from the perspective of LHT theory.

The analysis begins by providing current expectations of the horizon problem and observing a decrease in discretionary spending for CEOs during the final year of employment for multiple measures of discretionary spending. Next, the study introduces variables reflecting CEO gratification preferences in the analysis. The extended (gratification preference) model provides added precision of the expectations for financial reporting changes during the horizon period. Results from this study suggest that gratification preferences influence accounting choices near retirement. *IG* CEOs report interruptions of discretionary spending on financial statements, while *DG* CEOs do not.

Robustness testing finds that the measures used in this study are discretionary and present CEOs with a unique opportunity to reduce spending beneficially. Additionally, models incorporating common contracting techniques intended to mitigate the horizon problem continue to demonstrate a relationship between the horizon problem and CEO

gratification preferences; these follow the primary analysis's inferences. After considering the special considerations related to family firms, the results remain the same, retiring *IG* CEOs report interruptions of discretionary spending on financial statements, whereas retiring *DG* CEOs do not. CEOs' tenure impacts the horizon problem's strength; however, the preliminary results persevere. Robustness testing concludes by examining CFOs for similar effects of gratification preferences on the horizon problem. Results indicate that scrutiny of CFOs' decisions should differ from that of their CEO counterparts regarding the horizon problem.

Directors, shareholders, debtholders, and researchers may find these findings useful in identifying CEOs' established gratification preferences. By aligning CEO gratification preferences with career timing and proximity to retirement, boards of directors can develop contracts that better motivate CEOs without jeopardizing investor protections. By incorporating LHT decision-making trends, researchers may gain more precision in estimating CEO effects on shareholders. Ultimately, understanding CEO gratification preferences could minimize the adverse impact of a change in company leadership.

# APPENDIX A: VARIABLE NAMES AND DESCRIPTIONS

| VARIABLE | VARIABLE NAME | VARIABLE DESCRIPTION |
|---|---|---|
| Δ_*NEG_SALES* | % Change in Sales (Negative Only) | Percent change in Sales ($\Delta SALES_t$) if $\Delta SALES_t$ is less than 0, and 0 otherwise. |
| Δ_*SALES* | % Change in Sales | $\left(\frac{(Sales_t(\#12) - Sales_{t-1}(\#12))}{Sales_{t-1}(\#12)}\right)$ |
| *ACCR* | Accruals | $\left(\frac{[Net\ Income\ (\#123) - Cash\ from\ Operations\ (\#308-\#124)]}{Sales\ (\#12)}\right)$ |
| *AD* | Advertising Expenses Scaled by Lagged Advertising Expenses | $100\ x\ \left(\frac{Advertising\ Expense\ (\#45)_t}{Advertising\ Expense\ (\#45)_{t-1}}\right)$ |
| *AGE* | Executive Age | Executive Age for Each Observation year as reported in Execucomp Database |
| *AGE_INDICATOR* | Executive Age Indicator Variable | Indicator variable that equals '1' if *AGE* > 55; and '0' otherwise. |
| *AGGR* | Aggressive Reporting Executive | Indicator variable that equals '1' if either *AGGR_AEM or AGGR_REM* are one and '0' otherwise. |
| *AGGR_AEM* | Aggressive AEM Reporting Executive | Indicator variable that equals '1' if the observation is non-negative and ranks in the top decile for the estimated discretionary accrual as found using the performance-adjusted Jones model (Kothari et al. 2005) and '0' otherwise. Diverting from prior literature, if Compustat's variable for Current Assets or Current Liabilities was blank, I calculated this variable using the components of the variable from the WRDS database in this paper. |
| *AGGR_REM* | Aggressive REM Reporting Executive | Indicator variable that equals '1' if the observation is non-negative and ranks in the top decile for the estimated discretionary accrual, multiplied by a negative one, as found using the abnormal operating cash flows defined by Roychowdhury (2006) and '0' otherwise. Diverting from prior literature, if Compustat's variable for Current Assets or Current Liabilities was blank, I calculated this variable using the components of the variable from the WRDS database in this paper. |
| *ATO* | Asset Turnover Ratio | Asset Turnover Ratio, defined as: $\left(\frac{Sales_t\ (\#12)}{(NOA_t + NOA_{t-1})/2}\right)$<br>Where NOA is equal to Operating Assets – Operating Liabilities.<br>Operating Assets = Total Assets (#6) – (Cash (#1) + (Short-term Investments (#32))<br><br>Operating Liabilities = Total Assets (#6) – Total Debt (#9+#34) – Equity (#60+#130) – Minority Interests (#38)<br><br>The average NOA must be positive. |
| *BENEFIT* | Beneficial Situation | Indicator variable that equals '1' if *NEW_DEBT, LOSS_AVOID,* or *INSUFF_CF* equals one and '0' otherwise. |

