Conservatism and the Value Relevance of Financial Information

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ABSTRACT

This paper examines the association between conservatism and value relevance of accounting information. Prior literature (Lev & Zarowin 1999) has suggested that conservative accounting, especially the treatment of advertising and R&D, as one possible reason for decreasing value relevance. We measure conservatism using a variety of approaches in the extant literature including downward bias in book values (Beaver & Ryan 2000, Penman & Zhang 2002) and earnings (Lev & Nissim 2004). We examine the relationship between our measures of conservatism and the value relevance of accounting over a twenty-five year period from 1978-2002. We find that the value relevance of accounting has declined only for firms with the *least* conservative accounting and changed insignificantly for firms with the most conservative accounting. Further tests indicate that the decline in value relevance cannot be attributed to alternate definitions of conservatism such as measures based on the asymmetric timeliness of earnings. Our findings limit the plausibility of attributing decreasing value relevance to increasing conservatism in accounting.

1. Introduction

In this paper we examine the association between the value relevance of accounting information and conservatism. The extant literature on value relevance has consistently found that the value relevance of earnings has been decreasing over time (Francis & Schipper 1999, Collins, Maydew & Weiss 1997, Lev & Zarowin 1999). The literature has also found that the value relevance of book values has been increasing; however results are mixed on whether the increase in the relevance of book value has offset the decrease observed in earnings. The literature posits conservatism in accounting as one reason for the observed decrease in value relevance. We examine this possibility directly, using measures for conservatism and value relevance commonly found in the literature.

Ex-ante, the direction of relationship between value relevance and conservatism is unclear. On one hand, practitioners have argued that practices such as expensing R&D are so conservative that "Accounting is no longer counting what counts" (Stern Stewart 2002). Similarly, academic research also claims that increasing conservatism is a possible reason for decreasing value relevance (Lev & Zarowin 1999). On the other hand, one reason for conservative accounting is the potential for errors in measurement, and correspondingly a lack of reliability (Watts 2003). If information becomes sufficiently unreliable, the usefulness of that information for decisions (i.e. relevance) could be limited; hence relevance might increase with conservatism. Given these arguments in opposite directions, it is an empirical question whether conservatism and value relevance behave as complements or substitutes.

We measure conservatism using three firm-year measures motivated by prior research. First we examine the bias in book value relative to market value[1] using a measure developed in Beaver & Ryan (2000); we refer to this measure as BV_CONS. When conservatism is measured using BV_CONS, we find no difference in value relevance in the cross section but find that the decline in value relevance over time is greatest for the least conservative firms.

Second, we examine the C-SCORE measure developed by Penman & Zhang (2002). This measure examines conservatism which only affects the subset of a firm's balance sheet related to the expensing of R&D and advertising, and the use of LIFO for inventory valuation. Failure to account for intangibles resulting from expensing R&D and advertising has been proposed as one reason for decreasing value relevance. Surprisingly, we find again that it is the least conservative firms, i.e. those that are least likely to be affected by the omission of intangibles such as R&D, which have a decrease in value relevance.

Third, we build on Lev & Nissim (2004) and use the ratio of expenses in financial reports relative to tax reports as a measure of conservatism in earnings. This metric, while based on income statement numbers, is similar to the above two metrics as it too is a measure of downward bias caused by conservative accounting. Using this approach we find, as we did with the other two measures, a significant decline in value relevance occurs in the least conservative firms and not in the most conservative firms.

An alternate approach towards measuring conservatism focuses on the differential verifiability towards gains and losses leading to asymmetric timeliness of earnings. Asymmetric timeliness is typically measured either as the (negative) skewness of earnings or as the incremental association between earnings and returns for losses (Basu 1997). We

[1] The measure is a persistence term from a regression of the book to market ratio on historical returns. Additional details of the Beaver & Ryan approach are given in section 3

finally test to see if increasing asymmetric timeliness can be associated with the decline in value relevance. Asymmetric timeliness cannot be measured at a firm year level, and hence we are not able to conduct the same direct tests as before. Instead we study the relationship across time between asymmetric timeliness and a composite measure based on all three downward bias measures discussed earlier. We do not observe an increase in either negative skewness or asymmetric timeliness over time for firms with low values of our downward bias based conservatism measures, which see a decline in value relevance. Hence we are unable to explain the decrease in value relevance based on either a measures of downward bias in earnings and book values or measures based on the asymmetric timeliness of earnings.

Our work contributes to the literature on value relevance and conservatism by documenting historical patterns in the relationship between conservatism and value relevance. Conservatism has been a critical feature of accounting practice for many years, but we know little about the empirical relationship between conservatism and value relevance. Correspondingly, the patterns documented here are likely to be useful to accounting research, practice and standard setting.[2] For example our finding that increasing conservatism related to intangibles is not associated with decreasing relevance has the potential to revise beliefs as accounting for intangibles is commonly cited as a reason for decreasing relevance

The rest of the paper is organized as follows. Section 2 discusses our research question further. Section 3 presents our measurement of value relevance and conservatism. Section 4 documents the association between conservatism and value relevance using alternative approaches to measuring conservatism. Section 5 presents our conclusions.

[2] Note that the patterns documented here are only one input to practice and standard setting. It is not our goal to comment on the specifics of any suggestions for changes in the financial reporting model. Correspondingly, these associations presented in this paper should not be viewed as normative prescriptions.

2. Research Question

Conservatism and Value Relevance: Complements or Substitutes?

The literature refers to the relevance of accounting information for capital market participants as "value relevance" and commonly interprets the coefficient of determination (R^2) of regressions of price on accounting information as a measure of value relevance (Theil 1971, Easton 1985, Collins, Maydew, & Weiss 1997, Francis & Schipper 1999).

Textbooks commonly present conservatism as the choice of an accounting treatment that least likely overstates assets and income when selecting among two or more reporting alternatives (See for example Kieso, Weygandt, & Warfield 2004, or Smith & Skousen, 1987). However such definitions are somewhat difficult to interpret; the cumulative effect of alternative accounting treatments for a given transaction over a full business cycle should be the same, so conservatism in one period may lead to non-conservative results in some subsequent period (Roychowdhury & Watts 2004). Watts (2003) defines conservatism as differential verifiability required for the recognition of profits versus losses. Beaver & Ryan (2000) define conservatism as a persistent downward bias in book value relative to market value. In the absence of one unifying definition, conservatism has typically been measured many ways by examining properties of either balance sheet or income statement information such as asymmetric timeliness in earnings (Basu 1997), downward bias in book values relative to market values (Beaver & Ryan 2000, Penman & Zhang 2002) and downward bias in earnings (Lev & Nissim 2004). Beaver & Ryan (2005), Watts (2003) and Givoly and Hayn (2000) discuss these alternative approaches in depth.

Ex-ante, the direction of relationship between value relevance and conservatism is unclear. Regulators, practitioners and academics have argued that there is a tradeoff between

conservatism and value relevance. In fact, the tradeoff between relevance and reliability is discussed in depth in the FASB's Conceptual Framework (FASB 1980 and FASB 2004). Presuming a tradeoff exists; academics have argued that increasing conservatism is a possible reason for decreasing value relevance (Lev & Zarowin 1999). Practitioners have argued that conservatism has had damaging effects on the usefulness of accounting numbers. Stern Stewart (2002), a financial consulting firm, argues that practices such as expensing R&D are so conservative that "Accounting is no longer counting what counts" (Stern Stewart 2002).

However conservatism may lead to more relevant information as well. One reason for conservative accounting is the potential for errors in measurement, and correspondingly a lack of reliability (Watts 2003). Conservative accounting policies may lead to accounting numbers that are likely to be more reliable since conservatism favors less subjective measures and less estimation. If information becomes sufficiently unreliable the usefulness of that information for decisions (i.e. relevance) could be limited; hence relevance could actually *increase* with conservatism. Given these arguments in opposite directions, it is an empirical question whether conservatism and value relevance behave as complements or substitutes.

Correspondingly, in this paper, we examine the association between conservatism and value relevance. If conservatism does reduce relevance, then we should observe a negative association between conservatism and value relevance. More specifically, we should see the greatest decline in value relevance in the subset of firms with the greater conservatism and potentially the greatest increase in conservatism. However, finding no association or a positive association between conservatism and value relevance calls into question the plausibility of conservatism as a valid explanation for decreasing value relevance.

3. Research Design

Measuring the Value Relevance of Earnings and Book Values

We study the value relevance of accounting information through regressions of stock price on earnings and book values in conjunction. The regressions are carried out on a per-share basis, consistent with prior papers such as Collins, Maydew and Weiss (1997) and Francis and Schipper (1999). Specifically we examine the value relevance of earnings and book value with the following regression:

$$PRICE = \alpha + \beta_1 * EPS + \beta_2 * BVPS + \varepsilon \quad (1)$$

Firm Year Measures of Conservatism

Overall Conservatism in the Balance Sheet, the Beaver & Ryan Approach:

Conservatism is often examined using a metric such as the Market to Book ratio (MB). While the MB ratio is certainly positively associated with conservatism,[3] it also picks up expected economic rents due to monopoly power and potential stock market under or over valuation. One approach that attempts to isolate the effects of conservatism from valuation is developed in Beaver and Ryan (2000), who regress the BM ratio on prior stock returns. The BM ratio is used instead of the MB ratio as the model is better specified, with less influence of outliers.

