Free Cash Flow Disclosure in Earnings Announcements*

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Abstract

More companies are disclosing free cash flow in their earnings announcements. Companies choose a range of definitions for disclosed free cash flow, none of which correspond to the theoretical definition. The most common definition (in 38% of free cash flow disclosures) is operating cash flow minus capital expenditures. The decision to disclose free cash flow is associated with both information and opportunistic motives. The market reacts significantly and incrementally to free cash flow disclosure. Evidence suggests there is value-relevant information in free cash flow itself, in the decision to disclose free cash flow, and in the choice of definition.

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1. Introduction

In recent years, more companies have started voluntarily disclosing "free cash flow" to supplement earnings figures in their earnings announcements. Less than 10% of the Standard and Poor's 1500 firms in our sample disclosed free cash flow in their annual earnings announcements in 2004; by 2016, this fraction more than doubled to over 20%. Free cash flow is an integral part of finance theory and practice and represents a key input for firm valuation.[1] However, free cash flow is not a required part of financial statement disclosure, and there is no set definition of free cash flow under Generally Accepted Accounting Principles (GAAP). When a company chooses to disclose free cash flow in an earnings release, the Securities and Exchange Commission (SEC) requires the company to provide a definition and reconciliation with reported financial statements.[2] As we will show, companies choose a wide variety of definitions for disclosed free cash flow, none of which correspond to free cash flow as defined by finance theory.

Does free cash flow disclosure provide incremental information to the market? If free cash flow is relevant for valuation, investors may estimate free cash flow from the information provided in the earnings announcement and react to innovations in free cash flow even absent explicit disclosure. Prices may respond incrementally to the disclosure of free cash flow if it provides new information. This information might include details that cannot be discerned elsewhere in the earnings announcement such as marginal tax rates or the cash component of transitory items. It might also include managers' private information about the value-relevance of free cash flow and the particular adjustments managers elect to make when calculating this number.

[1] See Section 2 for more details on the theoretical definition of free cash flow and the relation between this definition and numbers as reported on financial statements.
[2] https://www.sec.gov/divisions/corpfin/guidance/nongaapinterp.htm

To address this question, we collect data on free cash flow disclosure in the annual earnings announcements for Standard and Poor's 1500 firms from 2004 through 2016. The most common definition of free cash flow disclosed by our sample firms is the simplest: operating cash flow minus gross capital expenditures.[3] This definition is chosen in 38% of the free cash flow disclosures. Another 21% of disclosures modify either operating cash flow or capital expenditures (e.g., by adding proceeds from the sale of assets to obtain net capital expenditures). There is very little consensus among the remaining disclosures regarding how free cash flow is defined.

The choice to disclose free cash flow is clearly endogenous. We first explore factors that are associated with a firm's decision to disclose free cash flow. The disclosure decision may be designed to provide incremental information to the market or it may be driven by opportunism. As discussed more fully in Section 3, we expect that free cash flow will be more informative for firms with more capital expenditures and higher leverage, when free cash flow is less volatile (and therefore more likely to reliably predict future free cash flows), and for firms looking to attract a potential acquirer. Free cash flow may also be more informative when earnings are less informative, such as for firms with transitory, one-time events. In contrast, the disclosure of free cash flow is more likely to be opportunistic when free cash flow is improving and/or earnings are deteriorating. Our results show that firms with one-time events and firms with less volatile historical free cash flows are more likely to disclose free cash flow, consistent with an information motive. Firms with positive free cash flow are also more likely to disclose free cash flow, which we interpret as evidence of opportunism.

[3] We refer to this definition as "simple free cash flow" in the remainder of the paper. We are able to generate an estimate of simple free cash flow using data from Compustat, so it is available for all of our firms regardless of whether or not a firm chooses to highlight it by specifically disclosing it in an earnings announcement. This definition of free cash flow is also used by financial websites such as Investopedia (http://www.investopedia.com/terms/f/freecashflow.asp).

We next examine the market reaction to free cash flow innovations. Our results show that earnings announcement returns are significantly associated with simple free cash flow surprises regardless of whether the firm discloses free cash flow separately in its earnings announcement.[4] The magnitude of this response is roughly equal to that of the response to earnings surprises when both surprises are included in the regression, suggesting free cash flow contains information that is incremental to earnings news. Although free cash flow is fundamental to valuation, to our knowledge we are the first to document a market reaction to free cash flow news. Furthermore, we find the market reacts more strongly to the simple free cash flow surprise when the amount is explicitly disclosed in the earnings announcement. The market also reacts incrementally to cross-sectional variation in individual adjustments managers make beyond the simple free cash flow definition in their disclosures. From these results, we conclude that there is information in free cash flow itself, in the decision to disclose free cash flow, and in the choice of definition to disclose.

Collectively these results provide evidence that there is value-relevant information in free cash flow and in the choice to disclose it. Although free cash flow has long been touted as fundamental to valuation and thus price formation, little evidence exists as to how managers disclose this information or how investors use it. By demonstrating that market participants respond incrementally to information in free cash flow and its disclosure, our research contributes to the literature on the information content of both free cash flow and firms' disclosure choices (see Section 3, below, for a review of this literature). Extensive prior research documents that stock prices incorporate information in earnings [e.g., Ball and Brown (1968);

[4] As discussed more fully in Section 6, we define surprises relative to expectations based on trailing-twelve-months' values as of the prior quarter end. We also distinguish between operating cash flow surprises and free cash flow surprises in Section 6, documenting incremental information content for free cash flow surprise in the presence of operating cash flow surprise.

Kormendi and Lipe (1987)]. We provide evidence that free cash flow offers incremental information to earnings.

Free cash flow is a concept that is well-defined and widely applied in finance theory. The usefulness of free cash flow is contingent on the ability to calculate free cash flow based on publicly available financial information. Our study highlights both the importance of this information but also how difficult it is for investors and researchers to calculate free cash flow as defined by theory given the current disclosure rules and data availability on Compustat. Perhaps in response to this challenge, more firms are voluntarily disclosing free cash flow. Our study provides the first evidence regarding the nature of this disclosure and the corresponding market reaction.

2. Overview of Free Cash Flow Disclosure

According to Koller, Goedhart and Wessels (2015, p. 30), free cash flow is "the cash flow generated by the core operations of the business after deducting investments in new capital." Berk and DeMarzo (2017, p. 247) note that (unlevered) free cash flow is calculated apart from any financing.

Free cash flow (FCF) is often defined specifically as:[5]

$$\text{FCF} = \text{EBIT}*(1\text{-Tax Rate}) + \text{Depreciation (and Other Non-Cash Charges)} - \text{Net Capital Expenditures} - \text{Change in Net Working Capital} \quad (1)$$

or equivalently:

$$\text{FCF} = \text{Net Income} + \text{Interest Expense}*(1\text{-Tax Rate}) + \text{Depreciation (and Other Non-Cash Charges)} - \text{Net Capital Expenditures} - \text{Change in Net Working Capital} \quad (2)$$

[5] See, for example, Berk and DeMarzo, Corporate Finance (2017, Chapter 8), Higgins (2016, Chapter 9) and Welch (2009, Chapter 13).

Beginning with net income, this definition adjusts accrual accounting to reflect the actual timing of cash flows and adjusts for payments to capital providers to obtain unlevered free cash flow. Recognizing that operating cash flow (OCF) from the Statement of Cash Flows is defined as

OCF = Net Income + Depreciation (and Other Non-Cash Charges) – Change in Net Working Capital (3)

the formula for FCF becomes

FCF = Operating Cash Flow (OCF) + Interest Expense*(1-Tax Rate) – Net Capital Expenditures (4)

The definition in equation (4) corresponds most closely to the components as they are reported on publicly available GAAP financial statements. Operating cash flow and both gross capital expenditures and proceeds from the sale of fixed assets appear directly on the Statement of Cash Flows, and (pre-tax) interest expense is reported on the Income Statement or in a footnote.

However, several practical issues arise for investors attempting to calculate free cash flow using publicly available financial statements (or for researchers attempting to do so with Compustat data). First, the company's marginal tax rate is not directly observed, so it needs to be estimated.[6] Second, it is surprisingly difficult to precisely identify Net Capital Expenditures using Compustat. The capital expenditure number reported on Compustat (*CAPX*) reflects purchases of fixed assets as reported in the company's cash flow from investing. However, management does not always disclose distinct values for purchases and sales of capital assets and sometimes will combine other values such as capitalized software into the same line-item. In addition, capital expenditures as reported on the statement of cash flows do not include capital expenditures financed using leases or installment notes.

[6] Although users can impute a firm's effective tax rate, that rate is an average across all profits in all countries in which the firm files tax returns. Also, the effective rate is an average, rather than marginal, rate.

Another issue that arises when calculating free cash flow is the treatment of excess cash. If the goal is to identify cash flows associated with operations, change in excess cash may be considered a financing activity, in which case it should be excluded from free cash flow. However, it is very difficult to distinguish excess cash from the cash required for operating activities based on the numbers reported in financial statements. If free cash flow as defined above is computed using total change in net working capital (or starts with operating cash flow from equation (3)), it will reflect change in total cash and equivalents. This treatment co-mingles change in operating cash, a component of free cash flow, with change in excess cash, a financing activity.[7]

Finally, operating cash flow may include transitory (cash) charges, which should be excluded from the theoretical free cash flow calculation if the goal is to identify ongoing free cash flows (for example, for forecasting or valuation purposes). Many firms present non-GAAP earnings metrics that exclude transitory items from their estimation of core or recurring earnings. Transitory items include one-time gains or losses from asset sales, restructuring charges, asset impairments, merger and acquisition integration costs, and discontinued operations. Although these amounts are generally disclosed in the earnings announcement, the impact on free cash flows is often unclear. As an example, Invacare Corporation reported adjusted net earnings for the year ended December 21, 2006 that excluded $21.25 million related to restructuring charges. Removing transitory items from free cash flow is challenging absent management's voluntary disclosures because not all of the $21.25 million was a cash outflow, and thus investors cannot simply add $21.25 million to free cash flows to calculate ongoing free cash flows. In this instance, Invacare provided a free cash flow disclosure that added $9.935 million to free cash

[7] For additional discussion of the treatment of excess cash in alternative valuation methods, see Easton and Sommers (2017).

flow for “net cash impact related to restructuring activities” thereby allowing investors to identify the cash component of this transitory item.

Overall, it may be challenging to calculate free cash flow as defined in finance theory based on information disclosed in accordance with current financial reporting standards. More companies are starting to disclose free cash flow in their earnings announcements. Do these efforts provide meaningful new information to the market? We address this question in this paper.

3. Theory and Related Literature

Since seminal early work documenting the stock price reaction to information in earnings announcements [Ball and Brown (1968) and Kormendi and Lipe (1987)], extensive prior research examines the information content of earnings announcements. Several more recent studies examine shocks to accounting information disclosure and the consequences for the information environment and stock returns [e.g., Hung, Li and Wang (2015), who study adoption of International Financial Reporting Standards; Bailey, Li, Mao, and Zhong (2003, adoption of Regulation Fair Disclosure); and Bailey, Karolyi, and Salva (2006, cross-listing)].

Other papers examine the information content of financial reporting practices and show that changes to the language and construction of financial reports are informative for future returns [Cohen, Malloy, and Nguyen (2018)]. Research also shows that the information provided in financial statement disclosures has much broader implications in corporate finance, affecting, for example, the cost of capital [e.g., Diamond and Verrecchia (1991) and Duarte, Han, Harford, and Young (2008)], firm investment decisions [Fishman and Hagerty (1989)], and the extent of financial innovation [Boot and Thakor (2001)].

Unlike earnings, the choice to disclose free cash flow is voluntary. Several papers develop theoretical models of firms' voluntary information disclosure. For example, Diamond (1985) presents a general equilibrium model of voluntary information disclosure in which there exists a policy of disclosure that makes all shareholders better off than a policy of no disclosure. In Boot and Thakor (2001), information disclosure will affect stock prices both directly, by revealing information, and indirectly, by affecting investors' incentives to collect information. We extend this research by examining a new type of voluntary information disclosure: free cash flow.

Free cash flow is not a required part of financial statement disclosure, so there is no corresponding GAAP definition. When a company chooses to disclose free cash flow (for example, in an earnings release), SEC rules require that the company provide a definition and (as per Regulation G) a reconciliation with the closest GAAP-based earnings metric.[8]

Which companies choose to disclose free cash flow, and why? We explore two alternative, non-mutually-exclusive hypotheses: information and opportunism. We expect managers to disclose free cash flow when the amount will be incrementally informative over earnings, which are a required disclosure in the earnings announcement. Since the free cash flow calculation adjusts for accruals in earnings, we expect free cash flow to be more informative for firms with accruals that are larger and therefore more material. This group includes firms with large capital expenditures and firms with larger differences between GAAP and cash accounting

[8] Free cash flow disclosures in the earnings announcement fall under the umbrella of non-GAAP earnings metrics. Since the early 1990s, some managers have disclosed non-GAAP earnings in their earnings announcements. These modifications of GAAP earnings do not follow a set definition nor are they regulated beyond the Regulation G requirement (since 2003) and subsequent clarifications, with the core requirement being that firms reconcile the modified non-GAAP metric to the closest GAAP-based earnings metric. Research in accounting has extensively examined these modifications to reported earnings, and we control for the existence of non-GAAP earnings in our analyses. It is important to note that these prior studies focus on non-GAAP earnings that are intended to reflect recurring earnings. Our focus is on free cash flows, a performance measure that is related, but distinct, from accounting earnings [e.g., Sloan (1996)].