| | | |
|---|---|---|
| *BTM* | Book-to-Market | The ratio of Book Value to Market Value: $\left(\frac{Common/Ordinary\ Equity - Total\ (\#60)}{[Common\ Shares\ (\#25)\ x\ Price\ Close\ (\#199)]}\right)$ |
| *COGS* | COGS Scaled by Lagged COGS Expenses | $100\ x\ \left(\frac{COGS_t\ (\#41)}{COGS_{t-1}\ (\#41)}\right)$ |
| *FF* | Family Firm Indicator Variable | Indicator variable that equals '1' if the observation is identified as a Family Firm in the Global Family Business Index by Ernst & Young and the University of St. Gallen and '0' otherwise. |
| *FINAL* | Executive Final Year | Indicator variable that equals '1' if the Compustat Executive ID is not in the data set in t+1 and '0' otherwise. |
| *HORIZON* | Horizon Period Indicator Variable | Product of two indicator variables (*AGE_INDICATOR x FINAL*) |
| *INSUFF_CF* | Insufficient Cash Flow for Operational Growth | Indicator variable that equals '1' if lagged CAPEX exceeds lagged CFO and '0' otherwise.<br><br>The Capex formula from the income statement and balance sheet is as follows:<br>$CapEx\ =\ PP\&E_t - PP\&E_{t-1} + Depreciation_t$ |
| *IVNCF* | Investment Cash Flow | Investing Activities Net Cash Flow (*IVNCF* [#311]) |
| *INVEST_CF* | Investment Cash Flow Scaled by Lagged Assets | $100\ x\ \left(\frac{-1\ x\ IVNCF}{Total\ Assets_{t-1}}\right)$ |
| *IG* | LHT Indicator Variable (1 = *IG* CEO) | Product of two indicator variables ($BENEFIT_a$ *x* $AGGR_a$), where *a* represents any observation year during the sample period. |
| *IG_AEM* | LHT Indicator Variable (Aggressive AEM Reporting Executive) | *AGGR_AEM x BENEFIT* |
| *IG_CF* | LHT Indicator Variable (Insufficient Cash Flow for Operational Growth) | *AGGR x INSUFF_CF* |
| *IG_LA* | LHT Indicator Variable (Loss Avoidance) | *AGGR x LOSS_AVOID* |
| *IG_ND* | LHT Indicator Variable (New Debt) | *AGGR x NEW_DEBT* |
| *IG_REM* | LHT Indicator Variable (Aggressive REM Reporting Executive) | *AGGR_REM x BENEFIT* |