The Beaver and Ryan (2000) model (henceforth BR) is as follows

$$BTM_{t,i} = \alpha_t + \alpha_i + \sum_{j=0}^{6} \beta_j R_{t-j,i} + \varepsilon_{t,i} \quad (2)$$

where $BTM_{t,i}$ is the book to market ratio for firm i at time t, $R_{t-j,i}$ is the lagged annual raw return for firm i at time t-j, and α_t and α_i are time and firm specific fixed effects. The α_i

[3] It is important to note that conservatism in book values are the joint result of accounting treatments that are deemed conservative and the magnitude of the firms economic transactions that are affected by a conservative treatments.

firm effects are referred to as the bias coefficients, which BR interpret as firm-specific inverse measures of conservatism in book value. They validate this by showing that the bias is inversely related to measures of conservative accounting such as accelerated depreciation and high levels of R&D.

For the purposes of our study, we need a firm-year measure of conservatism. We run the BR model for each year, using information for the past five years. Hence for the regressions for 1990, we use data from 1986 to 1990. We also relax the requirement that six years of lagged returns are needed. We used the actual returns for the first two lags. For the remaining lags, the returns are set to zero if they are missing.[4] The firm-specific fixed effect is an inverse measure of conservatism. We use the negative of the firm fixed effect as a measure of conservatism for a given firm in a given year. As with all of our firm year measures of conservatism, this measure will be used to divide firms into groups within their industry (defined at the 2 digit level) for a given year. This ensures that the measure of conservatism does not pick up merely industry specific conservatism, but rather conservatism within an industry.

Conservatism in Specific Assets, the Penman & Zhang Approach:

As an alternative to the BV_CONS measure, we examine a measure of conservatism based on Penman & Zhang (2002). Penman & Zhang describe this measure (called the C-SCORE) as the sum of capitalized R&D, capitalized Advertising expense and the LIFO reserve scaled by net operating assets. This measure is the difference between assets as currently reported and assets that would have been reported if firms capitalized and amortized R&D and Advertising expense and used FIFO inventory accounting. It is a measure of the

[4] The logic for this is that if a firm does not have any returns because it was not public, then there cannot be any bias in the BM ratio as a result.

extent to which assets are understated due to conservative accounting practices in R&D, Advertising and Inventory. A critical difference between the C_SCORE and BV_CONS is that the former only focuses on a few select items that may affect book values where the later examines all balance sheet items in aggregate. The relationship between this measure of conservatism and value relevance provides a direct test of whether decreasing value relevance is explained by the failure to capture the value of certain intangibles.

Conservatism in Earnings, a variation on the Lev & Nissim Approach:

We use the magnitude of expenses as reported for financial reporting vs. tax reporting as a measure of downward bias in earning in a given period. This measure is related to the ratio of income for tax vs. financial reporting commonly discussed in Financial Statement Analysis textbooks (Revsine, Collins, & Johnson 2002) and examined in recent research (Lev & Nissim 2004).[5] In this paper we examine the ratio of expenses for financial reporting to expenses for tax reporting. We consider expenses to be more aggressive in financial reporting if they are lower than expenses reported for taxes. The smaller the ratio is, the more aggressive is the accounting and conversely, the larger the ratio is the more conservative is the accounting. We depart from the literature and examine the ratio of expenses, instead of earnings, because the ratio of earnings could be poorly behaved when earnings nears zero and could be difficult to interpret when one or both earnings numbers become negative. Financial reporting expenses are estimated as the difference between revenues and income before taxes. Tax expenses are estimated as the difference between revenues and taxable income, which is inferred from current federal income taxes and the prevailing tax rate. We refer to this ratio as

[5] Note that the relationship between expenses will be the inverse as that of the relationship between incomes. Hence, instead of using the ratio of pre-tax income to taxable income, we use the ratio of financial reporting expenses to tax reporting expenses.

Tax based Earnings Conservatism (TEC), as it is a measure of earnings conservatism that relies on tax information.

Sample Selection and Descriptive Statistics:

Our sample consists of all firms in Compustat Annual Industrial dataset (including research firms) for which data on security prices, splits and share information are available in the CRSP monthly return file. Consistent with prior literature we include all firms including financial services and utilities firms.

In our analyses, we divide our sample in a given year into three groups (Top 30%, Middle 40% and Bottom 30%)[6] within industry by the measure of conservatism. Table 1 presents descriptive statistics, pooled across time, for the three groups using all of our firm year level measures of conservatism. We define all three measures in such a way that the bottom 30% is the least conservative group, and the top 30% is the most conservative group. Not surprisingly, the book to market ratio in the least conservative group is higher than for the most conservative group. In addition the market value of equity, book value of equity, assets, and revenue, are consistently larger in the top 30% vs. the bottom 30%, regardless of the measure used for the grouping. The debt to equity ratio is consistently smaller for the top 30% relative to the bottom 30%, in all three panels. Differences in revenue growth, and ROA, are not the consistent across the three panels.

Panel A of Figure 1 shows the trend in BV_CONS measure of conservatism over time. The 3 lines in the figure represent the mean of the conservatism score in each group by year and do not intersect by construction. There does appear to be some convergence in the 3 lines

[6] We present the analysis in three groups for ease of presentation. We have conducted the analysis quintiles and observed results similar to those presented in this paper.

over time, with the conservatism score decreasing for the most conservative group (Top 30%) and increasing for the least conservative group (Bottom 30%).

Panel B of figure 1 shows that C-score is increasing over time for the most conservative group, but reasonably level for the other groups. Recall that C-score is related to intangibles such as R&D and advertising. Lev and Zarowin (1999) posit increasing investment in intangibles as one possible reason for decreasing value relevance and the C-score metric can be used to examine this possibility directly.

Panel C of Figure 1 presents the mean or the ratio of expenses for financial reporting vs. tax reporting, our measure of tax based earnings conservatism (TEC). The behavior of the ratio is essentially flat over time for the top 30%, the middle 40%, and decreasing for the bottom 30%, indicating a decrease in conservatism for the least conservative firms.

Table 2, Panel A provides the pair wise spearman correlations among the three measures over time. The first column shows that the BV_CONS and C_SCORE measures consistently are positively correlated over time. The second column shows that BV_CONS and TEC overall have a little correlation (0.07 mean correlation), and that the correlation by years often have different signs. The third column shows that the C_SCORE and TEC are consistently negatively correlated over time.

Panel B of table 2 presents a series of transition matrices in which we show the number of observations in each group in a given year, and group of the same observations in the next year (Year +1) and five years out (Year +5). Further for each group we provide the percentage of observation in Year X that stayed in the same group in Year X+1, and X+5 respectively. The panel shows that groupings based on the book value based measures BV_CONS, and C_SCORE typically have higher values of % same than those based on TEC.

This indicates that groupings based on BV_CONS and C_SCORE are relatively more stable over time.

4. The Relationship between Conservatism and Value Relevance of Accounting

Trends in Value Relevance using the Beaver & Ryan based approach:

We examine value relevance in each group of conservatism using the BV_CONS measure as our benchmark case. Table 3 presents the mean of regression coefficients and R^2 from the 25 annual regressions (with t-statistics controlling for autocorrelation). Examining the explanatory power of the regression, we observe that the R^2 are not significantly different between the top and bottom groups. A similar pattern is observed in the magnitude of the coefficient on book value by group, but the coefficient on earnings increase from 1.67 to 3.81 across the groups, and the increase is statistically significant. The greater coefficient indicates a greater capitalization for earnings for firms with the most conservative balance sheets.

Panel B presents trends in the adjusted R^2 of the regressions over time, and by group. The last column of the panel presents the difference in R^2 between the extreme groups. The last two rows of the table summarize the trend in each column of the data. The only group with a significant trend is the group of least conservative firms, which shows a significant decline in value relevance across time. These results are not consistent with conservatism explaining decreasing value relevance.

One potential concern about value relevance regressions is the role of loss firms. Prior research has documented that decreasing value relevance is associated with growth in the number of loss firms over time. Figure 2 shows that there does seem to be a slightly larger proportion of loss firms in bottom group but the trends in the proportion of loss firms across time for the other 2 groups are similar. We conducted all the tests results reported in tables 3

in our sample excluding loss firms and found results that were similar in direction and significance to those reported in this section.

Trends in Value Relevance using the Penman & Zhang based approach:

In Table 4, we repeat the analysis of the value relevance of earnings and book value, but assign firms to quintiles within industry by the C_SCORE measure. In Panel A, we examine the summary of the annual regressions across time. Similar to the pattern in Table 3, there is no significant difference in R^2 between the top and bottom group. Unlike Table 3 however, the difference in earnings capitalization is not significant.