(such as firms with restrictive revenue recognition policies).[9] Free cash flow may be more important for more highly levered firms because the adjustment to remove interest expense and calculate unlevered free cash flows in equation (4) is larger in magnitude for firms with more debt. Free cash flow should be more informative when it is less volatile and thus more likely to reliably predict future free cash flow.[10] Firms may also disclose free cash flow if they are interested in providing more information to attract the attention of a potential acquirer.

Although we are the first to examine free cash flow disclosure, research on non-GAAP earnings provides evidence that non-GAAP earnings tend to be disclosed in firms for which GAAP earnings are less informative and thus less useful for valuation. Lougee and Marquardt (2004) find that non-GAAP disclosures are more prevalent for growth firms, firms with higher market-to-book ratios, and firms with transitory events, where higher levels of each of these variables proxy for lower earnings informativeness. If the primary motive for disclosing free cash flow is to provide meaningful information to the market, firms with these characteristics should be more likely to disclose free cash flow in their earnings announcements.

If managers are opportunistically choosing to disclose free cash flow, disclosure should be more likely when it will make firms' financial results look stronger; as such, we expect opportunistic disclosure for firms with negative and/or decreasing earnings and for firms with positive and/or increasing free cash flows. It is also possible that firms using leases in lieu of outright fixed asset purchases will be more likely to opportunistically disclose free cash flows

[9] Revenue must be earned and realizable to be recognized in net income. Until the "earned" threshold has been met, the cash received is recorded as "deferred revenue" which is a liability on the balance sheet. An example is Microsoft's operating system sales. When the customer initially buys the operating system, Microsoft defers a portion of the cash received as "deferred revenue" until they have fulfilled the obligation to provide updates and other services. Microsoft could present free cash flows to highlight that the amount of cash received is larger than the amount of revenue recognized in earnings.

[10] We recognize that several of these relations may be endogenous and are therefore careful about drawing causal inferences. Also, some variables may have both an informative and opportunistic component. We made choices to classify them in plausible ways.

because leased assets are not usually included in capital expenditures. Firms with leases may opportunistically choose to disclose a free cash flow metric that excludes new leases, effectively "hiding" some of their capital expenditures.[11]

Does the market price free cash flow news? And does the market reaction differ when free cash flow is explicitly disclosed? Free cash flow can be estimated from information in the earnings announcement. If free cash flow innovations are value-relevant, they should be associated with incremental stock returns on the earnings announcement day.[12] Upon explicit disclosure, the market will also react incrementally if the free cash flow disclosure itself reveals new information, such as the cash component of transitory items or a manager's private information about the value-relevance of particular free cash flow adjustments. In the analogous setting of non-GAAP earnings, research finds that managements' adjustments outperform generic (external) adjustments to firm estimates of recurring earnings [Brown and Sivakumar (2003)]. Thus it is possible that for any given period and firm, idiosyncratic adjustments improve the informativeness of the disclosed figure beyond what an investor could infer based on the full set of disclosed financial information.

In sum, whether managers are motivated to disclose free cash flows to be informative or opportunistic, and how the market reacts to this disclosure, are empirical questions. We explore these questions by relating the decision to disclose free cash flow and the specific definition chosen to variables that proxy for information or opportunism. We also examine the market reaction to free cash flow, its explicit disclosure, and its components.

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[11] For example, for fiscal 2013, Amazon touted positive free cash flows that would have been negative if they had incorporated the impact of new capital leases when forming free cash flows. This treatment was criticized in a Motley Fool article:
http://www.fool.com/investing/general/2014/12/22/amazoncom-inc-is-losing-more-money-than-you-think.aspx

[12] Early work, however, provides evidence that although free cash flow is incrementally informative to earnings when predicting future free cash flows, investors appear to largely ignore the incremental information in free cash flow [Sloan (1996)].

4. Description of Sample

4.1 Sample of Events

To construct our sample, we begin by including all firms listed in the Standard and Poor's [S&P] 1500 at any point during our sample period of 2004 through 2016, resulting in an initial sample of 2,351 unique firms.[13] We identify S&P 1500 firms as those firms with an *SPMIM* (S&P Major Market Index Identifier) value on Compustat equal to 10 (S&P 500), 91 (S&P Midcap 400), or 92 (S&P Midcap 600).

We then program a web crawler with Python software using a set of criteria to search the EDGAR website for earnings releases for our sample firms. The web crawler identifies annual earnings releases from 2004 through 2016 by first filtering for Form 8-Ks and then searching within filings labeled "Item 2.02" for documents of type "EX-99" as this is the naming convention for most earnings releases. Not all of the filings meeting this criteria are earnings announcements; as such, we require that the filing date per EDGAR be within four business days of the filing date per I/B/E/S to reduce noise and manually remove any observations where the filing is not the earnings announcement.[14] This process results in the identification of at least one earnings announcement for 2,333 firms (99.2% of the 2,351 firms in the initial sample). In order to facilitate analysis of firms' decisions to disclose free cash flow from year to year during our sample, we require sequential non-missing Python-identified earnings announcements and thus exclude firms with gaps in their coverage. This process leads to a final sample of 1,393 unique firms and allows us to have an uninterrupted time series of data for each sample firm. After

[13] Although our sample period begins in 2004, the year 2005 is the first full year during which earnings releases were required to be reported under Item 2.02 of the 8-K, facilitating our search methods. Firms in our sample during 2004 started filing earnings announcements as Item 2.02 before it was officially required in 2005. Our main results are robust to starting the sample period in 2005 (not tabulated).

[14] The SEC's 8-K filing deadline is four business days after the earnings announcement. We use the filing date per I/B/E/S as the default filing date. If I/B/E/S data are missing for a particular firm-year, we set the filing date equal to the report date from the Compustat quarterly file (*rdq*).

merging these data with Compustat, the resulting full sample consists of 13,992 firm-years for 1,393 unique firms. Panel A of Table 1 provides a summary of the sample selection process.

We program a text scraper to search each identified earnings release for our key phrase of interest: "free cash flow." Of the 13,992 firm-years in our full sample, the text scraper initially identified 2,418 earnings announcements with at least one mention of "free cash flow." We hand-collect details of the disclosed free cash flow value from the earnings announcement for each of these observations. We find that 1,975 of these earnings announcements contain an annual free cash flow value. The remaining announcements either do not provide a value or provide only a quarterly free cash flow value.

Panel B of Table 1 reports details on disclosure of the components of free cash flow. Of the 1,975 firm-year observations disclosing total annual free cash flow, we cannot infer the components in 69 firm-years, leaving a final sample of 1,906 firm-years for which the definition of free cash flows is identifiable.[15] Most firm-year disclosures (86.5%) provide details on the components of free cash flow in a table, with the remaining firms providing components in the text discussion. We provide additional details on the disclosure format in Figure 1.

4.2 Summary Statistics

In Table 1, we also provide frequency tables detailing the number of firms in our sample mentioning free cash flow in their earnings announcements by year (Panel C) and industry (Panel D). The number of firm-years in our sample ranges from a maximum of 1,336 in 2005 to 857 in 2016. By construction, there is a decline in the number of firm-years in our sample over time. As noted earlier, we collect earnings announcements for any firm that belongs to the S&P 1500 at

[15] In subsequent analyses, we use the full sample of 1,975 firm years when we analyze total annual free cash flow, and we use the subsample of 1,906 firm-year observations when our tests require details on the components of free cash flow.

any point from 2004 through 2016. If firms that enter the S&P 1500 after the start of our sample period were already filing with the SEC in 2004, they will be in our sample from the beginning of the sample period. However, firms that exit the S&P 1500 after 2004 often no longer have stand-alone public filings (for example, if they merged with another firm); these firms will disappear from our sample during the later years of our sample period when they no longer file publicly.

The percentage of firms in our sample mentioning free cash flow increases from 9.1% in 2004 to 20.3% in 2016 (see also Figure 2). In Table 1, Panel C, we further tabulate the number of "first time" free cash flow mentions. In 2006, 19.5% of our disclosure firms had not disclosed free cash flows the prior year, but by 2016 this number fell to 6.3%.[16] Overall, 14.1% of our firm-years have an earnings announcement mentioning free cash flows.

In Panel D of Table 1 we partition disclosure of free cash flows by industry based on Global Industry Classification Standard (GICS) Sector codes obtained from Compustat. As expected, we see wide variation across industries in the propensity to disclose. The telecom industry has the highest disclosure proportion, with 57.6% of the industry firm-years disclosing free cash flows, followed by the industrials industry with 26.1% of firm-years disclosing free cash flows. These results are consistent with firms in industries with large amounts of capital investments being more likely to disclose free cash flows. Accordingly, the financials industry has the lowest rate of free cash flow disclosures, at just 1.5% of the industry firm-years.

In Table 2 we provide summary statistics relating to the specific definition of free cash flow reported. The most popular definition by far is operating cash flow minus gross capital expenditures, chosen by 720 (or 38%) of the 1,906 firm-years with discernable free cash flow

[16] In 2005, we classify 15.7% of disclosers as "first time." A firm must have one year of lagged disclosure data to be considered a "first time" discloser and many firms are missing 2004 data, so the percentage of first-time disclosures in 2005 may be understated.

definitions (Panel A).[17] This definition is consistent with the definition of free cash flow provided by finance theory (see equation (4), above), with two exceptions. First, this definition does not adjust for after-tax interest expense. Interestingly, none of the firms in our sample add after-tax interest expense back to operating cash flow to obtain an unlevered free cash flow measure as defined in equation (4).[18] Second, this definition relies on gross capital expenditures as reported in the statement of cash flows and therefore does not consider other adjustments such as proceeds from the sale of fixed assets or the purchase of other capitalized assets, which would affect the total net capital expenditures in equation (4).

Another 409 (or 21%) of firms report a modified version of this simple definition, where either operating cash flows or capital expenditures are modified. Examples include using operating cash flows before transitory items, using capital expenditures that are net of proceeds from the sale of assets, or reducing free cash flows by the purchases of other capitalized assets such as the purchase of intangibles.

Since operating cash flow minus gross capital expenditures is the most popular definition, in the rest of the paper we refer to this definition as "simple" free cash flow:

$$\textit{Simple FCF} = \textit{Operating Cash Flow} - \textit{Gross Capital Expenditures} \quad (5)$$

We use Compustat data (OANCF – CAPX) to generate an estimate of *Simple FCF* for all firm-year observations in our sample, although, as previously noted, sometimes Compustat will present CAPX as a number net of asset sale proceeds or including other capitalized assets when the firm does not separate these items in the cash flow statement. Thus, *Simple FCF* from Compustat is nearly identical to the disclosed value when firms disclose simple free cash flow

[17] In the Internet Appendix, Table A1, we provide examples of free cash flow disclosures; Itron uses this definition.
[18] A few firms in our sample start the free cash flow calculation with something other than operating cash flow and report "unlevered free cash flow." However, due to other variations in the calculations, none of these numbers equate to free cash flow as defined by equation (4).

and is a reasonable proxy for simple free cash flow for firms that do not disclose free cash flows explicitly. Below, we separately analyze the decision to report free cash flows that are adjusted beyond this simple definition.

A majority of disclosures (81%, Panel B) provide total free cash flow, while the remaining 19% report recurring free cash flows, which exclude the cash effects of transitory items such as discontinued operations. Not surprisingly given the most popular definition, the vast majority of firms provide a free cash flow value that starts with operating cash flow (1,794 firm-years, or 94%, Panel A), and within these 1,794 firm-years, the most common adjustment is to subtract capital expenditures, with only four firms failing to make this adjustment (Panel C, where cash flow from investing includes cash outflows relating to capital expenditures).

Focusing on the 1,678 firm-years explicitly subtracting capital expenditures, about 79% (Panel D) make no adjustments for proceeds from sale of fixed assets; either these firm-years did not have any asset sales or firms chose not to report capital expenditures net of any asset sales. Otherwise, there is no real consensus, and the adjustments and definitions appear to be largely idiosyncratic.