| | | |
|---|---|---|
| *IG_YS* | LHT Indicator Variable (Year Specific) | Product of two conditional variables ($BENEFIT_t x\ AGGR_t$), where *t* represents the observation year. |
| *LOSS_AVOID* | Loss Avoidance | Indicator variable that equals '1' if a firm's net income scaled by lagged total assets is 0%–2% and '0' otherwise. |
| *NEW_DEBT* | New Long-term Debt | Indicator variable if the difference in long-term debt between years t-1 and t+1 is positive. |
| *OCF* | Operating Cash Flow | $\left(\frac{Operating\ Activities\ Net\ Cash\ Flow\ (\#308)}{Lagged\ Total\ Assets\ (\#6)}\right)$ |
| *OPTIONS* | Total Options Scaled by Total Compensation Reported | Execucomp Reported: Unexercised Options [Unexercisable Options (Value) + Exercisable Options (Value)) / Total Salary Reported to SEC |
| *RD* | R&D Expenses Scaled by Lagged R&D Expenses | $100\ x\ \left(\frac{Research\ and\ Development\ Expense\ (\#46)_t}{Research\ and\ Development\ Expense\ (\#46)_{t-1}}\right)$ |
| *RESTRICTED* | Total Restricted Stocks Scaled by Total Compensation Reported | Execucomp Reported: Restricted Stocks / Total Salary Reported to SEC |
| *ROA* | Return on Assets | $\left(\frac{Income\ Before\ Extraordinary\ Items\ (\#13)}{(Total\ Assets\ (\#6)\ +\ Lagged\ Total\ Assets\ (\#6))/2}\right)$ |
| *SGA* | SG&A Expenses Scaled by Lagged SG&A Expenses | $100\ x\ \left(\frac{SG\&A\ (\#132)_t}{SG\&A\ (\#132)_{t-1}}\right)$ |
| *SIZE* | Size | The Logarithm of Total Assets (#6) |
| *TENURE* | Tenure as a CEO or CFO | The chronological observation count of the executive by the unique GVKEY, by CEO or CFO indicators from Execucomp. |
| *TENURE_HIGH* | Long Tenure with Company | Indicator variable that equals '1' if the observation is in the top decile of *TENURE* each year and within each two-digit SIC industry code and '0' otherwise. |
| *TENURE_LOW* | Short Tenure with Company | Indicator variable that equals '1' if the observation is in the bottom decile of *TENURE* each year and within each two-digit SIC industry code and '0' otherwise. |

# APPENDIX B: RESULTS OF THE BALANCING PROCEDURE

Post-Balancing

| | Treated Units | | | Control Units | | |
|---|---|---|---|---|---|---|
| | Mean | Variance | Skewness | Mean | Variance | Skewness |
| *TENURE* | 5.931 | 19.610 | 1.113 | 5.931 | 19.610 | 1.113 |
| *SIZE* | 6.884 | 2.291 | 0.467 | 6.884 | 2.292 | 0.467 |
| *BTM* | 0.506 | 0.234 | 1.463 | 0.506 | 0.234 | 1.464 |
| *OCF* | 0.105 | 0.013 | -0.014 | 0.105 | 0.013 | -0.014 |
| *ROA* | 0.023 | 0.018 | -1.807 | 0.023 | 0.018 | -1.807 |
| *ATO* | 3.417 | 15.050 | 3.666 | 3.416 | 15.050 | 3.666 |
| *ACCR* | -0.001 | 0.057 | -3.626 | -0.001 | 0.057 | -3.626 |
| *ACCR (T-1)* | 0.005 | 0.055 | -3.822 | 0.005 | 0.055 | -3.822 |
| Δ_*SALES* | 0.121 | 0.085 | 1.766 | 0.121 | 0.085 | 1.767 |
| Δ_*NEG_SALES* | -0.040 | 0.009 | -2.988 | -0.040 | 0.009 | -2.988 |

Observations Treated

Treated units: 11,303 Total of weights: 11,303
Control units: 15,442 Total of weights: 11,303

Descriptive Statistics

| | *n* | Mean | Median | Standard Deviation | Min | 1st Percentile | 25th Percentile | 75th Percentile | 99th Percentile | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Weights | 26,745 | 0.845 | 1.000 | 0.685 | 0.051 | 0.118 | 0.467 | 1.000 | 2.882 | 35.760 |

