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Stephen H. Penman, Nir Yehuda

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A Matter of Principle: Accounting Reports Convey Both Cash-Flow News and Discount-Rate News

Stephen H. Penman,[a] **Nir Yehuda**[b]

[a] Columbia Business School, Columbia University, New York, New York 10027; [b] University of Delaware, Newark, Delaware 19716

Contact: shp38@columbia.edu (SHP); nirye@udel.edu, http://orcid.org/0000-0003-2895-2401 (NY)

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Abstract. This paper modifies the standard returns-earnings regression in accounting research to show that financial reports convey both cash-flow news and discount-rate (expected-return) news. The paper points to the realization principle, associated as it is with the resolution of risk, as the accounting feature that conveys expected-return news. The modified returns-earnings regressions indicate that the information so conveyed pertains to priced risk. In corroboration, the paper also shows that the identified expected-return news forecasts changes in both stock return betas and earnings betas, and expected-return news predicts future returns, whereas cash-flow news does not. The analysis yields a number of additional insights: financial statements distinguish expected-return news associated with operations from that associated with financing activities; given accounting information, there is not much news in dividends; and, in comparing the information content of earnings versus cash flows, cash flows largely convey expected-return news rather than cash-flow news. In sum, the paper shows that the objective of the Financial Accounting Standards Board and International Accounting Standards Board to provide information about the *amount* and *uncertainty* of future cash flows is (as least, partially) satisfied by accounting principles underlying current financial reporting.

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1. Introduction

The idea that realized stock returns are explained by news about future cash-flows and discount rates has been widely accepted and applied in asset pricing research, beginning with the Campbell (1991) decomposition. However, this construction is largely absent in the specification of the returns-earnings regressions of "capital market research" that test the information content of accounting numbers; those regressions typically view accounting information as providing only cash-flow news. In this paper, we modify those regressions to add information elicited from financial statements that conveys discount-rate news (also called expected-return news). Further, we identify the underlying accounting principles that generate the expected-return news.

The standard "capital market" regressions come in two forms: contemporaneous return regressions and predictive return regressions. The former examine how accounting numbers are contemporaneously priced—to evaluate their "information content" or "value relevance"—whereas the latter investigate whether those numbers predict future returns—often to question whether the market efficiently prices accounting information contemporaneously.[1] We introduce accounting measures of expected-return news into both regressions, yielding a number of findings that revise inferences from previous research. We state the findings here, with an elaboration on their implications in Section 1.1.

First, modified contemporaneous return regressions indicate that financial statements convey not only cash-flow news but also discount-rate news. The interpretation of the "information content" of financial statements is thus broadened, and the "value relevance" of accounting numbers is fully addressed: value is the *discounted* amount of expected cash flows, and financial statements update both expected cash flows and the discount rate.

Second, when both the identified cash-flow news and expected-return news are included in predictive return regressions, the expected-return news robustly predicts returns, but cash-flow news does not. Cash-flow news cannot predict future returns, by definition, but news about future expected returns should. The finding calls into question the standard interpretation of predictive return regressions as indicating market inefficiency in processing accounting information. That interpretation is attributable to a failure to distinguish expected-return news in financial statements from cash-flow news.

Third, the paper finds that, given accounting information, dividends do not add much incremental information to explain returns; once cash-flow news and expected-return news from financial statements are controlled for, dividends are priced according to the Miller and Modigliani (1961) (M&M) dividend irrelevance proposition and the complementary dividend displacement property.

Fourth, the paper revisits research that compares the information content of earnings versus cash flows, both of which have been viewed as providing cash-flow information. The paper finds that cash flows primarily convey expected-return news.

Fifth, the information about discount rates in financial statements is attributed to accounting principles, namely the realization principle for recognizing earnings that is tied to risk and its resolution.

The fifth point is last but by no means least, for it identifies the form of the accounting that generates the expected-return news, with consequent implications for accounting policy. In standard returns-earnings regressions, the primary focus is on earnings, as in the seminal Ball and Brown (1968) paper and much of the long stream of capital markets research that followed. Although 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. However, earnings are recognized under an accounting principle for handling risk: under uncertainty, earnings recognition is deferred until the uncertainty has been resolved (fair value accounting aside). The deferral of earnings to the future implies more risk, and the recognition of earnings implies lower risk. In asset pricing terms, this principle says that earnings cannot be recognized until a low-beta asset like cash or a near-cash receivable can be booked. In short, assessment of risk governs the accounting for earnings, so earnings realizations convey risk and expected-return news as well as cash-flow news.

This accounting is applied in two ways. First, under the so-called "revenue realization principle," revenues cannot be booked until uncertainties have been resolved, usually upon a sale to a customer under a legally enforceable, completed contract with "receipt of cash reasonably certain." Revenue recognition and the associated earnings are deferred until these criteria are met. Second, so-called conservative accounting expenses investment expenditures when outcomes are uncertain (as with research and development [R&D]), reducing current earnings and pushing earnings to the future (now with no amortization of the investment cost). These higher expected future earnings are at risk, booked only *if* the risky investment pays off. The conditional *if* indicates risk, whereas the realization of the uncertain earnings removes the *if* and lowers the risk, now resolved.

To demonstrate the role of accounting principles, we show empirically that the expected-return news we extract from financial statements is driven by the two ways of deferring earnings recognition under uncertainty. First, our measure of expected-return news is negatively correlated with the amount of realized revenue relative to price: higher (lower) revenue realization implies lower (higher) expected returns. Second, a measure of conservative accounting for investment is negatively correlated with the expected-return news measure: expensing risky investment indicates a higher expected return.

There is no imperative that the risk conveyed by the accounting is priced risk, of course, though Penman and Zhang (2017) establish conditions under which the type of accounting here indicates the expected return. The results from the contemporaneous and predictive regressions so indicate, but only under a maintained assumption of market efficiency. That, of course, is the maintained assumption to infer information content in capital markets research in accounting and, indeed, in empirical analysis in asset pricing tests in finance. Additional tests further support the interpretation of priced risk:

i. Expected-return news in financial statements is correlated with changes in both stock return betas and (fundamental) earnings betas, measures of systematic risk that asset pricing theory informs is risk that is priced.

ii. We distinguish expected-return news in financial statements associated with financing leverage from that for operating activities. Changes in leverage are priced as expected-return news in our tests, as they should under foundational finance theory in Modigliani and Miller (1958). However, expected-return news conveyed by the accounting for operations is priced in the same way: it looks like information that pertains to priced risk, just like leverage.

iii. Once expected-return news is controlled for in contemporaneous return regressions, the coefficient (the multiplier) on cash-flow news variables increases. The standard multiplier incorporates the market expectations of future cash flows but also the discount rate, with the discount rate reducing the multiplier—as recognized in the interpretation of the standard "earnings response coefficient." The expected-returns news identifies the discount-rate component of a priced earnings multiplier, revising the cash-flow news multiplier in the predicted direction.

1.1. Connection to Previous Research

The point of departure, first and foremost, is the long stream of capital markets research that examines the value relevance of accounting data. The paper modifies the standard returns-earnings regressions in that research to present a more comprehensive view of the information conveyed by accounting. However, not only is the view of information content broadened, but accounting principles that generate the information are also identified. A stated objective of the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) is to provide information about "the amount, timing, and uncertainty of future cash flows." The paper indicates that financial reports prepared under those principles convey information about the *amount* and *uncertainty* of future cash flows.

The paper builds on Penman and Zhu (2014), which in turn builds on Penman et al. (2018). Penman and Zhu (2014) extract expected return information from accounting data, and we adapt their approach here to identify updated expected-return news. That leads to the empirical findings in the five points listed above. Of particular importance is the connection of expected-return news to accounting principles, for that brings the paper into the realm of accounting policy, providing an understanding of what type of accounting satisfies the objective of providing information about the amount, timing, and *uncertainty* of future cash flows.

The paper challenges a prevailing inference from capital markets research. The typically low R^2 in contemporaneous returns-earnings regressions have been read as accounting having relatively low information content, with Lev (1989) being the original reference. That had led to observations that, as price leads earnings, earnings are not timely and thus not very informative, with Lev and Gu (2016) being the most recent critique. In contrast, the findings here indicate that the property of earnings lagging price adds to the informativeness of accounting: deferring earnings recognition under the realization principle conveys information about risk and the associated expected return. This accounting can be contrasted with fair value accounting in which price equals book value and returns equal earnings, yielding $R^2 = 1$. That accounting handles risk very differently, with all the expected future and its risk recognized immediately on the balance sheet. Just as price does not indicate the expected return, nor does fair value. The ex ante information about risk provided by the realization principle is lost, with risk revealed only ex post as fair values are shocked.