Panel B of Table 4 shows again that there is a statistically significant decline in R^2 only in the least conservative group, and not in the most conservative group. Recall the predominant component of the C_SCORE is expenditures related to intangibles, and that the C_SCORE is increasing over time in the top 30% group. If accounting's failure to capture increasing investment in intangibles were to explain decreasing value relevance, we should observe a decrease in value relevance in the top 30% group, and not the bottom 30% group. Correspondingly, the analysis presented in this table is also not consistent with conservatism explaining decreasing value relevance.

Trends in Value Relevance using the Lev & Nissim based approach:

In Table 5, we repeat the analysis of the value relevance of earnings and book value, but assign firms to groups within industry based on the ratio of expenses as reported in financial statements vs. tax statements (TEC). In the cross section (Panel A), there is no difference the explanatory power of the regressions in the bottom vs. the top group. The capitalization of earnings is significantly higher for the most conservative firms, but the capitalization of book value is significantly lower. Over time there is a statistically significant

decrease in value relevance for the least conservative group, and the middle group, but no - significant decrease for the most conservative group. Again, the analysis presented in table 5 is not consistent with conservatism explaining decreasing value relevance.

In table 6, we combine all three measures of conservatism and examine patterns in value relevance. For table 6, we again create three groups, year by year, but this time we assign a firm to the "most conservative" group if ***all three*** measures of conservatism used previously are ***above*** their industry median for that year. Similarly, we assign firms to the "least conservative" group if ***all three*** measures are ***below*** their industry median for the year. The remaining firms comprise the middle group. In the cross section (Panel A), there is no difference the explanatory power of the regressions in the most vs. the least conservative groups. The capitalization of earnings is significantly higher for the most conservative group, but the capitalization of book value is lower. Over time there is a statistically significant decrease in value relevance for the least conservative group, and the middle group, but no significant decrease for the most conservative group. In summary, the analyses presented in tables 3 through 6 are not consistent with conservatism explaining decreasing value relevance.

Up to this point, there is no evidence of an inverse relationship between value relevance and conservatism in any of the specifications. The conservatism measures used thus far have viewed conservatism as a downward bias in either earnings or book value. An alternate view is to consider conservatism in terms of differential verifiability with respect to gains versus losses. It is possible that using this alternate approach that could lead to a different conclusion. We examine this possibility next.

Alternative Approach: Conservatism as Asymmetric Timeliness

Conservatism, viewed as differential verifiability attached towards gains and losses, manifests itself in the asymmetric timeliness of losses. Asymmetric timeliness can also potentially reduce the value relevance of accounting, because the greater incidence of losses, especially large losses makes it less likely that earnings are as relevant for price setting, as losses tend to have less persistence.

Ideally we would test the relationship between conservatism measures based on asymmetric timeliness and value relevance directly as in the prior sections, but since asymmetric timeliness cannot be measured at a firm year level, we are unable to conduct the same direct tests. Instead, we examine the relationship between the measures of asymmetric timeliness and the previously used measures of downward bias. Note that we did observe a decline in value relevance in the group of firms with the least conservative accounting as measured by downward bias metrics. An increase in asymmetric timeliness in this group may imply that asymmetric timeliness contributed to the decline in value relevance. To study this, we examine the behavior of asymmetric timeliness over time across the different groups.

Basu (1997) elaborates on the notion of differential verifiability towards gains and losses by outlining the concept of asymmetric timeliness of losses. As accounting is conservative, bad news is impounded in the accounts more quickly than good news. For instance if assets are impaired, the charge for impairment is to be taken as soon as the impairment becomes apparent. However, if an asset suddenly increases in value, the increase is not recognized until the asset is actually sold (with the exception now of certain financial assets accounted for using fair values). There are many other instances where accounting is asymmetric in the treatment of good news (or gains) and bad news (or losses).

We measure asymmetric timeliness using two proxies. Our first measure captures the effect of asymmetric timeliness on the distribution of earnings. The immediate recognition of losses and the delayed recognition of gains means that one is more likely to see extreme negative losses and less likely to see extreme positive earnings, leading to a skewed distribution of earnings. Lang, Raedy and Yetman (2003) use the skewness of earnings as a proxy for asymmetric timeliness.

Our second measure of earnings conservatism follows directly from Basu (1997). The Basu model is as follows

$$EPS_{i,t} = \alpha + \beta_1 * RET_{i,t} + \beta_2 * DUM_i + \beta_3 * RET_{i,t} * DUM_i + \varepsilon$$

where $EPS_{i,t}$ is the EPS for firm i, $RET_{i,t}$ is the contemporaneous return for firm i in the same period as the earnings, and DUM_i is a dummy variable that equals 1 if $RET_{i,t} < 0$ and 0 otherwise. In this model, stock returns proxy for the news in the time period, with negative news being proxied for by negative returns. For a firm with good news, the coefficient of returns on earnings is merely β_1. However, for a firm with bad news (i.e. $RET_{i,t} < 0$ or $DUM_i = 1$), the coefficient of returns on earnings is $\beta_1 + \beta_3$. In other words, β_3 picks up the asymmetric timeliness as one expects bad news to have a greater impact on earnings than good news.

We examine the relationship between measures of asymmetric timeliness and our firm year measures of conservatism in Tables 7 and 8. Table 7 compares the skewness of distributions of earnings measures in each of the conservatism groups defined Table in 6. In Panel A, we compare the skewness of annual distributions over the 25 years of data we analyze in this study. We test for the difference in mean skewness by generating a pooled estimate of standard error from the variances of the skewness measures across time for the

groups. As the results in Table 7-A indicate, all but the most conservative group have earnings distributions that are negatively skewed. For instance, the skewness of EPS/Price is -4.78 for the least conservative group and 1.43 for the most conservative group. Further the differences between the most and least conservative groups are statistically positive and significant. These results are robust to two alternative measures of earnings, and show that asymmetric timeliness is in the cross section inversely associated with our firm year measures of conservatism.

Panel B examines the trend in asymmetric timeliness across the three groups of firms based on their summary measure of conservatism. The results in panel B show that earnings have not become more negatively skewed over time as a whole. More importantly, earnings have not become more negatively skewed in the "least conservative" group in which the decline in value relevance occurs.

Table 8 presents the same analysis as Table 7, but uses the Basu measure of asymmetric timeliness instead of negative skewness. Using the Basu measure we observe similar patterns in asymmetric timeliness as we did in Table 7. Asymmetric timeliness is decreasing in our firm year based conservatism measures in the cross section (Panel A). In panel B, we observe that there is no increase in asymmetric timeliness in the "least conservative" column in which the decline in value relevance is observed.

The tests using either the skewness measures or the Basu measure indicate two aspects about the properties of our firm year measures vs. measures of asymmetric timeliness. First, our data support the notion of asymmetric timeliness as our pooled sample of firms (The "All Groups" column in table 7 and 8) shows asymmetric timeliness in the population. Second, there appears to be a negative relationship between our firm year measures of conservatism

that rely on downward bias and measures of conservatism based on asymmetric timeliness. This result is consistent with the theory of conditional and unconditional conservatism developed by Beaver and Ryan (2005).

5. Conclusions

We examine the association between value relevance and conservatism over time. Ex-ante, the direction of relationship between value relevance and conservatism is unclear; value relevance and conservatism may behave as complements or substitutes. The literature has measured conservatism using several alternative measures and definitions (Watts 2003). We measure of conservatism in a variety of ways motivated by Beaver & Ryan (2000), Penman and Zhang (2002), Lev and Nissim (2004) and Basu (1997).

We find decreasing value relevance in the least conservative firms in all of our specifications in which we are able to measure conservatism on a firm year basis. Prior literature suggests that conservatism related to certain types of transactions, specifically expenditures on intangibles might be the reason for decreasing value relevance. However, we find that there is no decrease in value relevance in firms where expenditures on intangibles such as R&D are increasing over time. We do find that there is a decrease in value relevance in firms that are *not* likely to be affected by conservative accounting for factors such as intangibles.

We document, in the cross section that there is a negative association between conservatism measured in terms of downward bias in book values and earnings and conservatism measured as asymmetric timeliness in earnings. This is consistent with theory presented in Beaver and Ryan (2005). Although we find an inverse relation *in the cross*

section, we do not observe an increase in asymmetric timeliness over time for firms with the least downward bias which had a decline in value relevance. Hence we are unable to associate the decrease in value relevance of accounting with an increase in conservatism, whether conservatism is viewed in terms of downward bias in earnings and book values or as asymmetric timeliness in earnings.

Taken together our results indicate that increasing conservatism cannot be associated with decreasing value relevance. Our results suggest that the plausibility of attributing decreasing value relevance to accounting's failure to recognize expenditures on R&D and advertising on the balance sheet is limited. In fact our finding that value relevance declines the most for the least conservative firms suggests that researchers, practitioners and standard setters might benefit from focusing less on what gets omitted because of conservatism and more on what enters the financial statements because of less conservative accounting.