Although no firms explicitly add back after-tax interest, a fair number (7% of all disclosures, Panel E) subtract dividends to obtain a number that is net of both interest expense and dividends. About 20% make an "other adjustment," but we identify no consistent trends or patterns in these other adjustments.[19]

In Table 3 we provide descriptive evidence on earnings, disclosed free cash flow, and its components. The average (median) value of disclosed free cash flow is $928 million ($210

[19] For example, in 2013 Avery Dennison Corp. increased free cash flows by $60.2 million by adding proceeds from the sale of investments, cash paid for charitable contributions, and a discretionary pension payment, and Fiserv Inc. removed cash inflows of $50 million received by an unconsolidated subsidiary. In 2014. Fiserv stated, "Management believes it is appropriate to exclude this dividend from the calculation of free cash flow because it may not be indicative of the future free cash flow of the company."

million). Disclosed free cash flow tends to be systematically higher than reported net income of $710 million ($150 million). Disclosed free cash flow is greater than net income for 1,346 (68.2%) of our firms (Panel B). Most companies start their free cash flow calculation with operating cash flow, which averages $1,676 million for these disclosers. Capital expenditures average $634 million for firm-years in which a capital expenditure adjustment is made. Although 466 (23.6%) of our firms make "other adjustments," these adjustments are typically small.[20]

In Table 3, Panel A, we also report *Simple FCF* as defined in equation (5). Mean and median values for *Simple FCF* are very close to those for *Disclosed FCF*. Among the 1,237 firm-year observations for which disclosed free cash flows differ from simple free cash flows, 735 (or 59.4%) disclose a higher value than they would have with the simple free cash flow definition, whereas the other 40.6% disclose a lower amount (see Panel C of Table 3).

We next turn our attention to the determinants of a firm's choice to disclose free cash flow to learn more about whether this disclosure choice is informative, opportunistic, or both.

5. Decision to Disclose Free Cash Flows

5.1 Regression Design and Summary Statistics

Which companies choose to disclose free cash flow, and why? To analyze this question, we estimate a determinants model using a logit regression. In this model, we regress a free cash flow indicator variable (which equals one for firms that disclose annual free cash flow in their earnings announcements that year) on firm characteristics, industry peer disclosure, and year

[20] Some of the sample sizes in Table 3 are larger than those reported in Table 2. For example, there are 466 "other adjustments" in Table 3 versus only 355 in Table 2. The reason for the difference is that details provided in Table 2, Panels C-E, are conditional on a firm-year free cash flow definition that starts with cash flow from operations. Statistics in Table 3 include all observations for which details are provided.

fixed effects. Firm characteristics are those the prior literature suggests may be related to either informative or opportunistic motives for disclosure.

As discussed in Section 3, we expect free cash flow disclosure to be incrementally more informative when the adjustments to calculate free cash flow are more relevant. This set of firms includes capital intensive firms and firms with deferred revenues, higher leverage, lower free cash flow volatility, and a higher likelihood of being acquired (which we proxy by firms that are subsequently acquired). Free cash flows may also be more informative when earnings are less informative such as for growth firms and firms with higher market-to-book ratios and more one-time events. Alternatively, we expect that the choice to disclose free cash flow is more likely to be motivated by opportunism when earnings are negative or decreasing, when free cash flow is positive or increasing, and for firms that have leases. We include explanatory variables to capture all of these firm-specific characteristics.

We also include several additional determinants of voluntary disclosure. Conditional on earnings informativeness, larger firms voluntarily disclose more [e.g., Kross, Lewellen and Ro (1994) and Lougee and Marquardt (2004)]. Evidence from the demand side [Healy, Hutton and Palepu (1999) and Ajinkya, Bhojraj and Sengupta (2005)] shows that more widely-covered firms and firms with more sophisticated (e.g., institutional) investors disclose more. We include firm age to control for life cycle effects that may be related to disclosure decisions. Finally, we anticipate that many of the factors motivating disclosure may be industry-specific [e.g., Kross, Lewellen and Ro (1994) and Lougee and Marquardt (2004)] and thus expect firms to be more likely to disclose free cash flows if others in their industry also do so. Please see the Appendix for formal definitions of all of these variables.

In Table 4 we report descriptive statistics for these firm characteristics. Panel A reports results for our full sample of 13,992 firm-years, including firms with and without annual free cash flow disclosure. These firms are relatively large (with mean assets of $12.6 billion), consistent with our sample firms being part of the S&P 1500. Sales growth averages 9% across our sample, with an average debt-to-equity ratio (*Leverage*) of 0.49 and market-to-book ratio (*MTB*) of 3.00.

We partition the sample across firm-years with and without free cash flow disclosure and report summary statistics for the subsamples in Panel B. Disclosing firms are larger than non-disclosers. Disclosers have significantly higher market-to-book ratios, more one-time events such as transitory items and discontinued operations, and higher capital intensity than non-disclosers. They also have lower sales growth and are significantly more likely to have positive free cash flow. Our regression analysis provides more complete evidence regarding the effect of each potential determinant on the decision to disclose free cash flow.

5.2 Results

Results of the logit regression described in Section 5.1 are reported in Table 5. Financial reporting decisions are highly autocorrelated ("sticky"), so the decision for a non-disclosing firm to initiate disclosure is particularly important. We therefore separately analyze the decision to initiate free cash flow disclosure from all free cash flow disclosures.

Results for the decision to initiate disclosure of free cash flow are reported in Table 5, columns (1) and (2). The dependent variable equals one for firms that mention free cash flow for the first time in their earnings announcement that year and zero for firm-years without a free cash

flow disclosure.[21] We consider two approaches to time and industry trends. The first is to include year fixed effects as well as the lagged industry average of free cash flow disclosure (in column (1)). The second is to include industry and year fixed effects (column (2)).[22]

The likelihood of initiating disclosure is higher for more capital intensive firms in column (1), consistent with the capital expenditure adjustment in free cash flow being more important for capital intensive firms. Initiation of free cash flow disclosure is also less likely for firms with more volatile free cash flows in column (2). Therefore, there is some evidence that the initial free cash flow disclosure is related to proxies for informativeness, although significance levels are weak.

Initial disclosure is highly significantly more likely when free cash flow is positive and when free cash flow is increasing. Firms are more likely to begin disclosing free cash flow when its value is favorable, consistent with opportunistic motives. Marginal effects suggest the economic magnitude is material; disclosure is 1.8 to 1.9 percentage points more likely (relative to the unconditional mean of 14.1% of overall firm-years that disclose free cash flow) when simple free cash flow is positive. Initiation of free cash flow disclosure is also more likely for firms with decreasing earnings, consistent with managers initiating free cash flow disclosures when other performance metrics are less rosy.

Regarding the control variables, the initiation of free cash flow disclosure is more likely for larger firms (that disclose more in general) and in column (2) less likely for older firms, perhaps reflecting their reluctance to change disclosure methods or because free cash flow

[21] In columns 1 and 2 of Table 5, we do not consider an observation to be a "first time" disclosure if the firm does not have one year of lagged data, because the firm could have plausibly disclosed free cash flow in the previous year. Thus, the earliest year in which a "first time" disclosure is possible is 2005. We also exclude firm-years that have previously disclosed free cash flow from this analysis.

[22] We also consider industry-year fixed effects; see the Internet Appendix, Table A2. Results are very similar to those in column (2). However, we lose over 20 percent of our observations because there is no variation in the dependent variable within certain industry-year groupings.

provides less incremental information for older firms. There is also evidence of herding behavior; in column (1), lagged industry disclosure is a strong predictor of initiation. A firm is more likely to initiate free cash flow disclosure when other firms in its industry have done so.[23]

We next estimate regressions for the decision to disclose free cash flows in general. In this specification, the dependent variable equals one for all firm-years in which a firm discloses free cash flow and zero for firm-years in which a firm does not disclose.[24] In Table 5, columns (3) and (4), we report results of this logit regression. Several of the information variables are now statistically significant. Firms are more likely to disclose free cash flow if they have higher market-to-book ratios and lower free cash flow volatility. Firms with more one-time events affecting earnings and cash from operations are also more likely to disclose free cash flows. One-time events are associated with an increase of four to five percentage points in the probability of disclosing free cash flows, a material increase relative to the unconditional mean of disclosure in 14.1% of firm-years. These results suggest that firms are more likely to disclose free cash flows when they are incrementally more informative. Contrary to predictions based on information, firms with higher sales growth are less likely to disclose free cash flow.

Of the opportunism variables in Table 5, the coefficient on the indicator for firms with positive simple free cash flows continues to be significantly positive, but the indicators for increases in simple free cash flow and earnings decreases are no longer significant. Thus, although there is some evidence of opportunism for the full sample of ongoing disclosures, it

[23] As an alternative to a logit model, prior research also considers hazard models as a way to estimate the probability of a particular event conditional on the full time series of past explanatory variables [e.g., Shumway (2004), Whited (2006), Bharath and Dittmar (2010)]. We re-estimate the initial disclosure decision using a Cox proportional hazard model instead of a logit regression. Inferences are very similar to those provided by the logit regression (see the Internet Appendix, Table A2).

[24] We repeat this analysis excluding initial disclosures. Inferences are the same as those reported in Table 5. See Internet Appendix, Table A3. We also re-estimate logit regressions in Table 5, with an additional indicator variable for firm-years in which the firm is a current member of the S&P 1500. The coefficient on this variable is never significant, and other inferences are the same (Internet Appendix, Table A4).

seems less pervasive than for the decision to initiate disclosure. Coefficients on the other control variables for the full disclosure sample are generally similar to those for the initiation decision. Industry peer disclosure is again a significant determinant of the decision to disclose free cash flow. Explanatory power in columns (1) and (3) falls notably when we re-estimate these specifications without lagged industry disclosure (not tabulated). We also separately examine the decision by current free cash flow disclosers to stop disclosing (please see the Internet Appendix, Table A5). The decisions to stop and subsequently restart are consistent with both informative and opportunistic motives.

We next estimate a logit regression to explore the determinants of the decision to disclose a free cash flow measure other than the simple definition. We report these results in the Internet Appendix, Table A6. The decision to deviate from the simple definition is more likely for capital intensive firms and for firms with larger one-time events. These relations hold for disclosure of free cash flow numbers both greater and less than *Simple FCF*, consistent with the overall inference that these adjustments are informative. Firms for which the simple free cash flow number increases from the prior year are less likely to disclose an adjusted number, consistent with opportunism.

We also explore the individual adjustments in more detail, estimating logit regressions in which the dependent variable equals one if the firm makes a particular adjustment in its disclosed free cash flow and zero if it does not. We find substantial variation in which explanatory variables are related to each individual adjustment (see Internet Appendix Table A7). Our main takeaway is that the individual adjustments to calculate free cash flow are driven by very different considerations. These results suggest that firms are making adjustments that are adapted to their own specific circumstances.

In summary, although the decision to initiate disclosure of free cash flow tends to be relatively more strongly related to our proxies for opportunism, ongoing disclosure has a clearer information motive. We next explore the market reaction to the free cash flow information in the earnings announcement.

6. Market Reaction

How does the market react to free cash flow information in earnings announcements? To address this question, we relate abnormal stock returns around the earnings announcement day to the unexpected component of free cash flow (the free cash flow surprise) and, for comparison, the earnings surprise. Current research typically measures earnings surprises relative to the consensus analyst forecast of earnings per share immediately before the earnings announcement [e.g., Doyle, Lundholm, and Soliman (2003)]. However, we have no comparable measure for free cash flow surprise because analyst forecasts of free cash flow are not generally available. Consequently, to measure the information content of earnings and free cash flow on an equal footing, we calculate both surprises relative to expectations based on trailing-twelve-months' results (TTM) for the same figure computed as of the prior quarter end. *Earnings Surprise* is therefore defined as current year earnings minus trailing-twelve-months earnings, and *Simple FCF Surprise* is defined as *Simple FCF* from equation (5) minus trailing-twelve-months simple free cash flow. As discussed above, we use Compustat data to estimate this measure, so it is available for all of our firms regardless of whether or not they highlight it by disclosing it in their earnings announcement. As a result, we are able to distinguish the market reaction to (simple) free cash flow surprises for all firms from any incremental reaction specifically to free cash flow disclosure.

To test for information content in free cash flow, we regress three-day cumulative abnormal returns (*CAR*) around the earnings announcement date on the earnings surprise and the free cash flow surprise,

$$CAR_i = \beta_0 + \beta_1(Earnings\ Surprise_i) + \beta_2(Simple\ FCF\ Surprise_i) + \varepsilon_i \quad (6)$$

for earnings announcement event *i*, where

$$CAR_i = \sum_{j=t-1}^{t+1} AR_{i,j}$$

is measured over a 3-day window around the earnings announcement day t = 0, and abnormal returns ($AR_{i,j}$) are computed relative to the CRSP value-weighted index. All independent variables are divided by weighted average diluted shares outstanding and scaled by beginning of period price. We decile-rank each of our independent variables by year [Bernard and Thomas (1989) and Doyle, Lundholm, and Soliman (2003)]. The coefficient on *Simple FCF Surprise* (β_2) allows us to identify whether the market reacts incrementally to information contained in free cash flows.

We first estimate these regressions for firms disclosing simple free cash flows and all firms that did not provide a free cash flow disclosure in their earnings announcement, but for which we can calculate simple free cash flow using Compustat data. For firms that disclose a free cash flow measure adjusted beyond the simple definition, announcement returns might also reflect any reaction to the individual adjustments, so we exclude these firms from this initial analysis. This design allows us to focus on the information in simple free cash flow. In subsequent analyses, we explore the market reaction to the choice to disclose free cash flow and to the specific value of disclosed free cash flow.

