Accounting Income Smoothing and Stockholder Wealth

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Abstract

Contrary to the widespread view that the accounting income smoothing phenomenon is a revelation of "cheating" and "misleading" on the part of the firm's management, this study demonstrates that income smoothing enhances the informational value of reported earnings. Furthermore, this study documents consistent evidence indicating that smoothed income numbers are viewed favorably by the markets, and firms with smoother income series are perceived as being less risky. The findings suggest that income smoothing can be beneficial to both existing stockholders and prospective investors.

Introduction

This study examines the relationship between accounting income smoothing and stockholder wealth. Numerous research studies have addressed the issue of whether or not income smoothing actually occurs and generally support the notion that managers often engage in accounting income smoothing (see Ronen and Sadan, 1981). However, there have been relatively few studies on the relationship between income smoothing and stockholder wealth.

In most income smoothing studies, accounting income smoothing was viewed as "cheating", "misleading", and "immoral" on the part of the firm's management (Ronen and Sadan, 1981). This study argues that contrary to this belief income smoothing enhances the informational value of earnings. Specifically, it suggests that the process of income smoothing necessarily incorporates managers' private knowledge regarding the firm's future performance. Furthermore, the analysis demonstrates that the extent to which a manager can smooth the firm's reported income reflects the accuracy of the manager's knowledge regarding the firm's future performance. Obviously, the revelation of management private knowledge regarding the firm's future performance is valuable to prospective investors. The investors who benefitted from this private knowledge are expected to respond favorably to the more informative earnings, which, in turn, would favorably affect the stockholder wealth. Therefore, income smoothing can be beneficial to both the firm's existing shareholders and the prospective investors. In addition, this study suggests that the existing stockholders can also benefit from the reduction in the perceived firm risk.

The relation between accounting income smoothing and firm risk and the market response to smoothed income numbers is also investigated empirically. The empirical tests are based on the information from 3756 firm/year observations for the period 1977 through 1986. The empirical evidence indicates that the market response to earnings for firms with a smooth income series is four times as large as that for other firms. In addition, firms with a smoother income pattern are perceived by the security market as being less risky. The empirical findings are consistent with the theoretical analysis of this paper, supporting the notion that stockholders can benefit from accounting income smoothing.

The rest of this paper is organized as follows: Section 1 develops a simple two-period model and demonstrates analytically that income smoothing enhances the informational value of earnings and reduces the perceived riskiness of the firm. Section 2 tests empirically the relationship between accounting income smoothing and firm risk and the market response to smoothed income numbers. Section 3 presents a summary and conclusion.

Accounting Income Smoothing and the Informativeness of Earnings

Numerous research studies have addressed the issue of accounting income smoothing (For a summary of this research, see Ronen and Sadan, 1981). The empirical evidence from these studies generally supports the hypothesis that corporate managers often engage in income smoothing (Barefield and Comiskey, 1972, Barnea, Ronen and Sadan, 1976, Beidleman, 1973, and Dascher, and Malcolm, 1970, among others). While there have been many empirical studies attempting to document whether or not income smoothing actually

occurs, there have been relatively few studies of the relationship between income smoothing and stockholder wealth. In most of these early studies, income smoothing behavior is viewed negatively. Ronen and Sadan (1981) conclude that:

Its perceived manifestations are in most cases negative. For example, the press, which is an agent of public opinion and sentiment, views the smoothing phenomenon as revelation of "cheating", of "misleading", and of other "immoral" deeds on the part of managers of corporations.