Our work contributes to the literature on value relevance and conservatism in the following ways. First we document historical patterns in the relationship between conservatism and value relevance. This information is likely to be useful to academics and practitioners alike. For example our finding that increasing conservatism related to intangibles is not associated with decreasing relevance has the potential to revise beliefs in this area as accounting for intangibles is commonly cited as a reason for decreasing relevance. Second, our paper empirically documents the inverse relation in the cross section between asymmetric timeliness and downward bias in book values and earnings. This inverse relationship was hypothesized in recent theory work by Beaver and Ryan (2005), and our paper provides consistent empirical evidence.

A natural follow-on question based on our empirical results might be whether mandating the use of more conservatism in accounting might increase the relevance of accounting numbers. Our results while they document an empirical regularity should not be viewed as normative in any sense. We do not know how the combination of regulation and firm's choices given the regulatory environment (and the resulting conservatism) are made. This endogenous relationship makes any normative recommendations from our results problematic at best; hence we refrain from making such statements.

REFERENCES

Beaver, W. and S. Ryan, 2000. Biases and Lags in Book Value and Their Effects on the Ability of the Book-to-Market ratio to Predict Book Return on Equity. Journal of Accounting Research 38, 127-148.

Beaver, W. and S. Ryan, 2005. Conditional and Unconditional Conservatism; Concepts and Modeling. Review of Accounting Studies (forthcoming).

Basu, S., 1997. The Conservatism Principle and the Asymmetric Timeliness of Earnings. Journal of Accounting and Economics 24, 3-37.

Collins, D., Maydew, E. and I. Weiss, 1997. Changes in the Value Relevance of Earnings and Book Values Over the Past 40 Years. Journal of Accounting and Economics 24, 39-68.

FASB, 1980. Qualitative Characteristics of Accounting Information. Statement of Financial Accounting Concepts No. 2, Stamford, CT.

FASB, 2004. The FASB's Conceptual Framework: Relevance and Reliability. Financial Accounting Standards Advisory Council, Stamford, CT.

Francis, J. and K. Schipper, 1999. Have Financial Statements Lost Their Relevance? Journal of Accounting Research 37, 319-352.

Easton, P., 1985. Accounting Earnings and Security Valuation; Empirical Evidence of the Fundamental Links. Journal of Accounting Research 23 (Supplement), 54-77.

Givoly, D. and C. Hayn, 2000. The Changing Time-Series Properties of Earnings, Cash Flows, and Accruals: Has Financial Reporting Become More Conservative? Journal of Accounting and Economics 29, 287-306.

Kieso, D., Weygandt, J. and T. Warfield, 2004. Intermediate Accounting. Wiley, New York, NY.

Lang, M., Raedy, J. and M. Yetman, 2003. How Representative Are Firms That Are Cross-Listed in the United States? An Analysis of Accounting Quality. Journal of Accounting Research 41, 363-386.

Lev, B. and P. Zarowin, 1999. The Boundaries of Financial Reporting and How to Extend Them. Journal of Accounting Research 37, 353-385.

Lev, B. and D. Nissim, 2004. Taxable Income as an Indicator of Earnings Quality. The Accounting Review, 79, 1039-1074.

Penman, S. and X. Zhang, 2002. Accounting Conservatism, the Quality of Earnings and Stock Returns. The Accounting Review 77, 237-264.

Revsine, L., Collins, D. and B. Johnson, 2002. Financial Reporting and Analysis. Prentice Hall, Upper Saddle River, NJ.

Roychowdhury, S. and R.Watts, R., 2004. Asymmetric Timeliness of Earnings, Market-to-Book and Conservatism in Financial Reporting. Working paper, MIT/University of Rochester.

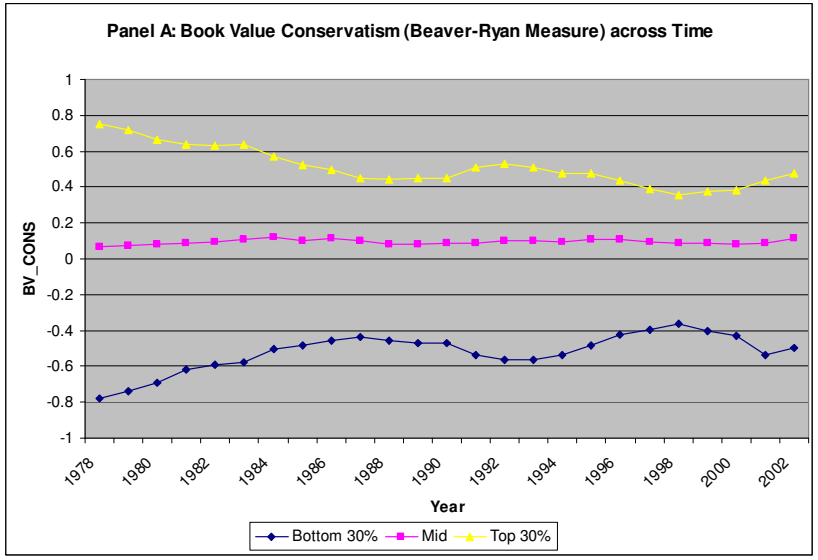
Smith, J. and F. Skousen, 1987. Intermediate Accounting. Southwestern Publishing, Cincinnati, OH.

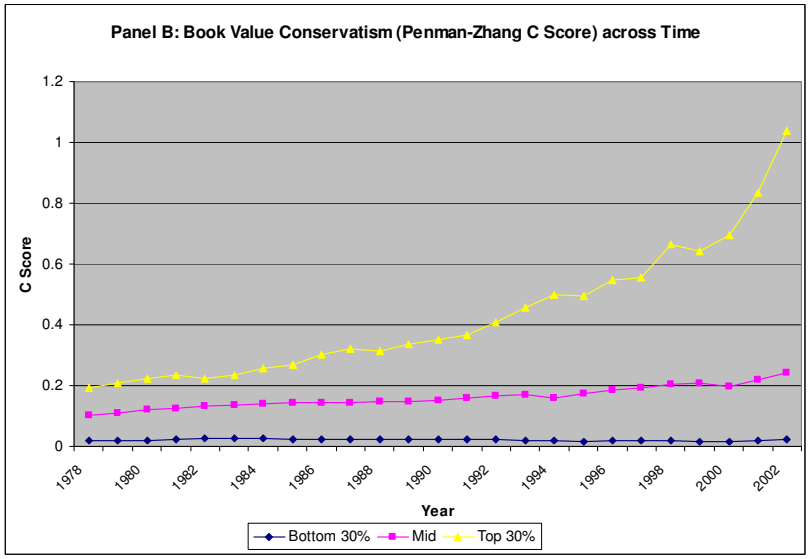
Stern Stewart & Co., 2002. Accounting is Broken, Here's How to Fix It. EVAluation 5.

Theil, H., 1971. Principles of Econometrics. Wiley, New York, NY.

Watts, R., 2003. Conservatism in Accounting part I: Explanations and Implications. Accounting Horizons 17, 207-221.