# APPENDIX C: FAMILY BUSINESS INDEX

| Rank | Company | Founding | Revenues | Employees | Family | Shareholding | Family CEO? |
|---|---|---|---|---|---|---|---|
| 1 | Wal-Mart Inc. | 1962 | 559.1 | 2,300,000 | Walton | 48.90% | No |
| 2 | Berkshire Hathaway, Inc. | 1955 | 245.5 | 360,000 | Buffett | 37.20% | Yes |
| 5 | Ford Motor Company | 1919 | 127.1 | 186,000 | Ford | 40.00% | No |
| 9 | Comcast Corp. | 1936 | 103.6 | 168,000 | Roberts | 33.80% | Yes |
| 10 | Dell Technologies Inc. | 1984 | 94.2 | 158,000 | Dell | 75.00% | Yes |
| 28 | Tyson Foods Inc. | 1935 | 43.2 | 139,000 | Tyson | 70.60% | No |
| 34 | Nike Inc. | 1964 | 37.4 | 75,400 | Knight | 84.20% | No |
| 52 | Enterprise Products Partners LP | 1968 | 27.2 | 7,130 | Duncan | 32.10% | No |
| 58 | ViacomCBS INC | 1986 | 25.3 | 22,109 | Redstone | 79.90% | No |
| 70 | Lennar Corporation | 1954 | 22.5 | 9,495 | Miller | 58.10% | No |
| 108 | Estee Lauder Cos., Inc. | 1946 | 14.3 | 48,000 | Lauder | 86.00% | No |
| 114 | The GAP | 1969 | 13.8 | 117,000 | Fisher | 46.90% | No |
| 127 | Fox Corporation | 1979 | 12.3 | 9,000 | Murdoch | 39.70% | Yes |
| 137 | Universal Health Services, Inc. | 1979 | 11.6 | 89,000 | Miller | 89.40% | Yes |
| 153 | Marriott International, Inc. | 1927 | 10.6 | 121,000 | Marriott | 81.40% | No |
| 169 | Molson Coors Brewing Co. | 1786 | 9.7 | 17,000 | Coors and Molson | 95.50% | No |
| 170 | Hormel Foods Corp. | 1891 | 9.6 | 19,100 | Hormel | 47.50% | No |
| 171 | Dick's Sporting Goods, Inc. | 1948 | 9.6 | 50,100 | Stack | 56.00% | No |
| 175 | Liberty Media Corp. | 1945 | 9.4 | 4,555 | Malone | 48.30% | No |
| 190 | Campbell Soup Co. | 1869 | 8.7 | 14,500 | Dorrance | 32.50% | No |
| 193 | Constellation Brands Inc | 1972 | 8.6 | 9,300 | Sands | 58.40% | No |
| 219 | Westlake Chemical Corp | 1986 | 7.5 | 9,220 | Chao | 73.10% | Yes |
| 231 | Seaboard Corporation | 1918 | 7.1 | 13,100 | Bresky | 78.30% | Yes |
| 241 | Icahn Enterprises L.P. | 1987 | 6.8 | 23,800 | Icahn | 91.90% | No |
| 244 | Thomson Reuters Corp | 1851 | 6.7 | 24,000 | Thomson | 66.00% | No |
| 266 | Dillards, Inc. | 1938 | 6.3 | 27,000 | Dillard | 81.60% | Yes |
| 277 | Ralph Lauren Corp. | 1967 | 6.2 | 23,381 | Lauren | 84.00% | No |
| 283 | Sinclair Broadcast Group, Inc. | 1971 | 5.9 | 11,600 | Smith | 81.10% | No |
| 302 | Franklin Resources, Inc. | 1947 | 5.6 | 11,800 | Johnson | 42.70% | Yes |
| 322 | Telephone & Data Systems, Inc. | 1969 | 5.2 | 9,200 | Carlson | 56.80% | Yes |
| 330 | Amkor Technology, Inc. | 1968 | 5 | 29,050 | James J Kim | 58.90% | No |
| 333 | Coca-Cola Consolidated, Inc. | 1902 | 5 | 15,800 | Harrison | 86.20% | Yes |
| 353 | Coty Inc | 1904 | 4.7 | 18,260 | Reimann | 60.00% | No |
| 359 | Knight-Swift Transportation Holdings Inc. | 1966 | 4.7 | 24,000 | Moyes and Knight | 43.90% | No |
| 366 | Ingles Markets, Inc | 1963 | 4.6 | 27,000 | Ingle | 72.90% | No |
| 369 | Skechers U.S.A., Inc. | 1992 | 4.6 | 11,700 | Greenberg | 56.70% | Yes |
| 371 | Schneider National Inc. | 1935 | 4.5 | 15,225 | Schneider | 93.10% | No |
| 376 | Kelly Services, Inc. | 1946 | 4.5 | 7,100 | Adderley | 91.60% | No |
| 383 | Warner Music Group Corp. | 1929 | 4.5 | 5,500 | Blavatnik | 98.60% | No |
| 384 | Levi Strauss & Co. | 1853 | 4.5 | 14,800 | Haas | 70.90% | No |
| 401 | Fresh Del Monte Produce Inc | 1886 | 4.2 | 37,600 | Abu-Ghazaleh | 35.20% | Yes |
| 407 | Weis Markets Inc | 1912 | 4.1 | 24,000 | Weis | 65.00% | Yes |
| 420 | AMERCO | 1945 | 4 | 30,000 | Shoen | 58.50% | Yes |
| 434 | American National Insurance Co. | 1905 | 3.8 | 4,600 | Moody | 70.40% | No |
| 438 | Steelcase Inc. | 1912 | 3.7 | 12,700 | Pew and Welch | 34.20% | No |
| 461 | Hub Group, Inc. | 1971 | 3.5 | 5,000 | Yaeger | 62.20% | Yes |
| 482 | Brown-Forman Corp | 1870 | 3.4 | 4,800 | Brown | 56.10% | No |

