An Analysis of the Sources of Value Loss Following Financial Restatements

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Abstract

We decompose the total value loss around firms' announcements of financial restatements into components arising from investors' revisions in cash flows and discount rates. While we find significant contributions from both sources, the impact of revisions in the discount rate is still more significant, explaining over 66% of the variation in stock returns surrounding restatement announcements. For restatements caused by financial fraud, the discount rate impact is much more important than the cash flow impact, explaining about 88% of return variation. Similarly, the discount rate impact is larger for firms with lower earnings persistence. Our decomposition of the value loss helps explain returns in the post-announcement period. Firms with a higher relative discount rate impact experience a significant downward stock price drift after the initial announcement-related price decline. For firms with a higher relative cash flow impact, the initial impact of the restatement announcement is long-lasting. Our findings close gaps in the evidence on financial restatements, extend the literature on the drivers of stock price movements and inform the research on the value relevance of earnings.

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1. Introduction

This study examines the underlying sources of declines in firm value following financial restatements, with the aim of estimating the relative contributions of value loss from such sources, and understanding whether and how post-restatement stock returns are affected by investors' initial reactions to restatements.[1] The sharp rise in financial restatements in the new millennium has shaken investor confidence in the corporate financial reporting system (GAO 2002; 2006). The annual frequency of restatements by US companies reporting to the Securities and Exchange Commission (SEC) peaked at nearly 1,850 in 2006, declining thereafter to around 900 in 2012 (Murphy 2014). Since the first listing of restatement firms published by the Government Accountability Office in 2002 (GAO 2002), academic research has provided consistent evidence of a significant negative stock price reaction associated with restatements. For instance, early work finds that short window cumulative average abnormal returns surrounding the restatement announcement range from -6% (Dechow et al. 1996) to -10% (GAO 2003, Palmrose et al. 2004). In subsequent studies, researchers have examined changes in specific components of the firm valuation model, i.e., projections of the firm's future cash flows or the discount rate used to value these cash flows (Hribar and Jenkins 2004). However, empirical evidence on the linkages between these valuation components to the announcement value decline is limited.

The various factors that contribute to the value change, typically negative, to financial restatements can be grouped into two main sources. First, restatements affect investors' priors about the firm's ability to generate or sustain future cash flows. The resulting change in value

[1] Restatements are defined "as corrections of accounting misstatements made previously by negligent, or in the extreme, opportunistic managers" (Baber et al. 2013). A restatement can be initiated by firms, auditors or regulators (SEC).

could be positive or negative depending on the direction of the restatement. Second, restatements create incremental uncertainty about the quality of the firm's earnings, which escalates the discount rate and causes a decline in firm value.[2] Here, it is more likely that the impact on value is negative. Prior studies examine each of these causes on a standalone basis and provide some evidence that suggests they are both significant contributors to the decline in firm value. While it is intuitive that restatements influence each of the cash flow and discount rate components of the firm valuation function, what is missing in the literature is a joint examination of both the sources of stock price declines. Specifically, no prior study has examined the relative importance of the two sources of stock price declines at restatement announcements. In this study, we undertake such an examination by decomposing the total restatement-related value loss that the firm experiences into a cash flow-related component and a discount rate-related component.

Such a decomposition, we believe is important for several reasons. First, quite simply, such a decomposition enables a direct comparison of the loss in value from each source. Not only is this of interest to researchers, but also practitioners because the challenge to managers of effecting changes in the cash flows of the firm is significantly different from the challenge of effecting changes in the discount rate of the firm. Whereas the former is in large part a result of managerial effort, the latter is heavily influenced not only by investor perception of the business risk of the firm but also by investor perception of the quality of firm management and the risks thereof. Second, related to the preceding point, the comparative challenge of tackling the value loss due to each of cash flow and discount rate revisions is likely to be different for different kinds of firms.[3] Third, by addressing these questions it is also possible to shed incremental light on a fundamental

[2] In this paper, we use the terms "discount rate", "cost of equity", "cost of equity capital", "implied cost of equity" and "cost of capital" interchangeably.

[3] For example, firms with high earnings persistence will likely find it harder to recover from a restatement that results in a bigger impact on value arising from changes in the discount rate.

question in the finance and accounting literature – are stock prices driven primarily by cash flow news or discount rate news (Campbell and Shiller 1988a)? [4] Finally, one advantage of our analyses is that we utilize a large sample of restatements to provide a comprehensive documentation of the links between the change in valuation of the restating firm and the extent to which it is driven by cash flow and discount rate changes. While this is an important issue, as discussed above, the existing empirical evidence on this is limited.

To examine the variation in stock price changes surrounding financial restatement announcements, we rely on the valuation frameworks in Chen et al. (2013) and Da et al. (2016) to first express a firm's stock price as a function of its discount rate and future cash flows. We then decompose stock price changes into components that can be attributed to cash flow revisions and discount flow revisions. Cash flow changes are estimated as the changes in the analyst consensus estimate of EPS across the restatement announcement. Revisions in the discount rate are measured by estimating the implied cost of equity from the Claus and Thomas (2001) model using analysts EPS forecasts and stock prices, both, before and after the restatement announcement.[5] Following Chen et al. (2013) and Da et al. (2016), we use the estimated revisions in each of the earnings forecasts and implied cost of equity in a variance decomposition framework that decomposes the total change in the stock price across the restatement into components attributable to each of the earnings and cost of equity revisions. By construction, the variance decomposition constrains the total variation in stock prices to be apportioned to one of the two components. This variance decomposition is, in principle, similar to the return decomposition of Campbell and Shiller (1988a;

[4] See also Campbell and Shiller (1988b; 2001), Cochrane (1992; 2008), Campbell and Ammer (1993), Ang (2002) and Vuoltennaho (2002) among many others. "News" is a commonly used term in the finance literature to refer to changes in expectations. For example, cash flow news means changes in investor's cash flow expectations.

[5] We use the stock price and the cash flow estimate before the restatement announcement for the pre-implied cost of equity and the corresponding values after the restatement announcement for the post-implied cost of equity.

1988b) and Vuolteenaho (2002).[6]

We use a sample of over 1,800 restatements drawn from the Audit Analytics database for our analysis. Our findings are as follows. We find that approximately 33.5% of the variation in stock price changes across restatements is attributable to revisions in the future earnings of the firm with the remaining 66.5% attributable to revisions in its implied cost of equity. Compared to only 12.9% for this component for the entire population, on average, the importance of cash flow news in explaining changes in valuation is much higher in the restatement sample. We also find that the restatement type is related to the extent to which it explains the change in stock values. We partition the restatement firms into two groups: firms whose initial (3-day) returns is negative [Negative BHAR(-1,1)] vs. positive [Positive BHAR(-1,1)] restatement subsamples. We document that the variation in stock prices is driven by revisions in future earnings (about 30%) and by revisions in implied cost of equity (about 70%) for both Negative and Positive BHAR(-1,1) restatement subsamples. However, two subsamples show quite different patterns in terms of the *magnitude* of changes in stock prices driven by each component. For example, the one-month average stock returns for the Negative BHAR(-1,1) group is -4.9%, of which -1.2% is driven by the investors' revisions in future earnings and -3.7% is driven by the revisions in its implied cost of equity. On the other hand, for the Positive BHAR(-1,1) subsample, the total stock price increase of 3.9% is mainly attributable to expectation changes in future earnings (4.6%), but very little is driven by changes in its implied cost of equity.

To better understand the relative importance of cash flow news versus discount rate news implications, we partition the restatement firms based on the underlying cause of the restatement:

[6] However, while the traditional return decomposition relies on vector autoregression methods to estimate market expectations, the method adopted in this paper utilizes forecasts made by analysts as an input to a return decomposition. See Chen and Zhao (2009) for arguments on why this is a preferred method.

1) accounting rule application failures, 2) financial fraud, 3) errors, and 4) others. Because accounting rule application failures account occur in over 90% of total restatements, the relative importance of cash flow and discount rate components for this type of restatement is similar to that of the full sample. However, when the restatement is a result of an error we find that the component of value loss due to cash flow revisions is relatively higher, accounting for about 60% of the value change. This is consistent with the interpretation that investors indeed view such restatements as mainly arising out of errors and imposing a smaller increase in the cost of capital of the firm. By contrast, for restatements due to financial fraud changes in the cost of equity capital explain a significantly larger portion of the change in value (88%). As investors' weighting of cash flow news (relative to news related to the firm's discount rate) is highly dependent on the persistence of earnings (Brav and Heaton 2002 and Francis et al. 2007), we also examine subsamples of firms with high and low earnings persistence. We find that for subsample of firms whose earnings persistency is lower, the discount rate related component of the value loss is significantly larger. Thus, our results that examine the cross-section of the decomposition of the changes in value across financial restatements help quantify the relative importance of revisions in the cost of equity made by investors and highlight the kinds of restatements where stock valuations are more susceptible to the impact of cash flow revisions relative to the impact of discount rate revisions.

