Value Relevance of Other Comprehensive Income

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Abstract:

This paper investigates the value relevance for comprehensive income, other comprehensive income and its components. Utilizing Olson model, the results suggest that both comprehensive income and other comprehensive income have no value relevance. The components of other comprehensive income do have value relevance.

Introduction:

Certain revenues, expenses, gains, and losses under both Generally Accepted Accounting Principles and International Financial Reporting Standards are excluded from net income on the income statement because they have not been realized but instead that they are listed after net income on the income statement. These items such as Unrealized holding gains or losses on investments that are classified as available for sale, foreign currency translation gains or losses, pension plan gains or losses pension prior service costs or credits, and gains and losses on derivatives are called other comprehensive income. The purpose of reporting other comprehensive income as stated by Financial Accounting Standard Board (FASB) "is to report a measure of all changes on an entity that result from recognized transactions and other economic events of the period other than transactions with the owners in their capacity as owners". Before, June 2011, FASB allows the reporting entity to present the components of other comprehensive income in a single continuous of statement of comprehensive income, in two separate statements, or as a part of the statement of changes in stockholder's equity. But the FASB in its update in June 2011, eliminated the latter option in order to improve the comparability consistency, and transparency.

The FASB indicated in its update that reporting comprehensive income coupled with related disclosure, and other information in the financial statements should assist readers in assessing an entity's activities and future cash flows. The FASB cautioned that although the total comprehensive income is a useful number, information about the components that make up the comprehensive income is needed to better understand an entity's activities and future cash flows. Information about the components of comprehensive income provides more useful information than total comprehensive income.

The purpose of this research is to test the value relevance of total comprehensive income as well as the value relevance of other comprehensive income and its components. The remainder of the paper is structured as follows: section two covers prior literature. Section three provides the hypotheses, data collection and the models. The results and conclusion are covered in section four.

Based on The viewpoints of FASB on its update of other comprehensive income I hypothesis the following:

H_1: The comprehensive number has impact on the company's value.
H_2: Other comprehensive income has impact on the company's value.
H_3: The components of other comprehensive income have impact on the company's value.

Methodology:

Data collection;

Data for S&P 500 for 2013 are obtained from Compustat for financial statements variables and market values. Share prices are obtained three months after financial year end. Financial and insurance companies are excluded due to their unique characteristics as regulated industries. The final number of companies in the sample is 442.

Model Used:

The research hypotheses in the study are whether comprehensive income, other comprehensive income, and the components of comprehensive income have value relevance. The pricing model developed by Olson (1995) and decomposition model derived by Theil (1971) were used to investigate systematic changes in the value relevance of earnings and book value. The relationship between the dependent variable and the independent variables (book value and earnings) can be expressed in a leaner regression (Olson 1995) as follows:

$$P_{it} = \alpha_1 + \alpha_2 BV_{it} + \alpha_3 IN_{it} + \varepsilon_{it} \quad \text{......... (1)}$$

Where

$P_{it} =$ the share price of firm i three months after the end of fiscal year t.

$BV_{it} =$ the book value per share of firm i at the end of fiscal year t.

$IN_{it} =$ the net income of firm i at the end of fiscal year t.

$\varepsilon_{it} =$ other value relevant information of firm i at the end of fiscal year t.

Since we investigate the value relevance of comprehensive in come the net income is replaced with comprehensive income in the following function;

$$P_{it} = \alpha_1 + \alpha_2 BV_{it} + \alpha_3 Comototal_{it} + \varepsilon_{it} \quad \text{........ (2)}$$

Other terms are the same.

The comprehensive income is discomposed into two components; net income and other comprehensive income as follows:

$$P_{it} = \alpha_1 + \alpha_2\,BV_{it} + \alpha_3\,IN_{it} + \alpha_4\,Othercomp_{it} + \varepsilon_{it} \ \ldots\ldots (3)$$

Since the earnings per share is one of the most important piece of information that investment community interested in, we replace the net income with earnings per share in the following function:

$$P_{it} = \alpha_1 + \alpha_2\,BV_{it} + \alpha_3\,EPS_{it} + \varepsilon_{it} \ \ldots.. (4)$$

Where EPS_{it} = the earnings per share of firm i at the end of fiscal year.
In the following functions, we replace net income with earnings per share in function (3) as follows:

$$P_{it} = \alpha_1 + \alpha_2\,BV_{it} + \alpha_3\,EPS_{it} + \alpha_4\,Othercomp_{it} + \varepsilon_{it} \ \ldots (5)$$

The FASB indicated that "information about the components that make up the comprehensive income is needed to better understand an entity's activities and future cash flows".

$$P_{it} = \alpha_1 + \alpha_2\,BV_{it} + \alpha_3\,EPS_{it} + \alpha_4\,Hedging_{it} + \varepsilon_{it} \ \ldots (6)$$

$$P_{it} = \alpha_1 + \alpha_2\,BV_{it} + \alpha_3\,EPS_{it} + \alpha_4\,Derivatives_{it} + \varepsilon_{it} \ \ldots (7)$$

$$P_{it} = \alpha_1 + \alpha_2\,BV_{it} + \alpha_3\,EPS_{it} + \alpha_4\,Hedging_{it} + \alpha_5\,Derivatives_{it} + \varepsilon_{it} \ \ldots(8)$$

Empirical Results:

The objective of this is to test whether comprehensive income has value relevance. Table 1 provides description statistics for three variable; market value, book value and net income. The standard deviation for MV and NV are 1.35 and .98 times the mean while for NI is more than two.

