The Difference between Expected Rates of Return Implied by Analyst's Earnings Forecasts and the Market Expectation

Peter D. Easton
University of Notre Dame

and

Gregory A. Sommers
Southern Methodist University

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1. Introduction

A large and expanding body of literature uses analysts' forecasts of earnings to determine the expected rate of return that is implied by these forecasts, current book values, and current prices. Yet the earnings forecasts are made by sell-side analysts who are in the business of making buy/hold/sell recommendations which are, presumably, based on the difference between their expectation of the future rate of return and the market expectation of this rate of return.

In this paper, we determine this difference between the implied analysts' expected rate of return and the market expectation. Our estimate of the market expected rate of return is the rate implied by market prices, book value of common equity, and recently announced actual earnings. In short, the focus of the paper is on the difference between the expected rate of return implied by analysts' forecasts of earnings and the expected rate of return implied by actual earnings.

Consistent with the evidence that forecasts (particularly longer-run forecasts) are optimistic, we show that the difference between the implied analysts' expected rate of return and the implied market expectation is, generally, statistically and economically significantly positive. In other words, *ceteris paribus*, studies that use the expected rate of return implied by current prices and these forecasts of earnings have estimate of the cost of capital that may be too high.[1]

All of our analyses are based on two methods for simultaneously estimating the expected rate of return and the expected growth rate for a portfolio/group of stocks. The estimate of the expected growth rate is not important in and of itself in our study but estimating it simultaneously with the estimation of the expected rate of return avoids the introduction of error

[1] Examples include Gebhardt, Lee, and Swaminathan (2001), Claus and Thomas (2001), and Easton, Taylor, Shroff, and Sougiannis (2002).

which will almost inevitably arise when the expected growth rate is assumed: any assumed growth rate will almost invariably differ from the growth rate implied by the data.[2]

Analysts are in the business of identifying stocks with an expected rate of return that differs from the expectation implicit in the current price of the stock; that is, they search for stocks that, in their opinion, are mis-priced and, hence they will earn an abnormal return. This suggests that the estimates of the expected rate of return based on their forecasts will be over/under-estimates of the market expectations unless the analysts recommend (at least implicitly) "hold". We compare the estimate of the expected rate of return that is implied by prices and current accounting data (this is implicitly the market expectation) with estimates that are based on prices, current book value, and analysts' forecasts, which have varying degrees of optimism/pessimism about future returns. The different degrees of optimism are captured in buy/hold/sell recommendations.

Our method for estimating the expected rate of return that is implied by prices and current accounting data is an adaptation of the method that O'Hanlon and Steele (2000) use to estimate the expected market equity premium for the U.K. Our method for estimating the expected rate of return that is implied by prices, current book values and forecasts of earnings is an adaptation of the method that Easton, Taylor, Shroff, and Sougiannis (2002) use to estimate the equity premium in the U.S.

The estimates of the expected rate of return obtained via the method in Easton, Taylor, Shroff, and Sougiannis (2002) include both analysts' expectations about abnormal returns (which are, presumably, the basis for their stock recommendations) and normal returns related to the risk of the firm. These recommendations range from "strong buy" through "hold" to "sell". In principle, a "hold" recommendation would be expected to imply that the analyst making the

[2] See Easton (2005) for a detailed discussion of this source of error.

recommendation expects the stock to earn just a normal return. Allegations in the popular press and studies such as Michaely and Womack (1999) question this expectation. We use the Easton, Taylor, Shroff, and Sougiannis (2002) method to determine the expected rate of return implied by forecasts accompanied by recommendations of each type and compare these with the expected rate of return implied by realized earnings.

The literature that reverse-engineers valuation models to obtain estimates of the expected rate of return on equity investment is very new. These reverse-engineered valuation models include the dividend capitalization model (see, Botosan (1997)), the residual income valuation model (see, O'Hanlon and Steele (2000), Gebhardt, Lee, and Swaminathan (2001), Claus and Thomas (2001), Easton, Taylor, Shroff, and Sougiannis (2002), and Baginski and Wahlen (2003)), and the abnormal growth in earnings model (see, Gode and Mohanram (2003) and Easton (2004)). A literature that has used these estimates to test hypotheses regarding factors that may affect the expected rate of return has developed almost simultaneously (see, for example, Daske (2005), Dhaliwal, Krull, Li, and Moser (2005), Francis, Khurana, and Periera (2005), Francis, LaFond, Olsson, and Schipper (2003), Hail and Leuz (2005), Hribar and Jenkins (2004), and Lee, Myers, and Swaminathan (1999)) This has happened despite the facts that (1) some of these methods were not designed to provide firm-specific estimates (see, in particular, Claus and Thomas (2001), Easton, Taylor, Shroff, and Sougiannis (2002), and Easton (2004)), and (2) there is very little evidence regarding the empirical validity of these methods.

The conclusion from the very recent studies that examine the validity of firm-specific estimates of expected rate of return that are derived from these reverse-engineering exercises (Botosan and Plumlee (2005), Guay, Kothari and Shu (2005), and Easton and Monahan (2005)) is that these estimates are poor, indeed. None of the studies addresses the issue of the difference

between the market expectation of the rate of return (which these studies purport to measure) and analysts' expectations. Nevertheless, it is possible that this difference is a correlated omitted variable that could affect the results in studies that compare estimates of the implied expected rate of return on equity capital. It is possible, for example, that analysts' forecasts for firms under one accounting regime (say, accounting based on international accounting standards) may reflect their expectations of larger abnormal returns than analysts' forecasts for firms under a different accounting regime (say, accounting based on domestic standards). These optimistic forecasts will bias the estimate of the expected rate of return upward, potentially leading to the (possibly erroneous) conclusion that the cost of capital is higher for these firms.[3]

In light of analysts' tendency to be optimistic, these estimates of the expected rate of return are likely to be generally higher than the cost of capital.[4] Williams (2004) makes this point in his discussion of Botosan, Plumlee, and Xie (2004). This effect of analysts' optimism is exacerbated by the fact that all studies that use analysts' forecasts to calculate an implied expected rate of return use forecasts that are made well in advance (usually at least a year) of the earnings announcement. These forecasts tend to be much more optimistic than those made closer to the earnings announcement (see Richardson, Teoh, and Wysocki (2001)).

The extant literature on analysts' optimism/pessimism generally compares forecast of earnings with realizations of the earnings that are forecasted. This is an ex post measure of optimism and one that pervades the extant literature. Most of our analysis is a comparison of analysts' expectations of rates of return with the market expectation at the time that the expectation was formed rather than at the time of the realization. This is an ex ante measure of

[3] Cost of capital is an equilibrium concept that relies on the no arbitrage assumption. In the absence of arbitrage opportunities, the markets expected rate of return is equal to the cost of capital.

[4] While it is reasonable to expect that the level of the analyst's recommendation should be associated with *expected* abnormal returns, it should be noted that Bradshaw (2004) finds analysts' recommendations uncorrelated with future *realized* abnormal returns.

optimism/pessimism. We are primarily interested in this second comparison for two reasons. First, we are interested in the question of whether analysts' recommendations are based on their expectations of abnormal returns. Second, this comparison provides an indication of optimism/pessimism that is not affected by events that occur between the forecast date and the time of the earnings realization.[5]

All of our analyses are based in I/B/E/S forecasts of earnings for the years 1994 to 2004 and actual prices and accounting data for 1993 to 2003. Consistent with the extant literature, the forecasts tend to be optimistic.

We show that, on average, the estimate of the expected rate of based on analysts' forecasts is 3.27 percent higher than the estimate that is not affected by the optimism in analysts' forecasts and there are some years when the difference is quite large (4.77 percent). These results are not surprising in view of the fact that analysts are in the business of making stock recommendations and their recommendations tend to be "buy" rather than "sell". An implication of the observation that analysts tend to forecast positive abnormal returns is that caution should be taken when interpreting the meaning of the expected rate of return that is implied by analysts' earnings forecasts: it may not be, as the literature generally claims, an estimate of the cost of capital.

Results from sub-samples formed on the basis of recommendation type (either based on the percentage of analysts recommending buy or on individual analyst recommendations), show that the implied expected rate of return declines as analysts' recommendations range from "strong buy" to "hold". Consistent with Michaely and Womack (1999) and Boni and Womack (2002) we show that analysts rarely make sell recommendations. This optimism in analysts'

[5] An obvious recent example of such an event is the tragedy of the terrorist attack of September 11, 2001. This event, which was not foreseen by analysts, would almost certainly have made their forecasts overly optimistic with the benefit of hindsight.

recommendations is reflected in the difference between analysts' implied expected rates of return and the market expectation, which is positive for all three of these recommendation types. We show similarly lower implied analysts' expectations as the percentage of analysts comprising the consensus who recommend buy decreases. Also, even when less than ten percent of the analysts making up the consensus recommend buy, the difference between the estimate of the implied analysts' expected rate of return and the estimate of the market expectation is statistically and economically significantly positive.

2. Methods of estimating the implied expected rate of return

The majority of the analyses in this paper compare estimates of the expected rate of return implied by prices, book value of common equity, and forecasts of earnings (based on the method in Easton, Taylor, Shroff, and Sougiannis (2002)) with the estimates of the expected rate of return implied by prices, book value of common equity, and realized earnings (based on the method in O'Hanlon and Steele (2000)). Both of the methods are derived from the residual income valuation model which may be written as follows:

$$v_{jt} \equiv bps_{jt} + \sum_{\tau=1}^{\infty} \frac{eps_{jt+\tau} - r_j \times bps_{jt+\tau-1}}{\left(1+r_j\right)^{\tau}} \qquad (1)$$

where v_{jt} is the intrinsic value per share of firm j at time t, bps_{jt} is the book value per share of common equity of firm j at time t, eps_{jt} is the earnings per share of firm j at time t and r_j is the cost of capital for firm j.[6] Easton, Taylor, Shroff, and Sougiannis (2002) rely on the following finite horizon version of this model:

[6] Derivation of this model requires the no arbitrage assumption which is necessary to derive the dividend capitalization formula and that earnings are comprehensive – in other words the articulation of earnings and book values is clean surplus.

$$p_{jt} \equiv bps_{jt} + \frac{eps_{jt+1} - r_j \times bps_{jt}}{\left(r_j - g_j\right)} \tag{2}$$

where p_{jt} is price per share for firm j at time t, and g_j is the expected rate of growth in residual income beyond period t+1 required to equate ($p_{jt} - bps_{jt}$) and the present value of an infinite residual income stream.[7, 8]

The method in O'Hanlon and Steele (2000) is based on the following form of the residual income valuation model:

$$p_{jt} \equiv bps_{jt} + \frac{\left(eps_{jt} - r_j \times bps_{jt-1}\right)\left(1 + g'_j\right)}{\left(r_j - g'_j\right)} \tag{3}$$

The major difference between this form of the model and the form used by Easton, Taylor, Shroff, and Sougiannis (2002) is that g'_j is the perpetual growth rate starting from *current residual income* (that is, time t) that implies a residual income stream such that the present value of that stream is equal to the difference between price and book value, whereas in Easton, Taylor, Shroff, and Sougiannis (2002), g_j is the perpetual growth rate starting from *next-period residual income* (that is, time t+1).