We next turn to an examination of how the relative impact of the cash flow versus cost of equity-related components of the value loss at the announcement explains post-restatement announcement stock returns of restating firms. On average, buy-and-hold returns adjusted for risk following Daniel et al. (1997) show that stock prices continue to drift downward up to one year after the restatement. More interestingly, we find that such a downward drift is more pronounced among the firms whose stock price decline around the restatement announcement is driven more

by discount rate revisions, but not by cash flow revisions. These firms have a mean negative buy-and-hold abnormal return of approximately -4.7% in the subsequent 252-day period. By contrast, firms with above-median cash flow-related components of value loss remain relatively stable over the year with a mean buy-and-hold abnormal return of about 0.9% at the end of the 252-day period. In subsample analysis, we observe the downward drift of stock prices in both Negative and Positive BHAR (-1,1) restatement firms. These results suggest that value losses from cash flow revisions are relatively immediate and complete compared to value losses from cost of equity revisions, which seem to be realized relatively more in the long term. Additional tests rule out the possibility that this pattern in the post-announcement returns of restating firms is driven by firm risk, book-to-market ratios, leverage, beta, momentum or accruals.

We subject our analysis to several tests of robustness. Because our estimation of earnings- and cost of equity-related components of value loss uses revisions made by analysts in their consensus EPS forecasts that straddle the restatement announcement, we check the robustness of our results in this regard. Specifically, our results presented above use analyst consensus forecasts of EPS separated by approximately one month. To better account for the impact of the restatement, we allow analysts more time to react and make sure that stale forecasts are eliminated from the consensus by using post-restatement forecasts at least one month after the announcement, i.e., separated by approximately a total of two months. We find that our decomposition returns and post-announcement return results are similar. When we drop potentially stale earnings forecasts (i.e. where the earnings forecast remains unchanged) from the sample, we find a small increase in the value loss explained by the revision in cash flow forecasts to 38.5%. In our main analysis, we use the valuation model from Claus and Thomas (2001), which helps mitigate measurement error issues in estimating the implied cost of equity (Da et al. 2016). However, because our analysis

hinges crucially on the valuation model used to estimate the implicit cost of equity and changes thereof, we re-estimate our results with alternative valuation models from Pastor et al. (2008). We find that our results are robust to this change in estimation.

Overall, the findings of this paper extend the research that examines financial restatements by empirically formalizing the links between firms' value losses around financial restatements and the sources of such losses. While prior work has examined earnings and discount rate impacts around restatements, the analysis of these factors has been performed separately with the result that evidence on their linkages to the decline in firm value is limited. Further, because substantial seminal work in this area was undertaken soon after the GAO's (2002) publication of the list of restating firms, sample sizes in these studies are relatively small compared to the explosive growth in the number of restating firms since then. This study establishes the links between the firm's loss in value and the sources of this loss within a unified valuation framework using a much larger sample of restating firms.

Our findings also inform the research that examines the drivers of stock price movements. In a summary of prior work, Cochrane (2011) concludes that much of the variation in stock prices is driven by discount rate news. In recent work, Chen et al. (2013) document the existence of a significant cash flow component in the drivers of stock price movements. We extend this literature by examining significant event-related movements in stock prices – financial restatements are widely acknowledged to affect both cash flow and discount rate aspects of valuation and are thus ideally suited for the purpose. Consistent with Chen et al. (2013), our results suggest the existence of a significant cash flow component that explains stock price declines around restatements. However, also consistent with prior work, our results show that discount rate revisions are generally the more important driver, especially over shorter horizons. Further, our results suggest

that investors make significantly larger revisions in discount rates when it is less than completely clear that the reason for the restatement is an inadvertent error. These results contribute to the extensive and important literature that examines the value relevance of earnings.

Finally, our variance decomposition of restatement-related value declines helps explain differences in the post-restatement stock performance of restating firms. Specifically, the results show that the valuation impact of discount rate revisions around restatements is relatively slower than the impact of cash flow revisions, with the latter firms experiencing a significant downward drift in prices in the year after the restatement announcement. The resulting return difference between these two groups is economically significant. These results help provide insight into the process by which investors revise their stock valuations around restatements. Combined with the proportion of announcement return variation explained by discount rate revisions, these results help quantify the importance of investors' risk perceptions of firms surrounding earnings restatements.

An important caveat is in order. Our examination is a joint test of the relative importance of cash flows versus discount rates as value drivers and the valuation model that is employed. While we attempt to mitigate this issue by employing different valuation models, commonalities in the features of these models naturally limit the extent to which our examination can be model-free. To that extent, our results are to be interpreted with caution. In this regard, it is useful to note that our tests of post-announcement returns do not depend parametrically on the decomposition.

The rest of this paper is organized as follows. Section 2 describes prior studies and develops research questions. Section 3 discusses our variance decomposition methodology using the Claus and Thomas (2001) valuation model. Section 4 discusses the sample formation process and presents descriptive statistics. Section 5 presents the empirical results of the variance

decomposition and the analysis of post-restatement announcement stock returns. Section 6 presents results of robustness tests and Section 7 concludes the paper.

2. Review of Related Work and Development of Empirical Expectations

2.1. The Short-Term Market Response to Restatements and Changes in Expected Cash Flows/Discount Rates

Prior studies provide consistent evidence of a significant negative stock market reaction to financial restatement announcements (e.g., Dechow et al. 1996; GAO 2003; Palmrose et al. 2004). The market's reaction is attributable to its revisions of two main components of the firm valuation model, i.e., projections of the firm's future cash flows and the discount rate used to value these cash flows (Hribar and Jenkins 2004). Because investors rely on accounting information to predict future cash flows, they are likely to adjust the future cash flow potential of the firm downward/upward when it restates its earnings and/or revises other related statements. Palmrose et al. (2004) document a significant downward revision by analysts of their earnings forecasts following restatement announcements. Akhigbe et al. (2005) also present similar findings of downward revisions. Although not the main focus of their study, Palmrose et al. (2004) document the univariate correlation between the revision in EPS forecasts and the stock price reaction to the restatement announcement and find a negative association.

Financial restatements are also likely to decrease the credibility of reported earnings. Hribar and Jenkins (2004) argue that this can happen due to "uncertainty regarding managerial competence and integrity, and perceptions about overall earnings quality." Consistent with the reduced credibility of reported earnings, Anderson and Yohn (2002) and Wu (2003) show that the stock return response to earnings news is dampened, at least temporarily. More directly, Hribar

and Jenkins (2004), find an increase of between 7% and 19% in the cost of capital of firms following restatements. However, Hribar and Jenkins (2004) do not examine the extent to which the change in cost of capital explains the stock price decline around restatements by econometrically relating the two. Using a discretionary information risk factor in a Fama and French (1993) factor model, Kravet and Shevlin (2010) also document that the cost of capital increases by 86 basis points. Further, they demonstrate a positive link between the increase in the cost of capital and the value change around the restatement announcement. However, they do not examine cash flow changes.

While the above studies demonstrate significant changes in the cash flow and discount rate components of the firm valuation function individually, they do not examine the *relative importance* of these two components as sources of the declines in stock at restatement announcement. Therefore, it is difficult to gauge the extent to which the changes in stock value associated with restatements is driven by cash flow revisions versus discount flow revisions. Prior work on the drivers of stock price movements in general, suggests that discount rates are overall a more significant determinant than cash flows (e.g., Cochrane 2008). However, in the context of financial restatements, investors and analysts could make significant revisions to cash flows expectations. At the same time, restatements are also likely to lead to significant revisions in the cost of capital of the company. Therefore, it is not clear whether discount rates will remain a dominant factor in explaining stock price changes surrounding the restatement announcement. Therefore, we state our first testable hypothesis non-directionally as follows.

H1: Stock price changes surrounding restatement announcements are more affected by changes in cash flow expectations than by changes in discount rate or vice-versa.

Prior studies document that the reasons for the restatement also affect investors' and analysts' assessment of the scope and impact of restatements on firm valuation (Wu 2002; Palmrose et al. 2004). For example, Wu (2002) documents a more negative stock price reaction to restatement news that involves admitted fraud (-23.0%) compared to restatements that do not involve fraud (-9.9%). Holding the extent of the cash flow revision constant, it is likely that there will be larger revisions in the firm's cost of capital when the restatement news contributes to a larger decrease in investor confidence in the firm. To examine the impact of restatement type on the relative importance of cash flow news and discount rate news in explaining the market's reaction to financial restatement announcements, we state our second hypothesis as follows:

> *H2: The importance of cash flow expectation changes [discount rate changes] decreases [increases] in explaining stock price changes surrounding restatement announcements when the restatement reflects greater management weakness.*

In addition to examining how the relative importance of cash flow and discount rate news varies with the underlying reason for the restatement, as a corollary to the above hypothesis, we examine this variation across subgroups formed on the basis of earnings persistence. Investors' weighting of cash flow news (relative to news related to the firm's discount rate) is highly dependent on the persistence of earnings (see for example, Brav and Heaton 2002 and Francis et al. 2007). This characteristic of earnings is likely to be of particular salience at the time of financial restatements which introduce investors to incremental uncertainty. In such circumstances, we expect that investors are likely to weight cash flow news more when cash flows (earnings) are

more persistent.