## APPENDIX D: COVARIATE PRINCIPAL COMPONENT ANALYSIS

Appendix D shows the loadings for control variables on each principal component. Panel A shows the eigenvalues, proportion of variance explained, and cumulative proportion of variance explained by each principal component. The eigenvalue represents the amount of variability accounted for by each component. The variance explained shows the proportion of the total variability explained by each component, and the cumulative proportion explained shows the cumulative proportion of total variability explained by each component up to that point. I retain the initial four components following the Kaiser-Guttman criterion since incorporating components with eigenvalues greater than one explains more variance in the data than a single original variable (Kaiser 1960).

Panel B provides the loadings, or coefficients, of the variables on each principal component; these loadings provide information on how much each variable contributes to that component and represent the extent to which each variable "loads" on each principal component. Variables with high positive loading on Component 1 include *OCF*, *ROA*, *ACCR*, and $ACCR_{(t-1)}$, all indicators of a company's profitability. *OCF* measures a company's cash generation from its core operations. Higher *OCF* suggests that a company efficiently generates cash from its primary business activities. *ROA* measures a company's profitability relative to its total assets. Higher *ROA* suggests that a company generates more profits per dollar of assets, indicating financial efficiency. The change in accounting accruals measures a company's earnings quality. A lower *ACCR* (i.e., lower increase in accruals) suggests that a company's earnings are more reliable, a positive indicator of financial health; this suggests that Component 1 reflects a company's ability

to generate profits from its operations while utilizing its assets efficiently and represents financial performance.

The component appears to be driven by a combination of high values in *SIZE*, *TENURE*, and to a lesser extent, $ACCR_{(t-1)}$ and *BTM*. These variables have positive loadings on Component 2, which suggests that firms with larger sizes and longer tenure, and higher levels of accruals and book-to-market ratios tend to exhibit similar patterns of variation in their financial characteristics. On the other hand, Component 2 is negatively correlated with *ATO* and Δ_*SALES*, which means that firms with lower asset turnover and negative sales growth are also more likely to exhibit these characteristics. The negative loading on *ATO* suggests that value-oriented factors, such as $ACCR_{(t-1)}$ and *BTM*, have higher precedence than growth-oriented ones and suggest that larger firms with higher stability strongly align with this component; consequently, this component represents size and stability.