2.1. Estimation based on prices, book value, and earnings forecasts

Easton, Taylor, Shroff, and Sougiannis (2002) transform equation (2) to form the following regression relation:

$$\frac{eps_{jt+1}}{bps_{jt}} = \gamma_0 + \gamma_1 \frac{p_{jt}}{bps_{jt}} + \mu_{jt} \tag{4}$$

[7] Price in this relation replaces intrinsic value. This form of the residual income model does not rely on the no-arbitrage assumption – rather it is simply based on the definition of the expected rate of return (the difference between expected cum-dividend end-of-year price and current price deflated by current price).

[8] In Easton, Taylor, Shroff, and Sougiannis (2002) the period t to t+1 is 4 years so that eps_{jt+1} is aggregate expected cum-dividend earnings for the four years after date t, that is, $aggearn_{jt+1}/bps_{jt}$. We use a one-year forecast horizon instead of four years in order to facilitate more effective use of the data on analysts' recommendations.

where $\gamma_0 = g$, $\gamma_1 = r - g$.[9] This regression may be estimated for any group/portfolio of stocks to obtain an estimate of the expected rate of return, *r,* and the expected growth rate, *g*, for the portfolio. Easton, Taylor, Shroff, and Sougiannis (2002) run this regression for a sample of U.S. stocks to obtain an estimate of the expected rate of return on the U.S. equity market and hence an estimate of the equity premium for that market.

2.2. Estimation based on current accounting data

O'Hanlon and Steele (2000) transform equation (3) to form the following regression relation:[10]

$$\frac{eps_{jt}}{bps_{jt-1}} = \delta_0 + \delta_1 \frac{p_{jt} - bps_{jt}}{bps_{jt-1}} + \zeta_{jt} \qquad (5)$$

where $\delta_0 = r$, $\delta_1 = (r - g')/(1 + g')$. This regression may be estimated for any group/portfolio of stocks to obtain an estimate of the expected rate of return, *r,* and the expected growth rate, g', for the portfolio. O'Hanlon and Steele (2000) run this regression for a sample of UK stocks to obtain an estimate of the expected rate of return on the UK equity market and hence an estimate of the equity premium for that market.

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[9] At the firm-specific level, the following relation between the regression variables: $\frac{eps_{jt+1}}{bps_{jt}} = \gamma_{0j} + \gamma_{1j} \frac{p_{jt}}{bps_{jt}}$, is readily obtained by rearranging the identity shown in equation (2). In the re-expression of this relation for a group of observations (as in equation (4)) as a regression relation, the coefficients γ_0 and γ_1 represent an average of the firm-specific γ_{0j} and γ_{1j} coefficients and the cross-sectional variation in these coefficients creates the regression residual. Easton, Taylor, Shroff, and Sougiannis (2002) describe this regression in more detail pointing out that it involves the implicit assumption that it has the properties of a random coefficient regression.

[10] We attribute this model to O'Hanlon and Steele (2000) because they capture its essential elements. The similarity to their model may not, however, be immediately apparent. Since the derivation in O'Hanlon and Steele (2000) is based on Ohlson (1989), the observation that the regression intercept is an estimate of the implied expected rate of return is not evident and O'Hanlon and Steele (2000) do not use it in this way. Rather, they estimate the implied expected rate of return at the firm-specific level by applying their model to time-series data and then measuring the risk premium as the slope of the Securities Market Line estimated from a regression of these firm-specific rates of return on corresponding beta estimates. Notice that, in addition to requiring earnings to be clean surplus in all future periods, this form of the residual income model also requires that the relation between earnings for period *t* and book value for periods *t* and *t*-1 follows the clean surplus relation.

2.3 The relation between prices, actual earnings, and forecasts of earnings

In order to ensure that we obtain an estimate of the difference between analysts' expectations and market expectations we must use prices in regression (4) which reflect analysts' expectations and we must use prices in regression (5) which reflect earnings realizations. We have two sets of data that we analyze. The first is based on I/B/E/S consensus forecasts. The second is based on individual analysts' forecasts. The alignment of price-dates, earnings announcement dates, and analysts' forecast-dates is described in this sub-section and summarized in figure 1.

We choose the first consensus forecast announced at least 14 days after the date of the earnings announcement. In our analyses based on these forecasts, we use the price at the close of trade one day after the earnings announcement. Consistent with numerous studies of the information content of earnings, it seems reasonable to assume that this price incorporates the information in realized earnings. Further, we implicitly assume that this price was known to analysts at the time they formed their earnings forecasts. In view of the fact that the forecasts comprising the consensus are formed at various points in time, this assumption may be invalid because the forecasts comprising the consensus may precede this date or they may have been issued a considerable time after this date. We examine the sensitivity of the results to this assumption by varying the price-date from the day after the earnings announcement to one day after the consensus forecast is measured. This allows for the incorporation of the information in the analysts' forecasts in price. The results are not sensitive to this choice. We will return to this point.

We examine the first individual analysts' forecast that is at least three days but no more than 30 days after the earnings announcement. In our analyses based on these forecasts, we use

the price at the close of trade two days before the announcement of the forecast. We choose this price because it, presumably, is the price that forms the basis for the analysts' recommendation and it also includes the information in the prior earnings announcement. As in our analysis of the consensus forecasts, the results are not sensitive to the choice of the date of this price.

The focus of most of our analyses is on the difference between the estimate of the analysts' expected rate of return and the estimate of the market expectation. This focus motivates our choice of the date on which we gather the price data. We note, however, that most of the literature determines expected rates of return implied by forecasts of earnings and prices that take these forecasts into account. The difference between the market expectation and the implied expected rate of return based on analysts' forecasts and these prices is arguably an estimate of the bias when these implied expected rates of return are used as estimates of the market expectation (as in most of the extant literature). We show that our conclusions are unchanged if we use prices after the analysts' forecast date instead of prices before these forecasts are made public. Hence, our conclusion regarding the difference between analysts' expectations and market expectations (arguably abnormal returns) also apply to the difference between market expectations and expected rates of return based on analysts' forecasts and prices that take these forecasts into account (arguably bias).

The residual income valuation model underlying regressions (4) and (5) describes the value of a stock at the fiscal period end-date. Our analyses are based on prices after this date. To accommodate this difference, we replace price (p_{jt}) in equations (4) and (5) with price at the dates described above discounted by the expected rate of return ($\hat{r}$) back to the fiscal year end (that is $p_{jt} \big/ (1+\hat{r})^{\tau/365}$, where τ is the number of days between the fiscal-year-end and the price-date). Since the discounting of price requires the expected rate of return we are attempting to

estimate in equations (4) and (5), we use an iterative method (as in Easton, Taylor, Shroff, and Sougiannis (2002)). We begin these iterations by assuming a discount rate for prices of 12 percent. We run each regression and obtain estimates of the expected rate of return which we then use as the new rate for discounting prices. We then re-run the regressions to re-estimate equation (4) and/or equation (5) and provide another estimate of expected return. This procedure is repeated until the expected return and the rate used in discounting price converge.[11]

3. Description of the data

All earnings forecast and recommendation data are obtained from the I/B/E/S unadjusted research databases. In our analyses based on consensus forecasts of earnings for year t+1, we use the first median forecast released 14 days or more after the announcement of earnings for year t. This forecast is released on the third Thursday of each month. These data are obtained from the I/B/E/S Summary database. "Actual" earnings are also obtained from this database. For some tests, the consensus recommendations are paired with the percentage of buy recommendations (recommendation code equals 1 or 2) in that month taken from the summary recommendations database.

In our analyses based on individual forecasts we use the first forecast of earnings for year t+1 (or the median forecast if there are multiple forecasts on that day) at least three days after the announcement of earnings for year t as long as it is less than 30 days after the earnings announcement date. These forecasts and the corresponding analyst recommendation codes are taken from the I/B/E/S detail database. Individual analysts' forecasts are paired with the most

[11] This iterative process is repeated until none of the annual estimates changes by more than 0.00001%. In our samples, the annual estimates usually converged in 5-6 iterations. This iterative procedure is not sensitive to choices of beginning discount rates between five and 20 percent.

recent recommendation by that analyst.[12] The first year of our analyses is 1993 in order to ensure the dates of the individual analysts' forecasts are reliable.[13]

Book value of common equity and common shares outstanding are obtained from the CRSP/COMPUSTAT annual merged database.[14] Prices are obtained from the CRSP daily price file.

We delete firms with non-December fiscal-year end so that the market implied discount rate and growth rate are estimated at the same point in time for each firm-year observation. For each set of tests, firms with any of the dependent or independent variables for that year in the top or bottom one percent of observations are removed to reduce the effects of outliers.

4. Results

We begin by documenting the accuracy (that is, the mean/median *absolute* earnings forecast error) and the bias (that is, the mean/median earnings forecast error) in the earnings forecasts for the entire sample of stocks. Second, we compare the estimate of the expected rate

[12] I/B/E/S uses a standard set of recommendation codes with values of 1≡Strong Buy, 2≡Buy, 3≡Hold, 4≡Under-perform and 5≡Sell.

