Has Financial Reporting Become More Conservative? An Update

Md. Joynal Abedin
American International University, Bangladesh

Md. Didarul Alam
Independent University, Bangladesh

Abdullah Shahid
(Ph.D. Student)
Cornell University, USA

ABSTRACT

Givoly and Hayn (2000) (GH) examine time series properties of earnings, cash flows, and accruals over a 48-year period from 1950 to 1998 and find that financial reporting has become more conservative. We replicate GH over the period between 1995 and 2005 and investigate if the findings of GH hold even in the recent years. We draw evidence from Compustat and CRSP merged firms. We find that 'sign and magnitude of accruals' and 'incremental response to bad news measure' suggest increased conservatism in the second subperiod (i.e 2001-2005). Other measures of conservatism do not provide any clear and strong indication for the direction of conservatism.

Keywords: *Conservatism, Givoly and Hayn (2000)*

INTRODUCTION

The paper replicates the work of Givoly and Hayn (2000) (referred to as GH) over the period 1995-2005. Here, we examine the changing time-series properties of earnings, cash flows, and accrual to understand if financial reporting has become more conservative. GH draws upon a number of anecdotal evidence such as more conservative FASB pronouncements, increasing litigious environment etc[1] to motivate the idea of increased reporting conservatism over the period 1950-1998.

Using various measures of conservatism, GH do find empirical support for their conjecture. We conjecture that the phenomenon of increasing reporting conservatism may have continued even in the recent years. The bases of our conjecture are the following. First, various conservative accounting regulations (for example, FASB pronouncements such as SFAS 123 (1995) and SFAS 121, and AICPA rules such as AICPA SOP 97-2 and SOP 98-5 (1998)) were enacted in the time period of the current study. Some of these rules occur towards the end of the study period of GH. Effects of these rules may be observed further in the subsequent years. Second and most importantly, enactment of Sarbanes–Oxley Act (SOX) of 2002 occurred within our study period, not covered by GH. Under SOX provisions the penalty for overstatements is greater than the penalty for understatements (Lobo & Zhou, 2006). Such provisions may induce more conservative reporting. However, we do not extend the study period beyond 2005, due to potential difficulty in interpreting the results during financial crisis.

We adopt four different types of conservatism measures: (1) sign and magnitude of accumulated accruals; (2) earnings-return association; (3) skewness and variability of earnings; and (4) market-to-book ratio. We draw evidence from Compustat and CRSP merged firms with necessary data for earnings, cash flow, accruals, returns, and other firm-specific information. The entire sample consists of 92,547 firm-year observations. Additionally, since the study is concerned with time series properties of earnings, cash flows and accruals, we also create a constant sample, which consists of 21,802 firm-year observations.

We find the following. First, various profitability measures indicate declining profitability till 2002. After that, the trend reverses. While frequency of losses rises till 2002, the trend reverses afterwards. This finding is different from that of GH. Second, similar to GH, we find steep rise in the accumulation of negative accruals over the years. Moreover, consistent with GH, various cash flow from operations measures do not show any distinct pattern.

---

[1] GH cites SFAS 106, SFAS 114, SFAS 68, SFAS 123, and SFAS 121 as instances of FASB pronouncements that result in earlier recognition of expenses or losses. Moreover, they invoke various previous studies on management response to litigation (such as Hughes and Sankar (1998) and documented by Kasznik and Lev (1995) and Skinner (1994, 1997)) to argue that increasingly litigious environments can induce managerial conservatism.

Unlike GH, we do not find strong support for 'increased reporting conservatism' conjecture throughout the entire study period. Our conservatism findings do not hold across all the conservatism measures consistently. First, 'sign and magnitude of accumulated accruals' shows that increasing accumulation of net negative total accruals throughout the period, thus supporting increased conservatism. Second, incremental response to bad news measure suggests that conservatism increased in the second subperiod. The other measures obtained from earnings-return association as well as variability and skewness of earnings indicates existence of conservatism, but no clear direction. Third, market-to-book value ratio is greater in the second subperiod (2001-2005) across various growth portfolios (in magnitude for all and statistically for some). Hence, the ratio provides weak support for increased conservatism.

MEASURES OF REPORTING CONSERVATISM

Sign and Magnitude of Accumulated Accruals:

This measure stems from the idea that for firms in a steady state, cumulative net income before depreciation will converge to cumulative cash flow from operations in the long run. Consistent presence of negative accruals over a long time indicates reporting conservatism. Moreover, increasing rate of accumulation in such negative accruals indicates increasing reporting conservatism.

Earnings-Return Association:

The second set of conservatism measures stems from the idea that conservatism is manifested in asymmetric timing of reporting economic events. A conservative reporting system tends to recognize bad news early in earnings, while deferring good news. So, earnings-return relation is likely to be stronger in bad news periods than it is in good news periods. Many researchers have argued for this approach to measuring conservatism[2]. The idea can be expressed in the following regression equation, referred to as Regression (1).

[2] Basu (1997), Ball et al. (1999), Givoly and Hayn (2000), for instance.

$$EPS_{it}/P_{i,t-1}=\alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it}*DR_{it}+\varepsilon_{it} \quad (1)$$

Where EPS_{it} is the earnings per share of firm i in fiscal year t; $P_{i,t-1}$ is the price per share at the beginning of the fiscal year; R_{it} is the return of firm i from nine months before fiscal-year end t to three months after fiscal-year end t; DR_{it} is a dummy variable that is equal to 1 if R_{it} is negative and 0 otherwise. Using the results of Regression (1) the following measures of conservatism are developed.

- β_1, coefficient of the interaction between DR_{it} and R_{it}, indicates incremental response of earnings to bad news over good news. A positive value of β_1 indicates repor ing conservatism.
- $(\beta_0 + \beta_1)/\beta_0$ measures the sensitivity of earnings to bad news relative to the sensitivity of earnings to good news. In conservative reporting this ratio is expected to be greater than '1'.
- R^2_{bad}/R^2_{good}, measures the ratio of explanatory power of Regression (1) in bad news periods relative to the good news periods. A ratio greater than '1' would imply conservative reporting.
- The fourth measure is the average downward bias in earnings-to-price ratio that is attributable to conservatism. It is measured as $(1/k-\beta_0)*R_{good}$,Pr(good) – $(\beta_0+\beta_1 - 1/k)*R_{bad}$*Pr(bad) where R_{good} (R_{bad}) is the mean return over a good (bad) news period, defined as a period with a positive (negative) return and Pr(bad) (Pr(good)) is the relative frequency of bad (good) news periods. The parameter k is estimated by the reciprocal of the intercept of Regression (1).

