COMMENTARY

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Security Returns and the Value Relevance of Accounting Data

INTRODUCTION

Empirical market-based accounting research seeks evidence of the value relevance of accounting data via analysis of the relation between these data and various market variables. The decade of the 1990s witnessed an increasing use of price per share and market rate of return as the market variables of interest. The focus of this commentary is on regressions of price per share on the levels of various financial statement data (referred to herein as “price-levels regressions”) and regressions of returns on changes in these financial statement variables (referred to herein as “returns regressions”).

The main points in the commentary are:

• Studies that use returns of the fiscal period as the market metric provide evidence regarding the role of accounting data as a summary of events that have affected firms over the reporting period. In contrast, studies of the market response during a very short interval around the time of the announcement of the accounting data examine the role of these data in providing information to investors about events that may affect their perceptions of the firm.

• An argument for returns as the market metric:
  • Theoretical models that form a foundation for the use of security prices as the market metric also provide a foundation for using rate of return as the market metric.
  • Returns regressions may be used as the basis for tests of hypotheses regarding the timeliness of the reporting of value changes in financial statements.¹

¹ The concept of timeliness of the accounting summary is the extent to which the value change as reported in the financial statements is contemporaneous with the change in market value. This differs from the concept of timeliness of accounting information that relates to the investors’ use of the information in setting prices.

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- Regressions that use price as the dependent variable suffer from potentially serious scale problems. An obvious means of overcoming the scale or "per share" effect is to rely on the returns specification.

- **Insights from the scatter-plot of returns and earnings:**
  - Recent increases in the power and availability of software facilitate detailed inspection of the huge data sets often encountered in market-based accounting research providing evidence beyond that from regression analyses.
  - A scatter-plot of returns and earnings shows distinct nonlinearities in the relation between these variables and provides insights regarding recent studies of these nonlinearities (including Hayn 1995; Basu 1997; Burgstahler and Dichev 1997).

## ACCOUNTING DATA AS A SUMMARY OF EVENTS

Ball and Brown (1968) and Beaver (1968) show that net income is value relevant in the following senses. Beaver (1968) shows that the market reacts with increased trading volume and increased price variability in the week of the earnings announcement. Ball and Brown (1968) show that earnings increases (decreases) are associated (on average) with positive (negative) abnormal returns over the 12 months prior to the earnings announcement—in short, the unexpected component of earnings tends to have the same sign as unexpected price changes. These seminal studies and much of the work in the subsequent two decades emphasized the relation between the new information in earnings and either the market reaction to this information (as in Beaver 1968) or the association of this new information and the unexpected or abnormal component of returns (as in Ball and Brown 1968). This "information" perspective, which has continued to influence research methods in the last decade, may be described as an investor, a user, or a finance perspective that views accounting as a source of information for use (either actual or potential) in investment decisions.

Studies such as Beaver (1968) that focus on the market response at the date of the announcement of the accounting data (that is, the market metric is measured over a relatively short interval—a few days or a few hours) examine the role of accounting data in providing information to the market about events that may affect investors’ perceptions of the firm. In contrast, the association between unexpected or abnormal returns and unexpected earnings in Ball and Brown (1968) provides evidence of the role of accounting as a summary of the unexpected events that have affected the firm over the 12-month period prior to the earnings announcement.

More recent studies have tended to move away from the information-content perspective and to focus more clearly on the view that financial statements are a summary of the events that have affected the firm over the fiscal period for which the report has been prepared. This perspective is similar to that in much earlier studies such as Paton and Littleton (1940) and Edwards and Bell (1961). Empirical studies that adopt this perspective require a benchmark against which to evaluate the effectiveness of the accounting summary. Since the events that have affected the firm over the fiscal period are captured in change in firm value (or returns), market returns are the obvious benchmark.

Easton et al. (1992) argue that there are two reasons why earnings will not be a perfect summary of events of the corresponding return interval: (1) value-relevant events

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2 Other prototypical representations of the information-content perspective are Patell and Wolfson (1984), Wilson (1986) and Easton and Zmijewski (1989), all of which focus on the investor reaction at the time of the announcement of accounting information.
observed by the market (and therefore captured in returns) in a prior period may affect accounting earnings of the current period, and (2) value-relevant events observed by the market in the current period may not be reported in accounting earnings of the current period. In short, accounting reports the effects of economic events with a lag. Easton et al. (1999) show that in a return-earnings regression, the omitted variable that arises due to accounting recognition lag is perfectly negatively correlated with the included variable (accounting earnings). The effect of this omitted variable is to bias the estimate of the earnings coefficient (and, implicitly, the regression $R^2$) toward zero—\textit{ceteris paribus} a lower earnings coefficient and/or a lower $R^2$ suggests that earnings are a poorer summary of the events that have affected returns of the fiscal period.\(^3\) The effect of this lag is that the $R^2$ from a regression of returns on earnings will be less than 1.