[13] Zitzewitz [2002, p. 16] describes the importance of not relying on forecast dates in the I/B/E/S database prior to 1993 as follows:

> "I/B/E/S dates forecasts using the date it was entered into the I/B/E/S system. It has been well documented (e.g., by O'Brien, 1988) that the lags between a forecast becoming public and its entry into the I/B/E/S system were substantial in the 1980s (i.e., up to a month). In the 1980s, analysts mailed their forecasts, often in monthly batches, to I/B/E/S where they were hand entered into the system. Since 1991-92, however, almost all analysts have entered their forecasts directly into the I/B/E/S system on the day they wish to make their forecast widely available (Kutsoati and Bernhardt, 1999). Current practice for analysts is now usually to publicly release forecasts within 24 hours of providing them to clients. I/B/E/S analysts have real-time access to each other's forecasts through this system, so an analyst entering a forecast into the system on Wednesday knows about forecasts entered on Tuesday and could potentially revise her forecast to incorporate their information. An additional advantage of the post-92 data is the shift from retrospective data entry by a specialist to real-time data entry by either the analyst or her employee should have considerably reduced data-entry related measurement error."

[14] In order to ensure that the clean-surplus assumption required for the derivation of the residual income valuation model holds in the data for fiscal year t, contemporaneous book value in regression (5) – that is, b_{jt} – is calculated as Compustat book value of common equity minus Compustat net income plus I/B/E/S actual income. That is, we use the book value number that would have been reported if the (corresponding) income statement had been based on I/B/E/S actual earnings. This adjustment is unnecessary for the book value variable in regression (4) because the clean-surplus assumption only refers to future income statements and balance sheets.

of return implied by prices, book values, and analysts' forecasts of earnings with the estimate obtained from prices, book values, and actual current earnings. This comparison provides an indication of the abnormal returns implicit in the analysts' forecasts.

We repeat each of these analyses/comparisons for sub-samples of observations for which the consensus has varying degrees of "buy" recommendations – ranging from the sub-sample for which greater than 90 percent of the analysts recommend "buy" to the sub-sample for which less than or equal to 10 percent of the analysts recommend "buy".

Next, all analyses are repeated for sub-samples formed on the basis of analyst recommendation type (classified as "strong buy, buy, hold, under-perform, or sell"). The comparison of the estimates of the expected rate of return based on the forecasts with the estimates (for the same sample) based on actual current earnings provides evidence of the extent to which analysts are providing recommendations based on expected rates of return that differ from the market expectation.

Finally, we repeat the comparisons of each of the estimates of the expected rates of return for sub-samples of observations where we have different recommendations (by different analysts) for the same set of firm-year observations. Here we have a perfect match on all firm and risk characteristics since we compare two observations for the same firm-year where the pair of analysts have differing recommendations and may have differing expected abnormal returns.

4.1. Accuracy and bias in the analysts' forecasts of earnings

Table 1 summarizes the accuracy and the bias in the I/B/E/S consensus forecast of earnings for each of the years 1993 to 2003.

We use the mean (median) absolute forecast error as the measure of accuracy. The mean absolute forecast error ranges from \$0.429 in 1994 to \$1.340 in 2000 and the median absolute

forecast error ranges from $0.150 in 2002 to $0.300 in 2000. In order to give some indication of the scale of these errors, we also present the mean and the median absolute forecast error deflated by end-of-year price. The mean absolute price-deflated forecast error ranges from 0.020 in 2003 to 0.065 in 2000 and the median absolute price-deflated forecast error ranges from 0.009 in 1993 and 2003 to 0.019 in 2000.

We use the mean (median) forecast error as the measure of bias in the analysts' forecasts. The mean forecast error ranges from -$1.188 in 2000 to $0.094 in 2002 and the median forecast error ranges from -$0.220 in 2000 to -$0.010 in 2003. The mean price-deflated forecast error ranges from -0.049 in 2000 to -0.002 in 2003 and the median price-deflated forecast error ranges from -0.011 in 2000 to -0.001 in 2003. These predominantly negative forecast errors are consistent with the prior literature, which concludes that analysts' forecasts, particularly long-run forecasts, tend to be optimistic (see, for example, O'Brien (1993), Lin (1994), and Richardson, Teoh, and Wysocki (2001)).

4.2. Description of regression variables

The number of observations used to estimate the annual regressions ranges from 1,670 in 1993 to 2,317 in 1997. As shown in table 2, the mean price-to-book ratio, which is the independent variable in regression (4) ranges from 2.027 at the end of 2002 to 3.974 at the end of 1999 while the median price-to-book ratio ranges from 1.620 in 2002 to 2.418 in 1997. This regression is run with the forecasted return-on-equity based on the I/B/E/S consensus forecast as the dependent variable. The mean forecasted return-on-equity ranges from 0.067 in 2001 to 0.141 in 1994 and 1995 and the median forecasted return-on-equity ranges from 0.106 in 2001 to 0.143 in 1994.

The annual mean and median current return-on-equity (the dependent variable in regression (5)) is generally a little less than the corresponding mean and median forecasted return-on-equity. The mean current return-on-equity ranges from 0.055 in 2001 to 0.115 in 1994 and 1995 and the median current return-on-equity ranges from 0.095 in 2001 to 0.130 in 1995. The mean of the independent variable in this regression (the difference between price and current book value deflated by lagged book value) ranges from 1.074 in 2002 to 3.369 in 1999 and the median ranges from 0.653 in 2002 to 1.490 in 1997.

4.3. Comparison of implied expected rates of return based on I/B/E/S forecasts of earnings with implied expected rate of return based on current accounting data

In this section, we compare the estimates of the implied expected rates of return using the method in Easton, Taylor, Shroff, and Sougiannis (2002) using one-year ahead I/B/E/S consensus forecasts of earnings (regression (4)) with the estimates obtained from the method in O'Hanlon and Steele (2000) which is based on current earnings and current and lagged book value (regression (5)). The estimates based on analysts' forecasts include the analysts' estimate of both the normal and the abnormal expected rate of return while the estimates based on actual accounting data provide an indication of the market's expected rate of return. Arguably, the difference between the two estimates is the analysts' estimate of abnormal return that would accrue from investing in the stock and provides a basis for their stock recommendation.

4.3.1. The expected rate of return implied by analysts' earnings forecasts

The summary statistics from regression (4) where the dependent variable is I/B/E/S forecasted return-on-equity are included in table 3. We provide year-by-year estimates of the regression coefficients and t-statistics for tests of their difference from zero. Since these statistics may be over-stated due to the possibility of correlated residuals, we also present the mean coefficient estimates and the related Fama and MacBeth (1973) t-statistics. The regression

adjusted R^2 ranges from -0.04 percent in 2003 to 9.83 percent in 1993.[15] The mean estimate of the intercept coefficient $\gamma_{0,}$ which is an estimate of the implied growth in residual income beyond the one-year forecast horizon, is 0.084 (t-statistic of 9.14) and the mean estimate of the slope coefficient $\gamma_{1,}$ which is an estimate of the difference between the implied analysts' expected rate of return and the implied growth in residual income beyond the one-year forecast horizon, is 0.011 (t-statistic of 3.47).

The estimates of the implied expected rate of return obtained from the estimates of the regression (4) coefficients where the dependent variable is analysts' forecasts of return-on-equity, are also included in table 3. These estimates range from 4.69 percent in 2001 to 13.04 percent in 1999 with a mean (t-statistic) of 9.51 percent (12.53).[16]

4.3.2. Market expectations

The summary statistics from regression (5) are also included in table 3. The regression adjusted r-square ranges from 0.06 percent in 2003 to 22.15 percent in 1994.[17] The mean

[15] We note the very low r-square in some of these regressions. As a result we performed several analyses of the effects of outliers. When we remove the top and bottom three percent of observations (rather than the top and bottom one percent) the explanatory power of these regressions increases such that the range is from a low of 0.39 percent in 1999 to a high of 24.77 percent in 1994. When we perform more severe outlier removal – for example, removing the top and bottom 20 percent of observations or by eliminating all observations with an R-student statistic greater than 2 -- the regression r-square increases but none of our inferences based on the resulting estimates of the implied expected rate of return change. We also perform all analyses on the sub-set of observations for which analysts forecast positive earnings. Again we obtain much higher r-squares but inferences remain unchanged. These further analyses of outliers are also performed on all subsequent regressions and, in all cases, our inferences are unchanged. In order to provide an indication of the effect of the effect of outliers, we report relevant statistics for some relevant statistics throughout the paper. When we repeat regression (4) for the sub-sample of observations for which analysts forecast positive earnings, the explanatory power of these regressions increases such that the range is from a low of 16.60 percent in 1999 to a high of 47.16 percent in 2002.

[16] When we remove the top and bottom three percent of observations (rather than the top and bottom one percent) the estimates of the implied expected rates of return range from range from 5.62 percent in 2002 to 13.01 percent in 1999 with a mean (t-statistic) of 9.70 percent (14.56). When we repeat regression (4) for the sub-sample of observations for which analysts forecast positive earnings the estimates of the implied expected rates of return range from range from 9.62 percent in 2003 to 14.23 percent in 1999 with a mean (t-statistic) of 11.43 percent (26.29).

[17] When we remove the top and bottom three percent of observations (rather than the top and bottom one percent) the explanatory power of these regressions increases such that the range is from a low of 0.17 percent in 1999 to a high of 24.61 percent in 1994. For the sub-sample of observations for which analysts forecast positive earnings, the explanatory power of these regressions increases such that the range is from a low of 9.46 percent in 1999 to a high of 44.57 percent in 1994.

estimate of the intercept coefficient $\delta_{0,}$ which is an estimate of the implied market expected rate of return, is 0.062 (t-statistic of 8.47) and the mean estimate of the slope coefficient $\delta_{1,}$ which is a function of the market expected rate of return and the market expected growth in residual income, is 0.016 (t-statistic of 3.64). The estimates of the implied expected rate of return are also included in table 3. These estimates range from 2.02 percent in 2001 to 9.74 percent in 1999 with a mean (t-statistic) of 6.24 percent (8.47).[18]

4.3.3. The difference between the estimate of the implied analysts' expected rate of return and the estimate of the market expectation

Differences between the estimates of expected rate of return based on regressions (4) and (5) are included in the last column of table 3. On average, the difference between the estimate of the implied analysts' expected rate of return and the estimate of the market expectation is 3.27 percent (t-statistic of 14.63) but there are some years when it is quite large (for example, for the sample of stocks in 1994, the difference is 4.77 percent). These results are not surprising in view of the fact that analysts' are in the business of making stock recommendations and their recommendations tend to be "buy" rather than "sell".[19]

An implication of the observation that analysts tend to forecast higher rates of return is that caution should be taken when interpreting the meaning of the rate of return that is implied by

[18] When we remove the top and bottom three percent of observations (rather than the top and bottom one percent) the estimates of the implied expected rates of return range from range from 2.87 percent in 2002 to 9.73 percent in 1999 with a mean (t-statistic) of 6.85 percent (10.37). For the sub-sample of observations for which analysts forecast positive earnings, the estimates of the implied expected rates of return range from 8.07 percent in 1993 to 11.90 percent in 1999 with a mean (t-statistic) of 9.23 (22.28).