2.2. The Long-Term Market Response to Restatements and Changes in Expected Cash Flows/Discount Rates

Prior studies that examine the market's response to financial restatements, generally find that the short-term stock market response is negative (e.g. Chakravarthy et al. 2014; Drake et al. 2015; Files, Swanson and Tse 2009; Gordon et al. 2013; Lev, Ryan and Wu 2008; Marciukaityte and Varma 2008; Myers et al. 2013; Palmrose, et al 2004). Under the efficient market hypothesis, the short-term market reaction to the announcement should be complete and efficient in the usual way, and variation in the restatement news should not affect the firm's long-term stock returns. However, prior studies do not provide consistent evidence on the post-announcement returns of restating firms. Badertscher et al. (2011) document that stock prices of restatement firms remain stable in the 180-period after the initial negative reaction to the restatement announcement. On the other hand, Gleason et al. (2008) document a significant downward price drift in the 60 trading day post-restatement for a sample of 380 restatements from 1990 to 2002. They report a mean return of -10.3% from t+2 to t+60 days on top of the initial negative response of -19.8% from t-1 to t+1 days. Similarly, Desai et al. (2006) also document a downward price drift up to six months after the restatement announcement, and find that this negative post-restatement return is associated with the level of short interest in the firm.[7]

[7] A couple of factors may be attributable to this inconsistent post-restatement return patterns across different studies. First, a different sample period (or sample size) may be one factor. Gleason et al. (2008) and Desai et al. (2006) are based on the sample compiled by Government Accountability Office, which ranges from year 1997 to 2002 while Badertscher et al. (2011) expand the sample period to 2008. However, all these studies are still based on a limited number of restatement firms ranging between 380 and 541. Our study is based on 1,892 restatements from year 1995 to 2013. Second, different ways of computing cumulative abnormal returns (CAR) can be also a factor.

We attempt to shed new light on the impact of financial restatements on long-term stock post-announcement returns by examining differences in post-restatement returns between subgroups formed on the basis of whether the initial stock price drop is driven relatively more by changes in future cash flow expectations or by changes in the firm's discount rate.

The variance decomposition framework we utilize decomposes the *short-term* stock price change into a cash flow component whose value impact is less uncertain and a discount rate impact whose value impact is more uncertain. Thereby the decomposition framework helps us directly address the issue of incremental uncertainty faced by investors at restatements and naturally links to the firm's long term returns. Based on the link between firm risk/uncertainty and the decomposition of the change in value at restatement, we conjecture that the decomposition of announcement period value changes could also help explain longer term post-restatement stock price returns. Our post-restatement return tests are similar in spirit to tests in Wilson (2008) that document that the drop in the information content of earnings numbers following earnings restatement is short-lived.[8] Instead of following firms' post-restatement earnings response coefficients, we examine post-restatement abnormal returns to better understand whether investors' initial response to restatement announcements has been rational, and to see if a firm's restatement announcement has any investment value. More specifically, we examine whether there is any difference in post-restatement returns between subgroups formed on the basis of whether the initial stock price drop is driven relatively more by changes in future cash flow expectations or by changes in discount rate. Based on the discussion above we state our final hypothesis as follows:

[8] Wilson (2008) finds that the capital market penalizes accounting restating firms only for four quarters by assigning lower earnings response coefficients. After four quarters, the valuation of reported earnings goes back up to pre-restatement levels.

H3: Post-restatement stock returns between subgroups formed on the basis of whether the initial stock price change is driven relatively more by changes in expectation of cash flows or by changes expectations of discount rate are different.

3. Methodology

We adopt a variance decomposition framework to quantify the impact of the main drivers of the stock price movement immediately after a firm's accounting restatement announcement: cash flow news and discount rate news. We closely follow the method used in Chen et al. (2013) and Da et al. (2016).[9] While financial analysts' earnings and growth forecasts can be used to develop a proxy for investors' cash flow expectations, the firm's discount rate (or cost of equity capital) is not directly observable and is therefore model-dependent. To estimate the firm's cost of equity capital, we first model its equity value as the present value of residual income and a terminal value as follows:

$$P_t = bvps_t + \sum_{i=1}^{T} \frac{E_t(RI_{t+i})}{(1+r)^i} + \frac{E_t(TV)}{(1+r)^T} \quad (1)$$

where $bvps_t$ is the book value of equity per share at time *t*, RI_{t+i} is the residual income for period $t + i$ computed as $feps_{t+i} - r * bvps_{t+i-1}$, ($feps_{t+i}$ denotes the earnings per share forecast for fiscal period $t + i$ and r the discount rate or cost of equity capital), and TV is the terminal value. Following Claus and Thomas (2001), we explicitly forecast future earnings per share up to $t+5$, and compute the terminal value that captures all residual income beyond year $t+5$ assuming that

[9] A more traditional method in examining the main drivers of stock price movement is through the return decomposition, which was first developed by Campbell and Shiller (1988a). However, although the two methods are the same in theory, Chen and Zhao (2009) empirically show that modeling cash flow news explicitly as we do in our study is a better approach than modeling the discount rate news and using the residuals as cash flow news in the return decomposition (please see the appendix in Chen et al. 2013 for details).

residual income growth occurs at the 10-year government bond yield less 3%. We use analyst consensus forecasts of EPS from the I/B/E/S database for the current fiscal year ($feps_t$) and the next fiscal year ($feps_{t+1}$), Earnings forecasts beyond year $t+2$ are computed as follows:

$$feps_{t+i} = feps_{t+i-1} \times (1 + ltg_t) \text{ for } i = 3, 4, \& 5 \quad (2)$$

where (ltg_t) is the mean long-term growth forecast, also from I/B/E/S. At time *t*, all other factors except the cost of equity capital (*r*) are known, and *r* can be backed out from equation (1) above.

We next model the decomposition of the price change around earnings restatements. From equation (1), the stock price (P_t) is a function of cash flow forecasts (cf_t) and the discount rate (dr_t):

$$P_t = f(cf_t, dr_t) \quad (3)$$

where cash flow forecasts (cf_t) are proxied by earnings forecasts ($feps_t$) and growth rate forecasts (ltg_t). [10] We use this equation to decompose the return ($DP_{t,t+j}$) between t and $t+j$ into a component related to cash flow news ($CFN_{t,t+j}$) and a component related to discount rate news ($DRN_{t,t+j}$). Specifically, CFN is the change in value caused only by changes in future cash flow expectations, and *DRN* is the change in value caused only by changes in discount rates. Each component is measured as follows:

$$DP_{t,t+j} = \frac{P_{t+j} - P_t}{P_t} \quad (4)$$

$$= \frac{f(cf_{t+j}, dr_{t+j}) - f(cf_t, dr_t)}{P_t} \quad (5)$$

$$= \frac{f(cf_{t+j}, dr_{t+j})}{P_t} + \frac{[f(cf_{t+j}, dr_t) - f(cf_{t+j}, dr_t) + f(cf_t, dr_{t+j}) - f(cf_t, dr_{t+j})]}{2P_t} - \frac{f(cf_t, dr_t)}{P_t} \quad (6)$$

[10] Revisions in long-term growth forecasts is considered part of cash flow news along with earnings forecasts revisions (Campbell and Shiller 1988a and 1988b, Vuolteenaho 2002, Chen and Zhao 2009, Chen et al. 2013).

$$= CFN_{t,t+j} + DRN_{t,t+j} \quad (7)$$

where

$$CFN_{t,t+j} = \left(\frac{f(cf_{t+j}, dr_{t+j}) - f(cf_t, dr_{t+j})}{P_t} + \frac{f(cf_{t+j}, dr_t) - f(cf_t, dr_t)}{P_t} \right) \Big/ 2 \quad (8)$$

$$DRN_{t,t+j} = \left(\frac{f(cf_t, dr_{t+j}) - f(cf_t, dr_t)}{P_t} + \frac{f(cf_{t+j}, dr_{t+j}) - f(cf_{t+j}, dr_t)}{P_t} \right) \Big/ 2 \quad (9)$$

This decomposition approach enables us to estimate the changes in stock prices due to the revision in one component by allowing the component to vary over time while holding the other component fixed. Thus, cash flow news ($CFN_{t,t+j}$) is computed by holding the discount rate constant, and it captures the price change driven solely by changing cash flow expectations from *t* to *t+ j*. Likewise, discount rate news ($DRN_{t,t+j}$) is computed by holding the cash flow expectation constant, and it captures the price change driven solely by changing discount rate expectations from *t* to *t+ j*. The decomposition equation (7) provides a convenient way to express the variance of stock price changes (or stock returns) as the sum of the two covariances:

$$\mathrm{Var}(DP) = \mathrm{Cov}[DP, CFN] + \mathrm{Cov}[DP, DRN]^{11} \quad (10)$$

Dividing both sides of equation (10) by $\mathrm{Var}(DP)$, we obtain:

$$1 = \frac{\mathrm{Cov}[DP,CFN]}{\mathrm{Var}(DP)} + \frac{\mathrm{Cov}[DP,DRN]}{\mathrm{Var}(DP)}. \quad (11)$$

Each term on the right-hand side of equation (11) can be estimated by regressing CFN and DRN, respectively, on DP. The slope coefficient of each regression is interpreted as the proportion of the total variation in price changes that is explained by variation in revisions of each component. By construction, the coefficients from each regression sum to one.

[11] We drop the time (*t*) and the firm (*i*) subscripts for notational simplicity.

4. Data and Summary Statistics

We obtain restatement data from Audit Analytics, earnings and long-term growth rate forecasts from I/B/E/S, stock price data from CRSP, and accounting data from Compustat. For an accounting restatement announced at time *t*, the measurement dates for all the inputs to Equation (1) are as follows. We use the most recent consensus forecasts of annual EPS ($feps_t$) and long-term earnings growth rate (ltg_t) available from I/B/E/S before the announcement date to estimate the pre-announcement implied cost of equity. The corresponding forecasts that are available most immediately after the announcement are used to estimate the post-announcement implied cost of equity. We choose these forecast dates to ensure that we reliably attribute the change in the earnings forecast to the restatement. Accounting data are taken from the most recent quarterly statement in Compustat before the accounting restatement date *t.* Stock prices (P_t, P_{t+1}) from CRSP are taken two days after the date of the computation of the consensus earnings forecast ($feps_t$, $feps_{t+1}$) to ensure that information in the forecast is impounded in the price.

