Does Conservatism Affect the Value Relevance of Discretionary Accounting Disclosures?

Yonpae Park
Savannah State University

William Wilcox
University of Northern Colorado

Kevin Thomas Berry
University of Alaska Fairbanks

ABSTRACT

This paper tests the impact of conservatism using Feltham and Ohlson's (1995) valuation model. Previous research indicates that managers will expand voluntary disclosures if their firms are undervalued by market investors. This paper predicts that accounting conservatism will provide more credibility to market investors, and the impact of voluntary disclosures on firm value will be greater in comparison to firms with aggressive accounting. The empirical evidence in this paper supports the hypothesis. Results support that accounting conservatism affects the association between voluntary disclosures and the value-relevance of accounting information such that the market reaction to voluntary disclosures is greater for the firms that market investors perceive as conservative. Also, the managers of firms undervalued by market investors tend to expand voluntary disclosures to correct market undervaluation.

INTRODUCTION

Healy, Hutton, and Palepu (1999) examined the manager's motivation to expand voluntary disclosures, and the effects of voluntary disclosures on equity market value. However, they did not address the question of whether the market responds differently to voluntary disclosures in different accounting and economic circumstances. This paper extends Healy et al. (1999) by investigating the effect of accounting conservatism on the relationship between voluntary disclosures and the value-relevance of accounting information, evaluating both earnings and book value. The study of voluntary disclosures is important from a policy perspective. An evaluation of the benefits, as well as costs, associated with expanded disclosures can be important in making changes to mandated reporting requirements. The study of voluntary disclosures can also be important from a valuation perspective, if they have an impact on the market's perceived expectations of firm performance.

Furthermore, the study of conservatism is important because managers have considerable discretion in measuring firms' economic events, as allowed within those accounting regulations. A firm's accounting policy in reporting its financial performance is one of the governance mechanisms that enable privately informed and self-interested managers to credibly communicate their private, value-relevant information to market investors. Therefore, voluntary disclosures and accounting conservatism can provide value-relevant information that has not yet been captured in bottom-line numbers.

Using the Feltham and Olson's (1995) valuation model, this paper examines whether the effect of voluntary disclosures on firm value is associated with accounting conservatism. If a firm employs

conservatism in its accounting measurements, that firm is predicted to have more credibility than firms which are less conservative. While a firm's credibility will impact the reliability of all information that it provides, the impact on the reliability of voluntary disclosures is especially important, as they are not audited like financial statements. Therefore, the value-relevance of voluntary disclosures will be greater for conservative firms relative to the voluntary disclosures of less conservative firms. The empirical evidence in this paper supports this prediction. The managers of firms that are undervalued by market investors tend to expand voluntary disclosures to correct the market's undervaluation. Accounting conservatism affects the association between voluntary disclosures and the value-relevance of accounting information such that the market reaction to voluntary disclosures is greater for the firms which market investors perceive as conservative. This paper also provides evidence on the extent to which the Feltham and Olson (1995) valuation model fits data such as abnormal earnings and net operating assets in the context developed in this paper. Such evidence is important because this paper analyzes the hypotheses under the assumption that the Feltham and Olson (1995) valuation model is descriptively valid. The results show that the model is consistent with the data analyzed in this paper.

LITERATURE REVIEW
Few studies have investigated the motivation for accounting conservatism or the effects of conservatism (see Devine (1963), Staubus (1985), Ahmed, Morton and Schaefer (2000), and Basu (1997)). Accounting Principles Board Statement No. 4 characterizes one of the motivations for accounting conservatism as follows:

Frequently, assets and liabilities are measured in a context of significant uncertainties.

Historically, managers, investors, and accountants have generally preferred that possible errors in

measurement be in the direction of understatement rather than overstatement of net income and net assets.

Accordingly, it can be assumed that a firm's practice of accounting conservatism may be motivated as a response to problems arising from information asymmetry between managers and market investors.

Under information asymmetry regarding firm valuation, managers often possess private knowledge about a firm's operations and asset values that market investors do not have (Trueman [1986]). If management benefits including compensation are linked to the accounting numbers, then managers have incentive to withhold from those accounting numbers any information that would adversely affect their benefits, or manipulate those accounting numbers in management's favor. In addition, the arbitrariness of many accounting measurements and valuation techniques within Generally Accepted Accounting Principles (GAAP) can provide opportunities for managers to alter reported numbers and adversely affect the quality of accounting information (Lev [1989]). By following conservative accounting procedures, managers can assure market investors that they are not overstating earnings or net assets (Devine [1963]), or managers can increase the credibility of accounting information conveyed by earnings or net assets (Krishnan, Sankaraguruswamy and Shin [1996]). Therefore, the effect of conservatism on the value-relevance of accounting information is an empirical question by examining whether accounting conservatism enhances or adversely affects the value-relevance of accounting numbers.

While fundamental accounting data in financial statements are a comprehensive summarization of a firm's value, they are lagged and provide a minimum level of disclosure as required by accounting standard setters and capital market regulators. Also, managers have discretion in determining what information is actually provided beyond those minimum disclosure requirements. Therefore, managers have an incentive to disclose good news so as to distinguish themselves from the "lemons" in the market place that have no good news to disclose (Akerlof [1970]). But discretionary signaling of good news to the market takes place only when the benefits from disclosure exceed the costs of voluntary disclosures

such as proprietary costs, litigation costs, or information gathering/dissemination costs (Verrecchia [1983]).