The above-noted measures have the inherent weaknesses of being dependent on stock price movements. Moreover, the bias measure assumes $1/k$ as a risk free-rate, implied from Regression (1).

Skewness and Variability of Earnings

Since conservatism leads to immediate recognition of bad news in earnings while deferring good news, we can expect to observe negatively skewed earnings distributions for conservative reporting. Moreover, with its tendency to defer recognition of profit or recognize profit gradually, conservatism may lead to greater variability in earnings as well. Hence, skewness and variance in earnings are two further measures of conservatism.

Market-to-book ratio

This definition is drawn from the theoretical framework of Feltham and Ohlson (1995). According to Feltham and Ohlson (1995), conservative accounting means

at time t expected value of excess of market value over book value at time t+ô is greater than zero as ô goes to infinity. Hence, over a long period if we observe market-to-book ratio exceeding one, we can infer reporting conservatism. Additionally, increase in the ratio indicates increased reporting conservatism.

SAMPLE

The sample covers a ten-year period over 1995-2005. We exclude the period after 2005 because of potential difficulty in interpreting results during financial crisis. While it is evident from the financial press that the crisis started unfolding in 2007, there are some indications that financial markets started acting on the possibility of the event in 2006 (Esau, 2010). Hence, 2005 is our cut-off year. The sample consists of all the Compustat firms (in the Compustat annual fundamental dataset in Wharton Research Data Services) in the sample period. Consistent with GH, we exclude the regulated firms such as all utilities firms (firms with SIC code between 4000 and 5000) and all financial firms (firms with SIC code between 6000 and 7000). These firms are affected by unique regulatory and institutional factors, which are likely to create noises in investigation of the time-series pattern of earnings, cash flows, and accruals. To sum up, the entire sample from the Compustat consists of 92,547 firm-year observations. As we merge Compustat with CRSP, the sample gets reduced by about 34%. Then, as we create a constant sample, we lose about 64% of the CRSP-Compustat merged sample.

TIME-SERIES PROPERTIES OF EARNINGS, CASH FLOWS, AND ACCRUALS

Profitability

Overall results (Table I) for profitability show that the second sub-period (2001-2005) is less profitable than the first subperiod (1995-2000). Profitability (as suggested by median values of ROA, income from continuing operations to total assets, EBIT-to-total assets, net income to total assets, and net income to book value of equity) continues to decline till 2002 and frequency of losses also keeps rising till 2002 for the constant sample. However, from 2003 profitability appears to improve and frequency of losses drops. Our results are consistent with the declining profitiability and increasing frequency of loss findings of GH only till 2002.

Profitability trend on the basis of ROA[3] shows that frequency of losses has increased over time (Table I). For both the full sample and the constant sample, the rising trend continues till 2002. However, since 2003, frequency of losses drops slightly. Overall, the second subperiod (i.e. 2001-2005) has greater frequency of losses than the first subperiod (i.e. 1995-2000). These results give further credence to the argument of GH that, contrary to popular belief, profitability has declined over time.

Both the mean and media ROA have fallen in the second subperiod in both the full sample and the constant sample (Table I). Median ROA in full sample is 1.2% in the first subperiod which falls (by more than 60%) to 0.4% in the second subperiod. Even in the constant sample, which are most likely to include the firms with strong performance, the same trend is observed. It appears that even the surviving firms experienced dwindling profitability, something GH also find in their paper. Comparing by year, we observe that profitability trend (both mean ROA and median ROA) has consistently fallen in full sample till 2002. In the constant sample, median ROA has consistently fallen till 2002 as well. The overlapping years with GH show our results are consistent with them. Moreover, the trend of profitability in GH holds in our sample till 2002. Our results for ROA with a measure of net income divided by beginning total assets (unreported here) show similar profitability trends in both the full and constant sample.

We use four other profitability measures: 'income from continuing operations-to-total assets', 'earnings before interest and taxes (EBIT)-to-total assets', 'net income-to-sales', and 'net income-to-book value of equity'. To measure income from continuing operations-to-total assets we remove the effect of discontinuing operations, extraordinary items and effect of accounting change. This measure results in greater magnitude of both mean and median profitability than ROA. In sum, however, the profitability declines in the second subperiod for both profitability measures. This trend is qualitatively similar to the results of GH. The next measure of profitability, earnings before interest and taxes (EBIT)-to-total assets, mechanically removes the effect of leverage on profitability for a leverage-free comparison. We observe a decline in profitability in the second subperiod (as well as by years) using EBIT-to-total asset. Moreover, consistent

[3] ROA is defined as net income divided by total assets. Net income throughout this paper is defined as the 'bottom line' net income (i.e. net income after gains or losses from discontinued operations, extraordinary items and the cumulative effect of changes in accounting principle).

with GH, EBIT-to-total asset measure leads to improved profitability (which also displays declining trend over years and subperiods). To show effect of alternative deflators, we deflated net income by sales and by book value of equity respectively. We find that even with these two different deflators, profitability trend remains consistent with other measures[4]. GH finds net income-to-book value of equity measure provides less clear trend due to 'increasing presence of firms with negative book values'. However, in our constant sample, the number of negative book values does not show any consistent trend[5].