[19] These results are roughly consistent with the results in Table 1 which show that the ex post forecast error is generally negative. For example, we saw, in Table 1 that the mean deflated forecast error is -0.022. A crude PE valuation model which relies on full payout and earnings following a random walk suggests that the price-to-forward-earnings ratio is equal to the inverse of the expected rate of return. Thus a deflated forecast error of -0.022 implies an error in the expected rate of return of 2.2 percent. Allowing for the conservative nature of accounting (as in the models used in the ex ante indicators of optimism in table 3) leads to the conclusion that these estimates are at least "in the same ball-park".

analysts' earnings forecasts: if, as is often the case in the extant literature, it is used as an estimate of the cost of capital, it is likely upward biased.

4.3.4. Effects of altering timing of price measurement

As mentioned in section 2.3, in our primary analyses we use price measured after the release of the prior year earnings but before analysts' forecast revisions. Table 4 presents the same analysis performed in Table 3, but using prices measured at close of trade on the day after the consensus forecast is released. This price is at least 14 days (and could be a month and a half) after the price used in Table 3. We assume that this price reflects the information in the analysts' forecasts. Comparison of Tables 3 and 4 reveals that the measurement of price at differing points (and, therefore, differing periods for discounting of price back to fiscal year-end) has no statistically or economically significant effect. The primary result from table 3 of an average 3.27 percent difference between the analysts' and market's expected rate of return is virtually unchanged at 3.30 when price is measured at the day after the consensus forecast is measured.[20]

4.4. Variation in the implied expected rate of return with changes in the percentage of analysts making "buy" recommendations

4.4.1. Sample description

I/B/E/S provides data on the percentage of analysts whose forecasts comprise the consensus who also make either a "strong buy" or a "buy" recommendation. We repeat the analyses in section 4.3 for sub-samples with various percentages of these types of forecasts. Descriptive statistics are provided in table 5, panel A. The choice of the six partitions of the data

[20] The results are virtually identical if we use prices taken from any date ranging from one day after the earnings announcement date to one day after the forecast announcement date (the set of *s* price-dates shown in Figure 1).

was based on a desire to maintain a sufficient number of observations to provide reasonable confidence in the regression output in each year.[21]

The mean and median forecast error is always negative (that is, analysts are optimistic) regardless of the percentage of buy recommendations in the consensus. For example, the median deflated forecast error when the percentage of buy recommendations is greater than 90 percent is -0.006 and it is -0.007 when the percentage of buy recommendations is less than 10 percent.

Both the return-on-equity and the price-to-book ratio tend to be higher for the observations where there are more "buy" recommendations comprising the consensus. For example, the median forecasted return-on-equity for the sub-samples where greater than 90 percent of the analysts recommend buy and where between 70 and 90 percent recommend buy is 0.136 and 0.157 while median forecasted return-on-equity for the sub-samples where less than 10 percent of the analysts recommend buy is 0.094; the price-to-book ratio for the sub-samples where greater that 90 percent of the analysts recommend buy and where between 70 and 90 percent recommend buy is 2.231 and 2.616 while median price-to-book ratio for the sub-samples where less than 10 percent of the analysts recommend buy is 1.447.

4.4.2. Estimates of implied expected rates of return

The results from the estimation of regression (4) based on price, I/B/E/S forecasts of earnings, and current book value and from the estimation of regression (5) based on price and accounting data and are summarized in table 5, panel B. We focus our discussion on the estimates of the implied expected rates of return obtained from these regression parameters. These estimates are included as table 5, panel C.

[21] A high and/or a low percentage of analysts making a buy recommendation may reflect the number of analysts comprising the consensus. For example, if the consensus is based on the forecast of just one analyst, that consensus must be either in the $90\% < \% \leq 100\%$ or the $0\ \% \leq \% < 10\%$ category. In order to determine whether the results are driven by consenses with a relatively low number of analysts, we repeat all analyses after we have removed all consenses with just one forecast. The results are virtually unchanged.

The estimates of the expected rates of return implied by I/B/E/S analysts' forecasts decline monotonically with the percentage of buy recommendations associated with the forecasts of earnings comprising the consensus (the means of these estimates are 10.96 percent, 10.78 percent, 9.58 percent, 8.55 percent, 6.49 percent, and 6.37 percent) suggesting that analysts' recommendations are, indeed, consistent with their expectations of rates of return. The estimates of the market expected rates of return based on prices and current accounting data show a pattern that is very similar to that of those based on analysts' forecasts: the mean estimates of the expected rate of return for each of the groups of data also decline nearly monotonically (the means of these estimates are 6.58 percent, 8.77 percent, 6.69 percent, 5.89 percent, 3.88 percent, and 1.18 percent).

Differences between the estimates of expected rate of return based on percentage of buy recommendations are included in table 5, panel D. Comparing the expected rates of return based on prices and current accounting data with the estimates based on analysts' forecasts reveals that even the analysts who tend not to recommend buy tend to be estimating a rate of return that is higher than market expectations (these mean differences between the estimates based on analysts' forecasts and estimates market expectations are 4.38 percent, 2.01 percent, 2.89 percent, 2.66 percent, 2.62 percent, and 5.19 percent). All of these differences are significant. This pervasive optimism about the expected return measured by comparing analysts' expectations with market expectations at the time the expectations are formed are, interestingly quite similar to the optimism observed by comparing expectations of future earnings with actual realizations of earnings (see table 5, Panel A).

To summarize the analyses in this section; we observe that analysts' recommendations are consistent with their expectations of returns (that is, there is a monotonic decrease in

expected rate of return as the percentage of buy recommendations declines) and that analysts' expected rate of return is higher than market expectations regardless of their recommendation. In other words, analysts are always more optimistic than the market even when they are not issuing buy recommendations.[22]

4.5. Variation in the implied expected rate of return across individual analyst's recommendations

4.5.1. Sample description

In this section, we repeat the analyses in sections 4.3 and 4.4 for sub-samples of the stocks formed on the basis of the type of recommendation by an individual analyst. The I/B/E/S codes, 1 though 5 represent the type of analysts recommendation: 1 ≡ "strong buy", 2 ≡ "buy", 3 ≡ "hold", 4 ≡ "under-perform", and 5 ≡ "sell". The relative frequency of each of these recommendation types is evident from table 6, panel A.[23] Analysts rarely issue "under-perform" or "sell" recommendations – in our sample, the average number firms with "under-perform" and "sell" recommendations issued within 30 days of the earnings announcement per year is 66.64 and 43.64 while the average number of "strong buy", "buy", and "hold" recommendations is 532.27, 596.18, and 630.18. In light of the relatively low number of observations in the "under-perform" and "sell" categories, we only analyze the "strong buy", "buy", and "hold" categories.

We provide some descriptive statistics for each of the recommendation sub-samples in table 6, panel B. Focusing on the medians rather than the means, there appears to be little difference in the accuracy of the forecasts (that is, the median absolute forecast error) or in the bias of the forecasts (that is, the median forecast error). Interestingly, the estimates of the return-

[22] This result is consistent with Barber, Lehavy, McNicholls, and Trueman (2001) who show that analysts' recommendations (in their case, those summarized in the Zach's database) can not be used to form profitable trading strategies.

[23] The relative frequencies of recommendation types in our sample are consistent with those observed by Bradshaw (2004) in the First Call database during 1994-1998.

on-equity decline as the recommendation varies from "strong buy" to "hold" (for example, the median forecasted earnings-to-book value ratio is 0.152 for the "strong buy" sub-sample, 0.146 for the "buy" sub-sample, and 0.134 for the "hold" sub-sample). As with the partitions based on the percentage of buy recommendations described in section 4.4.1, the price-to-book ratio also declines as the recommendation varies from "strong buy" to "hold" (the median price-to-book ratio is 2.454 for the "strong buy" sub-sample, 2.349 for the "buy" sub-sample, and 2.051 for the "hold" sub-sample).

4.5.2. Estimates of the implied analysts' expected rate of return

The results from the estimation of regression (4) based on price, I/B/E/S forecasts of earnings, and current book value and from the estimation of regression (5) based on price and accounting data are summarized in table 6, panel C. We focus our discussion of the estimates of the implied expected rates of return obtained from these regression parameters. These estimates are included as table 6, panel D.

The estimates of the expected rates of return implied by I/B/E/S analysts' forecasts of earnings are very similar when the forecasts are accompanied by a "strong buy" or a "buy" recommendation (the overall mean estimate when the recommendation is "strong buy" is 11.03 percent and the overall mean estimate when the recommendation is "buy" is 10.36 percent). However, when the earnings forecasts are accompanied by a "hold" recommendation, the implied estimate of the expected rate of return is much lower (the overall mean estimate is 8.81 percent and is lower than the estimates for the "strong buy" and "buy" sub-samples in every year).

The estimates of the expected rates of return based on prices and current accounting data (also included in table 6, panel D) show a pattern that is very similar to that of those based on

analysts' forecasts: the mean estimates of the expected rate of return are 8.73 percent for the "strong buy" sub-sample, 8.16 percent for the "buy" sub-sample, and 6.85 percent for the "hold" sub-sample.

The mean differences in the estimates of analysts' expected rates of return and the estimates of the market expectation and the related Fama and MacBeth (1973) t-statistics are included in table 6, panel E. Differences across the recommendation types are also included in this panel. For both methods of estimating the expected rate of return, the expected rate of return for the "strong buy" and "buy" sub-samples are significantly higher than the expected rate of return for the "hold" sub-sample. All estimates of the difference between market expectations and the corresponding analysts' estimate of the expected rate of return are significantly positive – in other words, analysts are consistently forecasting a rate of return that is statistically significantly higher than the estimate of the market expectations.

Of course, we would expect recommendations to implicitly take account of risk differences across the stocks. We now examine this point directly using samples of observations where there are different recommendation types for the same set of firm-year observations.

