

# How Managers Communicate about Capital Budgeting to Investors

Robert Battalio  
Mendoza College of Business  
University of Notre Dame  
rbattali@nd.edu

Tim Loughran  
Mendoza College of Business  
University of Notre Dame  
Loughran.9@nd.edu

Bill McDonald  
Mendoza College of Business  
University of Notre Dame  
mcdonald.1@nd.edu

December 16, 2024

## ABSTRACT

We create a lexicon of 45 capital budgeting terms and document manager language usage in earnings conference calls during 2010-2020. Managers often use technical language like *free cash flow*, *operating income*, *return on investment*, and *return on capital* during conference calls. We substantiate the survey evidence of Graham and Harvey (2001) by demonstrating that managers frequently use concepts like *payback period* and *ROI*. Managers of large firms generating more positive financial performance tend to talk more about capital budgeting in earnings calls. We also find that managers mention the non-GAAP term *EBITDA* significantly more often when a company's net income is negative.

**JEL codes:** D82; D83; G14; G31; G32.

**Key words:** Textual analysis; conference calls; capital budgeting; EBITDA; free cash flow; job transitions.

We thank Richard Folger, Paul Gao, John Graham, John Loudis, Jay Ritter, John Shim, Vincent Tena (discussant), Richard Warr (discussant), seminar participants at Queen's University-Belfast, 2024 FMA Meeting, Florida International University, and the 2024 Conference of the French Finance Association for helpful suggestions. Ray Alavo and James Ng provided excellent research assistance.

## 1. Introduction

How do managers participating in conference calls actually convey capital budgeting information to investors? By examining language usage during earnings conference calls, we can identify capital budgeting terms that managers believe are relevant to their firm's operations and important for investors to be cognizant of. The first step in this process is to create a list of words associated with capital budgeting. We create a lexicon of 45 capital budgeting terms that managers could potentially use during quarterly earnings conference calls in their prepared statement or in the question and answer (Q&A) segment of the call. The seminal results from the surveys initiated by Graham and Harvey (2001) motivate our focus on capital budgeting terminology. As Graham and Harvey (2001) note, "Surveys measure beliefs and not necessarily actions" (page 189). As evidenced by the recent SEC fine and class action lawsuit against NVIDIA, managers cannot make statements that are knowingly misleading as a public company.<sup>1</sup> Therefore, comments made in conference calls are important in corroborating the likely truth of survey responses.

Graham and Harvey's (2001) Table 2 contains a list of various capital budgeting methods (i.e., internal rate of return (IRR), net present value (NPV), payback, and hurdle rate) that provide an initial basis for our list. Our paper supplements their list, following the technique advocated by Loughran and McDonald (2011), by examining capital-budgeting terms, including performance-related terms that fall within the penumbra of capital budgeting (e.g., *operating income*, *operating profit*, and *economic profit added*), frequently used in corporate finance and valuation textbooks. The terms we select could be one word or a common phrase. We find that the most frequently

---

<sup>1</sup> Plaintiffs alleged that NVIDIA made false and/or misleading statements in several conference calls. See Michael Oto et al. v. NVIDIA Corporation, Jen-Hsu Huang, and Colette Kress, available at: <https://www.courthousenews.com/wp-content/uploads/2018/12/Shareholder.pdf>. News article on NVIDIA's failure to properly disclose the impact of cryptomining on its gaming business: <https://www.reuters.com/technology/us-sec-charges-nvidia-with-inadequate-disclosures-about-impact-cryptomining-2022-05-06/>.

occurring capital budgeting terms in conference calls are *cash flow*, *EBITDA*, *free cash flow*, *operating income*, *operating profit*, *capital spending*, *capital investment*, and *EBIT*.

Our paper reports the results of analyzing language contained in 96,568 earnings conference calls generated by 4,530 unique companies during the 2010-2020 period. First, we substantiate the survey evidence of Graham and Harvey (2001), who, using a sample of 392 chief financial officers (CFOs), asked in their initial study over 100 questions pertaining to capital budgeting, cost of capital, and capital structure. We find, on average, that more than eight of the capital budgeting tokens are utilized during an earnings conference call. More than 87% of conference calls use at least one of the capital budgeting terms one or more times. Managers' use of terms like *ROI*, *IRR*, *return on invested capital (ROIC)*, *payback period*, and *discount rate* during a conference call, when discussing their firm's operations with investors and analysts, provides compelling evidence of the actual use of these methods in practice. The results also document which financial measures managers think are most important when describing their operating performance to investors. While our results confirm Graham and Harvey's (2001) finding that the concept of capital budgeting is an important operational component in the vast majority of firms, we find that the relative importance of the individual terms varies widely between managers' survey responses and their usage in earnings conference calls.

For example, Yum! Brands CEO David Novak in a July 2014 earnings conference call states during his prepared comments, "That's because in China, we now generate 3-year cash paybacks at KFC as we've improved the business model and 2-year cash paybacks at Pizza Hut Casual Dining." This is direct evidence that *payback* is one of Yum! Brands central evaluation techniques. Likewise, in a January 2011 Amazon conference call, CFO Thomas Szkutak began the presentation by stating, "Trailing 12-month free cash flow decreased 14% to \$2.52 billion. Return

on invested capital was 34%, down from 66%.” The immediate use of *free cash flow* and *return on invested capital* in the prepared statement provides evidence on what Amazon believes are some of their key operating performance metrics for their capital budgeting decisions. The credibility of this signal in using these capital budgeting terms is underscored by the fact that much of the conference call dialog by managers is carefully scripted.

Graham and Harvey (2001) are intrigued by the relatively high usage of payback as a project evaluation technique in their survey results. They state on page 200, “This is surprising because financial textbooks have lamented the shortcomings of the payback criterion for decades. (Payback ignores the time value of money and cash flows beyond the cutoff date; the cutoff is usually arbitrary.)” Part of a manager’s usage of payback period may not deal with a lack of sophistication as argued by Graham and Harvey (2001), but relate to how profitable the projects are. If Yum! Brands has available projects in China with a payback period of only two years, highly complicated evaluation models are irrelevant in deciding whether to do the project.

In 4.44% of all conference calls, managers mention, at least once, the tokens *payback*, *pay back*, *pay back period*, or *payback period*. The payback tokens appear 6,185 times in the conference call transcripts. The usage of *payback* and *payback period* by managers is consistent with the Graham and Harvey (2001) assertion that CFOs often use simple valuation metrics in at least part of their capital budgeting process. In addition, Graham (2022) notes that managers increasingly have a short-term focus given their inability to have reliable corporate plans beyond two years. He argues, on page 1977, that “A short and decreasing reliability horizon makes planning difficult and affects corporate decisions, such as encouraging a focus on short-term investment projects.”

Second, we report that some capital budgeting terms almost never occur in conference calls. For example, the tokens *capital asset pricing model (CAPM)*, *real options*, and *simulation analysis* rarely appear in any earnings conference calls. Although Graham and Harvey (2001) note that the majority of CFO survey respondents say they always use CAPM in their capital budgeting process, the term appears only five times in 96,568 earnings conference calls during our sample period. Presumably, managers do not feel the need to walk analysts and investors through technical details when discussing their capital budgeting opportunities.

Third, in terms of who uses the terms, we find that firms with higher capital budgeting counts have strong prior accounting and stock market performance. Higher capital budgeting usage firms also tend to have less R&D intensity and lower Tobin's Q. We also document that capital budgeting terms are disproportionally used by firms in capital intensive commodity and manufacturing industries, consistent with the strength of our capital budgeting lexicon. In terms of average capital budgeting token counts, Telecommunications, Coal, Automobiles, Fabricated Products, and Agriculture are the top Fama and French (1997) 49-industries. Conversely, Banking, Pharma, Trading, Apparel, and Insurance have the lowest average capital budgeting term usage by managers. The difference is that firms investing in "bricks and mortar" assets are more likely to focus on these metrics than service industry firms for which customer acquisition costs and retention rates are more important. More of a startup biotech or pharma firm's conference call will likely be devoted to discussing cash burn rates and scientific progress discussions.

Fourth, we document that capital budgeting term usage spoken by managers peaks in the first quarter of the calendar year. This finding simply illustrates the information density of annual versus quarterly communications, since the majority of the firms have December fiscal year ends.

When managers discuss annual accounting performance with analysts, they tend to increase their usage of capital budgeting terms.