FIGURE 1: Trends in Conservatism Measures across Time





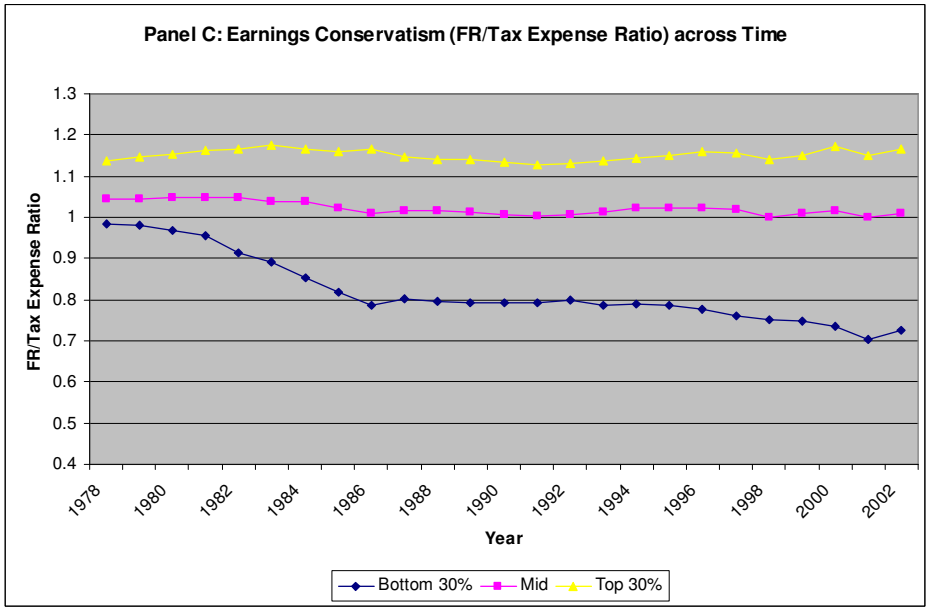


FIGURE 2: Trends in Loss Firms across Time

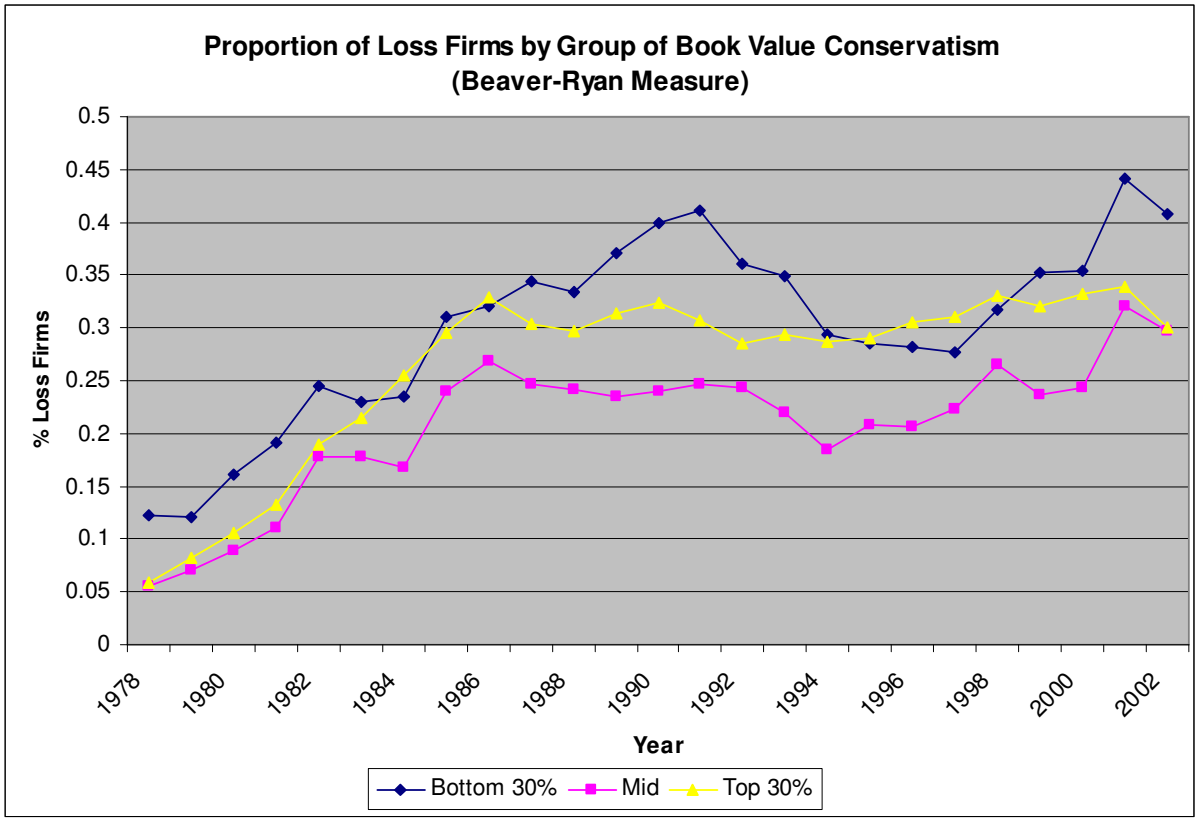


TABLE 1

Descriptive Statistics by groups of Balance Sheet Conservatism

Panel A: Means by Groupings Based on Beaver-Ryan Measure (BV_CONS)

	Bottom 30%	Middle	Top 30%	Top - Bottom	t-stat
Market Value of Equity	562	1631	1966	1404	21.93
Book Value of Equity	378	666	608	230	11.51
Book to Market Ratio	1.363	0.744	0.471	-0.892	-166.47
Total Assets	1698	3195	3667	1969	12.27
Revenues	823	1505	1577	754	15.95
Revenue Growth	12.49%	14.76%	17.96%	5.47%	7.94
ROA	-0.01%	2.21%	-0.97%	-0.96%	-5.12
LTD/Market Value of Equity	1.370	0.621	0.515	-0.854	-10.50
Number of firm-years	30908	38835	30986		

Panel B: Means by Groupings Based on Penman-Zhang (2002) Measure (C-SCORE)

	Bottom 30%	Middle	Top 30%	Top - Bottom	t-stat
Market Value of Equity	739	1903	1574	835	15.97
Book Value of Equity	318	685	616	298	19.06
Book to Market Ratio	0.921	0.820	0.809	-0.111	-18.87
Total Assets	1201	1955	2891	1690	14.08
Revenues	958	1720	1380	422	9.37
Revenue Growth	15.89%	14.32%	14.95%	-0.93%	-1.46
ROA	3.00%	3.53%	-0.73%	-3.73%	-26.22
LTD/Market Value of Equity	0.934	0.583	0.926	-0.009	-0.12
Number of firm-years	24803	24181	39210		

Panel C: Means by Groupings Based on Reporting to Tax Expense Ratio (TEC)

	Bottom 30%	Middle	Top 30%	Top - Bottom	t-stat
Market Value of Equity	439	972	2402	1962	23.08
Book Value of Equity	209	432	766	558	26.38
Book to Market Ratio	0.973	0.840	0.691	-0.282	-42.62
Total Assets	879	1747	2593	1714	13.17
Revenues	603	1199	1748	1144	22.65
Revenue Growth	14.17%	14.57%	17.99%	3.83%	4.28
ROA	-14.34%	5.12%	9.18%	23.52%	114.89
LTD/Market Value of Equity	1.301	0.661	0.435	-0.867	-12.17
Number of firm-years	23787	29245	23882		

The three measures of conservatism are: BV_CONS based on Beaver-Ryan (2000), which is the negative of the firm specific fixed effect of a regression of the book to market ratio on lagged annual returns; C-SCORE based on Penman-Zhang (2002), defined as the sum of reserves arising because of conservative accounting scaled by

Net Operating Assets; TEC, which is a measure of earnings conservatism based on the following ratio $\frac{EXPENSES_{FINANCIAL\,REPORTING}}{EXPENSES_{TAX\,REPORTING}}$. Details are in the notes to tables 3-5. Firms in the same industry (based on 2 digit SIC code) in a given year are classified into three groups based on the level of conservatism: bottom 30% (least conservative), middle 40% and top 30% (most conservative). ROA is return on assets defined as (Net Income + 0.65*Interest)/ Total Assets. Net Income is measured excluding extra-ordinary items. Compustat item numbers are as follows: interest (#15), total assets (#12), total common equity (#60), and net income before extra-ordinary items (#18). ROA and Sales growth are winsorized at 0.5% and 99.5% by year. All variables are defined at fiscal year end. The Beaver-Ryan conservatism measure is based on beginning of year information

TABLE 2
Correlations

Panel A: Spearman Correlation between the 3 measures of Conservatism across Time

Year	ρ(BV_CONS, C-SCORE)	ρ(BV_CONS, TEC)	ρ(C-SCORE, TEC)
1978	0.066	0.324	-0.120
1979	0.051	0.282	-0.120
1980	0.032	0.292	-0.174
1981	0.024	0.215	-0.125
1982	0.027	0.210	-0.115
1983	0.036	0.132	-0.055
1984	0.094	0.032	-0.061
1985	0.152	0.020	-0.052
1986	0.234	0.013	-0.036
1987	0.236	0.012	-0.062
1988	0.243	0.026	-0.074
1989	0.228	0.025	-0.114
1990	0.191	0.056	-0.114
1991	0.160	0.068	-0.077
1992	0.150	0.052	-0.084
1993	0.129	0.035	-0.126
1994	0.152	-0.011	-0.095
1995	0.157	0.002	-0.090
1996	0.179	-0.050	-0.169
1997	0.211	-0.062	-0.173
1998	0.243	-0.010	-0.143
1999	0.244	-0.005	-0.175
2000	0.272	-0.015	-0.215
2001	0.218	0.065	-0.280
2002	0.217	0.044	-0.273
Mean	0.158	0.070	-0.125

Panel B: Transition Matrix of Categories across Time

CONSERVATISM MEASURE : Beaver-Ryan (2000) Measure (BV_CONS)

		Future Grouping (Year+1)			
Current Group	N	Bottom 30%	Middle	Top 30%	% SAME
Bottom 30%	17654	15851	1771	32	89.8%
Middle	23980	2532	19885	1563	82.9%
Top 30%	18154	105	2606	15443	85.1%

		Future Grouping (Year+5)			
Current Group	N	Bottom 30%	Middle	Top 30%	% SAME
Bottom 30%	9374	6402	2635	337	68.3%
Middle	14091	3864	8027	2200	57.0%
Top 30%	10461	1062	3830	5569	53.2%

CONSERVATISM MEASURE : Penman-Zhang (2002) Measure (C-SCORE)

		Future Grouping (Year+1)			
Current Group	N	Bottom 30%	Middle	Top 30%	% SAME
Bottom 30%	16601	14829	1300	472	89.3%
Middle	17352	1353	14079	1920	81.1%
Top 30%	25835	279	1877	23679	91.7%

		Future Grouping (Year+5)			
Current Group	N	Bottom 30%	Middle	Top 30%	% SAME
Bottom 30%	9081	6508	1701	872	71.7%
Middle	10253	1802	6441	2010	62.8%
Top 30%	14592	507	2079	12006	82.3%

CONSERVATISM MEASURE : Reporting-to-Tax Expense Ratio (TEC)

		Future Grouping (Year+1)			
Current Group	N	Bottom 30%	Middle	Top 30%	% SAME
Bottom 30%	16213	9569	4505	2139	59.0%
Middle	23982	4819	14296	4867	59.6%
Top 30%	19593	2357	5053	12183	62.2%

		Future Grouping (Year+5)			
Current Group	N	Bottom 30%	Middle	Top 30%	% SAME
Bottom 30%	7991	3008	3139	1844	37.6%
Middle	14010	2937	7266	3807	51.9%
Top 30%	11925	2269	3827	5829	48.9%

The three measures of conservatism are: BV_CONS based on Beaver-Ryan (2000), which is the negative of the firm specific fixed effect of a regression of the book to market ratio on lagged annual returns; C-SCORE based on Penman-Zhang (2002), defined as the sum of reserves arising because of conservative accounting scaled by Net Operating Assets; TEC, which is a measure of earnings conservatism based on the following ratio $\frac{EXPENSES_{FINANCIAL\ REPORTING}}{EXPENSES_{TAX\ REPORTING}}$. Details are in the notes to tables 3-5. Firms in the same industry (based on 2 digit SIC code) in a given year are classified into three groups based on the level of conservatism: bottom 30% (least conservative), middle 40% and top 30% (most conservative). The correlation matrix in Panel A uses observations where all three measures of conservatism were available.