The low R^2 in contemporaneous return regressions can also be attributed to market inefficiency: the market does not recognize the information conveyed by accounting reports. That has led to the predictive return regressions, which test whether accounting numbers are correlated with future returns. Many are, with the inference that the market does not handle accounting information appropriately. However, the question of whether the predictive ability is due to market inefficiency or risk (that requires higher average returns) is unresolved. Our results show that, after separating expected-return information from cash-flow information, it is only the former that predicts returns, consistent with a risk explanation. We do not investigate the full range of accounting information that predicts returns, but, for any accounting number that does predict our returns, our analysis suggests that the researcher investigate whether that number results from the realization principle and thus potentially indicates risk and the expected return.

The findings on dividends in the paper contrast with the many papers in finance that view dividends as the information that distinguishes cash-flow news from expected-return news, for example, in Campbell and Shiller (1988), Campbell (1991), Campbell and Ammer (1993), Cochrane (2011), and Campbell et al. (2013). Although many 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; rather, once cash-flow news and expected-return news from financial statements are controlled for, dividends are priced according to the Miller and Modigliani (1961) dividend irrelevance proposition. These findings also support accounting as a source of value-relevant information. Ohlson (1995) shows that, for accounting to convey such information, the M&M principle must be built into the accounting, as it is with Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS). Our results indicate that, once accounting under these principles is included, dividends are priced as they should under M&M principles.

We are not the first to connect discount-rate news to accounting numbers. A number of papers apply the return-decomposition framework in Vuolteenaho (2002) for this purpose, for example in Callen and Segal (2004) and Hecht and Vuolteenaho (2006). The online appendix draws a comparison.

2. Regressions Specifications with Cash-Flow News and Expected-Return News

In this section, we tie expected-return news to accounting principles a priori, develop a measure of expected-return news based on those principles, and lay out a regression specification that incorporates both cash-flow news and expected-return news.

2.1. Accounting Principles, Risk, and Expected Returns

With the focus on specifying return regressions, we begin with the representation of returns in terms of accounting numbers, as in the regression specification in Easton et al. (1992). Assume 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. Then substitute for the dividend in returns (with firm subscripts omitted),

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

This equates the equity return to the earnings yield plus the change in the premium of price over book value. Applying the expectation operator, the expected return for period t in terms of information at time t–1 is given by

$$E_{t-1}(R_t) = \frac{E_{t-1}(Earnings_t)}{P_{t-1}} + \frac{E_{t-1}(P_t - B_t) - (P_{t-1} - B_{t-1})}{P_{t-1}}. \qquad (2)$$

These identities yield three insights. First, as shown in Shroff (1995) and Penman et al. (2018), a change in premium arises with expected future earnings growth, so the expected return in (2) can be expressed in terms of the expected (forward) earnings yield and subsequent expected earnings growth.[2] Second, because (2) is an identity, the lower expected $Earnings_t$, the higher the expected change in premium and thus the higher the expected future earnings growth. This, of course, reflects the property that, for a given P_{t-1}, which is the expectation of total life-long earnings, lower $Earnings_t$ implies higher subsequent earnings, that is, expected earnings growth. Third (and consequently), the generation of the premium and expected earnings growth is determined by the accounting for $Earnings_t$.

The third point is apparent when considering fair value accounting, whereby $P_t - B_t = 0$, all t, and thus $E_{t-1}(R_t) = \frac{E_{t-1}(Earnings_t)}{P_{t-1}}$ by Equation (2). That is the point of departure for considering GAAP or IFRS accounting, whereby typically (aside from the limited application of fair value accounting) $P_t - B_t > 0$. That is accounting that defers earnings recognition to the future (inducing $P_t - B_t > 0$), and that deferral of the earnings expected in P_t amounts to expected earnings growth. As commonly said, price leads earnings.

There is nothing about these mechanics that necessarily connects the accounting to risk and return, however: Equation (2) is an identity that applies for all accounting principles. For the accounting to indicate the expected return on the left-hand side of (2), it would have to convey information about the risk of expected earnings growth such that P_{t-1} in the denominator is discounted for the risk in the numerator, yielding a higher $E_{t-1}(R_t)$.

It is not hard to accept that expected earnings growth is at risk of not being achieved, but accounting principles specifically make the connection. Earnings are tied to risk under the principle for recognizing earnings: under uncertainty, earnings are not recognized until uncertainty has been resolved. The principle delays earnings recognition and thus yields expected earnings growth, but that expected growth is at risk—the earnings are at risk for not being realized. Thus, delayed earnings recognition implies higher risk, whereas the recognition of earnings implies lower risk. In asset pricing terms, earnings are not recognized until the firm can book a low-beta asset, like cash or a near-cash discounted 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.[3]

This principle for recognizing earnings is applied in two ways, both of which connect to risk. First revenues are booked under the "revenue realization principle"; revenue recognition is deferred until a customer has been secured with an enforceable contract, the firm has performed, and "receipt of cash is reasonably certain." Future sales anticipated in the price are not booked until these conditions are satisfied. Second, conservative accounting expenses investment when it is particularly risky rather than booking it to the balance sheet, reducing earnings and yielding expected earnings growth (with no amortization for investment cost). However, that growth is also deemed to be at risk—it may not be realized—and thus the expensing. R&D, advertising and promotion are the usual exhibits.[4] However, investment on developing supply chains 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 growth (at risk). In terms of Equation (2), the accounting determines the amount recognized in $Earnings_t$ and thus the expected earnings growth that results in an expected change in premium.

There is no necessity that the risk imbedded in these accounting principles is priced risk, of course, and thus no necessity that P_{t-1} is lower (in light of the accounting) to yield a higher expected return in Equation (2). In empirical support, Penman and Reggiani (2013) show that the amount of earnings expected in the long term relative to the short term (that is, expected earnings growth) is associated with higher mean returns. Further, 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. However, when they sell stocks and invest the cash proceeds in a risk-free asset—they realize the return—the risk is reduced, and so is the expected return (reduced 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 whether the shareholder "realizes" or the firm "realizes" on the shareholder's behalf—the shareholder has the same claim to the 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.

2.2. Estimating Expected-Return News

Equation (2) informs that variables that convey information about expected returns are those that forecast the forward earnings yield and subsequent earnings growth that the market prices as risky. Penman and Zhu (2014) identify financial statement variables that forecast earnings and earnings growth that are potentially at risk. Those variables are then identified as indicating risk if they predict stock returns in the same direction as they predict earnings growth. Following the approach, we estimate a parsimonious cross-sectional return model with variables that predict both growth and returns, as follows:

$$\begin{aligned} R_t = \alpha + \beta_1 \frac{Earnings_{t-1}}{P_{t-1}} + \beta_2 \frac{B_{t-1}}{P_{t-1}} + \beta_3 ACCR_{t-1} \\ + \beta_4 INVEST_{t-1} + \beta_5 \Delta NOA_{t-1} + \varepsilon_t, \\ \begin{matrix} 0.10 & 0.34 & 0.04 & -0.20 & -0.08 & -0.10 \\ (13.37) & (3.04) & (2.32) & (-3.53) & (-1.87) & (-2.08). \end{matrix} \end{aligned} \tag{3}$$

ACCR is accruals, *INVEST* is investment, and ΔNOA is growth in net operating assets, as defined in the appendix. The numbers under the regression equation are the mean coefficients from our estimation of the model each year for our sample period, with *t*-statistics (in parentheses) calculated as these means relative to their standard error estimated from the time series of coefficients.[5]

By embracing the Penman and Zhu (2014) approach for estimating expected returns, we add little to their financial statement analysis that extracts it. Rather, we use the estimates to identify expected-return news (rather than the level of the expected return), to specify both contemporaneous and predictive returns-earnings regressions that complete the value-relevant information conveyed by financial statements. That leads to the further empirical analysis, as in points 1 to 5 and i to iii in the introduction.

Although the variables in (3) enter because they forecast subsequent uncertain growth, they are also realizations of prior growth expectations that involve the resolution of this uncertainty. For example, accruals involve 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* (property, plant, and equipment plus inventory) involves realizations of uncertain investment opportunities: expected growth is driven by expected investment opportunities, and actually making those investments means that growth is more likely to be realized. In the parlance of finance, investment is the realization of risky growth options, and, in Merton-type intertemporal asset pricing models, risk and the expected returns are connected to uncertain changes in investment opportunities and their realization. Correspondingly, investments with more uncertain payoff realization are not booked to the balance sheet but rather expensed immediately. ΔNOA is total value added to the balance sheet from realized operating income and from investment booked to the balance sheet rather than expensed under conservative accounting.

