

# Comprehensive Income and Net Income as Measures of Firm Performance: Some Evidence for Scale Effect

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## Abstract

In this study we investigate the relative ability of comprehensive income and net income to summarize firm performance as reflected in stock returns. We also examine which comprehensive income adjustments improve the ability of income to summarize firm performance. The sample of this study is chosen from companies listed in Tehran's (Iran) stock exchange.

The results do not support that comprehensive income is superior to net income for evaluating firm performance on the basis of stock return and price. We found better results for the state companies, indicating that firm performance evaluation on the basis of cash flows prediction using comprehensive income is superior to net income. Collectively, our results provide some evidence, although not strong, that show comprehensive income adjustments improve ability of income for reflecting firm performance.

**Keywords:** Net Income, Comprehensive Income, Performance Evaluation

## 1. Introduction

Financial statements are the final product of accounting process. Income statement provides data for investment and other decisions. Income measurement and financial position of an economic entity has always been a challenge for accounting standard setting bodies. The main purpose of financial reporting is to provide information for user groups, especially stockholders and creditors to assist them in making decisions. Financial statements (including notes) are the main instruments in conveying the information to the users of financial information.

Market efficiency is based on the theory of competition, in which prices are competitively set and decisions reflect available economic information. One type of economic information used to promote market efficiency is financial statements information. Financial analysts are a primary catalyst in gathering and analysing such information. When economic information is difficult to locate or is not consistently presented among companies, analysts are unable to perform their role optimally and efficiency. Such a breakdown in efficiency before introducing comprehensive income statement existed for certain comprehensive income items included directly in stockholders equity (Smith and Reither, 1996). Comprehensive income is defined in FASB concepts statement No. 6, "*Elements of financial statements*", (FASB, 1985), as the changes in equity of a business enterprise during a period

from transactions and other events and circumstances except those resulting from investments by owners and distributions to owners.

Comprehensive income statement is a measure of firm performance. The purpose of issuing this statement is to make firms to disclose some certain elements of financial performance to help user groups of financial reports in making better financial performance evaluation. Also, comprehensive income as a basic financial statement, should report in details all the recognized revenues and expenses of the firm. The focus of income statement is on the operating revenues and expenses. User groups of financial reports for decision-making require data related to all revenues and expenses (including gains and losses). Therefore, a basic financial statement to include such items and to show changes in owners equity related to those items is necessary.

Financial Accounting Standards Board in 1997 issued the Statement of Financial Accounting Standard No. 130 (SFAS, 130), *reporting comprehensive income*. The statement requires disclosure of both net income and more comprehensive measure of income for fiscal year beginning after December 15, 1997. Four items that are recorded as owners' equity under previous FASB pronouncements, under SFAS, 130 should be recorded in comprehensive income. These items are: adjustments to unrealized gains and losses on available-for-sale marketable securities (SFAS, 115), foreign currency translation adjustments (SFAS, 52), minimum required pension liability adjustments (SFAF, 87), and changes in market values of certain future contracts as hedges (SFAS, 80).

Advocates of the "all-inclusive concept" argue that comprehensive income statement provide better measures of firm performance, than other summary income measures. On the other hand, those who advocate "current operating performance" view of income argue that net income without inclusion of extraordinary and nonrecurring items, got better ability to reflect the firm's future cash flows. For the above arguments see, Kinger and Williams (1977), Robinson (1991), and Brief and Peasnell (1996).

In this study we use comprehensive income and net income to investigate the relative ability of comprehensive income to summarize firm performance. We take the performance as reflected in stock returns (Dechow, 1994; Dhaliwal et al, 1999). We also investigate, which types of adjustments on comprehensive income, would improve income's ability to summarize firm performance. Important issue that is taken into consideration in this study is the scale effect. Lev, (1989) argues that  $R^2$  in earnings – returns regressions is "too low" to be economically relevant. Brown, Lo, and Lys (1999) suggest that some (if not all) of the differences between the "too low"  $R^2$  in returns regressions and the "higher"  $R^2$  in levels regression are caused by scale effects.

Previous empirical research in different countries, provide contradictory and inconclusive evidence on the value relevance of comprehensive income disclosures. Thus, we hope the present study by using the Iranian firm's data to provide new evidence in support of the comprehensive income issue.