Feltham and Ohlson [1995] model firm value as a linear function of earnings, book value, and other information. Dechow et al. [1999], Ohlson [2001], and Bryan and Tiras [2007] presume that analyst forecasts convey information to the market beyond that reflected by the financial accounting fundamentals of earnings and book value. They indicate that under information asymmetry, the market tends to focus less on financial accounting information and more on other relevant information beyond that reflected by the accounting fundamentals.

There has been large volume of research focused on the manager's motivation underlying voluntary disclosure. Healy, Hutton, and Palepu [1999] indicate the importance of discretionary disclosures in the undervaluation hypothesis. The hypothesis predicted that management would attempt to correct any market miss-pricing by expanding voluntary disclosures. By doing so, management would alleviate any information asymmetry by sharing their proprietary knowledge about the firm's future prospects. Ballow et al. [2004] found that only 35% of a firm's market value can be attributed to accounting fundamentals with the remaining 65% based on an assessment of firm value created by other relevant information. While this additional voluntary information could be useful for market investors, it is a question as to how reliable these disclosures could be. Because this information has not been subjected to an external audit by an independent third party, the credibility of management could be vital in determining how value-relevant the disclosures will actually be.

This paper examines the effects of voluntary disclosures on the relation between a firm's stock price and both earnings and book value using the FO model. The FO model has the following desirable features for the empirical tests in this paper: (i) it provides a theoretical framework for the relation between stock price and abnormal earnings, which shows the persistence of investors' wealth creation;[1] (ii) it includes net operating assets in the model, which controls for the relation between stock price and the book value of operating assets and represents the investors' perception about a firm's practice of conservatism; (iii) it allows the effects of voluntary disclosures to be explicitly added to the model in order to reflect the effects of information revealed voluntarily on a firm's stock price.

HYPOTHESES
Verrecchia [1983] analyzes a manager's incentive for voluntary disclosure when there are the costs associated with the disclosure of accounting information. He shows that a manager's decision to release or withhold his private information about firm value depends on the effect of that decision on the stock price. He suggests that a manager, whose objective is to maximize firm value, will voluntarily convey private information to market investors whenever the firm is undervalued by the market.

The undervaluation hypothesis is tested empirically by HPS [1995] using an Earnings Response Coefficient (ERC) model to compare a test sample of firms that substantially increased voluntary disclosures with other firms. They find that increased voluntary disclosure appears to be effective in reducing undervaluation. By dividing the sample into EXPANDED, UNCHANGED and REDUCED firms, this paper examines the economic consequences for firms that reduce voluntary disclosures, as well as firms that expand voluntary disclosures.

In the FO model, accounting earnings and operating assets are components which determine the firm value. If current operating assets are understated through conservatism, future expected earnings will be

---

[1] The term "abnormal earnings" is also referred as "excess earnings," "residual income," or "economic value added (EVA^{TM})." Lee [1996] explains the advantage of abnormal-earnings-based performance measure over traditional normal-earnings-based measure in terms of a management incentive system.

higher to reflect the reversal of the understatement, and the normal earnings will be lower (see Feltham and Ohlson [1995]). Therefore, managers are expected to reveal information concerning operating assets if they believe that market investors have undervalued the value-relevance of operating assets. Therefore, it is hypothesized that the managers of firms which are undervalued by market investors tend to expand voluntary disclosures. It is also hypothesized that the managers of firms which are overvalued by market investors would have a tendency to reduce voluntary disclosures in order to not reveal the market's miss-pricing.

> **H1**: *If the value-relevance of abnormal earnings or operating assets is undervalued (overvalued) by market investors, then managers will expand (reduce) voluntary disclosures.*

When market investors receive value-relevant accounting information, they will revise not only their beliefs about estimates of firm value but also their beliefs concerning the credibility of the firm's information. If market investors rationally anticipate the manager's choice of reporting strategy as conservative (aggressive) based on the footnotes, supplementary information reported in the financial statements, or other sources, it is expected that investors will (i) estimate the extent to which firm value has been understated (overstated), (ii) revise their beliefs concerning the credibility of a firm's accounting information upward (downward), (iii) revise their beliefs concerning the credibility of the voluntary disclosures upward (downward), and (iv) evaluate the firm value upward (downward) accordingly, leading to a positive (negative) market impact.

Since the extent of accounting manipulation is unlikely to be known, there is uncertainty about firm value among market investors. The second hypothesis predicts that accounting conservatism is expected to eliminate significant uncertainty about the distortion in accounting and non-accounting information reported in voluntary disclosures, resulting in more credible and value-relevant disclosures. This will lead to enhanced market reaction to the voluntary disclosures.

> **H2**: *The firms which investors perceive as conservative will have a larger market reaction to voluntary disclosures than the firms which investors perceive as aggressive.*

This paper uses the following FO models to test the hypotheses.

$$ox_{it+1}^a = w_0 + w_1 ox_{it}^a + w_2 oa_{it} + \varepsilon_{it+1} \quad \text{(Linear Information Model)} \quad (1)$$

$$g_{it} = \alpha_0 + \alpha_1 ox_{it}^a + \alpha_2 oa_{it} + \varepsilon_{it} \quad \text{(Linear Valuation Model)} \quad (2)$$

where:

g_{it} = unrecorded goodwill per share, defined as the difference between stock price and book value of firm i in year t,

ox_{it}^a = abnormal operating earnings per share of firm i in year t,

oa_{it} = net operating assets per share of firm i in year t,

w_1 = marginal persistence in abnormal operating earnings per share,

w_2 = accounting conservatism in operating assets per share, and

ε_{it} = random error term.