4.6. Comparison of matched-samples – implicitly a control for risk

In table 7, we report the results where we repeat the analyses for sub-samples where we have either (1) firm-year observations with different analysts making a "strong buy" recommendation and a "buy" recommendation, (2) firm-year observations with both a "buy" and a "hold" recommendation, or (3) firm-year observations with both a "strong buy" and a "hold" recommendation.[24] Here we are able to use the firm as its own match and only alter the

[24] In the analyses that follow, we use the price measured one day after the earnings announcement. Results are virtually unchanged when we instead use prices measured the day after the forecast. Note that in the following "matched" analyses use of prices measured the day after the forecast requires differing price-dates for the two forecasts by different analysts. Changing this price-date does not, however, change our inferences.

recommendation and the related forecast of earnings. Since the same firm-years are used in all estimates of the implied expected rates of return, any observed differences can not represent differences in risk or any other factor that may affect the estimates of the expected rate of return. This potentially limits the generalization of the results but provides a perfect control within the sample.

Table 7, panel A provides some descriptive statistics for the sub-samples while panel B is a summary of the regression outputs. We will focus our discussion on the estimates of the implied expected rate of return provided in table 7, panel C. The mean estimates of the expected rate of return implied by forecasts accompanied by a "strong buy" recommendation are higher than the mean estimates implied by forecasts that are accompanied by a "buy" recommendation in every year: the overall mean of the estimates when the forecasts are accompanied by a "strong buy" recommendation is 11.65 percent and the overall mean when the forecasts are accompanied by a "buy" recommendation is 11.42 percent. The results for the comparisons of the estimates of the expected rate of return when the forecasts are accompanied by a "buy" recommendation and the estimates when the forecasts are accompanied by a "hold" recommendation are similar as are the results from the comparison of the estimates when the forecasts are accompanied by "strong buy" recommendations and the estimates that are accompanied by "hold" recommendations.

Again, the comparison of the estimates of the expected rates of return based on analysts' forecasts and market expectations provides an estimate of the analysts' expectation of abnormal return. The results in panel D of table 7 report the differences in expected rate of return between recommendations. Analysts recommending a "strong buy" rather than "buy" expect an additional 0.23 percent abnormal return (t-statistic of 1.39). Similarly, a "buy" recommendation

implies a 0.39 percent abnormal return over a "hold" recommendation (t-statistic of 2.98). The combination of these two differences (0.62 percent) nearly equals the 0.50 percent difference in expected return between analysts recommending "strong buy" versus those "hold" (t-statistic of 6.30). Since these comparisons are within the same firm-year observations, the observed differences are attributable solely to the differing views of analysts and are reflected in their recommendations.

5. Summary and conclusions

We show that, on average, the estimate of the difference between the estimate of the implied analysts' expected rate of return and the estimate of the market expectation is 3.27 percent and there are some years when it is quite large (for example, for the sample of stocks in 1994, the estimate of the difference is 4.77 percent). An implication of the observation that analysts tend to forecast rates of return that are higher than market expectations is that caution should be taken when interpreting the meaning of the rate of return that is implied by analysts' earnings forecasts: it may not be, as the literature generally claims, an estimate of the cost of capital.

Results from sub-samples formed on the basis of recommendation type show that across the analysts' recommendation range from "strong buy" to "sell", the estimate of the expected rate of return declines. Nevertheless, a comparison of the estimates of the expected rate of return based on the analysts' forecasts with market expectations suggests analysts tend to be more optimistic than the market even when they are not making "buy" recommendations. That is, analysts recommend "buy" when they expect the future return to be high and "hold" when they expect the return to be low, regardless of market expectation.

Figure 1: Alignment of Price-Dates, Earnings Announcement Dates, and Analysts' Forecast-Dates

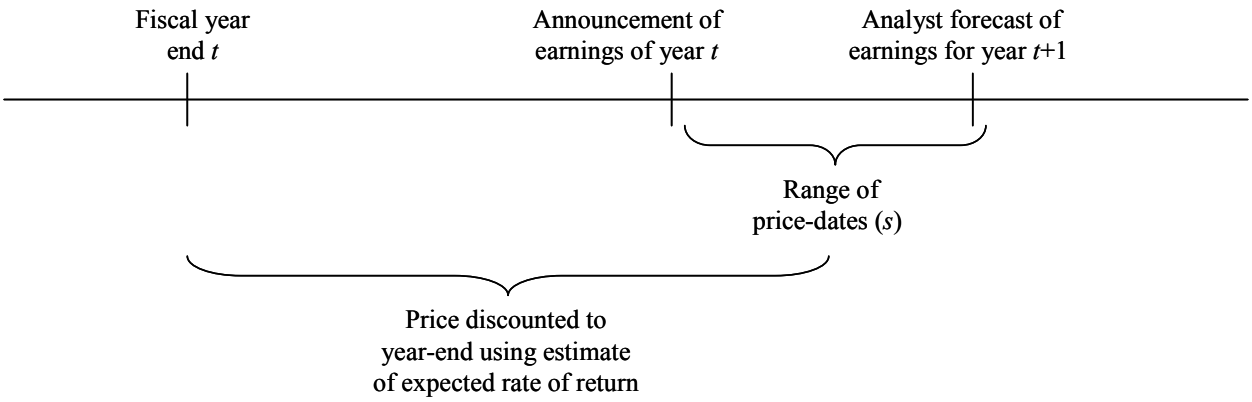

Table 1: Descriptive statistics on forecast errors for the consensus sample

		Accuracy of forecasts				Bias in forecasts			
		$\lvert FE_{jt+1} \rvert$		$\lvert FE_{jt+1} \rvert / p_{jt}$		FE_{jt+1}		FE_{jt+1} / p_{jt}	
Year	N	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1993	1,670	0.465	0.190	0.029	0.009	-0.234	-0.065	-0.020	-0.003
1994	1,927	0.429	0.220	0.034	0.012	-0.207	-0.080	-0.020	-0.004
1995	2,107	0.457	0.210	0.032	0.011	-0.266	-0.080	-0.022	-0.004
1996	2,205	0.518	0.220	0.029	0.011	-0.203	-0.100	-0.019	-0.005
1997	2,317	0.604	0.280	0.034	0.014	-0.373	-0.200	-0.026	-0.009
1998	2,237	0.692	0.210	0.043	0.012	-0.485	-0.070	-0.024	-0.004
1999	2,041	0.649	0.230	0.047	0.013	-0.387	-0.080	-0.029	-0.004
2000	1,948	1.340	0.300	0.065	0.019	-1.188	-0.220	-0.049	-0.011
2001	2,002	0.678	0.190	0.036	0.011	0.035	-0.050	-0.019	-0.002
2002	2,046	0.548	0.150	0.038	0.011	0.094	-0.030	-0.016	-0.002
2003	2,194	0.624	0.170	0.020	0.009	-0.231	-0.010	-0.002	-0.001
Means	2,063.09	0.637	0.215	0.037	0.012	-0.313	-0.090	-0.022	-0.005

Notes to Table 1:

FE_{jt+1} is actual earnings per share for year t+1 as reported by I/B/E/S less the first median consensus forecast of earnings per share for year t+1 released at least 14 days after the announcement of year t earnings

p_{jt} is price per share as of the end of fiscal year t

Table 2: Descriptive Statistics on forecast errors for the consensus sample

		$\frac{eps_{jt+1}^{Cons}}{bps_{jt}}$		$\frac{eps_{jt}}{bps_{jt-1}}$		$\frac{p'_{jt}}{bps_{jt}}$		$\frac{p'_{jt} - bps^{*}_{jt}}{bps_{jt-1}}$	
		Equation (4) dependent variable		*Equation (5) dependent variable*		*Equation (4) independent variable*		*Equation (5) independent variable*	
Year	N	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1993	1,670	0.134	0.137	0.106	0.120	2.487	1.949	1.613	1.008
1994	1,927	0.141	0.143	0.115	0.124	2.199	1.717	1.429	0.828
1995	2,107	0.141	0.141	0.115	0.130	2.583	1.918	1.849	1.068
1996	2,205	0.130	0.138	0.098	0.123	2.793	2.115	2.006	1.224
1997	2,317	0.116	0.139	0.092	0.123	3.153	2.418	2.266	1.490
1998	2,237	0.106	0.133	0.085	0.112	2.901	1.973	1.961	0.951
1999	2,041	0.106	0.138	0.075	0.121	3.974	1.929	3.369	1.058
2000	1,948	0.099	0.132	0.081	0.123	2.937	1.962	2.202	1.089
2001	2,002	0.067	0.106	0.055	0.095	2.586	1.927	1.649	0.979
2002	2,046	0.079	0.113	0.066	0.096	2.027	1.620	1.074	0.653
2003	2,194	0.093	0.119	0.072	0.107	3.115	2.341	2.513	1.464
Means	2,063.09	0.110	0.131	0.087	0.116	2.796	1.988	1.994	1.074

Notes to Table 2:

eps_{jt+1}^{Cons} is the first median consensus forecast of earnings per share for firm *j* for year *t*+1 released at least 14 days after the announcement of year *t* earnings

eps_{jt} is the I/B/E/S actual earnings per share for firm *j* for year *t*

bps_{jt} is common book value of equity per share for firm *j* at time *t*

$p'_{jt} = \frac{p_{j\tau}^{*}}{(1+\hat{r})^{\tau/365}}$ is the price per share for firm *j* at time τ (one day after the earnings announcement date), p^{*}_{jt}, adjusted for stock splits and stock dividends since the end of the fiscal year, discounted to year end using the estimated discount rate

bps^{*}_{jt} is the common book value of equity per share for firm *j* at time *t* less net income for firm *j* for year *t* plus I/B/E/S actual earnings per share for firm *j* for year *t*

Table 3: Comparison of implied expected rates of return based on I/B/E/S forecasts of earnings with implied expected rate of return based on current accounting data

$$\frac{eps_{jt+1}^{Cons}}{bps_{jt}} = \gamma_0 + \gamma_1 \frac{p'_{jt}}{bps_{jt}} + \mu_{jt} \quad (4)$$

$$\frac{eps_{jt}}{bps_{jt-1}} = \delta_0 + \delta_1 \frac{p'_{jt} - bps^{*}_{jt}}{bps_{jt-1}} + \zeta_{jt} \quad (5)$$