These early research studies generally suggest that accounting income smoothing reduces the information content of earnings and managers engage in accounting income smoothing to increase their own welfare at the expense of stockholders. A few recent analytical studies extended the early studies and demonstrated that under certain assumptions income smoothing may be potentially beneficial to the existing stockholders (Lambert, 1984, Dye, 1988, and Trueman and Titman, 1988). In general, the analytical results of these studies are derived based on the assumed differential risk attitudes of managers and stockholders (see Lambert, 1984), by precluding managers from borrowing and lending in the capital market (see Dye, 1988), or by depriving some firms of the ability to engage in accounting income smoothing (Trueman and Titman, 1988). While these studies provided us with significant insights on income smoothing, it is not immediately clear how prospective investors and stockholders can benefit from income smoothing. This study extends the existing research on accounting income smoothing in that it examines the relationship between income smoothing and stockholder wealth by focusing on the effects of income smoothing on the informational value of accounting numbers. It differs from previous studies in that the result of this study is independent of either managers' risk aversion or their restricted access to the capital market or the assumption that some firms do not have the ability to engage in income smoothing. In this study, rational stockholders would encourage the firm's management to engage in income smoothing only if smoothed income numbers are viewed more favorably by prospective investors. On the other hand, rational investors would respond to an earnings number more favorably only if it is more informative, other things being equal. It is evident that income smoothing can benefit both prospective investors and existing stockholders only if it enhances the informational value of the reported income numbers.

The remainder of this section examines the relationship between accounting income smoothing and the informativeness of earnings using a simple two-period case under the assumption that management has private knowledge about (1) the firm's future income (μ) with error ϵ, (2) the economic income for the two periods is a random realization of μ, and (3) the firm is allowed to report an income number different from the true income observed by its management for each period, but the total reported income for the two periods must be equal to the total of the true income. Similar assumptions have been used in previous studies (e.g., see Trueman and Titman, 1988). It is quite clear that if the observed first period income is less than μ, then smoothing first period income upward toward μ, on average, results in a smoother reported income stream over the two periods. Conversely, when first period income is greater than μ, smoothing the first period income downward toward μ, on average, results in a smoother reported income pattern (see also Trueman and Titman, 1988).

It is evident that the process of smoothing the firm's reported income necessarily incorporates the manager's private knowledge about the firm's expected income level, μ. This private information is obviously valuable to the prospective investors in assessing the firm's future performance. In addition, it is clear from the above analysis that the extent to which a manager can smooth the reported income is a positive function of the accuracy of the manager's knowledge about μ. Without reasonably accurate knowledge about μ, income smoothing can have a destabilizing effect on the earnings number series (Lintner and Glauber, 1967). In the above two-period example, if $\hat{\mu}$ (the manager's knowledge about μ) is significantly upward biased from the real μ, then observing the first period income that is less than $\hat{\mu}$ and consequently smoothing it upward toward $\hat{\mu}$ in the first period would result in a less smooth income pattern. In contrast, if the manager knows μ without error before making the first period reporting decision, the manager should be able to better smooth the reported income. Clearly, the reported income number in the latter case is a better indicator of future earnings than that of the former. In summary, a smoothed income number is more informative because of two major reasons: (1) it incorporates the management's private knowledge about the firm's future performance, and (2) it reflects the accuracy of the management's private information. Based on the premise that the market responds favorably to the more informative earnings, the prospective investors who benefitted from the more informative earnings would respond favorably to the smoothed income series. This favorable market response would, in turn, benefit the existing stockholders. Thus, we demonstrated that income smoothing can be beneficial to both the prospective investors and the existing stockholders.

The above discussion suggests that the extent to which

a manager can smooth the firm's income reflects the accuracy of the manager's private knowledge about μ, and therefore, a smoother income pattern is, on average, indicative of more accurate private information from management regarding the firm's future performance. Quite logically, a manager who can better foresee future events affecting the firm's future performance should be able to better plan for the future and better deal with those future events. Stated differently, since the degree to which a manager can smooth the reported income depends on the accuracy of the manager's private knowledge, and failure to smooth the reported income is indicative of lacking the ability to foresee future events, which is crucial for management planning, firms with a less smooth reported income series are expected to be perceived as being more risky. Consequently, a negative relationship between the perceived firm risk and the smoothness of reported income is suggested. Since the reduction in perceived firm risk favorably affects the value of the firm, stockholders can also benefit from the reduction in perceived firm risk.

Table 1
Summary Descriptive Statistics
(N = 3756)

	Mean	Std. Dev.	Maximum	Median	Minimum
MV	1659.15	4591.53	95774.43	472.09	6.87
INC	175.44	544.10	6992.00	44.71	-1654.50
CF	369.82	1238.85	18953.50	80.58	-24648.60
UINC	.004	.133	.902	.011	-.978
UCF	.012	.263	2.772	0.012	-2.524
CAR	-.045	.321	2.150	-.046	-2.068
BETA	1.139	.406	3.381	1.105	-.640

Market value (MV), income from operation (INC) and cash flow from operations (CF) are in millions of dollars. Unexpected income (UINC) and unexpected cash flows (UCF) are computed using the random walk model deflated by the market value at the beginning of the year. Cumulative abnormal returns (CAR) are computed from the standard market model using an annual event window. BETA is the slope coefficient estimate from the market model regression.