In equation (1), the expected future abnormal earnings are assumed to be affected by both current abnormal earnings and operating assets. The coefficients of the variables ox_{it}^a and oa_{it} indicate the persistence of abnormal earnings and the conservatism of operating assets, respectively (FO [1995]). The

FO valuation model is examined for all sample firms in order to compare the results with earlier work of Stober [1995] and Ahmed et al. [1997].[2]

This paper estimates equation (2) using panel data for the EXPANDED, UNCHANGED, and REDUCED firms over each of the individual years of the test period, as well as during the pre-and post-disclosure periods. Consistent with HPS (1995)'s undervaluation hypothesis, it is predicted that the coefficients on the abnormal earnings and net operating assets will be higher for the firms that expanded disclosures. Market investors may interpret a reduction in voluntary disclosures as a sign that managers are trying to hide bad news, and investors may adjust their overvaluation [Akerlof, 1970]. Therefore, it is predicted that the coefficients on the abnormal earnings and net operating assets will be lower for the firms that reduced disclosures.

Next, to examine the effect of conservatism on the market reaction to valuation multiples, the sample is divided into "CONSERVATIVE" and "AGGRESSIVE" strata by calculating the firm-specific average estimates of conservatism from the equation (1) relation between future expected abnormal earnings and current abnormal earnings and current operating assets over a four-year period preceding the event year.[3] The firm-specific average estimate of conservatism is compared with the industry average estimate which is calculated from the equation (1) using all other firms with the same four-digit SIC code as the target firm. If the firm-specific average conservatism coefficient is greater than the industry average coefficient, then the sample firm is categorized as "CONSERVATIVE," otherwise "AGGRESSIVE."[4]

Finally, to test the effects of changes in the voluntary disclosure between the post-disclosure change period and pre-disclosure change period on the relation between equity value and accounting numbers (i.e., ox^a_{it} and oa_{it}) in the context of conservatism, this paper operationalizes the FO valuation model as follows:

$$g_{it} = \alpha_{0kd} + \alpha_{1kd} ox^a_{it} + \alpha_{k2d} oa_{it} + \beta_{0kd} D_b + \beta_{1kd} D_b ox^a_{it} + \beta_{2kd} D_b oa_{it} + \varepsilon_{it} \quad (3)$$

where $k = c$ for CONSERVATIVE firms, and a for AGGRESSIVE firms,
         $d = e$ for EXPANDED firms, u for UNCHANGED firms and r for REDUCED
             firms, and
         D_b = dummy variable which is 1 for the pre-disclosure change period and 0
             otherwise.

The pooled cross-sectional and time-series regression model is formulated as above in order to permit the intercept and coefficients to vary across the different years before and after the change in voluntary disclosures. In equation (3), α_{0kd}, α_{1kd} and α_{2kd} represent the intercept, persistence coefficient and conservatism coefficient, respectively, for the post-disclosure change period. For the pre-disclosure change period, the intercept, the persistence, and conservatism coefficients are $\alpha_{0kd} + \beta_{0kd}$, $\alpha_{1kd} + \beta_{1kd}$, and

---

[2] Every variable in empirical test models is scaled by the outstanding common stock. This will reduce the possible heteroskedasticity problem. White's test for heteroskedasticity in the residuals reveals no significant heteroskedasticity in the empirical test models.

[3] Because of a limitation in data availability, this paper estimates firm-specific conservatism with a relatively short period (-1 to -4). However, because the impact of conservatism on abnormal earnings is predicted to revert to the mean quickly, it is reasonable in examining the effect of conservatism to estimate conservatism parameters over a relatively short period.

[4] Feltham and Ohlson [1995] define that the accounting of operating assets is conservative if the conservatism coefficient has a positive sign, unbiased if zero, and aggressive if a negative sign. However, this paper examines the relative conservatism to the industry average conservatism, which is expected to be done by market investors when they make investment decisions. 63% of the overall sample firms are conservative in comparison to their industry average. However, the number of conservative firms is similar over the different voluntary disclosure strata (see Panel C of table 1).

α_{2kd} + β_{2kd}, respectively. Hence, β_{0kd}, β_{1kd} and β_{2kd} represent the differences in the intercepts and coefficients between the post-disclosure and pre-disclosure change periods.

According to the second research hypothesis, the change in persistence and conservatism coefficients for the CONSERVATIVE stratum is expected to be greater than the multiples for the AGGRESSIVE stratum.[5] Consistent with the second research hypothesis, the predictions are as follows in alternative form:[6]

H2a: $|\beta_{1ce}| > |\beta_{1ae}|$

The adjustment of investors' overvaluation for the conservative REDUCED firms may be smaller than that for the aggressive firms. Therefore, the prediction for REDUCED firms is as follows in alternative form:

H2b: $|\beta_{1cr}| < |\beta_{1ar}|$

All of the variables are deflated by the number of common shares outstanding to remove scale differences and reduce heteroskedasticity.[7] Because of the inclusion of abnormal earnings and operating assets in the same equation, multicollinearity is tested with the condition index suggested by Belsley, Kuh and Welsch [1980].