Table I: Frequency of Losses and Net Income-to-Total Assets (ROA)

Year	No of firms	Freq. of losses (%)	ROA Mean	ROA Median	Subperiod	Freq. of losses (%)	ROA Mean	ROA Median
Panel A: Full Sample								
1995	8674	33.72	-0.096	0.019				
1996	8890	35.49	-0.084	0.018				
1997	8699	37.43	-0.122	0.015	1995-2000	40.41	-0.183	0.012
1998	9051	42.90	-0.201	0.009				
1999	9138	45.39	-0.225	0.007				
2000	8865	47.12	-0.364	0.006				
2001	8363	52.56	-0.590	-0.010				
2002	8028	51.62	-0.645	-0.006				
2003	7824	45.95	-0.498	0.006	2001-2005	48.00	-0.552	0.004
2004	7104	44.36	-0.610	0.012				
2005	6999	44.38	-0.404	0.013				

[4] With unequal variance, ROA (with ending asset as deflator) in the first subperiod is not statistically greater than that of the second subperiod. However, with beginning asset as deflator, ROA of the first period is significantly greater than that of the second subperiod (at 1% significance level). Our inference (i.e. profitability of the first subperiod being significantly greater at 1% level than the profitability of the second subperiod) holds for alternative measures such as 'net income to book value of equity', 'EBIT-to-total assets', and 'income from continuing operations-to-total assets' and 'net income to sales'.

[5] No of firms with negative book values were 2.1%, 1.68%, 1.73%, 2.70%, 2.75%, 2.44%, 3.15%, 3.15%, 2.59%, 2.64%, and 3.66% of the total firms each year over 1995-2005, respectively for the years in ascending order.

Panel B: Constant Sample								
1995	1959	22.41	0.011	0.055				
1996	1965	22.39	0.012	0.053				
1997	1965	22.24	0.011	0.054	1995-2000	23.80	0.005	0.049
1998	1965	26.21	-0.009	0.045				
1999	1964	25.05	-0.004	0.045				
2000	1965	24.48	0.011	0.047				
2001	1965	34.20	-0.023	0.028				
2002	1966	36.52	-0.039	0.025				
2003	1965	31.35	-0.012	0.033	2001-2005	29.84	-0.011	0.037
2004	1966	23.14	0.009	0.045				
2005	1959	23.99	0.008	0.049				

[a]The most extreme (0.5%) of the cases at either end of the distribution each year were truncated.

Table II: Alternative Profitability Measures (Constant Sample)

	Income from continuing operations-to-total assets		Earnings before interest and taxes (EBIT)-to-total assets		Net income-to-sales		Net income-to-book value of equity	
Panel A: By year								
Years	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1995	0.020	0.056	0.068	0.098	-0.289	0.043	0.033	0.115
1996	0.018	0.054	0.068	0.095	-0.207	0.042	0.030	0.112
1997	0.015	0.054	0.066	0.097	-0.157	0.043	0.035	0.115
1998	-0.003	0.046	0.049	0.091	-0.147	0.037	0.011	0.103
1999	0.003	0.045	0.048	0.085	-0.179	0.039	0.029	0.105
2000	0.015	0.047	0.060	0.087	-0.136	0.040	0.031	0.105
2001	-0.017	0.029	0.036	0.069	-0.138	0.025	-0.044	0.065
2002	-0.023	0.030	0.027	0.063	-0.225	0.022	-0.077	0.058
2003	-0.004	0.034	0.041	0.068	-0.258	0.029	-0.033	0.072
2004	0.014	0.046	0.055	0.077	-0.310	0.039	0.037	0.098
2005	0.011	0.049	0.052	0.081	-0.260	0.043	0.019	0.098
Panel B: by subperiod								
1995-2000	0.011	0.050	0.059	0.092	-0.186	0.041	0.028	0.110
2001-2005	-0.003	0.038	0.042	0.072	-0.238	0.032	-0.019	0.079

[a]The most extreme (0.5%) of the cases at either end of the distribution each year were truncated.
[b]We compute the ratio of net income-to-book value of equity only for positive book values. We lose about 2.6% of the observations in constant sample due to negative book values.

Firm Size and Industry Effects

Here we discuss potential size and industry effects in profitability trends (tables unreported to maintain brevity). To find out the size effect, each year we divide firms into five size-quintiles (i.e. total asset quintiles). We find that firms in the 4th and 5th size-quintiles (i.e. the largest firms) have greater ROA than the firms in the lower size-quintiles. So, size does matter. Consistent with our general results (in Table I and Table II), we observe a declining trend in ROA till the year 2002, irrespective of size-quintiles. However results for net income to sales do not yield any consistent pattern. Results for 'income from continuing operations-to-total assets' and 'EBIT-to-total assets' show similar trend as ROA. Our results for size effect differ from those of GH. GH state that increase in losses is more pronounced in smaller firms. We do not find such phenomenon. Additionally, we do not find the results being driven by any specific industry. General trends of profitability hold almost in all industries (about 320 unique industries based on 4-digit SIC classification).

Cash Flows and Accruals

One may argue that the declining profitability trend (till 2002 and in the second subperiod) may be an accounting-driven phenomenon instead of an economic one. To examine that possibility, we look at the trend of cash-flow-from-operations deflated by total assets (CFOA)[6]. Our results are quite consistent with the economic occurrence story as it was found in GH as well (Table III). We find both mean and median values of CFOA rather increase in the second subperiod. Moreover, the frequency of negative cases does not show any distinct trend. While profitability shows, to some extent, a distinct trend of decline, cash flow measure does not show any. Hence, one may deduce that changes in accruals are probably driving the results. We discuss accruals results next.

[6] In addition to GH, the measure has also been used by other studies to measure firm performance, for instance, Healy et al. (1992).

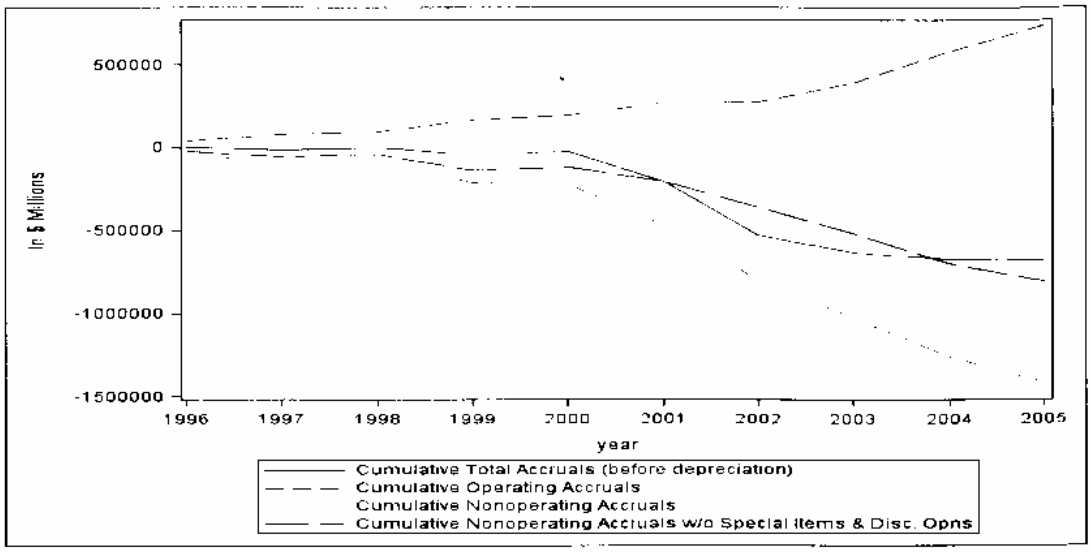
Table III: Cash Flow from Operations-to-Total Assets, CFOA (Constant Sample[a])