We identify a total of 4,186 restatement announcements from Audit Analytics with non-missing stock price from CRSP between 1995 and 2013. When this initial sample is merged with Compustat with the imposition of minimum data requirements, the sample decreases to 3,884. With the imposition of non-missing analysts' earnings and long-term growth forecasts from I/B/E/S, we obtain a final dataset that consists of 1,849 observations. Table 1 reports summary statistics for the full sample and subsamples based on the restatement's initial impact on stock prices. If the 3-day returns surrounding restatement announcement date is positive [negative], we refer to those firms as the "Positive [Negative] restatement subsample".[12]

[12] In Tables, we also use "Positive [or Negative] BHAR(-1,1)" to referred to positive [or negative] restatement subsample.

Statistics for the full sample show that restating firms are on average quite large with a mean (median) market capitalization of $4.95 ($1.07) billion. Firms are reasonably well-performing with an average return on assets of 7.9%, book-to-market ratio of 0.557 (*BP*) and long-term growth forecasts of 15.7%. Firm characteristics of the two restatement subsamples, *Positive* and *Negative* BHAR(-1,1), are not very different when measured at the median (i.e. book-to-market ratios, market capitalization, return on assets, and long-term growth expectations).[13]

Table 1 also reports the revisions in EPS forecasts and the model-derived implied cost of equity capital, and stock returns surrounding the restatement announcement. On average, financial analysts revise earnings, our proxy for future cash flow expectations, downward by about 1.6 cents (*DFEPS*), while the cost of equity capital increases by 20 basis points (*DCOE*). The combined effect of the decrease in earnings and an increase in the cost of equity capital is that restating firms experience an average price decline of 1.3% (*DP*) in the one-month window (t-1 to t+1 month) surrounding the restatement announcement.

This negative return is mainly attributable to changes in cost of equity capital, i.e., holding revisions in earnings and earnings growth forecasts constant, the average price change due to changes in cost of equity capital (i.e., DP_{DRN}) is -2.5%. While the analysts revise earnings downward on average, the impact of earnings downward revisions seems to have a slight positive impact on price changes (DP_{CFN} = 1.1%) on average. Expectedly, the two subsamples show significantly different earnings revisions – the positive subsample has a mean revision of 6.1 cents upwards compared to a mean downward revision of 1.4 cents in the negative subsample, and they are statistically different at 1% level although at the median, they are not much different. However, the change in the cost of equity capital is more comparable across the two subsamples – an average

[13] The claim is based on z-statistics that are omitted from the table for the sake of brevity.

(median) upward move of 30 (20) basis points for the negative restatement subsample and 0.0 (0.0) basis points for the positive restatement subsample. The net impact of restatements for the negative subsample is a decline in stock prices (DP = -4.9%) compared to an increase in stock prices for the positive subsample (DP = 3.9%) (different at 10% level). The total stock price changes attributable to discount rate revisions (DP_{DRN} = -3.7%) is larger than those attributable to future earnings expectations (DP_{CFN} = -1.2%) for the negative subsample. On the other hand, for the positive subsample, the stock price changes surrounding the restatements are mainly driven by changes in future earnings expectations (DP_{CFN} = 4.6%), but very little by discount rate revisions (DP_{DRN} = -0.6%).

Overall, these descriptive statistics show that the decrease in stock price following accounting restatement announcements is on average caused more by an increase in the cost of equity capital than by revisions in expectations of future cash flows, but for the positive subsample, the stock price increase is mainly driven by the revisions in expectations of future cash flows. In the following section, to understand the drivers of stock price changes surrounding the restatement announcement in a relative sense, we adopt the variance decomposition framework.

Table 1 about here.

5. Results

4.1. Variance Decomposition - Full Sample Analysis

To examine the main drivers of stock price movements around accounting restatements, we adopt the variance decomposition framework as detailed in Section 3. The coefficient from a regression of cash flow news ($CFN_{i,t}$) on the stock price change across the restatement announcement ($DP_{i,t}$) measures the proportion of returns driven by changes in investors' cash flow

expectations. Likewise, the coefficient from a regression of discount rate news ($DRN_{i,t}$) on stock price changes ($DP_{i,t}$) measures the proportion of returns that is attributable to the market's changes in the cost of equity capital of the firm. We report the results of these cross-sectional regressions in Table 2.

We measure changes in price, earnings and earnings growth forecasts and cost of equity capital, i.e., the main inputs to our variance decomposition equation, between the closest I/B/E/S consensus forecast date right before (*t-1*) and after (*t+1*) the accounting restatement announcement date (*t*). Since I/B/E/S consensus forecasts are available on a monthly basis, the time interval between *t-1* and *t+1* is, on average, about 30 days, and the accounting restatement falls somewhere between the *t-1* and *t+1* consensus forecast dates.[14] Table 2 reports the proportion of total price variation, Var($DP_{i,t}$), that is explained by the covariance between $DP_{i,t}$ and $CFN_{i,t}$ (or $DRN_{i,t}$), which is estimated as $\frac{\text{Cov}[DP,CFN]}{\text{Var}(DP)}$ and $\frac{\text{Cov}[DP,DRN]}{\text{Var}(DP)}$, respectively. As a baseline case, we first conduct the variance decomposition exercise with the intersection of the entire universe of CRSP, IBES and Compustat firms during the same sample period surrounding pseudo-restatement dates. For the entire population, using a one-month revision interval (i.e. between *t-1* and *t+1* dates surrounding pseudo-restatement announcement dates), cash flow news explains 12.9% of stock price movements, and discount rate news explains the remaining 87.1% (Table 2). The relatively small proportion of cash flow news is in line with the notion that, in the short term, stock prices can move with investors' sentiments not related to changes in expectations regarding future cash flows, and is consistent with prior studies. In addition, we also conduct the variance decomposition exercise with the matching sample surrounding pseudo-restatement dates.

[14] -1 or +1 in the time subscript simply indicates the most recent consensus forecasts before (-1) or after (1) the restatement, and does not refer to month -1 or + 1.

Firms in the matching sample are non-restatement firms in the same industry and that have firm characteristics similar to those of restatement firms. The matching sample is constructed based on the propensity score from a logistic prediction model of restatement vs. non-restatement firms using determinant variables that include the book-to-market ratio, market capitalization, profitability (return on assets) and momentum (past twelve month returns) measures. For the matching sample, cash flow news explains 21.8% of stock price movements, and discount rate news explains the remaining 78.2%.

Table 2 about here.

For restating firms, cash flow news explains 33.5% of the stock price change surrounding accounting restatements while discount rate news explains the remaining 66.5%. Compared to the entire population (or matching sample), the proportion of cash flow news explaining stock price variation is much higher for the restatement sample. This difference captures the significance of the immediate impact of a firm's restatement on investors' expectations regarding future cash flows relative to investors' assessment of the firm's risk reflected in its cost of equity capital.

We partition our sample on the basis of the initial 3-day stock returns surrounding restatement announcements: Negative BHAR(-1,1) and Positive BHAR(-1,1) subsamples. Negative restatements are more common (60%) than positive restatements (40%) during our sample period. Interestingly, unlike the relative magnitude of stock price changes at the restatement announcement which shows a quite different pattern for the positive and negative restatement subsamples, these two subsamples are quite similar in the importance of *CFN* and *DRN* in explaining stock price changes. *CFN* [*DRN*] in the negative sample explains 30.2% [69.8%] of stock price changes, which is very similar in magnitude to the results for the positive sample. Overall, the results in Table 2 support our first hypotheses.

4.2. Variance Decomposition and Types of Restatements

Audit Analytics documents over 60 different reasons for firms to restate their financial statements. These can be grouped into four broad categories: Restatements due to 1) Accounting rule application failures (*ARAF*), 2) Errors, 3) Financial fraud (*Fraud*), and 4) Others.[15] In Panel A of Table 3 we report how different types of restatements affect the variance decomposition results differently. Accounting rule application failures occur in over 93% (1,725) of total restatements, Errors in about 6.9% (128), Financial Fraud 2.5% (47), and Others 10.9% (202) in our sample.[16] Because *ARAF* includes over 90% of total restatements, the relative importance of CFN (31.4%) or DRN (68.6%) in explaining stock return variation is very similar to that of the full sample. We also find that restatements that fall into the "*Others*" category show a similar pattern to that of the overall restatement sample. However, when errors ("*Errors*") lead to financial restatements, changes in stock value are driven to a larger extent by future cash flow expectations (CFN coefficient = 0.606) than changes in discount rate (DRN coefficient = 0.394) (and the highest proportion of cash flow news-related variation across various samples examined in the study). This is consistent with investors viewing such restatements as being less indicative of management weakness than other types of restatements. On the other hand, when restatements are associated with financial fraud ("*Fraud*" group), stock price changes are mainly driven by changes in discount rate – for this subsample discount rate revisions explain 88.0% of the total stock return variation. This suggests that when investors' confidence in a firm's financial reporting system is shaken, the cost of equity (or discount rate) explains more of the return variation than revisions in the firm's expected cash flows. The results of Table 3 support our second hypothesis that for restatements

[15] This classification is provided by the Audit Analytics database, and is consistent with prior studies. A few examples in the "Others" category include restatements associated with footnote and segment reporting information, irregularities associated with material weakness reporting, and disclosure failure issues associated with loan covenant violations.

[16] Since many firms disclose multiple reasons for their restatements, the sum of total restatements is over 100%.

that are more indicative of management weakness the change in value is driven to a greater extent by revisions in the discount rate of the firm.

