A Matter of Principle:

Accounting Reports Convey Both Cash-Flow News and Discount-Rate News

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Abstract. This paper identifies cash-flow news and expected-return news in financial statements and shows that stock returns are increasing with positive cash-flow news in the statements and decreasing in the news about increasing expected returns. The identified news measures differ significantly from those identified from decomposing returns based on the Vuoltennaho (2002) framework. The paper points to the realization principle, associated as it is with the resolution of uncertainty, as the accounting feature that conveys expected-return news, a feature that is not captured by the accounting implicitly assumed in the Vuolteenaho framework. The expected-return news we identify forecasts changes in both stock return betas and earnings betas. The expected-return news also predicts future returns while cash-flow news (appropriately) does not. Financial statements distinguish expected-return news associated with operations from that associated with financing activities, and both exhibit properties required of cash-flow news and expected-return news variables. In contrast, the measures from the return decomposition approach fail consistency requirements for variables to be identified as cash-flow news and expected-return news.

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1. Introduction

The Campbell (1991) decomposition of investment returns into the expected return, cash-flow news, and expected-return news has had a significant impact on research into asset pricing. In particular, time-varying expected returns are now seen as important in explaining realized returns. While so-called capital markets research in accounting has typically viewed accounting reports as providing just cash-flow news, recent research has attempted to show that those reports also convey expected-return news. Following Vuolteenaho (2002), the approach applies accounting variables to decompose stock returns into the three Campbell components (see Callen 2009 and 2015 for a review).

This paper takes a different approach that yields quite different results. Rather than connecting accounting numbers to cash-flow-news and expected-return-news components of returns, it extracts the respective news from financial statements and then validates that the news explains total returns in the direction required: Realized returns are positively (negatively) related to positive (negative) cash-flow news in financial statements, but negatively (positively) related to the news they convey about increasing (decreasing) discount rates. Supplementary tests provide further validation. First, the expected-return news in financial statements forecasts changes in stock return betas and earnings betas. Second, while research has shown that variables involving accounting numbers predict future returns, the identified cash-flow news does not, as required of a (serially uncorrelated) cash-flow news variable. In contrast, the expected-return news robustly forecasts future returns. Third, expected-return news associated with operating activities is distinguished from that due to financing activities, with both exhibiting properties of an expected-return news variable.

Our analysis is built around an accounting principle for recognizing earnings. Earnings has long been viewed as the primary accounting number that conveys news, being the focus in the Ball and Brown (1968) paper and much of the long stream of capital markets research that followed. While not always explicit, the view is that earnings convey news about expected cash flows: Higher earnings are associated with higher stock returns, and thus are indicative of higher future cash flows.[1] But earnings are recognized under an accounting principle for handling risk: Under uncertainty, earnings recognition is typically deferred until the uncertainty has been resolved (fair value accounting aside). Thus, the deferral of earnings to the future implies more risk and higher expected returns. Correspondingly, earnings realizations indicate a reduction in risk and expected return because uncertainty has been resolved. In asset pricing terms, this "realization principle" implies that earnings are not recognized until a low-beta asset like cash or a near-cash receivable can be booked. There is no necessity that the risk to which the accounting responds is priced risk, of course, but our empirical tests suggests so.

The news measures we extract from financial statements look quite different from those identified by decomposing stock returns under the Vuolteenaho (2002) scheme. We show that the Vuoteenaho model implicitly assumes accounting principles that are inconsistent with the realization principle and thus unlikely to capture the information about risk and its

[1] For a review of capital markets research, see Kothari (2001). There is some recognition that returns-earnings relations involve the expected return, for example in papers that point out that "earnings response coefficients" (coefficients on earnings in returns-earnings regressions) imbed the required return.

resolution that is conveyed by earnings that are recognized under this principle. The Vuolteenaho analysis yields the inference that higher realized earnings imply higher expected returns, a result that is not only inconsistent with the realization principle, but also one that leaves an open question. How can a firm become more risky as it realizes more earnings? Just as the realization of risky stock investments into cash (or the risk-free asset) reduces risk and the expected return in asset pricing, so should the realization of cash (or near-cash discounted receivables) when earnings are recognized in firms on which those stocks are a claim.

In empirical tests we show that, while the financial statement news measures survive validation tests, the decomposed-return measures fail consistency requirements that must be satisfied for cash-flow news and expected-return news. For example, the cash-flow news is predictable–indeed it is predicted by our measure of the expected return among other variables—but cash-flow news, by definition, should not be so. Further, while our expected-return measure is positively related to changes in leverage, the Vuolteenaho measure is negatively related, inconsistent with the notion that leverage increases risk and the expected return.

The findings here also contrast with Campbell (1991) and many papers in finance that see dividends and dividend yields as the information that distinguishes cash-flow news from expected-return news.[2] While most of those papers pertain to firms in the aggregate, our results show that, for individual firms, dividends do not add much incremental information in explaining realized returns given accounting information; once cash-flow news and expected-return news from financial statements are controlled for, dividends are priced according to the

[2] See, for example, Campbell and Ammer (1993), Campbell and Shiller (1988), Cochrane (2011), and Campbell, Giglio, and Polk (2013) for example.

Miller and Modigliani (1961) dividend irrelevance proposition. The paper also revisits research that compares the information content of earnings versus cash flows and finds that cash flows primarily convey expected-return news.

As price represents the *discounted* value of expected cash flows, the identification of expected-return news in financial statements provides a comprehensive representation of how financial reports inform about price, the presumed objective in capital markets research. In doing so, we provide a more compete specification of the returns-earnings regression equation that is employed in that research. A stated objective of the FASB and IASB is to provide information about "the amount, timing, and uncertainty of future cash flows." Our paper indicates that financial reports convey information about the *amount* and *uncertainty* of future cash flows.

Section 2 lays out the framework for identifying cash-flow news and expected-return news in financial statements and specifies the regression equation for relating the information to realized stock returns. After a data summary in section 3, section 4 implements the framework to elicit the two types of news from the financial statements and shows that expected-return news predicts changes in betas. Section 5 takes the return regression specification in section 2 to the data to show that financial reports explain all three components of contemporaneous realized returns in the Campbell trichotomy. That section also validates our identification of the two types of news by showing that expected-return news predicts future returns but cash-flow news does not. Section 6 completes the empirical analysis with a comparison of how earnings, dividends, and cash flows convey cash-flow news and expected-return news. Section 7 compares the analysis with the variance decomposition approach and section 8 concludes.

2. Regressions Specifications with Cash-flow News and Expected-return News

In contrast to the Vuolteenaho approach that breaks down stock returns into the three Campbell (1991) components, we extract information from the financial statements that pertains to the three components and then evaluate how this information explains (total) returns. Like Campbell (1991), our insights come from a tautology, one that ties returns to accounting numbers that potentially provide cash-flow news and expected-return news. We first present the set-up with a constant discount rate to identify cash-flow news. We then introduce varying discount rates to modify the specification to incorporate expected returns and expected-return news. The modeling combines the specification of contemporaneous return regressions in Penman and Yehuda (2009) with the expected return specification of Penman, Reggiani, Richardson, and Tuna (2014).

2.1 Identifying Cash-Flow News (with No Change in the Expected Return)

The representation of returns in terms of contemporaneous accounting numbers comes from Easton, Harris, and Ohlson (1992). Given the clean-surplus accounting operation for equity, $d_t = Earnings_t + B_{t-1} - B_t$ where d is the net dividend to common equity and B is the book value of equity. Substituting for dividends in the stock return (with firm subscripts omitted):

$$\frac{P_t + d_t - P_{t-1}}{P_{t-1}} = R_t = \frac{Earnings_t}{P_{t-1}} + \frac{(P_t - B_t) - (P_{t-1} - B_{t-1})}{P_{t-1}} \quad (1)$$

With no change in the expected return during the period, the identity shows that the equity return is explained by realized earnings plus other information that explains the change in premium of price over book value. Price in the denominator serves as the expectation of earnings and the change in premium at the beginning of the period, so that the realized earnings yield and the price-denominated change in premium explain unexpected returns (see Ohlson and Shroff, 1992). With a constant expected return, that news (and its effect on realized returns) pertains to information about expected future cash flows.

This formulation identifies earnings as the primary cash-flow-news variable from the accounting system. This contrasts with much of the work on cash-flow news and discount-rate news in finance, including Campbell (1991), where it is dividends that convey the news—a point we return to in comparing the information content of accounting variables relative to dividends in our empirical tests. In the formulation here, dividends are irrelevant because, under accounting principles, dividends do not affect current earnings; nor, under Miller and Modigliani (1961) assumptions, do they affect premiums over book value or stock returns.[3]

As a tautology, equation (1) conveys little meaning without an explanation of what determines a change in premium. If earnings are not expected to grow (beyond that from retention), the change in premium is zero and, correspondingly, the stock return is equal to the earnings yield by equation (1).[4] Consequently, a change in premium implies expected earnings

[3] Dividends reduce book value, dollar-for-dollar by accounting principles and also price dollar-for-dollar under Miller and Modigliani assumptions (and thus dividends do not affect premiums). Correspondingly, dividends do not affect the cum-dividend stock return as dividends just displace the capital gains portion of the return. Some conjecture that, due to tax effects, price drops less than the amount of the dividend, a point we consider in our empirical work.

[4] By the same clean-surplus substitution of earnings and book value for dividends, the price premium over book value at t is

$$P_t - B_t = \frac{Earnings_{t+1} - r \times B_t}{r - g}$$

growth; that is, a change in premium is induced by other information (beyond earnings) that forecasts future earnings growth over the reported earnings. Alternatively stated, price at t-1 is based on expected life-long earnings, so information that changes price during period t is both $Earnings_t$ and other information about future earnings in period after t.

The “other information” is determined by the accounting for earnings; for a given P_{t-1} (and thus given life-long expected earnings), lower measured $Earnings_t$ implies higher subsequent earnings. Indeed, the change in premium that corresponds to expected earnings growth is determined by earnings measurement: The price-denominated change in premium, $\frac{P_t - B_t - (P_{t-1} - B_{t-1})}{P_{t-1}} = \frac{\Delta P_t + d_t - (\Delta B_t + d_t)}{P_{t-1}}$ so, as $\Delta B_t + d_t = Earnings_t$ by the clean-surplus relation, the change in premium is determined by the measurement of earnings. If earnings are measured such that $P_t - B_t = P_{t-1} - B_{t-1}$, the regression of returns on earnings would always produce a perfect R^2 (there is no other information). (Mark-to-market accounting with $P_t - B_t = P_{t-1} - B_{t-1} = 0$ is a special case.) Perfect R-squares in returns-earnings regressions are not

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where r is the expected return and g is the expected growth rate in residual earnings after year t+1 ($Earnings_{t+1}$ is an expected value). This is the familiar residual earnings model. With the same representation of the premium at t-1 and setting g = 0 (no growth),

$$P_t - B_t - (P_{t-1} - B_{t-1}) = \frac{Earnings_{t+1} - r \times B_t}{r} - \frac{Earnings_t - r \times B_{t-1}}{r}$$

Thus, for $P_t - B_t - (P_{t-1} - B_{t-1}) = 0$,

$$\begin{aligned} Earnings_{t+1} - r \times B_t - (Earnings_t - r \times B_{t-1}) &= 0 \\ &= Earnings_{t+1} - Earnings_t - r \times (B_t - B_{t-1}) \\ &= Earnings_{t+1} - Earnings_t - r \times (Earnings_{t-1} - Dividends_{t-1}) \\ &= Earnings_{t+1} + r \times Dividends_{t-1} - (1+r) \times Earnings_{t-1} \end{aligned}$$

That is, with no change in premium, earnings (with reinvested dividends) are expected to grow at the rate, r. However, with full payout, $B_t - B_{t-1} = 0$, so expected earnings growth is zero and payout does not affect premiums. See also Shroff (1995).

observed (far from it), and that must be attributed to accounting principles that result in changes in premium and expected earnings growth. Indeed, while life-long expected earnings are incorporated in the price, P_{t-1}, GAAP typically recognizes those earnings with a delay; Earnings are said to be "less timely" than prices.

2.1.1 The Regression Specification

Potentially there is considerable financial statement information that forecasts earnings growth and thus conveys cash-flow news beyond earnings. In specifying a regression equation, we take a minimalist approach here. Much of capital markets research deals with earnings changes as well as earnings levels, and Easton and Harris (1991) and Ali and Zarowin (1992) show that adding earnings changes to earnings levels adds to the explanation of returns. As a measure of earnings growth, the change in earnings informs about future earnings growth and thus explains the change in premium. Accordingly, we specify the following cross-sectional cash-flow news regression (again with firm subscripts understood):

$$R_t = a + b_1 \frac{Earnings_t}{P_{t-1}} + b_2 \frac{\Delta Earnings_t}{P_{t-1}} + b_3 \frac{B_{t-1}}{P_{t-1}} + \varepsilon_t \quad (2)$$

Book-to-price at the beginning of the return period appears in the regression, as in equation (1), effectively initializing in the cross-section on the difference between and price and book value, that is, the amount of expected future earnings relative to the earnings that have been booked to book value as of time, t-1. The disturbance represents information about expected earnings growth and, with a constant expected return, that information is cash-flow news.