	Freq of negative	CFOA			Freq of negative	CFOA	
Year	cases (%)	Mean	Median	Subperiod	cases (%)	Mean	Median
1995	23.19	0.053	0.077				
1996	20.81	0.061	0.084				
1997	19.27	0.064	0.085	1995-2000	20.49	0.058	0.082
1998	20.59	0.053	0.082				
1999	18.81	0.058	0.085				
2000	20.36	0.064	0.081				
2001	18.16	0.070	0.086				
2002	16.72	0.068	0.092				
2003	16.71	0.065	0.084	2001-2005	17.84	0.065	0.085
2004	19.24	0.060	0.078				
2005	18.36	0.060	0.082				

[a]We lose about 0.46% of the observations in constant sample due to missing observations for CFO. The most extreme cases (0.5%) of the cases at either end of the distribution each year were truncated.

Results on the Accumulation of Accruals

In the long-run, one would expect net income before depreciation to converge to cash flow from operations. Alternatively, cumulative total accruals before depreciation (where, Total accruals (before depreciation)=Net Income+Depreciation-Cash flow from operations) should converge to zero. However, the plot of cumulative total accruals (before depreciation) in Figure I suggests otherwise. Initially, the plot is slightly above zero and then gradually falls below zero since 1998. Hence, consistent with GH we find that net income before depreciation is 'consistently and systematically below cash flow from operations' in most of the later years'.



Total accruals (before depreciation): (Net Income+Depreciation)-Cash flow from operations. Operating accruals: ΔAccounts Receivable +ΔInventories+ ΔPrepaid Expenses-ΔAccounts Payable-ΔTaxes Payable. Nonoperating Accruals: Total Accruals: (before depreciation) - Operating Accruals.

Figure 1 - Cumulative Accruals by Type, 1996-2005 Constant Sample Firms

We obtain further insights into the accumulation of accruals by examining them component-wise in Figure I. Cumulative total accruals (before depreciation) is further compared to 'cumulative operating accruals' and 'cumulative nonoperating accruals'. Moreover, we also draw a time-series plot of cumulative nonoperating accruals without special items and discontinued operations. Definitions of these two components of total accruals are given below.

Operating accruals=ΔAccounts Receivable+ΔInventories+ΔPrepaid Expenses -ΔAccount Payable-ΔTaxes Payable.

Nonoperating Accruals=Total Accruals: (before depreciation) - Operating Accruals

Cumulative total operating accruals (CTOA) started well above zero in 1996 and started building up over the years up to $ 0.74 trillion in 2005. The trend of such accumulation is steeper in the second subperiod. The finding is consistent with the results of GH that accumulation increased over time. The trend for cumulative nonoperating accruals runs completely opposite to that of CTOA. In the first subperiod, the rate of rise in CTOA to be very close to the rate of fall in cumulative nonoperating accruals. However, in the second subperiod, the rate of decline in cumulative nonoperating accruals is quite greater than the rate of rise in operating accruals. Such widening gap between accumulation of operating and nonoperating accruals is consistent with GH. This result is robust to an alternative measure of nonoperating accruals which excludes the effects of special items and discontinued operations. Moreover, accumulated non-operating accruals over 1996-2005 is quite large, given it's about 2.2% of the accumulated sales for the period. The trend is

pervasive in most of the SIC 4-digit code industries in constant sample. Such significantly negative nonoperating accruals (which is also widespread across industries) indicates that financial reporting has become conservative over our study period. Given most of the years in the study period fall after the period in GH, we can state safely that according to accruals measures, the trend of increasing conservatism in GH holds for recent years as well.

One may argue that such negative nonoperating accrual is result of growth of the sample firms. To control for growth, we deflate accrual variables as well as cash flow from operations by total assets, total sales, and change in sales. We find that mean of both total accruals (before depreciation) and nonoperating accruals, after deflated by total sales, is significantly greater in the second subperiod. We fail to find significant difference when accruals are deflated by sales as well as sales change. However, median values show that second subperiod has greater magnitude of accruals (both total and nonoperating) irrespective of the deflators used. Cash flow from operations remains similar throughout the period (even median values of the subperiods are very close). Moreover, results are not likely to be driven by inflation, since average rate of inflation in the second subperiod is lower than that of the first subperiod[7].

Earnings-Return Association

In Regression (1), β_1, the coefficient of the interaction term between dummy variable (DR) for news and return, is a measure of conservatism. Since DR takes upon a value '1' for bad news (i.e. negative return) and value of '0' for good news (i.e. positive return), β_1 measures the incremental response to bad news relative to good news. We find the measure is positive as well as statistically significant for the entire period (for both measures of EPS). Moreover, the measure increases in the second subperiod relative to the first subperiod (Table IVA). Hence, we can argue that earnings reflects bad news faster than it reflects good news. Since incremental response to bad news has increased in the recent subperiod (i.e. β_1 is greater for the second subperiod), we can argue increased conservatism over the subperiods. This result is robust to two diluted EPS measures. Overall, our findings for β_1 are qualitatively similar to GH.