In this research, we are going to investigate this question that income measured on the basis of all-inclusive concept, would be a better measure of firm performance, than other summary income measures.

### 3. Previous Research

From 1930's one of the important issues in setting accounting standards has been the all-inclusive concept of income measurement. A collection of papers related to the debate are present in brief and Peasnell (1996). Although there has been a long debate on the all-inclusive concept, but little empirical studies have been conducted on the issue.

Hirst and Hopkins (1998) investigate whether two types of comprehensive income display, income statement and statement of changes in equity, affect the judgments of equity analysts when they estimate the stock price of a company that upwardly manages its net income through its available-for-sale marketable securities portfolio. They find that, clear display of comprehensive income and its components in a separate statement of performance make earning management more transparent and result in statistically equal stock price judgments for the earnings management.

Dhaliwal, Subramanyam, and Trezevant (1999) investigate the relative ability of comprehensive income and net income to summarize firm performance as reflected in stock returns. They find no evidence that comprehensive income is more strongly associated with returns/market value or better predicts future cash flows/income than net income. Their results do not support the claim that comprehensive income is a better measure of firm performance than net income. Their results also, raise questions about the appropriateness of items included in SFAS 130, *comprehensive income*, as well as, the need for mandating uniform comprehensive income disclosures for all industries.

Maines and McDaniel (2000) study the judgments of nonprofessional investors on different ways of disclosing comprehensive income, i.e., comprehensive income statement and owners' equity. They find that financial statement format for presenting comprehensive income did not significantly affect nonprofessional investors' acquisition and evaluation of that information, but generally did significantly influence their information weighting and resulting performance judgments.

Cahan, Courtenay, Gronewoller and Upton (2000) study the usefulness of comprehensive income disclosures in a Statement of Changes in Equity (SCE) in New Zealand. Their results suggest that separate of revaluation increments and foreign currency translation adjustments in a SCE are unnecessary. To be exact, they find no evidence that the individual comprehensive income items provide information that is incrementally value relevant above comprehensive income, and they find no evidence that the incremental value relevance of the operating comprehensive income (OCI) items relative to net income increased after the SCE was required.

Biddle and Choi (2003) investigate the relevance of comprehensive income for decision-making. Their results reveal that among income definitions, comprehensive income defined by Financial Accounting Standards Board Statement 130, dominates both traditional net income and fully comprehensive income in explaining equity returns, but that net income dominates the more comprehensive measures in explaining chief executive compensation.

Louis (2003) presents an economic analysis of the foreign translation adjustment as another comprehensive income item. He examines the association between change in firm value and the foreign translation adjustment for a sample of manufacturing firms. His study shows that, for firms in the manufacturing sector, the translation adjustment is associated with a loss of value instead of an increase in value.

Kanagaretnam, Mathieu and Shehata (2004) investigate usefulness of reporting comprehensive income in Canada. They examine the association between market value of equity/returns and the components of other comprehensive income to assess the information content of the new disclosures. They, also investigate the predictive ability of the aggregate comprehensive income relative to net income. They provide evidence that each of the four components of other comprehensive income is value relevant in explaining either the market value or the stock returns or both. They find, however, that net income is a better predictor for future firm's performance than aggregate comprehensive income.

Arab-Mazar Yazdi and Radmehr (2003) by launching questionnaire ask the opinions of Iranian different financial information users and academics on each item of comprehensive income. They also studied the necessity of reporting such items in separate reports. Their findings indicate that from the respondents' points of view, disclosure of different items of comprehensive income is required in external reporting, but they find it unnecessary to report each item in a separate report.

Mojtahead-Zadeh and Momeni (2003) using field study investigate the effects of comprehensive income statement on users' decision-making. They report that, users' of financial information use some measures for management efficiency, investment returns and future cash flows prediction, in their decision-making process. Disclosure of comprehensive income paves the way for evaluation of those measures.

## 4. Hypotheses

For studying the superiority of comprehensive income to net income for firm performance, we test the following hypotheses:

- H1:** The association between stock returns and comprehensive income is stronger than that of net income.
- H2:** The association between stock market price and comprehensive income is stronger than that of net income.
- H3:** The association between stock market price with comprehensive income and book value is stronger than that of net income and book value.