SAMPLE MEASUREMENTS

In this paper, the proxies for the informativeness of voluntary disclosures are based on analysts' evaluation scores published in the FAF reports utilized by HPS (1995). The FAF reports are prepared by industry-specific analyst subcommittees on an annual basis, and contain evaluations of the adequacy of firms' voluntary disclosures beyond the mandatory disclosures required by accounting regulations. Each industry committee prepares a list of important aspects of disclosure weighted to reflect information requirements unique to the industry, and assigns a score to each firm. Since the evaluation scorings in FAF reports are usually reported with different scales or different analyst subcommittees over time for different industries, the raw scores should be standardized to provide meaningful proxies for voluntary disclosure informativeness. This paper uses *Relative Industry Rankings* (RIR) for each firm and each year in the test period [Healy et al., 1995; Lang and Lundholm, 1993]. The RIR for firm i in year t is defined as follows:

$$RIR_{it} = \frac{N_{it} - R_{it}}{N_{it} - 1} * 100 \qquad\qquad (RIR)$$

where N_{it} is the number of firms in firm i's industry in year t, and R_{it} is the rank of firm i's disclosure score in year t.[8]

Since this paper investigates the effects of different levels of voluntary disclosures over the test period, it is important to identify firms that have had a large and sustained change in their disclosure levels. To identify those firms with a large sustained increase or decrease in its RIR, this paper utilizes the *Changes*

---

[5] On the basis of the prediction of the undervaluation hypothesis, this paper expects differences in persistence or conservatism multiples between the post-disclosure and pre-disclosure change periods. For the EXPANDED firms, the hypothesis predicts that $\beta_{1ce} < 0$ and $\beta_{1ae} < 0$. For the REDUCED firms, the hypothesis predicts that $\beta_{1cr} > 0$ and $\beta_{1ar} > 0$.

[6] Since the second hypothesis tests the magnitude (not direction) of change in market reaction, the absolute values are tested.

[7] Tests for the presence of heteroskedasticity are performed, and no significant heteroskedasticity is found.

[8] Therefore, the RIR will be the value 100 for firms ranked top in their industry and 0 for those firms ranked bottom.

in Relative Ranking (CRR) during a test period. The CRR is computed with average changes rather than absolute changes to reduce the measurement error as follows[9]:

$$CRR_{it} = \frac{1}{z}\sum_{\tau=t}^{t+2} RIR_{i\tau} - \frac{1}{2}\sum_{\tau=t-1}^{t-2} RIR_{i\tau} \qquad\qquad (CRR)$$

where t is the event year on which a firm increases disclosure, and z is the period during which the disclosure increase is measured.[10]

To test the empirical model in this paper, sample firm-years are selected from the FAF reports during 1982 through 1993 that satisfy the following sampling criteria[11]:

(i)   To measure the relative industry rankings (RIR_{it}), each sample firm has to have individual scores over the sample period because the FAF subcommittees for industries such as financial services do not report the individual scores. Also, to avoid measurement error that would result from large relative but small absolute changes in FAF rankings, FAF industries pertinent to sample firms have to contain at least five firms.

(ii)   To measure the change in average relative rankings (CRR_{it}), sample firms have to be evaluated consecutively at least five years by FAF subcommittees.

(iii)   The sample firms are categorized into "EXPANDED", "UNCHANGED", and "REDUCED" with the top two, middle two, and bottom two deciles based on the CRR_{it} in each year over the sample period.

(iv)   Sample firms should have the requisite accounting data and stock price data available on either COMPUSTAT PC Plus Active or Research data sets.

After applying the above criteria, 713 firm-years remain available for the hypothesis tests. Table 1 shows the sample selection criteria across the three disclosure strata of sample firm-years.

Table 1
Sample Firms
Number of firm-years

Sample Selection Process	EXPANDED	MIDDLE	REDUCED	Total
1. Firms with individual scores in the relevant industries	---	---	---	1627
2. Firms with consecutive scores	---	---	---	1492
3. Firms with top, middle or bottom two deciles	299	298	298	895
4. Firms with COMPUSTAT data available	277	281	275	833
5. Non financial firms	247	250	242	739
6. Firms after excluding outliers	238	244	231	713

The variables used in the analysis are defined as follows:

- Stock price (p) is determined as of three months following a firm's fiscal year end, assuming that all relevant information would be reflected in the price by that time.
- Unrecorded goodwill (g) is defined as stock price minus book value of equity.

---

[9] Two-year average of RIR prior to the change in disclosure rankings is used in order to reduce the likelihood of identifying firms with large increase in RIR which reverse the following year.

[10] For the comparison of results to Healy et al. [1995], this paper computes CRR over a three-year period to identify firms with large sustained increase in voluntary disclosures.

[11] These sampling criteria are similar to those of Lang and Lundholm [1993], Healy et al. [1995].

- Operating assets (*oa*) are defined as the book value of equity minus cash and marketable securities, and other investments and advances plus short term debt, long term debt, preferred stock, and minority interest.
- Operating earnings (*ox*) are defined as income before extraordinary items minus interest income plus interest expense, preferred dividends, and minority interest income.
- Abnormal operating earnings (ox^a) are defined as the difference between operating earnings (*ox*) and normal earnings, as measured by the product of beginning-of-period operating assets and the cost of capital.