At any point in time, price reflects all returns (that is, changes in market value) since the firm came into existence, while book value represents all accounting measures of change in value (earnings) during this period. Book value will reflect the cumulative effect of accounting reporting lag—some of the value-relevant events observed by the market (and therefore captured in returns) in early years will be included in accounting earnings of later years, but some will remain unrecorded in book value. The effect of this accounting reporting lag in the price-levels regression is similar to the effect in the returns regression—the $R^2$ will be less than 1.

Most of the following discussion adopts the perspective that accounting data may be viewed as a summary of the events that have affected the firm although some comments will be made regarding the information-content perspective.

**A SIMPLE MODEL**

As a starting point, consider a firm with two types of assets—those for which we would (as a "first approximation" or "best guess") use book value as the basis for determining market value and those for which we would use earnings as the basis for determining value. The following simple model provides the valuation of this firm.\(^4\)

Consider the following rationale for using book value as the basis for determining market value. Today's market value (per share) represents entitlements to a flow, or series, of expected dividends. Likewise, the accounting book value (per share) represents the accountant's measure of the firm's resources and commitments that together will determine the expected dividend flow per share. Assume (initially) that the book value per share of firm $j$ at time $t$ ($B_{jt}$) perfectly records the value of a share in the sense that it is equal to the market value of the share ($P_{jt}$). That is:

$$P_{jt} = B_{jt} \tag{1}$$

We can also rationalize a relation between market value per share and earnings per share. If firm $i$'s earnings for period $t$ represent earnings of each future period in

\(^3\) This effect of accounting recognition lag is similar to the effect of "stale" earnings in Kothari and Zimmerman (1995). However, since the emphasis in Kothari and Zimmerman (1995) is on obtaining an unbiased estimate of the coefficients relating prices to earnings and returns to earnings, the bias in the returns regression is seen as misspecification. In contrast, when the research emphasis is on the validity of earnings as a summary variable, the effect of this omitted variable (that is, the events that are \textit{not} summarized by earnings) is precisely the focus of the investigation.

\(^4\) The early part of this discussion uses some of Brown's (1994) description of the ideas presented in Easton and Harris (1991).
perpetuity, and these earnings are paid out as dividends in the period in which they accrue, then, cum-dividend price per share \((P_i + d_i)\) is a multiple of earnings per share \((X_{it})\). That is:

\[
P_i + d_i = (1 + r_i^{-1})X_{it}
\]

(2)

where \(r_i\) is the expected rate of return on shares of firm \(i\).

Now assume that a proportion \(k\) of the assets of the firm (human capital and other intangibles may be examples of these assets) may be valued using model (2) and a proportion \((1 - k)\) of the firm’s assets may be valued using model (1) (property, plant, and equipment may be examples of such assets). Firm value may be determined as:

\[
P_t = (1 - k)B_t + k [(1 + r_i^{-1})X_t - d_t].
\]

(3)

Ohlson (1995) provides a rigorous foundation for equation (3) in a dynamic uncertain environment that relies on the clean surplus assumption and the Miller and Modigliani (1961) propositions. In this framework, variables other than book value, earnings and dividends play a role in valuation. These variables are captured by the scalar \(v_{nt}\) and the valuation relation is:

\[
P_t = (1 - k)B_t + k [(1 + r_i^{-1})X_t - d_t] + v_{nt}.
\]

(3a)

Ohlson’s (1995) work is cited as the theoretical foundation for many recent studies of the relation between price, book value (and components of book value), and earnings (and components of earnings). These studies are based on variations of the following linear (price-levels) regression:\(^5\)

\[
P_t = \alpha_0 + \alpha_1B_t + \alpha_2X_t + \varepsilon_t.
\]

(4)