Empirical Tests and Results

Sample Selection and the Data

The security returns data are collected from the 1987 CRSP file. Earnings and cash flow data are taken from the 1987 Compustat Industrial File. Cash flow data are necessary for testing the potential differential market reaction to real income smoothing and accounting income smoothing. In this paper, cash flows (from operations) are computed in a way similar to recent cash flow/earnings studies (see Rayburn, 1986).

This study uses a ten-year test period from 1977 to 1986. To be included in the sample, firms must meet the following selection criteria: (1) the firm must have a December 31 year end; (2) the firm must have monthly security return data available on the 1987 CRSP file for the period 1972 through 1986; (3) the firm must have earnings data available on the 1987 Compustat file for the years 1976 to 1986; (4) the firm must have data available on the 1987 Compustat file for the computation of cash flows from operation for the years 1976 through 1986; and (5) the firm must be a non-banking and non-utility firm. The first condition is imposed to facilitate a meaningful cross-sectional regression. The second condition is needed because security return data sixty months preceding the testing period are used for estimating market model parameters using least square regression (see Rayburn, 1986). The third and fourth conditions are necessary because Compustat data one year preceding the test period are required for computing unexpected earnings and cash flows. Finally, financial institutions and utility firms were excluded from the sample because they were regulated during the sample period. These criteria identified 456 companies for our sample and resulted in 3756 firm/year observations. Summary descriptive statistics of the accounting variables and the market model regression statistics are presented in Table 1.

Empirical Results

This section tests empirically the market response to smoothed income series. The discussion in Section 1 suggests that income smoothing enhances the informational value of earnings. Previous studies have demonstrated that the market response to more informative earnings is greater than to less informative earnings (see Lipe, 1990, Lipe and Kormendi, 1987, among others). Therefore, the test procedures will focus on the magnitude of market responses to earnings with respect to the smoothness of reported income. It is expected that the market response to smoothed income numbers will be greater than to non-smoothed income numbers. Empirically, the smoothness is measured by the magnitude of

fluctuations of reported income numbers. All observations are classified into either a smooth income group or non-smooth income group based on the absolute value of the percentage change in the firm's reported income. An alternative approach would be to use certain properties from time-series earnings regressions of individual firms. However, the classification scheme used in this study allows the smoothness of reported income to vary not only across firms but also over time for the same firm.

To test the relationship between income smoothing and the earnings response coefficient, the parameter estimates from regressing unexpected income (UINC) on cumulative abnormal returns (CAR) for each of the two groups are compared. Specifically, the following regression model is used:

$$CAR_{i,t} = \beta_0 + \beta_1 D_{i,t} + \beta_2 UINC_{i,t} + \beta_3 D_{i,t} * UINC_{i,t} + e_{i,t} \quad (1)$$

where UINC is measured by the difference between reported income and the expected value implied by the random walk model deflated by the market value of equity at the beginning of the year. CAR is estimated from the standard market model using an annual event window similar to the procedure followed by Rayburn (1986)[1]. D is an income smoothing dummy variable defined as one if the absolute value of the fluctuation in reported income is in the smaller fifty percentile and zero otherwise.[2] The coefficient estimate for D, β_3, captures the difference between market responses to the more smooth and less smooth income numbers. Consistent with the discussion in Section 1, β_3 is expected to be positive. However, if the traditional view that income smoothing is a revelation of "cheating" is consistent with the investors' perception, D would be negative.