Table 1

Descriptive Statistics

	Mean	Std. Deviation	N	
MV	81.6725	109.21510	442	
BV	23.0052	22.71309	442	
NI	1874.6688	3737.53423	442	

Tables (2 & 3) show the model summary and coefficients. The coefficient of determination (R^2) is .306 and F-test for the regression is 97 which is significant suggesting that the model is valid. Table (3) show the parameters for the regression and the results of t-test. The coefficient of BV is significant while for NI is insignificant indicating that NI contributes little for the regression.

Table 2
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.554[a]	.306	.303	91.16484	.306	96.960	2

Table 3
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.950	6.403		2.959	.003
	BV	2.634	.192	.548	13.694	.000
	NI	.001	.001	.039	.969	.333

When net income is replaced with the comprehensive income (function 2) the value of coefficient of determination R^2 approximately does not change suggesting that the value relevance for both net income and comprehensive income are the same table (4). Table (5) shows the t-tests of variables in the model. The result of t-test for comprehensive income is insignificant being .575 suggesting that the comprehensive income has no value relevance. Therefore, the first hypothesis that the comprehensive number has impact on the company's value is rejected.

Table 4
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.551[a]	.304	.301	90.94524	.304	96.772	2

Table (5)

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	20.004	6.284		3.183	.002
	BV	2.628	.194	.547	13.554	.000
	Comptotal	.001	.001	.023	.561	.575

When net income replaced by earnings per share, the model improve significantly (table 6). The R^2's value increases from .306 to .494. The results of t-test for book value and earnings per share are significant at .01 (table (7). Comparing the results of t-test for net income and earnings per share in regression show that the earnings per share is more important than net income as the computation of earnings per share control for firm size and therefore, it has value relevance.

Table (6)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.703[a]	.494	.492	77.55022	.494	216.216	2

Table (7)

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B
		B	Std. Error	Beta			Lower Bound
	(Constant)	7.912	5.327		1.485	.138	-2.559
1	BV	1.008	.206	.210	4.885	.000	.602
	EPS	13.838	1.072	.554	12.911	.000	11.732

Table (8) shows the results of function (5) testing. Function (5) includes other comprehensive income as a new variable. The value of R^2 is .51 compared with .494. The increase of R^2 is modest. The results of t-test for independent variables in table (9) show that all of them are significant at .01. Therefore, the second hypothesis that the other comprehensive income has impact on the company's value is rejected. The t-test for all variables are significant at .01.

Table (8)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.714a	.510	.507	76.48906	.510	152.914	3

Table (9)

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.043	5.761		-.181	.856
	BV	1.023	.204	.213	5.024	.000
	EPS	13.803	1.057	.552	13.055	.000
	OtherCom	.000	.000	-.125	-3.754	.000

I include two components of other comprehensive income separately in the model to replace other comprehensive income: derivatives and hedging. Table (10) shows the regression results of adding derivatives. R^2 is .65 compare with .51 for other comprehensive income, although t-test for derivatives is insignificant table (11).

Table 10

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.803[a]	.645	.642	59.46175	.645	252.942	3

Table (11)
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.990	4.176		1.195	.233
	BV	.919	.161	.213	5.723	.000
	EPS	14.710	.839	.653	17.538	.000
	Derivatives	-.003	.016	-.005	-.166	.868

When derivatives variable is replaced with hedging variable, the R^2 is .63 suggesting that hedging has value relevance table (12). Therefore, the components of other comprehensive income provide useful information to investors that affects the company value. The t-test for hedging is .605 which is not significant, table (13). However, t-test is not meant to be used for large sample. Based the test result, the third hypothesis that the components of other comprehensive income have impact on the company's value.

Table (12)
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.798[a]	.637	.630	40.56448	.637	91.383	3

Table (13)
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		

(Constant)	25.638	4.715		5.437		.000
BV	.935	.177	.310	5.278		.000
1 EPS	8.685	.880	.582	9.865		.000
Hedging	.011	.020	.025	.518		.605

Conclusion:

Prior June 2011, FASB allowed entities to present comprehensive income as part of income statement, in separate statement below income statement or part of Statement of change of stockholder's equity. In June 2011, FASB eliminated the third option as part of the convergence with IASB. In its update, FASB indicated that comprehensive income provide useful information if accompanied with other information disclosure. It is also indicated that information about components of other comprehensive income convey better information than other comprehensive income as one number. This research provides empirical evidence about other comprehensive income, its components, and comprehensive income.

Refreances:

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Table (14)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.800a	.639	.630	41.33469	.639	65.616	4

Table (15)

Coefficients

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Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	25.038	4.941		5.067	.000
BV	.963	.182	.319	5.282	.000
1 EPS	8.534	.907	.573	9.406	.000
Derivatives	-.031	.045	-.034	-.684	.495
Hedging	.012	.021	.028	.564	.573