		Analysts' consensus earnings forecasts				Current accounting data				Difference in expected rate of return
Year	N	γ_0	γ_1	Adj R^2	$\hat{r} = \gamma_0 + \gamma_1$	δ_0	δ_1	Adj R^2	$\hat{r} = \delta_0$	
1993	1,670	0.076	0.023	9.83%	9.95%	0.063	0.026	11.66%	6.31%	3.64%
		(14.79)	(13.52)			(14.76)	(14.88)			
1994	1,927	0.082	0.027	9.08%	10.89%	0.061	0.038	22.15%	6.12%	4.77%
		(16.14)	(13.90)			(16.53)	(23.43)			
1995	2,107	0.110	0.012	2.99%	12.21%	0.091	0.013	3.66%	9.06%	3.15%
		(23.02)	(8.12)			(19.84)	(8.99)			
1996	2,205	0.096	0.012	2.91%	10.82%	0.078	0.010	1.74%	7.84%	2.98%
		(18.52)	(8.19)			(15.73)	(6.33)			
1997	2,317	0.090	0.009	1.26%	9.81%	0.058	0.015	4.33%	5.78%	4.03%
		(14.45)	(5.52)			(11.38)	(10.29)			
1998	2,237	0.086	0.007	0.78%	9.31%	0.060	0.013	4.42%	5.95%	3.36%
		(13.37)	(4.31)			(12.93)	(10.22)			
1999	2,041	0.139	-0.008	4.73%	13.04%	0.097	-0.007	3.95%	9.74%	3.30%
		(23.79)	(-10.11)			(17.55)	(-9.22)			
2000	1,948	0.087	0.004	0.31%	9.15%	0.071	0.004	0.36%	7.13%	2.02%
		(13.31)	(2.67)			(11.46)	(2.83)			
2001	2,002	0.035	0.012	1.73%	4.69%	0.020	0.021	6.27%	2.02%	2.67%
		(5.10)	(6.01)			(4.01)	(11.61)			
2002	2,046	0.031	0.024	3.33%	5.48%	0.020	0.042	16.40%	2.03%	3.45%
		(4.26)	(8.45)			(4.73)	(20.05)			
2003	2,194	0.092	0.001	-0.04%	9.22%	0.066	0.002	0.06%	6.63%	2.59%
		(13.58)	(0.32)			(10.67)	(1.48)			
Means	2,063.09	0.084	0.011	3.35%	9.51%	0.062	0.016	6.82%	6.24%	3.27%
t-Statistics		(9.14)	(3.47)		(12.53)	(8.47)	(3.64)		(8.47)	(14.63)

Table 3: Continued

Notes to Table 3:

The table reports the results of estimating regression (4) using I/B/E/S consensus forecasts and regression (5) using current accounting data cross-sectionally using all available observations. Observations with any of the dependent or independent variables in the top and bottom one percent observations are removed to reduce the effects of outliers. The variables are as defined in the notes to Tables 1 and 2. Summary means across the annual regressions and the related Fama and MacBeth (1973) t-statistics are provided. The last column contains the difference between estimates of expected return from the estimation of regression (4) using I/B/E/S consensus forecasts and regression (5) using current accounting data.

Table 4: Comparison of implied expected rates of return based on I/B/E/S forecasts of earnings with implied expected rate of return based on current accounting data using prices measured the day after the consensus forecast

$$\frac{eps_{jt+1}^{Cons}}{bps_{jt}} = \gamma_0 + \gamma_1 \frac{p'_{jt}}{bps_{jt}} + \mu_{jt} \quad (4)$$

$$\frac{eps_{jt}}{bps_{jt-1}} = \delta_0 + \delta_1 \frac{p'_{jt} - bps^{*}_{jt}}{bps_{jt-1}} + \zeta_{jt} \quad (5)$$

		Analysts' consensus earnings forecasts				Current accounting data				Difference in expected rate of return
Year	N	γ_0	γ_1	Adj R^2	$\hat{r} = \gamma_0 + \gamma_1$	δ_0	δ_1	Adj R^2	$\hat{r} = \delta_0$	
1993	1,672	0.080	0.022	8.96%	10.18%	0.063	0.026	11.20%	6.34%	3.84%
		(15.75)	(12.86)			(14.75)	(14.55)			
1994	1,928	0.089	0.023	7.51%	11.14%	0.063	0.034	19.96%	6.33%	4.81%
		(17.70)	(12.55)			(16.79)	(21.94)			
1995	2,106	0.108	0.012	3.53%	12.02%	0.089	0.014	4.38%	8.87%	3.15%
		(22.96)	(8.83)			(19.54)	(9.86)			
1996	2,206	0.088	0.015	4.30%	10.33%	0.070	0.015	3.46%	7.02%	3.31%
		(16.76)	(10.01)			(14.06)	(8.94)			
1997	2,313	0.088	0.009	1.44%	9.64%	0.058	0.015	4.43%	5.78%	3.86%
		(14.20)	(5.89)			(11.40)	(10.40)			
1998	2,233	0.092	0.006	0.46%	9.73%	0.064	0.012	3.39%	6.37%	3.36%
		(14.44)	(3.36)			(13.98)	(8.91)			
1999	2,038	0.138	-0.008	4.66%	13.00%	0.095	-0.006	3.52%	9.53%	3.47%
		(23.68)	(-10.03)			(16.98)	(-8.68)			
2000	1,945	0.072	0.010	1.72%	8.24%	0.059	0.012	2.42%	5.86%	2.38%
		(10.89)	(5.91)			(9.57)	(7.02)			
2001	2,002	0.020	0.018	3.88%	3.79%	0.016	0.023	7.83%	1.55%	2.24%
		(2.91)	(9.04)			(3.11)	(13.08)			
2002	2,042	0.042	0.018	2.19%	6.00%	0.024	0.037	15.26%	2.42%	3.58%
		(5.86)	(6.83)			(5.64)	(19.20)			
2003	2,192	0.088	0.002	0.00%	8.95%	0.067	0.002	0.04%	6.65%	2.30%
		(12.85)	(1.04)			(10.64)	(1.37)			
Means	2,061.55	0.082	0.011	3.51%	9.37%	0.061	0.017	6.90%	6.07%	3.30%
t-Statistics		(8.75)	(4.09)		(11.82)	(8.57)	(4.27)		(8.57)	(14.14)

Table 4: Continued

Notes to Table 4:

The table repeats the analysis performed in Table 3 using an alternative definition of price. Instead of measuring price at trade close the day after the earnings announcement, price is measured at trade close the day following the consensus forecast. This results in a price variable measured 14 days to a month and a half later. All other variables remain unchanged.

Table 5: Variation in the implied expected rate of return with changes in the percentage of analysts' making "buy" recommendation

Panel A: Descriptive statistics by percent of buy recommendations

	90 ≤ % Buy ≤ 100		70 ≤ % Buy ≤ 90		50 ≤ % Buy < 70		30 ≤ % Buy < 50		10 ≤ % Buy < 30		0 ≤ % Buy < 10	
	Mean	Mean	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
$\lvert FE_{jt+1}\rvert$	0.618	0.213	0.835	0.225	0.482	0.216	0.658	0.247	0.564	0.223	0.708	0.214
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.037	0.013	0.020	0.009	0.031	0.011	0.039	0.012	0.044	0.013	0.075	0.020
FE_{jt+1}	-0.068	-0.103	-0.637	-0.104	-0.262	-0.092	-0.409	-0.105	-0.309	-0.085	-0.398	-0.079
FE_{jt+1}/p_{jt}	-0.023	-0.006	-0.011	-0.004	-0.019	-0.004	-0.027	-0.005	-0.029	-0.005	-0.042	-0.007
$eps_{jt+1}^{Cons} / bps_{jt}$	0.089	0.136	0.152	0.157	0.133	0.138	0.117	0.124	0.103	0.112	0.056	0.094
eps_{jt} / bps_{jt-1}	0.068	0.121	0.140	0.146	0.111	0.124	0.103	0.113	0.084	0.103	0.016	0.069
p'_{jt} / bps_{jt}	3.297	2.231	3.560	2.616	2.691	2.058	2.350	1.838	2.477	1.686	1.899	1.447
$\left(p'_{jt} - bps^{*}_{jt}\right) / bps_{jt-1}$	2.699	1.386	3.024	1.849	1.854	1.148	1.429	0.901	1.280	0.760	0.777	0.431
# of observations	556.64		288.36		465.55		236.18		159.09		241.64	

Table 5: Continued

Panel B: Summary of results of estimation by percent of buy recommendations

$$\frac{eps_{jt+1}^{Cons}}{bps_{jt}} = \gamma_0 + \gamma_1 \frac{p'_{jt}}{bps_{jt}} + \mu_{jt} \quad (4)$$

$$\frac{eps_{jt}}{bps_{jt-1}} = \delta_0 + \delta_1 \frac{p'_{jt} - bps^*_{jt}}{bps_{jt-1}} + \zeta_{jt} \quad (5)$$

		Analysts' consensus earnings forecasts			Current accounting data		
Recommendation	N	γ_0	γ_1	Adj R^2	δ_0	δ_1	Adj R^2
90 ≤ % Buy ≤ 100	556.64	0.118	-0.009	3.39%	0.066	0.004	5.37%
		(12.44)	(-1.64)		(7.24)	(0.82)	
70 ≤ % Buy ≤ 90	288.36	0.088	0.020	11.68%	0.088	0.019	17.35%
		(6.14)	(5.42)		(7.15)	(4.94)	
50 ≤ % Buy < 70	465.55	0.073	0.023	13.86%	0.067	0.026	15.05%
		(8.52)	(9.47)		(9.74)	(7.64)	
30 ≤ % Buy < 50	236.18	0.061	0.025	22.19%	0.059	0.032	19.18%
		(3.47)	(3.10)		(7.84)	(9.27)	
10 ≤ % Buy < 30	159.09	0.039	0.026	23.08%	0.039	0.037	21.41%
		(3.25)	(5.39)		(4.28)	(8.92)	
0 ≤ % Buy < 10	241.64	0.075	-0.011	6.16%	0.012	0.017	6.22%
		(4.64)	(-1.09)		(1.25)	(1.56)	