Table 6, Panel A, reports the results of these regressions. In column (1) we confirm prior research that unexpected earnings are positively associated with earnings announcement returns on average. Column (2) reports results with *Simple FCF Surprise* as the explanatory variable. The coefficient on *Simple FCF Surprise* is significant. Explanatory power in columns (1) and (2) is also similar. Column (3) reports results of tests of equation (6). Coefficients on both earnings and free cash flow surprises are significant and similar in magnitude, and not statistically different from one another under an *F*-test (*p*-value = 0.69, not tabulated).[25] Collectively these results suggest that *Simple FCF Surprise* contains information that is incremental to that provided by unexpected earnings; free cash flow is not merely a redundant repackaging of the same information in earnings. To our knowledge, we are the first study to document a market reaction to innovations in simple free cash flow.

To distinguish the informativeness of *Simple FCF* from the informativeness of simple free cash flow *disclosure*, we next incorporate an indicator variable, *FCF Discloser*, for the subset of firms that disclose simple free cash flow. There is an incremental reaction associated specifically with the disclosure of free cash flow; the coefficient on the interaction term is significantly positive in column (4). The coefficient on *FCF Discloser* is significantly negative, suggesting that firms disclose simple free cash flow when the news in the earnings announcement is negative. Our conclusion from this analysis is that the market reacts to *Simple FCF* regardless of whether or not a firm discloses it, but there is an incremental reaction when a firm chooses to disclose *Simple FCF*.

[25] Sloan (1996) provides evidence that *within* earnings, the cash component of earnings is more reliable than the non-cash component of earnings. Our inferences are similar if we decompose earnings surprise into its cash and non-cash components. In untabulated results, the coefficient on cash from operations innovations is 0.0032 and the coefficient on free cash flow innovations is 0.0022. Both coefficients are highly statistically significant.

As discussed earlier, 38% of our sample free cash flow disclosures contain a simple definition of free cash flows, and the remaining 62% make some incremental adjustments. Is there incremental information in the individual adjustments? To address this question, we decompose *Disclosed FCF* into two components,

$$Disclosed\ FCF_i = Simple\ FCF_i + FCF\ Diff_i \quad (7)$$

Simple FCF is the simple definition of free cash flow as defined in equation (5) above. *FCF Diff* represents the incremental adjustments some firms make beyond the simple definition when disclosing free cash flow.[26]

For this analysis, we focus on the subset of firms that disclose free cash flow and estimate the free cash flow surprise as the innovation in disclosed free cash flow. Because we do not have quarterly disclosed free cash flows for most firms, we define the disclosed free cash flow surprise as

$$Disclosed\ FCF\ Surprise_i = Disclosed\ FCF_i - TTM\ \ Simple\ FCF_i \quad (8)$$

Since $Disclosed\ FCF_i = Simple\ FCF_i + FCF\ Diff_i$ (equation (7)), we may equivalently write the disclosed free cash flow surprise as

$$Disclosed\ FCF\ Surprise_i = Simple\ FCF\ Surprise_i + FCF\ Diff_i \quad (9)$$

In other words, assuming the market forms expectations based on the trailing twelve months' *Simple FCF*, the innovation in disclosed free cash flow includes changes in *Simple FCF* during the fourth quarter and any information contained in the adjustments managers choose to make beyond the simple definition (*FCF Diff*) for the full year. The resulting regression equation is

$$CAR_i = \gamma_0 + \gamma_1(Earnings\ Surprise_i) + \gamma_2(Simple\ FCF\ Surprise_i) + \gamma_3(FCF\ Diff_i) + \varepsilon_i \quad (10)$$

[26] As we previously discussed, differences between disclosed free cash flows and simple free cash flows could also reflect a different starting point (where *Simple FCF* begins with operating cash flows).

As before, if the market reacts incrementally to information contained in *Simple FCF Surprise*, the coefficient γ_2 will be positive. Any market reaction to the individual adjustments beyond the simple definition of free cash flow will be captured by γ_3, the coefficient on *FCF Diff*.

Table 6, Panel B, reports results of these regressions. These results continue to show that the market reaction to *Simple FCF Surprise* is significant and comparable in magnitude to the reaction to *Earnings Surprise*. In column (4) we report results of tests of equation (10). The coefficients on both of the free cash flow measures, *Simple FCF Surprise* and *FCF Diff*, are significant. The market reacts to innovations in simple free cash flow and to the differential adjustments some firms make beyond the simple definition.

In Section 4.2, we note that 37% of firms report a disclosed value of free cash flow that is greater than the simple definition, while 25% disclose a number that is smaller (see Table 3, Panel C). Does the market react symmetrically to upward versus downward adjustments in disclosed free cash flow? To address this question, we decompose *FCF Diff* into positive versus negative deviations from *Simple FCF*. We define *Positive FCF Diff* as equal to *FCF Diff* when it is positive and zero otherwise. *Negative FCF Diff* is defined analogously. Results are in columns (5) through (7) of Table 6, Panel B. Interestingly, the coefficient on *Positive FCF Diff* is significant, but the coefficient on *Negative FCF Diff* is not (although the two coefficients are not statistically different according to an *F*-test).

Overall, the market reacts significantly to information contained in free cash flow disclosure. This reaction is incremental and comparable in magnitude to the market reaction to unexpected earnings. The market reacts to information in *Simple FCF* regardless of whether a firm discloses it and reacts more strongly to this information when *Simple FCF* is specifically

disclosed. Finally, the market responds to deviations from the simple definition of free cash flow and in particular to upward adjustments to this simple definition.

7. Conclusion

Free cash flow is a theoretically motivated measure of firm performance that is foundational in the finance literature and a critical input for valuation. Little evidence exists on whether and why managers disclose free cash flows, how they calculate free cash flows, and whether the market responds to free cash flows. We provide the first evidence regarding the nature of this disclosure and the market reaction.

We document that over 20% of S&P 1500 firms disclose free cash flows by 2016. About 38% of free cash flow disclosures are defined as operating cash flows less gross capital expenditures, with another 21% modifying either operating cash flows or capital expenditures to some extent. Within the remaining 41%, there is very little consensus on the definition of free cash flow. Calculations vary widely across firms, and none correspond to finance theory.

We provide evidence that initial free cash flow disclosures are strongly associated with industry trends but are also strategic in that firms are more likely to initiate disclosure when free cash flows are positive and increasing. Ongoing free cash flow disclosure relates both to industry trends as well as to firm characteristics we expect to make free cash flow more useful, such as when free cash flows are less volatile. The market responds significantly to the information in free cash flow, and this response is incremental to earnings surprises. Our study also highlights the challenges associated with calculating free cash flow as defined by theory given the current disclosure rules and data availability on Compustat.

Appendix
Definitions of Variables

Variable	Description
Acquired indicator	*An indicator variable equal to one if the firm is subsequently listed as an acquired target in SDC, and zero otherwise.*
Age	*Number of years since accounting data became available on Compustat, calculated as the current year less Compustat YEAR1*
Analyst following	*Number of earnings estimates (NUMEST) for a given period from the I/B/E/S Summary Statistics dataset*
Analyst forecast	*Most recent median EPS estimate prior to earnings announcement date (from I/B/E/S Summary Statistics dataset)*
Assets	*Total assets (Compustat AT)*
Capital intensity	*Net PP&E scaled by total assets (Compustat PPENT/AT)*
CAR	*Cumulative abnormal returns over the t-1 to t+1 earnings announcement window (using CRSP RET and VWRETD)*
Deferred revenue	*Total deferred revenue (Compustat DRC + DRLT) scaled by total revenue (Compustat REVT)*
Deviation down	*Indicator variable equal to one if disclosed FCF is at least 1% less than simple FCF and zero otherwise*
Deviation up	*Indicator variable equal to one if disclosed FCF is at least 1% greater than simple FCF and zero otherwise*
Disclosed FCF	*Free cash flow for the fiscal year as disclosed in earnings announcement*
Earnings decrease	*Indicator variable equal to one if year over year change in net income (Compustat NI) is negative and zero otherwise*
Earnings surprise	*Calculated as Compustat net income (NI) less trailing twelve months' net income (the sum of NIQ for Q1, Q2, and Q3 of the current year and Q4 of the prior year); scaled by shares outstanding (Compustat CSHOQ) and price as of beginning of fiscal year (lagged PRCC_F) and decile ranked by year*
FCF Diff	*Difference between disclosed FCF and simple FCF (Disclosed FCF – Simple FCF)*
FCF indicator	*Indicator variable equal to one if company discloses an annual "free cash flow" value in earnings announcement and zero otherwise*
Free cash flow volatility	*Firm's standard deviation of simple FCF over the previous ten years (three years of historical data required)*
Increase in simple FCF	*Indicator variable equal to one if the company's simple FCF increases year-over-year and zero otherwise*
Institutional ownership	*Percentage of shares held by institutions as of most recent Thomson Reuters report date prior to year-end (scaled by Compustat CSHO)*
Lease obligation	*Operating lease obligation (Compustat MRCT + MRCTA) plus capital lease obligation (Compustat DCLO) scaled by total assets (Compustat AT)*
Leverage	*Total debt (Compustat DLC + DLTT) scaled by MVE (Compustat PRCC_F*CSHO)*
Loss	*Indicator variable equal to one if net income (Compustat NI) for the fiscal year is negative and zero otherwise*
MTB	*Market to book (Compustat MKVALT/BKV)*
Negative FCF Diff	*Equal to FCF Diff when FCF Diff is negative and zero otherwise; scaled by shares outstanding (Compustat CSHOQ) and price as of beginning of fiscal year (lagged PRCC_F) and decile ranked by year*
One-time event	*Indicator variable equal to one if the company has a transitory expense (Compustat SPI) exceeding 2% of total assets OR reported discontinued operations (Compustat DO) for the year and zero otherwise*
Positive FCF Diff	*Equal to FCF Diff when FCF Diff is positive and zero otherwise; scaled by shares outstanding (Compustat CSHOQ) and price as of beginning of fiscal year (lagged PRCC_F) and decile ranked by year*
Positive simple FCF	*Indicator variable equal to one if Simple FCF is positive and zero otherwise*

Sales growth	*Percentage year-over-year change in sales (Compustat REVT)*
Simple FCF	*Annual cash flow from operations (Compustat OANCF) less capital expenditures (Compustat CAPX)*
Simple FCF surprise	*Current year Simple FCF less trailing twelve months' Simple FCF (the sum of Simple FCF for Q1, Q2, and Q3 of the current year and Q4 of the prior year); scaled by shares outstanding (Compustat CSHOQ) and price as of beginning of fiscal year (lagged PRCC_F) and decile ranked by year*

References

Ajinkya, Bipin, Sanjeev Bhojraj, and Partha Sengupta, 2005, The association between outside directors, institutional investors and the properties of management earnings forecasts, *Journal of Accounting Research*, 43, 343-376.

Bailey, Warren, Haitao Li, Connie Mao, and Rui Zhong, 2003, Regulation Fair Disclosure and earnings information: Market, analyst, and corporate responses, *Journal of Finance* 58, 2487-2514.

Bailey, Warren, G. Andrew Karolyi, and Carolina Salva, 2006, The economic consequences of increased disclosure: Evidence from international cross-listings, *Journal of Financial Economics* 81, 175-213.

Ball, Ray and Philip Brown, 1968, An empirical evaluation of accounting income numbers, *Journal of Accounting Research* 6, 159-178.

Berk, Jonathan and Peter DeMarzo, 2017, *Corporate Finance* (Pearson, fourth edition).

Bernard, Victor and Jacob Thomas, 1989, Post-earnings-announcement drift: Delayed price response or risk premium?, *Journal of Accounting Research* 27, 1-36.

Bharath, Sreedhar and Amy Dittmar, 2010, Why do firms use private equity to opt out of public markets?, *Review of Financial Studies* 23, 1771-1818.

Boot, Arnoud and Anjan Thakor, 2001, The many faces of information disclosure, *Review of Financial Studies* 14, 1021-1057.

Brown, Lawrence and Kumar Sivakumar, 2003, Comparing the value relevance of two operating income measures, *Review of Accounting Studies* 8, 261-572.

Cohen, Lauren, Christopher Malloy, and Quoc Nguyen, 2018, Lazy prices, Working Paper (Harvard Business School).

Diamond, Douglas, 1985, Optimal release of information by firms, *Journal of Finance* 40, 1071-1094.

Diamond, Douglas and Robert Verrecchia, 1991, Disclosure, liquidity, and the cost of capital, *Journal of Finance* 36, 1325-1359.

Doyle, Jeffrey, Russell Lundholm, and Mark Soliman, 2003, The predictive value of expenses excluded from pro form earnings, *Review of Accounting Studies* 8, 145-174.

Duarte, Jefferson, Xi Han, Jarrad Harford, and Lance Young, 2008, Information asymmetry, information dissemination and the effect of regulation FD on the cost of capital, *Journal of Financial Economics* 87, 24-44.

Easton, Peter and Gregory Sommers, 2017, Two different ways of treating corporate cash in FCF valuations- and the importance of getting the cost of capital right, *Journal of Applied Corporate Finance* 28, 71-79.

Fishman, Michael and Kathleen Hagerty, 1989, Disclosure decisions by firms and the competition for price efficiency, *Journal of Finance* 44, 633-646.