Fifth, we document how manager's word selections vary on the basis of whether or not net income is positive. If the firm has positive net income, managers use phrases like *cash flow*, *free cash flow*, *operating income*, and *operating profit* significantly more often than if net income is negative. In contrast, when net income is negative, managers have significantly higher counts of the non-GAAP phrase *EBITDA*. This finding is consistent with Loughran and McDonald's (2016) assertion that "managers direct investor's attention to non-GAAP numbers when non-GAAP results paint a rosier picture of the firm's prospects" (page 1221).

Lastly, to investigate whether language is firm- or manager-specific, we examine 473 senior managers who transitioned to different firms with at least four conference calls at each company. We find that managers with the job title of CFO or CEO use significantly more capital budgeting tokens than managers with other job titles. Not surprisingly, managers who work in the area of Investor Relations seldomly use any of our Capital Budgeting terms during a conference call in either their first or second jobs. Our multivariate analysis suggests managers who change firms and retain the same job title do not significantly alter their usage of capital budgeting tokens. This suggests that it is the individual, not the firm, who determines the use of capital budgeting tokens in conference calls.

In summary, our paper documents how managers convey capital budgeting insights to analysts and investors in earnings conference calls during 2010-2020. Fairly common usage of words like *cash flow*, *EBITDA*, and *free cash flow* by executives illustrates which terms are most important in communicating their capital budgeting decisions to investors. Interestingly, we find that the executives of firms losing money redirect their vocabulary to emphasize the non-GAAP

term EBITDA. To implement the research, we create a 45-word capital budgeting lexicon that can be used by other researchers.

## **2. Literature Review**

As data on how corporations actually make decisions are not readily available, surveys have been used to better understand how corporate executives evaluate capital budgeting opportunities. Graham and Harvey (2001) note on page 189 that the survey approach “offers a balance between large sample analyses and clinical studies” and allows investigators to “ask very specific and qualitative questions.” The authors note, however, that the survey approach does have some problems as surveys measure self-reported beliefs and not necessarily actions. Furthermore, survey analysis “faces the risk that the respondents are not representative of the population of firms or that the survey questions are misunderstood” (page 189). Our work complements the extensive survey literature by examining conference calls to identify the terms used by managers to describe the capital budgeting process.

Figure 1 of Burns and Walker (2009) lists nineteen studies published between 1984 and 2007 surveying large U.S. corporations on their capital budgeting processes. The most well-known of these papers is the previously discussed paper by Graham and Harvey (2001), who sent questionnaires about capital budgeting, cost of capital, and capital structure to CFOs at 4,440 firms and received 392 useable responses. Most relevant to our work, Graham and Harvey find that, more than 20 years ago, CFOs always or almost always use internal rate of return (76% of respondents), net present value (75%), and the payback capital budgeting method (57%) to evaluate capital budgeting decisions. Graham and Harvey also report that CEOs with MBAs tend to be more likely than non-MBA CEOs to use net present value. Finally, the authors examine whether the payback method is more likely to be used by capital constrained firms and find no

evidence of a relation between the use of the payback method and leverage, credit ratings, or dividend policy. Rather, they find that older, longer-tenured CEOs without an MBA are more likely to use the payback criterion.

Using survey results from March 2019 and March 2020, Graham (2022) finds that at least 75% of large firms indicate they always or almost always use NPV and IRR in their capital budgeting decisions. He also finds that many firms rely on payback and ROIC, which he notes do not directly account for risk or the time value of money. Indeed, for firms with less than \$1 billion in annual revenue, the payback rule is used more frequently than the NPV and the IRR rules. Graham suggests, on page 2033, that his survey results “show that cash flows are a more important determinant of corporate investment than are discount rates...”

Writing that “most large U.S. firms have long used discounted cash flow methods to evaluate investment opportunities” (page 445), Jagannathan et al. (2016) survey CFOs of U.S. companies in the Compustat database to investigate the interest rates used by firms to discount project cash flows. Using completed surveys from 127 CFOs, Jagannathan et al. find that 97% of their sample firms use a discounted cash flow method when making capital budgeting decisions.<sup>2</sup> The authors find that 74% of their sample uses the weighted average cost of capital (WACC) as a basis for their discount rates. Consistent with Graham and Harvey (2001), Jagannathan et al. find that most firms use the CAPM to estimate the cost of equity capital.

Adame et al. (2023) construct a sample of earnings releases from 2004 through 2016 made by S&P 1500 firms to investigate the frequency with which the term “free cash flow” appears. The authors identify 3,086 earnings announcements with at least one mention of free cash flow. Adame

---

<sup>2</sup> In contrast, Huang et al. (2023) find that to justify their valuations, analysts mention the price-to-earnings model 90% of the time compared to 19% for the discounted cash flow model. Décaire and Graham (2024) find an increasing usage by analysts of the discounted cash flow model over the last 20 years.



et al. find that capital-intensive firms and firms with a larger number of onetime events are more likely to disclose free cash flow.

Gompers et al. (2016) survey 79 private equity (PE) firms and find that PE investors rarely use discounted cash flows to evaluate investment opportunities. Rather, PE firms use the internal rate of return (IRR) or the multiple of invested capital (MOIC) metrics. The authors write that the use of IRRs and MOICs by PE investors “contrasts with the results in Graham and Harvey (2001)” who find “that chief financial officers use net present values as often as internal rates of return.” Gompers et al. (2020) survey 885 institutional venture capitalists (VCs) at 681 firms to better understand how VCs make their investment decisions. Similar to PE investors, Gompers et al. find that VCs use the MOIC and the IRR metrics rather than discounted cash flows to evaluate investment opportunities.

Several of the capital budgeting terms searched for in this paper are non-GAAP accounting words or phrases.<sup>3</sup> Bradshaw and Sloan (2002) and Black et al. (2018) present evidence suggesting that non-GAAP earnings are more value relevant than GAAP earnings. Gomez et al. (2023) hand collect earnings press releases for non-GAAP reporters from 2003 through 2010 and find that for a sample of 26,121 earnings press releases with non-GAAP numbers, 16% of firm-quarters have non-GAAP income statements. Gomez et al. find that firms voluntarily disclose non-GAAP income statements when firm and disclosure complexity, analyst following, and institutional ownership are higher. Henry et al. (2020) use textual analysis to examine whether non-GAAP

---

<sup>3</sup> GAAP (generally accepted accounting principles) was developed by the Financial Accounting Standards Board to standardize financial reporting and to provide a uniform set of rules and formats to facilitate analysis by investors and creditors. Investopedia notes that “GAAP is the U.S. financial reporting standard for public companies, whereas non-GAAP is not. Unlike GAAP, non-GAAP results do not include non-recurring or non-cash expenses. Also, because there are no standards under non-GAAP, companies may use different methods for financial reporting. As a result, it is difficult to compare financial results between companies in an industry and between industries.” See <https://www.investopedia.com/articles/financial-analysis/062716/gaap-vs-nongaap-which-should-you-consider-evaluation.asp>.

earnings are emphasized more than GAAP earnings in earnings conference calls. The authors find that firms place greater relative emphasis on non-GAAP earnings and include more general non-GAAP content when the non-GAAP results exceed GAAP results. As will be shown, there is no overlap between the Henry et al. (2020) non-GAAP terms and our capital budgeting lexicon.

The National Investor Relations Institute (1996) states that conference calls are second only to press releases as a means of disseminating corporate information. Matsumoto et al. (2011) examine whether conference calls are incrementally informative over the accompanying press releases. They examine over 10,000 conference calls and find that both the presentation and the discussion segment of conference calls have incremental information content over the accompanying press release.

Heinrichs et al. (2019) utilize a proprietary dataset that identifies institutional clients who listened to conference call broadcasts or downloaded conference call transcripts to investigate if anyone actually consumes conference calls. The authors find that institutional investors who do not hold a position in the firm are the primary consumers of conference calls and they are more likely to hold positions in competitors and purchase the stock in the subsequent quarter. Heinrichs et al. also find that suppliers, strategic partners, bank advisors, consultants, and the media frequently consume conference calls. The authors conclude that “investors who do not have an existing monitoring or contracting relationship with the firm, but who have a valuation interest, are actually the dominant consumers” of conference calls. Together, the conference call literature suggests that firms use conference calls to convey new, value relevant information to potential investors and key stakeholders.