Table 5: Continued

Panel C: Estimates of expected rate of return

	Analysts' expected rate of return						Market expectation					
Year	90 ≤ % ≤ 100	70 ≤ % ≤ 90	50 ≤ % < 70	30 ≤ % < 50	10 ≤ % < 30	0 ≤ % < 10	90 ≤ % ≤ 100	70 ≤ % ≤ 90	50 ≤ % < 70	30 ≤ % < 50	10 ≤ % < 30	0 ≤ % < 10
1993	11.22%	11.75%	11.22%	8.57%	8.08%	8.25%	7.54%	9.97%	8.49%	6.27%	6.40%	1.38%
1994	10.23%	12.55%	12.68%	9.46%	9.22%	8.65%	5.14%	8.51%	7.85%	5.51%	5.77%	2.59%
1995	15.86%	11.74%	11.47%	11.00%	9.27%	10.52%	9.17%	12.38%	8.84%	9.62%	7.42%	2.96%
1996	12.34%	12.40%	10.69%	8.14%	9.41%	8.32%	9.22%	8.38%	8.66%	7.66%	6.21%	3.01%
1997	11.13%	12.24%	9.27%	9.16%	5.43%	3.38%	3.73%	10.77%	6.47%	6.29%	3.15%	-1.02%
1998	11.51%	13.52%	7.92%	9.88%	6.72%	6.42%	5.34%	11.08%	6.73%	8.25%	4.35%	-3.51%
1999	12.26%	15.99%	11.96%	16.86%	9.89%	6.29%	10.87%	13.31%	8.17%	7.44%	5.42%	2.21%
2000	8.61%	12.23%	8.01%	6.05%	-1.93%	7.65%	9.45%	11.97%	6.98%	4.06%	1.72%	2.15%
2001	5.86%	2.49%	4.47%	2.57%	2.72%	3.49%	2.67%	1.84%	1.66%	0.57%	-3.06%	-1.90%
2002	10.66%	7.68%	7.49%	5.05%	6.82%	0.53%	1.90%	7.30%	3.37%	3.68%	1.33%	-2.33%
2003	10.85%	5.95%	10.23%	7.31%	5.79%	6.52%	7.32%	0.98%	6.37%	5.48%	3.95%	7.43%
Means	10.96%	10.78%	9.58%	8.55%	6.49%	6.37%	6.58%	8.77%	6.69%	5.89%	3.88%	1.18%
t-Statistics	(14.82)	(9.29)	(13.08)	(7.74)	(6.10)	(7.34)	(7.24)	(7.15)	(9.74)	(7.84)	(4.28)	(1.25)

Table 5: Continued

Panel D: Differences in (t-statistics for) estimates of expected rate of return

		Analysts' expected rate of return						**Market expectation**				
		90 ≤ % ≤ 100	70 ≤ % ≤ 90	50 ≤ % < 70	30 ≤ % < 50	10 ≤ % < 30	0 ≤ % < 10	90 ≤ % ≤ 100	70 ≤ % ≤ 90	50 ≤ % < 70	30 ≤ % < 50	10 ≤ % < 30
Analysts' expected rate of return	70 ≤ % ≤ 90	0.18% (0.19)										
	50 ≤ % < 70	1.37% (2.39)	1.19% (1.37)									
	30 ≤ % < 50	2.41% (2.93)	2.23% (3.17)	1.03% (1.37)								
	10 ≤ % < 30	4.46% (5.76)	4.28% (3.46)	3.09% (3.99)	2.06% (2.16)							
	0 ≤ % < 10	4.59% (5.61)	4.41% (4.09)	3.22% (4.77)	2.18% (2.01)	0.13% (0.11)						
Market expectation	90 ≤ % ≤ 100	4.38% (5.21)										
	70 ≤ % ≤ 90		2.01% (3.69)					-2.20% (-1.95)				
	50 ≤ % < 70			2.89% (8.04)				-0.11% (-0.20)	2.08% (2.17)			
	30 ≤ % < 50				2.66% (3.65)			0.68% (0.88)	2.88% (3.02)	0.80% (1.94)		
	10 ≤ % < 30					2.62% (3.42)		2.70% (3.41)	4.89% (4.59)	2.81% (7.88)	2.02% (4.98)	
	0 ≤ % < 10						5.19% (6.23)	5.40% (6.82)	7.59% (4.51)	5.51% (6.60)	4.72% (4.47)	2.70% (2.81)

Table 5: Continued

Notes to Table 5:

Using the median consensus analysts' forecast and the percent of buy recommendations from the summary I/B/E/S database, we estimate expected rate of return by percentage of buy recommendations. Panel A reports descriptive statistics by percentage of buy recommendations. The variables are as defined in the notes to Tables 1 and 2. Panel B reports the results of estimating regression (4) using I/B/E/S consensus forecasts and regression (5) using current accounting data cross-sectionally using all available observations of that percentage of buy recommendations. Within the percentage of buy recommendations, observations with any of the dependent or independent variables in the top and bottom one percent observations are removed to reduce the effects of outliers. The reported numbers are the summary means across the annual regressions and the related Fama and Macbeth (1973) t-statistics. Panel C reports the annual estimates of expected rate of return for each of the methods in Panel B by percentage of buy recommendations. Panel D reports summary means of the differences in estimates across the annual regressions and the related Fama and Macbeth (1973) t-statistics.

Table 6: Variation in the implied expected rate of return across analyst recommendations

Panel A: Frequency of each of recommendation type

	Recommendation				
Year	1 ≡ Strong Buy	2 ≡Buy	3 ≡Hold	4 ≡Under-perform	5 ≡Sell
1993	477	535	622	66	83
1994	548	612	649	50	48
1995	532	595	677	61	52
1996	619	614	631	48	39
1997	618	722	648	40	41
1998	589	696	615	30	29
1999	573	591	474	11	12
2000	491	560	467	8	15
2001	473	597	582	29	15
2002	449	531	748	200	82
2003	486	505	819	190	64
Means	532.27	596.18	630.18	66.64	43.64
Medians	532	595	631	48	41

Panel B: Descriptive statistics by recommendation type

	1 ≡Strong Buy		2 ≡Buy		3 ≡Hold	
	Mean	Median	Mean	Median	Mean	Median
$\lvert FE_{jt+1}\rvert$	0.528	0.237	0.670	0.241	0.600	0.248
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.023	0.010	0.023	0.010	0.029	0.011
FE_{jt+1}	-0.287	-0.097	-0.236	-0.097	-0.310	-0.089
FE_{jt+1}/p_{jt}	-0.012	-0.004	-0.011	-0.004	-0.014	-0.003
$eps^{Det}_{jt+1}/bps_{jt}$	0.141	0.152	0.139	0.146	0.129	0.134
eps_{jt}/bps_{jt-1}	0.125	0.137	0.123	0.134	0.117	0.125
p'_{jt}/bps_{jt}	3.321	2.454	3.196	2.349	2.734	2.051
$\left(p'_{jt} - bps^{*}_{jt}\right)/bps_{jt-1}$	2.671	1.611	2.470	1.478	1.880	1.123
# of observations	532.27		596.18		630.18	

Table 6: Continued

Panel C: Summary of results of estimation by recommendation type

$$\frac{eps^{Det}_{jt+1}}{bps_{jt}} = \gamma_0 + \gamma_1 \frac{p'_{jt}}{bps_{jt}} + \mu_{jt} \quad (4)$$

$$\frac{eps_{jt}}{bps_{jt-1}} = \delta_0 + \delta_1 \frac{p'_{jt} - bps^{*}_{jt}}{bps_{jt-1}} + \zeta_{jt} \quad (5)$$

		Analysts' detail earnings forecasts			Current accounting data		
Recommendation	N	γ_0	γ_1	Adj R^2	δ_0	δ_1	Adj R^2
1 ≡Strong Buy	532.27	0.095	0.015	7.93%	0.087	0.017	10.97%
		(12.53)	(5.34)		(11.02)	(5.30)	
2 ≡Buy	596.18	0.086	0.017	10.46%	0.082	0.019	11.99%
		(12.88)	(5.86)		(11.96)	(5.95)	
3 ≡Hold	630.18	0.063	0.025	17.13%	0.068	0.028	19.92%
		(7.31)	(8.98)		(9.12)	(7.73)	

Panel D: Estimates of expected rate of return

	Analysts' expected rate of return			Market expectation		
Year	1 ≡Strong Buy	2 ≡Buy	3 ≡Hold	1 ≡Strong Buy	2 ≡Buy	3 ≡Hold
1993	11.32%	11.22%	9.46%	8.52%	7.17%	5.95%
1994	13.55%	12.80%	11.29%	9.78%	9.09%	7.70%
1995	12.90%	11.54%	10.56%	11.91%	11.20%	10.23%
1996	12.40%	10.79%	9.97%	10.10%	8.96%	7.46%
1997	10.65%	11.63%	8.60%	8.74%	9.02%	6.11%
1998	9.19%	8.01%	7.71%	8.21%	6.77%	7.70%
1999	15.35%	13.00%	12.02%	13.33%	10.93%	10.53%
2000	10.47%	9.38%	8.28%	9.29%	9.79%	6.69%
2001	7.76%	6.11%	4.62%	5.54%	4.90%	3.03%
2002	8.55%	9.89%	4.60%	4.63%	4.20%	2.50%
2003	9.17%	9.65%	9.86%	6.03%	7.73%	7.41%
Means	11.03%	10.36%	8.81%	8.73%	8.16%	6.85%
t-Statistics	(15.65)	(16.75)	(12.02)	(11.02)	(11.96)	(9.12)

Table 6: Continued

Panel E: Differences in (t-statistics for) estimates of expected rate of return

		Analysts' expected rate of return			Market expectation	
		1 ≡Strong Buy	2 ≡Buy	3 ≡Hold	1 ≡Strong Buy	2 ≡Buy
Analysts' expected rate of return	2 ≡Buy	0.66% (1.86)				
	3 ≡Hold	2.21% (6.14)	1.55% (3.44)			
Market expectation	1 ≡Strong Buy	2.29% (7.37)				
	2 ≡Buy		2.20% (4.18)		0.57% (1.73)	
	3 ≡Hold			1.97% (5.75)	1.89% (4.94)	1.31% (3.79)

Notes to Table 6:

Using the most recent individual analysts' forecast from the detail I/B/E/S database and the analysts' most recent recommendation, we estimate expected rate of return by recommendation type. Panel A provides counts by recommendation type of the available observations. Due to the lack of observations, the categories of "under-perform" and "sell" are not tested. Panel B reports descriptive statistics by recommendation type. The variables are as defined in the notes to Tables 1 and 2. Panel C reports the results of estimating regression (4) using I/B/E/S detail forecasts and regression (5) using current accounting data cross-sectionally using all available observations of that recommendation type. Within the recommendation type, observations with any of the dependent or independent variables in the top and bottom one percent observations are removed to reduce the effects of outliers. The reported numbers are the summary means across the annual regressions and the related Fama and Macbeth (1973) t-statistics. Panel D reports the annual estimates of expected rate of return for each of the methods in Panel C by recommendation type. Panel E reports summary means of the differences in estimates across the annual regressions and the related Fama and Macbeth (1973) t-statistics.