An important contribution of Ohlson’s (1995) work is that it forms a framework for understanding the relation between prices and accounting data and a basis for interpreting estimates of the regression coefficients \(\alpha_0, \alpha_1,\) and \(\alpha_2\). For example, (a) the model provides a valuation role for other information and dividends—a nonzero intercept \(\alpha_0\) suggests that the average incremental explanatory power for prices (over book value and earnings) is nonzero, (b) the coefficient \(\alpha_1\) on book value is negatively related to the persistence in abnormal earnings so that a higher coefficient on book value implies that these earnings are less persistent, and, (c) the coefficient \(\alpha_2\) on earnings is positively related to this persistence and negatively related to the expected rate of return.\(^6\) Note, however, that Ohlson (1995) is only a starting point for understanding the relation between prices and accounting data. Other theoretical papers (including, Feltham and Ohlson 1995; Ohlson and Zhang 1998; Zhang 1999) provide critical additional insights. For example, Feltham and Ohlson (1995) form a framework for understanding the role of conservative accounting, while Zhang (1999) shows, inter alia, that with growth and conservative accounting, the coefficient on book value may, indeed, be negative.

Although Ohlson (1995) provides obvious motivation for price-levels regressions, the model also provides motivation for returns regressions. Taking first differences in

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\(^5\) The effect of treating dividends as part of the random error term is unclear. Hand and Landsman (1998) address this issue in the context of a price-levels regression. The effect of other information, \(v_{nt}\) is analyzed in detail in Ohlson (1998) and Dechow et al. (1999).

\(^6\) Abnormal earnings is the earnings less the required rate of return on beginning book value.
equation (3a), invoking the clean surplus assumption, dividing through by beginning-of-period price and rearranging terms yields the returns relation:

\[
\text{ret}_n^t = (1 - k) \left[ \frac{X_n}{P_{n-1}} \right] + k (1 + r_n^1) \left[ \frac{\Delta X_n}{P_{n-1}} \right] + k \left[ \frac{d_n}{P_{n-1}} \right] + \alpha \Delta v_n^t
\]

where \( \text{ret}_n^t \) is the rate of return on investment in firm \( n \) for the fiscal period \( t - 1 \) to \( t \).

Equation (5) may be viewed as the theoretical basis of the returns regression:

\[
\text{ret}_n^t = \beta_0 + \beta_1 \left[ \frac{X_n}{P_{n-1}} \right] + \beta_2 \left[ \frac{\Delta X_n}{P_{n-1}} \right] + \mu_n^t
\]

The important point from this discussion is that regressions based on equations (4) and (6) are both motivated by the same theoretical foundation. The theory predicts that \( \alpha_0 = \beta_0 = 0, \alpha_1 = \beta_1, \) and \( \alpha_2 = \beta_2 \). This raises two issues. Are there any questions that can/should be addressed via an analysis of price levels (equation [4]) that can not/should not be answered by an analysis of returns (equation [6])—and vice versa? In view of the fact that inferences from studies based on regression (4) often differ from inferences from studies based on regression (6), which of these two regression models is better specified?

**EXPLAINING RETURNS PROVIDES EVIDENCE OF TIMELINESS**

Since the focus of returns studies is on the events that have affected prices over the return interval, they address the question of the timeliness of the accounting summary: is the value change as reported in the financial statements contemporaneous with the change in market value? Note that the return interval may be of any length (for example, a quarter in Warfield and Wild [1992] to 10 years in Easton et al. [1992]). If the return interval is short and the financial statements report the change in value within this short interval, the summary provided by the accounting data is particularly timely.

As an illustration of this point, consider a study that focuses on the valuation role of an adjustment to book value (such as asset revaluations in the U.K. and Australia, or changes in the liability for post-retirement benefits under Statement of Financial Accounting Standards No. 106 in the U.S.). The effect of these adjustments is to change the alignment of the market’s measure of value and the accountant’s record of value on the balance sheet at the time that the adjustment is recorded. A researcher could include the amount of the adjustment in a price-levels regression and design tests based on the significance and the magnitude of the estimate of the coefficient on the adjustment. For example, Barth and Clinch (1998) regress price per share on book value per share, the balance in the asset revaluation reserve per share, earnings per share, and the per-share increment to the asset revaluation reserve. Indications of value relevance of asset revaluations are obtained via tests of significance of the estimates of the coefficients on the balance in the asset revaluation reserve and on the increment to this reserve. Similarly, Chambers et al. (1999) examine the effect on the \( R^2 \) from a regression of price per share on book value and earnings of adjusting book value by subtracting the book value of property, plant, and equipment and adjusting earnings by adding back depreciation and subtracting capital expenditures.