Descriptive Statistics

Table 2 shows how the variables defined above change when the sample firms expand, reduce, or do not change the level of their voluntary disclosures. The EXPANDED firms show an increase in stock price, unrecorded goodwill and abnormal earnings, but a decrease in book value and operating assets after the disclosure change. The UNCHANGED firms show an increase in stock price, unrecorded goodwill, book value, and operating assets, but a decrease in abnormal earnings. The REDUCED firms show an increase in stock price, unrecorded goodwill, book value, and operating assets, but a decrease in abnormal earnings.

Table 2 Descriptive Statistics

Panel A: EXPANDED firm-years

	Variable	Price	BV	G	OXA	OA	TA
Post-Disc. (n=714)	Mean	25.627	12.401	13.226	0.400	18.887	32.203
	Std. Dev.	22.705	8.818	18.783	1.971	16.113	27.918
	Median	21.219	10.579	9.405	0.434	14.866	23.738
Pre-Disc. (n=476)	Mean	23.581	13.531	10.050	0.062	22.099	38.674
	Std. Dev.	11.752	8.739	8.921	2.189	16.346	29.525
	Median	21.875	11.728	8.219	0.278	20.746	35.207

Panel B: UNCHANGED firm-years

	Variable	Price	BV	G	OXA	OA	TA
Post-Disc. (n=732)	Mean	28.271	14.241	14.030	0.334	23.950	39.983
	Std. Dev.	26.055	11.859	18.929	1.832	21.085	35.530
	Median	24.542	10.819	11.248	0.478	18.804	30.142
Pre-Disc. (n=488)	Mean	24.421	12.855	11.567	0.422	20.481	34.309
	Std. Dev.	24.046	11.108	18.244	1.943	19.897	33.014
	Median	19.511	9.631	8.326	0.389	14.997	24.139

Panel C: REDUCED firm-years

	Variable	Price	BV	G	OXA	OA	TA
Post-Disc. (n=693)	Mean	26.900	15.413	11.487	-0.434	25.787	46.308
	Std. Dev.	14.545	10.514	11.197	2.544	21.326	37.116
	Median	24.812	12.695	9.649	0.188	20.426	35.366
Pre-Disc. (n=462)	Mean	25.279	15.342	9.937	0.021	23.560	41.355
	Std. Dev.	13.811	10.793	10.140	2.199	18.651	33.600
	Median	24.250	12.638	8.238	0.309	19.495	31.790

The results of abnormal earnings reflect different results across the disclosure strata such that EXPANDED and UNCHANGED firms (REDUCED firms) earn higher (lower) abnormal earnings during the post-disclosure change period relative to the pre-disclosure period. This paper assumes that the firm managers have more precise information than the market investors about abnormal earnings, which is the wealth-creating factor. Therefore, if investors do not adjust their perceptions of firm value appropriately, firm managers are expected to reveal the value-relevant information (i.e., good news about abnormal

earnings) voluntarily. On the other hand, the firms which earn lower abnormal earnings are expected to hide or reduce information related to abnormal earnings.

The results of operating assets show a decrease for EXPANDED firms and an increase in UNCHANGED and REDUCED firms after the year of change, year 0. Even though the measures of operating assets for EXPANDED firms decrease after voluntary disclosures are expanded, the market investors may perceive the quality of accounting numbers differently based on other information related to the conservatism used in generating those numbers. This implies that the firms can be motivated to increase voluntary disclosures if investors undervalue the quality of accounting numbers if the market investors do not perceive the understatement to be due to conservative accounting practice. Alternatively, if investors overvalue the quality of accounting numbers due to undetected aggressive accounting, then the firms may attempt to hide or reduce the information related to their accounting procedures. In either case, the relation between the change in operating assets and the corresponding change in investors' perceptions reflected on the stock price are expected to affect the firms' voluntary disclosure strategies.

Table 3 shows summary statistics for the FO valuation model. The results report the relation between the unrecorded goodwill and the abnormal earnings and operating assets for the overall sample firms. The average multiple on abnormal earnings, α_1, is 3.416 which is similar to 5.215 in Ahmed et al. [1997]. The average coefficient on operating assets, α_2, is 0.07 which is smaller than Stober's [1995] 0.22 and Ahmed et al.'s [1997] 0.41. This suggests that the market investors perceive that operating assets are conservatively reported, on average, and compensate for the understatement of operating assets from conservative accounting. Furthermore, these findings suggest that the sample examined in this study has similar characteristics to samples examined in other studies.

Table 3
Correlation and Regression Results
Persistence, Conservatism, and Valuation Multiples
Panel A : Estimation of persistence and conservatism

	Mean	Std. Dev.
OXA_t	0.133	2.145
OXA_{t-1}	0.117	2.114
OA_{t-1}	21.199	18.538

Coeff.	Estimate	Std. Error	t-statistic	p value	Adj. R2
w_0	0.696	0.048	14.535	0.000	0.246
w_1	0.401	0.015	26.908	0.000	
w_2	-0.029	0.002	-16.934	0.000	

Panel B : Estimation of valuation multiples

	Mean	Std. Dev.
G_t	11.976	15.495
OXA_t	0.133	2.145
OA_t	22.521	19.288

$G_t = a_0 + a_1 OXA_t + a_2 OA_t + e_t$

Coeff.	Estimate	Std. Error	t-statistic	p value	Adj. R2
a_0	9.945	0.358	27.808	0.000	0.218
a_1	3.416	0.108	31.505	0.000	
a_2	0.070	0.012	5.807	0.000	

Gt: Unrecorded goodwill per share at the 3 months after the balance sheet date t.
OXAt: Abnormal operating earnings per share at the balance sheet date t.
OAt: Operating assets per share at the balance sheet date t.
t-statistics are tested at the significance level of 0.05 using two-tailed tests.