However, according to the Campbell decomposition, this regression equation is missing variables that pertain to expected returns and expected-return news and thus also explain the left-hand-side return. If so, the disturbance potentially includes such information, and estimated coefficients on the included variables will reflect expected returns and expected-return news if they are correlated with these omitted variables.[5] To complete the explanation of returns, we must identify (accounting) variables that pertain to expected returns and expected-return news.

2.2 Identifying Expected-Return News

Taking an expectation operator through equation (1) yields the expected return for t based on information at time t-1:

$$E_{t-1}(R_t) = \frac{E_{t-1}(Earnings_t)}{P_{t-1}} + \frac{E_{t-1}(P_t - B_t) - (P_{t-1} - B_{t-1})}{P_{t-1}} \quad (3)$$

The expected return, $E_{t-1}(R_t)$, equals the expected earnings yield plus the expected change in premium of price over book value relative to beginning-of-period price, and the expected change in premium implies expected earnings growth after year t.

However, as with equation (1), this expression holds for all accounting methods; there is no necessary connection of the accounting to risk and the expected return without more structure on the accounting. The accounting would have to involve a measurement of $Earnings_t$ (and the subsequent growth and change in premium it implies) that informs about risk such that P_{t-1} in the denominator of equation (3) is discounted to yield a higher expected return.

[5] This is why "earnings response coefficients" on earnings variables in returns-earnings regressions are conjectured to imbed a discount rate.

As an example, one such accounting is mark-to-market accounting, where $P_t - B_t - (P_{t-1} - B_{t-1}) = 0$ (there can be no expected growth with mark-to-market accounting beyond that from retention). It is clear from equation (3) that $E_{t-1}(R_t) = \frac{E_{t-1}(Earnings_t)}{P_{t-1}}$ with this accounting. That is the case with a mark-to-market bond, and it is the accounting for $Earnings_t$ that forces the equivalence: The effective interest method equates the expected earnings yield to the expected bond yield that indicates the risk.

However, GAAP typically does not employ mark-to-market accounting for equities. So-called "historical cost" accounting differs from mark-to-market accounting by delaying the recognition of the expectation of earnings that is in price such that (typically) $P_{t-1} - B_{t-1} > 0$. The operating principle is the realization principle: Earnings recognition is deferred until earnings are "realized." The deferral of earnings recognition implies lower $Earnings_t$ and correspondingly higher expected earnings growth such that $E_{t-1}[P_t - B_t - (P_{t-1} - B_{t-1})] > 0$ (for positive growth). In short, the realization principle creates the "other information" identified in regression equation (2) and that other information pertains to expected earnings growth from deferred earnings recognition.

That said, there is no necessity that resulting expected earnings growth adds to the expected return. If that growth pertains solely to higher expected cash flows, the expectation with be incorporated in P_{t-1}, the deflator in equation (3), with no effect on the expected return. However, price also discounts for risk, so if the expected growth coveys risk, P_{t-1} is discounted, yielding a higher expected return. To do so, the accounting that produces the growth must be tied to risk.

The realization principle not only implies expected growth but also connects that growth to risk. Indeed, the principle is one for recognizing earnings in the presence of risk: Under uncertainty, earnings are not recognized until the uncertainty has been resolved. Thus, expected growth induced by the accounting is growth that is at risk of not being realized. And the recognition of earnings via the realization principle is due to the resolution of risk. In asset pricing terms, revenue is not recognized until the firm can book a low-beta asset, like cash or a near-cash receivable. Otherwise, earnings recognition is deferred to the future, yielding future earnings growth *if* realized; the *if* implies that the expected earnings are at risk.

The realization principle is typically applied by deferring revenue recognition until a customer has been secured with an enforceable contract, the firm has performed, and "receipt of cash is reasonably certain." However, in addition, some particularly risky investments (like R&D and advertising) are expensed immediately, reducing earnings but resulting in expected earnings growth (as there are no costs to be amortized).[6] Indeed, a good deal of investment is expensed under GAAP accounting: Beside R&D and advertising, investment on supply chain and distribution systems, organization costs, store opening costs, employee training, film development costs, software development, and merger costs are usually expensed to the income statement. All reduce earnings but yield higher expected future earnings (with expected sales but no costs to amortize against those sales). But those expected earnings are at risk, conditional on sales and earnings being realized from the investments. In short, the recognition of earnings revolves around the around risk and the resolution of risk.

[6] In requiring expensing of R&D under FASB Statement No. 2, the FASB focused on the "uncertainty of future benefits." In IAS 38, the IASB applied the criterion of "probable future economic benefits" to distinguish between "research" (which is expensed) and "development" (which is capitalized and amortized).

There is no necessity that the risk imbedded in the realization principle is priced risk, of course, but a no-arbitrage argument suggests so. In holding stocks, investors bear risk that the expected return may not be realized, and thus require a return commensurate with the risk. But, when they sell stocks and invest the cash proceeds in the risk-free asset—they realize the return—the risk is reduced, and so is the expected return (to the risk-free rate). A stock is a claim on the expected earnings of the shareholders' firm, so when the firm realizes those expected earnings into cash or a near-cash asset on shareholders' behalf, the investors' risk and expected return are correspondingly reduced. On a consolidated basis, the firm's accounts are part of the shareholders' accounts, so it makes no difference if the shareholder "realizes" or the firm "realizes" on the shareholder's behalf— the shareholder has the claim to the same cash. A no-arbitrage condition so dictates (frictions aside): *Ceteris paribus*, paying cash out to shareholders (in dividends) has no effect on the cum-dividend value of the shareholders' claim under M&M assumptions; cash in the firm is valued the same as cash in the shareholder's cash account. Realized earnings typically generate a receivable, not cash, but the receivable is then discounted to its cash equivalent for the probability that cash may not be received (as least in principle).

One would like to connect the realization principle explicitly to the expected return in a formal model under this no-arbitrage argument. That would appear to be a difficult task; at least the modeling escapes us at present. Accordingly, it remains an empirical matter whether earnings recognition ties to priced risk and average returns. In this respect, Penman and Reggiani (2013) shows that average realized returns are related to the extent to which earnings are expected to be recognized in the short term versus the long term. Penman, Reggiani, Richardson, and Tuna (2014) show that portfolios with higher expected earnings growth are at a higher risk of that growth not being realized and that higher growth also has higher sensitivity to market-wide shocks to growth. The empirical analysis is this paper provides further support.

2.2.1 Comparison with the Vuolteenaho Framework

Like equation (3), the Vuolteenaho model assumes the clean-surplus relation to express premiums in terms of expected returns and expected book rates of return, with all variables expressed in log form. The evolution of these variables is assumed with a vector autoregressive (VAR) assumption that is employed to estimate the linear dependencies between the variables. After the estimation of parameters for the joint process, cash-flow news and expected-return news components of returns are estimated from the model residuals. See Callen (2009) for an overview.[7]

The Vuolteeaho scheme differs from ours in the modeling of the evolution of premiums. First, Vuoteenaho models log premiums, $\log(P_t) - \log(B_t)$. However, while premiums, $P_t - B_t$ are not affected by dividends under M&M assumptions (as shown above), $\log(B_t) - \log(P_t)$ are, so the modeling violates M&M (with no assumptions about frictions that would justify the inconsistency). Second, the autoregressive assumption implies that $E_{t-1}(P_{t+T} - B_{t+T}) \rightarrow$ as 0 as T $\rightarrow \infty$; that is, for $P_{t-1} - B_{t-1} > 0$ (as is typical), premiums are expected to decline to zero. Correspondingly, ROE is also assumed to follow an autoregressive process with the condition

[7] Papers that employ the approach using accounting data include Callen and Segal (2004), Callen, Hope, and Segal (2005), Callen, Livnat, and Segal (2006), and Hecht and Vuolteenaho (2006). Changing discount rates are also recognized in work relating aggregate earnings to aggregate returns, for example in Sadka (2007), Ball, Sadka, and Sadka (2009), Cready and Gurun (2010), and Patatoukas (2014).

(stated explicitly is some papers) that ROE and the expected return converge in the long run. An assumed process for the evolution of premiums implies a particular accounting for earnings: For a given expected return, $P_t - B_t - (P_{t\text{-}1} - B_{t\text{-}1}) = Earnings_t$ by the clean surplus equation (as above), so a condition that $P_t - B_t > (P_{t\text{-}1} - B_{t\text{-}1})$, that is, declining premiums, does not permit earnings growth, nor the realization principle that produces that growth and ties the growth to risk.

We illustrate with two cases, one with no-expected earnings growth and one with earnings growth that implies an expansion of premiums. For both, consider the simple residual income valuation model that equates to the no-arbitrage dividend discount model (with a constant discount rate, for simplicity) via the clean-surplus relations:

$$P_{t-1} - B_{t-1} = \frac{Earnings_t - r.B_{t-1}}{r-g} = \frac{(ROE_t - r)B_{t-1}}{r-g}$$

where $ROE_t = \dfrac{Earnings_t}{B_{t-1}}$, r is the expected return, and g is the expected growth rate in residual earnings after year t.

For the no-growth case, set $g = 0$:

$$P_{t-1} - B_{t-1} = \frac{(ROE_t - r)B_{t-1}}{r} \ .$$

Thus,

$$r = \frac{B_t}{P_t} \times ROE_{t+1} = \frac{Earnigns_{t+1}}{P_t} \qquad \text{(A2)}$$

As footnote 4 shows, this is the case in equation (3) with no expected change in premium (no growth) where the expected return equals the expected earnings yield. In this case, firms with the same r can have low book-to-price and high ROE or high book-to-price and low ROE with no difference in the earnings yield. Both are purely a construction of the accounting such that a low book-to-price always means a high ROE; they are mutually, inversely referential just because of the common accounting for book value. Viewing B/P and ROE as separate inputs In the Vuoltennaho model is of no consequence; it is not the book-to-price and ROE that incrementally indicate the expected return, but their product that removes the accounting effects in the no-growth case to indicate the expected return.

Further, in the no-growth case, expected premiums are always constant (as in footnote 4). In contrast, the Voulteenaho analysis models declining future premiums for $P_{t-1} - B_{t-1} > 0$. And, with full payout, expected ROE remains constant. Only less than full payout will induce a declining ROE, but payout is irrelevant to current price and the premium under M&M.[8]

The growth case sets $g > 0$ in the residual income valuation above. It is now easy to show, as an extension of footnote 4, that $E_{t-1}(P_t - B_t) > P_{t-1} - B_{t-1}$ rather than $E_{t-1}(P_t - B_t) < P_{t-1} - B_{t-1}$ under the autoregressive dynamic. These (conservative) accounting properties are also modeled in Feltham and Ohlson (1995) and Zhang (2000), albeit with no effect of the expected return.

2.2.2 The Regression Specification

Equation (3) informs that variables that convey expected-returns news will be those that forecast the forward earnings yield and subsequent earnings growth that the market prices as risky. For the identification of these variables, we turn to Penman, Reggiani, Richardson, and Tuna (2014), extended by Penman and Zhu (2014). The former paper uses the trailing earnings

[8] This and other point here can be demonstrated by modeling the residual income valuation (for both $g = 0$ and $g > 0$) in a simple spreadsheet.

yield, $\frac{Earnings_{t-1}}{P_{t-1}}$, to forecast the forward yield, with earnings purged of one-time items. It also shows that the book-to-price ratio (B/P) forecasts earnings growth and also the risk in growth outcomes, and accordingly forecasts returns according to equation (3). Penman and Zhu (2014) identify a number of accounting variables that further forecast forward earnings and subsequent earnings growth, and also indicate the risk that growth expectations may not be realized. The variables include accruals, investment, and growth in net operating assets.