Component 3 has relatively high positive loadings on *SIZE*, *TENURE*, and $ACCR_{(t-1)}$ and high negative loadings on *ATO* and *OCF*; this suggests that Component 3 represents a trade-off between size and efficiency. The component seems to capture a pattern where companies with larger sizes, longer tenures, lower book-to-market ratios, lower operating cash flows, lower return on assets, and higher asset turnover tend to have greater changes in sales. The negative loadings for *OCF* and *ROA* indicate that companies with lower operating cash flows and a lower return on assets tend to have greater changes in sales. The positive loading for *BTM* suggests that companies with lower book-to-market ratios tend to have greater changes in sales, while the positive loading for *TENURE* and *SIZE* suggests that companies with longer tenures and larger

sizes also tend to have greater changes in sales; this component represents the firm's operating efficiency.

The positive loadings of *TENURE* and *OCF* on Component 4 indicate that firms with longer-tenured CEOs and higher *OCF* are generally more reliable. Additionally, the negative loadings of *BTM, ROA*, *ACCR*, and Δ_*NEG_SALES* suggest that firms with lower values of these variables may be less reliable. Additionally, the component appears to be driven primarily by the company's book-to-market ratio (*BTM*), with a negative loading of -0.605; this suggests that companies with a higher BTM ratio (i.e., those that are perceived to be undervalued by the market) are associated with higher scores; this component 4 represents the firm's reliability.

Panel A:
Principal Component Analysis

| Component | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Comp1 | 3.035 | 1.493 | 0.304 | 0.304 |
| Comp2 | 1.542 | 0.412 | 0.154 | 0.458 |
| Comp3 | 1.130 | 0.125 | 0.113 | 0.571 |
| Comp4 | 1.005 | 0.139 | 0.101 | 0.671 |
| Comp5 | 0.866 | 0.114 | 0.087 | 0.758 |
| Comp6 | 0.751 | 0.178 | 0.075 | 0.833 |
| Comp7 | 0.574 | 0.028 | 0.057 | 0.890 |
| Comp8 | 0.546 | 0.154 | 0.055 | 0.945 |
| Comp9 | 0.392 | 0.233 | 0.039 | 0.984 |
| Comp10 | 0.159 | . | 0.016 | 1.000 |

Panel B:
Principal Components (eigenvectors)

| Variable | Comp 1 | Comp 2 | Comp 3 | Comp 4 | Comp 5 | Comp 6 | Comp 7 | Comp 8 | Comp 9 | Comp 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| *TENURE* | 0.030 | 0.335 | 0.349 | 0.521 | 0.628 | -0.309 | -0.010 | 0.034 | 0.063 | 0.001 |
| *SIZE* | 0.079 | 0.431 | 0.421 | 0.245 | -0.376 | 0.607 | 0.234 | 0.061 | 0.043 | 0.001 |
| *BTM* | -0.228 | 0.164 | 0.055 | -0.605 | 0.565 | 0.335 | 0.335 | 0.074 | -0.041 | -0.030 |
| *OCF* | 0.413 | 0.007 | -0.222 | 0.067 | -0.058 | -0.247 | 0.683 | 0.358 | -0.277 | 0.198 |
| *ROA* | 0.506 | 0.099 | -0.115 | -0.072 | 0.059 | -0.005 | 0.127 | -0.403 | 0.098 | -0.724 |
| *ATO* | 0.076 | -0.332 | -0.474 | 0.457 | 0.332 | 0.576 | -0.028 | 0.068 | 0.049 | 0.024 |
| *ACCR* | 0.482 | 0.166 | -0.058 | -0.179 | 0.101 | 0.069 | -0.121 | -0.443 | 0.236 | 0.651 |
| *ACCR (t-1)* | 0.348 | 0.341 | -0.164 | -0.197 | 0.032 | 0.052 | -0.508 | 0.648 | 0.069 | -0.102 |
| Δ_*SALES* | 0.217 | -0.534 | 0.427 | -0.093 | 0.035 | -0.009 | 0.133 | 0.279 | 0.616 | -0.025 |
| Δ_*NEG_SALES* | 0.330 | -0.355 | 0.445 | -0.071 | 0.126 | 0.151 | -0.241 | -0.032 | -0.681 | 0.011 |