Our paper is most closely related to two contemporaneous papers by Gormsen and Huber. Each paper examines conference calls between 2002 and 2021 and records instances in which

managers share their discount rates and/or their perceived cost of capital. Gormsen and Huber (2023) identify 2,740 firm quarters in which a discount rate is mentioned and compare these ‘perceived’ discount rates with cost of capital estimates obtained using the capital asset pricing model. The authors find that, on average, firms move their perceived discount rates with their cost of capital. Gormsen and Huber (2024) study cost of capital estimates obtained from 3,139 conference calls and find firms with higher ‘perceived’ costs of capital earn higher returns on invested capital and invest less. Our final sample, which consists of 96,568 conference calls between 2010 and 2020, contains 4,059 calls (2.18% of our sample) where the term ‘discount rate’ is mentioned, 1,331 calls (1.03% of our sample) where the term ‘hurdle rate’ is stated, and 874 calls where the term ‘weighted average cost of capital’ (0.68% of our sample) is used. In contrast to Gormsen and Huber (2023, 2024), our primary goal is to understand whether the vast survey evidence on managers use of capital budgeting methods is consistent with the words used by managers to communicate capital budgeting decisions in conference calls.

### **3. Earnings Conference Call Data**

The use of earnings conference calls to analyze manager behavior is well-established in the literature (see Mayew and Venkatachalam (2012), Bradley et al. (2020), Cohen et al. (2020), and Barth et al. (2023)). Capital IQ is our source for the earnings conference call transcripts available from the Wharton Research Data Services (WRDS) website. Although there are some transcripts available before 2010, the bulk of the transcripts on Capital IQ begin in 2010. Thus, our sample

period is 2010 to 2020. There is an upward trend in the number of quarterly observations meeting our screens: 880 in first quarter of 2010 compared to 2,505 in the first quarter of 2020.

Table 1 reports the impact of the various data screens. To enter the final sample, we require the firm to be on the Center for Research in Security Prices (CRSP) at the time of the call, have at least 400 words in the transcript, and not be a delayed transcript. Firms must also be an operating company (i.e., have a CRSP “shrcd” code of 10 or 11) and have available Compustat and CSRP information (i.e., book value of equity, property, plant & equipment, prior stock returns, stock price, and shares outstanding).

Due to the large number of international firms in the Capital IQ database, the screen with the greatest impact is the CRSP requirement (dropping 54,553 firm-quarter observations). We focus on dialogue spoken by managers (i.e., the Capital IQ variable “Executives”) either in the prepared statement (Capital IQ variable “Presenter Speech”) at the beginning of the call or in manager responses (“Answer”) in the Q&A section of the earnings call. The final sample consists of 96,568 firm-quarter earnings conference calls during 2010-2020.

#### **4. Methodology**

There are many previous papers that create particular lexicons from corporate disclosures or newspapers. For example, Bodnaruk et al. (2015) create a list of 184 constraining words to help identify whether or not a firm is financially constrained. To gauge whether companies make misleading statements about diversity in their corporate disclosures, Baker et al. (2024) develop a diversity, equity, and inclusion dictionary. To measure policy uncertainty, Baker, Bloom, and Davis (2016) develop an index of economic policy uncertainty using combinations of works like

“economic” and “regulation” within newspaper articles. Many of these lexicons have been subsequently applied in the burgeoning artificial intelligence literature.

To create our capital budgeting lexicon, we start with the technical terms contained in Graham and Harvey (2001). In their paper, they mention capital budgeting words like *cash flow*, *IRR*, *NPV*, *hurdle rate*, *payback*, *sensitivity analysis*, *price to earnings*, *real options*, *simulation analysis*, *CAPM*, *profitability index*, *capital budgeting*, *accounting rate of return*, *discount rate*, *weighted average cost of capital*, *free cash flow*, and *value at risk*. We included all of the Graham and Harvey terms in our capital budgeting lexicon. In addition, we examine the indexes of best-selling corporate finance (*Corporate Finance* by Ross, Westerfield, and Jordan) and equity valuation (McKinsey & Company’s *Valuation: Measuring and Managing the Value of Companies*) textbooks for commonly used financial terms pertaining to corporate capital budgeting decisions and performance terminology not contained in Graham and Harvey (2001). From these textbooks, we added terms like *ROIC* (*return on invested capital*), *EBITDA*, *EBIT*, *operating income*, *operating profit*, *NOPAT* (*net operating profit after tax*), *enterprise value*, *opportunity cost*, *economic value added (EVA)*, and *economic profit* to our list. Business word usage changes over time. Although Graham and Harvey (2001) do not include the term *ROIC* in their survey, Graham (2022) does include the term in his updated survey. In total, our capital budgeting list contains 45 terms.

Table 2 reports our complete capital budgeting lexicon by order of total counts. Where appropriate, we include the plural of the token in our counts (e.g., *cash flow*, *EBITDA*, *free cash flow*, *EBIT*, *IRR*, and *NPV*). For example, the total count value for *free cash flow* includes the combined counts of both *free cash flow* and *free cash flows*. To simplify the count totals, we also combine full name terms with their acronyms (noted parenthetically in the list). Thus, the counts

for *ROIC* and *ROI* are combined respectively with *return on invested capital* and *return on investment*. Not surprisingly, managers typically use the acronyms for the longer phrases during conference calls. For example, of the total count of 208,386 for *EBITDA*, managers use the phrase *earnings before interest, taxes, depreciation, and amortization* only 15 separate times.

The ten most commonly occurring tokens spoken by managers in earnings conference calls, as reported in Table 2, are *cash flow*, *EBITDA*, *free cash flow*, *operating income*, *operating profit*, *capital spending*, *capital investment*, *EBIT*, *return on investment (ROI)*, and *return on invested capital (ROIC)*. The term *cash flow* appears in more than 68% of all calls (with a total count of more than 272,000) while *return on invested capital (ROIC)* occurs in 4.43% of all calls. Graham (2022) reports in his 2022 survey that 57% of large firm CFOs always or almost always use ROIC when deciding which projects or acquisitions to pursue. Our counts for *ROIC* in earnings conference calls are consistent with the Graham (2022) survey evidence that ROIC is a relatively important capital budgeting technique.<sup>4</sup>

Since some managers focus primarily on one of the capital budgeting tokens, the count totals do not follow the rank order of the percentage of calls pattern. For example, *operating income before depreciation and amortization (OIBDA)* has the twelfth highest total count (4,708). However, the percentage of conference calls mentioning *OIBDA* is only 0.67%, good for the twenty fourth highest percentage among the capital budgeting terms. This highlights the focus by some managers on one or two particular capital budgeting terms while other firms completely

---

<sup>4</sup> In his American Finance Association Presidential Address, Graham (2022) notes the importance of debt-to-EBITDA as a measure of capital structure. He mentions that almost half of large firm CFOs use debt-to-EBITDA as their primary capital structure measure while almost three quarters have it as one of their top three debt metrics. We find that managers are increasingly using *debt-to-EBITDA* during their conference calls. Specifically, in 2010, 3.57% of all conference calls in our sample mention *debt-to-EBITDA* at least once compared to 4.69% of all calls during 2020.

ignore them. As an example, Warner Bros. Discovery executives used the term *OIBDA* 21 times in their 2015-02-19 conference call while more than 99% of the firms never use the acronym.

Figure 1 plots the percentage of calls over time where *cash flow*, *EBITDA*, *free cash flow*, or *operating income* are used by managers at least once during 2010-2020. The figure shows a fairly steady rise in usage of both *EBITDA* and *free cash flow* by managers when describing their operations to analysts and investors while the frequency of *cash flow* remains relatively steady at about 68%.<sup>5</sup> As an example, the percentage of calls mentioning *EBITDA* goes from 30% in first quarter of 2010 to 42% in the last quarter of 2020. It is interesting that an aggressive non-GAAP term like *EBITDA* would see increasing usage by company insiders. Similarly, the fraction of calls mentioning *free cash flow*, another non-GAAP term, by executives has gone from 25% in 2010 to 39% by the end of the sample. In contrast, there is a declining use of *operating income* during calls. This is evidence that business language usage is constantly changing.

As might be expected, several of our 45 capital budgeting terms occur only rarely during conference calls. For example, the tokens *simulation analysis*, *CAPM*, *capital rationing*, and *MIRR* (*modified internal rate of return*) only appear a handful of times during the sample of 96,568 earnings calls. Since these tokens are highly specialized, it makes sense that they only occur infrequently during a call with analysts and investors. That is, although most managers will certainly use *CAPM* in their capital budgeting process to estimate an appropriate discount rate, there does not appear to be justification to mention the specific term during the earnings conference call.