Based on these papers, we specify the following cross-sectional regression for the estimation of expected returns for return period, t:

$$R_t = \alpha + \beta_1 \frac{Earnings_{t-1}}{P_{t-1}} + \beta_2 \frac{B_{t-1}}{P_{t-1}} + \beta_3 ACCR_{t-1} + \beta_4 INVEST_{t-1} + \beta_5 \Delta NOA_{t-1} + \varepsilon_t \qquad (4)$$

ACCR is accruals, INVEST is investment, and ΔNOA is growth in net operating assets. The appendix describes the calculations of these variables.[9] $\frac{B_{t-1}}{P_{t-1}}$ is included because, given $\frac{Earnings_{t-1}}{P_{t-1}}$, it forecasts earnings growth and also the variance around expected growth in Penman, Reggiani, Richardson, and Tuna (2014). ΔNOA connects immediately to the change in premium in equation (3). By the balance sheet equation, $B_t = NOA_t - ND_t$, where ND is the book value of net debt, and correspondingly, $P_{t-1} = P_{t-1}^{NOA} - P_{t-1}^{ND}$. Thus, $\Delta P_{t-1} - \Delta B_{t-1} = \Delta NOA_{t-1}$ if $ND_{t-1} = P_{t-1}^{ND}$ (that is, the book value of the net debt is carried at its market value, as it is

[9] Penman and Zhu (2014) include financing variables in regression. We omit them because we deal with financing effects on the expected return separately in our empirical work.

approximately under GAAP). Accordingly, given $\frac{Earnings_{t-1}}{P_{t-1}}$ already in the regression, lower ΔNOA indicates higher expected growth. ACCR and INVEST are components of ΔNOA.

While these variables enter the regression because they forecast subsequent uncertain growth, they are also realizations of prior growth expectations that involve the resolution of this uncertainty. For example the accrual component of ΔNOA involves the realization of earnings, driven by revenue recognition and the associated expense matching. Lower accruals forecast higher future earnings growth in Penman and Zhu (2014) and also higher expected returns. High accruals forecast lower growth but are also realizations of prior growth expectations that indicate lower expected returns. The two are complementary: the realization of growth expectations means lower future growth, *ceteris paribus*. INVEST involves realizations of uncertain investment opportunities: Expected growth is driven by expected investment opportunities and actually making those investment means that growth is more likely to be realized. In the parlance of finance, investment is the realization of risky growth options.[10] The incorporation of these variables introduces a time-series dimension to the regression as well as the cross-sectional one: Firms' expected returns change over time and that change has to do with more expected growth induced by deferral under uncertainty and realizations of growth expectations that indicate reduced uncertainty.

[10] Investment appears in the asset pricing models of Liu, Whited, and Zhang (2009), and Chen, Novy-Marx, and Zhang (2010) and in Cochrane (1996) *q*-theory: Firms invest when risks (that determine investment hurdle rates) are lower, so investment indicates lower expected returns. The "realization" of investments on the balance sheet complements the realization principle in the income statement. If the investment is below a threshold of risk, it is capitalized on the balance sheet. However, if the investment is particularly risky (R&D), it is not booked to the balance sheet, but expensed immediately—thus indicating higher potential earnings growth, but one that is at risk.

The expected return is estimated by applying the estimated coefficients in regression (4) to observed accounting numbers for each firm out of sample. The applied coefficients are means from annual cross-sectional regressions over a rolling 10-year period prior to t-1:

$$E_{t-1}(R_t) = \hat{\alpha} + \hat{\beta}_1 \frac{Earnings_{t-1}}{P_{t-1}} + \hat{\beta}_2 \frac{B_{t-1}}{P_{t-1}} + \hat{\beta}_3 ACCR_{t-1} + \hat{\beta}_4 INVEST_{t-1} + \hat{\beta}_5 \Delta NOA_{t-1} \qquad (5)$$

There is no pretense that equation (4) identifies all the information in financial reports that is relevant to the expected return. We are not aiming to develop the "best" model, nor to identify the full set of accounting information that provides cash-flow and discount-rate news. Our aim is simply to show that financial reports convey both types of news and for that we simply defer to the earlier papers where the association of variables with uncertain future earnings growth outcomes has been documented.

With the expected return for period t+1 estimated in the same way, the change in the expected return during period t is $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$, that is, the difference between the expected return for t+1 (with the expectation at the end of period t as a result of the updated accounting information arriving during period t) and that estimated for period t (with the expectation as the end of t-1).[11]

2.3 Combining Cash-Flow News and Discount-Rate News

Fitted values for expected returns from equation (5) and changes in expected returns are added to the cash-flow news equation (2):

[11] To be clear, the time subscript on the expectation operator is the time at which the expectation is formed; the time subscript on the return is the period to which the expectation refers.

$$R_t = a + b_1 \frac{Earnings_t}{P_{t-1}} + b_2 \frac{\Delta Earnings_t}{P_{t-1}} + b_3 \frac{B_{t-1}}{P_{t-1}} + b_4 E_{t-1}\left(R_t\right) + b_5 \Delta E_t\left(R_{t+1}\right) + \varepsilon_t \qquad (6)$$

Including the expected return at the beginning of the period, $E_{t-1}(R_t)$, adds the expected return component of the Campbell decomposition to the cash-flow news while the $\Delta E_t(R_{t+1})$ term captures the expected-return news conveyed during period t by the financial reports.

Consistent with a long history of capital markets research, we predict that the cash-flow news coefficients are positive but also predict that the b_4 coefficient on the expected return is positive and the b_5 coefficient on the expected-return news in negative: an increase in expected returns is an increase in risk that implies a lower return, *ceteris paribus*. Equation (6) can be thought of as incorporating a consistency condition for expectations. An increase in cash-flow news results in an increase in the unexpected portion of the stock return. An increase in expected return results in a reduction of the unexpected portion of the stock return.

The implementation of equation (6) requires a modification. The change in expected return on the right-hand side of the regression, $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$ involves $E_t(R_{t+1})$ estimated from equation (5) at point t. The price deflator in (5) at that point is P_t which is also on the right-hand side of regression (6) in the closing price for the return. Thus spurious correlation is introduced. To finesse this problem, we estimate the change in expected return directly based on realizations in year t denominated in price at the beginning of the period, P_{t-1}:

$$\begin{aligned} \Delta E_t(R_{t+1}) = \lambda + \delta_1 \frac{Earnings_t}{P_{t-1}} + \delta_2 \frac{\Delta Earnings_t}{P_{t-1}} + \delta_3 \frac{\Delta Sales_t}{P_{t-1}} + \delta_4 \frac{\Delta PM_t}{P_{t-1}} + \delta_5 ACCR_t \\ + \delta_6 INVEST_t + \delta_7 \Delta NOA_t + \delta_8 E_{t-1}(R_t) + e_t \end{aligned} \qquad (7)$$

Here the change in expected return over year t is explained by variables indicting the expected return, as in equation (4), with an initialization on the expected return at the beginning of the year. In addition, further detail of the earnings realization is added: the change in earnings, sales, and profit margin (PM).[12] The coefficients, estimated as the means from annual cross-sectional regressions over a rolling 10-year period prior to t-1, are applied out of sample to deliver the estimated change in expected return during year t.

3. Data and Descriptive Statistics

Our sample covers all U.S. firms available on Compustat files for any of the years, 1962-2012, and which have stock price and returns for the corresponding years on CRSP files for 1963-2013. The first year is reserved for lags so that the analysis period is 1963 to 2012. Financial firms (in SIC codes 6000-6999) are excluded because they practice fair value accounting where the deferral principle is not operative. Firms are deleted for any year in which Compustat reports a missing number for book value of common equity, income before extraordinary items, total assets, or long term debt. Firms with negative book value for common equity or market value lower than $10 million are also eliminated. Market prices (in the denominator of the regressions above) are observed on CRSP three months after each fiscal year, by which time the annual accounting numbers for fiscal year t-1 should have been reported (as required by regulation). Returns (R_t), also observed on CRSP, are annual returns after this date, calculated as buy-and-hold compounded monthly returns. This is the period over which the accounting information for fiscal year t is reported.

Table 1 reports selected percentiles, calculated from data pooled over firms and years, for variables in the analysis. The appendix describes how each variable was calculated. The

[12] In the empirical analysis, we re-estimated the expected return equation (4) with the same variables in equation (7). With the exception of the change in profit margin, the added variables added no explanatory power. A variable can predict the change in the expected return and not the level, of course, particularly when the lagged expected return is included in the prediction of the change, as in equation (7).

table includes the earnings yield and book-to-price on both a levered and unlevered basis, along with price-denominated earnings change variables. The unlevered numbers, involving operating income (OI) and net operating assets (NOA), will be employed later in the paper. The three accounting variables used in the estimation of expected returns, ACCR, ΔNOA, and INVEST are also presented. The last two columns include the means and standard deviations, with the top and bottom 1% of observations each year eliminated, except for returns. The distribution of all of these variables is similar to that observed in early studies.

Table 2 reports correlations between selected variables, with Spearman rank correlations above the diagonal and Pearson correlations below. The correlation coefficients are means over time of estimates from the cross-section for each year. Some observations that are relevant to the tests that follow should be noted. The earnings yield ($Earn_t/P_{t-1}$) and operating income yield (OI_t/P^{NOA}_{t-1}), are positively correlated, as one expects, as are their changes ($\Delta Earn_t/P_{t-1}$ and $\Delta OI_t/P^{NOA}_{t-1}$). Free cash flow and operating income are not highly correlated, indicating their information content (if any) is somewhat different. Indeed, the earnings yield and operating income yield and their changes are strongly correlated with the contemporaneous stock return but free cash flow and dividends considerably less so. But free cash flows are strongly negatively correlated with the change in net financial obligations (ΔNFO), reflecting the fact that free cash flow is used to pay down net debt and pay dividends (which are positively correlated with free cash flow). The correlations of the earnings yield, book-to-price, accruals (ACCR), investment (INVEST), and growth in net operating assets (ΔNOA) with returns are similar to those observed in other studies, as are the correlations between them.

4. Eliciting Expected Returns and Expected-Return News from Financial Statements

4.1 Estimating Expected Returns and Changes in Expected Returns

The first step is to estimate the expected return implied by accounting numbers. Panel A of Table 3 reports the estimates of regression equation (4) for forecasting returns in year t from accounting numbers for year t-1. Coefficients and adjusted R^2 are means from estimates from annual OLS cross-sectional regressions, with the elimination of the top and bottom percentiles of explanatory variables each year. The t-statistics on coefficient estimates are the mean coefficients relative to their standard errors estimated from the time series of coefficient estimates.

The first regression in Panel A starts with the two bottom-line numbers in the income statement and balance sheet, $Earn_{t-1}/P_{t-1}$ and B_{t-1}/P_{t-1}. $Earn_{t-1}/P_{t-1}$ serves as a predictor of the forward earnings-to-price, $Earn_t/P_{t-1}$ in equation (3) (the average Spearman correlation between the two is 0.63). The mean coefficient on $Earn_{t-1}/P_{t-1}$ is robustly positive. The mean coefficient on B_{t-1}/P_{t-1} is also significantly positive, consistent with the Fama and French (1992) “B/P effect in stock returns” but also with the observations in Penman, Reggiani, Richardson, and Tuna (2014) that B/P indicates risky expected earnings growth and thus has the characteristic required under equation (3) to indicate the expected return incrementally to earnings-to-price. The second regression adds the remaining variables in equation (4) that Penman and Zhu (2014) report also forecast the forward earnings yield and subsequent earnings growth. The R^2 are always low in predictive return regressions—the variance of realized returns is so much greater than that of expected returns—but these variables (that are positively correlated in Table 2) jointly add to the expected return.

We estimate the expected return as the fitted value by applying coefficient estimates in Panel A out of sample, as in equation (5). Specifically, for the expected return for year t estimated at the end of year t-1, $E_{t-1}(R_t)$, we apply mean regression coefficients from annual regressions in years t-2 to t-11 to accounting information at t-1. Because we require 10 years of estimated coefficients, expected returns are estimated from 1973-2012.

With both the expected return for year t and the expected return for t+1 so estimated, Panel B of Table 3 reports the results of regression equation (7) for estimating changes in expected returns over year t, that it, from t-1 to t: $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$. The beginning-of-period expected return carries a negative coefficient, for expected returns are mean reverting (as will be seen in the next table). The earnings yield indicates higher expected returns, as equation (3) suggests. All the other variables except the change in sales have negative coefficients. The results for ACCR, INVEST, and ΔNOA are, of course, consistent with their implications for expected returns in Panel A but they also indicate that realizations of accruals (that increase earnings) and the realization of investment opportunities imply lower expected returns. The negative coefficients on earnings changes and profit margin changes indicate that while higher earnings and earnings components may imply positive cash-flow news (and higher returns), the higher realizations also imply a lower expected return, consistent with the realization principle under which realization implies reduced uncertainty. The mean coefficient on sales growth is (marginally) positive, but this is conditional on the inclusion of earnings changes, the profit margin, and accruals in the regression, and all include sales as a component;

for example, an increase in credit sales is in ACCR. The high R^2 for the regression estimate is partly due to the fact that $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$ and $E_t(R_{t+1})$ is estimated in Panel A with some of the same variables that appear in Panel B. Further, expected returns are mean reverting (as will be seen in the next table), so $E_{t-1}(R_t)$ in the regression predicts the changes.[13]

The main take away from Panel B is that earnings realizations and their components, along with realized investment, indicate lower expected returns in accordance with the realization principle, as embraced in the modeling in Section 2. Panels A and B of Table 3, taken together, show that accounting information indicates both the expected return and changes in the expected return.