The regression results are presented in Table 2. The earnings response coefficient for the smoothed income group, $\beta_2+\beta_3$, is 1.89 which is four times as large as that of the unsmoothed income group (which is .47), and the difference is significant at .001 level. The result is consistent with the predicted positive relationship between income smoothing and the market response to earnings.[3]

To test the relationship between the perceived firm risk and income smoothing, the beta estimate from the standard market model regression was used as a surrogate for firm risk and the average beta values of the two groups were compared. The average beta of the smoothed income group is 1.07, which is significantly smaller than that of the unsmoothed income group (see Panel A of Table 3). In addition, we also computed the Pearson and Spearman correlation coefficients between income smoothing and firm risk (beta). The Pearson and Spearman (presented above the diagonal of the correlation matrix) correlation coefficients are -.17 and -.16 respectively; both are significant at the .001 level. In summary, the results are consistent with the prediction that income smoothing reduces the firms' perceived riskiness.

Prior studies have documented evidence suggesting that the market response to earnings is negatively related to firm risk. Given the negative relation between income smoothing and firm risk reported in Table 3, one concern is that the positive relation between income smoothing and the market response to earnings reported in Table 2 may be driven by the differences in firm risk instead of the differences in informativeness. In addition, previous studies have found a negative relation between the market response to earnings and firm size. Consequently, firm size is another potential omitted variable that may be responsible for the test results. To test the sensitivity of the results reported in Table 2 to risk and size factors, we use the following regression model:

Table 2
Regression Result on Market Differential Responses
to Earnings Announcements with Respect to Income Smoothing
Model: ($AR_{i,t} = \beta_0 + \beta_1 D_{i,t} + \beta_2\ UINC_{i,t} + \beta_3 D_{i,t} * UNIC_{i,t} + E_{i,t}$
(N = 3756)

β_0	β_1	β_2	β_3	Adj R^2%	F-Ratio
-.04***	-.03**	.47***	1.42***	4.5	59.71
(-4.90)	(-2.90)	(12.14)	(3.95)		(.001)

Cumulative abnormal returns (CAR) are computed from the standard market model using an annual event window. Unexpected income (UINC) is computed using the random walk model deflated by the market value (MV) at the beginning of the year. $D_{i,t}$ is an income smoothing dummy variable defined as one if the percentage change of firm i's income at year t is in the smaller fifty percentile and zero otherwise. Parameter estimates (β_0, β_1, β_2, and β_3) and corresponding t-statistics (in parentheses) are presented for the regression. Asterisks (*/**/***) designate statistical significance at the (.05/.01/.001) levels.

Table 3
Income Smoothing and Firm Risk
(N = 3756)

Panel A: Beta distribution

	Not-smoothed income	Smoothed Income
Mean	1.21	1.07
(Std. Dev.)	(.42)	(.37)
Median	1.17	1.05

Panel B: Pearson (below the diagonal) and Spearman (above the diagonal) Correlation Matrix

	Income Smoothing	BETA (Risk)	MV (Size)
Income Smoothing	1.00 (.00)	-.16 (.01)	.22 (.01)
BETA (Risk)	-.17 (.01)	1.00 (.00)	-.11 (.01)
MV (Size)	.11 (.01)	-.15 (.01)	1.00 (.00)

Beta from the market model regression is used as a surrogate for firm risk. Market value (MV) of equity is used as a surrogate for firm size. Observations are classified into the smoothed income group and not-smoothed income group based on the magnitude of the percentage change in reported income.

$$CAR_{i,t} = \beta_0 + \beta_1 D_{i,t} + \beta_2 RISK_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 UINC_{i,t} + \beta_5 D_{i,t}*UINC_{i,t} + \beta_6 RISK_{i,t}*UINC_{i,t} + \beta_7 SIZE_{i,t}*UINC_{i,t} + e_{i,t} \quad (2)$$

where RISK is a dummy variable defined as one if the firm's risk (market beta) is in the higher fifty percentile and zero otherwise, and SIZE is a dummy variable defined as one if the firm size (the market value of the firm's equity securities) is in the smaller fifty percentile and zero otherwise. All other variables are defined earlier. Consistent with the discussion in Section 1, we expect β_5 to be positive and be qualitatively similar to the estimates in Table 2. Based on the research findings of prior studies, we expect β_6 to be negative and β_7 to be positive meaning an inverse relation between risk and firm size and the market response to earnings.