RESULTS

To test the first hypothesis, this paper partitions the sample firms into three groups (i.e., EXPANDED, UNCHANGED, and REDUCED) based on average changes in disclosure score, CRR_{it}. For the EXPANDED, UNCHANGED, and REDUCED disclosure strata, table 4 presents the results of estimating the FO model using pooled data (i) over each relative year (-2 through 2), (ii) between the pre-disclosure change period (-2 through -1) and the post-disclosure change period (0 through 2), and (iii) for overall disclosure period. The results are reported in Table 4.

Table 4
Regression Results
$$G_t = a_0 + a_1 OXA_t + a_2 OA_t + e_t$$

Panel A

	EXPANDED			UNCHANGED			REDUCED		
	Est.	t-stat.	p	Est.	t-stat.	p	Est.	t-stat.	p
Post-Disclosure Change Period (n = 714)				**(n = 732)**					**(n = 693)**
a0	9.387	5.924	0.000	7.234	4.716	0.000	13.368	12.643	0.000
a1	4.905	10.421	0.000	6.472	11.647	0.000	1.702	6.210	0.000
a2	0.116	1.938	0.000	0.193	4.085	0.000	-0.043	-1.319	0.093
Pre-Disclosure Change Period (n = 476)				**(n = 488)**					**(n = 462)**
a0	10.528	10.147	0.000	6.967	5.380	0.000	10.045	9.622	0.000
a1	1.546	4.719	0.000	6.022	13.119	0.000	1.223	4.109	0.000
a2	-0.092	-2.201	0.014	0.099	2.190	0.014	-0.004	-0.119	0.452
Overall Disclosure Period (n = 1190)				**(n = 1220)**					**(n = 1155)**
a0	9.843	7.207	0.000	7.127	4.955	0.000	12.039	11.444	0.000
a1	3.561	8.614	0.000	6.292	12.169	0.000	1.510	5.328	0.000
a2	0.032	0.616	0.269	0.155	3.350	0.000	-0.028	-0.819	0.206

G_t: Unrecorded goodwill per share at the 3 months after the balance sheet date t.
OXA_t: Abnormal operating earnings per share at the balance sheet date t.
OA_t: Operating assets per share at the balance sheet date t.
t-statistics are tested at the significance level of 0.05 using two-tailed tests.

Panel B

Coeff.	(1)	t-stat.	p	(2)	t-stat.	p	(3)	t-stat.	p
α_1	$\alpha_{1ea} = \alpha_{1eb}$	7.137	0.000	$\alpha_{1eb} = \alpha_{1ub}$	-13.667	0.000	$\alpha_{1ea} = \alpha_{1ua}$	-3.329	0.000
	$\alpha_{1ua} = \alpha_{1ub}$	0.810	0.209	$\alpha_{1ub} = \alpha_{1rb}$	10.455	0.000	$\alpha_{1ua} = \alpha_{1ra}$	8.584	0.000
	$\alpha_{1ra} = \alpha_{1rb}$	1.749	0.040	$\alpha_{1eb} = \alpha_{1rb}$	0.986	0.163	$\alpha_{1ea} = \alpha_{1ra}$	6.805	0.000
α_2	$\alpha_{2ea} = \alpha_{2eb}$	3.487	0.000	$\alpha_{2eb} = \alpha_{2ub}$	-4.548	0.000	$\alpha_{2ea} = \alpha_{2ua}$	-1.303	0.096
	$\alpha_{2ua} = \alpha_{2ub}$	2.002	0.023	$\alpha_{2ub} = \alpha_{2rb}$	2.283	0.011	$\alpha_{2ua} = \alpha_{2ra}$	4.995	0.000
	$\alpha_{2ra} = \alpha_{2rb}$	-1.191	0.117	$\alpha_{2eb} = \alpha_{2rb}$	-2.102	0.018	$\alpha_{2ea} = \alpha_{2ra}$	2.660	0.004

(1) Tests for the difference in coefficients for each disclosure stratum between pre- and post-disclosure periods.
(2) Tests for the difference in coefficients for pre-disclosure period between disclosure strata.
(3) Tests for the difference in coefficients for post-disclosure period between disclosure strata.

For the pre-disclosure change period (-2 through -1), the average multiple on abnormal earnings is 1.546 for EXPANDED, 6.022 for UNCHANGED, and 1.223 for REDUCED firms. These estimated coefficients are all significantly different from zero. In statistical terms, the estimated persistence multiple for EXPANDED is significantly lower than that of UNCHANGED firms. Therefore, prior to the disclosure increase, the market investors price abnormal earnings at a lower persistence for the EXPANDED firms than for the UNCHANGED firms, indicating that market investors undervalue the EXPANDED firms' earnings.