4.2 Confirmation: Expected-Return News Predicts Returns

Panel A of Table 4 confirms that the estimated expected return predicts actual returns out of sample. For this table, we rank firms each year on their estimated expected returns and form decile portfolios from the ranking. Panel A reports the mean expected returns for these portfolios over all years and, in the second and third columns, mean actual returns for the next two years. It is clear that the expected returns for the portfolios rank actual portfolio returns monotonically one year ahead (in year t, in the second column): Expected returns are on average realized. The average Pearson correlation between the expected return and actual return at the individual security level, out of sample, is 0.09. The expected returns also predict actual returns two years ahead (in year t+1, in the third column) in a direction that indicates mean-reversion but persistence, as one would expect for slow-varying expected returns.

[13] The R^2 for the Panel B regression is 0.40 when the beginning-of-period expected return in omitted to the regression.

The time-variation and central tendency is indicated by the mean changes in the expected return over year t, $\Delta E_t (R_{t+1}) = \Delta E_t (R_{t+1}) - E_{t-1}(R_t)$, in the last column: Expected returns change overtime, with the extremes reverting to the mean. The negative correlation between the expected return and changes in the expected return indicates that the expected-return news is somewhat predictable by the expected return at the beginning of the period, at least in the extremes, so is not quite an unexpected (news) variable. Of course, some of this mean reversion could be due to measurement error in our estimates, with the extremes having higher measurement error.

The ranking in Panel B of Table 4 is on the estimated change in the expected return during year t, $\Delta E_t(R_{t+1})$, also calculated out-of-sample with mean coefficients from the regression (7) in Panel B of Table 3 estimated over the prior ten years applied to accounting data for t. The estimated change in the expected return is inversely related to the expected return at the beginning of the period (in the second column), consistent with the mean reversion observed in Panel A. The estimated change is positively correlated with the actual change in expected return, $\Delta E_t(R_{t+1})$ in the third column, indicating that the estimate is a sound one.[14] Finally, one might expect an estimated change in expected return over period t to be negatively correlated with the actual return in the period (in the last column), but that is not so. However, returns are also affected by cash-flow news which is introduced in the contemporaneous return regressions in section 5 to isolate the effect of the two.

[14] To be clear, the estimated change in the expected return, the ranking variable, is that from equation (7). The change in the expected return in the third column is the actual change in the expected return from applying equation (4) at t relative to that at t-1 (the beginning and end of period t).

4.3 Confirmation: Expected-Return News Predicts Beta Changes

The relationship between the expected return estimates and subsequent returns in Table 4 indicates that the risk conveyed by financial statements is risk that is priced in the market. Under asset pricing theory, only risk from exposure to common factors is priced, for that risk cannot be diversified away. Accordingly, expected-return news indicates a change in the sensitivity of a firm's return to those common factors. Table 5 investigates.

The predominant identified common factor in asset pricing is the market factor, and the sensitivity of a stock's return to this factor is indicated by its beta. Panel A of Table 5 shows that the expected-returns news in financial statements is associated with changes in betas. For portfolios ranked on the change in expected return over year t, $\Delta E_t(R_{t+1})$, the table reports betas for the year prior to the year of the expected-return news (year t-1), the year of the news in the financial reports (year t), and the year after (year t+1). The betas are estimated in time series from regressions of portfolio returns on the market return in excess of the risk free rate, with the market return as the value-weighted CRSP index. These betas are those actually experienced during the respective periods, not historical betas. To align firms in calendar time, only firms with December 31 fiscal-years are in the analysis.

Portfolios 1 – 5 in Panel A are those with a decline in the expected return and the betas for these portfolios decline from the year before the reporting year to the year after. In contrast the betas increase in portfolios 8 – 10 where there is an increase in the expected return. The t-statistics on the change in beta from t-1 to t+1 (from the year before to the year after the expected return change), given in parenthesis in the last column, are those on a slope dummy indicating the year after the expected-return change in time-series regressions involving the years before and the years after the change. The t-statistic of 2.81 in the last row of Panel A is that for the difference in the change in beta between portfolio 10 and portfolio 1.

Panel B of Table 5 repeats the analysis, but now for earnings betas—the sensitivity of portfolio earnings to earnings for the market as a whole. The betas are estimated by regressing the average earning yield for each portfolio, $Earn_t/P_{t-1}$, on the earnings yield for the market as a whole, estimated as the mean yield for all firms in the sample for the relevant year. The pattern of beta changes is very similar to that of the return betas. We conclude that the expected-return news in financial statements indicates both a change in return betas and a change in the sensitivity of earnings to market-wide shocks to earnings. Of course, the two are related: Earnings news affects returns (as we will be seen in the next section), so sensitivity of earnings to market-wide shocks to earnings indicates sensitivity of returns to those shocks.

5. Cash-Flow News and Expected-Return News Explain Realized Returns

5.1 Contemporaneous Return Regressions

Having identified the expected-return news in financial statements and its properties, we now turn to the main tests of the paper. Table 6 presents the results from estimating the contemporaneous return regression equation (6) that contains both the cash-flow news and expected-return news in financial statements along with the expected return at the beginning of the period, $E_{t-1}(R_t)$. The expected-return news variable, $\Delta E_t\,(R_{t+1})$, is the out-of-sample estimate from applying estimates of equation (7) in Panel B of Table 3.[15] Again, reported coefficients are means from annual cross-sectional regressions with the associated t-statistics

[15] The estimated change in the expected return is used rather than the actual change to avoid the spurious correlation problem discussed in section 2.

calculated as the mean estimate relative to its standard error estimated from the annual estimates.

The first regression in Panel A of Table 6 consists of the cash-flow news variables in equation (2) with the expected return at the beginning of the period added. The mean coefficients on earnings and earnings changes are positive and significant, consistent with findings for these same "cash-flow news" variables in capital markets research. The mean coefficient on the expected return, $E_{t-1}(R_t)$, the first component of the Campbell trichotomy, is positive. The coefficient is larger and closer to 1.0 in the second regression where book-to-price (B/P) is dropped, reflecting the point that B/P indicates the expected return, as in Table 3.

The third equation in Panel A adds the expected-return news, estimated $\Delta E_t (R_{t+1})$. It loads with a negative mean coefficient: Given cash-flow news (that is positively correlated with returns), changes in expected returns are negatively correlated with returns, consistent with the effect on price of a change in the rate for discounting expected cash flows. To the point of our endeavor, financial statements convey both cash-flow news and discount-rate news, and our scheme for eliciting the news is supported by the results. The final regression in the table includes both the expected return and expected-return news. Both load in the predicted direction.

Panel B of Table 6 unlevers the cash-flow news variables and book-to-price with the aim of distinguishing risk and expected return associated with operating activities from risk related to financing activities. The right-hand-side variables follow the decomposition under accounting relations whereby Earnings = Operating income (OI) – Net financial expense (NFE) and Book value (B) = Net operating assets (NOA) – Net financial obligations (NFO). In the first regression, the operating income variables load with a positive sign and NFE (effectively, net interest expense) with a negative sign, as expected for these "cash-flow news" variables. The breakdown of book value into operating and financing components yields the unlevered (enterprise) book-to-price, NOA/P^{NOA}, and the (market) leverage ratio, NFO/P.[16]

The coefficient on the leverage ratio in the first regression in Panel B is positive which, of course, demonstrates that leverage adds risk and thus adds to the expected return. The expected return variable, like leverage, loads with positive coefficient indicating it looks like a risk variable similar to leverage. Indeed, the coefficient is close to 1.0 as the alignment of expected and actual returns in Table 4 would suggest.

The coefficients on the discount-rate news variable in all regressions in Panel B are significantly negative. The last three regressions also show that the change in expected return implied by financial statement information conveys the same type of (discount-rate) information as a change in leverage. A change in leverage increases the expected return, and accordingly the change in leverage, ΔNFO_t, when added to the regression, carries a significantly negative coefficient. And so does the change in expected return.[17]

5.2 Validation: Predictive Return Regressions

Considerable accounting research documents that various accounting numbers predict future returns, often referred to as anomalies. Cash-flow news, by definition, does not predict future

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[16] See Penman, Richardson, and Tuna (2007) for the formula for the unlevering of book-to-price.

[17] Adding $\frac{\Delta NFE_t}{P_{t-1}}$ (that also indicates a change in leverage) does not change the result. The effect of a change of leverage affects the estimated coefficients on the beginning-of-period leverage variable, NFO, and net financial expense, NFE, in Panel, rendering them insignificant. The effect of a change in leverage appears to dominate these other leverage attributes.

news and does not predict future returns if the news is impounded in stock prices. Expected-return news, in contrast, indicates the expected return portion of future stock returns and thus predicts returns in the cross-section. Table 7 investigates.

The table reports the results of regressions with the same explanatory variables as in Table 6, but now future returns, R_{t+1}, as the dependent variable. In both panels, the mean coefficients on the cash-flow news variables in period t are not significantly different from zero. In contrast, those on both the expected return at the beginning of period t, $E_{t-1}(R_t)$, and the expected-return news during the period, load with high t-statistics in forecasting returns for t+1.

One might suggest that these results are by construction: Having controlled for expected-return news, it is no surprise that the remaining cash-flow news does not predict returns. However, the analysis is out of sample and serves to validate our identification of cash-flow news versus expected-return news: By identifying expected-return news, we have also identified cash-flow news that exhibits the required property of not forecasting future returns.

6. The Information Content of Earnings versus Cash Flows

Considerable research in accounting compares the information content of earnings and cash flows. See Rayburn (1986); Bowen, Burgstahler and Daley (1987); Dechow, Kothari, and Watts (1998); Francis, Schipper and Vincent (2003), and Penman and Yehuda (2009), for example. This section examines the extent to which earnings and cash flows convey cash-flow news and/or expected-return news. The investigation also has implications for research in finance that distinguishes cash-flow news and expected-return news. With a few exceptions, that research sees both types of news conveyed by cash flows, usually dividends. See Campbell (1991), Campbell and Ammer (1993), Campbell and Shiller (1988), Cochrane (2011), and Campbell, Giglio, and Polk (2013) for example. In contrast, our formulation sees the news as being provided by accrual accounting numbers.

6.1 The Information Content of Dividends

Panel A of Table 8 repeats the analysis in Panel A of Table 6 but now with the contemporaneous dividend moved to the right-hand side (such that the dependent variable is just the price change component of the return). Under Miller and Modigliani (M&M) propositions, cum-dividend returns are not affected by dividends because dividends displace price one-for-one; more dividends mean lower capital gain. Accordingly, the coefficient on dividends (now on the right-hand side) should be -1.0 unless dividends convey information (under a “dividend signaling” hypothesis, for example). The mean coefficients on all accounting variables remain much the same as in Table 6 but that on dividends is negative: Given the included accounting numbers, dividends do not convey cash-flow news. Rather, they load with the negative sign predicted by the M&M displacement property and the complementary dividend irrelevance property. The mean coefficients on dividends are not -1.0 that one would expect for a dollar-for-dollar price displacement—it is -0.57 in the final regression in Panel A where all other variables are included. That might be explained by the tax effect that pays off investors with after-tax returns, as in Elton and Gruber (1970), but t-statistics are not significant.

While not providing cash-flow news, dividends may convey expected-return news. Indeed, dividends add to leverage, *ceteris paribus*. Thus Panel B of Table 8 unlevers the accounting variables to separate out leverage effects, as in Panel B of Table 6. The coefficient on the change in leverage variable, ΔNFO, remains much the same as in Table 6 while that on dividends (with the control in ΔNFO for the leverage effect of dividends) maintains the negative sign, albeit close to zero.

6.2 The Information Content of Cash Flows

Research on the information content of earnings relative to cash flows has largely focused on the cash-flow news conveyed, with both earnings and cash flow typically loading with a positive coefficient in the standard information content regression. An exception is Callen and Segal (2004) who compare both the cash-flow and expected-returns news content of accruals and cash flows.

Table 9 takes up the issue. The two panels mirror those in Table 8 expect that free cash flow (FCF) is added to the regressions. In Panel A with levered variables, free cash flow does not add to the explanation of returns with a control for the expected return, but does so significantly when the change in the expected return is added. With a positive coefficient, it would appear that realized cash flow conveys cash-flow news. However, free cash flow is always equal to the net dividend to shareholders plus the cash paid to net debtholders, so the remainder of free cash flow, after dividends, is applied to reducing net debt (and thus equity risk), and dividends are controlled for in the regression. Indeed, Table 2 reports a high negative correlation between free cash flow and the change in net debt (ΔNFO) of -0.78.Thus, with dividends already in the regression, the positive coefficient on FCF indicates a reduction of the expected return from a reduction in leverage (and leverage risk).