The expected return is estimated by applying the estimated coefficients in regression (3) 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. For the expected return for period *t*, assessed at the beginning of the period

$$\begin{aligned} E_{t-1}(R_t) = \hat{\alpha} + \hat{\beta}_1 \frac{Earnings_{t-1}}{P_{t-1}} + \hat{\beta}_2 \frac{B_{t-1}}{P_{t-1}} + \hat{\beta}_3 ACCR_{t-1} \\ + \hat{\beta}_4 INVEST_{t-1} + \hat{\beta}_5 \Delta NOA_{t-1}. \end{aligned} \tag{4}$$

The expected return for period *t*+1 is estimated in the same way with updated accounting information:

$$\begin{aligned} E_t(R_{t+1}) = \hat{\alpha} + \hat{\beta}_1 \frac{Earnings_t}{P_t} + \hat{\beta}_2 \frac{B_t}{P_t} + \hat{\beta}_3 ACCR_t \\ + \hat{\beta}_4 INVEST_t + \hat{\beta}_5 \Delta NOA_t. \end{aligned} \tag{4a}$$

The change in the expected return during period *t* is

$$\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t). \tag{4b}$$

This is our expected-return news measure, the difference between the expected return for *t*+1 (with the expectation at the end of period *t* based on the updated accounting information arriving during period *t*) and that estimated for period *t* (with the expectation as the end of *t*–1).[6] Again, it is out of sample.

There is no pretense that we have incorporated all the information in financial reports that updates the expected return. We are not aiming to develop the "best" model but simply to show that financial reports convey the relevant news and to connect that news to accounting principles. For that, we simply defer to Penman and Zhu (2014), where the association of the selected variables with uncertain future earnings growth outcomes has been documented.

2.3. Specifying the Returns-Earnings Regressions with Both Cash-Flow News and Expected-Return News

There is potentially a large set of accounting information that conveys cash-flow news. Again, with no aim to produce the "best" model, we focus on earnings, earnings changes, and book value, the premier (summary) variables in capital market regressions, for example, in Easton and Harris (1991), Ali and Zarowin (1992), Ohlson and Shroff (1992), Easton et al. (1992), and Penman and Yehuda (2009). The following cross-sectional regression, implied by Equation (1), includes the standard variables, with $\Delta Earnings_t$, capturing the growth component of that equation:

$$R_t = a + b_1\frac{Earnings_t}{P_{t-1}} + b_2\frac{\Delta Earnings_t}{P_{t-1}} + b_3\frac{B_{t-1}}{P_{t-1}} + \varepsilon_t. \quad (5)$$

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 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, $t-1$.

To regression Equation (5) we add our measures of expected returns and expected-return news that complete the Campbell trichotomy. Realized returns (on the left-hand side) is explained by cash-flow news, the expected return, and expected-return news:

$$R_t = a + b_1\frac{Earnings_t}{P_{t-1}} + b_2\frac{\Delta Earnings_t}{P_{t-1}} + b_3\frac{B_{t-1}}{P_{t-1}} + b_4E_{t-1}(R_t) + b_5\Delta E_t(R_{t+1}) + \varepsilon_t. \quad (6)$$

The inclusion of the expected return variables implies a critique of the standard returns-earnings regression in Equation (5): with variables that explain the expected return and expected-return news missing in (5), the estimated coefficients on the included variables will reflect expected returns and expected-return news if they are correlated with these omitted variables. That is likely if earnings realizations convey expected-return news under accounting principles.

If we have elicited relevant expected-return news from financial statements, estimated coefficients on the cash-flow news coefficients should be positive, as should the b_4 coefficient on the expected return: higher expected returns imply higher realized returns on average. However, the b_5 coefficient on the expected-return news should be negative: an increase (decrease) in expected returns implies a lower (higher) 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. News of an increase in the expected return results in a reduction of the unexpected portion of the stock return.

3. Data and Descriptive Statistics

Our test period runs from 1963 to 2012, though we also have a hold-out sample for 2013–2015. All U.S. firms available on Compustat files for any of the years are included if they also have stock price and returns on the Center for Research in Security Prices (CRSP). Financial firms (in Standard Industrial Classification codes 6000–6999) are excluded because they practice fair value accounting whereby the earnings 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, panel A, 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 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 used later in the paper. The three accounting variables used in the estimation of expected returns (in addition to earnings-to-price and book-to-price), *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 1, panel B, reports correlations between our main variables in our analysis, with Pearson correlations above the diagonal and Spearman rank 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 and its change are strongly correlated with the contemporaneous stock return, R_t. The correlations of the earnings yield, book-to-price, accruals (*ACCR*), investment (*INVEST*), and growth in net operating assets (ΔNOA) with forward returns, R_{t+1}, indicate predictive ability and are similar to those observed in other studies, as are the correlations between them.

Table 1. Descriptive Statistics

Panel A: Distribution of variables

	P5	P25	Median	P75	P95	Mean	Standard deviation
$Earn_t/P_{t-1}$	−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
$OI_t\ /\mathrm{P}_{t-1}^{NOA}$	−0.149	0.022	0.059	0.093	0.173	0.044	0.117
$\Delta OI_t\ /\mathrm{P}_{t-1}^{NOA}$	−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
$NOA_{t-1}/\mathrm{P}_{t-1}^{NOA}$	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
$\Delta NFO_t\ /P_{t-1}$	−0.308	−0.060	0.006	0.088	0.375	0.017	0.228
$FCF/\mathrm{P}_{t-1}^{NOA}$	−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

Panel B: Correlations between selected variables

	$Earn_t\ (P_{t-1})$	$\Delta Earn_t\ (P_{t-1})$	$B_{t-1}\ (P_{t-1})$	$FCF_t\ (P_{t-1}^{NOA})$	$d_t\ (P_{t-1})$	$ACCR_t$	$INVEST_t$	ΔNOA_t	R_t	R_{t+1}
$Earn_t/P_{t-1}$		0.50	0.09	0.27	0.31	0.11	0.06	0.13	0.32	0.07
$\Delta Earn_t/P_{t-1}$	0.50		−0.07	0.16	0.01	0.08	0.05	0.09	0.34	0.03
B_{t-1}/P_{t-1}	0.22	−0.05		0.09	0.23	−0.09	−0.25	−0.29	0.05	0.02
$FCF_t/\mathrm{P}_{t-1}^{NOA}$	0.29	0.18	0.14		0.17	−0.32	−0.53	−0.67	0.14	0.05
d_t/P_{t-1}	0.37	0.00	0.27	0.24		−0.06	−0.15	−0.13	0.07	0.01
$ACCR_t$	0.07	0.08	−0.10	−0.35	−0.05		0.19	0.49	−0.02	−0.08
$INVEST_t$	0.08	0.08	−0.28	−0.54	−0.15	0.21		0.72	0.03	−0.02
ΔNOA_t	0.11	0.10	−0.30	−0.69	−0.13	0.52	0.74		0.01	−0.04
R_t	0.42	0.40	0.09	0.20	0.14	−0.04	0.02	0.00		0.02
R_{t+1}	0.14	0.04	0.05	0.10	0.10	−0.08	−0.02	−0.04	0.03	

Notes. Panel A reports summary statistics of the distribution of variables used in the analysis, from data pooled over firms and the years 1963–2012. Panel B reports mean cross-sectional correlation coefficients for selected variables for the period 1963–2012. Reported correlations are the average of cross-sectional correlation coefficients for each year in the period. Pearson correlations are in the upper diagonal and Spearman correlations in the lower diagonal. Variables are defined in the appendix. In panel A, portfolios are formed each year from ranking stocks on the year-ahead expected return, $E_{t-1}(R_t)$, estimated from accounting data. In panel B, portfolios are formed by ranking on the change in expected return during period t, $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$. Expected returns are estimated out of sample by applying coefficients estimated in sample to out-of-sample accounting numbers. The table reports the mean over years of the portfolio values for each year.

4. Properties of Expected Returns and Expected-Return News

4.1. Expected-Return News Predicts Actual Returns

Panel A of Table 2 validates that estimated expected returns predict actual returns out of sample. Expected returns are fitted values from applying coefficients estimated from Equation (3) out of sample, as in Equation (4). Specifically, for the expected return for year t estimated at the end of year $t-1$, $E_{t-1}(R_t)$, we fit mean regression coefficients estimated from cross-sectional 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 the period 1973–2012. Firms are ranked each year on the expected returns and then formed into decile portfolios.