To compare our results directly with those of the Graham and Harvey (2001) survey, Table 3 reports the frequency of evaluation techniques tabulation from Table 2 of Graham and Harvey.

---

<sup>5</sup> Similarly, Figure 1 of Adame et al. (2023) shows the frequency of free cash flow disclosure increases from 10% of their sample in 2004 to over 20% of their earnings release sample for 2016.

The prompt to CFOs in the Graham and Harvey survey was “how frequently does your firm use the following techniques when deciding which projects or acquisitions to pursue?”. We report their “always or almost always” percentage in the middle column of the table. The last column reports the percentage of firms mentioning the evaluation technique at least once during a conference call.

The results illustrate that just because a CFO says they always or almost always use a capital budgeting evaluation technique when deciding which projects or acquisitions to pursue does not necessarily carry over to the manager’s discussion in a conference call. For example, *internal rate of return* according to the CFO survey results is the top evaluation technique at 76% while the term appears in only 1.77% of conference calls. The bottom six evaluation techniques according to Graham and Harvey’s survey (i.e., *sensitivity analysis*, *earning multiple approach*, *real options*, ...) each get effectively no mentions at all during more than a decade of conference call data. It is interesting that of all the techniques, the highest percentage in conference calls is *payback* at 4.44%. Our Table 3 results show the sharp contrast between CEO survey results and actual language usage during conference calls with analysts and investors. Much of the difference between the column values might be due to the manager’s hesitation to disclose their particular *IRR* and *hurdle rate* numbers during a conference call.

## 5. Summary Statistics

The summary statistics of our main variables are reported in Table 4. *Capital Budgeting Count* is defined as the total count of the words from our 45-word capital budgeting lexicon spoken by executives during the earnings conference call. *Word Count* is the number of words spoken by all participants during the conference call according to Capital IQ. The *Capital Budgeting* variable is defined as *Capital Budgeting Count* divided by the number of words spoken in the conference call times 10,000. *Market Value* is the firm’s market value of equity in millions of dollars three



days prior to the conference call. *Prior Return* is the buy-and-hold return for the firm in the prior year minus the CRSP value-weighted Index over an identical period. *% Fixed Assets* (defined as net property, plant, and equipment/total assets), *% FCF* (defined as net cash flows from operations minus preferred dividends and common dividends/total assets), *R&D Intensity* (research & development expense/total assets), and *Tobin's Q* (defined as (total assets minus book value of equity plus market value of equity)/total assets) will also be used as control variables. Appendix A provides more detailed definitions of the variables used in our analysis.

From Table 4, the average conference call contains 8.59 words from our capital budgeting lexicon spoken by firm managers while the median value (6) is slightly lower.<sup>6</sup> Note that the 10<sup>th</sup> percentile for *Capital Budgeting Count* has a value of 0. Thus, in more than 12% of the conference call sample, investors never hear managers use a single word from our lexicon. The 90<sup>th</sup> percentile has 20 capital budgeting words used during the call. The average (5,663) and median (5,626) total number of words in the conference calls are almost identical. Thus, unlike annual reports, there are not many extremely lengthy or brief earnings conference calls. During our time period, there is a slight decrease in the average number of words spoken in the respective conference calls (5,809 in Q1 of 2010 versus 5,696 in Q1 of 2020). The median market value of equity is \$1.3 billion while the average firm has a *Prior Return* value of 0.63%. The average firm has net property, plant & equipment of 22% of total assets while the average free cash flow scaled by total asset is 3.44%. There is some skewness in Tobin's Q, even after winsorizing the variable at the 1% and 99% levels, given that the mean value (2.37) is notably higher than the median value (1.59).

---

<sup>6</sup> For comparison purposes, we find that the rank order of capital budgeting tokens by analysts generally follows the usage of the terms by managers. The most common capital budgeting tokens spoken by analysts are *cash flow*, *EBITDA*, *free cash flow*, *EBIT*, and *operating income*. Interestingly, analysts do not frequently use tokens from our capital budgeting lexicon. The mean capital budgeting count by analysts is only 1.10 while the median value is 0.

### 5.1. Time Series Trend for Capital Budgeting

Figure 2 reports that the time series pattern for *Capital Budgeting* is upward sloping with spikes in the first quarter of each calendar year. For example, *Capital Budgeting* has a value of 14.2% in the first quarter of 2010 compared to a value of 18.7% in the first quarter of 2020. The graph also clearly shows the information density of annual versus quarterly communications, to the extent the majority of the firms have December fiscal year ends. There is a consistent spike in *Capital Budgeting* in the first calendar quarter where the annual results are generally discussed by managers.

The dramatic drop in *Capital Budgeting* in the last three quarters of 2020 is related to COVID-19 and its negative impact on capital expenditure spending during the pandemic.<sup>7</sup> In the first quarter of 2020, *Capital Budgeting* demonstrated its typical increase from the prior fourth quarter. However, with the economy shutting down in March of 2020, the second quarter of 2020 the decline in *Capital Budgeting* was substantively larger than its historical pattern (18.7% to 12.9%). In the last three quarters of 2020, managers were discussing their responses to the worldwide pandemic and not their capital budgeting decisions. Ignoring this notable exception, managers, on average, are increasingly using more of our capital budgeting tokens.

### 5.2. Capital Budgeting Usage by Industry

The top and bottom five Fama and French (1997) 49-industry classifications in terms of the mean capital budgeting token counts are reported in Table 5. As would be expected, capital intensive commodity and manufacturing industries where managers need to make decisions on long-term, massive projects dominate the highest average industry token counts. The Telecommunications industry tops the list at 15.7 capital budgeting tokens per call, while the Coal

---

<sup>7</sup> See <https://www.census.gov/library/publications/2023/econ/2021-aces-covid-impact.html>.

industry is slightly less at 15.2 tokens per call. The industries of Automobiles, Fabricated Products, and Agriculture finish up the top five. Since making successful decisions on whether or not to build a new coal mine, corn processing facility, auto plant, or laying fiber optical cables typically requires the tools of capital budgeting, it is not surprising that these industries are at the top of list.

The bottom five Fama-French Industries in terms of average capital budgeting token counts are slightly tilted towards financial service companies. Banks (2.5 tokens per call), Trading (5.1), Apparel (5.1), and Insurance (5.6) typically are not creating sophisticated manufacturing facilities that would warrant discussion with analysts and investors during a conference call. Thus, it should not be surprising to see very low capital budgeting token usage during the conference calls for these industries. The Pharmaceutical Industry (3.0 tokens per call) certainly makes long-term, high expenditure decisions in regard with their pipeline products. For example, Merck spent \$13.6 billion in research & development in 2020 according to its Form 10-K filed on 2021-02-05. Yet, pharmaceutical managers usually are not mentioning *free cash flow* or *EBITDA* terminology with analysts during the call. Instead, pharma insiders often use phrases like “launching new medicines”, “FDA approval”, and “advancing our pipeline” during their earnings conference calls. Overall, our capital budgeting lexicon appears to be capturing the capital budgeting diversity of the various Fama-French (1997) industries.

## **6. Empirical Results**

### **6.1. Capital Budgeting Firm Attributes**

What firm level attributes explain capital budgeting fractions during earnings conference calls? Table 6 reports regression results with *Capital Budgeting* as the dependent variable. The regression could be run using *Capital Budgeting Count* as the dependent variable instead of *Capital Budgeting* and adding  $\log(\text{Word Counts})$  as an additional control variable. If we use the

latter specification instead, all of the results are essentially the same as in our current Table 6 regression. Thus, using either the relative fraction or the total count of capital budgeting terms gives us the same interpretation. The control variables, defined in Appendix A, are *log(market value)*, *Prior Return*, *% Fixed Assets*, *% FCF*, *R&D Intensity*, and *Tobin's Q*. In addition to the coefficient estimates and *t*-statistics presented in the table (in parentheses where the standard errors are clustered by year and firm), the regression includes Fama-French (1997) 49-industry dummies and calendar year dummies.

All six of our independent variables are statistically significant at the 1% level. The variables, *log(market value)*, *Prior Return*, *% Fixed Assets*, and *% FCF*, all have positive coefficients. Larger market value, better prior year returns, more PP&E on the balance sheet, and higher free cash flow are all associated with higher capital budgeting fractions. Thus, the firms most likely to discuss capital budgeting with analysts and investors are doing well from both an accounting and stock market performance perspective.