Healy, Paul, Amy Hutton, and Krishna Palepu, 1999, Stock performance and intermediation changes surrounding sustained increases in disclosure, *Contemporary Accounting Research* 16, 485-520.

Higgins, Robert C., 2016, *Analysis for Financial Management* (McGraw Hill, eleventh edition).

Hung, Mingyi, Xi Li, and Shiheng Wang, 2015, Post-earnings-announcement drift in global markets: Evidence from an information shock, *Review of Financial Studies* 28, 1242-1283.

Jensen, Michael, 1986, Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review* 76, 323-329.

Koller, Tim, Marc Goedhart, and David Wessels, 2015, *Valuation: Measuring and managing the value of companies*, (John Wiley & Sons, sixth edition).

Kormendi, Roger and Robert Lipe, 1987, Earnings innovations, earnings persistence, and stock returns, *Journal of Business*, 60(3), 323-345.

Kross, William, Wilbur Lewellen and Byung Ro, 1994, Evidence on the motivation for management forecasts of corporate earnings, *Managerial and Decision Economics* 15 (3), 187-200

Lang, Larry, Rene Stulz, and Ralph Walkling, 1991, A text of the free cash flow hypothesis, *Journal of Financial Economics* 29, 315-335.

Lougee, Barbara and Carol Marquardt, 2004, Earnings informativeness and strategic disclosure: An empirical examination of 'pro forma' earnings, *Accounting Review* 79, 769-795.

Shumway, Tyler, 2001, Forecasting bankruptcy more accurately, *Journal of Business* 74, 101-124.

Sloan, Richard, 1996, Using earnings and free cash flow to evaluate corporate performance, *Journal of Applied Corporate Finance* 9, 70–79.

Welch, Ivo, 2009, *Corporate Finance: An Introduction* (Pearson, first edition).

Whited, Toni, 2006, External finance constraints and the intertemporal pattern of intermittent investment, *Journal of Financial Economics* 81, 467-502.

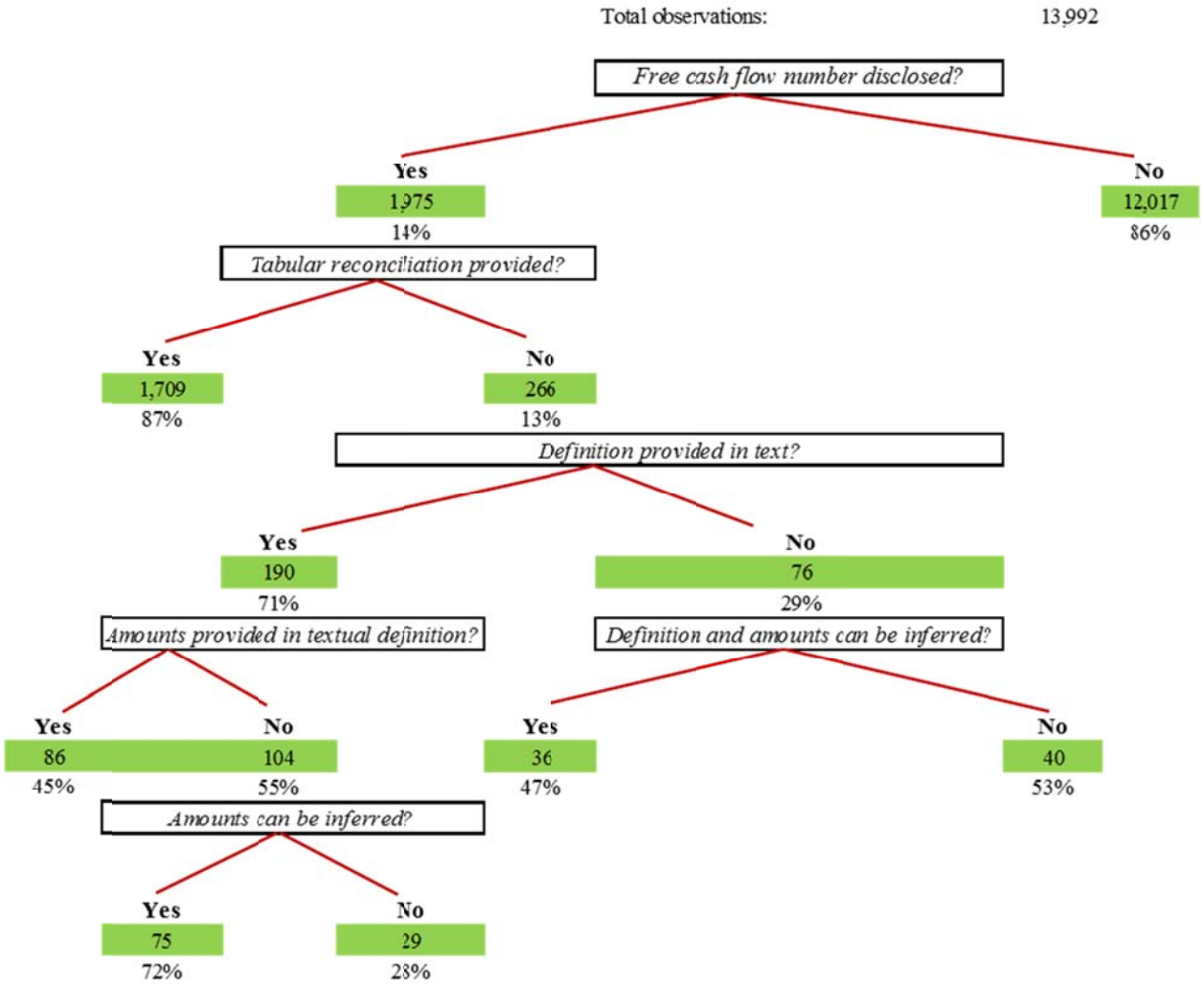

Figure 1. Disclosure decision tree for firms providing free cash flow values.

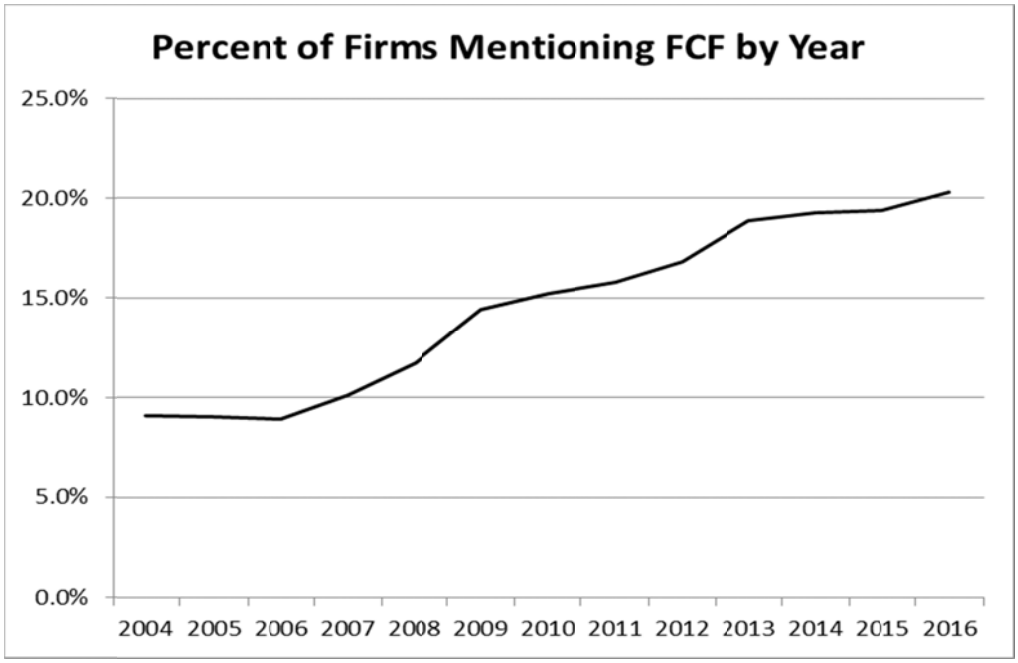

Figure 2. Frequency of free cash flow disclosure by year for our sample.

Table 1
Summary Statistics for Sample

In this table, we provide summary statistics for our sample. Panel A reports details of the sample selection process. Panel B reports the format firms use to disclose the components of free cash flow. Panel C reports the distribution of the number of sample observations by year, and Panel D reports the distribution by industry. Industries are defined based on GICS Sector codes.

Panel A. Sample Selection

	Number of Filings	Firms
Number of fourth quarter filings identfied by Python web crawler	23,659	2,333
Less: filings for firms with missing sequential Python identified earnings announcements	9,667	940
Remaining fourth quarter filings (full sample)	**13,992**	**1,393**
Number of earnings announcements with mention of "free cash flow" identified by Python text scraper (hand-collected data for these filings)	2,418	
Less: generic mention of "free cash flow;" no value disclosed	388	
Less: filings with only quarterly "free cash flow;" no annual value disclosed	55	
Number of fourth quarter earnings announcements with annual FCF disclosed (FCF disclosure sample)	**1,975**	**344**

Panel B. FCF Detail Provided in Earnings Announcement

	Number of FCF Disclosures	Percent of FCF Disclosures	Unique firms
Tabular reconciliation (components explicitly provided)	1,709	86.5%	283
Textual definition (components explicity provided)	86	4.4%	26
Textual definition (components can be inferred)	75	3.8%	40
No reconciliation or definition (components can be inferred)	36	1.8%	23
Components of FCF are explicitly provided or can be inferred	**1,906**	**96.5%**	
Components cannot be inferred given available information	69	3.5%	42
Total	**1,975**	**100.0%**	

Panel C. Frequency Distribution by Year

Year	Total firm-year observations in sample	Firm-years disclosing FCF	Percent of firm-years disclosing FCF	First-time Free Cash Flow Disclosures	Percent of First Time Disclosures by Year	Percent of Disclosures that are First Time
2004	999	91	9.1%			
2005	1,336	121	9.1%	19	8.3%	15.7%
2006	1,269	113	8.9%	22	9.6%	19.5%
2007	1,202	122	10.1%	18	7.9%	14.8%
2008	1,161	136	11.7%	20	8.7%	14.7%
2009	1,136	164	14.4%	35	15.3%	21.3%
2010	1,091	166	15.2%	23	10.0%	13.9%
2011	1,058	167	15.8%	20	8.7%	12.0%
2012	1,021	172	16.8%	19	8.3%	11.0%
2013	990	187	18.9%	16	7.0%	8.6%
2014	955	184	19.3%	15	6.6%	8.2%
2015	917	178	19.4%	11	4.8%	6.2%
2016	857	174	20.3%	11	4.8%	6.3%
Total	13,992	1,975	14.1%	229	100%	

Panel D. Frequency Distribution by Industry

GICS Sector (Sector Number)	Number of Observations	Percent of Total Observations	Number of Free Cash Flow Disclosures	Industry Disclosure Proportion
Energy (10)	696	5.0%	26	3.7%
Materials (15)	823	5.9%	160	19.4%
Industrials (20)	2,042	14.6%	533	26.1%
Consumer Discretionary (25)	2,208	15.8%	344	15.6%
Consumer Staples (30)	615	4.4%	138	22.4%
Healthcare (35)	1,774	12.7%	204	11.5%
Financials (40)	1,975	14.1%	30	1.5%
Information Technology (45)	2,571	18.4%	396	15.4%
Telecom (50)	151	1.1%	87	57.6%
Utilities (55)	464	3.3%	13	2.8%
Real Estate (60)	673	4.8%	44	6.5%
Total	13,992	100.0%	1,975	

Table 2
Summary Statistics Regarding Definitions of Disclosed Free Cash Flow

This table reports summary statistics for the specific definitions of free cash flow that disclosing firms choose to report. Panel A provides statistics regarding the most common definitions and the starting points. Panel B summarizes free cash flow from continuing operations. Panel C provides details of adjustments for investments, and Panel D reports modifications to capital expenditures. Panel E presents details on dividends and other adjustments. Numbers in Panels C through E are conditional on starting from operating cash flows.

Panel A. Common FCF Definitions

	Number of Disclosures	Percent of Disclosures	Unique Firms
Simple FCF (operating CF - gross capex)	720	38%	
Modified Simple FCF (modified operating CF or gross capex)	409	21%	
Start from operating cash flows, other definition	665	35%	
Start from version of operating cash flows	1,794	94%	308
FCF starting point is not operating CF	112	6%	23
Total	**1,906**	**100%**	

Panel B. Continuing Operations

	Number of Disclosures	Percent of Disclosures	Unique firms
FCF total (not from continuing operations)	1,537	81%	305
FCF from continuing operations	369	19%	124
Total	**1,906**	**100%**	

Panel C. Adjustments for Investments

	Number of Disclosures	Percent of Disclosures	Unique firms
Capital expenditure adjustment	1,678	94%	293
Cash flow from investing adjustment	112	6%	22
Neither adjustment made	4	0%	3
Total	**1,794**	100%	

Table 2 (cont.)