Panel A reports the mean expected returns over all years for these portfolios and, in the third and fourth columns, mean actual returns for the next two years. It is clear that expected returns for year t rank actual portfolio returns for that year monotonically (in the third column): expected returns are on average realized. The expected returns also predict actual returns two years ahead (in year $t+1$, in the fourth column) in a direction that indicates mean-reversion but persistence, as one would expect for slow-varying expected returns. The time-variation and mean reversion is indicated by the mean changes in the expected return over year t, $\Delta E_t\,(R_{t+1}) = E_t\,(R_{t+1}) - E_{t-1}(R_t)$, in the last column: expected returns change overtime, with the extremes reverting to the mean. 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 for the portfolios in panel B of Table 2 is on the change in the expected return—the expected-return news—during year t, $\Delta E_t(R_{t+1})$, also calculated out of sample. The change in the expected return is inversely related to the expected return at the beginning of the period (in the second column), consistent with

Table 2. Mean Expected Returns, Change in Expected Returns, and Subsequent Realized Returns for Portfolios Formed on Expected Return (Panel A) and Change in the Expected Return (Panel B)

Panel A: Portfolios formed by ranking on expected returns for period t, $E_{t-1}(R_t)$

Portfolio	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 changes in expected returns in period t, $\Delta E_t(R_{t+1})$

Portfolio	Mean $\Delta E_t(R_{t+1})$	Mean $E_{t-1}(R_t)$	Mean actual R_t	Mean actual R_{t+1}
1	−0.113	0.190	0.339	0.129
2	−0.051	0.171	0.307	0.136
3	−0.030	0.161	0.262	0.139
4	−0.015	0.154	0.222	0.153
5	−0.004	0.149	0.193	0.157
6	0.008	0.142	0.154	0.171
7	0.020	0.135	0.120	0.166
8	0.035	0.128	0.109	0.181
9	0.058	0.114	0.067	0.205
10	0.119	0.074	0.052	0.218
10 − 1	0.232	−0.116	−0.287	0.089

the mean reversion observed in panel A. The change is negatively correlated with the actual return for the period that the expected-return news arrives, R_t, as one expects for discount-rate news: an increase (decrease) implies lower (higher) price changes in response to the discount rate news. And the change in the expected return in period t predicts actual returns for the next year, $t + 1$ (in the last column), positively: an increase (decrease) in the expected return implies higher (lower) expected returns in the following year. Note, however, that returns are also affected by cash-flow news, which is introduced in the contemporaneous return regressions in Section 5 to isolate the two effects.

4.2. Expected-Return News Predicts Beta Changes

Panel A of Table 3 shows that the expected-returns news extracted from 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 years before the year of the expected-return news (year $t - 1$), the year of the news in the financial reports (year t), and years after (year $t + 1$). The betas are estimated in time series from regressions of annual portfolio returns for these years 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 2.75 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 3 repeats the analysis, but now for (fundamental) earnings betas—the sensitivity of portfolio earnings to earnings for the whole market. The betas are estimated by regressing the earnings yield for each portfolio, $Earn_t/P_{t-1}$, on the earnings yield for the market, 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

Table 3. Return Betas and Earnings Betas for Portfolios Formed on Changes in Expected Returns, for the Year Before, the Year of, and the Year After the Year of Expected-Return Change

Portfolio	Mean $\Delta E_t(R_{t+1})$	Beta, year $t-1$	Beta, year t	Beta, year $t+1$	Beta change, $t-1$ to $t+1$	
Panel A: Return betas for years before, during, and after expected-return change year						
1	−0.113	1.47	1.89	1.17	−0.29	(−1.00)
2	−0.050	1.51	1.48	1.16	−0.35	(−1.50)
3	−0.028	1.39	1.33	1.09	−0.30	(−1.45)
4	−0.014	1.28	1.20	1.14	−0.14	(−0.79)
5	−0.002	1.22	1.14	1.13	−0.09	(−0.57)
6	0.009	1.27	1.10	1.22	−0.05	(−0.26)
7	0.021	1.27	1.10	1.20	−0.06	(−0.40)
8	0.037	1.34	1.22	1.35	0.01	(0.08)
9	0.061	1.29	1.19	1.58	0.29	(1.24)
10	0.124	1.38	1.20	1.91	0.54	(1.72)
10 − 1	0.238	−0.09	−0.69	0.74	0.83	(2.75)
Panel B: Earnings betas for year before, during, and after the expected-return change year						
1	−0.113	1.26	1.11	0.78	−0.49	(−3.38)
2	−0.050	0.98	0.93	0.73	−0.25	(−2.29)
3	−0.028	0.83	0.83	0.74	−0.09	(−1.00)
4	−0.014	0.79	0.77	0.68	−0.11	(−1.44)
5	−0.002	0.77	0.81	0.73	−0.04	(−0.54)
6	0.009	0.70	0.76	0.74	0.03	(0.42)
7	0.021	0.72	0.85	0.77	0.06	(0.64)
8	0.037	0.75	0.89	0.84	0.09	(0.84)
9	0.061	0.75	0.98	0.96	0.22	(1.84)
10	0.124	0.78	1.31	1.27	0.50	(2.51)
10 − 1	0.238	−0.48	0.20	0.49	0.99	(3.87)

Notes. Return betas in panel A are estimated from ordinary least squares time-series regressions of the portfolio returns 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 ordinary least squares 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 ending December 31 are included. 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.

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.

Asset pricing theory requires that priced risk pertains to common shocks to returns. These correlations indicate that the expected-return news measure pertains to priced risk, indicating a firm's sensitivity to systematic risk that affects the whole market.[7]

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

5.1. Contemporaneous Return Regressions

Having examined some properties of the identified expected-return news, we turn to the main tests of the paper: explaining contemporaneous realized returns with expected returns, cash-flow news, and expect-return news extracted from financial statements. Table 4 presents the results from estimating regression Equation (6). Reported coefficients are the means from annual cross-sectional regressions with the associated *t*-statistics calculated as the mean estimate relative to its standard error estimated from the time series of annual estimates.

The implementation of Equation (6) requires a modification. The expected-return news 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 with Equation (4a) at end of period t. The price deflator in (4a) 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, a mechanical correlation is introduced. We finessed this problem by estimating the following model for $E_t(R_{t+1})$ and recalculating $\Delta E_t(R_{t+1})$ with this estimate

$$E_t(R_{t+1}) = \lambda + \delta_1 E_{t-1}(R_t) + \lambda_2 \frac{Earnings_t}{P_{t-1}} + \lambda_3 \frac{\Delta Earnings_t}{P_{t-1}} + \lambda_4 \frac{\Delta Sales_t}{P_{t-1}} + \lambda_5 \frac{\Delta PM_t}{P_{t-1}} + \lambda_6 ACCR_t + \lambda_7 INVEST_t + \lambda_8 \Delta NOA_t. \quad (7)$$

(Sales is total revenue, and *PM* is the operating profit margin.) Coefficients were estimated over rolling 10-year periods before the year for which $\Delta E_t(R_{t+1})$

enters the regression, and then fitted out of sample to the accounting variables reported for that year t. Equation (7) includes $E_{t-1}(R_t)$, the expected return at the beginning of the period, which forecasts the subsequent change in expected return, $\Delta E_t(R_{t+1})$, in Table 2. Accounting information arriving during period t is then added to capture the updating of the expected return. Some of these accounting variables appear in the expected return Equation (4a), though now relative to P_{t-1} rather than P_t. However, other variables that pertain to earnings realizations are added. All variables serve to indicate the incremental explanatory ability of the accounting information over that from the lagged expected return, a different role than explaining the level of the expected return in (4a).[8] The mean cross-sectional correlation between the change in expected return estimated with Equation (7) and that estimated with Equation (4b) is 0.77. We report on alternative ways to finesse the mechanical correlation problem in Section 8.

The first regression in panel A of Table 4 consists of the cash-flow news variables in Equation (5) 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. Higher expected returns yield realized returns in the Campbell trichotomy on average, and the mean coefficient on the expected return for the period, $E_{t-1}(R_t)$, is indeed positive. The coefficient is higher in the second regression where book-to-price is dropped, reflecting the point that book-to-price indicates the expected return (and is an explanatory variable in the expected return Equation (4)).