*R&D Intensity* and *Tobin's Q* have negative coefficient values in the Table 6 regression. Firms with higher *R&D Intensity* and *Tobin's Q* have more intricate capital budgeting exercises and/or more intangible capital that are not easily discussed in the conference call setting leading to lower capital budgeting counts. *R&D Intensity* and *Tobin's Q* are directly linked with each other; as firms expense R&D on the income statement, this lowers their book value of equity thereby increasing the firm's *Tobin's Q* value.

## **6.2. Manager's Word Selection while having Negative Net Income**

Do managers use different frequencies of capital budgeting terms if they have negative net income? For the top five most frequent words on our capital budgeting lexicon, Table 7 reports the average token count and *t*-test on the mean difference categorizing the sample on the basis of

whether net income is positive or negative. For the terms *free cash flow*, *cash flow*, *operating income*, and *operating profit*, managers have significantly higher token counts if net income is greater than zero than if net income is negative. For example, managers average 1.10 counts for *free cash flow*, a non-GAAP term, if net income is greater than zero compared to an average count of 0.84 for *free cash flow* when the firm has negative net income. The difference in mean *free cash flow* usage is statistically significant ( $t$ -statistic of 15.59). This pattern is very plausible. If a firm has positive net income, the managers are more likely to mention terms like *free cash flow*, *cash flow*, and *operating income* during the conference call with investors since things are going relatively well.

In contrast, we find that managers mention the aggressive non-GAAP term *EBITDA* significantly more often when the company's net income is negative. Firms with negative net income have an average count of 2.48 per conference call for *EBITDA* compared to an average count of 2.02 for companies with positive net income ( $t$ -statistic of -16.03 on the difference). This makes sense. If a firm has negative net income, the managers are much more likely to spend time talking about *EBITDA*--which will more often be positive since this accounting measure does not incorporate interest expense, taxes, depreciation, nor amortization in its value--than discussing *free cash flow* or *operating profit*.

Our Table 7 results show that non-GAAP measures like EBITDA are not necessarily a more accurate description of economic income, but that they are measures that can make bad periods look good. More generally, the fact that firms use of capital budgeting tokens depends, in part, on whether net income is positive or negative suggests that these tokens are associated with managers selectively choosing accounting methods to reframe their results.<sup>8</sup>

---

<sup>8</sup> Similarly, Henry et al. (2020) find that companies mention their non-GAAP results in a conference call earlier and more often than their GAAP results when the non-GAAP earnings depict better performance. It is important to mention

### 6.3. Manager Proclivity, Job Title, and Manager Transitions

Is language usage firm- or manager-specific? To answer this question, we focus our attention on managers who participated in conference calls and transitioned from one firm to another. The sample includes 473 unique managers with at least four different conference calls in both their first and second jobs. For example, Frank Calderoni was CFO for Cisco Systems from May 2004 to January 2015. From June 2015 to January 2017, Calderoni was CFO of Red Hat. As CFO at Cisco Systems, Calderoni averaged 6.75 capital budgeting terms per conference call in his last four calls while he averaged 10 capital budgeting terms per call in his first four calls while at Red Hat.<sup>9</sup>

To understand what could account for differences in term usage between jobs, we hand collected the personal characteristics for each of the 473 managers using LinkedIn and other sources like press releases and DEF 14-A filings. In their second job, 25% of the sample were CEOs, 47% were CFOs, and 19% had a job title within Investor Relations (IR). For the transitioning managers, we find that 67% had identical titles in both their first and second jobs, 31% changed firms within the same Fama-French industries, 19% were CPAs, 49% had MBAs or EMBA, and 16% received their MBA or EMBA from a prestigious US graduate program.

Table 8 reports the *Capital Budgeting* counts for the sample of transitioning managers. Of the 473 managers, 68 had the title of CEO in both firms, 16 CFOs were promoted to CEO in their new firm, 192 remained as CFO at their new job, 90 remained involved with Investor Relations, and 107 managers had some other job title change (i.e., IR to CFO, CFO to COO, CEO to CFO,

---

that there is zero overlap between our capital budgeting lexicon and the Henry et al. (2020) non-GAAP keywords. Examples of their keywords include terms like, “earnings per share excluding”, “net income, excluding”, “EPS, adjusted”, “non GAAP earnings”, and “recurring earnings per share”. Their keywords do not include our non-GAAP terms like “EBITDA” or “free cash flow”.

<sup>9</sup> The four Cisco System conference calls for Frank Caleroni are 2014-02-12, 2014-05-14, 2014-08-13, and 2014-11-12 while the four calls used during his employment at Red Hat are 2015-09-21, 2015-12-17, 2016-03-22, and 2016-06-22.

...). In the table, the bottom row reports that both the mean and median *Capital Budgeting* counts increased (mean *Capital Budgeting* counts went from 3.22 in the first job to 4.23 in the second job). In a paired *t*-test, the *t*-statistic for the mean *Capital Budgeting* counts difference between jobs 1 and 2 is -4.18.

From the *Capital Budgeting* counts, it is apparent that there is a job title pecking order with respect to the use of term counts. CFOs are the most frequent users of the capital budgeting terms (6.65 mean count in job 2) while CEOs use the terms less frequently (mean of 3.46 in job 2 if job 1 was also as CEO). Investor Relations managers seldomly use the capital budgeting terms (mean of 0.46 in job 2 compared to mean of 0.23 in job 1). In conference calls, since the CFOs often present and answer questions relating to the firm's accounting results, the higher CFO counts is consistent with our priors. Notice that for no changes in CEO or CFO job titles, there still is a slight increase in the mean *Capital Budgeting* counts. That is, the mean *Capital Budgeting* count is 5.65 in the last four conference calls when job 1 is CFO compared to a mean count of 6.65 for the first four conference calls when the job title 2 remains CFO.<sup>10</sup>

In our last table, we report the regression results with *Capital Budgeting 2* (token count of capital budgeting terms spoken by the manager in the first four conference calls of their second job) as the dependent variable. The sample includes only the 473 managers who transitioned to a new job during our sample period. The control variables include *Capital Budgeting 1* (token count of capital budgeting terms spoken by the manager in the last four conference calls of their first job) and dummy variables for whether the manager was *CEO*, *CFO*, or *Investor Relations* in their second job. Also included are dummy variables if the manager has the same job title at both firms

---

<sup>10</sup> Since our Table 8 analysis takes the average of four pre and post job change conference calls, we do not have to adjust for the first quarter surge in capital budgeting usage. Thus, we do not attempt to detrend the *Capital Budgeting* counts.

(*Same Title*), transition to a new firm within the same Fama-French industry (*Same Industry*), a *CPA* dummy, an *MBA* dummy, and a *Prestigious MBA* dummy. (More detailed definitions of the variables are provided in Appendix A.)

In the Table 9 regression, we use the capital budgeting counts for both *Capital Budgeting 1* and 2. Column (1) reports that the coefficient on *CFO* is 4.46 (with a *t*-statistic of 5.04) while the coefficient on *CEO* is 2.13 (with a *t*-statistic of 2.44). Thus, controlling for other personal characteristics and the capital budgeting count in their first job, managers with the job title of CFO use 4.46 capital budgeting tokens more than other job titles. It is interesting that the coefficient on *Prestigious MBA* is negative and significant at the 10% level. Hence managers with an MBA or EMBA degree from one of the top US graduate schools use about one fewer capital budgeting terms per conference call than non-prestigious MBA graduates. Notice that the coefficient for *Same Title* is not statistically significant. Most importantly, after controlling for many personal characteristics, the multivariate analysis suggests that managers who change companies while retaining identical titles do not significantly change their usage of terms from our capital budgeting lexicon. Therefore, it is the manager—not the firm—who plays the dominant role in shaping capital budgeting references during conference calls.

## **7. Conclusions**

We create a lexicon of 45 tokens to document how managers convey capital budgeting information to analysts and investors during earnings conference calls in the 2010-2020 time period. The large counts of capital budgeting terms like *cash flow*, *EBITDA*, *free cash flow*, *operating income*, *EBIT*, and *ROI* spoken by managers identifies the particular terms that drive firm investment decisions. That is, if *ROIC* and *payback period* are mentioned during the call, presumably these are key components in the capital budgeting decisions by managers.