## 5. Research Method

For the purpose of estimating the research models for hypotheses testing, a sample of companies listed in Tehran Stock Exchange for the time period of 2001-2003 is used. We estimate the research models with pooled data for three years, and overall 647 years-firm. Then, similarly the models are estimated for sample companies in different industrial groups. Finally, we estimate the research models using cross-sectional data for each year (2001 to 2003).

### 5.1. Hypotheses Testing

#### 5.1.1. Testing Association of Alternate Measures of Income with Returns (H1)

We investigate this claim that income measured on a comprehensive basis is a better measure of firm performance than other summary income measures. For this purpose, we estimate the models in which, return is dependent variable and comprehensive income and net income are dependent variables.

As discussed by Harris and Muller (1999), a return model is less potentially affected by scale and heteroscedasticity problems relative to a market value model. Also, Kothari and Zimmerman (1995) argue that the inclusion of both market value and returns models potentially provide more convincing evidence. As noted in Subramanyam (1996), the use of earnings levels as a proxy for unexpected earnings in a regression of returns and earnings has theoretical and empirical support (e.g., Ohlson and Shroff, 1992; Kothari, 1992; Easton and Harris, 1991; Ali and Zarowin, 1991;1992). Tests that use first differences in earnings as a proxy for unexpected earnings yield qualitatively similar results (Dhaliwal et al, 1999).

$$R_{it} = \alpha_0 + \beta_1 * NI_{it} + \varepsilon_{it} \quad (\text{Model 1})$$

$$R_{it} = \alpha_0 + \beta_1 * COMP_{B,it} + \varepsilon_{it} \quad (\text{Model 2})$$

**R** is annual return, **NI** is net income, **COMP<sub>B</sub>** is change in comprehensive retained earnings plus common stock dividend. For estimating the above models, we use data that deflated for scale effect using beginning stock market price. Lev (1989) argues that  $R^2$  in earnings-returns regressions is "too low" to be economically relevant. Brown, Lo, and Lys (1999) suggest that some (if not all) of the differences between the "too low"  $R^2$  in returns regressions and the "higher"  $R^2$  in levels regression are caused by scale effects.

#### 5.1.2. Testing Association of Alternate Measures of Income with Stock Market Price (H2)

Due to both econometric and theoretical problems with the returns model, Kothari and Zimmerman (1995) suggest that researchers should use additional models in their empirical analysis, such as the price model, to draw more definitive inferences (Dhaliwal et al, 1999). Thus, in this study, we estimate the models in which market value of stockholders' equity is dependent variable and net income and comprehensive income are independent variables. In the models, performance is based on stock market price.

$$PRICE_{it} = \alpha_0 + \beta_1 * NI_{it} + \varepsilon_{it} \quad (\text{Model 3})$$

$$PRICE_{it} = \alpha_0 + \beta_1 * COMP_{B,it} + \varepsilon_{it} \quad (\text{Model 4})$$

Brown et al (1999) suggest that some (if not all) of differences between the "too low"  $R^2$  in returns regressions and the "higher"  $R^2$  in levels regression are caused by scale effects. Thus, for the purpose of estimation of the above models, we use the deflated data using fiscal year-end number of stocks.

#### 5.1.4. Testing Association of Book Value and Alternate Measures of Income with Stock Market Price (H3)

Based on recent evidence (e.g., Berger et al. 1996; Burgstahler and Dichev, 1997) that price/earnings models can be misspecified due to the omission of book value of equity (Dhaliwal et al, 1999), we estimate the models in which there is book value as another dependent variable.

$$\text{PRICE}_{it} = \alpha_0 + \beta_1 * \text{NI}_{it} + \beta_2 * \text{BV}_{it} + \varepsilon_{it} \quad (\text{Model 5})$$

$$\text{PRICE}_{it} = \alpha_0 + \beta_1 * \text{COMP}_{B,it} + \beta_2 * \text{BV}_{it} + \varepsilon_{it} \quad (\text{Model 6})$$

For the purpose of estimating the above models we use the deflated data by year-end number of stocks. Also, we estimate the models using un-deflated data.