The third equation in panel A adds the expected-return news arriving during the return period, $\Delta E_t(R_{t+1})$.It loads with a negative mean coefficient: controlling for 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. The final regression in the table includes both the expected return and expected-return news. Both load in the predicted direction.[9]

Panel B of Table 4 unlevers the cash-flow news variables and book-to-price with the aim of distinguishing risk and expected return associated with operating

Table 4. Mean Coefficient Estimates for Regressions for the Contemporaneous Pricing of Cash-Flow News and Expected-Return News

Panel A: Levered news variables $R_t = a + b_1\frac{Earn_t}{P_{t-1}} + b_2\frac{\Delta Earn_t}{P_{t-1}} + b_3\frac{B_{t-1}}{P_{t-1}} + b_4E_{t-1}(R_t) + b_5\Delta E_t(R_{t+1}) + \varepsilon_t$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
0.02	0.68	1.62	0.08	0.25		0.16
(0.56)	(4.06)	(11.63)	(3.08)	(2.60)		
0.02	0.62	1.63		0.67		0.15
(0.44)	(3.67)	(11.78)		(5.00)		
0.06	0.73	1.76	0.10		−0.32	0.14
(1.29)	(4.02)	(10.99)	(3.41)		(−3.50)	
0.03	0.64	1.81	0.08	0.28	−0.22	0.14
(0.66)	(3.33)	(11.50)	(2.36)	(2.21)	(-2.06)	

Panel B: Unlevered news variables $R_t = a + b_1\frac{OI_t}{P^{NOA}_{t-1}} + b_2\frac{\Delta OI_t}{P^{NOA}_{t-1}} + b_3\frac{NFE_t}{P_{t-1}} + b_4\frac{NOA_{t-1}}{P^{NOA}_{t-1}} + b_5\frac{NFO_{t-1}}{P_{t-1}} + b_6\frac{\Delta NFO_t}{P_{t-1}} + b_7E_{t-1}(R_t) + b_8\Delta E_t(R_{t+1}) + \varepsilon_t$

Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
0.00	0.51	2.33	−0.47	−0.01	0.04		0.96		0.16
(−0.04)	(3.10)	(11.05)	(-2.05)	(-0.38)	(2.13)		(6.32)		
0.08	0.75	1.87	−0.75	0.02	0.02			−0.43	0.13
(1.82)	(3.89)	(9.30)	(−2.29)	(1.08)	(1.06)			(−3.03)	
0.00	0.50	2.22	0.52	−0.01	−0.03	−0.29	0.94		0.17
(−0.00)	(3.20)	(10.76)	(1.50)	(−0.49)	(−1.06)	(−6.57)	(6.37)		
0.08	0.75	1.76	0.35	0.01	−0.04	−0.44		−0.87	0.15
(1.75)	(4.14)	(8.79)	(0.79)	(0.52)	(−1.17)	(−6.58)		(−5.46)	
0.05	0.55	1.88	0.49	0.00	−0.04	−0.42	0.40	−0.58	0.15
(0.79)	(3.50)	(9.06)	(1.21)	(−0.20)	(−1.50)	(−5.78)	(2.15)	(−3.54)	

Notes. 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 coefficients are means of estimated cross-sectional coefficients for each year, 1983–2012, 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 pertaining to operation with that from financing leverage.

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.[10]

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. Our expected-return variable excludes leverage variables and thus pertains to the risk of (unlevered) operations. Like leverage, it also loads with a positive coefficient.

The coefficients on the expected-return news variable in all regressions in panel B are significantly negative. The last two 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. According to a foundational principle of modern finance in Modigliani and Miller (1958), an increase in leverage increases the expected return, ceteris paribus, and accordingly the change in leverage, ΔNFO_t, when added to the regression, carries a significantly negative coefficient. So does the change in expected return, $\Delta E_t(R_{t+1})$: it looks like information that conveys a change in the expected return, similar to leverage.[11]

5.2. The Information Content of Earnings vs. Cash Flows

This section compares the information content of accrual accounting numbers with that of dividends and cash flows. This has been the subject of much investigation in capital markets research. We perform the analysis with the modified contemporaneous returns regressions that incorporate expected-return news. The results not only modify inferences from the earlier research, but also serve to reinforce the informational properties on accounting numbers.

5.2.1. The Information Content of Dividends. Considerable research in finance views cash-flow news and expected-return news as being conveyed by dividends. See Campbell (1991), Campbell and Ammer (1993), Campbell and Shiller (1988), Cochrane (2011), and Campbell et al. (2013), for example. Table 4 sees the information conveyed by accounting numbers. Table 5 contrasts.

Panel A of the table repeats the analysis in panel A of Table 4, 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 M&M propositions, cum-dividend returns are not affected by dividends because dividends displace price one-for-one; more dividends mean lower capital gains. Accordingly, the coefficient on dividends (now on the right-hand side) should be negative 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 4, 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 (though the *t*-statistics are not significant). The mean coefficients on dividends are not −1.0 that one would expect for a dollar-for-dollar price displacement—it is −0.60 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).

Ohlson (1995) shows accounting principles under GAAP build in the M&M dividend irrelevance/displacement property and that is necessary for the accounting to convey information about valuation. The sign on dividends here indicate that, once the information in the accounting about value—cash-flows *and* discount-rate news—is controlled for, dividends are priced according to M&M.

5.2.2. The Information Content of Cash Flows. Considerable research compares the information content of earnings and cash flows. See Rayburn (1986), Bowen et al. (1987), Dechow et al. (1998), Francis et al. (2003), and Penman and Yehuda (2009), for example. The research has largely viewed both as conveying cash-flow news, with both typically loading with a positive coefficient in the standard information content regression. This section revisits the issue with the modified returns-earnings regression specification.

Panel B of Table 5 adds free cash flow (FCF) to the regression in panel A. 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 seem 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, in untabulated results we find 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

Table 5. Mean Coefficient Estimates to Compare the Information Content of Earnings, Dividends, and Free Cash Flows

Panel A: Pricing of dividends $\frac{P_t - P_{t-1}}{P_{t-1}} = a + b_1\frac{Earn_t}{P_{t-1}} + b_2\frac{\Delta Earn_t}{P_{t-1}} + b_3\frac{B_{t-1}}{P_{t-1}} + b_4\frac{d_t}{P_{t-1}} + b_5E_{t-1}(R_t) + b_6\Delta E_t(R_{t+1}) + \varepsilon_t$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	d_t	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
0.02	0.69	1.64	0.08	–0.76	0.33		0.16
(0.50)	(4.33)	(12.12)	(3.36)	(–1.52)	(3.39)		
0.01	0.62	1.66		–0.64	0.78		0.15
(0.36)	(3.88)	(12.24)		(–1.25)	(5.48)		
0.06	0.73	1.78	0.10	–0.43		–0.33	0.14
(1.27)	(4.13)	(11.09)	(3.54)	(–0.73)		(–3.68)	
0.03	0.63	1.83	0.08	–0.60	0.31	–0.20	0.14
(0.64)	(3.29)	(11.45)	(2.49)	(-0.97)	(2.35)	(–2.02)	

Panel B: Pricing of free cash flows: Levered variables $\frac{P_t - P_{t-1}}{P_{t-1}} = a + b_1\frac{Earn_t}{P_{t-1}} + b_2\frac{\Delta Earn_t}{P_{t-1}} + b_3\frac{B_{t-1}}{P_{t-1}} + b_4\frac{d_t}{P_{t-1}} + b_5\frac{FCF_t}{P^{NOA}_{t-1}} + b_6E_{t-1}(R_t) + b_7\Delta E_t(R_{t+1}) + \varepsilon_{it}$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	d_t	FCF_t	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
0.02	0.70	1.64	0.08	–0.74	0.03	0.33		0.16
(0.51)	(4.62)	(11.45)	(3.29)	(–1.54)	(1.50)	(3.46)		
0.01	0.64	1.65		–0.64	0.05	0.76		0.15
(0.40)	(4.18)	(11.54)		(–1.31)	(2.02)	(5.21)		
0.06	0.69	1.80	0.09	–0.52	0.09		–0.49	0.14
(1.37)	(3.99)	(10.91)	(3.15)	(–0.88)	(4.16)		(–6.06)	
0.05	0.64	1.83	0.08	–0.60	0.08	0.09	–0.45	0.14
(1.22)	(3.23)	(10.97)	(2.54)	(–0.98)	(2.38)	(0.48)	(–3.19)	

Panel C: Pricing of free cash flows: Unlevered variables $\frac{P_t - P_{t-1}}{P_{t-1}} = a + b_1\frac{OI_t}{P^{NOA}_{t-1}} + b_2\frac{\Delta OI_t}{P^{NOA}_{t-1}} + b_3\frac{NFE_t}{P_{t-1}} + b_4\frac{NOA_{t-1}}{P^{NOA}_{t-1}} + b_5\frac{NFO_{t-1}}{P_{t-1}} + b_6\frac{\Delta NFO_t}{P_{t-1}} + b_7\frac{d_t}{P_{t-1}} + b_8\frac{FCF_t}{P^{NOA}_{t-1}} + b_9E_{t-1}(R_t) + b_{10}\Delta E_t(R_{t+1}) + \varepsilon_t$

Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	d_t	FCF_t	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
0.00	0.49	2.38	–0.39	–0.01	0.03		–0.94	0.07	1.05		0.17
(–0.03)	(2.98)	(11.02)	(–1.62)	(–0.29)	(1.90)		(–2.03)	(3.40)	(6.50)		
0.10	0.60	1.97	–0.35	0.01	0.00		–0.34	0.16		–0.65	0.14
(1.96)	(3.15)	(9.33)	(–1.00)	(0.36)	(0.14)		(–0.64)	(4.11)		(–4.13)	
–0.03	0.64	2.21	0.43	0.00	–0.02	–0.46	–0.42	–0.28	1.07		0.18
(–0.71)	(4.64)	(10.70)	(1.31)	(0.04)	(–0.76)	(–6.00)	(–1.03)	(–4.33)	(6.87)		
0.07	0.82	1.78	0.56	0.01	–0.04	–0.60	0.32	–0.26		–0.73	0.15
(1.49)	(5.54)	(9.14)	(1.32)	(0.66)	(–1.58)	(–6.33)	(0.71)	(–3.71)		(–4.80)	
–0.03	0.58	1.90	0.78	–0.01	–0.05	–0.60	–0.04	–0.38	0.88	–0.04	0.16
(–0.63)	(3.94)	(9.16)	(1.84)	(–0.54)	(–1.85)	(–6.34)	(–0.09)	(–4.74)	(4.22)	(–0.25)	

Notes. Panel A repeats the analysis of Table 4 for 1983–2012, 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 B adds free cash flow, and panel C adds free cash flow with unlevered accounting variables.

coefficient on FCF indicates a reduction of the expected return from a reduction in leverage (and leverage risk).

To check, panel C of Table 5 again unlevers the accounting variables.[12] 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 B 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 that pertains to a change in leverage: realizing cash (in excess of cash investment) that is then applied to reduce leverage implies a reduction in risk and the expected return.

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 with the free cash flow coefficients in panel A of Table 5, 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.

6. Predictive Return Regressions: Expected-Return News Predicts Future Stock Returns, but Cash-Flow News Does Not

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 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 6 investigates.

The table reports the results of regressions with the same explanatory variables as in Table 4, both levered and unlevered, but now with future returns, R_{t+1}, as the dependent variable. The analysis uses the actual change in expected return, $\Delta E_t(R_{t+1}) = E_t(R_{t+1}) - E_{t-1}(R_t)$ in Equation (4b), for now there is no mechanical correlation problem. 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 $t + 1$. While previous studies have shown that accounting numbers predict returns, these results indicated that it is those that pertain to expected returns that do so.

The analysis is (again) out of sample and serves to validate our identification of cash-flow news versus expected-return news: by identifying expected-return news that predicts returns, we have also identified cash-flow news that exhibits the required property of not forecasting future returns.

7. Expected-Return News Reflects Accounting Principles

Section 2 advanced a priori arguments for why accounting reports convey expected-return news: it is a product of accounting principles for recognizing earnings under uncertainty. The attribution is tested in Tables 7 and 8.

The relevant accounting principles involve the realization principle for recognizing revenue and conservative accounting for expensing investment, both of which defer earnings recognition to the future under uncertainty and recognize earnings when the uncertainty is resolved. To measure the effect of these principles, we focus on the operating activities (where the principles are at work) and their effect on the income statement and

Table 6. Mean Coefficient Estimates for Regressions of the One-Year-Ahead Returns on Cash-Flow News and Expected-Return News

Panel A: Levered news variables $R_{t+1} = a + b_1\frac{Earn_t}{P_{t-1}} + b_2\frac{\Delta Earn_t}{P_{t-1}} + b_3\frac{B_{t-1}}{P_{t-1}} + b_4E_{t-1}(R_t) + b_5\Delta E_t(R_{t+1}) + \varepsilon_t$

Intercept	$Earn_t$	$\Delta Earn_t$	B_{t-1}	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
0.08	0.01	0.12	0.03	0.34		0.03
(1.98)	(0.04)	(1.10)	(1.11)	(4.06)		
0.09	0.00	0.12		0.51		0.03
(2.17)	(0.02)	(1.01)		(5.18)		
0.11	0.18	–0.01	0.03		0.51	0.04
(2.79)	(0.90)	(–0.05)	(1.62)		(3.16)	
0.02	–0.12	0.18	–0.03	1.03	0.90	0.04
(0.47)	(–0.60)	(1.54)	(–0.95)	(5.24)	(4.54)	

Panel B: Unlevered news variables $R_{t+1} = a + b_1\frac{OI_t}{P^{NOA}_{t-1}} + b_2\frac{\Delta OI_t}{P^{NOA}_{t-1}} + b_3\frac{NFE_t}{P_{t-1}} + b_4\frac{NOA_{t-1}}{P^{NOA}_{t-1}} + b_5\frac{NFO_{t-1}}{P_{t-1}} + b_6\frac{\Delta NFO_t}{P_{t-1}} + b_7E_{t-1}(R_t) + b_8\Delta E_t(R_{t+1}) + \varepsilon_t$

Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
0.08	–0.02	0.15	0.04	0.01	0.02		0.48		0.04
(1.84)	(–0.12)	(1.32)	(0.11)	(0.55)	(1.13)		(4.53)		
0.12	0.21	–0.06	0.21	0.02	0.00			0.51	0.04
(2.92)	(1.22)	(–0.53)	(0.46)	(0.75)	(0.19)			(3.10)	
0.08	–0.02	0.11	0.48	0.01	–0.01	–0.07	0.50		0.04
(1.82)	(–0.11)	(1.02)	(1.24)	(0.55)	(–0.26)	(–2.66)	(4.50)		
0.12	0.21	–0.06	0.45	0.02	–0.01	–0.04		0.44	0.04
(2.93)	(1.19)	(–0.47)	(1.07)	(0.75)	(–0.42)	(–1.41)		(2.63)	
0.01	–0.07	0.18	0.53	–0.04	–0.01	0.02	1.13	0.96	0.05
(0.28)	(–0.40)	(1.66)	(1.54)	(–1.31)	(–0.59)	(0.50)	(5.64)	(4.55)	

Note. 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.

Table 7. Connecting Expected-Return News to Measures that Capture the Effects of Accounting Principles, ΔC_t, and Realized Revenue-to-Price

Panel A: Expected-return news for portfolios formed on ΔC_t

Portfolio rank	ΔC_t	$E_{t-1}(R_t)$	$E_t\,(R_{t+1})$	$\Delta E_t(R_{t+1})$
1 (low)	−0.727	0.137	0.104	−0.033
2	−0.069	0.144	0.120	−0.023
3	−0.017	0.147	0.134	−0.012
4	−0.005	0.150	0.146	−0.004
5	0.000	0.151	0.154	0.003
6	0.004	0.148	0.158	0.010
7	0.012	0.145	0.160	0.015
8	0.033	0.143	0.161	0.019
9	0.099	0.139	0.164	0.025
10 (high)	0.910	0.132	0.157	0.026
10 − 1	1.637	−0.005	0.053	0.059

Panel B: Mean coefficients from regressions explaining expected-return news by $\Delta C_t \Delta E_t(R_{t+1}) = a + b_1 C_t + b_2 \Delta C_t + b_3 E_{t-1}(R_t) + \varepsilon_t$

Intercept	b_1	b_2	b_3	ADJRSQ
0.00	0.00	0.15		0.03
(1.01)	(−1.04)	(4.57)		
0.09	−0.02	0.15	−0.56	0.33
(13.61)	(−4.61)	(4.50)	(−15.84)	

Panel C: Mean coefficients from regressions explaining expected-return news with revenue realization $\Delta E_t(R_{t+1}) = \alpha + \beta_1 \frac{Rev_{t-1}}{P^{NOA}_{t-1}} + \beta_2 \frac{Rev_t}{P^{NOA}_{t-1}} + \beta_3 E_{t-1}(R_t) + \upsilon_t$

Intercept	Rev_{t-1}/P^{NOA}_{t-1}	Rev_t/P^{NOA}_{t-1}	$E_{t-1}(R_t)$	ADJRSQ
0.01	0.00	−0.01		0.02
(1.94)	(1.15)	(−2.37)		
0.08	0.03	−0.02	−0.55	0.27
(11.85)	(6.04)	(−5.42)	(−16.68)	