We find that managers with negative net income mention *EBITDA* during the call more often than other managers. There is a spike in the usage of the capital budgeting terms in the first quarter of the calendar year. Since the first quarter is generally when managers discuss the annual numbers with analysts and investors, this fact shows the information density of annual versus quarterly communications. Firms with higher capital budgeting counts tend to have strong prior accounting and stock market performance. Finally, we report that CFOs are much more likely to mention the capital budgeting terms than CEOs or Investor Relations personnel on the call.

As Graham and Harvey (2001) emphasized, it is difficult to measure the forms and extent of formal capital budgeting techniques that are used in a firm since they cannot be directly observed. Their survey results went a long way in providing at least one indirect approach to capturing data on this important but elusive topic. We provide another lens through which we can gain a more precise understanding of the actual uses and practices associated with capital budgeting. Our results are consistent with those of Graham and Harvey (2001) and provide some additional insights as an artifact of observing the language managers use to describe their business processes.

## Appendix A. Definitions of variables in the analysis

<i>Capital Budgeting Count</i>	A count of the 45 capital budgeting and performance words spoken by managers in either the presentation or Q&A sessions of the earnings conference call. We make our Capital Budgeting lexicon available at <a href="https://xxxxxxx/">https://xxxxxxx/</a> .
<i>Word Count</i>	Total number of words spoken during the earnings conference call. This variable is from Capital IQ.
<i>Capital Budgeting</i>	This variable is $(\text{Capital Budgeting Count} / \text{Word Count}) * 10,000$ . This variable is from Capital IQ.
<i>Market Value</i>	The market value of equity (stock price multiplied by number of shares outstanding) in millions of dollars for the firm as of three trading days before the earnings conference call. This variable is from CRSP.
<i>Prior Returns</i>	Abnormal buy-and-hold returns during the year before the conference call. Performance is measured against the CRSP value-weighted index return over an identical period. This variable is from CRSP.
<i>% Fixed Assets</i>	Defined as net property, plant, & equipment (item PPENT)/ total assets (item AT). This variable is from Compustat.
<i>% FCF</i>	Defined as free cash flow/ total assets (item AT). Following Coles, Daniel, and Naveen (2008), FCF is defined as net cash flow from operating activities (item OANCF) minus preferred dividends (item DVP) minus common dividends (item DVC). Missing values DVP and DVC are assigned a value of zero. Values are winsorized at the 1% and 99% levels. This variable is from Compustat.
<i>R&amp;D Intensity</i>	Defined as research & development expenses (item XRD)/ total assets (item AT). Missing values for XRD are assigned a value of zero. This variable is from Compustat.
<i>Tobin's Q</i>	Defined as $(\text{total assets (item AT)} - \text{book value of shareholder equity (item CEQ)} + \text{market value of equity}) / \text{total assets (item AT)}$ . Values are winsorized at the 1% and 99% levels. This variable is from merged CRSP/Compustat.
<i>NI Loss Dummy</i>	A dummy variable set to one if net income (item NI) is less than zero, else zero. This variable is from Compustat.

<i>Capital Budgeting 1</i>	A count of the capital budgeting terms used by transitioning managers in the first four earnings conference calls of their first job. This variable is from Capital IQ.
<i>Capital Budgeting 2</i>	A count of the capital budgeting terms used by transitioning managers in the first four earnings conference calls of their second job. This variable is from Capital IQ.
<i>CEO</i>	A dummy variable set to one if the transitioning manager has a job title of CEO in their second job, else zero. This variable is from LinkedIn and other data sources.
<i>CFO</i>	A dummy variable set to one if the transitioning manager has a job title of CFO in their second job, else zero. This variable is from LinkedIn and other data sources.
<i>Investor Relations</i>	A dummy variable set to one if the transitioning manager has a job title of within Investor Relations in their second job, else zero. This variable is from LinkedIn and other data sources.
<i>Same Title</i>	A dummy variable set to one if the transitioning manager has the same job title in both their first and second jobs, else zero. This variable is from LinkedIn and other data sources.
<i>Same Industry</i>	A dummy variable set to one if the transitioning managers had both jobs within the same Fama-French industry. This variable is from LinkedIn and other data sources.
<i>CPA</i>	A dummy variable set to one if the transitioning manager has a CPA, else zero. This variable is from LinkedIn and other data sources.
<i>MBA</i>	A dummy variable set to one if the transitioning manager has an MBA or EMBA degree, else zero. This variable is from LinkedIn and other data sources.
<i>Prestigious MBA</i>	A dummy variable set to one if the manager has an MBA/EMBA from a prestigious institution, else zero. Prestigious institutions include Harvard, Wharton, MIT, Columbia Business School, Yale, Dartmouth-Tuck, Stanford, University of Chicago-Booth, Northwestern University-Kellogg, Michigan-Ross, and NYU-Stern. The schools are from the combined 2023 US News ( <a href="https://www.usnews.com/best-graduate-schools/top-business-schools/mba-rankings">https://www.usnews.com/best-graduate-schools/top-business-schools/mba-rankings</a> ) and 2023 Fortune ( <a href="https://fortune.com/education/business/best-mba-programs/">https://fortune.com/education/business/best-mba-programs/</a> ) list of best MBA programs.

## References

- Adame, Katharine, Jennifer Koski, Katie Lem, and Sarah McVay, 2023. Free cash flow disclosure in earnings announcements, forthcoming in the *Journal of Financial Reporting*.
- Baker, Andrew, David F. Larcker, Charles McClure, Durgesh Saraph, and Edward M. Watts, 2024. Diversity washing. University of Chicago working paper.
- Baker, Scott R., Nicholas Bloom, and Steven J. Davis, 2016. Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, 131(4), 1593-1636.
- Barth, Andreas, Sasan Mansouri, and Fabian Woebbecking, 2023. “Let Me Get Back to You”—A Machine Learning Approach to Measuring NonAnswers. *Management Science*, 69(10), 6333-6348.
- Black, Dirk, Theodore Christensen, Jack Ciesielski, and Benjamin Whipple, 2018. Non-GAAP reporting: Evidence from academia and current practice, *Journal of Business, Finance, and Accounting* 45, 259-294.
- Bodnaruk, Andriy, Tim Loughran, and Bill McDonald, 2015. Using 10-K text to gauge financial constraints. *Journal of Financial and Quantitative Analysis*, 50(4), 623-646.
- Bradley, Daniel, Sinan Gokkaya, and Xi Liu, 2020. Ties that bind: The value of professional connections to sell-side analysts. *Management Science* 66(9), 4118-4151.
- Bradshaw, Mark and Richard Sloan, 2002. GAAP versus the street: An empirical assessment of two alternative definitions of earnings, *Journal of Accounting Research* 40, 41-66.
- Burns, Richard and Joe Walker, 2009. Capital budgeting surveys: the future is now. *Journal of Applied Finance*, 19(1&2).
- Cohen, Lauren, Dong Lou, and Christopher J. Malloy, 2020. Casting conference calls. *Management Science*, 66(11), 5015-5039.
- Coles, Jeffrey, Naveen Daniel, and Lalitha Naveen, 2008. Boards: Does one size fit all? *Journal of Financial Economics*, 87(2), 329-356.
- Décaire, Paul and John Graham, 2024. Valuation Fundamentals. Duke University working paper.
- Fama, Eugene and Kenneth French, 1997. Industry costs of equity. *Journal of Financial Economics*, 43(2), 153-193.
- Gomez, Enrique, Frank Heflin, and Jasmine Wang, 2023. Securities and Exchange Commission regulation and Non-GAAP income statements, *The Accounting Review* 98, 149-175.

Gompers, Paul, Will Gornall, Steven Kaplan, and Ilya Strebulaev, 2020. How do venture capitalists make decisions? *Journal of Financial Economics*, 135(1), 169-190.

Gompers, Paul, Steve Kaplan, and Vladimir Mukharlyamov, 2016. What do private equity firms say they do? *Journal of Financial Economics* 121, 449-476.

Gormsen, Niels Joachim and Kilian Huber, 2023. Corporate discount rates, University of Chicago working paper.

Gormsen, Niels Joachim and Kilian Huber, 2024. Firms' perceived cost of capital, University of Chicago working paper.

Graham, John, 2022. Presidential address: Corporate finance and reality. *Journal of Finance*, 77(4), 1975-2049.

Graham, John and Campbell Harvey, 2001. The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60(2-3), 187-243.