Table 3 about here.

In Panel B of Table 3, we examine how our decomposition varies across subgroups formed on the basis of earnings persistence. Brav and Heaton (2002) and Francis et al. (2007) argue that Bayesian investors will place more weight on less uncertain earnings information. Therefore, we conjecture that investors will place more weight on earnings information for firms with higher earnings persistence. Our aim here is to extend the evidence of the rational variation in the decomposition results of Panel A above. For this test, we drop restatements with no earnings impact and split the sample on the basis of subsample median value of earnings persistence. Earnings persistence is measured as the coefficient b1 from the time-series regression ROA(t) = b0 + b1*ROA(t-1) + ε at the firm level using past six years of ROA with a minimum of four years of data, where ROA is measured as net income divided by total assets. As the results in Panel B of Table 3 show, firms with low persistence have 26.5% of the change in value explained by cash flow news whereas for firms with high earnings persistence this is 42.0%. This result supports our conjecture that investors weight earnings information more when earnings information is less uncertain.

4.3. Post-Restatement Announcement Stock Returns

We next turn to an examination of how the variance decomposition of stock price changes around the restatement announcement informs post-announcement stock returns. Table 4 reports post-announcement abnormal returns for the full sample and by restatement type: High versus Low *CFN/DP* restatements, where the High [Low] *CFN/DP* restatement group has above median values

of *CFN/DP* , i.e., where the initial restatement stock price change is driven more by changes in future cash flow changes [changes in discount rate]. As a baseline case, we report raw returns in Panel A. Consistent with some prior studies (discussed in Section 2), we find that post-announcement returns are significantly positive for the whole sample as well as for each of the Low and High subgroups. Further, we find that the High subgroup has significantly higher returns than the Low subgroup in the 63-, 126- and 252-day trading periods.

To compute abnormal returns, we subtract characteristics-based benchmark portfolio returns from raw returns following Daniel et al. (1997). These results are reported in Panel B of Table 4. After adjusting for risk and other pricing factors we find that restating firms show a downward stock price drift that lasts up to one year (252 trading days) after the restatement announcement. The mean buy-and-hold abnormal return after a year for the full sample is -1.9% (t+2, t+252). However, while both the High and Low *CFN/DP* restatement subsamples have an initial negative return similar to that of the full sample, post-announcement returns of the two subsamples show marked differences. The Low *CFN/DP* restatement firms continue to drift downward, and their mean buy-and-hold abnormal return is -4.7% 252 days after the restatement announcement date. On the other hand, the average buy-and-hold return for the High *CFN/DP* restatement subgroup remains relatively stable - one year after the restatement, the buy-and-hold abnormal return is 0.9% (insignificant) with no significant peaks or dips in the intervening period. The one-year buy-and-hold abnormal return difference between the High and Low CFN/DP restatement subsamples is 5.5%, and is statistically significant ($p < 0.05$).

Table 4 about here.

In Table 5, we replicate Table 4 post-restatement buy-and-hold abnormal returns for subsamples of negative (Panel A) and positive (Panel B) restatements. The return pattern for

negative restatement firms (Panel A) are very similar to those in Table 4. For example, the mean buy-and-hold abnormal return after a year for this subgroup is -2.1% (t+2, t+252). The Low *CFN/DP* restatement firms continue to drift downward, and their mean buy-and-hold abnormal return is -4.9% 252 days after the restatement announcement date. On the other hand, the intial reaction to restatement seems complete for High *CFN/DP* restatement firms. The average buy-and-hold return remains relatively stable - one year after the restatement, the buy-and-hold abnormal return is 0.6% (insignificant). The one-year buy-and-hold abnormal return difference between the High and Low CFN/DP restatement subsamples is still 5.5%, and is statistically significant ($p < 0.05$).

Panels B of Table 5 examine the positive restatement subsamples. While the initial 3-day return is positive for two subgroups (i.e., High and Low CFN/DP), the post-restatement returns show quite different patterns. Like the negative subsample case (Panel A, Table 5), the intial reactions to restatement annoucements seem complete for High *CFN/DP* restatement firms. However, the positive initial 3-day returns for the Low *CFN/DP* restatement firms (3.8%) reverses and their mean buy-and-hold abnormal return becomes -4.8% in a year.

By documenting that variation in the initial stock price reaction to restatements (cash flow revisions versus discount rate revisions) helps explain patterns in post-announcement returns, the results in Table 5 provide several insights. At a descriptive level, we find that post-announcement returns are consistent with an average under-reaction to restatement announcements. More importantly, the extent of underreaction is significantly more pronounced when the initial stock return reaction is driven to a greater extent by changes in investors' cost of equity expectations. For restatements characterized by a larger content of cash flow news, post-restatement returns suggest the immediate market reaction is relatively complete and therefore efficient. These

regularities are consistent with the argument that investors are able to estimate the value impact of shocks to earnings relatively quicker than the value impact of changes in the firm's discount rate. Thus, by tying long-term returns to the drivers of short-term stock price movements, our results provide a more comprehensive analysis of the investor reaction to restatement announcements.

Table 5 about here.

6. Robustness Tests

We conduct additional tests to verify whether our results documented above are sensitive to key aspects of our test design. There are at least two reasons that, we believe, could lead to an overestimation of the portion of stock price variation explained by discount rate news. First, the discount rate is unobservable and is estimated on the basis of a catch-all measure. Specifically, because the discount rate is derived from the stock price and earnings and earnings growth forecasts, noise in the stock price or biases in earnings and earnings growth forecasts are also likely to be captured in the discount rate and innovations thereof. This is unlike innovations in cash flows which are estimated more directly from analyst consensus forecasts. Second, our valuation model (1) and variance decomposition (7) are based on the assumption that analysts' earnings forecasts accurately reflect investors' expectations of earnings in a timely fashion. However, analysts' delayed revisions of earnings forecasts can lead to an underestimation of the impact of cash flow news contained in the financial restatement.

To address this issue and to reduce the likelihood of stale forecasts in the post-announcement period, we first extend the measurement of cash flow expectations after the restatement announcement by another month (so to $t+2$). We report the results based on this

alternative measurement in Panel A of Table 6. Second, we delete any observations that have earnings forecast revisions of zero value and report the results in Table 6, Panel B.

6.1. Extension of the Consensus Forecast Revision Period

When we extend the revision period to two months to mitigate the stale forecast issue, for the overall population (baseline case) the importance of *CFN* in explaining stock price variation increases from 12.9% to 22.4%. This is consistent with the notion that while in the short-term stock price changes can be driven relatively more by sentiment or other factors unrelated to firm fundamentals, over the longer term stock returns will eventually be more closely tied to expected changes in future cash flows (Easton et al. 1992; Chen et al. 2013; Da et al. 2016). However, in the restatement sample, we do not observe an increase in the coefficient on *CFN*, rather it decreases slightly. For the whole sample, cash flow news explains only 28.0% of return variation compared to 33.5% with the one-month forecast revision. The pattern of results for the negative, positive and no-impact subgroups is qualitatively similar to that reported in Table 2. Overall, the results in Panel A, Table 6 suggest that our proxy of cash flow news (earnings forecast revision) does not suffer from a significant timing issue.

Table 6 about here.

6.2. Removal of Potentially Stale Forecasts

There are 499 observations for which the revision in the consensus analyst forecast from *t-1* to *t+1* is zero. All else equal, these are observations that are more likely susceptible to the stale forecast issue. In Panel B of Table 6, we report our main variance decomposition results after dropping these observations from the analysis. Compared to the results in Table 2, when we drop

the stale forecasts the proportion of *CFN* explaining stock price variation is higher. For example, in the full sample, the coefficient for *CFN* is 38.5% compared to 33.5% in Table 2. However, the *CFN* coefficients for the negative and positive restatement samples are also similar in magnitude. These results suggest that while stale forecasts have the effect of inflating the impact of *DRN* in explaining stock price variation, our conclusions are not driven by this effect.

6.3. Alternative Equity Valuation Model

In estimating the cost of equity capital (or discount rate) and conducting variance decomposition, we rely on the valuation model proposed by Claus and Thomas (2001). To test if our results are sensitive to our choice of the valuation model, we adopt an alternative valuation model used in Pastor et al. (2008) as follows.[17]

$$P_t = \sum_{i=1}^{T} \frac{E_t(RI_{t+i})}{(1+r)^i} + \frac{E_t(TV)}{(1+r)^T} \quad (12)$$

where all variables are defined as in equation (1) except that Pastor et al. (2008) use a 15-year horizon (T=15).

Panel C of Table 6 reports our main analysis based on this alternative valuation model. The results are qualitatively very similar to our main findings reported in Table 2. For example, the coefficient on *CFN* for the restatement sample is 31.1% with the model used in Pastor et al. (2008) compared to 33.5% with our main model.[18]

6.4. Restatements with Large versus Small Income Impacts

[17] This model is used in Chen et al. (2013) as well.
[18] The sample size increase slightly due to different input variables used.

In this sub-section, we examine whether the magnitude of the restatement affects the relative importance of how much each component contributes to the stock price variation across the restatement announcement. We partition our sample on the basis of the absolute impact of the restatement on cumulative past net income. If the impact of the restatement on the firm's equity is above [below] the median of the entire sample each year, we classify the restatement into the large [small] restatement subgroup. Panel D of Table 6 reports the results. We find that *CFN* [*DRN*] in the large restatement sample explains 35.7% [64.3%] of stock price changes surrounding the restatement. For the small restatement sample, in contrast, the importance of *CFN* decreases to 29.9%. Thus, when a firm makes a restatement announcement that has a large impact on past earnings (i.e., large restatement firms), the restatement related stock price change is driven more by investor's changes in confidence in the firm's ability to generate future cash flows than changes in the firm's cost of capital.