$\beta_0 + \beta_1) / \beta_0$, indicates sensitivity of earnings to bad news relative to their sensitivity to good news. With increased conservatism, we would expect the measure to be positive and greater than 1 in the second subperiod. However, results for this measure (even using two different measures of EPS) do not offer much

[7] www.inflationdata.com shows that average rate of inflation in the USA over the period 2001-2005 is 2.55% whereas average rate of inflation over the period 1996-2000 is 2.48%.

intuition, unlike the results of GH (Table IVA). Even with use of diluted EPS measures, we do not find the results offering much intuition either. One explanation of such results is that earnings-return association for the period of tech bubble (particularly the year 2000 in which $P_{i,t-1}$ are dominated by many extreme values) is very small.

The third measure, the ratio of R^2_{bad} to R^2_{good} increases in the second subperiod (Table IVA). The finding is similar even if we use two diluted EPS measures (results unreported to maintain brevity). Even with the fourth measure of conservatism, 'total bias', the magnitude increases in the second subperiod, irrespective of any measure of EPS used in the dependent variable of Regression (1). Such increase in bias is consistent with the results of GH, though magnitude of 'total bias' in this study is largely different from that of GH.

Table IVA: The Differential Earnings-Return Association in Good and Bad News Periods (Constant Sample)[a,b,c] Results by Subperiod for Regression (1): $EPS_{it}/P_{i,t-1}=\alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it}*DR_{it}$

Subperiod	N	α_0	α_1	β_0	β_1	$AdjR^2$	$(\beta_0+\beta_1)/\beta_0$	R^2_{bad}/R^2_{good}	Total bias
Panel A: Using Basic EPS (including extraordinary items)									
Overall period	20,568	0.101	-0.036	-0.001	0.217	0.10	-216.00	788	2.67
		(-54.49)	(-9.50)	(-0.44)	(-23.71)				
1995-2000	11,550	0.132	-0.044	-0.002	0.210	0.09	-104.00	254	2.18
		(52.54)	(-8.28)	(-1.54)	(16.38)				
2001-2005	9,405	0.070	-0.030	0.000	0.220	0.11	$-21*10^4$	437	3.85
		(25.00)	(-5.86)	(0.00)	(18.03)				
Panel B: Using Basic EPS (excluding extraordinary items)									
Overall period	20,566	0.102	-0.034	-0.002	0.205	0.10	-99.69	849	2.65
		(61.67)	(-10.63)	(-1.32)	(24.12)				
1995-2000	10,944	0.127	-0.042	-0.005	0.185	0.10	-38.12	382	2.25
		(58.30)	(-9.32)	(-3.11)	(16.91)				
2001-2005	9,222	0.064	-0.028	0.001	0.194	0.12	131.90	518	3.84
		(28.59)	(-6.29)	(0.66)	(18.34)				

[a] EPS_{it} is the earnings per share of firm i in fiscal year t; $P_{i,t-1}$ is the price per share at the beginning of the fiscal year; R_{it} is the return of firm i from nine months before fiscal-year end t to three months after fiscal-year end t; DR_{it} is a dummy variable that is equal to 1 if R_{it} is negative and 0 otherwise. "Total bias" is measured as $(1/k-\beta_0)*R_{good}$,Pr(good) – $(\beta_0+\beta_1-1/k)*R_{bad}$*Pr(bad) where R_{good} (R_{bad}) is the mean return over a good (bad) news period, defined as a period with a positive (negative) return and Pr(bad) (Pr(good)) is the relative frequency of bad (good) news periods. The parameter k was estimated by the reciprocal of the intercept of Regression (1). [b] The most extreme 1%f EPS/P values are truncated each year. [c] t-values are shown in parentheses.

Magnitudes of various conservative measures (particularly, the second and the third measure from Regression (1) are quite different from those of GH. Apparently, those values, at times, seem extreme and unrealistic. The presence of dot com bubble might have significantly affected our results. So, unlike GH, we run Regression (1) by year as well (Table IVB). First, β_1 falls over the period 1995-1997 and then starts rising over 1999-2000 to fall again in 2001. The years 2002, 2003, and 2005 have almost similar magnitude of β_1. Most of the years in the second subperiod have β_1 greater than any of the years in the first subperiod. Hence, results in yearly regressions support conclusions in Table IVA that conservatism is greater in the second subperiod. Second, values of $(\beta_0+\beta_1)/\beta_0$ remain greater than 1 in most of the years, indicating greater sensitivity of earnings to bad news relative to good news. However, $(\beta_0+\beta_1)/\beta_0$ does not follow any particular trend. Third, the ratio of R^2_{bad} to R^2_{good} is greater than 1 in most years (9 out of 11). However, the trend is quite erratic. Fourth, total bias measure has no consistent trend, leading to no strong evidence either for conservatism or against conservatism.

Table IVB: The Differential Earnings-Return Association in Good and Bad News Periods (Constant Sample)[a,b,c] Results by Subperiod for Regression (1): $EPS_{it}/P_{i,t-1}=\alpha_0+\alpha_1 DR_{it}+\beta_0 R_{it}+\beta_1 R_{it}*DR_{it}$

Subperiod	N	α_0	α_1	β_0	β_1	$AdjR^2$	$(\beta_0+\beta_1)/\beta_0$	R^2_{bad}/R^2_{good}	Total bias
1995	1739	0.15	-0.07	0.01	0.21	0.08	18.67	22.86	2.77
		(18.97)	(-3.99)	(1.75)	(4.01)				
1996	1870	0.13	-0.06	0.03	0.17	0.10	6.91	69.90	2.01
		(18.97)	(-4.03)	(3.66)	(4.33)				
1997	1895	0.11	-0.06	0.05	0.14	0.19	3.68	19.82	2.37
		(19.79)	(-4.64)	(7.84)	(4.52)				
1998	1891	0.09	0.00	0.04	0.15	0.14	4.42	32.40	0.21
		(13.52)	(-0.41)	(4.98)	(6.73)				
1999	1889	0.08	0.03	-0.01	0.22	0.04	-21.24	-590.07	6.30
		(13.56)	(2.52)	(-4.56)	(7.23)				
2000	1879	0.13	-0.02	0.00	0.25	0.12	450.00	3608.68	1.69
		(19.43)	(-1.69)	(0.11)	(9.70)				