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7 Equation (5) suggests that lagged dividends should be an additional explanatory variable in regression (6). For practical purposes, both \( d_{n-1}/P_{n-1} \) and, in particular, the cross-sectional variation in this variable, are sufficiently small to have little effect on the estimates of the coefficients on earnings and earnings changes. Omission of this variable may, however, lead to a positive intercept.

8 The choice of cited studies (particularly those for which I am an author) in the remaining sections reflects my familiarity with the details therein. There are many other studies that could have, equally appropriately, been used as illustrations.

9 For example, Barth and Clinch (1998) regress price per share on book value per share, the balance in the asset revaluation reserve per share, earnings per share, and the per-share increment to the asset revaluation reserve. Indications of value relevance of asset revaluations are obtained via tests of significance of the estimates of the coefficients on the balance in the asset revaluation reserve and on the increment to this reserve. Similarly, Chambers et al. (1999) examine the effect on the \( R^2 \) from a regression of price per share on book value and earnings of adjusting book value by subtracting the book value of property, plant, and equipment and adjusting earnings by adding back depreciation and subtracting capital expenditures.
in the asset revaluation reserve or the change in the liability for post-retirement benefits). These latter tests provide evidence beyond that provided by the price-levels regressions—they provide evidence regarding the timeliness of the adjustments.

THE EFFECTS OF SCALE

Statistical associations between price and the explanatory variables in price-levels regressions such as equation (4) may be a spurious effect of scale. In general, large (small) firms will have a large (small) total market value, large (small) book value and large (small) net income. Additionally, many other variables for these large (small) firms will also be large (small) so that a regression of market value on firm attributes will lead to coefficients that may capture no more than scale effects. Expressing all variables on a per-share basis will not overcome this scale effect. The argument is as follows.

Management has discretion over the number of shares outstanding. They may choose to split their firm’s stock, to offer stock dividends and/or to undertake a reverse stock split. These splits could conceivably be used to change the price of shares without changing the economic characteristics of the firm. Arguably, therefore, the magnitude or scale of the dependent variable in price-levels regressions reflects no more than the choice by management of the number of shares outstanding. This management choice will also affect the scale of the per-share measure of many firm attributes. It follows that a regression of share price on the firm attributes will lead to coefficients that may simply capture the fact that, at the per-share level, all variables have the same scale and scale differs across firms.

Easton (1998) shows that in cross-sectional price-levels regressions where price per share of firm i is matched with book value per dollar of market value for firm j and earnings per dollar of market value for firm k, the regression statistics are strikingly similar to the statistics from a regression where all of these variables are taken from the same firm. Although this is not unequivocal evidence that the results of price-levels regressions are due only to scale effects, the evidence does suggest that caution should be exercised when interpreting the results of these regressions.

Since the rate of return is a scale-free variable that ceteris paribus is not affected by the managers’ choice of number of shares outstanding, an obvious means of overcoming the scale or “per-share” effect is to rely on the returns specification. Furthermore, Plosser and Schwert (1978), Schwert (1981) and Christie (1987) suggest that time-differencing a misspecified price-levels model can generate a well-specified model in the differences. That is, the returns specification not only has the advantage that the scale effects are removed, but the implicit time-differencing also improves the models’ specification. Thus, unless there are compelling reasons for focusing on the levels relation, the alternative returns specification should be used.  

10 For example, Easton et al. (1993) and Barth and Clinch (1998) regress returns on price-deflated earnings, the price-deflated increment to the asset revaluation reserve, price-deflated change in earnings, and the price-deflated change in the increment to the asset revaluation reserve. Indications of value relevance of asset revaluations are obtained via tests of significance of the estimates of the coefficients on the increment to the asset revaluation reserve and the change in this increment. Similarly, Chambers et al. (1999) examine the effect on the R² from a regression of returns on deflated earnings and deflated change in earnings of adjusting earnings by adding back depreciation and subtracting capital expenditures.