#### 5.2. Non-nested model selection

The research question addressed in this study is: which measure of income, net income or comprehensive income is a "better" measure of firm performance as reflected in stock returns, stock market price, operating cash flows prediction? Therefore, net income and comprehensive income are set up as competing (non-nested) models to explain stock returns, stock market price, operating cash flows prediction. A recent development in model selection techniques is Vuong (1989). Vuong has provided a likelihood ratio test for model selection to test the null hypothesis that the two models are equally close to explaining the "true data generating process" against the alternative that one model is closer. In this case, we use the following approach to estimating the Z-statistic. In this approach, we can calculate likelihood ratio for each observation  $i$  as:

$$\begin{aligned} LR_i &= \log [L(R_{COMP_i})] - \log [L(R_{NI_i})] \\ &= \frac{1}{2} \log \left( \frac{2\pi}{n} \text{RSS}_{NI} \right) - \frac{1}{2} \log \left( \frac{2\pi}{n} \text{RSS}_{COMP} \right) + \frac{n}{2\text{RSS}_{NI}} (e_{NI})^2 - \frac{n}{2\text{RSS}_{COMP}} (e_{COMP_i})^2 \end{aligned}$$

Simplifying we can obtain  $m_i$  for each observation which if summed results in the likelihood ratio statistic.

$$m_i = \frac{1}{2} \log \left[ \frac{\text{RSS}_{NI}}{\text{RSS}_{COMP}} \right] + \frac{n}{2} \left[ \frac{(e_{NI})^2}{\text{RSS}_{NI}} - \frac{(e_{COMP_i})^2}{\text{RSS}_{COMP}} \right]$$

The next step is to estimate the standard deviation of LR. Vuong notes (see p. 318) instead of estimating the standard deviation of LR directly to form a Z-statistic, in this simple case we can obtain the Z-statistic by regressing  $m_i$  on unity. The coefficient in this regression will equal  $\frac{1}{2} \log [\text{RSS}_{NI} / \text{RSS}_{COMP}]$  and tells us the mean difference in explanatory power between comprehensive income and net income. The standard error from the regression tells us whether the relationship is unusual, i.e., if the difference is significant. The Z-statistic can be obtained by multiplying the t-statistic from the regression by  $((n-1)/n)^{1/2}$ . Note that a positive Z-statistic implies that the residuals produced by the net income regression are larger in magnitude than those from the comprehensive income regression. Hence, a positive and significant Z-statistic indicates that comprehensive income is the model of choice (Dechow, 1994).

#### 5.3. Scope of the research

In this research, we investigate companies listed in Tehran Stock Exchange (TSE). We study the companies listed in TSE because of, ease of access to the data of these companies, as well as, regulations of the TSE cause a more harmonious financial statements information.

The time period of the study restricted to 2001-2003, because, Iranian companies are required to issue comprehensive income statement since 2001. Therefore, at the time of this study the financial statements for three years were available.

#### **5.4. Sample**

The sample used to estimate returns models consists of all 2001 to 2003 years-firm that have data needed for calculating returns, net income,  $COMP_B$ . The sample of companies listed in Tehran Stock Exchange for the time period of 2001-2003 is shown in the table 1.

**Table 1:** A Sample of Companies Listed in Tehran Stock Exchange

#### **5.5 Data collection**

For the sake of gathering the needed data related to financial statements of sample companies, we use the electronic archival data provided by TSE. In some cases that, the needed data is incomplete we use the manual archive existed in the TSE's library. We also, acquire part of needed data from Tadbirpardaz and Sahra (two Iranian softwares).

For companies listed in Tehran Stock Exchange, in addition to data collected from financial statements, the other data are also needed to calculate stock returns. We collect the data for calculating stock returns from companies' stock transaction information and information about decisions of general annual meetings.

### **6. Results of Hypotheses Testing**

In this section of paper we present the results of research hypotheses. The following subsections provide analysis of results of hypotheses testing at total sample level, industrial group level, and year level.