## APPENDIX E: CORRELATION MATRIX

Appendix E presents the correlations between model variables using the two panels below. The initial panel provides correlations related to dependent and independent variables that are theoretically highly correlated, specifically discretionary spending as the dependent variable and real earnings management (used to determine *AGGR* in the *IG* indicator) as the independent variable. Panel B then provides the coefficients for variables used in the primary analysis.

The correlation is low in Panel A between measures of discretionary spending (Rows 1-4) and the indicator variables used to designate *IG* CEOs (Columns 10-16), with the highest Spearman correlation coefficient of 0.11, suggesting the limitation of the *IG* indicator variable to beneficial situations seems to alleviate a significant correlation between the dependent and independent variables. A further reduction in correlation occurs when the *IG* designation is distributed to each CEO-specific year, regardless of whether the CEO used aggressive earnings management during that period. Components of variables and those used as substitutes are highly correlated. For example, *AGGR* and *IG_YS* are highly correlated ($\rho = 0.78$); however, *AGGR* is a condition for *IG_YS*.

Panel B presents the coefficients for all variables used in the primary analysis. $ACCR_t$ is highly correlated ($\rho = 0.68$); with $ACCR_{t-1}$, as expected. Furthermore, *ROA* is highly correlated ($\rho = 0.88$) with $ACCR_t$ since accruals are an earnings management mechanism influencing the numerator of *ROA*. Also, as expected, $\Delta$_*SALES* is highly correlated ($\rho = 0.78$); with $\Delta$_*NEG_SALES.*[1] The high correlations in either panel are not detrimental to the inferences provided by the analysis.

[1] The highest variance inflation factor (VIF) for the primary regression model is 3.97.

# APPENDIX E: CORRELATION MATRIX

| Panel A: | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | *RD* | | **0.15** | **0.34** | **0.09** | **-0.08** | **-0.04** | **-0.04** | **-0.05** | **-0.13** | **-0.04** | **0.14** | **-0.13** | **-0.11** | **-0.04** | -0.02 | **-0.07** |
| (2) | *AD* | | | **0.50** | **0.23** | **-0.06** | **-0.04** | **-0.04** | 0.00 | **-0.06** | 0.00 | **-0.02** | 0.01 | **-0.04** | 0.01 | **-0.02** | 0.01 |
| (3) | *SGA* | | | | **0.40** | **-0.10** | **-0.06** | **-0.06** | 0.00 | **-0.14** | -0.01 | -0.01 | -0.01 | **-0.12** | -0.01 | **-0.04** | 0.01 |
| (4) | *INVEST_CF* | | | | | **-0.05** | **-0.06** | **-0.05** | **0.08** | **0.03** | **-0.04** | **-0.08** | 0.01 | 0.01 | **-0.03** | **-0.05** | **-0.04** |
| (5) | *AGE* | | | | | | **0.11** | **0.27** | 0.01 | -0.01 | 0.01 | -0.02 | 0.00 | 0.00 | **0.02** | -0.02 | **0.03** |
| (6) | *AGE_INDICATOR* | | | | | | | **0.82** | **0.03** | **0.07** | **-0.09** | **-0.07** | **-0.06** | **0.07** | **-0.07** | **-0.03** | **-0.03** |
| (7) | *HORIZON* | | | | | | | | **0.02** | **0.04** | **-0.07** | **-0.06** | **-0.05** | **0.05** | **-0.05** | **-0.03** | **-0.03** |
| (8) | *BENEFIT* | | | | | | | | | **0.02** | **0.09** | **0.11** | **0.04** | **0.32** | **0.09** | **0.04** | **0.11** |
| (9) | *AGGR* | | | | | | | | | | **0.41** | **0.18** | **0.43** | **0.78** | **0.38** | **0.18** | **0.38** |
| (10) | *IG* | | | | | | | | | | | **0.69** | **0.74** | **0.41** | **0.82** | **0.32** | **0.64** |
| (11) | *IG_AEM* | | | | | | | | | | | | **0.27** | **0.22** | **0.53** | **0.26** | **0.51** |
| (12) | *IG_REM* | | | | | | | | | | | | | **0.40** | **0.62** | **0.25** | **0.48** |
| (13) | *IG_YS* | | | | | | | | | | | | | | **0.39** | **0.18** | **0.39** |
| (14) | *IG_ND* | | | | | | | | | | | | | | | **0.27** | **0.47** |
| (15) | *IG_LA* | | | | | | | | | | | | | | | | **0.28** |
| (16) | *IG_CF* | | | | | | | | | | | | | | | | |