Panel D. Modifications to Capital Expenditures

	Number of Disclosures	Percent of Disclosures with Capex adjustments	Unique firms
Capex number provided is net of proceeds	139	8%	28
Separate adjustment for proceeds from sale of PP&E	205	12%	42
Adjustment made for proceeds	344	21%	
No adjustment made for proceeds	1,334	79%	262
Total	**1,678**	**100%**	
FCF removes additional capitalized asset spending	222	13%	48
FCF does not remove all capital expenditures	72	4%	24
FCF removes capital expenditures	1,384	82%	253
Total	**1,678**	**100%**	

Panel E. Dividend and Other Adjustments

	Number of Disclosures	Percent of Disclosures	Unique firms
Dividend adjustments (includes preferred dividends)	124	7%	32
Other adjustments	355	20%	95

Table 3
Summary Statistics on the Values of Disclosed Free Cash Flow Components

This table provides summary statistics regarding the magnitude of disclosed free cash flow. Panel A reports details on the distribution of *Disclosed FCF* and its components. This panel also includes summary statistics for *Simple FCF* (OANCF - CAPX) and net income. Panel B reports statistics relating the magnitude of *Disclosed FCF* to *Net Income*. Panel C compares *Disclosed FCF* to *Simple FCF*.

Panel A. Descriptive Statistics of Disclosed FCF Values

Variable	N	Mean	StdDev	Min	25th	Median	75th	Max
Disclosed FCF	1,975	928	2,324	-3,010	73	210	623	27,282
CF from Operations	1,794	1,676	4,384	-2,360	142	362	1,105	39,300
Capex	1,770	634	2,187	-11	39	108	326	22,400
Other capitalized assets	150	139	261	-9	12	43	115	1,686
Dividends	140	204	511	-51	9	38	159	4,262
Sale of PPE	205	62	184	0	1	4	23	1,562
Special items	138	133	340	-189	5	22	115	2,754
Other Adjustments	466	30	412	-2,306	-37	4	68	2,400
Simple FCF	1,975	910	2,313	-7,944	66	211	643	22,214
Net Income	1,975	710	2,145	-17,462	39	150	529	19,864

Panel B. Disclosed Free Cash Flow Values Relative to Net Income

Variable	N	Percent of Observations
Disclosed FCF greater than net income	1,346	68.2%
Disclosed FCF less than net income	626	31.7%
Disclosed FCF equal to net income	3	0.2%
Total	1,975	100.0%

Panel C. Disclosed Free Cash Flow Values Relative to Simple Free Cash Flow Values

Variable	N	Percent of Observations	Percent of Adjusted
Disclosed FCF greater than simple FCF	735	37.2%	59.4%
Disclosed FCF less than simple FCF	502	25.4%	40.6%
Disclosed FCF different from simple FCF	1,237	62.6%	100.0%
Disclosed FCF equal to simple FCF	738	37.4%	
Total	1,975	100.0%	

Table 4
Descriptive Statistics for Firm-Specific Control Variables

This table reports summary statistics for the firm-specific explanatory variables used in our regression analysis. These variables include proxies for the information, opportunism, and control variables. All variables are defined in the Appendix. Information variables are *Capital intensity*, *Deferred revenue*, *Leverage*, *FCF volatility*, *Acquired indicator*, *Sales growth*, *MTB*, and an indicator for *One-time events*. Opportunism variables are indicators for *Loss*, *Earnings decrease*, *Positive simple FCF*, *Increase in simple FCF*, and the value of *Lease obligations*. Control variables include *Assets*, *Analyst following*, *Institutional ownership*, and *Age*. Panel A reports results for the full sample of firm-years. Panel B reports results separately for firm-years with free cash flow disclosure and those without. Panel B also reports results of a *t*-test comparing means and a Wilcoxon rank sum test comparing medians between the two samples.

Panel A. Descriptive Statistics (All Firm-Years)

Variable	N	Mean	StdDev	Min	25th	Median	75th	Max
Capital intensity	13,992	0.21	0.22	0.00	0.04	0.13	0.31	0.89
Deferred revenue	13,991	0.05	0.12	0.00	0.00	0.00	0.03	0.81
Leverage	13,956	0.49	1.11	0.00	0.06	0.21	0.51	18.96
FCF volatility	13,893	284	677	3	30	73	209	6,527
Acquired indicator	13,992	0.23	0.42	0.00	0.00	0.00	0.00	1.00
Sales growth	13,978	0.09	0.20	-0.54	-0.01	0.07	0.16	1.68
MTB	13,942	3.00	3.54	-14.16	1.43	2.16	3.45	39.62
One-time event	13,992	0.35	0.48	0.00	0.00	0.00	1.00	1.00
Loss	13,992	0.14	0.35	0.00	0.00	0.00	0.00	1.00
Earnings decrease	13,992	0.38	0.49	0.00	0.00	0.00	1.00	1.00
Positive simple FCF	13,992	0.84	0.36	0.00	1.00	1.00	1.00	1.00
Increase in simple FCF	13,992	0.55	0.50	0.00	0.00	1.00	1.00	1.00
Lease obligations	13,992	0.10	0.19	0.00	0.01	0.03	0.08	1.32
Assets	13,992	12,580	35,638	40	781	2,397	8,068	403,821
Analyst following	13,992	9.04	7.95	0.00	3.00	7.00	14.00	55.00
Institutional ownership	13,992	0.69	0.29	0.00	0.60	0.77	0.89	1.00
Age	13,992	27.60	16.62	0.00	15.00	22.00	40.00	66.00

Table 4, (cont.)

Panel B. Descriptive Statistics (Partitioned by Free Cash Flow Disclosure)

	Free cash flow disclosers			Free cash flow non-disclosers			Test of differences	
Variable	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**Mean**	**Median**
Capital intensity	1,975	0.22	0.16	12,017	0.21	0.12	**3.02**	**12.34**
Deferred revenue	1,975	0.04	0.00	12,016	0.05	0.00	**-2.00**	**9.13**
Leverage	1,969	0.49	0.24	11,987	0.49	0.20	-0.18	**5.77**
FCF volatility	1,974	381	114.28	11,919	268	67	**6.90**	**15.31**
Acquired indicator	1,975	0.18	0.00	12,017	0.23	0.00	**-4.66**	**-4.65**
Sales growth	1,974	0.06	0.05	12,004	0.09	0.07	**-5.91**	**-7.21**
MTB	1,964	3.64	2.45	11,978	2.89	2.12	**8.69**	**8.29**
One-time event	1,975	0.44	0.00	12,017	0.34	0.00	**8.68**	**8.65**
Loss	1,975	0.13	0.00	12,017	0.15	0.00	-1.55	-1.55
Earnings decrease	1,975	0.40	0.00	12,017	0.38	0.00	1.73	1.73
Positive simple FCF	1,975	0.92	1.00	12,017	0.83	1.00	**9.57**	**9.54**
Increase in simple FCF	1,975	0.58	1.00	12,017	0.55	1.00	**2.88**	**2.88**
Lease obligations	1,975	0.10	0.05	12,017	0.10	0.03	-1.03	**14.85**
Assets	1,975	14,969	3,809	12,017	12,187	2,185	**3.22**	**13.41**
Analyst following	1,975	10.31	9.00	12,017	8.83	7.00	**7.67**	**5.41**
Institutional ownership	1,975	0.67	0.77	12,017	0.69	0.77	**-3.45**	-1.39
Age	1,975	30.75	25.00	12,017	27.08	22.00	**9.11**	**7.96**

Table 5
Determinants of the Disclosure of Free Cash Flow

In this table, we report results of our regression analyses of the determinants of free cash flow disclosure. Columns (1) and (2) report logit regressions for the initiation decision; the dependent variable equals one for firm-years in which firms disclose free cash flow for the first time and zero for firm-years without free cash flow disclosure. Columns (3) and (4) report results for ongoing disclosure; the dependent variable equals one for all firm-years in which firms disclose free cash flow and zero for firm-years that have never disclosed. We report regression coefficients (*p*-values in parentheses) and marginal effects. Columns (1) and (3) use lagged industry disclosure and year fixed effects, and columns (2) and (4) use year and industry fixed effects. Explanatory variables include measures of information, opportunism, and control variables, and are defined in the Appendix. Two-tailed robust *p*-values are provided in parentheses. Coefficients that are significant at the 1, 5, or 10% level are marked with ***, **, or *, respectively.

Table 5 (cont.)

	(1) Initial Disclosures		(2) Initial Disclosures		(3) All Disclosures		(4) All Disclosures	
	Coeff (p-values)	Marginal Effects	Coeff (p-values)	Marginal Effects	Coeff (p-values)	Marginal Effects	Coeff (p-values)	Marginal Effects
Information Variables								
Capital intensity	0.535*	0.011	0.099	0.002	0.072	0.008	0.067	0.007
	(0.098)		(0.824)		(0.828)		(0.877)	
Deferred revenue	-0.095	-0.002	-0.281	-0.006	0.013	0.001	-0.103	-0.011
	(0.856)		(0.617)		(0.979)		(0.854)	
Leverage	-0.028	-0.001	0.062	0.001	0.012	0.001	0.074*	0.008*
	(0.757)		(0.331)		(0.810)		(0.073)	
FCF volatility	-0.047	-0.001	-0.208*	-0.004	-0.308***	-0.033***	-0.406***	-0.042***
	(0.680)		(0.099)		(0.009)		(0.002)	
Acquired indicator	0.048	0.001	0.017	0.000	0.049	0.005	0.018	0.002
	(0.791)		(0.928)		(0.794)		(0.922)	
Sales growth	-0.040	-0.001	-0.115	-0.002	-0.390*	-0.042*	-0.450**	-0.047**
	(0.924)		(0.780)		(0.092)		(0.048)	
MTB	-0.014	-0.000	-0.017	-0.000	0.043***	0.005**	0.037**	0.004**
	(0.657)		(0.603)		(0.009)		(0.012)	
One-time event	0.209	0.004	0.197	0.004	0.480***	0.052***	0.408***	0.042***
	(0.164)		(0.204)		(0.000)		(0.000)	
Opportunism Variables								
Loss	0.023	0.000	-0.105	-0.002	0.007	0.001	-0.070	-0.007
	(0.917)		(0.646)		(0.955)		(0.565)	
Earnings decrease	0.358**	0.008**	0.356**	0.007**	-0.037	-0.004	-0.030	-0.003
	(0.015)		(0.015)		(0.530)		(0.594)	
Positive simple FCF	0.914***	0.019***	0.877***	0.018***	0.557***	0.061***	0.577***	0.060***
	(0.002)		(0.004)		(0.000)		(0.000)	
Increase in simple FCF	0.596***	0.013***	0.584***	0.012***	0.065	0.007	0.053	0.006
	(0.000)		(0.000)		(0.240)		(0.313)	
Lease obligations	0.096	0.002	0.220	0.005	-0.174	-0.019	-0.512	-0.053
	(0.767)		(0.559)		(0.612)		(0.229)	
Control Variables								
Ln(Assets)	0.137**	0.003**	0.321***	0.007***	0.351***	0.038***	0.512***	0.053***
	(0.025)		(0.000)		(0.000)		(0.000)	
Ln(Analyst following)	0.004	0.000	-0.174	-0.004	-0.008	-0.001	-0.138	-0.014
	(0.971)		(0.120)		(0.927)		(0.122)	
Institutional ownership	-0.166	-0.004	-0.078	-0.002	-0.254	-0.028	-0.234	-0.024
	(0.597)		(0.820)		(0.397)		(0.448)	
Ln(Age)	-0.049	-0.001	-0.269**	-0.006**	-0.345**	-0.037**	-0.436***	-0.045***
	(0.728)		(0.041)		(0.017)		(0.002)	
Lagged industry disclosure	5.256***	0.112***			8.632***	0.938***		
	(0.000)				(0.000)			
Fixed effects	*Year*		*Year & Industry*		*Year*		*Year & Industry*	
Observations	10,244		10,600		12,553		13,841	
Obs. for which DV = 1	229		229		1975		1,975	
Pseudo R2	0.0556		0.0855		0.134		0.165	

Table 6
Regressions of Earnings Announcement Returns on Earnings Surprise and Free Cash Flow Surprise

This table reports results of OLS regressions of cumulative abnormal stock returns (*CAR*) measured over a 3-day window relative to the earnings announcement day on the earnings surprise and the free cash flow surprise. Abnormal returns are measured relative to the CRSP value-weighted index. Results in Panel A include non-disclosers and *Simple FCF* disclosers, and use an indicator (*FCF Discloser*) for firms that disclose FCF. Results in Panel B are for the subsample of firms that disclose free cash flow. *Earnings Surprise* is reported earnings per share less TTM earnings per share, scaled by beginning of period price. *Simple FCF Surprise* is *Simple FCF* (as defined in equation (5)) less *TTM Simple FCF*. *FCF Diff* is *Disclosed FCF* minus *Simple FCF* (from equation (7)). *Positive FCF Diff* is equal to *FCF Diff* when it is positive, and zero otherwise. *Negative FCF Diff* is defined analogously. All free cash flow measures are divided by weighted average diluted shares outstanding and scaled by beginning of period price. All independent variables are decile ranked by year. See the Appendix for definitions. We also include year and industry fixed effects. Two-tailed robust *p*-values are provided in parentheses. Coefficients that are significant at the 1, 5, or 10% level are marked with ***, **, or *, respectively.