2001	1882	0.08	-0.04	0.04	0.15	0.13	4.46	33.10	1.18
		(9.62)	(-3.23)	(4.32)	(5.12)				
2002	1882	0.07	-0.02	0.02	0.26	0.14	17.48	127.12	-0.56
		(8.15)	(-1.67)	(1.25)	(9.12)				
2003	1878	0.05	-0.02	-0.01	0.25	0.04	-17.81	-434.47	15.24
		(8.19)	(-1.42)	(-3.67)	(5.15)				
2004	1881	0.06	-0.03	0.04	0.11	0.14	3.37	24.74	5.79
		(12.04)	(-2.86)	(8.32)	(3.81)				
2005	1882	0.05	-0.01	0.02	0.25	0.20	12.35	62.83	3.28
		(13.76)	(-1.69)	(3.56)	(10.91)				

[a] EPS_{it} is the earnings per share of firm i in fiscal year t; $P_{i,t-1}$ is the price per share at the beginning of the fiscal year; R_{it} is the return of firm i from nine months before fiscal-year end t to three months after fiscal-year end t; DR_{it} is a dummy variable that is equal to 1 if R_{it} is negative and 0 otherwise. "Total bias" is measured as $(1/k-\beta_0)*R_{good}$,Pr(good) – $(\beta_0+\beta_1 - 1/k)*R_{bad}$*Pr(bad) where R_{good} (R_{bad}) is the mean return over a good (bad) news period, defined as a period with a positive (negative) return and Pr(bad) (Pr(good)) is the relative frequency of bad (good) news periods. The parameter k was estimated by the reciprocal of the intercept of Regression (1).
[b] The most extreme 1%f *EPS/P* values are truncated each year. [c] t-values are shown in parentheses.

Skewness of Earnings

A conservative reporting system tends to delay the good news while fully recognizing the unfavourable events. Hence, we are likely to observe negative skewness in earnings if conservatism exists. Hence, in Figure II we plot the cross-sectional skewness of net income. we also plot the cross-sectional skewness of cash flow from operations. The plot shows that skewness measure of negative for net income, consistent with the results of GH. While cash flow from operations also exhibits negative skewness, it's still a lot less negatively skewed than net income.

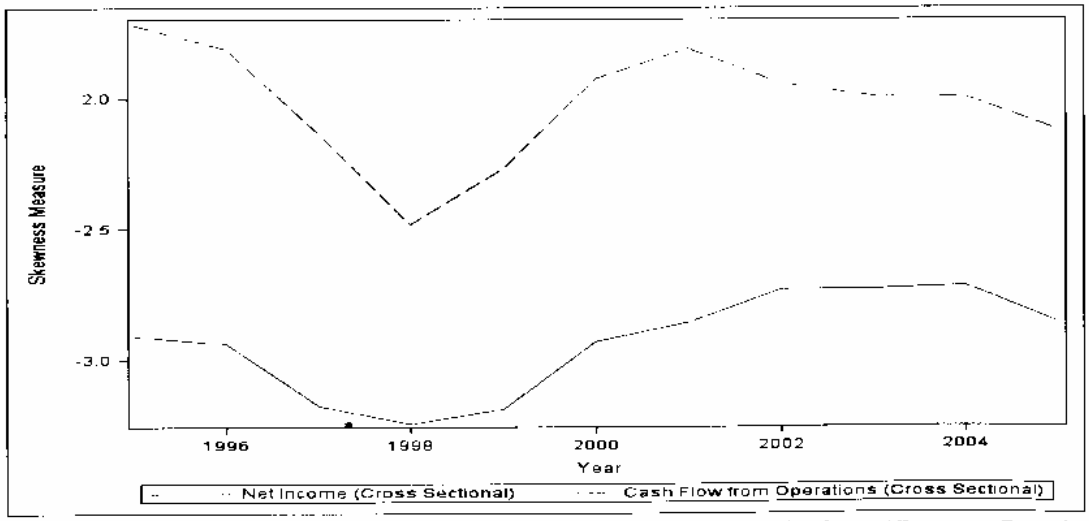


Figure II - Cross-Sectional Skewness Measures of Earnings and Cash Flows (Constant Sample)

Skewness is defined as $y=[E(x-\mu)^3/\sigma^3)]$ where μ and ó are the mean and standard deviation of the x distribution. All variables are deflated by total assets. Skewness measure shown each year is the three-year moving average of the skewness measure, centered on that year. Moreover, value shown for each year is the average value of the skewness measure computed across sample firms. For both net income and cash flow from operations, the constant sample is truncated for 1% extreme values on both sides of the distribution on the basis of skewness of each variable every year. The plots look almost similar without truncation, though with varying magnitudes.

Variability of Earnings

Table V presents results for variability of earnings (ROA) and cash flow from operations deflated by total assets (CFOA). Variability of earnings distribution (measured by standard deviation) is another measure of conservatism. Unlike GH, in our constant sample, we do not find significant difference in the variability of earnings between the two subperiods. Also, variability of both earnings and cash flow from operations (CFO) in constant sample does not show any discernible trend across various industry groups. However, full-sample suggests that variability of earnings in the second subperiod is about 3.5 times the variability of earnings in the first subperiod. Hence, while earnings variable in constant sample fails to provide support for conservatism, full-sample extends strong support for increased conservatism. Moreover, consistent with GH the results are not driven by variability in cash flow from operations.

Table V: Standard Deviation of Net Income-to-Total Assets (ROA) and Cash Flows from Operations-to-Total Assets (Cfoa), by Subperiod[a]

	Standard Deviation of ROA		Standard Deviation of CFOA
	Full Sample	Constant Sample	Constant Sample
Panel A: By Year			
1995	0.453	0.193	0.145
1996	0.389	0.182	0.140
1997	0.484	0.191	0.147
1998	0.697	0.236	0.171

1999	0.816	0.217	0.163
2000	1.543	0.183	0.135
2001	2.705	0.208	0.147
2002	3.487	0.227	0.153
2003	2.737	0.174	0.130
2004	3.784	0.174	0.141
2005	2.078	0.187	0.153
Panel B: By Subperiod			
1995-2000	0.836	0.202	0.151
2001-2005	3.020	0.196	0.145

[a]The most extreme (0.5%) cases at either end of the distribution each year were truncated

Variability in earnings is likely to stem from the variability of cash flow from operations and accounting accruals. Hence, we decompose earnings variability using the following formula and summarize the results in Figure III.