Table 7: Comparison of matched-samples with differing recommendations

Panel A: Descriptive Statistics

1 ≡ Strong Buy vs. 2 ≡Buy	Mean	Median
1 – Strong Buy		
$\lvert FE_{jt+1}\rvert$	0.582	0.268
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.019	0.009
FE_{jt+1}	-0.283	-0.107
FE_{jt+1}/p_{jt}	-0.008	-0.003
$eps^{Det}_{jt+1}/bps_{jt}$	0.156	0.160
eps_{jt}/bps_{jt-1}	0.142	0.147
p'_{jt}/bps_{jt}	3.684	2.642
$\left(p'_{jt}-bps^{*}_{jt}\right)/bps_{jt-1}$	3.058	1.889
2 – Buy		
$\lvert FE_{jt+1}\rvert$	0.572	0.272
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.019	0.009
FE_{jt+1}	-0.248	-0.094
FE_{jt+1}/p_{jt}	-0.007	-0.003
$eps^{Det}_{jt+1}/bps_{jt}$	0.154	0.158
eps_{jt}/bps_{jt-1}	0.142	0.147
p'_{jt}/bps_{jt}	3.688	2.642
$\left(p'_{jt}-bps^{*}_{jt}\right)/bps_{jt-1}$	3.056	1.890
# of observations	246.91	

2 ≡Buy vs. 3 ≡Hold	Mean	Median
2 – Buy		
$\lvert FE_{jt+1}\rvert$	0.590	0.277
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.021	0.010
FE_{jt+1}	-0.270	-0.115
FE_{jt+1}/p_{jt}	-0.010	-0.004
$eps^{Det}_{jt+1}/bps_{jt}$	0.151	0.148
eps_{jt}/bps_{jt-1}	0.136	0.138
p'_{jt}/bps_{jt}	3.105	2.305
$\left(p'_{jt}-bps^{*}_{jt}\right)/bps_{jt-1}$	2.313	1.418
3 – Hold		
$\lvert FE_{jt+1}\rvert$	0.596	0.275
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.021	0.010
FE_{jt+1}	-0.237	-0.093
FE_{jt+1}/p_{jt}	-0.008	-0.003
$eps^{Det}_{jt+1}/bps_{jt}$	0.148	0.146
eps_{jt}/bps_{jt-1}	0.136	0.138
p'_{jt}/bps_{jt}	3.096	2.297
$\left(p'_{jt}-bps^{*}_{jt}\right)/bps_{jt-1}$	2.304	1.396
# of observations	267.36	

1 ≡Strong Buy vs. 3 ≡Hold	Mean	Median
1 – Strong Buy		
$\lvert FE_{jt+1}\rvert$	0.624	0.278
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.023	0.010
FE_{jt+1}	-0.326	-0.121
FE_{jt+1}/p_{jt}	-0.013	-0.004
$eps^{Det}_{jt+1}/bps_{jt}$	0.158	0.155
eps_{jt}/bps_{jt-1}	0.144	0.140
p'_{jt}/bps_{jt}	3.267	2.425
$\left(p'_{jt}-bps^{*}_{jt}\right)/bps_{jt-1}$	2.501	1.560
3 – Hold		
$\lvert FE_{jt+1}\rvert$	0.615	0.270
$\lvert FE_{jt+1}\rvert / p_{jt}$	0.023	0.009
FE_{jt+1}	-0.260	-0.089
FE_{jt+1}/p_{jt}	-0.010	-0.003
$eps^{Det}_{jt+1}/bps_{jt}$	0.153	0.150
eps_{jt}/bps_{jt-1}	0.144	0.140
p'_{jt}/bps_{jt}	3.264	2.436
$\left(p'_{jt}-bps^{*}_{jt}\right)/bps_{jt-1}$	2.489	1.569
# of observations	221.45	

Table 7: Continued

Panel B: Summary of results of regressions of matched-samples

$$\frac{eps_{jt+1}^{Det}}{bps_{jt}} = \gamma_0 D_{jt}^{Low} + \gamma_1 D_{jt}^{Low} \times \frac{p'_{jt}}{bps_{jt}} + \gamma'_0 D_{jt}^{High} + \gamma'_1 D_{jt}^{High} \times \frac{p'_{jt}}{bps_{jt}} + \mu_{jt}$$

$$\frac{eps_{jt}}{bps_{jt-1}} = \delta_0 + \delta_1 \frac{p'_{jt} - bps^*_{jt}}{bps_{jt-1}} + \zeta_{j}$$

	Analysts' detail earnings forecasts 1 ≡ Strong Buy 2 ≡ Buy					**Current accounting data**		
# of firms	γ_0	γ_1	γ'_0	γ'_1	Adj R^2	δ_0	δ_1	Adj R^2
246.91	0.098	0.019	0.096	0.019	57.21%	0.094	0.020	19.56%
	(10.22)	(5.24)	(10.34)	(5.13)		(10.18)	(4.92)	

	Analysts' detail earnings forecasts 2 ≡Buy 3 ≡Hold					**Current accounting data**		
# of firms	γ_0	γ_1	γ'_0	γ'_1	Adj R^2	δ_0	δ_1	Adj R^2
267.36	0.082	0.023	0.077	0.024	66.78%	0.089	0.023	21.16%
	(11.40)	(9.23)	(10.14)	(9.57)		(10.85)	(6.38)	

	Analysts' detail earnings forecasts 1 ≡Strong Buy 3 ≡Hold					**Current accounting data**		
# of firms	γ_0	γ_1	γ'_0	γ'_1	Adj R^2	δ_0	δ_1	Adj R^2
221.45	0.090	0.022	0.085	0.022	66.12%	0.089	0.025	24.38%
	(10.00)	(7.39)	(9.97)	(7.27)		(9.18)	(6.55)	

Table 7: Continued

Panel C: Estimates of expected returns for matched-samples

1 ≡Strong Buy vs. 2 ≡Buy

	Analysts' expected rate of return		Market
Year	1 ≡Strong Buy	2 ≡Buy	**expectation**
1993	12.34%	12.03%	7.95%
1994	14.59%	13.91%	10.16%
1995	13.15%	12.56%	13.28%
1996	12.94%	12.56%	11.99%
1997	11.78%	11.79%	11.37%
1998	11.12%	9.75%	8.27%
1999	16.04%	16.11%	13.67%
2000	10.83%	11.43%	9.41%
2001	6.90%	7.35%	6.17%
2002	7.99%	7.66%	4.26%
2003	10.51%	10.49%	6.48%
Means	11.65%	11.42%	9.36%
t-Statistics	(14.55)	(14.78)	(10.18)

2 ≡Buy vs. 3 ≡Hold

	Analysts' expected rate of return		Market
Year	2 ≡Buy	3 ≡Hold	**expectation**
1993	10.56%	10.08%	6.14%
1994	12.42%	12.23%	9.47%
1995	11.73%	11.57%	12.31%
1996	11.63%	11.59%	9.36%
1997	10.95%	11.34%	9.27%
1998	8.56%	7.92%	9.04%
1999	14.35%	13.30%	12.95%
2000	9.20%	9.16%	8.28%
2001	6.86%	5.89%	5.40%
2002	8.04%	7.28%	4.40%
2003	11.19%	10.77%	10.99%
Means	10.50%	10.10%	8.87%
t-Statistics	(16.10)	(14.62)	(10.85)

Table 7: Continued

Panel C: Estimates of expected returns for matched-samples

1 ≡Strong Buy vs. 3 ≡Hold

	Analysts' expected rate of return		Market
Year	1 ≡Strong Buy	3 ≡Hold	expectation
1993	12.40%	11.95%	7.48%
1994	13.38%	12.80%	9.30%
1995	14.28%	13.57%	13.98%
1996	11.26%	10.91%	9.29%
1997	8.79%	8.57%	8.75%
1998	10.01%	8.91%	9.89%
1999	15.44%	14.86%	14.31%
2000	12.96%	12.33%	8.73%
2001	7.24%	6.99%	3.97%
2002	7.96%	7.70%	4.99%
2003	9.60%	9.26%	6.79%
Means	11.21%	10.71%	8.86%
t-Statistics	(13.78)	(13.75)	(9.18)

Table 7: Continued

Panel D: Differences in (t-statistics for) estimates of expected rate of return

	Analysts' expected rate of return	
	1 ≡Strong Buy	2 ≡Buy
Analysts' expected rate of return 2 ≡Buy	0.23% (1.39)	
Market expectation	2.29% (4.47)	2.06% (4.20)

	Analysts' expected rate of return	
	2 ≡Buy	3 ≡Hold
Analysts' expected rate of return 3 ≡Hold	0.39% (2.98)	
Market expectation	1.63% (3.35)	1.23% (2.48)

	Analysts' expected rate of return	
	1 ≡Strong Buy	3 ≡Hold
Analysts' expected rate of return 3 ≡Hold	0.50% (6.30)	
Market expectation	2.35% (4.45)	1.85% (3.32)

Notes to Table 7:

Using the most recent individual analysts' forecast from the detail I/B/E/S database and the analysts' most recent recommendation, we estimate expected rate of return by for matched samples where analysts have differing recommendations about the same firm-year. Panel A reports descriptive statistics on the firms for which we can find information for more than one recommendation type. The variables are as defined in the notes to Tables 1 and 2. The dummy variable $D^{Low(High)}$ is equal to 1 when the observation has the low (high) recommendation type, else 0. Panel B reports the results of estimating regression (4) using I/B/E/S detail forecasts and regression (5) using current accounting data cross-sectionally using all available observations of that recommendation type. Within the recommendation type, observations with any of the dependent or independent variables in the top and bottom one percent observations are removed to reduce the effects of outliers. The reported numbers are the summary means across the annual regressions and the related Fama and Macbeth (1973) t-statistics. Panel C reports the annual estimates of expected rate of return for each of the methods in Panel B by recommendation type. Panel D reports summary means of the differences in estimates across the annual regressions and the related Fama and Macbeth (1973) t-statistics.

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