Panel A. Non-Disclosers versus Simple FCF Disclosers

	(1)	(2)	(3)	(4)
Earnings Surprise	0.0034***		0.0030***	0.0030***
	(0.0000)		(0.0000)	(0.0000)
Simple FCF Surprise		0.0032***	0.0028***	0.0027***
		(0.0000)	(0.0000)	(0.0000)
*Simple FCF Surprise*FCF Discloser*				0.0026**
				(0.0366)
FCF Discloser				-0.0153*
				(0.0543)
Constant	-0.0143***	-0.0119***	-0.0272***	-0.0265***
	(0.0005)	(0.0021)	(0.0000)	(0.0000)
Fixed Effects	Year and Industry	Year and Industry	Year and Industry	Year and Industry
Observations	11,795	11,795	11,795	11,795
Observations with FCF disclosure	668	668	668	668
R-squared	0.0182	0.0170	0.0269	0.0273

Panel B. Subsample with Free Cash Flow Disclosure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Earnings Surprise	0.0033***		0.0028***	0.0028***	0.0028***	0.0028***	0.0028***
	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Simple FCF Surprise		0.0038***	0.0033***	0.0034***	0.0034***	0.0033***	0.0034***
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
FCF Diff				0.0015**			
				(0.0294)			
Positive FCF Diff					0.0013**		0.0014**
					(0.0189)		(0.0234)
Negative FCF Diff						0.0019	-0.0009
						(0.4616)	(0.7523)
Constant	-0.0240**	-0.0254**	-0.0380***	-0.0468***	-0.0449***	-0.0438***	-0.0426***
	(0.0378)	(0.0239)	(0.0012)	(0.0002)	(0.0002)	(0.0018)	(0.0022)
Fixed effects	Year and Industry	Year and Industry	Year and Industry	Year and Industry	Year and Industry	Year and Industry	Year and Industry
Observations	1,955	1,955	1,955	1,955	1,955	1,955	1,955
R-squared	0.0261	0.0308	0.0412	0.0442	0.0451	0.0415	0.0452

Internet Appendix for

Free Cash Flow Disclosure in Earnings Announcements

Table A1. Examples of Free Cash Flow Disclosures

Table A2. Initiation Regressions from Table 5 with Industry/Year FE and Hazard Model

Table A3. Robustness of All Disclosures Regressions from Table 5: Excluding Initial Disclosures

Table A4. Robustness of Regressions from Table 5: Include S&P 1500 Indicator as Control Variable

Table A5. Determinants of Stopping and Restarting Free Cash Flow Disclosure

Table A6. Determinants of Decision to Disclose Free Cash Flow Measure Adjusted Beyond the Simple Definition

Table A7. Determinants of Specific Adjustments to Simple Free Cash Flow Definition

Table A1
Examples of Free Cash Flow Disclosures

Itron Inc. 2015 Free Cash Flow

	Three Months Ended December 31,		Twelve Months Ended December 31,	
	2015	2014	2015	2014
FREE CASH FLOW				
Net cash provided by operating activities	$ 53,196	$ 15,435	$ 73,350	$ 132,973
Acquisitions of property, plant, and equipment	(10,594)	(12,435)	(43,918)	(44,495)
Free Cash Flow	$ 42,602	$ 4,000	$ 29,432	$ 88,478

https://www.sec.gov/Archives/edgar/data/780571/000115752316004620/a51281831ex99_1.htm

Comfort Systems USA Inc. 2008 Free Cash Flow

Selected Cash Flow Data (in thousands):

	Three Months Ended December 31, (unaudited)		Twelve Months Ended December 31,	
	2008	2007	2008	2007
Cash provided by (used in)				
Operating activities	$ 35,895	$ 58,101	$ 82,851	$ 83,642
Investing activities	$ (3,913)	$ (6,080)	$ (65,034)	$ (18,132)
Financing activities	$ (17,267)	$ (10,117)	$ (40,433)	$ (16,165)
Free cash flow:				
Cash from operating activities	$ 35,895	$ 58,101	$ 82,851	$ 83,642
Purchases of property and equipment	(3,794)	(3,262)	(14,572)	(11,088)
Proceeds from sales of property and equipment	—	69	656	265
Free cash flow	$ 32,101	$ 54,908	$ 68,935	$ 72,819

Note 1: Free cash flow is defined as cash flow from operating activities excluding items related to sale of businesses, less customary capital expenditures, plus the proceeds from asset sales. Other companies may define free cash flow differently. Free cash flow is presented because it is a financial measure that is frequently requested by third parties. However, free cash flow is not considered under generally accepted accounting principles as a primary measure of an entity's financial results, and accordingly, free cash flow should not be considered an alternative to operating income, net income, or cash flows as determined under generally accepted accounting principles and as reported by the Company.

https://www.sec.gov/Archives/edgar/data/1035983/000110465909012620/a09-6455_1ex99d1.htm

NRG Energy Inc. 2013 Free Cash Flow

The following table summarizes the calculation of adjusted cash flow operating activities providing a reconciliation to net cash provided by operating activities

($ in millions)	Twelve months ended December 31, 2013	Twelve months ended December 31, 2012(1)
Net Cash Provided by Operating Activities	**1,270**	**1,149**
Adjustment for change in collateral	47	(82)
Reclassifying of net receipts (payments) for settlement of acquired derivatives that include financing elements	267	(68)
Add: Merger and integration expenses	141	46
Adjusted Cash Flow from Operating Activities	**1,725**	**1,045**
Maintenance CapEx, net	(325)	(215)
Environmental CapEx, net	(104)	(5)
Preferred dividends	(9)	(9)
Distributions to non-controlling interests	(5)	—
Free cash flow - before Growth investments	1,282	816

https://www.sec.gov/Archives/edgar/data/1013871/000110465914014446/a14-7045_1ex99d1.htm

Table A2
Initiation Regressions from Table 5 with Industry/Year FE and Hazard Model

This table re-estimates the initiation regressions from Table 5 using industry/year fixed effects (column 1) and using a hazard model (columns 2 and 3).

	(1) Logit		(2) Hazard	(3) Hazard
	Coeff (p-values)	Marginal Effects		
Information Variables				
Capital intensity	0.054	0.001	0.528	0.114
	(0.904)		(0.116)	(0.786)
Deferred revenue	-0.366	-0.010	-0.099	-0.283
	(0.518)		(0.876)	(0.676)
Leverage	0.052	0.001	-0.023	0.064
	(0.428)		(0.772)	(0.349)
FCF volatility	-0.208*	-0.005*	-0.047	-0.203
	(0.089)		(0.711)	(0.139)
Acquired indicator	0.036	0.001	0.046	0.019
	(0.842)		(0.784)	(0.911)
Sales growth	-0.105	-0.003	-0.026	-0.108
	(0.805)		(0.948)	(0.789)
MTB	-0.014	-0.000	-0.016	-0.019
	(0.662)		(0.507)	(0.434)
One-time event	0.202	0.005	0.202	0.180
	(0.206)		(0.167)	(0.225)
Opportunism Variables				
Loss	-0.120	-0.003	0.016	-0.096
	(0.607)		(0.944)	(0.670)
Earnings decrease	0.339**	0.009**	0.341**	0.335**
	(0.024)		(0.019)	(0.022)
Positive simple FCF	0.873***	0.023***	0.901***	0.877***
	(0.005)		(0.002)	(0.003)
Increase in simple FCF	0.571***	0.015***	0.569***	0.559***
	(0.000)		(0.000)	(0.000)
Lease obligation	0.204	0.005	0.100	0.245
	(0.583)		(0.766)	(0.520)
Control Variables				
Ln(Assets)	0.315***	0.008***	0.122*	0.299***
	(0.000)		(0.054)	(0.000)
Ln(Analyst following)	-0.186	-0.005	0.029	-0.138
	(0.107)		(0.765)	(0.174)
Institutional ownership	-0.110	-0.003	-0.171	-0.111
	(0.752)		(0.554)	(0.713)
Ln(Age)	-0.274**	-0.007**	-0.031	-0.243**
	(0.040)		(0.796)	(0.050)
Lagged industry disclosure			4.840***	
			(0.000)	
Fixed effects	*Year-Industry*	*Year-Industry*	*None*	*Industry*
Observations	8,206	8,206	11,410	10,908
Observations for which DV = 1	229	229	229	229

Table A3
Robustness of All Disclosures Regressions from Table 5: Excluding Initial Disclosures

This table reports results from columns (3) and (4) of Table 5, excluding initial disclosures.

	(1)		(2)	
	Coeff (p-values)	**Marginal Effects**	**Coeff (p-values)**	**Marginal Effects**
Information Variables				
Capital intensity	-0.023	-0.002	0.034	0.003
	(0.950)		(0.942)	
Deferred revenue	0.048	0.005	-0.057	-0.005
	(0.929)		(0.923)	
Leverage	0.016	0.002	0.078*	0.007*
	(0.747)		(0.074)	
FCF volatility	-0.345***	-0.034***	-0.433***	-0.041***
	(0.009)		(0.003)	
Acquired indicator	0.041	0.004	0.015	0.001
	(0.845)		(0.942)	
Sales growth	-0.429*	-0.042*	-0.489**	-0.046**
	(0.087)		(0.046)	
MTB	0.047***	0.005***	0.042***	0.004***
	(0.006)		(0.007)	
One-time event	0.532***	0.052***	0.449***	0.043***
	(0.000)		(0.000)	
Opportunism Variables				
Loss	0.019	0.002	-0.054	-0.005
	(0.890)		(0.683)	
Earnings decrease	-0.103*	-0.010*	-0.087	-0.008
	(0.092)		(0.133)	
Positive simple FCF	0.503***	0.049***	0.538***	0.051***
	(0.002)		(0.001)	
Increase in simple FCF	-0.011	-0.001	-0.019	-0.002
	(0.846)		(0.722)	
Lease obligations	-0.230	-0.022	-0.641	-0.061
	(0.536)		(0.164)	
Control Variables				
Ln(Assets)	0.383***	0.037***	0.540***	0.051***
	(0.000)		(0.000)	
Ln(Analyst following)	-0.001	-0.000	-0.129	-0.012
	(0.993)		(0.181)	
Institutional ownership	-0.257	-0.025	-0.249	-0.024
	(0.436)		(0.454)	
Ln(Age)	-0.376**	-0.037**	-0.458***	-0.043***
	(0.018)		(0.002)	
Lagged industry disclosure	8.921***	0.872***		
	(0.000)			
Fixed effects	*Year*	*Year*	*Year & Industry*	*Year & Industry*
Observations	12,326	12,326	13,614	13,614
Pseudo R-squared	0.147		0.176	

Table A4
Robustness of Regressions from Table 5
Include S&P 1500 Indicator as Control Variable

	(1) Initial Disclosure		(2) Initial Disclosure		(3) Ongoing Disclosure		(4) Ongoing Disclosure	
	Coeff (p-values)	Marginal Effects	Coeff (p-values)	Marginal Effects	Coeff (p-values)	Marginal Effects	Coeff (p-values)	Marginal Effects
Information Variables								
Capital intensity	0.486	0.010	0.024	0.000	0.060	0.007	0.050	0.005
	(0.136)		(0.957)		(0.856)		(0.908)	
Deferred revenue	-0.043	-0.001	-0.248	-0.005	0.008	0.001	-0.132	-0.014
	(0.935)		(0.660)		(0.987)		(0.814)	
Leverage	-0.022	-0.000	0.064	0.001	0.005	0.001	0.068	0.007
	(0.798)		(0.306)		(0.911)		(0.104)	
FCF volatility	-0.036	-0.001	-0.197	-0.004	-0.320***	-0.035***	-0.425***	-0.044***
	(0.756)		(0.122)		(0.007)		(0.001)	
Acquired indicator	0.026	0.001	-0.004	-0.000	0.048	0.005	0.014	0.001
	(0.888)		(0.985)		(0.799)		(0.939)	
Sales growth	-0.049	-0.001	-0.133	-0.003	-0.407*	-0.044*	-0.474**	-0.049**
	(0.911)		(0.755)		(0.078)		(0.037)	
MTB	-0.014	-0.000	-0.017	-0.000	0.041**	0.004**	0.036**	0.004**
	(0.659)		(0.603)		(0.012)		(0.015)	
One-time event	0.209	0.004	0.198	0.004	0.486***	0.053***	0.411***	0.043***
	(0.169)		(0.204)		(0.000)		(0.000)	
S&P1500 indicator	0.272	0.006	0.221	0.004	-0.150	-0.016	-0.256	-0.027
	(0.234)		(0.327)		(0.421)		(0.149)	
Opportunism Variables								
Loss	0.050	0.001	-0.075	-0.002	-0.004	-0.000	-0.087	-0.009
	(0.824)		(0.744)		(0.976)		(0.474)	
Earnings decrease	0.314**	0.007**	0.312**	0.006**	-0.041	-0.004	-0.029	-0.003
	(0.034)		(0.034)		(0.481)		(0.605)	
Positive simple FCF	0.893***	0.019***	0.861***	0.017***	0.552***	0.060***	0.576***	0.060***
	(0.003)		(0.004)		(0.001)		(0.000)	
Increase in simple FCF	0.578***	0.012***	0.567***	0.012***	0.062	0.007	0.050	0.005
	(0.000)		(0.000)		(0.263)		(0.347)	
Lease obligations	0.024	0.000	0.186	0.004	-0.198	-0.022	-0.538	-0.056
	(0.944)		(0.633)		(0.564)		(0.203)	
Control Variables								
Ln(Assets)	0.121*	0.003*	0.308***	0.006***	0.359***	0.039***	0.527***	0.055***
	(0.060)		(0.000)		(0.000)		(0.000)	
Ln(Analyst following)	0.017	0.000	-0.159	-0.003	-0.003	-0.000	-0.134	-0.014
	(0.873)		(0.165)		(0.973)		(0.136)	
Institutional ownership	-0.243	-0.005	-0.143	-0.003	-0.252	-0.027	-0.228	-0.024
	(0.438)		(0.677)		(0.400)		(0.457)	
Ln(Age)	-0.078	-0.002	-0.293**	-0.006**	-0.328**	-0.036**	-0.413***	-0.043***
	(0.591)		(0.031)		(0.024)		(0.003)	
Lagged industry disclosure	5.308***	0.112***			8.659***	0.938***		
	(0.000)				(0.000)			
Fixed effects	*Year*	*Year*	*Year & Industry*	*Year & Industry*	*Year*	*Year*	*Year & Industry*	*Year & Industry*
Observations	10,203	10,203	10,559	10,559	12,500	12,500	13,788	13,788
Pseudo R2	0.0561		0.0860		0.134		0.166	