TABLE 3: *Value Relevance by groups of Balance Sheet Conservatism, measured using the Beaver-Ryan (2000) measure*

Panel A: Value Relevance of Earnings and Book Values (PRICE = $\alpha + \beta_1$*EPS + β_2*BVPS + ε)

	All Groups	Bottom 30%	Middle	Top 30%	Top - Bottom
Intercept	4.860	2.335	4.004	5.522	3.187
	(12.12)	(3.00)	(9.82)	(5.25)	(2.44)
EPS	3.134	1.687	2.830	3.811	2.124
	(11.82)	(8.16)	(8.59)	(15.30)	(6.56)
BVPS	0.915	0.855	1.046	1.209	0.354
	(4.33)	(4.09)	(4.46)	(4.93)	(1.10)
Avg. Adjusted R^2	51.0%	59.2%	56.9%	61.0%	1.8% (0.24)

Panel B: Value Relevance across Time: Adjusted R^2 of Model: PRICE = $\alpha + \beta_1$*EPS + β_2*BVPS + ε

Year	All Groups	Bottom 30%	Middle	Top 30%	Top - Bottom
1978	49.1%	69.3%	49.2%	53.5%	-15.7%
1979	52.5%	62.5%	51.0%	54.0%	-8.5%
1980	47.5%	41.0%	47.2%	57.5%	16.6%
1981	45.1%	58.1%	36.2%	65.6%	7.5%
1982	36.8%	63.6%	27.2%	60.6%	-3.0%
1983	27.9%	68.9%	18.7%	63.3%	-5.6%
1984	67.4%	75.5%	71.4%	71.8%	-3.7%
1985	62.8%	72.0%	68.3%	64.1%	-7.9%
1986	64.8%	73.1%	71.4%	70.7%	-2.4%
1987	58.7%	71.0%	65.2%	65.7%	-5.4%
1988	60.6%	67.0%	70.5%	69.1%	2.0%
1989	57.6%	73.7%	54.8%	67.0%	-6.7%
1990	54.0%	62.9%	53.1%	64.3%	1.4%
1991	56.2%	62.0%	56.6%	66.9%	4.9%
1992	57.7%	59.2%	58.4%	73.0%	13.7%
1993	56.8%	61.4%	54.7%	71.0%	9.5%
1994	64.3%	64.0%	68.2%	67.4%	3.3%
1995	59.4%	56.7%	62.4%	66.3%	9.7%
1996	61.1%	60.3%	62.8%	68.8%	8.5%
1997	57.4%	56.7%	60.0%	64.8%	8.1%
1998	41.9%	46.3%	39.9%	51.2%	4.9%
1999	27.7%	28.9%	28.6%	33.5%	4.6%
2000	32.9%	40.7%	28.4%	45.5%	4.8%
2001	34.9%	41.1%	34.2%	49.9%	8.8%
2002	39.5%	44.6%	42.3%	40.0%	-4.7%
TREND	-0.01%	-0.70%	0.17%	-0.21%	0.49%
(t-stat)	(-0.02)	(-2.59)	(0.39)	(-0.85)	(1.33)

Sample consists of all firms in the time period from 1978-2002 for which the Beaver-Ryan measure of book value conservatism can be estimated. Firms in the same industry (based on 2 digit SIC code) in a given year are classified into three groups based on the level of conservatism: bottom 30% (least conservative), middle 40% and top 30% (most conservative). Annual regressions are run of stock price (PRICE) on earnings (EPS) and book values (BVPS). PRICE is stock price at fiscal year end (Compustat #199). EPS is basic EPS before extraordinary items (Compustat # 58), BVPS is common equity (Compustat #60) divided by shares outstanding (Compustat # 54). Coefficients are averaged from the 25 annual regressions. T-statistics are calculated from the distribution of coefficients, correcting for auto-correlation. For comparison of extreme quintiles, t-statistics for differences in coefficients, adjusted R^2 and correlations are calculated using pooled estimates of standard error. In addition, we run a time trend regression to study the pattern of value relevance over time using the following model: ADJRSQ = intercept + trend*time, where time is a variable that equals 0 for 1978 and increases by 1 for each year (i.e. up to 24 for 2002). A dummy variable for the years 1999 and 2000 is added to the regression to account for the reduced value relevance owing to the technology bubble.

TABLE 4: *Value Relevance by groups of Balance Sheet Conservatism, measured using the Penman-Zhang (2002) C-Score measure*

Panel A: Value Relevance of Earnings and Book Values (PRICE = $\alpha + \beta_1$*EPS + β_2*BVPS + ε)

	All Groups	Bottom 30%	Middle	Top 30%	Top - Bottom
Intercept	4.743	2.795	5.274	5.811	3.016
	(9.68)	(1.82)	(5.36)	(8.70)	(1.81)
EPS	3.284	2.873	3.694	3.330	0.458
	(14.34)	(12.96)	(16.58)	(11.45)	(1.25)
BVPS	0.959	1.104	0.955	0.851	-0.253
	(4.39)	(3.00)	(4.95)	(5.46)	(-0.63)
Avg. Adjusted R^2	52.9%	55.5%	58.6%	50.4%	5.1% (-0.61)

Panel B: Value Relevance across Time: Adjusted R^2 of Model: PRICE = $\alpha + \beta_1$*EPS + β_2*BVPS + ε

Year	All Groups	Bottom 30%	Middle	Top 30%	Top - Bottom
1978	49.1%	60.8%	55.7%	42.5%	-18.3%
1979	55.1%	51.2%	56.2%	55.6%	4.5%
1980	52.6%	48.1%	57.5%	49.9%	1.8%
1981	56.9%	56.0%	59.8%	52.8%	-3.3%
1982	53.7%	54.4%	60.0%	49.0%	-5.5%
1983	61.0%	61.1%	64.1%	58.4%	-2.8%
1984	66.8%	68.0%	66.1%	66.0%	-2.0%
1985	61.5%	66.5%	65.1%	57.1%	-9.4%
1986	65.1%	65.6%	66.7%	64.5%	-1.1%
1987	59.6%	64.4%	64.4%	54.2%	-10.2%
1988	62.8%	60.4%	75.4%	56.5%	-3.9%
1989	57.3%	66.3%	66.1%	50.4%	-15.9%
1990	54.6%	61.7%	63.7%	47.0%	-14.7%
1991	54.9%	63.6%	63.9%	46.3%	-17.3%
1992	54.8%	66.2%	65.2%	44.4%	-21.8%
1993	56.3%	67.0%	70.5%	45.3%	-21.7%
1994	64.6%	66.3%	74.5%	56.9%	-9.4%
1995	57.5%	62.0%	61.1%	52.8%	-9.1%
1996	59.4%	57.6%	62.4%	59.1%	1.5%
1997	52.7%	49.0%	54.0%	54.3%	5.3%
1998	38.6%	39.6%	40.0%	38.9%	-0.8%
1999	26.2%	30.8%	29.2%	23.5%	-7.3%
2000	31.0%	33.0%	32.0%	33.3%	0.3%
2001	32.9%	32.8%	39.7%	42.1%	9.3%
2002	37.7%	34.9%	51.8%	58.1%	23.2%
TREND	-0.58%	-0.61%	-0.39%	-0.18%	0.43%
(t-stat)	(-2.55)	(-2.13)	(-1.52)	(-0.82)	(1.21)

Sample consists of all firms in the time period from 1978-2002 for which the Penman-Zhang C score can be estimated. The C score is defined as the sum of reserves arising because of conservative accounting scaled by Net Operating Assets. Reserves are the sum of the LIFO reserve and estimated reserves arising out of R&D (using a five year sum of the digits amortization) and advertising expense (using a two year sum of the digits amortization). Net Operating Assets is calculated as the difference between operating assets and operating liabilities as follows from Penman Zhang (2002) using Compustat data items: [#60 + #34 + #9 + #130 - #1 - #32 - #38]. R&D is Compustat #46, advertising expense is Compustat #45 and LIFO reserve is Compustat #240. Firms in the same industry (based on 2 digit SIC code) in a given year are classified into three groups based on the level of conservatism: bottom 30% (least conservative), middle 40% and top 30% (most conservative). Annual regressions are run of stock price (PRICE) on earnings (EPS) and book values (BVPS). PRICE is stock price at fiscal year end (Compustat #199). EPS is basic EPS before extraordinary items (Compustat # 58), BVPS is common equity (Compustat #60) divided by shares outstanding (Compustat # 54). Coefficients are averaged from the 25 annual regressions. T-statistics are calculated from the distribution of coefficients, correcting for auto-correlation. For comparison of extreme quintiles, t-statistics for differences in coefficients, adjusted R^2 and correlations are calculated using pooled estimates of standard error. In addition, we run a time trend regression to study the pattern of value relevance over time using the following model: ADJRSQ = intercept + trend*time, where time is a variable that equals 0 for 1978 and increases by 1 for each year (i.e. up to 24 for 2002). A dummy variable for the years 1999 and 2000 is added to the regression to account for the reduced value relevance owing to the technology bubble.