The results are presented in Table 4. The evidence in Table 4 indicates that introducing firm size and risk factors into the regression model does not alter the basic inferences regarding the relation between income smoothing and the market response to earnings. Consistent with prior research findings, the magnitude of market response is inversely related to risk and firm size (i.e., both β_6 (-.11) and β_7 (.37) have the predicted signs). More important, the positive relationship between the magnitude of the market response to earnings and income smoothing reported in Table 2 is maintained after controlling for cross-sectional differences in risk and firm size factors. Specifically, β_5 (1.36) is significantly (at 0.001 level) greater than zero, indicating that the market response to earnings is positively related to income smoothing.

In summary, the results indicate that smoothed income numbers are viewed favorably by the securities market. Specifically, the market response to earnings for firms with a smooth income pattern is significantly greater than that for other firms. Further, firms with a smooth income series are perceived as being less risky by the securities market. Since both the increased market response to earnings and the reduced firm risk affect the stockholder wealth favorably, it is concluded that a rational stockholder should encourage the firm's managers to engage in income smoothing. Sensitivity tests indicated that the major results are unlikely to be driven by omitted variables.

Additional Test Results

Real Income Smoothing versus Accounting Income Smoothing

In the above tests, we classified all observations into smoothing and non-smoothing groups based on the fluctuation of reported income numbers, and documented a positive relationship between the smoothness of reported income numbers and the magnitude of the market response to earnings. However, a smooth income series may not necessarily be the result of

Table 4
Regression Result on Market Differential Responses to Earnings
With Respect to Income Smoothing after Controlling for Firm Size & Risk Factors
Model: $CAR_{i,t} = \beta_0 + \beta_1 D_{i,t} + \beta_2 RISK_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 UINC + \beta_5 D_{i,t}{}^{*} UNIC_{i,t} + \beta_6 RISK_{i,t} * UINC_{i,t} + \beta_7 SIZE_{i,t} * UNIC_{i,t} + e_{i,t}$
(N = 3756)

β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	Adj R^2%	F-Ratio
-.08***	-.04***	.10***	-.00	.23**	1.36***	-.11	.37***	7.3	43.27
(7.70)	(-3.85)	(10.00)	(-.11)	(2.63)	(3.85)	(-1.42)	(4.16)		(.001)

Cumulative abnormal returns (CAR) are computed from the standard market model using an annual event window. Unexpected income (UINC) is computed using the random walk model deflated by the market value (MV) at the beginning of the year. $D_{i,t}$ is an income smoothing dummy variable defined as one if the percentage change of firm i's income at year t is in the smaller fifty percentile and zero otherwise. RISK is a firm risk dummy variable defined as one if firm i's beta for year t from market model regression is in the larger fifty percentile and zero otherwise. SIZE is a firm size dummy variable defined as one if the market value of firm i's equity at year t is in the smaller fifty percentile and zero otherwise. Parameter estimates (β_0, β_1, β_2, β_3, β_4, β_5, β_6, and β_7) and corresponding t-statistics (in parentheses) are presented for the regression. Asterisks (*/**/***) designate statistical significance at the (.05/.01/.001) levels.

accounting income smoothing. Instead, it may arise either from real income smoothing or from accounting income smoothing. This subsection examines whether there is a differential market reaction with respect to the probability of real income smoothing versus accounting income smoothing. Specifically, the following regression model is suggested:

$$CAR_{it} = \beta_0 + \beta_1 D1_{it} + \beta_2 D2_{it} + \beta_3 UINC_{it} + \beta_4 D1_{it} * UINC_{it} + \beta_5 D2_{it} * UINC_{it} + e_{it} \quad (3)$$

where D1 and D2 are dummy variables. D1 is defined as one if the fluctuation of the reported income is in the larger fifty percentile and zero otherwise. D2 is defined as one if the fluctuation of the reported income is in the smaller fifty percentile and the small fluctuation is more likely due to real income smoothing than accounting income smoothing, and zero otherwise. Consistent with the discussion in Section 1, the empirical evidence reported in Tables 2 and 4, and the fact that non-smooth income is now coded as one, the coefficient estimate for D1 is expected to be negative. However, there are conflicting predictions regarding the coefficient estimate for D2. Specifically, the coefficient estimate for D2 is expected to be positive if real income smoothing is preferred to accounting income smoothing. However, given that both real income smoothing and accounting income smoothing are available to managers of all firms, a rational manager would choose the less costly of the two. Stated differently, the smoothing method(s) chosen by the firm's management should represent the least costly way to smooth the firm's reported income under the circumstances. Consequently, this study predicts the coefficient estimate for D2 not to be significantly different from zero, meaning no market preference of one form of income smoothing over the other.