Table A5
Determinants of Stopping and Restarting Free Cash Flow Disclosure

This table reports summary statistics and results of our regression analyses of logit regressions of the determinants of stopping and restarting disclosure of free cash flow. Panel A provides summary statistics on the frequency of "stoppers" (firms that disclosed last year and do not disclose in the current year) and "restarters" (firms that disclosed and subsequently stopped disclosing in prior years and resume disclosures in the current year). Panel B reports the frequency distribution for the number of stopping and restarting firms. Panel C report results of logit regressions of the determinants of stopping and restarting disclosure. Column (1) in Panel C reports the results for the determinants of stopping. This sample includes all firms that disclosed in the prior year. The dependent variable equals one for firms that stop disclosing this year, and zero for firms that continue to disclose. Column (2) examines the restarting decision. The sample includes firms that previously disclosed in earlier years, stopped disclosing at some point, and did not disclose in the prior year. The dependent variable equals one for restarters and zero for firms that continue not disclosing. Explanatory variables in both logit regressions include measures of information, opportunism, and control variables, and are defined in the Appendix to the paper. We include year and industry fixed effects. Two-tailed robust *p*-values are provided in parentheses in Panel C, and coefficients that are significant at the 1, 5, or 10% level are marked with ***, **, or *, respectively.

Panel A. Stoppers and Restarters by Year

Year	Number of Stops	Number of Restarts
2005	8	
2006	24	1
2007	11	7
2008	9	4
2009	15	8
2010	22	12
2011	23	6
2012	20	10
2013	12	13
2014	15	5
2015	19	8
2016	16	14
Total	194	88

Panel B. Stopping and Restarting by Firm

Number of stops after first mention	Number of unique firms	Percent of FCF disclosers
0	182	52.9%
1	134	39.0%
2	25	7.3%
3	2	0.6%
4	1	0.3%
Total	344	100.0%

Panel C. Logit Regression of Determinants of Stopping and Restarting

	Stop	Restart
Information Variables		
Capital intensity	0.074	1.823
	(0.915)	(0.102)
Deferred revenue	-1.066	-1.211
	(0.478)	(0.454)
Leverage	0.068	-0.015
	(0.230)	(0.898)
FCF volatility	0.356	0.477
	(0.184)	(0.474)
Acquired indicator	0.031	1.293***
	(0.913)	(0.003)
Sales growth	0.576	-1.168
	(0.333)	(0.426)
MTB	-0.052**	0.049
	(0.011)	(0.272)
One-time event	-0.200	-0.150
	(0.259)	(0.705)
Opportunism Variables		
Loss	-0.052	-0.104
	(0.839)	(0.885)
Earnings decrease	0.107	0.020
	(0.541)	(0.954)
Positive simple FCF	-0.278	0.598
	(0.312)	(0.331)
Increase in simple FCF	-0.547***	0.043
	(0.002)	(0.901)
Lease obligation	0.356	0.218
	(0.656)	(0.856)
Control Variables		
Ln(Assets)	-0.309**	0.065
	(0.010)	(0.803)
Ln(Analyst following)	0.013	-0.666**
	(0.921)	(0.011)
Institutional ownership	0.217	0.972
	(0.586)	(0.211)
Ln(Age)	0.331	-0.922**
	(0.143)	(0.030)
Fixed effects	*Year & Industry*	*Year & Industry*
Observations	1,727	293
Observations for which DV = 1	194	88

Table A6
Determinants of Decision to Disclose Free Cash Flow Measure Adjusted Beyond the Simple Definition

This table reports results of logit regressions of the determinants of the specific definition of disclosed free cash flow. The sample includes all firm-years with a free cash flow disclosure. In column (1), the dependent variable equals one for firm-years in which firms disclose a free cash flow measure not equal to the simple definition, and zero for firms that disclose *Simple FCF*. We also separately examine firms that report an adjusted number that is greater or less than *Simple FCF*. The dependent variable in column (2) equals one if the firm deviates from the simple definition to disclose a free cash flow number that is higher than the simple definition, and zero if the firm reports the simple definition. We do not include firms that report a downward deviation in column (2). Analogous methods hold for column (3), where we focus on deviations that are lower than the simple definition. Explanatory variables include measures of information, opportunism, and control variables, and are defined in the Appendix to the paper. We include year and industry fixed effects. Two-tailed robust *p*-values are provided in parentheses. Coefficients that are significant at the 1, 5, or 10% level are marked with ***, **, or *, respectively.

Table A6 (cont.)

	(1)	(2)	(3)
	Disclosed FCF not equal to Simple FCF	Disclosed FCF greater than Simple FCF	Disclosed FCF less than Simple FCF
Information Variables			
Capital intensity	2.039**	1.959**	2.144*
	(0.013)	(0.036)	(0.050)
Deferred revenue	0.415	-0.188	1.461
	(0.758)	(0.884)	(0.424)
Leverage	0.064	0.036	0.041
	(0.612)	(0.755)	(0.648)
FCF volatility	-0.407*	-0.417*	-0.367
	(0.069)	(0.070)	(0.144)
Acquired indicator	-0.219	-0.315	-0.067
	(0.431)	(0.304)	(0.847)
Sales growth	0.429	0.689	0.083
	(0.365)	(0.205)	(0.895)
MTB	-0.004	0.002	-0.016
	(0.817)	(0.900)	(0.472)
One-time event	0.630***	0.594***	0.629***
	(0.000)	(0.000)	(0.003)
Opportunism Variables			
Loss	-0.204	-0.154	-0.290
	(0.378)	(0.558)	(0.274)
Earnings decrease	0.037	-0.045	0.157
	(0.739)	(0.719)	(0.253)
Positive simple FCF	-0.085	-0.313	0.503
	(0.802)	(0.342)	(0.344)
Increase in simple FCF	-0.384***	-0.466***	-0.268*
	(0.001)	(0.000)	(0.059)
Lease obligation	-1.286	-1.032	-2.042*
	(0.211)	(0.362)	(0.093)
Control Variables			
Ln(Assets)	0.114	0.096	0.133
	(0.300)	(0.437)	(0.265)
Ln(Analyst following)	-0.148	-0.147	-0.151
	(0.241)	(0.311)	(0.374)
Institutional ownership	-0.130	-0.174	-0.112
	(0.752)	(0.712)	(0.832)
Ln(Age)	0.329	0.169	0.517*
	(0.142)	(0.498)	(0.071)
Fixed effects	*Year & Industry*	*Year & Industry*	*Year & Industry*
Observations	1,905	1,427	1,206
Observations for which DV=1	1,237	735	502
Pseudo R2	0.0896	0.0790	0.149

Table A7
Determinants of Specific Adjustments to Simple Free Cash Flow Definition

This table reports results of logit regressions of the determinants of specific adjustments in the disclosed measure of free cash flow. The sample for columns (1), (3), (4), and (5) includes all observations for which the free cash flow calculation begins with operating cash flow. Column (2) is conditional on free cash flow starting with operating cash flow and the existence of a non-zero dividend (Compustat *DVT*). The sample for column (6) includes all firm-years with a free cash flow disclosure. The dependent variable equals one for all firm-years in which firms make a specific adjustment to free cash flow and zero otherwise. Adjustments include *PPE Sale* (column (1)), *Dividends* (column (2)), other adjustments (*Other Adj.*, column (3)), starting with operating cash flow from continuing operations (*Cont. Ops*, column (4)), adjusting for cash flow from investing rather than capital expenditures (*Investing CF*, column (5)), and using a starting point other than operating cash flow (*Other Start*, column (6)). Explanatory variables include measures of information, opportunism, and control variables, and are defined in the Appendix to the paper. We include year and industry fixed effects. Two-tailed robust *p*-values are provided in parentheses. Coefficients that are significant at the 1, 5, or 10% level are marked with ***, **, or *, respectively.

Table A7 (cont.)

	(1) PPE Sale	(2) Dividends	(3) Other Adj.	(4) Cont. Ops.	(5) Investing CF	(6) Other Start
Information Variables						
Capital intensity	-1.509***	4.460***	1.963***	-0.194	7.931***	1.783**
	(0.005)	(0.000)	(0.000)	(0.735)	(0.000)	(0.049)
Deferred revenue	-13.867***	-0.850	-1.513*	1.837**	-1.707	-5.919**
	(0.000)	(0.484)	(0.097)	(0.013)	(0.352)	(0.042)
Leverage	-0.192	0.073	0.075	0.097	-0.891*	0.357***
	(0.193)	(0.713)	(0.297)	(0.254)	(0.084)	(0.000)
FCF volatility	0.185	-0.735**	-0.281**	-0.439***	-1.051***	-0.102
	(0.207)	(0.017)	(0.040)	(0.005)	(0.003)	(0.658)
Acquired indicator	-0.189	1.003***	-0.733***	-0.134	-0.580	-0.445
	(0.304)	(0.000)	(0.000)	(0.515)	(0.139)	(0.212)
Sales growth	0.225	-0.743	0.312	-0.464	0.727	0.794
	(0.591)	(0.470)	(0.525)	(0.322)	(0.370)	(0.196)
MTB	0.031**	0.042***	-0.008	-0.001	-0.071**	0.022
	(0.014)	(0.006)	(0.560)	(0.947)	(0.030)	(0.267)
One-time event	-0.180	-0.152	0.031	1.996***	0.243	-0.734**
	(0.189)	(0.562)	(0.823)	(0.000)	(0.355)	(0.011)
Opportunism Variables						
Loss	0.330	-0.682	0.057	-0.288	0.580	-0.993*
	(0.130)	(0.121)	(0.789)	(0.176)	(0.121)	(0.074)
Earnings decrease	0.152	0.064	-0.022	-0.212	-0.215	-0.242
	(0.288)	(0.808)	(0.873)	(0.143)	(0.406)	(0.367)
Positive simple FCF	0.025	-0.472	0.376	-0.085	0.667*	0.345
	(0.930)	(0.372)	(0.144)	(0.747)	(0.088)	(0.437)
Increase in simple FCF	-0.162	0.123	-0.526***	0.072	-0.425*	-0.655***
	(0.230)	(0.634)	(0.000)	(0.614)	(0.089)	(0.009)
Lease obligation	-1.133*	-2.466**	0.925*	-3.116***	1.723**	0.527
	(0.087)	(0.013)	(0.055)	(0.000)	(0.034)	(0.522)
Control Variables						
Ln(Assets)	-0.128*	0.111	0.347***	0.420***	0.287	-0.634***
	(0.055)	(0.398)	(0.000)	(0.000)	(0.132)	(0.000)
Ln(Analyst following)	-0.069	-0.532**	-0.416***	-0.117	0.561***	0.128
	(0.480)	(0.013)	(0.000)	(0.235)	(0.002)	(0.581)
Institutional ownership	-0.601**	1.069**	0.707**	-0.176	-0.936*	-1.242**
	(0.042)	(0.045)	(0.013)	(0.547)	(0.060)	(0.027)
Ln(Age)	0.054	0.048	0.168	-0.002	0.097	0.521**
	(0.635)	(0.865)	(0.139)	(0.989)	(0.725)	(0.026)
Fixed effects	*Year & Industry*	*Year & Industry*	*Year & Industry*	*Year & Industry*	*Year & Industry*	*Year & Industry*
Observations	1,696	1,124	1,781	1,781	1,564	1,601
Observations for which DV = 1	344	140	466	374	114	112
Pseudo R2	0.0836	0.234	0.113	0.188	0.323	0.363