6.5. Exclusion of Restatement Announcements Bundled with Earnings Announcements

There are 139 restatement announcements made within the three-day window around an earnings announcement. Because this may affect our variance decomposition results, in Panel E of Table 6 we report our main variance decomposition results after dropping these restatements. Excluding these observations, does not yield a major difference in the proportion of *CFN* explaining stock price variation. For example, the coefficient for *CFN* in this subsample is 32.9% compared to 33.5% in Table 2.

6.6. Post-restatement Announcement Returns after Controlling for Additional Risk Factors

Here, we conduct a test that helps rule out the possibility that the difference in post-announcement returns between the two subsamples documented in Table 4 is driven by other known risk factors including book-to-market ratios, leverage, beta, momentum, and accruals. We use the following regression model:

$$Ret_{i,t} = \beta_0 + \beta_1 * LowCFN\_DP_{i,t} + \beta_2 * Beta_{i,t-1} + \beta_3 * TAC_{i,t-1} + \beta_4 * BP_{i,t-1}$$
$$+\beta_5 * Leverage_{i,t-1} + \beta_6 * Momentum_{i,t-1} + \varepsilon_{i,t} \quad (13)$$

$Ret_{i,t}$ is the one year buy-and-hold return (or raw return) from one day after the restatement announcement date to 252 trading days after. $LowCFN\_DP_{i,t}$ takes a value of one if a firm's cash flow news (*CFN*) relative to stock price changes (*DP*) surrounding the restatement announcement date is below the crossectional median CFN/DP each year, zero otherwise. All other independent variables are used using the most recent publicly available data before the restatement announcements.[19] $Beta_{i,t-1}$ is computed using 60 monthly returns based on the market model. $TAC_{i,t-1}$ is total accruals, computed as earnings before extraordinary income minus cash flow from operating income, scaled by average total assets. $BP_{i,t-1}$ is the book-to-market ratio, defined as the ratio of book value of equity to market capitalization. $Leverage_{i,t-1}$ is measured as total liabilities divided by total assets. $Momentum_{i,t-1}$is the twelve-month raw return from month *t* - 12 to month *t* - 1.

Table 7 reports estimation results for equation (13). The coefficient on $LowCFN\_DP_{i,t}$ (β_1) is -0.052 (t = -2.34) indicating the one-year post-restatement announcement date BHAR return difference between the High vs. Low CFN/DP subsamples is 5.2%. This is consistent with our

[19] The time subscript *t-1* is used to denote that independent variables are known to the market before the restatement announcement date.

findings in Table 4 and suggests that other known risk factors do not drive our results. We find a similar result when we use raw returns instead of BHAR returns as the dependent variable.

7. Conclusion

This paper examines the fundamental drivers of stock price changes around financial restatements – investors' revisions in the firm's cash flow expectations and implied cost of equity capital. Despite extensive research on earnings restatements, the evidence on the links between these drivers of price movements and the price decline around restatements is relatively sparse. Our findings address this gap in the literature by undertaking a joint analysis of these drivers within a single valuation model.

Using a variance decomposition framework, consistent with stock price movements in general, revisions in the discount rate are generally a bigger driver of the short-term price reaction to financial restatements. This is true for restatements irrespective of whether they have a positive or negative initial market reactions. However, financial restatements do present a context where the proportion of stock price variation explained by cash flow news is higher than for the cross-section of the population or in a propensity score matched sample. Consistent with a financial reporting risk argument, we find that discount rate news explains more of the variation in the change in value when the underlying reason for the restatement is fraud, whereas cash flow news is more important when errors are the reason for the restatement. These results make contributions to the literature on earnings restatements as well as to the literature on the drivers of stock price movements.

Our decomposition also informs post-announcement stock returns. For restatements where the proportion of announcement price changes explained by discount rate changes is relatively

higher we find a significant negative drift in stock prices. Otherwise, the short-term reaction seems to be relatively efficient, and no drift pattern obtains for restatements whose announcement price changes are mainly explained by revision in future earnings. The difference in returns is economically significant. These findings help shed additional light on the link between investors' revaluation of stocks around restatements and suggest that revisions in the financial reporting risk of the company are relatively long-lived.

References:

Akhigbe, A., Kudla, R. J., & Madura, J. (2005). Why are some corporate earnings restatements more damaging? *Applied Financial Economics*, 15(5), 327-336.

Anderson, K., & Yohn, T. (2002). The effect of 10-K restatements on firm value, information asymmetries, and investors' reliance on earnings. Working paper, Georgetown University.

Ang, A. (2002). Characterizing the ability of dividend yields to predict future dividends in log-linear present value models. Working paper, Columbia University.

Baber, W. R., Gore, A. K., Rich, K. T., & Zhang, J. X. (2013). Accounting restatements, governance and municipal debt financing. *Journal of Accounting and Economics*, 56(2), 212-227.

Badertscher, B. A., Hribar, S. P., & Jenkins, N. T. (2011). Informed trading and the market reaction to accounting restatements. *The Accounting Review*, 86(5), 1519-1547.

Brav, A., & Heaton, J.B. (2002). Competing theories of financial anomalies. *Review of Financial Studies*, 15(2), 575-606.

Campbell, J., and Ammer, J. (1993). What moves the stock and bond market? A variance decomposition of long term asset returns. *Journal of Finance*, 48, 3-37.

Campbell, J., & Shiller, R. (1988a). The dividend yield and expectations of future dividends and discount factors. *The Review of Financial Studies*, 1(3), 195-228.

Campbell, J., & Shiller, R. (1988b). Stock Prices, earnings, and expected dividends. *The Journal of Finance*, 43(3), 661-676.

Campbell, J., & Shiller, R. (2001). Valuation ratios and the long-run stock market outlook: an update (No. w8221). National Bureau of Economic Research.

Chakravarthy, J., DeHaan, E., & Rajgopal, S. (2014). Reputation repair after a serious restatement. *The Accounting Review*, 89(4), 1329-1363.

Chen, L., Da, Z., & Zhao, X. (2013). What drives stock price movement? *The Review of Financial Studies*, 26, 841-876.

Chen, L., & Zhao, X. (2009). Return decomposition. *The Review of Financial Studies*, 22(12), 5213-5249.

Claus, J., & Thomas, J. (2001). Equity premia as low as three percent? Evidence from analysts' earnings forecasts for domestic and international stock markets. *The Journal of Finance*, 56(5), 1629-1666.

Cochrane, J. H. (1992). Explaining the variance of price-dividend ratio, *Review of Financial Studies*, 5, 243-280.

Cochrane, J. H. (2008). The dog that did not bark: A defense of return predictability. *Review of Financial Studies*, 21(4), 1533-1575.

Cochrane, J. H. (2011). Presidential address: Discount rates. *The Journal of Finance*, 66(4), 1047-1108.

Da, Z., Easton, P., & Hong, K. (2016). The expected rate of return on equity capital implied by analysts' forecasts of earnings and target prices. Working Paper, Notre Dame University.

Da, Z., Hong, K., & Lee, S. (2016). What drives target price forecasts and their investment value? *Journal of Business Finance & Accounting*, 43 (3-4), 487-510.

Daniel, K., Grinblatt, M., Titman, S., & Wermers, R. (1997). Measuring mutual fund performance with characteristic-based benchmarks. *The Journal of Finance*, 52(3), 1035-1058.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research*, 13 (1), 1–36.

Desai, H., Krishnamurthy, S., & Venkataraman, K. (2006). Do short sellers target firms with poor earnings quality? Evidence from earnings restatements. *Review of Accounting Studies*, 11(1), 71-90.

Drake, M. S., Myers, L. A., Scholz, S., & Sharp, N. Y. (2015). Short selling around restatement announcements when do bears pounce? *Journal of Accounting, Auditing & Finance*, 30(2), 218-245.

Fama, E. F., & K.R. French. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33(1), 3-56.

Files, R., Swanson, E. P., & Tse, S. (2009). Stealth disclosure of accounting restatements. *The Accounting Review*, 84(5), 1495-1520.

Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2007). Information uncertainty and post-earnings-announcement-drift. *Journal of Business Finance & Accounting*, 34(3-4), 403-33.

Frieder, L., & D. Shanthikumar. (2009). Returns and risk in the year after a restatement announcement. Working Paper, Harvard Business School.

General Accounting Office (GAO). (2002). Financial statement restatements: Trends, market impacts, regulatory responses, and remaining challenges. Washington D.C., GAO-03-138.

Gleason, C. A., Jenkins, N. T., & Johnson, W. B. (2008). The contagion effects of accounting restatements. *The Accounting Review*, 83(1), 83-110.

Gordon, E. A., Henry, E., Peytcheva, M., & Sun, L. (2013). Discretionary disclosure and the market reaction to restatements. *Review of Quantitative Finance and Accounting*, 41(1), 75-110.

Government Accountability Office (GAO). 2003. Financial Restatement Database. Washington D.C., GAO-03- 395R.

Government Accountability Office (GAO). (2006). Financial restatements: Update of public company trends, market impacts, and regulatory enforcement activities. Washington D.C., GAO-06-678.