Heinrichs, Anne, Jihwon Park, and Eugene Soltes, 2019. Who consumes firm disclosures? Evidence from earnings conference calls, *The Accounting Review* 94, 205-231.

Henry, Elaine, Nan Hu, and Xi Jiang, 2020. Relative emphasis on non-GAAP earnings in conference calls: Determinants and market reaction, *European Accounting Review* 29, 169-197.

Huang, Shengzhong, Hongping Tan, Xiongyuan Wang, and Changqiu Yu. 2023. Valuation uncertainty and analysts' use of DCF models. *Review of Accounting Studies* 28(2), 827-861.

Jagannathan, Ravi, David Masta, Iwan Meier, and Vefa Tarhan, 2016. Why do firms use high discount rates? *Journal of Financial Economics* 120, 445-463.

Loughran, Tim and Bill McDonald, 2011. When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *Journal of Finance*, 66(1), 35-65.

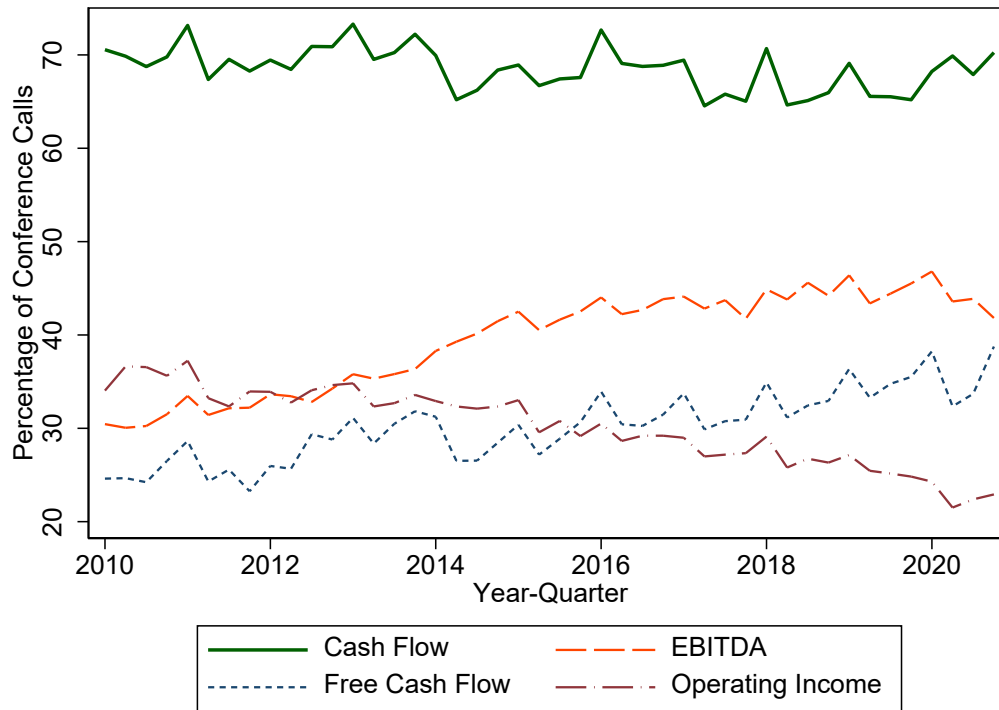
Loughran, Tim and Bill McDonald, 2016. Textual analysis in accounting and finance: A survey. *Journal of Accounting Research*, 54(4), 1187-1230.

Matsumoto, Dawn, Maarten Pronk, and Erik Roelofsen, 2011. What makes conference calls useful? The information content of managers' presentations and analysts' discussion sessions, *The Accounting Review* 86, 1383-1414.

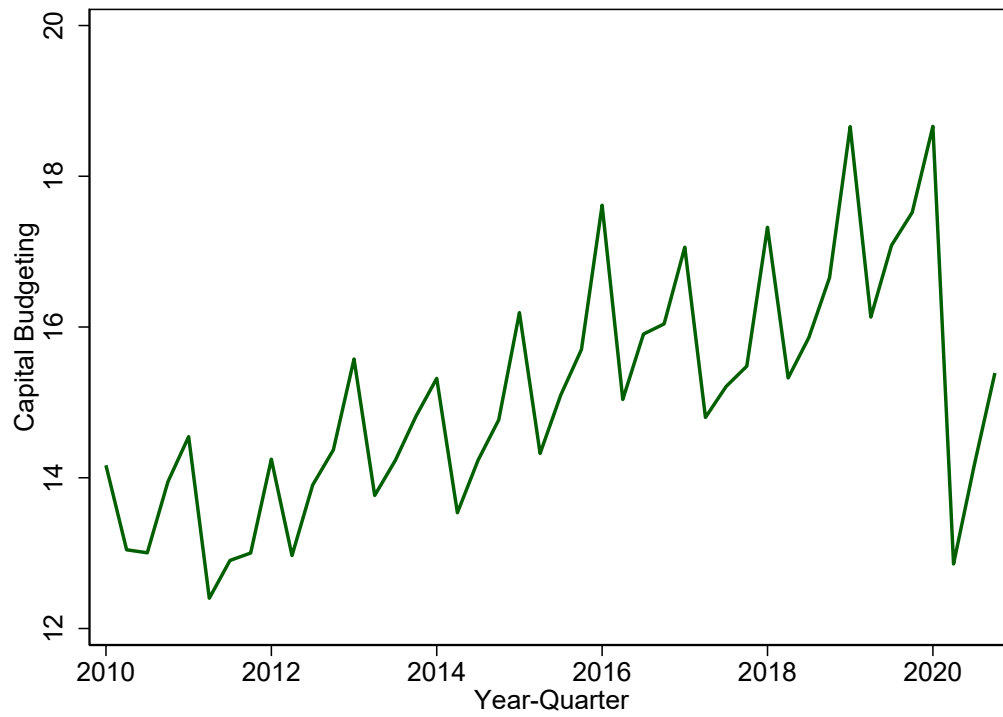
Mayew, William J. and Mohan Venkatachalam, 2012. The power of voice: Managerial affective states and future firm performance. *Journal of Finance*, 67(1), 1-43.

National Investor Relations Institute. *Standards and Guidance for Disclosure*. Vienna, Virginia: NIRI, 1996.

**Figure 1.** Quarterly time series of *Cash Flow*, *EBITDA*, *Free Cash Flow*, and *Operating Income* usage in earnings conference calls, 2010-2020.



**Figure 2.** Quarterly time series of the mean *Capital Budgeting*, 2010-2020.



**Table 1.** Earnings Conference Call Sample Creation

	Dropped Earnings Calls	Number of Earnings Calls
Initial sample of earnings conference calls during 2010-2020		187,291
Drop if a delayed conference call	6,276	181,015
Drop if number of words in transcript < 400	83	180,932
Drop if firm is not on CRSP (mainly foreign firms)	54,553	126,379
Drop if not ordinary common equity according to CRSP	28,566	97,813
Drop if missing relevant accounting and CRSP data	1,245	96,568



**Table 2.** List of the 45 Capital Budgeting and Performance Words Occurring in Earnings Conference Calls Ranked by Total Counts, 2010-2020

Target	Total Count	% of Calls
Cash flow(s) (CF)	272,623	68.28%
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	208,386	40.17%
Free cash flow(s) (FCF)	98,602	30.55%
Operating income	97,399	29.90%
Operating profit	35,244	12.00%
Capital spend(ing)	22,232	13.53%
Capital investment	14,542	10.02%
Earnings before interest and taxes (EBIT)	12,870	3.64%
Return on investment (ROI)	10,663	7.25%
Return on invested capital (ROIC)	7,604	4.43%
Payback or Pay Back or Payback period	6,185	4.44%
Operating income before depreciation and amortization (OIBDA)	4,708	0.67%
(Net)Present value(s) (NPV)	4,307	2.40%
Discount rate	4,059	2.18%
Return on capital (ROC)	4,050	2.49%
Capital budget	3,925	2.57%
Return on assets (ROA)	3,192	1.98%
Enterprise value (EV)	2,931	1.54%
Internal rate (of return(s)) (IRR)	2,471	1.77%
Earnings before interest, taxes, depreciation, amortization, and rental expense (EBITDAR)	1,720	0.51%
Earnings before interest, taxes, depreciation, amortization, and exploration expense (EBITDAX)	1,702	0.72%
Weighted average cost	1,547	1.32%
Net asset value (NAV)	1,525	0.77%
Hurdle rate	1,331	1.03%
Discounted cash flow(s) (DCF)	1,102	0.56%
Economic value added (EVA)	1,040	0.38%
Price to earnings (PE)	969	0.58%
Weighted average cost of capital (WACC)	874	0.68%
Economic profit	509	0.23%
Opportunity cost	432	0.38%
Earnings before interest, taxes, and amortization (EBITA)	271	0.11%
Sensitivity analysis	241	0.22%
Risk analysis	121	0.11%
Cash flow return on investment (CFROI)	49	0.03%
Net operating profit after taxes (NOPAT)	28	0.02%
Real options	20	0.02%
Modified internal rate (of return(s)) (MIRR)	10	0.01%
Value at risk	8	0.01%
Capital asset pricing model (CAPM)	5	<0.01%
Simulation analysis	5	<0.01%
Capital rationing	3	<0.01%
Accounting rate of return	1	<0.01%
Profitability index	1	<0.01%
Earnings multiple approach	0	0.00%
Net operating profit less adjusted taxes (NOPLAT)	0	0.00%