#### **6.1. Results of Testing H1**

The results of the estimation of the models of H1 at total sample level (with pooled data), are shown in the first row of table 2. As shown in the table, p-value of coefficient of NI for the first model, as well as, p-value of coefficient of  $COMP_B$  for the second model are significant. Also, F-statistics of the two models are significant. The adjusted  $R^2$  of the model one (0.352) and the model two (0.353) are very close. Vuong's Z-statistic for these two models is not significant. The results of estimating the two models show that reporting comprehensive income for firm performance evaluation (based on stock returns) is not superior to net income. To investigate whether reporting comprehensive income is different at industries level, we estimate the models for ten major industrial groups. The results of estimating models for food, wood & paper, Pharmaceutical & chemical, metal & metal products, automobile and investments industries are significant at 5% confidence interval. The results for these industries show that, p-values of coefficients of NI and  $COMP_B$  for all of the models are significant. F-statistics and their p-values of the models for the other industrial groups are not significant.

In food industry, adjusted  $R^2$  of the model one (in which, NI is as independent variable) is 0.260, and for model two (which in, the independent variable is  $COMP_B$ ) is 0.327. P-values for the independent variables of the two models are significant. As shown in the table 2, adjusted  $R^2$  for the model two is higher than for the model one, but Vuong's Z-statistic is not significant. Our results show the same conditions for Pharmaceutical and chemical, metal and metal products, and investment industries but, Vuong's Z-statistic for mine and cement industry is significant. Collectively, the results of estimating the models for different industries show that, only in mine and cement industry,

comprehensive income for firm performance evaluation (based on stock returns) is superior to net income.

**Table 2:** Results Summary of H1

Industry Groups	Model 1		Model 2		[Vuong's Z-statistic], (P-value)	H1 Results
	Adj. R <sup>2</sup>	P-value	Adj. R <sup>2</sup>	P-value		
Total Sample	0.352	(0.000)	0.353	(0.000)	[-0.211], (0.833)	Reject
Food	0.260	(0.000)	0.327	(0.000)	[1.425], (0.154)	Reject
Wood & Paper	0.135	(0.151)	0.098	(0.190)	[-1.364], (0.173)	Reject
Pharmaceutical & Chemical	0.234	(0.000)	0.307	(0.000)	[-0.991], (0.322)	Reject
Rubber & Plastic	0.085	(0.089)	0.095	(0.078)	[1.002], (0.316)	Reject
Mine & Cement	0.005	(0.237)	0.256	(0.000)	[2.668], (0.007)	Accept
Metal & Metal Products	0.551	(0.000)	0.479	(0.000)	[-1.484], (0.138)	Reject
House Appliances & Equipments	0.009	(0.122)	0.022	(0.089)	[-1.664], (0.096)	Reject
Electrics & Television	0.017	(0.267)	0.036	(0.212)	[0.909], (0.363)	Reject
Auto	0.489	(0.000)	0.378	(0.000)	[-0.079], (0.973)	Reject
Investments	0.298	(0.048)	0.315	(0.023)	[1.008], (0.314)	Reject
Year 2001(total sample)	0.527	(0.000)	0.689	(0.000)	[1.633], (0.103)	Reject
Year 2002(total sample)	0.124	(0.154)	0.117	(0.255)	[0.797], (0.425)	Reject
Year 2003(total sample)	0.075	(0.008)	0.068	(0.012)	[-0.282], (0.778)	Reject

We also, estimate the first two research models on yearly basis; their results are shown in the last three row of the table 2. The F-statistics for the estimated models in year 2001 are significant and the explanatory power of independent variables in 2001 is higher compare to those for 2002 and 2003. About superiority of comprehensive income to net income for firm performance evaluation, our results for year 2001 show that adjusted R<sup>2</sup> of the model two (0.689) is higher than of the model one (0.527), and p-values of independent variables for the two models are significant. But, Vuong's Z-statistic is not significant and do not show that comprehensive income is superior to net income. Also, the results for years 2002 and 2003 do not show that comprehensive income is superior to net income.

## 6.2. The Results of Testing H2

In testing the second hypothesis, we investigate whether comprehensive income reflects firm performance (on the basis of stock market price) better than net income. The results of estimating the two models of this hypothesis are shown in the table 3. As shown in the table, adjusted R<sup>2</sup> for model 3 and 4 are 0.418 and 0.422, respectively and F-statistics of the estimated models at total sample level are significant. P-values of the coefficients of the two models are significant, but, Vuong's Z-statistic is not significant. Overall, the results of estimating the models at total sample level show that, comprehensive income for firm performance evaluation (on the basis of stock market price) is not superior to net income.