TABLE 5

Value Relevance by groups of Earnings Conservatism, measured using the reporting-to-tax expense ratio

Panel A: Value Relevance of Earnings and Book Values ($PRICE = \alpha + \beta_1 * EPS + \beta_2 * BVPS + \varepsilon$)

	All Groups	Bottom 30%	Middle	Top 30%	Top - Bottom
Intercept	4.888	3.399	3.483	4.539	1.140
	(8.40)	(6.05)	(4.83)	(9.05)	(1.51)
EPS	3.311	1.221	4.970	8.099	6.877
	(15.17)	(7.12)	(16.37)	(14.16)	(11.52)
BVPS	0.961	1.067	0.819	0.454	-0.612
	(4.22)	(6.05)	(3.76)	(3.31)	(-2.74)
Avg. Adjusted R^2	53.4%	54.0%	54.8%	55.9%	1.9% (0.24)

Panel B: Value Relevance across Time: Adjusted R^2 of Model: $PRICE = \alpha + \beta_1 * EPS + \beta_2 * BVPS + \varepsilon$

Year	All Groups	Bottom 30%	Middle	Top 30%	Top - Bottom
1978	49.1%	56.6%	46.0%	48.6%	-8.0%
1979	55.4%	57.7%	50.8%	54.5%	-3.2%
1980	54.0%	55.0%	52.4%	53.7%	-1.2%
1981	58.6%	57.8%	60.7%	57.2%	-0.7%
1982	54.3%	57.2%	64.4%	48.9%	-8.3%
1983	62.9%	63.6%	62.2%	64.0%	0.4%
1984	66.8%	69.0%	69.2%	65.9%	-3.1%
1985	60.9%	69.7%	67.3%	59.5%	-10.2%
1986	65.2%	59.0%	69.2%	65.7%	6.8%
1987	59.3%	55.1%	61.0%	61.5%	6.5%
1988	64.6%	58.4%	67.0%	71.4%	13.0%
1989	58.5%	40.1%	68.5%	67.2%	27.1%
1990	55.8%	54.7%	54.0%	67.7%	13.0%
1991	56.1%	62.1%	56.1%	63.7%	1.6%
1992	56.3%	50.3%	61.7%	68.3%	18.0%
1993	56.1%	64.8%	51.9%	67.2%	2.3%
1994	64.4%	60.3%	66.4%	69.5%	9.2%
1995	57.7%	53.5%	60.0%	57.5%	4.0%
1996	57.7%	60.7%	59.9%	56.6%	-4.1%
1997	52.2%	53.7%	52.6%	55.4%	1.6%
1998	40.1%	39.6%	49.0%	42.3%	2.8%
1999	25.5%	24.2%	22.5%	27.9%	3.7%
2000	32.0%	32.9%	28.0%	35.4%	2.5%
2001	34.4%	48.0%	28.1%	36.4%	-11.6%
2002	38.2%	47.1%	42.0%	32.7%	-14.4%
TREND	-0.60%	-0.47%	-0.56%	-0.44%	0.02%
(t-stat)	(-2.72)	(-2.20)	(-2.00)	(-1.46)	(0.06)

Sample consists of all firms in the time period from 1978-2002 for which the earnings conservatism measure, defined as $\frac{EXPENSES_{FINANCIAL\,REPORTING}}{EXPENSES_{TAX\,REPORTING}}$ could be calculated. Expenses for financial reporting are inferred as the difference between total revenues (Compustat #12) and pre-tax income (Compustat #170). Expenses for tax reporting are calculated as the difference between total revenue and taxable income, which is inferred by grossing up current federal taxes (Compustat #63) by the prevailing federal tax rate. Firms in the same industry (based on 2 digit SIC code) in a given year are classified into three groups based on the level of conservatism: bottom 30% (least conservative), middle 40% and top 30% (most conservative). Annual regressions are run of stock price (PRICE) on earnings (EPS) and book values (BVPS). PRICE is stock price at fiscal year end (Compustat #199). EPS is basic EPS before extraordinary items (Compustat # 58), BVPS is common equity (Compustat #60) divided by shares outstanding (Compustat # 54). Coefficients are averaged from the 25 annual regressions. T-statistics are calculated from the distribution of coefficients, correcting for auto-correlation. For comparison of extreme quintiles, t-statistics for differences in coefficients, adjusted R^2 and correlations are calculated using pooled estimates of standard error. In addition, we run a time trend regression to study the pattern of value relevance over time using the following model: ADJRSQ = intercept + trend*time, where time is a variable that equals 0 for 1978 and increases by 1 for each year (i.e. up to 24 for 2002). A dummy variable for the years 1999 and 2000 is added to the regression to account for the reduced value relevance owing to the technology bubble.

TABLE 6

Value Relevance by groups of a Summary measure of Conservatism

Panel A: Value Relevance of Earnings and Book Values (PRICE = $\alpha + \beta_1$*EPS + β_2*BVPS + ε)

	All Groups	Least Conservative	Rest	Most Conservative	Most - Least
Intercept	4.799	1.770	4.345	5.875	4.105
	(8.29)	(4.29)	(7.42)	(3.67)	(2.48)
EPS	3.400	1.260	2.837	8.004	6.744
	(15.84)	(5.49)	(15.60)	(15.32)	(11.82)
BVPS	0.972	0.970	1.026	0.563	-0.407
	(4.14)	(5.52)	(3.83)	(4.49)	(-1.88)
Avg. Adjusted R^2	53.0%	63.7%	52.4%	59.0%	-4.7%
					(-0.65)

Panel B: Value Relevance across Time: Adjusted R^2 of Model: PRICE = $\alpha + \beta_1$*EPS + β_2*BVPS + ε

Year	All Groups	Least Conservative	Rest	Most Conservative	Most - Least
1978	49.4%	72.1%	48.6%	48.7%	-23.3%
1979	55.5%	68.2%	53.7%	50.7%	-17.5%
1980	53.7%	49.8%	52.7%	54.6%	4.8%
1981	57.4%	66.0%	55.9%	60.4%	-5.7%
1982	53.9%	71.0%	50.3%	59.3%	-11.7%
1983	62.7%	70.7%	64.4%	61.1%	-9.6%
1984	66.8%	78.9%	68.5%	70.8%	-8.1%
1985	60.7%	73.6%	67.3%	58.7%	-14.9%
1986	65.1%	65.8%	66.9%	70.6%	4.8%
1987	59.7%	69.3%	60.0%	67.3%	-1.9%
1988	66.7%	73.0%	66.6%	76.9%	3.9%
1989	57.7%	65.8%	55.0%	69.7%	3.8%
1990	55.5%	73.1%	52.5%	65.1%	-8.0%
1991	55.6%	73.1%	60.6%	56.2%	-16.9%
1992	55.3%	64.9%	52.2%	72.8%	8.0%
1993	55.5%	66.3%	50.4%	72.1%	5.8%
1994	65.0%	70.4%	65.0%	73.2%	2.8%
1995	57.1%	64.8%	54.0%	65.3%	0.5%
1996	57.2%	67.5%	56.1%	63.5%	-4.0%
1997	49.8%	48.9%	50.0%	56.3%	7.4%
1998	38.1%	55.5%	37.8%	40.7%	-14.8%
1999	24.4%	37.3%	24.2%	24.3%	-12.9%
2000	30.9%	43.7%	28.6%	36.9%	-6.8%
2001	33.0%	47.9%	33.7%	38.8%	-9.0%
2002	37.3%	55.0%	34.2%	61.4%	6.5%
TREND	-0.66%	-0.60%	-0.71%	-0.08%	0.52%
(t-stat)	(-2.84)	(-2.65)	(-2.75)	(-0.25)	(1.36)

The above table uses all three measures of conservatism discussed thus far – the Beaver-Ryan (2000) measure, the Penman-Zhang (2002) C-Score as well as the Reporting-Tax expense ratio. For details, see the notes to tables 3,4 and 5. Firms with conservatism scores below the contemporaneous industry medians for all three measures are referred to as the least conservative firms. Firms with conservatism scores above contemporary industry median scores for all three measures are referred to as most conservative firms. Industry is defined as 2-digit SIC code. Annual regressions are run of stock price (PRICE) on earnings (EPS) and book values (BVPS). PRICE is stock price at fiscal year end (Compustat #199). EPS is basic EPS before extraordinary items (Compustat # 58), BVPS is common equity (Compustat #60) divided by shares outstanding (Compustat # 54). Coefficients are averaged from the 25 annual regressions. T-statistics are calculated from the distribution of coefficients, correcting for auto-correlation. For comparison of extreme quintiles, t-statistics for differences in coefficients, adjusted R^2 and correlations are calculated using pooled estimates of standard error. In addition, we run a time trend regression to study the pattern of value relevance over time using the following model: ADJRSQ = intercept + trend*time, where time is a variable that equals 0 for 1978 and increases by 1 for each year (i.e. up to 24 for 2002). A dummy variable for the years 1999 and 2000 is added to the regression to account for the reduced value relevance owing to the technology bubble.