After the EXPANDED firms increase their voluntary disclosures, the market investors shift their perception of earnings persistence significantly higher than before the disclosure increase. Also, the estimated coefficients of abnormal earnings continue to increase significantly along with the sustained increase in voluntary disclosures. In comparison to UNCHANGED firms, the degree of undervaluation decreases substantially after voluntary disclosures are expanded. In table 2, descriptive statistics do not show any significant improvement in abnormal earnings after the increase in disclosures, indicating that the changes in market perception of the earnings persistence are mainly due to the increase of value-relevant disclosures. These findings indicate that managers tend to reveal the voluntary disclosures relevant to the earnings persistence when they realize that the market has undervalued the reported results. Therefore, the results support the hypothesis one for the EXPANDED firms.

For the UNCHANGED firms, the market investors do not show any significant shift in the perception of the value-relevance of abnormal earnings between pre- and post-disclosure periods. In panel A of table 4, the estimated coefficients of abnormal earnings are not significantly different over the relative years, and in table 2, descriptive statistics do not show any significant improvement in the amount of abnormal earnings between pre- and post-disclosure periods. These results suggest that the market investors perceive the earnings persistence constantly if there are no significant changes in voluntary disclosure strategy and in abnormal earnings. These results add validity in using UNCHANGED firms as a benchmark to examine the effect of voluntary disclosure changes.

For the REDUCED firms, the value-relevance of abnormal earnings is perceived at a lower level than that of UNCHANGED firms. However, the abnormal earnings coefficient increases significantly after the disclosure decrease even though the descriptive statistics in Table 2 show a significant decrease in abnormal earnings after voluntary disclosures have been reduced. There are some possible explanations for this result. One is that managers believe the value-relevant information is adequately conveyed by the reported accounting numbers such as abnormal earnings and operating assets. Therefore, voluntary disclosures would not be providing any benefit to the market investors, so the managers act efficiently in reducing the level of voluntary disclosures. The adjusted R^2, which shows the explanatory power of abnormal earnings and net operating assets for the unrecorded goodwill variation, increases after voluntary disclosure is reduced. This provides some evidence as to the improved information content of the reported accounting numbers of these firms.

Although REDUCED firms do show some increase in the value-relevance of abnormal earnings during the post-disclosure period, the value-relevance of abnormal earnings is significantly smaller than that of EXPANDED firms' abnormal earnings in the post-disclosure period. The results of the conservatism multiples of net operating assets are generally consistent with those of the persistence multiples. In summary, if managers believe that their firms are undervalued by market investors, they will expand their voluntary disclosure levels, and in turn, market investors will revise their perception of the value-relevance of abnormal earnings or net operating assets positively.

To test the second hypothesis, the sample that met the data requirements is divided into "CONSERVATIVE" and "AGGRESSIVE" strata by comparing the firm-specific estimates of conservatism with the industry average estimate from equation (1). The test results are shown in table 5.

Table 5
Regression Results
$$G_t = a_0 + a_1 OXA_t + a_2 OA_t + b_0 + b_1 D_b * OXA_t + b_2 D_b * OA_t + e_t$$

		EXPANDED (n = 238)					REDUCED (n = 231)				
	Coeff.	Est.	Std.	t-stat.	p	Adj R^2	Est.	Std.	t-stat.	p	Adj R^2
CONSERVATIVE	a_0	6.519	1.211	5.382	0.000	0.406	14.623	0.743	19.681	0.000	0.162
(n = 650)	a_1	7.132	0.371	19.219	0.000		1.580	0.204	7.761	0.000	
	a_2	0.256	0.047	5.418	0.000		-0.089	0.022	-4.026	0.000	
	b_0	3.274	1.827	1.792	0.074		-4.553	1.189	-3.829	0.000	
	b_1	-4.466	0.616	-7.248	0.000		-0.470	0.316	-1.486	0.138	
	b_2	-0.276	0.076	-3.642	0.000		0.557	0.037	1.488	0.137	
AGGRESSIVE	a_0	12.879	0.830	15.511	0.000	0.201	11.551	1.025	11.269	0.000	0.109
(n = 540)	a_1	1.705	0.232	7.345	0.000		1.637	0.240	6.826	0.000	
	a_2	-0.034	0.029	-1.140	0.255		0.024	0.034	0.714	0.476	
	b_0	-3.076	1.163	-2.644	0.008		-1.675	1.642	-1.020	0.308	
	b_1	-0.958	0.343	-2.796	0.005		-0.022	0.490	-0.046	0.964	
	b_2	-0.100	0.043	-2.321	0.021		0.020	0.056	0.359	0.720	

t-statistics are tested at the significance level of 0.05 using two-tailed tests.

The results show that the marginal effects of the EXPANDED/CONSERVATIVE stratum and EXPANDED/AGGRESSIVE stratum are significantly negative in the pre-disclosure change period, indicating that the firms are undervalued. These results are consistent with hypothesis one for both strata. On the other hand, EXPANDED/CONSERVATIVE firms show a significantly greater marginal effect of voluntary disclosures relative to the EXPANDED/AGGRESSIVE firms on the coefficients of the abnormal earnings (4.466 vs. 0.958) and operating assets (0.276 vs. 0.1). This means that if market investors perceive a firm as conservative, they place more credibility on the accounting information reported to them than information from aggressive firms. Therefore, the effect of expanded voluntary disclosures on the valuation multiples is greater for the CONSERVATIVE firms than the AGGRESSIVE firms. This result supports the second hypothesis.