**Table 3:** Results Summary of H2

Industry Groups	Model 3		Model 4		[Vuong's Z-statistic], (P-value)	H2 Results
	Adj. R <sup>2</sup>	P-value	Adj. R <sup>2</sup>	P-value		
Total Sample	0.418	(0.000)	0.422	(0.000)	[0.357], (0.721)	Reject
Food	0.430	(0.000)	0.462	(0.000)	[0.644], (0.519)	Reject
Wood & Paper	0.630	(0.000)	0.622	(0.000)	[-0.295], (0.768)	Reject
Pharmaceutical & Chemical	0.424	(0.000)	0.398	(0.000)	[-1.126], (0.260)	Reject
Rubber & Plastic	0.457	(0.000)	0.619	(0.000)	[1.949], (0.051)	Accept
Mine & Cement	0.418	(0.000)	0.503	(0.000)	[1.005], (0.315)	Reject
Metal & Metal Products	0.196	(0.000)	0.226	(0.000)	[0.552], (0.581)	Reject
House Appliances & Equipments	0.150	(0.050)	0.137	(0.171)	[-0.534], (0.593)	Reject
Electrics & Television	0.984	(0.000)	0.971	(0.000)	[-2.618], (0.009)	Reject
Auto	0.123	(0.004)	0.030	(0.048)	[-1.328], (0.184)	Reject
Investments	0.505	(0.000)	0.547	(0.000)	[0.711], (0.477)	Reject
Year 2001(total sample)	0.469	(0.000)	0.513	(0.000)	[1.384], (0.166)	Reject
Year 2002(total sample)	0.326	(0.000)	0.307	(0.000)	[-1.093], (0.274)	Reject
Year 2003(total sample)	0.515	(0.000)	0.504	(0.000)	[-0.637], (0.524)	Reject

For examining the superiority of comprehensive income to net income for industrial groups, we test the H2 for ten different industrial groups. The results of estimation of the models of H2 for industrial groups are shown in row two to row eleven of the table 3. As it shows, F statistics of all of the models are significant. The results show that, in rubber and plastic adjusted R<sup>2</sup> for model 4 in which, independent variable is comprehensive income is larger than adjusted R<sup>2</sup> for model 3 in which, independent variable is net income. Overall results show that Vuong's Z-statistic only for rubber and plastic industrial group is significant, that means comprehensive income is superior to net income for firm performance, based on stock market price. The results of the estimated models on yearly basis show that, the models and their coefficients of independent variables for three years are significant but, Vuong's Z-statistics is not significant Thus, it does not indicate that comprehensive income is superior to net income, in reflecting firm performance on the basis of stock market price.

### 6.3. The results of testing H3

The third hypothesis is based on the recent evidence (e.g., Berger et al., 1996, Burgstahler and Dichev, 1997) that price/earnings models can be misspecified due to the omission of book value of equity (Dhaliwal et.al. 1999). Thus, we state the following hypothesis: The association between stock market price with comprehensive income and book value is stronger than that of net income and book value.

For the purpose of estimating the models of this hypothesis, we use the deflated data using fiscal year-end number of stocks. In testing the third hypothesis, we introduce another variable, book value of equity (BV), to investigate superiority of comprehensive income and book value of equity to net income and book value of equity for reflecting firm performance based on stock market price. The results of estimating of models 5 and 6 are presented in the first row of table 4. As shown in the table, p-values for coefficients of the two models are significant, except p-values for the coefficient of the variable, book value of equity. F-statistics of the two models indicate that the two models are significant.

The R<sup>2</sup> of models 5 and 6 are 0.424 and 0.429 respectively for the total sample. The Vuong's z-statistics for these two models are not significant. The results of testing hypothesis 3 at total sample level do not show that comprehensive income and book value of equity are superior to net income and book value of equity for firm performance evaluation on the basis of stock price.

Also, the results of estimating the models at total sample level, indicate that introducing book value of equity (BV) as variable in the models for explaining firm performance on the basis of stock price, does not improve explanatory power of the model. The R<sup>2</sup> of model 6 (the first row of table 4), 0.429 is slightly higher than that for model 4 (the first row of table 3), 0.422.