Variance (ROA) = Variance (CFO/Assets) + Variance (Accruals/Assets)
+2*Covariance (CFO/Assets, Accruals/Assets).

Unlike GH, we do not find variability of accruals driving earnings variability throughout the entire period. Rather, in the first subperiod, accruals variability remains nearly flat. However, the trend of earnings variance in the second subperiod resembles that of the accruals, with covariance between accruals and net income moving in the same direction.

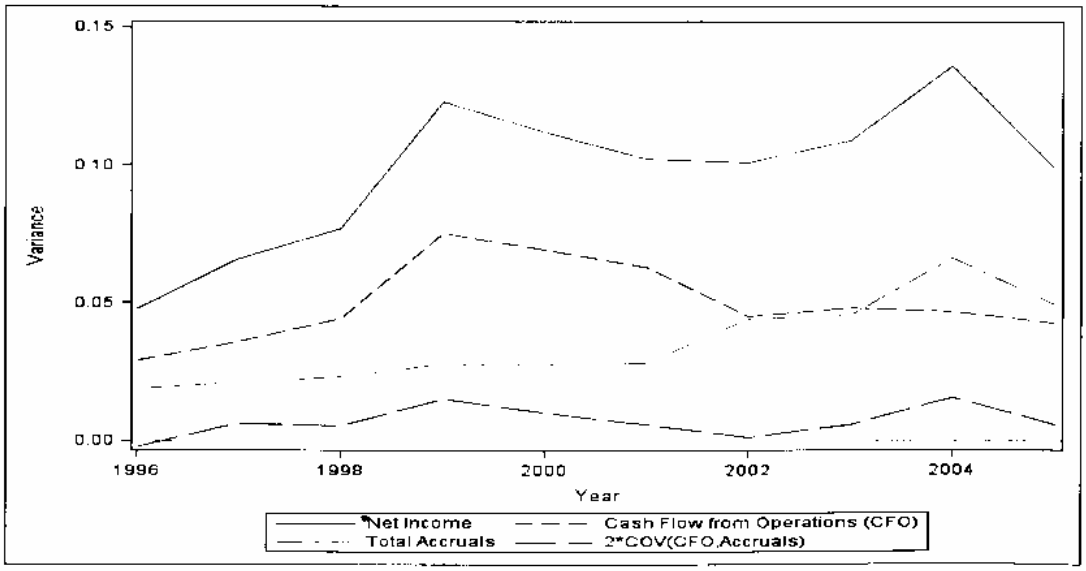


Figure III - Decomposition of the Variance of Net Income into Cash Flow and Accrual Components (for Constant Sample)

All variables are deflated by total assets. Values shown for each year are the three-year moving average of the variable, centered on that year.

Market-to-Book Ratio

The last measure for conservatism is market-to-book ratio. Accounting conservatism is likely to widen the gap between market value and book value. Hence, increase in conservatism may be inferred from increasing market-to-book ratio.

Figure IV presents plots of aggregate market-to-book value ratio and aggregate adjusted market-to-book ratio for constant sample firms. Aggregate book-to-market ratio is measured by dividing aggregate market value of firms by their aggregate book value at the year end[8]. In order to calculate aggregate adjusted market-to-book value ratio, we add nonoperating accruals back to book value.

Mean market-to-book ratio starts at 2.02 in 1996 year end and gradually rises over the years with a sharp spike in 2000 (when the ratio is 11.94, five-fold of the figure in 1996). Such spike is consistent with the occurrence of dot com bubble in the same period. Market-to-book ratio starts falling sharply following 2000 and the decline continues till 2002. The ratio again rises in 2003 and then falls in the subsequent two years. If we argue in the similar vein of GH and Basu (1997), we can state that reporting conservatism increased till 2000 and then, fell in the subsequent years. However, given the sample period cover the years of formation and burst of speculative dot com bubble, we cannot be confident in such assertion. One way around this problem of market-to-book ratio being affected by growth expectations during dot com bubble period is to control for growth expectations while examining the ratio. We discuss results for such growth controls next.

Table VI presents the results of median market-to-book ratios by across different growth rate portfolios. Growth rate is estimated as the geometric mean annual growth rate in sales over the preceding 3-year period[9]. Our results are quite consistent with GH. We find that market-to-book ratio is higher in the second subperiod. Moreover, in the second subperiod, market-to-book value rises with greater growth rate. In the largest growth rate portfolio (5th being largest and 1st being smallest growth rate portfolio), the ratio does not differ significantly between

[8] GH argue that aggregate measure of market-to-book value ratio is advantageous over simple weighted market to book value ratio, since such measure is independent of the cross-sectional variance in this ratio. However if we re-plot Figure IV with simple mean market-to-book value ratio, we find a similar trend (though the values are different).

[9] GH estimate such growth rate geometric mean annual growth rate in sales over the preceding 5-year period. However, we consider only preceding 3-year period since our study covers only a 10-year period. Considering a 5-year period would result in a significant loss of observations.

the two periods. Only in the 1st and 4th growth rate portfolio the ratio differs significantly between the two subperiods. Similar results hold for adjusted market-to-book ratio (as reported in the last two columns of Table VI). Moreover, we find almost similar results using expected growth rate portfolios (results unreported for brevity), where expected growth rate is estimated as the geometric mean annual growth rate in sales over the succeeding 3-year period.

Hence, for most growth portfolios, market-to-book ratio is larger in the second subperiod (with statistical significance in two growth portfolios). Ideally, to argue for a strong result of increased conservatism we would expect statistically significantly greater market-to-book ratio in the second subperiod across all portfolios. However, our results with market-to-book ratio provides only partial support for increased conservatism argument.