Notes. Panel A reports mean changes in expected returns, $\Delta E_t(R_{t+1})$, for 10 portfolios formed each year on the ΔC_t, score in Penman and Zhang (2002). Panel B reports the results from regressions of the change in expected return on the C-score, C_t, and the change of the score, ΔC_t. Panel C reports results from regressions of the change in expected return on *Revenue*$_t$/*Enterprise Price*$_{t-1}$ and *Revenue*$_{t-1}$/*Enterprise Price*$_{t-1}$. *Enterprise Price*$_{t-1}$ (P^{NOA}_{t-1}) = P_{t-1} + *Net Debt*$_{t-1}$.

balance sheet. Realized earnings from operations add to NOA. Investment not subject to conservative accounting also adds to NOA, whereas conservative accounting reduces recognized earnings in the income statement rather than adding to NOA. Thus, a measure that captures the effect of both the realization principle and conservative accounting compares expensed investment with the growth in NOA. Penman and Zhang (2002) provide such a measure, the C-score, that captures the cumulative effect on the income statement relative to the balance sheet:

$$C_t = \frac{ISE_t}{NOA_t}.$$

ISE_t (income statement effect) is the cumulative effect of the expensing of investment on earnings up to time t, measured as the difference between earnings with the expensing and what the earnings would have been if the investments had been booked to the balance sheet.[13] NOA_t is the cumulative effect of earnings realizations and added investment on the balance sheet. The change in this measure

$$\Delta C_t = \frac{ISE_t}{NOA_t} - \frac{ISE_{t-1}}{NOA_{t-1}}$$

is the increase in the income statement effect relative to the increase in the NOA in the period over which the expected-return news is extracted from financial statements. Although conservative accounting is applied more broadly, our measure focuses on R&D accounting, the accounting for advertising and promotion, and last in, first out accounting for inventories, as in Penman and Zhang (2002). That paper shows empirically that this measure depresses operating income relative of NOA but is associated with higher operating income relative of NOA in the future (on average) as earnings are realized.

Panel A of Table 7 forms portfolios each year on ΔC_t and reports the mean expected return for those portfolios at the beginning and end of the year over which the accounting is applied, along with the expected-return news for that year, $\Delta E_t(R_{t+1})$. The expected-returns news (in the last column) is positively correlated with ΔC_t; a higher ΔC_t (more investment expensing relative to value booked to the balance sheet) is associated with an increase in the expected return. Panel B of the table reports mean coefficients from annual cross-sectional regressions of the expected-return news on both the C-score, C_t, and ΔC_t, with ΔC_t delivering a negative mean coefficient. That survives after adding the expected return at the beginning of the period, $E_{t-1}(R_t)$, which also predicts the change in expected return in Table 2: the application of the accounting principles in period t adds information to that given by the typical mean-reversion in expected returns.

The regressions in panel C of the table isolate revenue realized under the revenue recognition principle. The metric, *Revenue*$_t$/*Enterprise Price*$_{t-1}$, recognizes revenue realized in the period over which expected-return news is measured. The denomination in the lagged price compares the realized revenue to the expectation (in price) of the stream of all future revenues, that is, the amount of that expected stream that is currently realized relative to that yet unrealized. Adding lagged *Revenue*$_{t-1}$/*Enterprise Price*$_{t-1}$ adds lagged revenue to the expectation such that *Revenue*$_t$/*Enterprise Price*$_{t-1}$ now indicates realized revenue relative to last year's revenue, that is, the change in revenue relative to expectation. The mean coefficient on *Revenue*$_t$/*Enterprise Price*$_{t-1}$ is negative: higher (lower) realized revenue indicates lower (higher) expected returns in support of the principle that realizations convey the resolution of uncertainty, reducing expected returns. The negative relation survives after adding the expected return at the beginning of the period, $E_{t-1}(R_t)$, that also predicts the change in expected return in Table 2: realized revenue adds information to that given by the typical mean-reversion in expected returns.

Of course, the correlations in panels A and B of Table 7 are partly by construction, because ΔNOA_t in the denominator of the ΔC_t measure is an explanatory variable in the expected return estimate from Equation (4), and revenue adds to NOA. However, the table serves to highlight the accounting involved more directly (which, of course, is the accounting that led to the a priori identification of variables the predict growth and returns in Equation (4)).

Table 8 reports results for regressions like those in panel A of Table 4, but now with an interaction with the ΔC_t measure in Table 7 that captures the effect of accounting principles. The interaction variable, $r\Delta C$, is a quintile rank of the change in C-score, ΔC_t, within quintile portfolios formed on C_t, the C-score (level). The double sort serves to control for the level at the end of the period, as in panel B of Table 7.[14] The expected-news measure with which ΔC_t is interacted is that projected by the mean reversion of the expected return in Table 2: $\Delta E_t(R_{r+1}) = a + b\Delta E_{t-1}(R_t)$. This omits the updating information in Equation (7) for the expected-return measure in Table 4. Table 7 indicates that those updating numbers imbed the relevant accounting principles, in which case adding a variable capturing those principles would not isolate their effect. As before, the parameters a and b were estimated as the mean of cross-sectional estimates over 10 years prior and then fitted to the relevant year (out of sample).[15]

In the first regression in Table 8, the interaction of ΔC_t with the expected-return news variable yields a negative coefficient of −0.28 ($t = -2.09$): higher (lower) application of conservative accounting implies lower (higher) returns, ceteris paribus, in evidence that the accounting conveys discount-rate news. The second regression also interacts ΔC with the cash-flow news variables. The coefficients (multipliers) on the earnings variables increase over those in the first regression and those in panel A of Table 4, and the interaction terms report negative coefficients. The multipliers in Table 4, so-called earnings response coefficients, incorporate a discount rate that reduces the multiplier, as recognized in standard capital markets research. However, when the discount-rate news conveyed by the accounting is identified the coefficient increases to reflect just the cash-flow news. Correspondingly, the interaction terms indicate a negative effect on the earnings multiplier the higher the discount rate conveyed by the accounting. The coefficient on the interaction with $\Delta E_t(R_{t+1})$ remains negative ($t = -2.13$).

These results and those in Table 7 connect conservative accounting to the expected-news affecting realized returns.

8. Robustness Tests

The tests reported are for years 1983–2012. The expiration of time has provided three more years, 2013–2015, to serve as a hold-out sample.

Table 9 first reports the unlevered results in panel B of Table 4 for the hold-out years, 2013–2015. The coefficient on the change in leverage, ΔNFO_t, is negative in each year, as in Table 4, and so is that on the expected-return news. However, the coefficient on the beginning-of-period expected return is negative in one year, 2013. We have no explanation for this other than sample variation but, because these are the most recent years, the question of robustness over all years is open.

The rest of the panel reports results for five-year subperiods. The mean coefficient estimates on the expected-return news are negative in all periods, as are those on ΔNFO_t; again, the negative coefficients on the expected-return news are similar to those for the change in leverage (which changes expected equity returns).[16] The coefficients on the beginning-of-year expected return are positive except for one period. In the most recent five-year period, 2011–2015, the coefficients are in the predicted direction. The consistency in the results over years relieves concern about robustness from the 2013–2015 years. Although there is some decline in the coefficients on operating income and changes in operating income over time (consistent with a lower growth environment and thus lower multipliers), those on the expected-return news are more negative in the later years (in presumably a riskier environment for growth). However, we are reluctant to read too much

Table 8. Contemporaneous Pricing of Cash-Flow News and Expected-Return News with the Effect of Accounting Principles

Intercept	$r\Delta C$	$Earn_t$	$r\Delta C \times Earn_t$	$\Delta Earn_t$	$r\Delta C \times \Delta Earn_t$	B_{t-1}	$r\Delta C \times B_{t-1}$	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	$r\Delta C \times \Delta E_t(R_{t+1})$	ADJRSQ
0.06	0.04	0.62		1.82		0.15		0.03	−0.61	−0.28	0.15
(0.75)	(1.96)	(3.78)		(10.69)		(4.10)		(0.15)	(−1.27)	(−2.09)	
0.05	0.04	0.81	−0.06	2.27	−0.19	0.14	0.01	0.02	−0.47	−0.35	0.16
(0.64)	(2.04)	(4.34)	(−1.44)	(9.07)	(−2.96)	(2.84)	(0.55)	(0.10)	(−1.10)	(−2.13)	

Notes. The table adds interaction terms that capture accounting principles to the regressions in Table 4. The expected-return news is based on mean-reverting prior news: $\Delta E_t(R_{r+1}) = a + b\Delta E_{t-1}(R_t)$, with forecasting parameters estimated in prior periods. The interaction variable, $r\Delta C$, is the quintile rank of the change in the conservatism score, ΔC_t, within quintile portfolios formed on the level of the C-score, C_t.