To check, Panel B of Table 9 again unlevers the accounting variables.[18] Without the change in leverage, ΔNFO, in the regression, the mean coefficient on FCF is positive. However, the coefficient turns negative with the addition of ΔNFO. It is clear that FCF in panel A is proxying for the change in leverage. Further, the negative coefficient indicates that FCF is not a cash-flow news variable. Rather, it implies that cash realizations enhance the information about changes in discount rates and that coincides with the realization principle that ties accounting numbers to risk: Realizing cash (in excess of cash investment) implies a reduction in risk and the expected return. Indeed, in the final regression in Table 9, the coefficient on the change in expected return is no longer significant with free cash flow in the regression.

In sum, free cash flow conveys expected-return news rather than cash-flow news. Free cash flow lowers the expected return via a reduction in leverage and, with a control for leverage, via realization of cash that resolves uncertainty. In comparison to the free cash flow coefficients in Panel A of Table 9, the result also indicates that the positive association between cash flow and returns in the typical (levered) return regressions of capital market research can be attributed to free cash flow conveying expected-return news rather than cash-flow news.

7. Contrast with Previous Research

The paper provides a contrast to the return decomposition approach for identifying the two types of news in Vuolteenaho (2002) and related papers. The approaches differ in a number of respects.

[18] Free cash flow is cash flow from operations minus cash investment. In much of the existing research on the information content of earnings versus cash flows, cash flow is cash flow from operations rather than free cash flow. Mean coefficients on cash flows are similar when we separate cash flow from operations from cash investment.

First, the Vuolteenaho approach links expected returns to accounting variables and then decomposes stock returns into news components indicated by the innovation in those variables.[19] Our approach also identifies the cash-flow and expected-return news from innovation in accounting variables, but then investigates whether they explain total returns in a directionally consistent manner.

Second, in the VAR system that is implemented for the return decomposition, the Vuolteenaho scheme models the expected return as a function of past returns as well as accounting information. Past returns reflect both accounting information and other information. Our approach identifies how accounting information (alone) conveys information about expected returns and thus addresses the perennial accounting research question about the "information content" of financial statements.

Third, in the VAR estimation, all estimates are in-sample with fixed parameters estimated using information both before and after points in time when information is observed. Our estimates of changes in expected returns are applied out of sample so that the effect of financial reports on returns is observed without look-ahead bias; accordingly, the practicality of the design is demonstrated.

Fourth, the two approaches envision quite different accounting for the evolution of earnings, premiums, and book rates of returns, as explained in earlier. In particular, the Vuolteenaho framework does not admit the realization principle and consequent earnings

[19] In applying VAR, most studies model expected-return news and back out the cash-flow news as the residual. Thus cash-flow news is not specifically identified. As pointed out by Chen and Zhao (2009), expected-return news cannot be precisely measured with VAR, so cash-flow news could be a catchall for modeling noise.

growth that is pervasive under GAAP accounting, a principle that ties the accounting to risk and risk resolution.

Fifth, the news measures in the Voulteenaho approach are identified by assumptions in the modeling (which may or may not hold), with little validation that the resulting news estimates actually exhibit properties demanded of the respective news. In light of the fourth point above, this is a concern. In contrast, our measures are subject to a number of validation tests, with confirming results.

Finally, our expected-return news is about expected returns one year ahead while the expected-return news in the variance decomposition approach pertains to the changes in the sum of all expected future discount rates, although our approach could be adapted for the latter to some extent.[20]

The last point would suggest that the different measures are not directly comparable. Nevertheless, it is instructive to draw a comparison between the measures and to document their properties. The fifth point above (on validation) is a particular focus: Do the return decomposition measures satisfy consistency requirements for cash-flow news and expected-return news?

[20] Our expected-return news measure, $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$, is the change in the expected for one period ahead, assessed over a year from information arriving during that year. In contrast, in the Campbell return decomposition, the measure is $E_t(R_{t+1}) - E_{t-1}(R_{t+1})$ which is equal to $\Delta E_t(R_{t+1}) - E_{t-1}(R_{t+1} - R_t)$. While our focus is relevant for an investor, we repeated the analysis with $E_t(R_{t+1}) - E_{t-1}(R_{t+1})$ as the target by estimating the expected return as in equation (4) with the dependent variable being returns two year ahead and comparing that expectation with that with returns one year ahead. While the ability of accounting variables to predict returns two years ahead in regression (4) is diminished, the results are similar to those in Tables 4 and 6. Note that, in Table 4, Panel A, our expected return measure predicts returns two years ahead. Our approach can be adapted to forecasting expected returns for any period ahead, subject to dealing with survivorship issues.

We replicated the analysis in Vuolteenaho (2002) and Hecht and Vuolteenaho (2006), guided by the primer in Callen and Segal (2010). The resulting expected-return news, N_{rt}, and cash-flow news, N_{et}, are components of the (total) return on the left-hand side of equation (6), which is the regression estimated in Table 6. Table 10 thus estimates equation (6), but now with the right-hand-side variable as N_{rt}, and (alternatively) N_{et} instead of R_t. Like Table 6, Panel A is based on levered accounting variables while Panel B has unlevered variables.

If the expected-return news measured under the alternative approaches were capturing the same information, one would expect a positive correlation between them.[21] In contrast (and in contrast to the negative correlation with total returns in Table 6), our estimate of the expected-return news, $\Delta E_t(R_{t+1})$, is negatively related to the identified expected-return news component of returns, N_{rt}, in Panel A of Table 10 (for $Y_t = N_{rt}$).[22] Moreover, while we have confirmed the observation in earlier papers that N_{rt} and N_{et} are positively correlated, our expected-return news is also negatively correlated with the cash-flow news component of return, N_{et}. Thus, N_{rt} and N_{et}, while purportedly capturing directionally opposite effects of returns, have the same relationship with $\Delta E_t(R_{t+1})$; N_{rt} and N_{et} do not differentiate the news in $\Delta E_t(R_{t+1})$. Further, the cash-flow news we identify in earnings and earnings changes is positively correlated with N_{et}, but these variables are also positively correlated with N_{rt}.

[21] To be clear, a positive N_{rt} means increasing expected returns (implying lower returns), *ceteris paribus*, as does $\Delta E_t(R_{t-1})$.

[22] The coefficient on estimated $\Delta E_t(R_{t-1})$ is conditional upon the other variables in the regression, of course, but even if earnings and the change in earnings indicate higher expected returns (as their coefficients suggest), it is difficult to see that, given these variables, $\Delta E_t(R_{t-1})$ would imply lower expected returns, especially given the validation of the measure earlier. The mean unconditional correlation between the estimate of $\Delta E_t(R_{t-1})$ and N_{rt} is 0.022. Book-to-price is in the regressions and a conditioning variable in the VAR system, but results are similar without book-to-price.

These same observations apply in the unlevered regressions in Panel B. While $\Delta E_t(R_{t+1})$ explains returns in Table 6, it is not the N_{rt} component of those returns that it is predicting. So, if $\Delta E_t(R_{t+1})$ is capturing expected-return news (as the association with betas in Table 5 and forward returns in Table 7 suggest), then the question of whether N_{rt} and N_{et} identify expected-return news and cash-flow news is open.

These findings show that the two expected-return measures, N_{rt} and $\Delta E_t(R_{t+1})$, convey different information. However, without a validating benchmark, the comparisons do not indicate which measure is appropriate (and, as indicated, they measure different dimensions of the change in the expected return). However, Table 10 also shows that the return decomposition measures fail a validation check. In both panels, the expected return at the beginning of the period, $E_{t-1}(R_t)$ predicts the cash-flow news component of the return, N_{et}, (positively), as does beginning-of-period book-to-price. That is inconsistent with the requirement that a cash-flow news variable be unpredictable, questioning whether N_{et} is cash-flow news.

Further, in the unlevered regressions in Panel B, the contemporaneous change in leverage, ΔNFO_t, is negatively related to N_{rt}. This is inconsistent with N_{rt} capturing changes in financing risk and inconsistent with ΔNFO loading appropriately in Table 6. And (in contrast to Table 6), NFE_t (net-interest-to-price), another leverage measure, is also negatively related to N_{rt}. Indeed, the negative coefficients on ΔNFO_t and NFE_t in the N_{rt} regressions are similar to those in the N_{et} regressions. In short, consistency requirements for N_{rt} and N_{et} are violated. In contrast, Table 7 shows that these requirements are satisfied for our identification of news.

The emphasis on the realization principle contrasts our paper with Hecht and Vuolteenaho (2006) in particular. They report that N_{rt} and N_{et} are positively correlated in the cross-section, a correlation that we also observe.[23] Our Table 10 analysis produces reservations about these measures, and recognition of the realization principle deepens these reservations: Why would more realized earnings imply higher expected returns, particularly in light of the realization principle?[24] Do firms become more risky as they (successfully) realize more earnings and build up balance sheets? An investor sees a reduction of risk when realizing cash from selling risky stocks (and investing that cash in the risk-free asset), so one would expect the same reduction in risk when firms' realized earnings yield assets close to cash.

As N_{rt} and N_{et} are positively correlated, Hecht and Vuolteenaho (2006) argue that the standard returns-earnings regression understates the degree to which earnings explain returns; the return-increasing cash-flow news is partially cancelled by a lower realized return from a higher expected return implied by higher earnings realizations. To demonstrate, they regress N_{rt} and N_{et} on earnings levels and earnings changes and report that the regressions produce considerably higher R^2 than when total returns are regressed on the same variables. However, N_{rt} and N_{et} are estimated as a linear combination of the time-t residuals in the VAR system and those residuals include time-t earnings realizations (in the residual for the ROE auto-

[23] A positive correlation between N_{rt} and N_{et} is also reported in Vuolteenaho (2002) and Cohen, Gompers, and Vuolteenaho (2003).

[24] We note that the correlation between the two types of news in aggregate returns in Hecht and Vuoteenaho (2006), using different state variables, is -0.288. That is (reasonably) explained by good economic times being associated with lower investor risk aversion. We find no corresponding explanation in the paper for the positive correlation in the cross-section. Li (2014) predicts that, while losses may convey value-decreasing cash-flow news, they may also indicate decreasing expected-return news because of the increasing value of an abandonment option that limits downside risk. His tests indicate that these two offsetting effects may explain the low R-squares observed in returns- earnings regressions for loss firms.

regression). Thus, time-t earnings realizations appear on both sides of the regression equation. We attribute their high R^2 values (and those in Table 10 relative to Table 6) to this spurious correlation.[25]

Callen and Segal (2004) employ the Vuolteenaho scheme to assess how accruals and cash flows convey cash-flow and expected-return news. They conclude that both accruals and cash flows provide both cash-flow news and discount-rate news. Our empirical analysis indicates that cash flows primarily provide expected-return news.

Many finance papers view dividends and dividend yields as the variables that convey news. We focus on earnings and other accounting numbers. This, of course, is because our interest is the information content of accounting numbers, but we also compare the information content to that of dividends. There is an important issue involved. Under Miller and Modigliani (1961), so foundational in the theory of finance, dividends are irrelevant to value, and accounting incorporates dividend irrelevance (Ohlson 1995).Our results show that, once the accounting information about future cash flows and discount rates is identified, dividends are priced as if they are irrelevant. Accordingly, our findings indicate that two important features of modern finance are evident in the pricing of accounting numbers: Accounting supplies information about both future cash flows and time-varying discount rates and, with that information, the Miller and Modigliani property of dividend irrelevance is observed.

[25] The VAR analysis also has a look-ahead bias, with parameter estimates based on observations in the sample period after a given year, t. The Hecht and Vuolteenaho (2006) return period was from May – April whereas ours is from April-March (for December 31 fiscal-year firms in both cases). The May – April period includes first quarter earnings realizations for the year after year t. Hecht and Vuolteenaho report higher R^2 for the N_{rt} regression than we do, which we find is due to the VAR estimation with pooled data rather than within industries.

8. Conclusion

This paper elicits an expected-return news measure from financial statements. When added to cash-flow news in traditional returns-earnings regressions, the estimated coefficients load in the direction that indicates that expected-return news and cash-flow news have been identified. The identified expected-return news predicts beta changes. As further validation, expected return news also predicts future returns while cash-flow news (appropriately) does not. The analysis separates expected-return news due to operating activities from that due to financing, with each demonstrating the properties of an expected-return news variable. The measure of expected-return news "works" out of sample.