There is the same situation in comparison of model 5 to model 3. Collectively, the results show that introducing the BV variable does not improve explanatory power of the model for stock price changes.

To investigate whether reporting comprehensive income is superior to net income for different industrial groups, we estimate the models for ten major industrial groups in the sample. As the results in table 4 shows, the p-values for the coefficient  $\beta_1$  are significant for both model 5 and model 6 for all industrial groups, but the p-values for the coefficient  $\beta_2$  are only significant for about half of the industrial groups. The Vuong's z-statistic is not significant for total sample test, industrial groups tests and yearly basis tests, which means the comprehensive income is not superior to net income for evaluating firm performance on the basis of stock price.

**Table 4:** Results summary of H3

Industry Groups	Model 5			Model 6			[Vuong's z-statistic], (p-value)	H <sub>4</sub> Results
	R <sup>2</sup>	(P-value) $\beta_1$	p-value $\beta_2$	R <sup>2</sup>	p-value $\beta_1$	p-value $\beta_2$		
Total Sample	0.424	(0.000)	(0.069)	0.429	(0.000)	(0.039)	[0.334],(0.739)	Reject
Food	0.438	(0.000)	(0.773)	0.469	(0.000)	(0.693)	[0.629],(0.529)	Reject
Wood & Paper	0.652	(0.000)	(0.984)	0.644	(0.012)	(0.991)	[-0.300],(0.764)	Reject
Pharmaceutical & Chemical	0.33	(0.000)	(0.007)	0.331	(0.000)	(0.003)	[-1.150],(0.249)	Reject
Rubber & Plastic	0.683	(0.000)	(0.086)	0.659	(0.000)	(0.622)	[1.641],(0.101)	Reject
Mine & Cement	0.442	(0.000)	(0.098)	0.526	(0.000)	(0.000)	[1.141],(0.254)	Reject
Metal & Metal Products	0.520	(0.000)	(0.003)	0.449	(0.000)	(0.013)	[0.711],(0.477)	Reject
House Appliances & Equipments	0.474	(0.000)	(0.229)	0.334	(0.004)	(0.582)	[-1.014],(0.311)	Reject
Electrics & Television	0.882	(0.000)	(0.022)	0.698	(0.003)	(0.542)	[-3.171],(0.002)	Reject
Auto	0.320	(0.000)	(0.000)	0.070	(0.063)	(0.369)	[-2.152],(0.031)	Reject
Investments	0.700	(0.000)	(0.000)	0.731	(0.000)	(0.000)	[1.401],(0.161)	Reject
Year 2001 (total sample)	0.487	(0.000)	(0.020)	0.543	(0.543)	(0.152)	[1.384],(0.166)	Reject
Year 2002 (total sample)	0.383	(0.000)	(0.000)	0.357	0.357	(0.000)	[-0.932],(0.351)	Reject
Year 2003 (total sample)	0.529	(0.000)	(0.063)	0.510	0.510	(0.328)	[-0.989],(0.323)	Reject

Results show that p-values of BV coefficients are significant for model 5 in pharmaceutical & chemical, metal and metal products, electrics & television, automobile and investments industries and for model 6 in pharmaceutical & chemical, mine and cement, metal and metal products, investments. Table 4 shows the results of testing hypothesis 3 at yearly basis. The BV coefficients are significant for model 5 in year 2001 and 2002 and for model 6 in year 2002. It seems that the book value of equity as a variable in model 5 and model 6 of this study, only for certain industries and for some years of the study cause improvement in explanatory power of the models.

## 7. Summary and Concluding Remarks

1. The Results of the study do not show that comprehensive income is superior to net income for firm performance evaluation, based on stock returns. The results show this issue at total sample and some industrial group level. Also, the results at total sample level do not show the superiority of comprehensive income to net income for firm performance evaluation, based on stock market price.
2. About the explanatory power of book value (BV) in the models, overall results show that p-values of BV coefficients are not significant and do not cause improvement of explanatory power of the models.
3. Collectively, our results provide some evidence, although not strong, that comprehensive income adjustments improve ability of income for reflecting firm performance.

We propose further studying the issue in another research with the same methodology applied in this research, except at the first, estimation of the best models that fit the data, and then, using the best competing models investigation of the superiority of comprehensive income to net income.

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