Table 9. Unlevered Contemporaneous Return Regressions for Subperiods

Period	Intercept	OI_t	ΔOI_t	NFE_t	NOA_{t-1}	NFO_{t-1}	ΔNFO_t	$E_{t-1}(R_t)$	$\Delta E_t(R_{t+1})$	ADJRSQ
2013	0.28	0.21	0.82	1.93	0.15	−0.11	−0.71	−0.72	−1.44	0.08
2014	0.08	0.97	0.66	−1.56	−0.17	0.03	−0.35	0.44	−0.94	0.12
2015	−0.29	0.33	1.03	6.98	−0.04	0.27	−0.69	2.79	−2.07	0.13
1984–1990	−0.11	0.89	2.35	−1.02	−0.08	0.05	−0.12	1.12	−0.06	0.19
1991–1995	0.07	0.23	3.17	0.58	0.00	−0.06	−0.26	0.70	−0.32	0.16
1996–2000	0.17	0.31	2.22	2.49	−0.04	−0.17	−0.61	0.27	−0.71	0.12
2001–2005	0.19	0.67	1.19	1.08	0.15	−0.08	−0.71	−0.70	−1.20	0.16
2006–2010	0.00	0.54	0.71	0.53	0.00	−0.05	−0.58	0.26	−0.99	0.14
2011–2015	0.03	0.50	0.83	1.06	−0.01	0.10	−0.46	0.72	−0.95	0.09

Note. The table reports the unlevered regression results in Table 4, panel B, for the most recent years, 2013–2015 and for prior five-year periods.

into this. Note that, updating the test period in Tables 5–7 to 2015 produced similar finding to those reported.

Other robustness tests involved using alternative models to Equation (7) to deal with the mechanical correlation problem of P_t on both sides of the contemporaneous-return regressions in Table 4. Two of the alternatives simply estimate parameters to update the expected return by capturing the mean reversion in expected returns observed in Table 2:

$$E_t(R_{t+1}) = \lambda + \delta E_{t-1}(R_t)$$
$$\Delta E_t(R_{r+1}) = a + b\Delta E_{t-1}(R_t)$$

(the latter is that used in Table 8). Again, parameters were estimated over prior periods and fitted out of sample in the relevant year. A third alternative was suggested by a reviewer. To avoid including the end-of-period price, P_t, in the regression, the latter estimated P_t from P_{t-1} plus accounting information arriving during period t, and then denominated the accounting variables in Equation (4a) with that estimated P_t rather than the actual price (out of sample from the estimation). Results were similar. The mean cross-sectional correlation of resultant change in expected return with that from applying Equation (7) was 0.71. The mean correlation with the change in expected return from Equation (4b) was 0.91.

9. 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, whereas cash-flow news (appropriately) does not. The analysis separates expected-return news due to operating activities from that due to financing leverage and finds that the expected-return news is priced in the same way as a change in leverage, indicating it relates to priced risk. The measure of expected-return news "works" out of sample. Moreover, the paper points to the driving accounting principle that produces the expected-return news: the realization principle for recognizing earnings imbeds risk and its resolution.

With the incorporation of expected-return news, the analysis revises inferences about "information content" of accounting made from the standard returns-earning regressions in capital markets research. The additional insights are is detailed in Section 1.1 of the paper.

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: prices anticipate (unrealized) earnings at risk and settle-up against realized earnings. The phenomenon is particularly evident in the high R^2 observed in "long-window" returns-earnings regressions: although 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.[17] A number of papers find that returns around earnings announcements are, on average, positive and higher than nonreporting periods, for example, in Penman (1987), Chari et al. (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.

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.

As in most capital markets research and asset pricing research, we assume market efficiency for making inferences. In support of this maintained assumption, we do show that the expected-return news forecasts changes in both stock return betas and earnings betas. It also is priced in contemporaneous return regressions as if it relates risk and the expected return. Further, in contrast to a large amount of research that shows that accounting numbers predict returns, only 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. Finally, the expected-news extracted from financial statements is priced in the same way as changes in leverage, and leverage unambiguously pertains to priced risk in finance theory.

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Appendix. Variable Definitions and Calculations

Dependent variables	Description
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_{t-1}^{NOA} is the unlevered (enterprise) book-to-price ratio at the end of fiscal-year $t-1$.
P_{t-1}^{NOA}	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.
Unlevered book-to-price	$\frac{B_t}{P_t} = \frac{NOA_t}{P_t^{NOA}} + \frac{NFO_t}{P_t}\left[\frac{NOA_t}{P_t^{NOA}} - 1\right]$. See Penman et al. (2007)

Endnotes

[1] For a review of capital markets research, see Kothari (2001).

[2] The point can be demonstrated by reference to the familiar residual income model. By the same clean-surplus substitution of earnings and book value for dividends, the price premium over book value at t is

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

where r is the expected return (assumed here to be constant), and g is the expected growth rate in residual earnings after year t+1. With the same representation of the premium at t–1 and setting $g = 0$ (no growth),

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

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

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

That is, with no expected change in premium, earnings (with reinvested dividends) are expected to grow at the rate, r. With full payout of dividends, $E_{t-1}(B_t) - B_{t-1} = 0$, so expected earnings growth is zero; that is, no expected change in premium implies no earnings growth beyond that from retention. It follows that $g > 0$ implies an expected increase in the premium.

[3] "Risk" is sometimes distinguished from "uncertainty," but we make no such distinction.

[4] 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).

[5] The model is parsimonious with respect to a wider set of variables that predict earnings growth and returns. The last three variables are positively correlated in Table 1, and little is lost with a reduced set. Penman and Zhu (2014) include financing variables, but these are not included here because we wish to separate the expected-return news for operating activities from that for financing activities.

[6] 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.

[7] We also examined the correlation between the changes in expected return and changes in beta (sensitivity) coefficients on Fama and French (1993) factors. Our expected-return news measure is positively correlated with changes on beta sensitivity to the market factor (as in Table 3) and with those on the size factor but not the book-to-price factor (nor a momentum factor). It is questionable what these factors capture (fundamentally), or course.

[8] Although some of these variables are not included in the regression model (3) for the level of expected return, they were part of a wider set that predicted returns, reduced for parsimony. They appear in Equation (7), but that equation differs from Equation (3)—the lagged estimated expected return is also included, so the estimation pertains to the update of the expected return. Mean coefficients (over all years) and related t-statistics for Equation (7) were as follows:

Intercept	$E_{t-1}(R_t)$	$Earn_t$	$\Delta Earn_t$	$\Delta Sales_t$	ΔPM_t	$ACCR_t$	$INVEST_t$	ΔNOA_t	ADJRSQ
0.09	0.18	0.40	−0.02	0.00	−0.03	−0.23	−0.08	−0.08	0.75
(13.10)	(6.16)	(11.93)	(−1.77)	(2.48)	(−9.86)	(−18.22)	(−8.02)	(−5.85)	

[9] The R^2 decline a little over the regressions. This is because of the different samples in which $E_t(R_{t+1})$ and $\Delta E_t(R_{t+1})$ are estimated. When we require the number of observations [with both $E_t(R_{t+1})$ and $\Delta E_t(R_{t+1})$] to be constant in the regressions, there is no such decline in R^2.

[10] Penman et al. (2007) for the formula for unlevering book-to-price. See the appendix.

[11] Adding $\frac{\Delta NFE_t}{P_{t-1}}$ (that also indicates a change in leverage) does not change the result. Adding the change of leverage, ΔNFO_t, in panel B affects the estimated coefficients on the beginning-of-period leverage, NFO_{t-1}, and net financial expense, NFE_t, rendering them insignificant; the effect of a change in leverage dominates these other leverage attributes.

[12] 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.

[13] Penman and Zhang (2002) refer to ISE_t as an estimated off-balance sheet reserve (ER) that adds to earnings and the balance sheet when earnings are subsequently realized.

[14] We entertained a similar construction for Revenue$_t$/Enterprise Price$_{t-1}$ that captures sales realizations in Table 7 that also involve the relevant accounting principles. However, there is no way (we could find) of separating the cash-flow news effect on returns of Revenue$_r$ from the expected-return news affect.

[15] The model, $E_t(R_{t+1}) = \lambda + \delta E_{t-1}(R_t)$, was also applied, with similar results. However, because the resulting change in the expected return is just a linear transform of the beginning expected return, the latter could not enter the regression.

[16] Although the test is for consistency of signs over subperiods, note that, in three out of the six five-year periods, the coefficients were statistically significant in three of the periods at the 1% level for the appropriate one-tail test, despite the small number of (year) observations. In one other subperiod, the coefficient was significant at the 5% level.

[17] See, for example, Easton et al. (1992) and Ohlson and Penman (1992).

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