11 Easton and Sommers (1999) suggest means of overcoming the scale problem that do not necessitate the use of returns models. The essence of their idea is that when estimating levels relations such as regression (4), each fitted value is scaled by its own price. For example, rather than minimizing the mean squared difference between the fitted value and actual price (as in an OLS regression), they suggest minimizing the squared difference between the ratio of the fitted value to the observed value and 1.
A CLOSER LOOK AT THE RETURNS-EARNINGS RELATION

The vast majority of price-levels studies and returns studies use the same (linear) relation to describe the entire sample of observations. The modeling of the regression relations in section three of this commentary suggests that observations should be grouped into subsamples with similar attributes. For example, the simple model (developed rigorously by Ohlson [1995]) relying on the intuition that firms may (as a first approximation) be treated as if they have two types of assets—those for which we would use book value as the basis for determining market value and those for which we would use earnings as the basis for determining value—leads to the prediction that for some firms the weight on earnings will be high, while for others it will be low. Two notable studies that group observations according to a priori expectations about the form and strength of the relation between returns and earnings are Hayn (1995) and Basu (1997). I will briefly discuss these studies and then show how the points that they have made via careful economic reasoning are also very evident from simple plots of the data.

Hayn (1995) provides several reasons why both the estimate of the return-earnings coefficient and the regression $R^2$ will be lower for firms reporting a loss than for firms reporting profits. These reasons include: (1) because shareholders have a liquidation option, losses are not expected to perpetuate, and (2) the (related) transitory nature of losses will result in a lower coefficient estimate. In simple pooled cross-section and time-series regressions of returns on earnings (deflated by beginning-of-period price), Hayn (1995) finds that the $R^2$ for 14,512 loss firms is 0.0 percent and the estimate of the slope coefficient is 0.01, while the $R^2$ for 61,366 firms that reported a profit is 16.9 percent and the estimate of the slope coefficient is 2.62.

Basu (1997) observes that the effect of conservatism in accounting is that bad news tends to be reported more quickly than good news. He uses returns of the fiscal year as an indicator of the net (bad vs. good) news. In simple pooled cross-section and time-series regressions of earnings on returns (deflated by beginning-of-period price) on returns, Basu finds that the $R^2$ for a sample of 17,790 firms with negative returns is 6.64 percent and the estimate of the slope coefficient is 0.275, while $R^2$ for 25,531 firms with positive returns is 2.09 percent and the estimate of the slope coefficient is 0.059.

These two papers represent important recent developments in our understanding of the simple returns-earnings association. Consistent with the reasoning that motivates these papers, the results appear to show distinct nonlinearities in the returns-earnings and the earnings-returns relations. As far as I am aware, these are the first papers to document the nonlinearity of the returns-earnings regression at zero earnings and the nonlinearity of the earnings-returns regression at zero returns. Interestingly, as I will attempt to demonstrate, the ideas in these papers may have been developed much earlier if we had paid more attention to the data. In addition, detailed analysis of the data provides insights that are not available from the regression analyses in these papers.

Francis and Schipper (1997) and Nwaeze (1998) are notable exceptions. Francis and Schipper (1997) repeat their analyses on a sample of firms selected from high-technology industries and on a sample where the technological change is likely to have had a lesser effect on the financial statements. Nwaeze (1998) compares coefficients from regressions (4) and (6) for samples of firms from the electric utility industry and from the manufacturing sector.

I am not suggesting that our research should be driven by observed patterns in the data, but pervasive patterns should nevertheless have an influence.
Figures 1 and 2 are scatter-plots of the data on which Hayn (1995) and Basu (1997) base their studies. Figure 1 plots returns on the y-axis and (deflated) earnings on the x-axis (similar in spirit to Hayn [1995]), while Figure 2 plots (deflated) earnings on the y-axis and returns on the x-axis (similar in spirit to Basu [1997]). The regression lines as estimated by Hayn (1995) and Basu (1997) are drawn on these figures.

Figures 3 and 4 summarize the distributions of these returns and earnings data. In Figure 3, earnings (on the x-axis) are divided into percentiles. For each of these earnings percentiles, the 1st, 5th, 25th, 50th, 75th, 95th, and 99th percentiles of returns (y-axis) are plotted. Similarly, in Figure 4, returns (on the x-axis) are divided into percentiles and for each of these returns percentiles, the 1st, 5th, 25th, 50th, 75th, 95th, and 99th percentiles of earnings (y-axis) are plotted. Several points are evident from these plots.

In Figures 1 and 3, for example, the lack of a relation between returns and earnings of loss firms and the stronger (positive) relation between returns and earnings of firms reporting a profit (hypothesized and observed by Hayn [1995]) are clear. Also, further to the evidence in Hayn (1995), it seems that the lack of a relation between returns and losses occurs for both larger losses and for smaller losses.