The identification of cash-flow news and expected-return news in financial statements contrasts with the return decomposition approach in Vuolteenaho (2002) and successive papers. The paper shows that the approaches differ with the accounting principles implicitly assumed; the Vuolteenaho (2002) approach does not admit earnings growth that is a product of the realization principle that ties GAAP earnings to risk. The empirical properties of the news measures under the two approaches also differ. In contrast to the measures in this paper, the decomposed return measures do not satisfy consistency properties required of valid cash-flow news and discount-rate news variables.

In some sense, the focus on the realization principle actually accords with the prior research. Beginning with Ball and Brown (1968), that research shows that realized returns correlate positively with realized earnings. That is, returns settle up against earnings—expected earnings are at risk and realized earnings resolve the risk. The phenomenon is particularly evident in the high R^2 observed in "long-window" returns-earnings regressions: While the R^2 for relatively short return windows is low, it increases as the return window increases, and long-windows capture the earnings outcomes that resolve the risk associated with delayed earnings recognition.[26] A number of papers find that returns around earnings announcements are, on average, positive and higher than non-reporting periods, for example, in Penman (1987), Chari, Jagannathan, and Ofer (1988), and Ball and Kothari (1991). That premium indicates that expected earnings are at risk, so holding stocks during periods when that risk is resolved requires a higher return. Our paper completes the picture: The resolution of risk with earnings realizations changes the expected return.

However, the paper modifies the view of the informativeness of accounting that is typically conveyed in so-called capital markets research. The low R^2 observed in (short-window) returns-earnings regressions—interpreted as low information content—is commonly attributed to accounting being slow to reflect the information in price. That is seen as a defect, even leading to calls for more-timely fair value accounting. However, our analysis indicates that delayed recognition adds to the informativeness of accounting by supplying information about expected returns, information that would be lost under fair value accounting. In terms of the stated objective of the FASB and IASB, accounting reports convey information about both the amount and uncertainty of future cash flows.

We have one final qualification. As in most capital markets research and asset pricing research, we assume market efficiency for making inferences. To provide some justification for this maintained assumption, we do show that the expected returns forecasts changes in both stock return betas and earnings betas. Further, in contrast to a large amount of research that

[26] See, for example, Easton, Harris, and Ohlson (1992) and Ohlson and Penman (1992).

shows that accounting numbers predict returns, only the expected-return does so in our analysis. Cash flow news does not, as one would expect of a cash-flow news variable in an efficient market.

APPENDIX

Variable Definitions and Calculations

Dependent Variables	
R_t	Stock return for year t, calculated as buy-and-hold compounded monthly returns from CRSP over the period from three months after the beginning of the fiscal year t to three months after the end. This is the period during which accounting data for fiscal year is reported.
$\frac{P_t - P_{t-1}}{P_{t-1}}$	Stock return for year t without dividends
Levered Variables	
$Earn_t$	Earnings for fiscal-year t before extraordinary items (Compustat item IB) and special items (item SPI), minus preferred dividends (item DVP), with a tax allocation to special items at the prevailing federal statutory corporate income tax rate for the year. $Earn_t/P_{t-1}$ is the earnings yield for fiscal year t.
B_{t-1}	Book value of common equity at the end of fiscal-year t-1. Book value is Compustat common equity (item CEQ) plus any preferred treasury stock (item TSTKP) less any preferred dividends in arrears (item DVPA). B_{t-1}/P_{t-1} is the book-to-price ratio at the end of t-1.
P_{t-1}	Market value of equity three months after fiscal-year end for year t-1. It is calculated as the number of shares outstanding at the end of the fiscal year from Compustat multiplied by the price per share from CRSP at three months after fiscal-year end, adjusted for any intervening stock splits and stock dividends.
Unlevered Variables	
OI_t	Operating income for fiscal-year t before extraordinary items (Compustat item IB) and special items (item SPI), with a tax allocation to special items at the prevailing federal statutory corporate income tax rate for the year.
NFE_t	Net financial expense for fiscal-year t, calculated as after-tax interest expense (XINT × (1- marginal tax rate)) plus preferred dividends (item DVP) and minus after-tax interest income (item IDIT × (1- marginal tax rate)). $Earn_t = OI_t - NFE_t$, so OI_t is calculated as $Earn_t + NFE_t$.
NFO_{t-1}	Net financial obligations at the end of fiscal year t-1, the difference between financial obligations and financial assets, as measured in Nissim and Penman (2001). NFO_{t-1}/P_{t-1} is the (market) leverage ratio at the end of fiscal year t-1.
NOA_{t-1}	Net operating assets at the end of year t-1, measured as net financial obligations plus book value of common equity plus minority interest (item MI). NOA_{t-1}/P^{NOA}_{t-1} is the unlevered (enterprise) book-to-price ratio at the end of fiscal-year t-1.
P^{NOA}_{t-1}	The market value of operations (enterprise value) at the end of fiscal-year t-1, measured at equity market capitalization plus net financial obligations at the end of fiscal-year t-1.

Distribution Variables	
d_t	Dividends paid during stock return period t, calculated as the sum of dividend per share × number of shares for quarters 2-4 in year t and first quarter in year t+1.
FCF_t	Free cash flow for fiscal-year t, calculated as Comprehensive operating income$_t$ - ΔNOA_t where comprehensive operating income = comprehensive income (after preferred dividends) + minority interest +NFE (after-tax).
Other Accounting Variables	
$ACCR_t$	Accruals divided by average total assets. Accruals is measured as the sum of change in accounts receivable (item RECT), change in inventory (item INVT), and change in other current assets (item ACO), minus the sum of change in accounts payable (item AP) and change in other current liabilities (item LCO), minus depreciation and amortization expense (item DP).
ΔNOA_t	The change in net operating assets divided by average total assets.
$INVEST_t$	Investment calculated as (change in gross property, plant, and equipment (item PPENT) + change in inventory (item INVT))/ lagged assets.

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TABLE 1
Distribution of Variables

This table reports summary statistics of the distribution of variables used in the analysis, from data pooled over firms and the years, 1963-2012. The definition of the variables and their calculation are in the appendix.

	P5	P25	Median	P75	P95	Mean	Std. Dev.
$Earn_t$ / P_{t-1}	-0.173	0.012	0.055	0.092	0.182	0.038	0.119
$\Delta Earn_t$ / P_{t-1}	-0.126	-0.018	0.007	0.028	0.123	0.005	0.094
B_{t-1}/ P_{t-1}	0.121	0.303	0.525	0.857	1.611	0.651	0.497
OI_t / P^{NOA}_{t-1}	-0.149	0.022	0.059	0.093	0.173	0.044	0.117
$\Delta OI_t / P^{NOA}_{t-1}$	-0.101	-0.014	0.007	0.026	0.107	0.008	0.088
NFE_t / P_{t-1}	-0.006	0.000	0.007	0.026	0.096	0.021	0.039
$NOA_{t-1} / P^{NOA}_{t-1}$	0.041	0.290	0.577	0.897	1.401	0.629	0.443
NFO_{t-1} / P_{t-1}	-0.393	-0.089	0.069	0.380	1.444	0.232	0.681
ΔNFO_t / P_{t-1}	-0.308	-0.060	0.006	0.088	0.375	0.017	0.228
FCF / P^{NOA}_{t-1}	-0.390	-0.087	0.002	0.065	0.208	-0.033	0.208
$ACCR_t$	-0.159	-0.074	-0.033	0.011	0.116	-0.029	0.083
$INVEST_t$	-0.072	0.011	0.061	0.141	0.383	0.096	0.154
ΔNOA_t	-0.147	-0.017	0.048	0.134	0.367	0.070	0.160
R_t	-0.580	-0.209	0.057	0.368	1.210	0.168	0.733

TABLE 2

Correlations between Variables

This table reports mean cross-sectional correlation coefficients for the period 1963-2012. Reported correlations are the average of cross-sectional correlation coefficients for each year in the period. Spearman correlations are in the upper diagonal and Pearson correlations in the lower diagonal. Variables are defined in the appendix.

	$\frac{Earn_t}{P_{t-1}}$	$\frac{\Delta Earn_t}{P_{t-1}}$	$\frac{B_{t-1}}{P_{t-1}}$	$\frac{OI_t}{P^{NOA}_{t-1}}$	$\frac{\Delta OI_t}{P^{NOA}_{t-1}}$	$\frac{NFE_t}{P_{t-1}}$	$\frac{NOA_{t-1}}{P^{NOA}_{t-1}}$	$\frac{NFO_{t-1}}{P_{t-1}}$	$\frac{\Delta NFO_t}{P_{t-1}}$	$\frac{FCF_t}{P^{NOA}_{t-1}}$	$\frac{d_t}{P_{t-1}}$	$ACCR_t$	$INVEST_t$	ΔNOA_t	R_t	R_{t+1}
$Earn_t / P_{t-1}$		0.50	0.09	0.82	0.44	-0.01	0.18	0.05	-0.13	0.27	0.31	0.11	0.06	0.13	0.32	0.07
$\Delta Earn_t / P_{t-1}$	0.50		-0.07	0.40	0.88	0.00	0.00	0.03	-0.21	0.16	0.01	0.08	0.05	0.09	0.34	0.03
B_{t-1}/ P_{t-1}	0.22	-0.05		0.04	-0.10	0.35	0.82	0.34	0.02	0.09	0.23	-0.09	-0.25	-0.29	0.05	0.02
OI_t / P^{NOA}_{t-1}	0.86	0.45	0.11		0.47	-0.01	0.21	-0.04	-0.08	0.26	0.25	0.10	0.10	0.16	0.28	0.09
$\Delta OI_t / P^{NOA}_{t-1}$	0.46	0.95	-0.09	0.49		0.00	0.01	-0.01	-0.14	0.12	-0.01	0.09	0.10	0.14	0.33	0.05
NFE_t / P_{t-1}	0.13	0.03	0.38	0.07	0.02		0.41	0.88	0.11	-0.01	0.04	-0.03	-0.06	-0.10	0.01	0.02
$NOA_{t-1} / P^{NOA}_{t-1}$	0.26	0.00	0.82	0.24	0.01	0.56		0.41	0.03	0.11	0.25	-0.12	-0.22	-0.26	0.05	0.05
NFO_{t-1} / P_{t-1}	0.17	0.07	0.32	0.00	0.02	0.85	0.51		-0.03	0.12	0.06	-0.07	-0.11	-0.17	0.02	0.02
$\Delta NFO_t / P_{t-1}$	-0.14	-0.22	0.03	-0.10	-0.17	0.10	0.03	-0.03		-0.73	0.01	0.26	0.40	0.51	-0.18	-0.03
FCF_t / P^{NOA}_{t-1}	0.29	0.18	0.14	0.24	0.12	0.03	0.16	0.13	-0.78		0.17	-0.32	-0.53	-0.67	0.14	0.05
d_t / P_{t-1}	0.37	0.00	0.27	0.29	-0.02	0.11	0.27	0.13	0.00	0.24		-0.06	-0.15	-0.13	0.07	0.01
$ACCR_t$	0.07	0.08	-0.10	0.10	0.10	-0.06	-0.13	-0.12	0.30	-0.35	-0.05		0.19	0.49	-0.02	-0.08
$INVEST_t$	0.08	0.08	-0.28	0.15	0.14	-0.05	-0.22	-0.08	0.41	-0.54	-0.15	0.21		0.72	0.03	-0.02
ΔNOA_t	0.11	0.10	-0.30	0.18	0.16	-0.10	-0.25	-0.16	0.55	-0.69	-0.13	0.52	0.74		0.01	-0.04
R_t	0.42	0.40	0.09	0.36	0.38	0.02	0.09	0.04	-0.19	0.20	0.14	-0.04	0.02	0.00		0.02
R_{t+1}	0.14	0.04	0.05	0.15	0.04	0.02	0.07	0.02	-0.04	0.10	0.10	-0.08	-0.02	-0.04	0.03	

Table 3
Coefficient Estimates for Expected Return Regressions (Panel A) and Change in Expected Return Regressions (Panel B)

The table reports mean coefficients from annual cross-sectional OLS regressions. The t-statistics (in parentheses) are these means divided by their standard errors estimated from the time series of coefficient estimates. Panel A shows the results from regressing one-year-ahead realized returns on financial statement predictors (equation 4). Panel B shows the results from regressing the change in expected return on explanatory variables involving accounting realizations (equation 7). Variables are defined in the appendix.