| Panel B: | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | *RD* | | **0.15** | **0.34** | **0.09** | **-0.04** | **-0.04** | 0.02 | **-0.05** | **-0.14** | 0.00 | -0.01 | **-0.20** | **0.20** | **0.24** | **0.30** | **0.15** |
| (2) | *AD* | | | **0.50** | **0.23** | **-0.04** | 0.00 | **-0.02** | **-0.04** | **-0.12** | **0.13** | **0.14** | **0.06** | **0.12** | **0.13** | **0.43** | **0.34** |
| (3) | *SGA* | | | | **0.40** | **-0.06** | -0.01 | **-0.05** | **-0.12** | **-0.19** | **0.21** | **0.19** | **0.06** | **0.19** | **0.21** | **0.78** | **0.57** |
| (4) | *INVEST_CF* | | | | | **-0.05** | **-0.04** | **-0.04** | **-0.04** | **-0.16** | **0.37** | **0.21** | **0.07** | **0.19** | **0.21** | **0.40** | **0.31** |
| (5) | *HORIZON* | | | | | | **-0.07** | **0.10** | **0.04** | **0.04** | **-0.05** | **-0.05** | 0.00 | **-0.06** | **-0.03** | **-0.07** | **-0.05** |
| (6) | *IG* | | | | | | | **0.13** | **-0.17** | **0.07** | **-0.12** | **-0.14** | **0.18** | **-0.21** | **-0.21** | **-0.02** | **-0.06** |
| (7) | *TENURE* | | | | | | | | **0.15** | **-0.02** | **0.05** | **0.06** | **-0.10** | **0.09** | **0.11** | **-0.05** | **0.02** |
| (8) | *SIZE* | | | | | | | | | **-0.14** | **0.05** | **0.10** | **-0.21** | **0.18** | **0.19** | **-0.12** | 0.00 |
| (9) | *BTM* | | | | | | | | | | **-0.42** | **-0.43** | **-0.14** | **-0.39** | **-0.32** | **-0.24** | **-0.21** |
| (10) | *OCF* | | | | | | | | | | | **0.70** | **0.24** | **0.59** | **0.47** | **0.26** | **0.28** |
| (11) | *ROA* | | | | | | | | | | | | **0.25** | **0.84** | **0.56** | **0.26** | **0.32** |
| (12) | *ATO* | | | | | | | | | | | | | **-0.08** | **-0.14** | **0.07** | **0.08** |
| (13) | *ACCR* | | | | | | | | | | | | | | **0.68** | **0.27** | **0.29** |
| (14) | *ACCR (T-1)* | | | | | | | | | | | | | | | **0.14** | **0.16** |
| (15) | *Δ_SALES* | | | | | | | | | | | | | | | | **0.76** |
| (16) | *Δ_NEG_SALES* | | | | | | | | | | | | | | | | |

Notes: The table presents pairwise correlations between regression variables and provides Spearman correlation coefficients above. All variable definitions are in Appendix A. Bold coefficients indicate statistical significance at the 0.10 level.

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