If we take Basu’s (1997) arguments (and results) at face value, we would expect to see a distinct change in the relation between earnings and returns at the x-axis in Figures 2 and 4. This change, however, is not apparent for half of the distribution of returns—the slope of the 50th percentile of returns is flat around zero. The stronger positive relation between earnings and negative returns appears to be primarily due to the left-hand tail of the earnings distribution. Notice that the distribution of earnings associated with large negative returns is skewed to the left. Although this observation is not at odds with the idea in Basu (1997), it does suggest that we may learn a great deal about the nature of accounting conservatism (or about other issues—the tendency to take “big-baths,” perhaps) by looking closely at the data.

The scatter-plots (Figures 1 and 2) and the width of the earnings percentiles in Figure 3 show dramatic evidence of earnings management. The position of the y-axis in Figure 1 and of the x-axis in Figure 2 is clear from the abrupt change in the density of the scatter-plot at these axes. These graphs provide more detailed evidence of earnings management documented by Burgstahler and Dichev (1997). They could form the basis for development of more specific hypotheses and analyses about this and other issues in market-based accounting research.

CONCLUDING REMARKS

These comments focus on just a few of the methodological issues in the huge market-based accounting literature. The key issues involve regressions of price per share on various balance sheet and income statement data and of returns on changes in these data. Unlike information-content studies which examine the market reaction to the

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14 The sample includes 125,116 firm-year observations for which complete price, dividend, earnings, and adjustment factor data are available on the combined Compustat Annual Primary, Secondary, Tertiary, and Full Coverage file. The data differ from those used in Hayn (1995) and Basu (1997), who used different years, some different selection criteria, and calculated returns over a 12-month period ending three months after fiscal year end. These differences do not appear to have a qualitative effect on the results of the analyses.

15 Each of the first 99 earnings intervals (“percentiles”) have 1,251 observations. The last interval has 1,266 observations.
FIGURE 1
Scatter-Plot of Returns and Earnings

The estimates of the simple regression relation between returns and earnings for the sample of firms that reported a loss and for the sample that reported a profit are plotted and the coefficient estimates are included in the expression of the regression equation. Returns ($R_{nt}$) are price change plus dividends over the fiscal year divided by beginning-of-year price; earnings ($X_{nt}/P_{nt-1}$) are reported earnings per share for the fiscal period divided by beginning-of-period price per share.
FIGURE 2
Scatter-Plot of Earnings and Returns

The estimates of the simple regression relation between earnings and returns for the sample of firms with negative returns and for the sample of firms with positive returns are plotted and the coefficient estimates are included in the expression of the regression equation. Returns \((R_{nt})\) are price change plus dividends over the fiscal year divided by beginning-of-year price; earnings \((X_{nt}/P_{nt-1})\) are reported earnings per share for the fiscal period divided by beginning-of-period price per share.
Earnings (on the x-axis) are divided into percentiles. For each of these earnings percentiles, the 1st, 5th, 25th, 50th, 75th, 95th, and 99th percentiles of returns (y-axis) are plotted. Returns ($R_{il}$) are price change plus dividends over the fiscal year divided by beginning-of-year price; earnings ($X_{it}/P_{it-1}$) are reported earnings per share for the fiscal period divided by beginning-of-period price per share.
Returns (on the x-axis) are divided into percentiles and for each of these returns percentiles, the 1st, 5th, 25th, 50th, 75th, 95th, and 99th percentiles of earnings (y-axis) are plotted. Returns ($R_{it}$) are price change plus dividends over the fiscal year divided by beginning-of-year price; earnings ($X_{it}/P_{it-1}$) are reported earnings.
announcement of information, these association studies examine the effectiveness of accounting data as a summary of the events that have affected the firm to date or over the fiscal (return) period. Since price-levels models, which may be motivated by the same theoretical foundation as returns models, suffer from potentially serious scale problems, the inferences from returns models are probably more reliable and should be used. In addition, returns regressions provide evidence regarding the timeliness of the reporting of value changes in the financial statements. Theoretical models may be used to clarify our thinking about the relations between market variables and accounting data and they should be a key ingredient in the development of our hypotheses. We may, however, also gain useful insights by paying close attention to pervasive patterns in the data.

REFERENCES