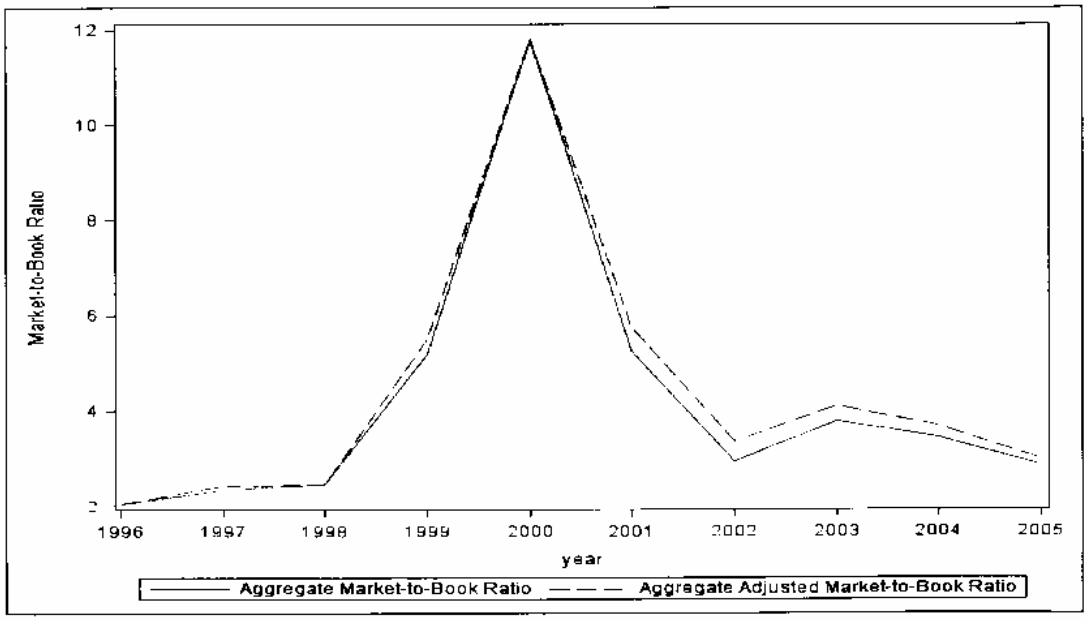


Figure IV - Aggregate Market-to-Book Ratio (Constant Sample)

The aggregate market-to-book ratio is the aggregate market value of the constant sample firms divided by their aggregate book value at the year end. The aggregate adjusted market-to-book value is obtained after adding nonoperating accruals in the book value.

Table VI: Market-to-Book Ratios (Constant Sample) based on Prior Growth Rate[a]

	Median growth rate		Median market-to-book ratio		Median adjusted market-to-book ratio	
Growth Portfolio	First subperiod 1996-2000	Second subperiod 2001-2005	First subperiod 1996-2000	Second subperiod 2001-2005	First subperiod 1996-2000	Second subperiod 2001-2005
All portfolios	10.22	6.50	1.16	1.55	1.18	1.61
By growth portfolio:						
1:lowest growth	-6.10	-10.19	1.14	1.40*	1.13	1.40**
2	3.66	0.58	1.05	1.43	1.04	1.46
3	10.22	6.51	1.08	1.52	1.09	1.58
4	19.05	13.74	1.18	1.64**	1.25	1.76**
5:highest growth	40.70	28.88	1.65	1.83	1.72	1.95

*Means of the two subperiods are significantly different at 10% level.
**Means of the two subperiods are significantly different at 5% level.
[a]Estimated as the geometric mean annual growth rate in sales over the preceding 3-year period.

SUMMARY AND CONCLUSIONS

Time-series properties of earnings, cash flows, and accruals found in GH continue to remain present in most of the years in our sample. First, trend of declining profitability and increasing frequency of losses continue until 2002. However the trend reverses from 2003 onwards. Second, cash flow from operations does not show any particular trend throughout, which GH found as well. Third, accumulation of accruals show similar pattern to GH. The rate of negative accumulation in nonoperating accruals outpaces the rate of accumulation in positive operating accruals. Hence, we find a consistently declining trend in total accruals (before depreciation). Such trends in profitability, cash flows, and accruals are not dominated by any particular industry.

Our results for conservatism slightly differ from those of GH. While GH find increasing reporting conservatism over the years, we do not find consistent support for this using all measures of conservatism. First, conservatism findings using sign and magnitude of accumulated accruals are quite consistent with GH. Total accrual is found negative in most of the years during the study period. We also observe an increasing rate of accumulation in negative accruals. Second, unlike GH, we do not find all four measures of conservatism (obtained from earnings-return association)

extending strong support for increasing conservatism. Only the interaction term between bad news period and return suggests increasing conservatism in the second subperiod. Third, measure of conservatism based on skewness and variability of earnings indicate existence of conservatism. However, given the erratic trend in skewness and variability of earnings, we cannot make a clear inference about whether conservatism has increased or decreased. Fourth, market-to-book value ratio provides weak support for conservatism, while GH found strong support for increasing conservatism using this measure.

REFERENCES

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics, 24*, 3-37.

Ball, R., Kothari, S.P., & Robin, A. (1999). The effect of international institutional factors on properties of accounting earnings. *Working Paper, University of Rochester.*

Esau, H. (2010). Making Sense of the Mess: Do CDS'S Help? *MSc Finance Thesis, University of Saskatchewan.*

Feltham, G.E. & Ohlson, J.A. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research, II (2) Spring,* 689-731.

Givoly, D. & C. Hayn. (2000). The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative? *Journal of Accounting & Economics, 29(3)*, 287–320.

Healy, P.M., Palepu, K.G., & Ruback, R.S. (1992). Does corporate performance improve after mergers? *Journal of Financial Economics, 31*, 135-175.

Hughes, P. & Sankar, M. (1998). The impact of litigation risk on discretionary disclosure. *Working paper, University of California, Los Angeles.*

Kasznik, R. & Lev, B. (1995). To warn or not to warn. *The Accounting Review, 10,* 113-134. Lobo, G. J., and Zhou, J. (2006). Did Conservatism in Financial Reporting Increase after the

Sarbanes-Oxley Act? Initial Evidence. *Accounting Horizons, 20 (1)*, 57-73.

Skinner, D.J. (1994). Why firms voluntarily disclose bad news. *Journal of Accounting Research, 32*, 38-60.

Skinner, D.J. (1997). Earnings disclosures and stockholder lawsuits. *Journal of Accounting and Economics, 23*, 249-282.