For the REDUCED/CONSERVATIVE stratum and REDUCED/AGGRESSIVE stratum, the marginal effect on the valuation multiples across the periods is not significant. These results indicate that the managers may at least keep the market perception of valuation multiples at a level similar to the pre-disclosure period by hiding private information. Therefore, managers may withhold private information if they expect that such information would affect the valuation of their firms negatively. The REDUCED category does not provide support for the second hypothesis.

CONCLUSIONS
This paper tests the effect of conservatism on firm valuation using Feltham and Ohlson's valuation model which incorporates both earnings and net assets. Our findings suggest that the managers of firms undervalued by market investors tend to expand voluntary disclosures to correct for the market's undervaluation. In addition, the market reaction to an increase in disclosure levels is greater when the market perceives the firm's management as conservative. A secondary finding was that for firms which significantly reduced their voluntary disclosures, the market gave a significant increase in the valuation multiple of their abnormal earnings, while firms that did not change their disclosure levels had no

significant change.   Therefore, in both cases when management changed its disclosure levels, management's decision led to a higher market multiple on the firm's abnormal earnings.

This paper is intended to contribute to the continuing policy debate between regulators and managers. Accounting standard setters have attempted to persuade managers to expand voluntary disclosures which are expected to reduce the cost of capital, and to benefit inventors [Botosan, 1997]. Managers claim that the expanded disclosures put them at a disadvantage by revealing proprietary information [Healy and Palepu, 1993]. The results from this paper provide additional information to policy makers about the importance of credibility when examining the effects of disclosure policy changes. This paper had some interesting findings that should also stimulate new research ideas. One area that requires additional exploration is a better understanding of the motivations of management to have a sustained decrease in its level of voluntary disclosures. Another area of future research is the examination of other benefits associated with expanded disclosures, and whether the realization of those benefits is predicated on the perception that the firm's management is conservative.

REFERENCES

Accounting Principles Board, *Statement of the Accounting Principles Board Number 4: Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises, American Institute of Certified Public Accountants*, New York, 1970.

Ahmed, A.S., R.M. Morton, and T.F. Schaefer, "Accounting Conservatism and the Valuation of Accounting Numbers: Evidence on the Feltham – Olson (1996) Model," *Journal of Accounting, Auditing & Finance*, 2000, pp. 271-292.

Akerlof, G.A., "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 1970, pp. 488-500.

Ballow, J., R. Burgman, G. Roos, and M. Molnar, *A New Paradigm for Managing Shareholder Value*, 2004, Accenture Institute for High Business Performance, Wellesley, MA.

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

Belsley, D., E. Kuh, and R. Welsch, *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*, 1980, John Wiley & Sons.

Burgstahler, D.C., and I.D. Dichev, "Earnings, Adaptation and Equity Value," *The Accounting Review*, 1997, pp. 187-215.

Botosan, C.A., "Disclosure Level and the Cost of Equity Capital," *The Accounting Review*, 1997, pp. 323-349.

Bryan, D.M. and S.L. Tiras, "The Influence of Forecast Dispersion on the Incremental Explanatory Power of Earnings, Book Value, and Analyst Forecasts on Market Prices," The Accounting Review, 2007, pp. 651-677.

Dechow, P.M., A. Hutton, and R. Sloan, "An Empirical Assessment of the Residual Income Valuation Model," *Journal of Accounting and Economics*, 1999, pp. 1-34.

Devine, C., "The Rule of Conservatism Reexamined," *Journal of Accounting Research*, 1963, pp. 127-138.

Feltham, G.A., and J.A. Ohlson, "Valuation and Clean Surplus Accounting for Operating and Financial Activities," *Contemporary Accounting Research*, 1995, pp. 689-731.

Healy, P., A. Hutton, and K. Palepu, "Stock Performance and Intermediation Changes Surrounding Sustained increases in Disclosure, *Contemporary Accounting Research*, 1999, pp. 485-520.

Lang, M., and R. Lundholm, "Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures," *Journal of Accounting Research*, 1993, pp. 246-271.

Lev, B., "On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research," *Journal of Accounting Research*, 1989, pp. 153-192.

Lobo, G.J. and J. Zhou, "Did Conservatism in Financial Reporting Increase after the Sarbanes-Oxley Act? Initial Evidence," *Accounting Horizons*, 2006, pp. 57-73.

Penman, Stephen H. and Xiao-Jun Zhang, "Accounting Conservatism, the Quality of Earnings, and Stock Returns," *The Accounting Review*, 2002, pp. 237-264.

Ohlson, J., "Earnings, Book Values, and Dividends in Equity Valuation: An Empirical Perspective," *Contemporary Accounting Research*, 2001, pp. 107-120.

Staubus, G., "An Induced Theory of Accounting Measurement," *The Accounting Review*, 1985, pp. 53-75.

Trueman, B., "Why do Managers Voluntarily Release Earnings Forecasts?," *Journal of Accounting and Economics*, 1986, pp. 53-71.

Verrecchia, R.E., "Discretionary Disclosure," *Journal of Accounting and Economics*, 1983, 179-194.

Watts, R.L., "Conservatism in Accounting, Part II: Evidence and Research Opportunities," Accounting Horizons, 2003, pp. 207-221.

Zhang, Xiao-Jun, "Conservative accounting and equity valuation," *Journal of Accounting and Economics*, 2000, pp. 125-149.