Hribar, P., & Jenkins, N. T. (2004). The effect of accounting restatements on earnings revisions and the estimated cost of capital. *Review of Accounting Studies*, 9(2-3), 337-356.

Kravet,T., & Shevlin, T. (2010). Accounting restatements and information risk. *Review of Accounting Studies*, 15(20), 264-294.

Lev, B., Ryan, S.G., & Wu, M. (2008). Rewriting earnings history. *Review of Accounting Studies*, 13(4), 419-451.

Marciukaityte, D., & Varma, R. (2008). Consequences of overvalued equity: Evidence from earnings manipulation. *Journal of Corporate Finance*, 14(4), 418-430.

Murphy, M. (2014, November 4). Restatements fall on improved internal controls. The Wall Street Journal.

Myers, L. A., Scholz, S., & Sharp.N.Y. (2013). Restating under the radar? Determinants of restatement disclosure choices and the related market reactions. Working Paper, University of Arkansas.

Palmrose, Z. V., Richardson, V. J., & Scholz, S. (2004). Determinants of market reactions to restatement announcements. *Journal of Accounting and Economics*, 37(1), 59-89.

Pástor, Ľ., Sinha, M., & Swaminathan, B. (2008). Estimating the intertemporal risk–return tradeoff using the implied cost of capital. *The Journal of Finance*, 63(6), 2859-2897.

Vuolteenaho, T. (2002). What drives firm-level stock returns? *The Journal of Finance*, 57(1), 233-264.

Wilson, W. M. (2008). An empirical analysis of the decline in the information content of earnings following restatements. *The Accounting Review*, 83(2), 519-548.

Wu, M. (2003). Earnings restatements: A capital markets perspective. Working paper, Hong Kong University of Science and Technology.

TABLE 1
Descriptive statistics

	Full Sample			Negative BHAR (-1,1)			Positive BHAR (-1,1)		
Variables	N	Mean	Median	N	Mean	Median	N	Mean	Median
BP	1849	0.557	0.485	1107	0.544	0.478	742	0.577	0.497
MktCaP	1849	4954	1070	1107	5164	1104	742	4640	1005
MOM	1849	0.195	0.078	1107	0.186	0.071	742	0.210	0.087
ROA	1849	0.079	0.067	1107	0.077	0.066	742	0.082	0.068
LTG	1849	0.157	0.150	1107	0.155	0.150	742	0.159	0.150
RestateSize	1849	0.100	0.007	1107	0.132	0.009	742	0.051	0.005
DFEPS	1849	0.016	0.000	1107	-0.014	0.000	742	0.061	0.000
DCOE	1849	0.002	0.001	1107	0.003	0.002	742	0.000	0.000
DP	1849	-1.3%	-0.6%	1107	-4.9%	-3.0%	742	3.9%	3.2%
DP_{CFN}	1849	1.1%	0.4%	1107	-1.2%	0.1%	742	4.6%	0.8%
DP_{DRN}	1849	-2.5%	-1.3%	1107	-3.7%	-2.5%	742	-0.6%	1.0%

The table reports summary statistics for the firms with restatement announcements from Audit Analytics database during 1995 to 2013. The N*egative* [P*ositive*] BHAR(-1,1) restatement sample includes any restatement announcement whose 3-day market reaction is negative [positive].Variables are defined as follows. Book-to-market (*BP*) is the ratio of the book value of equity to market capitalization at each quarter-end. Market capitalization (*MktCap*) is the market capitalization in millions. The past return or momentum (MOM) is the 12-month cumulative return from month *t – 12* to month *t – 1*. Return on assets (*ROA*) is quarterly earnings before extraordinary items divided by the total assets at the beginning of each quarter. Long-term growth rate (*LTG*) is analysts' monthly consensus long-term earnings forecasts from I/B/E/S. *RestateSize* is total cumulative changes in net income divided by the book value of equity in absolute terms. Revisions in earnings forecasts (*DFEPS*) is measured between *t-1* and *t+1* dates, where *t-1* is the most recent earnings forecast consensus date right before the restatement announcement date, and *t+1* is the most immediate earnings forecast consensus date right after the restatement announcement date. Changes in cost of equity capital estimates (*DCOE*) is measured between the same *t-1* and *t+1* dates surrounding restatement announcements used in measuring *DFEPS*. Cost of equity capital measure is based on the method used in Clause and Thomas (2001). Stock price change (*DP*) is a log returns between the same *t-1* and *t+1* dates surrounding restatement announcements used in measuring *DFEPS*. Cash flow news (DP_{CFN}) is the stock return driven solely by changes in cash flow expectations from *t-1* to *t+1* surrounding restatement announcements. Discount rate news (DP_{DRN}) is the stock return driven solely by changes in cost of equity capital from *t-1* to *t+1* surrounding restatement announcements.

TABLE 2
The Drivers of Stock Price Changes Following Accounting Restatement: Cash Flow News vs. Discount Rate News

		Coefficients	
	Obs	CFN	DRN
Population	821,395	0.129 (2.72)	0.871 (18.36)
Matching Sample	1,849	0.218 (7.44)	0.782 (26.74)
Restatement – Full Sample	1,849	0.335 (8.78)	0.665 (17.44)
Negative BHAR(-1,1)	1,107	0.302 (6.04)	0.698 (13.98)
Positive BHAR(-1,1)	742	0.318 (4.86)	0.682 (10.43)

The table reports the proportion of stock returns variation that is explained by cash flow news (*CFN*) and discount rate news (*DRN*) following accounting restatements. *Population* includes all the firms from the intersection of CRSP, I/B/E/S and Compustat universe from year 1995 to 2014. The *Matching Sample* includes non-restatement firms that have similar firm characteristics to those of restatement firms in the same industry. The matching sample was constructed based on the propensity score measured by the logistic prediction model of restatement vs. non-restatement firms using determinant variables of the book-to-market, market capitalization, profitability (return on assets) and momentum (past twelve month returns) measures. *Restatement – Full Sample* includes all the firms with restatement announcements from Audit Analytics database during 1995 to 2013. The N*egative* [P*ositive*] BHAR(-1,1) restatement sample includes any restatement announcement whose 3-day market reaction is negative [positive]. *Obs* is the total number of observations. Cash flow news (*CFN*) is the stock return driven solely by changes in cash flow expectations from *t-1* to *t+1* surrounding restatement announcements. Discount rate news (*DRN*) is the stock return driven solely by changes in cost of equity capital from *t-1* to *t+1* surrounding restatement announcements. The *CFN coefficient* is estimated as $\frac{\mathrm{Cov}[dp,CFN]}{\mathrm{Var}(dp)}$, where *DP* is the log return from the same *t-1* to *t+1* period surrounding the restatement announcements. Likewise, the *CRN coefficient* is estimated as $\frac{\mathrm{Cov}[dp,DRN]}{\mathrm{Var}(dp)}$. *t*-statistics are reported in parentheses.

TABLE 3
The Drivers of Stock Price Changes Following Accounting Restatement
By Restatement Types

Panel A: Audit Analytics-based reasons for the restatement

	Obs	Coefficients	
		CFN	DRN
Restatement – Full Sample	1,849	0.335 (8.78)	0.665 (17.44)
Accounting Rule Application Failure	1,725	0.314 (7.83)	0.686 (17.12)
Errors	128	0.606 (3.62)	0.394 (2.36)
Financial Fraud	47	0.120 (0.27)	0.880 (1.96)
Others	202	0.378 (3.25)	0.622 (5.35)

Panel B: Restatements based on firms' earnings persistence

	Obs	Coefficients	
		CFN	DRN
Restatement – Full Sample	1,849	0.335 (8.78)	0.665 (17.44)
Low Persistence	589	0.265 (3.51)	0.736 (9.75)
High Persistence	589	0.420 (5.66)	0.580 (7.82)

The table reports the proportion of stock returns variation that is explained by cash flow news (*CFN*) and discount rate news (*DRN*) following accounting restatement by restatement types (Panel A) and by earnings persistence (Panel B). *Restatement – Full Sample* includes all the firms with restatement announcements from Audit Analytics database during 1995 to 2013. *Accounting Rule Application Failures* is a subsample of firms whose restatement is due to misapplication of accounting rules. *Financial Fraud* is a subsample of firms whose restatement is caused by financial fraud. *Errors* is a subsample of firms whose restatement is due to a simple error. *Others* include all other restatements. *Obs* is the total number of observations. Cash flow news (*CFN*) is the stock return driven solely by changes in cash flow expectations from *t-1* to *t+1* surrounding restatement announcements. Discount rate news (*DRN*) is the stock return driven solely by changes in cost of equity capital from *t-1* to *t+1* surrounding restatement announcements. The *CFN coefficient* is estimated as $\frac{\text{Cov}[dp,CFN]}{\text{Var}(dp)}$, where *DP* is the log return from the same *t-1* to *t+1* period surrounding the restatement announcements. Likewise, the *CRN coefficient* is estimated as $\frac{\text{Cov}[dp,DRN]}{\text{Var}(dp)}$. *t*-statistics are reported in parentheses. Earnings persistence is measured as the coefficient b1 from a time-series regression of ROA(t) = b0 + b1*ROA(t-1) at the firm level using past six years of ROA with a minimum of four years of data where ROA is measure net income divided by total assets.