Empirically, two slightly different approaches were employed to separate real income smoothing from accounting income smoothing. Under the first approach, a smooth income series is considered to be more likely due to real income smoothing than merely accounting income smoothing if the firm's underlying cash flows are also smooth over the same period (i.e., the fluctuation in the firm's cash flows from operations is in the smaller fifty percentile). Under the second approach, a firm is considered to be more likely engaged in accounting income smoothing if its smooth income series is accompanied by offsetting changes in cash flows and accruals (i.e., reported a significant increase in cash flows and at the same time a significant decrease in accruals, and vice versa). The test result using the first approach is presented in Table 5. Consistent with the results reported in Tables 2 and 4, the coefficient estimate for D1 is -1.51, and is significant at .01 level. More important, the coefficient estimate for D2 is -1.8 (with a t-value of -.25) and is not significantly different from zero. This evidence is consistent with the prediction of no differential market reaction to earnings with respect to the probability of real income smoothing versus accounting income smoothing. Although not reported, similar results were obtained using the second approach.

Income Smoothing versus Earnings Predictability

Several previous studies have documented empirical evidence that the market response to earnings varies with respect to the predictability of earnings (e.g., see

Table 5
Accounting Income Smoothing vs. Real Income Smoothing
Model: $CAR_{i,t} = \beta_0 + \beta_1 D1_{i,t} + \beta_2 D2_{i,t} + \beta_3 UNIC_{i,t} + \beta_4 D1_{i,t} * UINC + \beta_5 D2_{i,t} * UINC_{i,t} + E_{i,t}$
(N = 3756)

β_0	β_1	β_2	β_3	β_4	β_5	Adj. R^2%	F-Ratio
-.07***	.01	.03*	1.98***	-1.51**	-1.80	4.4	35.84
(-5.69)	(.40)	(2.40)	(3.96)	(-3.01)	(-.25)		(.001)

Cumulative abnormal returns (CAR) are computed from the standard market model using an annual event window. Unexpected income (UINC) is computed using the random walk model deflated by the market value (MV) at the beginning of the year. D1 and D2 are dummy variables. D1 is defined as one if the fluctuation of the reported income is in the larger fifty percentile and zero otherwise. D2 is defined as one if the fluctuation of reported income is in the smaller fifty percentile and the small fluctuation is due to real income smoothing instead of accounting income smoothing, and zero otherwise. Parameter estimates (β_0, β_1, β_2, β_3, β_4, and β_5) and corresponding t-statistics (in parentheses) are presented for the regression. Asterisks (*/**/***) designate statistical significance at the (.05/.01/.001) levels.

Lipe, 1990). The predictability of earnings is generally measured by certain time-series properties of the firm's reported earnings. The test procedures of this study, however, focus on the magnitude of year to year earnings fluctuations in defining income smoothing. It is evident that a smooth income series as defined in this study may or may not be high predictability earnings as defined in previous studies. In spite of this, we conducted the following test to ascertain that the results reported in this study are not driven by the differential earnings predictability across firms documented in previous studies:

$$CAR_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 P_{it} + \beta_3 UINC_{it} + \beta_4 D_{it} * UINC_{it} + \beta_5 P_{it} * UINC_{it} + e_{it} \quad (4)$$

where P is a dummy variable defined as one if the predictability of earnings is high and zero otherwise. The predictability is defined as the inverse of the residual variance from the earnings univariate time-series regression for each firm (see Lipe, 1990). All other variables are defined earlier. The test result is presented in Table 6. Consistent with previous findings, the market response to earnings is significantly larger (at .001 level) for the high predictability earnings, indicating a positive relation between the earnings response coefficient and the predictability of earnings. More important, the hypothesized positive relationship between the earnings response coefficient and income smoothing is unaltered after controlling for the predictability of earnings.[4]

Conclusion

Major Results

This study investigated the relationship between accounting income smoothing and stockholder wealth. Contrary to the widespread view that managers engage in income smoothing to increase their own welfare at the expense of stockholders, this study documented consistent evidence indicating that accounting income smoothing can be beneficial to the firm's stockholders and prospective investors. Specifically, the analysis demonstrated that income smoothing may enhance the informational value of earnings and reduce the perceived riskiness of the firm. The empirical results were consistent with the analysis. The market response to earnings for firms with a smooth income series is four times as large as that for the other firms. In addition, firms with a smooth income pattern are perceived by the securities market as being less risky.