Panel A: Expected Return Regressions, 1963-2012

$$R_t = \alpha + \beta_1 \frac{Earn_{t-1}}{P_{t-1}} + \beta_2 \frac{B_{t-1}}{P_{t-1}} + \beta_3 ACCR_{t-1} + \beta_4 INVEST_{t-1} + \beta_5 \Delta NOA_{t-1} + \varepsilon_t$$

Intercept	$Earn_{t-1}$	B_{t-1}	$ACCR_{t-1}$	$INVEST_{t-1}$	ΔNOA_{t-1}	ADJRSQ
0.08	0.27	0.06				0.03
(2.52)	(2.52)	(3.21)				
0.10	0.34	0.04	-0.20	-0.08	-0.10	0.04
(3.16)	(3.04)	(2.32)	(-3.53)	(-1.87)	(-2.08)	

Panel B: Change in Expected Return Regressions, 1973-2012

$$\Delta E_t(R_{t+1}) = \lambda + \delta_1 \frac{Earnings_t}{P_{t-1}} + \delta_2 \frac{\Delta Earnings_t}{P_{t-1}} + \delta_3 \frac{\Delta Sales_t}{P_{t-1}} + \delta_4 \frac{\Delta PM_t}{P_{t-1}} + \delta_5 ACCR_t$$
$$+ \delta_6 INVEST_t + \delta_7 \Delta NOA_t + \delta_8 E_{t-1}(R_t) + e_t$$

intercept	$Earn_t$	$\Delta Earn_t$	$\Delta Sales_t$	ΔPM_t	$ACCR_t$	$INVEST_t$	ΔNOA_t	$E_{t-1}(R_t)$	ADJRSQ
0.10	0.34	-0.02	0.00	-0.03	-0.23	-0.07	-0.12	-0.81	0.73
(13.37)	(7.99)	(-1.61)	(2.91)	(-9.13)	(-14.16)	(-6.41)	(-7.85)	(-23.69)	

Table 4
Mean Expected Returns, Change in Expected Returns, and Subsequent Realized Returns for Portfolios formed on the Expected Return (Panel A) and the Estimated Change in the Expected Return (Panel B), 1973-2012

In Panel A, portfolios are formed each year from ranking stocks on the year-ahead expected return, $E_{t-1}(R_t)$, calculated from accounting variables at t-1 applied to average coefficients from estimating the model in Panel A of Table 3 over the prior ten years. $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$ is the change in expected return for t+1. In Panel B, portfolios are formed by ranking on the estimated change in expected return in period t, estimated $\Delta E_t(R_{t+1})$, calculated from accounting variables at t applied to average coefficients from estimating the model in Panel B of Table 3 over the prior ten years. The table reports the mean over years of the portfolio values for each year.

Panel A: Portfolios Formed by Ranking on $E_{t-1}(R_t)$

Port.	Mean $E_{t-1}(R_t)$	Mean Actual R_t	Mean Actual R_{t+1}	Mean $\Delta E_t(R_{t+1})$
1	0.024	0.118	0.146	0.077
2	0.083	0.128	0.144	0.031
3	0.107	0.146	0.156	0.018
4	0.124	0.155	0.169	0.010
5	0.139	0.161	0.181	0.004
6	0.151	0.177	0.180	-0.001
7	0.164	0.187	0.174	-0.007
8	0.179	0.193	0.192	-0.012
9	0.199	0.220	0.195	-0.023
10	0.245	0.301	0.239	-0.053
10 -1	0.221	0.183	0.092	-0.129

Panel B: Portfolios Formed by Ranking on Estimated $\Delta E_t(R_{t+1})$

Port.	Mean Estimate of $\Delta E_t(R_{t+1})$	Mean $E_{t-1}(R_t)$	Mean $\Delta E_t(R_{t+1})$	Mean Actual R_t
1	-0.111	0.193	-0.087	0.189
2	-0.063	0.180	-0.041	0.144
3	-0.040	0.171	-0.023	0.123
4	-0.025	0.164	-0.012	0.139
5	-0.013	0.157	-0.003	0.140
6	-0.001	0.149	0.005	0.159
7	0.010	0.141	0.015	0.160
8	0.024	0.130	0.027	0.162
9	0.043	0.114	0.046	0.163
10	0.083	0.075	0.097	0.159
10 -1	0.195	-0.118	0.183	-0.030

Table 5

Return Betas and Earnings Betas for Portfolios Formed on the Change in Expected Return, for the Year Before, the Year of, and the Year After the Year of the Expected-return Change

Return betas in Panel A are estimated from OLS time-series regressions of the portfolio return on the return on the value-weighted CRSP market index in excess of the risk free rate. Earnings betas in Panel B are estimated from OLS regressions of the mean earnings yield for the portfolio, $Earn_t/P_{t-1,}$ on the mean earnings yield for all firms in the sample for the relevant year. To align firms in calendar time, only firms with fiscal years endings December 31 are used. The t-statistics (in parenthesis in the last column) are those on a slope dummy for the year after the expected-return change in a time series regression involving years before and years after the expected-return change year.

Panel A: Return Betas for Years Before, During, and After Expected-Return Change Year

Port.	Mean $\Delta E_t(R_{t+1})$	Beta, Year t-1	Beta, Year t	Beta, Year t+1	Beta Change, t-1 to t+1	
1	-0.113	1.48	1.89	1.17	-0.31	(-1.06)
2	-0.050	1.52	1.48	1.16	-0.36	(-1.55)
3	-0.028	1.40	1.35	1.09	-0.31	(-1.49)
4	-0.014	1.29	1.20	1.16	-0.13	(-0.73)
5	-0.002	1.24	1.15	1.12	-0.12	(-0.77)
6	0.009	1.26	1.10	1.24	-0.01	(-0.08)
7	0.021	1.28	1.11	1.21	-0.07	(-0.44)
8	0.037	1.33	1.22	1.35	0.02	(0.09)
9	0.061	1.30	1.20	1.59	0.30	(1.26)
10	0.124	1.38	1.21	1.92	0.54	(1.72)
10 -1	0.238	-0.10	-0.68	0.74	0.85	(2.81)

Panel B: Earnings Betas for Year Before, During, and After the Expected-Return Change Year

Port.	Mean $\Delta E_t(R_{t+1})$	Beta, Year t-1	Beta, Year t	Beta, Year t+1	Beta Change, t-1 to t+1	
1	-0.113	1.31	1.08	0.75	-0.55	(-3.26)
2	-0.050	1.01	0.92	0.72	-0.28	(-2.28)
3	-0.028	0.85	0.83	0.74	-0.10	(-0.97)
4	-0.014	0.81	0.77	0.69	-0.11	(-1.27)
5	-0.002	0.79	0.81	0.75	-0.03	(-0.35)
6	0.009	0.72	0.76	0.73	0.02	(0.23)
7	0.021	0.72	0.85	0.78	0.07	(0.84)
8	0.037	0.77	0.90	0.82	0.05	(0.49)
9	0.061	0.76	0.99	0.96	0.18	(1.46)
10	0.124	0.83	1.33	1.32	0.45	(2.09)
10 -1	0.238	-0.48	0.25	0.57	1.05	(3.59)

Table 6

Mean Coefficient Estimates for Regressions for the Contemporaneous Pricing of Cash-Flow News and Expected-Return News

This table estimates cross-sectional regression equation (6) that contains both cash-flow news variables and expected-return news variables, along with the expected return at the beginning of the return period. The expected-return news, estimated $\Delta E_t(R_{t+1})$, is that estimated by applying equation (7) out of sample. The coefficients are means of estimated cross-section coefficients for each year, 1973-2012, and the t-statistics (in parentheses) are these means divided by their standard errors estimated from the time series of coefficient estimates. In Panel A, the news variables are levered. In Panel B, they are unlevered to compare the effect of the expected-return variable with that of leverage.

Panel A: Levered News Variables

$$R_t = a + b_1 \frac{Earn_t}{P_{t-1}} + b_2 \frac{\Delta Earn_t}{P_{t-1}} + b_3 \frac{B_{t-1}}{P_{t-1}} + b_4 E_{t-1}(R_t) + b_5 \Delta E_t(R_{t+1}) + \varepsilon_t$$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
0.02	0.68	1.63	0.08	0.22		0.16
(0.60)	(3.92)	(11.63)	(3.11)	(2.38)		
0.01	0.62	1.64		0.67		0.15
(0.40)	(3.56)	(11.65)		(4.82)		
0.06	0.73	1.76	0.10		-0.30	0.14
(1.24)	(3.80)	(10.95)	(3.52)		(-3.30)	
0.03	0.64	1.82	0.08	0.25	-0.22	0.14
(0.67)	(3.24)	(11.54)	(2.46)	(1.97)	(-2.01)	

Panel B: Unlevered News Variables

$$R_t = a + b_1 \frac{OI_t}{P_{t-1}^{NOA}} + b_2 \frac{\Delta OI_t}{P_{t-1}^{NOA}} + b_3 \frac{NFE_t}{P_{t-1}} + b_4 \frac{NOA_{t-1}}{P_{t-1}^{NOA}} + b_5 \frac{NFO_{t-1}}{P_{t-1}} + b_6 \frac{\Delta NFO_t}{P_{t-1}} + b_7 E_{t-1}(R_t) + b_8 \Delta E_t(R_{t+1}) + \varepsilon_t$$

Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
0.00	0.50	2.35	-0.43	-0.01	0.03		0.94		0.16
(-0.02)	(2.95)	(11.09)	(-1.83)	(-0.35)	(1.94)		(6.25)		
0.08	0.72	1.89	-0.67	0.03	0.02			-0.37	0.13
(1.83)	(3.63)	(9.35)	(-1.94)	(1.17)	(0.84)			(-2.87)	
0.00	0.49	2.23	0.58	-0.01	-0.03	-0.29	0.91		0.17
(0.04)	(3.07)	(10.76)	(1.65)	(-0.43)	(-1.21)	(-6.52)	(6.32)		
0.08	0.73	1.78	0.41	0.01	-0.04	-0.44		-0.84	0.15
(1.76)	(3.97)	(8.83)	(0.90)	(0.63)	(-1.27)	(-6.49)		(-5.83)	
0.05	0.54	1.90	0.56	0.00	-0.05	-0.42	0.37	-0.58	0.15
(0.84)	(3.39)	(9.11)	(1.33)	(-0.09)	(-1.60)	(-5.71)	(1.97)	(-3.67)	

Table 7

Mean Coefficient Estimates for Regressions of the One-Year-Ahead Returns on Cash-Flow News and Expected-Return News

This table estimates cross-sectional regressions of forward stock returns on cash-flow news variables and expected-return news variables, along with the expected return at the beginning of the news period. The table repeats the analysis of Table 6, but with the dependent variable being the one-year-ahead return.

Panel A: Levered News Variables

$$R_{t+1} = a + b_1 \frac{Earn_t}{P_{t-1}} + b_2 \frac{\Delta Earn_t}{P_{t-1}} + b_3 \frac{B_{t-1}}{P_{t-1}} + b_4 E_{t-1}\left(R_t\right) + b_5 \Delta E_t\left(R_{t+1}\right) + \varepsilon_t$$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
0.09	-0.01	0.12	0.03	0.33		0.03
(2.00)	(-0.04)	(1.11)	(1.28)	(3.99)		
0.09	-0.01	0.12		0.54		0.03
(2.12)	(-0.08)	(1.03)		(5.41)		
0.11	0.00	-0.08	0.07		0.46	0.03
(2.14)	(-0.00)	(-0.72)	(2.21)		(5.43)	
0.00	-0.40	0.07	0.01	1.07	1.02	0.04
(-0.02)	(-1.40)	(0.56)	(0.44)	(7.74)	(8.56)	

Panel B: Unlevered News Variables

$$R_{t+1} = a + b_1 \frac{OI_t}{P_{t-1}^{NOA}} + b_2 \frac{\Delta OI_t}{P_{t-1}^{NOA}} + b_3 \frac{NFE_t}{P_{t-1}} + b_4 \frac{NOA_{t-1}}{P_{t-1}^{NOA}} + b_5 \frac{NFO_{t-1}}{P_{t-1}} + b_6 \frac{\Delta NFO_t}{P_{t-1}} + b_7 E_{t-1}\left(R_t\right) + b_8 \Delta E_t\left(R_{t+1}\right) + \varepsilon_t$$

Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	$E_{t-1}(R_t)$	Est. $\Delta Et(R_{t+1})$	ADJRSQ
0.08	-0.04	0.16	0.07	0.01	0.02		0.50		0.04
(1.81)	(-0.22)	(1.37)	(0.19)	(0.64)	(1.03)		(4.53)		
0.12	0.04	-0.14	0.55	0.05	-0.02			0.38	0.04
(2.27)	(0.15)	(-1.19)	(0.88)	(1.66)	(-0.68)			(3.92)	
0.08	-0.03	0.12	0.54	0.01	-0.01	-0.08	0.51		0.04
(1.79)	(-0.20)	(1.05)	(1.37)	(0.64)	(-0.36)	(-2.60)	(4.48)		
0.12	0.03	-0.12	0.78	0.05	-0.03	-0.03		0.33	0.04
(2.30)	(0.11)	(-1.03)	(1.23)	(1.61)	(-1.00)	(-0.86)		(3.61)	
0.00	-0.29	0.06	1.01	0.00	-0.04	0.05	1.10	1.01	0.04
(-0.05)	(-1.21)	(0.54)	(1.69)	(-0.03)	(-1.19)	(1.35)	(6.93)	(7.98)	

Table 8
Mean Coefficient Estimates to Compare the Information Content of Earnings and Dividends

This table repeats the analysis of Table 6, but with the dividend component of returns taken to the right-hand side of the regression to assess the news content of dividends relative to accounting variables.