TABLE 4
Post-Restatement Buy and Hold Return on Full Sample

Panel A: Raw Returns

Return Periods	Full Sample	Low CFN/DP Restatement	High CFN/DP Restatement	High-Low
Raw Ret (-1,1)	-0.015***	-0.017***	-0.014***	0.002
Raw Ret (2,63)	0.033***	0.023**	0.044***	0.021*
Raw Ret (2,126)	0.053***	0.036***	0.069***	0.034*
Raw Ret (2,252)	0.123***	0.092***	0.154***	0.063**

Panel B: Abnormal Returns (Raw returns – DGTW (1997) Characteristics Portfolio Returns)

Return Periods	Full Sample	Low CFN/DP Restatement	High CFN/DP Restatement	High-Low
BHAR (-1,1)	-0.018***	-0.018***	-0.017***	0.001
BHAR (2,63)	-0.001	-0.009	0.007	0.016
BHAR (2,126)	-0.014*	-0.028**	-0.001	0.027*
BHAR (2,252)	-0.019	-0.047***	0.009	0.055**

The table reports raw returns in Panel A, and buy-and-hold abnormal returns (BHAR) in Panel B from one day before the restatement date to 252 trading days after the restatement by the magnitude of cash flow news (CFN) relative to stock price changes (*High* vs. *Low*) in quarterly intervals. The *High [Low]* CFN/DP sample includes any restatement firms with high [below] the median of CFN/DP between *t-1* to *t+1* dates, where *t-1* is the most recent earnings forecast consensus date right before the restatement announcement date, and *t+1* is the most immediate earnings forecast consensus date right after the restatement announcement date. BHARs are calculated during each trading period we choose by subtracting the corresponding 125 characteristics based benchmark portfolio returns based on the size, book-to-market ratio and momentum portfolio following Daniel et al. (1997) from the raw returns. *High – Low* column reports the difference in BHAR between the High and Low CFN/DP samples. *, **, and *** represent the significance levels at 5%, 1%, and 0.1%, respectively.

TABLE 5
Post-Restatement Buy and Hold Return by Restatement Types

Panel A: Negative BHAR(-1,1) Sample DGTW Abnormal Returns

Return Periods	Full Sample	Low CFN/DP Restatement	High CFN/DP Restatement	High-Low
BHAR (-1,1)	-0.057***	-0.053***	-0.060***	-0.007
BHAR (2,63)	-0.006	-0.015	0.002	0.016
BHAR (2,126)	-0.023*	-0.044***	-0.002	0.041*
BHAR (2,252)	-0.021	-0.049**	0.006	0.055*

Panel B: Positive BHAR(-1,1) Sample DGTW Abnormal Returns

Return Periods	Full Sample	Low CFN/DP Restatement	High CFN/DP Restatement	High-Low
BHAR (-1,1)	0.041***	0.038***	0.043***	0.005
BHAR (2,63)	0.007	0.000	0.013	0.013
BHAR (2,126)	-0.001	-0.008	0.005	0.014
BHAR (2,252)	-0.015	-0.048*	0.018	0.067*

The table reports raw returns, and buy-and-hold abnormal returns (BHAR) from one day before the restatement date to 252 trading days after the restatement by the magnitude of cash flow news (CFN) relative to stock price changes (*High* vs. *Low*) in quarterly intervals for the negative restatement subsample (Panel A), and the positive restatement subsample (Panel B).The N*egative* [P*ositive*] BHAR(-1,1) restatement sample includes any restatement announcement whose 3-day market reaction is negative [positive]. The *High [Low]* CFN/DP sample includes any restatement firms with high [below] the median of CFN/DP between *t-1* to *t+1* dates, where *t-1* is the most recent earnings forecast consensus date right before the restatement announcement date, and *t+1* is the most immediate earnings forecast consensus date right after the restatement announcement date. BHAR are calculated during each trading period we choose by subtracting the corresponding 125 characteristics based benchmark portfolio returns based on the size, book-to-market ratio and momentum portfolio following Daniel et al. (1997) from the raw returns. *High – Low* column reports the difference in BHAR between the High and Low CFN/DP samples. *, **, and *** represent the significance levels at 5%, 1%, and 0.1%, respectively.

TABLE 6
The Drivers of Stock Price Changes Following Accounting Restatement: Cash Flow News vs. Discount Rate News – Additional Tests

Panel A: The revision horizon t-1 to t+2

		Coefficients	
	Obs	CFN	DRN
Restatement – Full Sample	1,786	0.280 (8.30)	0.720 (21.35)
Negative BHAR(-1,1)	1,064	0.269 (6.69)	0.732 (18.22)
Positive BHAR(-1,1)	722	0.249 (4.00)	0.751 (12.06)

Panel B: Non-zero forecast revisions

		Coefficients	
	Obs	CFN	DRN
Restatement – Full Sample	1,350	0.385 (7.97)	0.615 (12.74)
Negative BHAR(-1,1)	796	0.353 (5.48)	0.647 (10.04)
Positive BHAR(-1,1)	554	0.341 (4.15)	0.659 (8.01)

Panel C: Alternative Valuation Model (Pastor, Sinha, and Swaminathan 2008)

		Coefficients	
	Obs	CFN	DRN
Restatement – Full Sample	1,828	0.311 (6.10)	0.689 (13.51)
Negative BHAR(-1,1)	1,094	0.287 (4.04)	0.713 (10.06)
Positive BHAR(-1,1)	734	0.296 (3.73)	0.704 (8.88)

Panel D: Subsample Partitioned by the Large and Small Restatement

	Obs	Coefficients	
		CFN	DRN
Large Restatement	924	0.357 (6.39)	0.643 (11.48)
Small Restatement	925	0.299 (5.70)	0.701 (13.35)

Panel E: Restatements Announcements within (t-1, t+1) days of Earnings Announcements Date

	Obs	Coefficients	
		CFN	DRN
Restatements Without Earnings Announcements	1,716	0.329 (8.32)	0.671 (16.98)
Restatements With Earnings Announcements	133	0.445 (3.03)	0.555 (3.78)

The table reports the proportion of stock returns variation that is explained by cash flow news (*CFN*) and discount rate news (*DRN*) following accounting restatement. Panel A reports the results with extended revision horizon from t-1 to t+2. Panel B reports the results after deleting firms whose earnings forecasts that financial analysts do not revise following accounting restatements. Panel C reports the results based on the valuation model used in Pastor et al. (2008). Panel D reports the results of subsample analysis partitioned by the size of restatement. A firm is classified into the *Large [Small] Restatement* subsample when the cumulative effect of restatement on changes in net income is above [below] the median of the full sample. Panel E reports results of subsample analysis portioned by the restatements that are made with and without earnings announcements. *Population* includes all the firms from the intersection of CRSP, I/B/E/S and Compustat universe from year 1995 to 2013. *Restatement – Full Sample* includes all the firms with restatement announcements from Audit Analytics database during 1995 to 2013. The N*egative* [P*ositive*] BHAR(-1,1) restatement sample includes any restatement announcement whose 3-day market reaction is negative [positive]. *Obs* is the total number of observations. Cash flow news (*CFN*) is the stock return driven solely by changes in cash flow expectations from *t-1* to *t+1* [or t+2] surrounding restatement announcements. Discount rate news (*DRN*) is the stock return driven solely by changes in cost of equity capital from *t-1* to *t+1* [or *t+2*] surrounding restatement announcements. The *CFN coefficient* is estimated as $\frac{\mathrm{Cov}[dp,CFN]}{\mathrm{Var}(dp)}$, where *DP* is the log return from the same *t-1* to *t+1* period surrounding the restatement announcements. Likewise, the *CRN coefficient* is estimated as $\frac{\mathrm{Cov}[dp,DRN]}{\mathrm{Var}(dp)}$. *t*-statistics are reported in parentheses.

TABLE 7
Post-restatement announcement returns after controlling for additional risk factors

	Dependent Variable	
	$Ret_{i,t}$	$BHAR_{i,t}$
Intercept	0.010	-0.054
	[0.22]	[-1.30]
$LowCFN\_DP_{i,t}$	-0.054*	-0.052*
	[-2.30]	[-2.34]
$Beta_{i,t-1}$	0.010	0.003
	[0.75]	[0.27]
$TAC_{i,t-1}$	0.165*	0.137
	[2.43]	[1.73]
$BP_{i,t-1}$	0.183***	0.059*
	[6.32]	[2.02]
$Leverage_{i,t-1}$	0.025	-0.005
	[0.50]	[-0.10]
$Momentum_{i,t-1}$	0.016	0.012
	[1.03]	[0.83]
Adj R^2	*0.028*	*0.007*
# of Obs.	*1,623*	*1,211*

The table reports regression results of equation (13). $Ret_{i,t}$ is the one year buy-and-hold return from one day before the restatement announcement date to 252 trading days after. $BHAR_{i,t}$ is the one year buy-and-hold abnormal return from one day before the restatement announcement date to 252 trading days after. $LowCFN\_DP_{i,t}$ takes a value of one if a firm's cash flow news (*CFN*) relative to stock price changes (*DP*) surrounding the restatement announcement date is below the crossectional median CFN/DP each year, otherwise zero. $Beta_{i,t-1}$ is CAPM beta computed using 60 monthly returns based on the market model. $TAC_{i,t-1}$ is total accruals, computed as earnings before extraordinary income minus cash flow from operating income, scaled by the average total assets. $BP_{i,t-1}$ is the book-to-market ratio, defined as the ratio of book value of equity to market capitalization. $Leverage_{i,t-1}$ is measured by total liabilities divided by total assets. $Momentum_{i,t-1}$ is the twelve-month raw return from month t - 12 to month t - 1. *t*-statistics reported in brackets are adjusted for heteroskedasticity and firm-level clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level for two-tailed test, respectively.