Suggestions for Future Research

Since both the favorable market response to earnings and the reduction in perceived firm risk with respect to income smoothing affect stockholder wealth favorably, the evidence seems to suggest that rational stockholders should encourage the firm's management to engage in accounting income smoothing. However, provisions in some management compensation contracts may create incentives for managers to destabilize reported earnings. An extension of this study would be to collect more detailed information on a smaller sample of firms to examine the relationship between the type of management compensation contracts and accounting income smoothing. Such studies can provide more useful insights for stockholders in contracting with the firm's managers.

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Table 6
Income Smoothing vs. Earnings Predictability
Model: $CAR_{i,t} = \beta_0 + \beta_1 D_{i,t} + \beta_2 P_{i,t} + \beta_3 UNIC_{i,t} + \beta_4 D_{i,t} * UINC_{i,t} + \beta_5 P_{i,t} * UNIC_{i,t} + E_{i,t}$
(N = 3010)

β_0	β_1	β_2	β_3	β_4	β_5	Adj R^2%	F-Ratio
-.01	-.04***	-.01	.25***	1.16**	.35***	3.2	21.13
(-1.58)	(-3.95)	(-.51)	(4.15)	(2.64)	(3.56)		

Cumulative abnormal returns (CAR) are computed from the standard market model using an annual event window. Unexpected income (UINC) is computed using the random walk model deflated by the market value (MV) at the beginning of the year. $D_{i,t}$ is an income smoothing dummy variable defined as one if the percentage change of firm i's income at year t is in the smaller fifty percentile and zero otherwise. P is a predictability variable defined as one if the predictability of firm i's reported earnings at period t is high and zero otherwise. Because the estimation of earnings predictability requires that each firm has data for each of the ten years, the sample was reduced to 3010 observations. Parameter estimates (β_0, β_1, β_2, β_3, β_4, and β_5) and corresponding t-statistics (in parentheses) are presented for the regression. Asterisks (*/**/***) designate statistical significance at the (.05/.01/.001) levels.

group, respectively. Similar results were obtained when the observations were divided into four groups, indicating that the research findings are not sensitive to the specific classification procedures of this study.

We also tested the stability of the results over time by estimating equation 1 for each of the ten years in our sample period. The earnings response coefficient for the smooth income group is significantly greater than that for the non-smooth income group for nine of ten years tested, and is, on average, more than 304% greater than that for the non-smooth income group, indicating that the positive relationship between the informativeness of earnings and income smoothing is stable over the time period of this study.

4. Although sufficient data were not available to analyze completely the related concept of earnings persistence (see Lipe, 1990), a limited test indicates that the positive coefficient on the smoothing variable is unaffected by inserting an earnings persistence variable (using Lipe's definition) into the regression.

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Footnotes

1. An annual event window is adopted because the date on which cash flows and earnings information becomes available to the market is usually difficult to determine (see Bernard and Stober, 1989).
2. Although not reported, we also partitioned the observations into smooth income group and non-smooth income group based on the magnitude of the absolute value of earnings changes deflated by the market value of the firms' equity, and obtained similar results.
3. In order to obtain further evidence regarding the positive relationship between the informativeness of earnings and income smoothing, sample observations were also divided into three groups based on the magnitude of the absolute value of the percentage change in the firm's reported income. The earnings response coefficient for the middle group (the middle fiftieth percentile) is 59% greater than that for the least smooth income group (the largest quartile of earnings fluctuation). Furthermore, the earnings response coefficient for the most smooth income group (the smallest quartile of earnings fluctuation) is 315% and 558% greater than that for the middle group and the least smooth income

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