Panel A: Levered News Variables

$$\frac{P_t - P_{t-1}}{P_{t-1}} = a + b_1 \frac{Earn_t}{P_{t-1}} + b_2 \frac{\Delta Earn_t}{P_{t-1}} + b_3 \frac{B_{t-1}}{P_{t-1}} + b_4 \frac{d_t}{P_{t-1}} + b_5 E_{t-1}(R_t) + b_6 \Delta E_t(R_{t+1}) + \varepsilon_t$$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	d_t	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
0.02	0.68	1.64	0.08	-0.74	0.33		0.16
(0.51)	(4.30)	(12.20)	(3.40)	(-1.48)	(3.40)		
0.01	0.61	1.66		-0.62	0.78		0.15
(0.37)	(3.84)	(12.32)		(-1.21)	(5.50)		
0.06	0.73	1.80	0.10	-0.40		-0.33	0.14
(1.23)	(4.17)	(11.25)	(3.58)	(-0.68)		(-3.45)	
0.03	0.64	1.85	0.08	-0.57	0.30	-0.20	0.14
(0.64)	(3.34)	(11.59)	(2.54)	(-0.92)	(2.31)	(-1.94)	

Panel B: Unlevered News Variables

$$\frac{P_t - P_{t-1}}{P_{t-1}} = a + b_1 \frac{OI_t}{P_{t-1}^{NOA}} + b_2 \frac{\Delta OI_t}{P_{t-1}^{NOA}} + b_3 \frac{NFE_t}{P_{t-1}} + b_4 \frac{NOA_{t-1}}{P_{t-1}^{NOA}} + b_5 \frac{NFO_{t-1}}{P_{t-1}} + b_6 \frac{\Delta NFO_t}{P_{t-1}} + b_7 \frac{d_t}{P_{t-1}} +$$
$$b_8 E_{t-1}(R_t) + b_9 \Delta E_t(R_{t+1}) + \varepsilon_{it}$$

Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	d_t	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
0.00	0.49	2.39	-0.57	0.00	0.04		-0.91	1.07		0.16
(-0.11)	(2.99)	(11.05)	(-2.52)	(-0.19)	(2.51)		(-1.93)	(6.58)		
0.09	0.69	1.94	-0.68	0.02	0.02		-0.24		-0.40	0.13
(1.84)	(3.76)	(9.42)	(-2.11)	(0.97)	(0.95)		(-0.45)		(-3.05)	
0.00	0.49	2.26	0.51	-0.01	-0.03	-0.29	-0.68	1.02		0.17
(-0.06)	(3.11)	(10.77)	(1.40)	(-0.26)	(-0.97)	(-6.31)	(-1.54)	(6.54)		
0.09	0.69	1.83	0.51	0.01	-0.04	-0.46	0.05		-0.89	0.15
(1.73)	(4.08)	(8.85)	(1.15)	(0.30)	(-1.43)	(-6.38)	(0.10)		(-6.03)	
0.05	0.50	1.94	0.65	-0.01	-0.05	-0.44	-0.19	0.41	-0.60	0.15
(0.84)	(3.24)	(9.06)	(1.53)	(-0.30)	(-1.71)	(-5.64)	(-0.38)	(2.10)	(-3.71)	

Table 9
Mean Coefficient Estimates to Compare the Information Content of Earnings and Free Cash Flows

This table repeats the analysis of Table 8, but with free cash flow (FCF) added to the right-hand side of the regression to assess the news content of cash flow relative to accrual accounting variables.

Panel A: Levered News Variables

$$\frac{P_t - P_{t-1}}{P_{t-1}} = a + b_1 \frac{Earn_t}{P_{t-1}} + b_2 \frac{\Delta Earn_t}{P_{t-1}} + b_3 \frac{B_{t-1}}{P_{t-1}} + b_4 \frac{d_t}{P_{t-1}} + b_5 \frac{FCF_t}{P_{t-1}^{NOA}} + b_6 E_{t-1}\left(R_t\right) + b_7 \Delta E_t\left(R_{t+1}\right) + \varepsilon_{it}$$

intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	d_t	FCF_t	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
0.02	0.70	1.65	0.08	-0.72	0.03	0.33		0.16
(0.52)	(4.57)	(11.53)	(3.31)	(-1.51)	(1.59)	(3.48)		
0.01	0.63	1.66		-0.62	0.05	0.76		0.15
(0.41)	(4.13)	(11.62)		(-1.27)	(2.10)	(5.22)		
0.06	0.70	1.82	0.09	-0.49	0.09		-0.49	0.14
(1.36)	(4.01)	(11.08)	(3.16)	(-0.84)	(4.27)		(-5.86)	
0.05	0.65	1.85	0.08	-0.57	0.09	0.07	-0.47	0.15
(1.25)	(3.26)	(11.13)	(2.57)	(-0.93)	(2.53)	(0.39)	(-3.21)	

Panel B: Unlevered News Variables

$$\frac{P_t - P_{t-1}}{P_{t-1}} = a + b_1 \frac{OI_t}{P_{t-1}^{NOA}} + b_2 \frac{\Delta OI_t}{P_{t-1}^{NOA}} + b_3 \frac{NFE_t}{P_{t-1}} + b_4 \frac{NOA_{t-1}}{P_{t-1}^{NOA}} + b_5 \frac{NFO_{t-1}}{P_{t-1}} + b_6 \frac{\Delta NFO_t}{P_{t-1}} + b_7 \frac{d_t}{P_{t-1}} +$$
$$b_8 \frac{FCF_t}{P_{t-1}^{NOA}} + b_9 E_{t-1}\left(R_t\right) + b_{10} \Delta E_t\left(R_{t+1}\right) + \varepsilon_t$$

intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	d_t	FCF_t	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
0.00	0.48	2.39	-0.40	-0.01	0.03		-0.93	0.07	1.05		0.17
(-0.02)	(2.92)	(11.05)	(-1.65)	(-0.29)	(1.90)		(-2.01)	(3.41)	(6.54)		
0.10	0.59	1.98	-0.38	0.01	0.00		-0.33	0.16		-0.63	0.14
(1.96)	(3.12)	(9.39)	(-1.09)	(0.40)	(0.17)		(-0.61)	(4.06)		(-4.00)	
-0.03	0.63	2.22	0.43	0.00	-0.02	-0.46	-0.41	-0.28	1.07		0.18
(-0.69)	(4.56)	(10.73)	(1.31)	(0.03)	(-0.77)	(-5.98)	(-1.01)	(-4.30)	(6.89)		
0.07	0.82	1.79	0.54	0.01	-0.04	-0.60	0.34	-0.26		-0.71	0.15
(1.49)	(5.49)	(9.20)	(1.29)	(0.69)	(-1.56)	(-6.32)	(0.74)	(-3.65)		(-4.67)	
-0.03	0.57	1.90	0.77	-0.01	-0.05	-0.60	-0.04	-0.37	0.87	-0.05	0.16
(-0.60)	(3.82)	(9.22)	(1.83)	(-0.52)	(-1.84)	(-6.33)	(-0.08)	(-4.68)	(4.22)	(-0.29)	

Table 10

Mean Coefficient Estimates for Regressions of the Estimated Expected-Return News Component, N_{rt}, and Cash-Flow New Component, N_{et}, of Returns on Cash-Flow News and Expected-Return News from Financial Statements

This table estimates cross-sectional regression equation (6), as in Table 6, but replacing the left-had-side return, R_t, with the expected-return news component, N_{rt}, and the cash-flow news component, N_{et}, of the return. These return components are estimated with the variance decomposition procedures in Vuolteenaho (2002). The coefficients are means of estimated cross-section coefficients for each year, 1973-2012, and t-statistics (in parentheses) are these means divided by their standard errors estimated from the time series of coefficient estimates. In Panel A, the financial statement news variables are levered, and in Panel B they are unlevered.

N_{rt} and N_{et} are estimated by following the primer and SAS code in Callen and Segal (2010). The VAR system is estimated by industry using weighted least squares, using the Fama-French 49 industry classification. This differs from Vuolteenaho (2002) that applies the same coefficients to all firms. However, results are robust to restricting the VAR parameters to be constant over time and across industries. Following the prior research, the capitalization factor is set to ρ = 0.967. The analysis is carried out only for firms with December fiscal-year end at t-1, in order to align accounting variables across firms. Firms in financial industries (SIC 6000-6999) are excluded, as are firms with t-1 market equity less than $10 million and book-to-price more than 100 or less than 1/100. Finally, in the VAR estimation, the top and bottom 1% of each variable was rejected to mitigate the impact of outliers.

Panel A: Levered News Variables

$$Y_t = a + b_1 \frac{Earn_t}{P_{t-1}} + b_2 \frac{\Delta Earn_t}{P_{t-1}} + b_3 \frac{B_{t-1}}{P_{t-1}} + b_4 E_{t-1}\left(R_t\right) + b_5 \Delta E_t\left(R_{t+1}\right) + \varepsilon_t$$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
Y_t= N_{rt}:						
0.00	0.36	0.21	0.02	-0.17		0.06
(-0.08)	(6.58)	(3.82)	(2.15)	(-3.48)		
-0.03	0.38	0.35	0.01		-0.12	0.06
(-2.05)	(5.19)	(5.96)	(1.37)		(-2.51)	
0.02	0.51	0.30	0.04	-0.44	-0.34	0.06
(1.26)	(7.27)	(5.13)	(3.24)	(-6.72)	(-5.48)	
Y_t=N_{et}:						
-0.07	1.00	1.64	-0.04	0.37		0.30
(-2.53)	(8.79)	(17.20)	(-3.22)	(4.46)		
-0.04	1.35	1.97	-0.05		-0.49	0.31
(-1.37)	(9.91)	(19.64)	(-3.81)		(-7.78)	
-0.04	1.36	1.99	-0.05	-0.04	-0.53	0.31
(-1.20)	(9.67)	(20.19)	(-3.39)	(-0.51)	(-6.76)	

Panel B: Unlevered News Variables

$$Y_t = a + b_1 \frac{OI_t}{P_{t-1}^{NOA}} + b_2 \frac{\Delta OI_t}{P_{t-1}^{NOA}} + b_3 \frac{NFE_t}{P_{t-1}} + b_4 \frac{NOA_{t-1}}{P_{t-1}^{NOA}} + b_5 \frac{NFO_{t-1}}{P_{t-1}} + b_6 \frac{\Delta NFO_t}{P_{t-1}} + b_7 E_{t-1}(R_t) + b_8 \Delta E_t(R_{t+1}) + \varepsilon_t$$

Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	$E_{t-1}(R_t)$	Est. $\Delta E_t(R_{t+1})$	ADJRSQ
Y_t= N_{rt}:									
0.00	0.25	0.25	-0.36	0.01	0.01	-0.01	-0.07		0.05
(0.10)	(4.53)	(5.00)	(-2.09)	(1.27)	(0.57)	(-0.66)	(-1.57)		
-0.02	0.27	0.31	-0.48	0.01	0.01	-0.04		-0.18	0.05
(-1.24)	(4.21)	(6.03)	(-1.97)	(0.94)	(1.07)	(-2.52)		(-2.42)	
0.02	0.37	0.26	-0.53	0.02	0.01	-0.07	-0.34	-0.40	0.06
(1.25)	(6.65)	(5.56)	(-2.23)	(2.18)	(1.14)	(-3.76)	(-5.26)	(-4.71)	
Y_t= N_{et}:									
-0.07	0.91	2.04	-0.70	-0.05	0.02	-0.17	0.49		0.30
(-2.51)	(8.56)	(19.67)	(-3.86)	(-4.51)	(1.70)	(-9.33)	(5.68)		
-0.03	1.25	2.05	-1.11	-0.07	0.04	-0.31		-0.70	0.30
(-0.83)	(9.75)	(15.82)	(-4.58)	(-4.54)	(2.37)	(-8.50)		(-7.59)	
-0.02	1.14	2.08	-0.98	-0.06	0.03	-0.33	-0.10	-0.74	0.30
(-0.50)	(9.44)	(15.86)	(-4.24)	(-3.63)	(1.73)	(-7.04)	(-0.68)	(-4.78)	