**Table 3.** Frequency of Capital Budgeting Evaluation Techniques in Graham and Harvey (2001) and our Conference Call Sample

Evaluation Technique	Graham and Harvey (2001)	Percentage of firms using the term at least once during a conference call
	Table 2 survey percentage always or almost always	
Internal rate of return	76%	1.77%
Net present value	75%	2.40%
Hurdle rate	57%	1.03%
Payback period	57%	4.44%
Sensitivity analysis	52%	<0.01%
Earnings multiple approach	39%	0.00%
Real options	27%	0.02%
Accounting rate of return	20%	<0.01%
Simulation analysis	14%	<0.01%
Profitability index	12%	<0.01%

*Notes.* This table reports the frequency of capital budgeting terms from the Table 2 survey results of Graham and Harvey (2001) compared to our sample of 96,568 firm-quarter conference call observations. The prompt in the Graham and Harvey survey was “how frequently does your firm use the following techniques when deciding which projects or acquisitions to pursue?”. The last column reports the percentage of firms mentioning the evaluation technique at least once during a conference call.

**Table 4.** Summary Statistics, 2010-2020

Variable	Mean	Median	Standard Deviation	10%	90%
<i>Capital Budgeting Count</i>	8.59	6	9.02	0	20
<i>Word Count</i>	5,663	5,626	2,049	3,043	8,207
<i>Capital Budgeting</i>	15.18	11.09	15.09	0	35.00
<i>Market Value (MM)</i>	\$8,775	\$1,307	\$35,880	\$94	\$16,524
<i>Prior Returns</i>	0.63%	-4.09%	56.25%	-50.03%	47.01%
<i>% Fixed Assets</i>	21.91%	12.51%	23.58%	1.37%	62.61%
<i>% FCF</i>	3.44%	6.37%	16.73%	-9.01%	16.31%
<i>R&amp;D Intensity</i>	5.65%	0.00%	18.40%	0.00%	16.04%
<i>Tobin's Q</i>	2.37	1.59	2.23	0.96	4.64

*Notes.* The final sample consists of 96,568 firm-quarter conference call observations. *Capital Budgeting Count* is a count of the 45 capital budgeting words spoken by managers in either the presentation or Q&A sessions of the earnings conference call. The other variables are defined in Appendix A.

**Table 5.** The Top and Bottom 5 Fama and French (1997) 49-Industries in Terms of Mean Capital Budgeting Total Counts

Top 5 Industries	Mean Count per Call	Bottom 5 Industries	Mean Count per Call
Telecommunications	15.7	Banking	2.5
Coal	15.2	Pharmaceutical	3.0
Automobiles	15.1	Trading	5.1
Fabricated Products	14.7	Apparel	5.1
Agriculture	14.5	Insurance	5.6

*Notes.* The final sample consists of 96,568 firm-quarter conference call observations. *Capital Budgeting* is a count of the 45 capital budgeting words spoken by managers in either the presentation or Q&A sessions of the earnings conference call.

**Table 6.** Determinants of *Capital Budgeting* Usage during Earnings Conference Calls, 2010-2020

log(Market value)	0.48*** (4.77)
Prior Return	0.93*** (3.43)
% Fixed Assets	6.62*** (5.22)
% FCF	7.59*** (5.35)
R&D Intensity	-3.88*** (-3.34)
Tobin's Q	-0.97*** (-12.14)
Fixed Effects	Year/Industry
R-Squared	18.7%
Sample Size	96,568

*Notes.* This table examines determinants of capital budgeting term usage for our sample of earnings conference calls. The dependent variable, *Capital Budgeting*, is the count of words spoken by managers from our 45-word capital budgeting lexicon divided by the number of words spoken during the conference call \*10,000. The six independent variables are defined in Appendix A. The regression includes an intercept, Fama and French (1997) 49-industry dummies, and calendar year dummies. The *t*-statistics are in parentheses with standard errors clustered by year and firm. \*\*\* indicates significance at the 0.01 level, respectively.

**Table 7.** Mean Manager Token Counts Categorized by *NI Loss Dummy*, 2010-2020

Capital Budgeting Token	Mean Count if Net Income $\geq 0$	Mean Count If Net Income $< 0$	<i>t</i> -statistic on Mean Difference
<i>Cash Flow</i>	2.97	2.48	18.59
<i>EBITDA</i>	2.02	2.48	-16.03
<i>Free Cash Flow</i>	1.10	0.84	15.59
<i>Operating Income</i>	1.21	0.54	40.35
<i>Operating Profit</i>	0.44	0.20	22.32

*Notes.* This table reports the average manager token count for *Cash Flow*, *EBITDA*, *Free Cash Flow*, *Operating Income*, and *Operating Profit* categorized by *NI Loss Dummy* for the five most frequently occurring tokens. There are 67,739 firm-quarter observations with trailing net income greater than zero while 28,829 firm-quarter observations have trailing negative net income. The *t*-statistic is from a two-sample *t*-test with equal variance.

**Table 8.** Capital Budgeting Counts for Managers who Transition to Different Firms

		Capital Budgeting Counts			
Job Title					
Transition from		Job 1	Job 1	Job 2	Job 2
Job 1 to Job 2	N	Mean	Median	Mean	Median
(1)	(2)	(3)	(4)	(5)	(6)
CEO to CEO	68	2.58	1.75	3.46	2
CFO to CEO	16	6.78	6	6.125	2.875
CFO to CFO	192	5.65	4.5	6.65	4.875
IR to IR	90	0.23	0	0.46	0
Other	107	1.26	0	3.26	1.5
All	473	3.22	1.25	4.23	2

*Notes.* This table presents Capital Budgeting term counts for 473 managers participating in conference calls and transitioning from one firm to another. First firm is chronologically the first firm the manager spoke at during a conference call. Second firm is the subsequent company where the transitioning manager participated in the conference call. Column (1) is the job title transition from job 1 to job 2. The Capital Budgeting counts in the last four conference calls at their first firm are reported in columns (3) and (4). The Capital Budgeting counts in the first four conference calls at their second firm are reported in columns (5) and (6). IR is Investor Relations. In paired *t*-tests, the *t*-statistic for difference in means between jobs 1 and 2 is -4.18.

**Table 9.** Regression for Average Capital Budgeting Token Count in Second Job for the Same Managers, 2010-2020

	Capital Budgeting 2 Counts (1)
Capital Budgeting 1	0.44*** (8.51)
CEO	2.13** (2.44)
CFO	4.46*** (5.04)
Investor Relations	-0.15 (-0.16)
Same Title	-0.61 (-1.21)
Same Industry	0.01 (0.01)
CPA	-0.64 (-1.10)
MBA	0.38 (0.79)
Prestigious MBA	-1.08* (-1.66)
Adjusted R-Squared	30.4%
Sample Size	473

*Notes.* This table presents the regression results for 473 managers participating in conference calls and transitioning from one firm to another. *Capital Budgeting 2* (token count from our 45-word capital budgeting lexicon in the first four calls at the second firm for the same manager) is the dependent variable. *Capital Budgeting 1* is the Capital Budgeting token count across the last four calls at their first firm for the same manager. The other independent variables are defined in Appendix A. The *t*-statistics are in parentheses. \*\*\*, \*\*, \* indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. The regression includes an intercept.