TABLE 7

Skewness of Earnings by groups of a Summary measure of Conservatism

Panel A: Skewness of Earnings: Summary from 25 Annual Distributions

	All Groups	Least Conservative	Rest	Most Conservative	Most - Least
Skewness of EPS/Price	-6.93	-4.78	-3.96	1.43	6.20
	(-10.60)	(-16.85	(-22.45)	(3.17)	(11.66)
Skewness of NI/Asst	-1.58	-2.77	-2.58	4.37	7.14
	(-3.09)	(-20.48)	(-14.48)	(2.94)	(4.79)

Panel B: Skewness of Earnings (EPS/Price) Across Time

Year	All Groups	Least Conservative	Rest	Most Conservative	Most - Least
1978	-4.36	-3.73	-1.97	1.68	5.41
1979	-4.67	-3.90	-3.04	1.95	5.85
1980	-4.37	-3.13	-4.03	0.85	3.98
1981	-4.63	-3.90	-3.20	1.03	4.94
1982	-6.31	-5.05	-4.28	0.54	5.59
1983	-4.87	-3.37	-3.60	1.62	4.99
1984	-6.20	-4.76	-2.93	0.93	5.69
1985	-12.56	-7.31	-3.53	-0.57	6.74
1986	-12.61	-7.10	-4.81	-2.67	4.43
1987	-6.66	-4.58	-4.42	0.67	5.25
1988	-6.43	-4.35	-3.29	1.33	5.68
1989	-5.13	-4.09	-4.50	0.77	4.85
1990	-6.95	-5.01	-3.96	1.80	6.80
1991	-6.03	-4.32	-5.18	1.71	6.03
1992	-7.19	-5.00	-4.82	2.66	7.65
1993	-9.35	-6.03	-3.38	2.18	8.21
1994	-5.35	-4.52	-3.85	0.90	5.43
1995	-4.33	-3.21	-3.47	2.26	5.46
1996	-5.32	-4.51	-4.60	1.76	6.27
1997	-9.60	-6.08	-4.08	1.11	7.19
1998	-8.48	-5.61	-4.54	2.53	8.14
1999	-8.93	-5.74	-4.33	1.69	7.43
2000	-6.05	-3.97	-3.50	-0.20	3.77
2001	-12.26	-6.66	-5.69	1.72	8.38
2002	-4.55	-3.50	-4.02	7.45	10.95
TREND	-0.10	-0.04	-0.05	0.09	0.13
(t-stat)	(-1.37)	(-1.17)	(-2.74)	(2.04)	(2.34)

The above table uses all three measures of conservatism discussed thus far – the Beaver-Ryan (2000) measure, the Penman-Zhang (2002) C-Score as well as the Reporting-Tax expense ratio. For details, see the notes to tables 3,4 and 5. Firms with conservatism scores below the contemporaneous industry medians for all three measures are referred to as the most conservative firms. Firms with conservatism scores above contemporary industry median scores for all three measures are referred to as most conservative firms. Industry is defined as 2-digit SIC code. PRICE is stock price at fiscal year end (Compustat #199). EPS is basic EPS before extraordinary items

(Compustat # 58). Net Income is Income before extra-ordinary items (Compustat #18). Assets are Total Assets (Compustat #6). Panel A presents the skewness of EPS/Price and NI/Assets. Coefficients are averaged from the 25 annual regressions. T-statistics are calculated from the distribution of coefficients, correcting for auto-correlation. For comparison of extreme quintiles, t-statistics for differences in skewness are calculated using pooled estimates of standard error. In Panel B, the skewness of EPS/Price is presented across time for the three groups. In addition, we run a time trend regression to study the pattern of skewness over time using the following model: Skewness = intercept + trend*time, where time is a variable that equals 0 for 1978 and increases by 1 for each year (i.e. up to 24 for 2002).

TABLE 8

Asymmetric Timeliness of Earnings by groups of a Summary measure of Conservatism

Panel A: Summary of 25 annual Basu (1997) type regressions with dummy for Loss Firms

Model: $EPS/PRICE = \alpha + \beta_1 * RET_0 + \beta_2 * DUM + \beta_3 * RET_0 * DUM + \varepsilon$

	All Groups	Least Conservative	Rest	Most Conservative	Most - Least
Intercept	0.058	0.010	0.057	0.084	0.074
	(3.12	(0.39	(2.93)	(4.42)	(2.38)
RET0	0.016	-0.034	0.025	0.038	0.072
	(1.43	(-1.40	(2.21)	(8.59)	(2.93)
DUM	0.006	-0.033	0.006	-0.005	0.027
	(0.97	(-2.13	(1.01)	(-2.08)	(1.75)
RET0*DUM	0.554	0.866	0.450	0.062	-0.804
	(12.09	(9.35	(13.85)	(4.16)	(-8.57)
Avg. Adjusted R^2	12.1%	11.2%	14.8%	19.3%	8.1%

Panel B: β_3 from the Basu(1997) regression

Year	All Groups	Least Conservative	Rest	Most Conservative	Most - Least
1978	0.450	0.617	0.392	0.038	-0.412
1979	0.690	1.208	0.475	0.113	-0.577
1980	0.849	1.190	0.777	0.204	-0.645
1981	0.359	0.240	0.404	0.087	-0.272
1982	0.260	0.173	0.258	0.097	-0.163
1983	0.619	1.030	0.485	0.006	-0.613
1984	0.413	0.552	0.386	-0.007	-0.420
1985	0.783	1.539	0.466	0.117	-0.666
1986	0.960	1.796	0.614	0.206	-0.754
1987	0.585	1.052	0.425	0.066	-0.519
1988	0.579	0.935	0.455	0.002	-0.577
1989	0.725	1.064	0.638	0.016	-0.709
1990	0.663	0.977	0.590	0.035	-0.628
1991	0.821	0.537	0.815	0.046	-0.774
1992	0.545	1.119	0.325	0.041	-0.503
1993	0.534	1.027	0.423	0.036	-0.497
1994	0.377	0.570	0.338	0.039	-0.338
1995	0.514	0.464	0.498	0.057	-0.458
1996	0.392	0.655	0.333	0.014	-0.378
1997	0.405	0.732	0.349	0.043	-0.362
1998	0.395	0.713	0.330	0.057	-0.339
1999	0.426	0.762	0.322	0.082	-0.344
2000	0.449	0.731	0.356	0.058	-0.392
2001	0.639	1.371	0.413	0.072	-0.567
2002	0.417	0.597	0.391	0.030	-0.387
TREND	-0.0067	-0.0046	-0.0057	-0.0023	0.0024
(t-stat)	(-1.39	(-0.42)	(-1.50)	(-1.55)	(0.22)

The above table uses all three measures of conservatism discussed thus far – the Beaver-Ryan (2000) measure, the Penman-Zhang (2002) C-Score as well as the Reporting-Tax expense ratio. For details, see the notes to tables 3,4 and 5. Firms with conservatism scores below the contemporaneous industry medians for all three measures are referred to as the most conservative firms. Firms with conservatism scores above contemporary industry median scores for all three measures are referred to as most conservative firms. Industry is defined as 2-digit SIC code. EPS is basic earnings per share before extraordinary items (Compustat #58), while Price is stock price at fiscal year end (Compustat #199). RET0 is the contemporaneous buy-and-hold return for the fiscal annual period. Asymmetric timeliness is measured as the incremental coefficient (β_3) on returns for loss firms in the following regression model: EPS/Price = $\alpha + \beta_1 * RET_0 + \beta_2 * DUM + \beta_3 * RET_0 * DUM + \varepsilon$. Panel A presents the summary of 25 annual regressions for the entire sample as well as for the three groups described above. Differences between extreme groups are calculated using a pooled estimate of standard error. Panel B presents the time series trend for β_3. In addition, we run a time trend regression to study the pattern of asymmetric timeliness over time using the following model: β_3 = intercept + trend*time, where time is a variable that equals 0 for 1978 and increases by 1 for each year (i.e. up to 24 for 20)