IS OTHER COMPREHENSIVE INCOME A FORM OF REAL INCOME? EVIDENCE FROM THE VALUE RELEVANCE ANALYSIS

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Abstract

As a part of improvements in accounting standards, other comprehensive income (OCI) has been the common income reporting practice since 2009. By considering the adaptation value of Burgstahler and Dichev (1997) and Hayn's (1995) arguments on loss firms, this study analyzes whether OCI is a form of real income from the perspective of the value relevance research. Based on a sample of Turkish listed firms over 2009-2018, this study reports that: i) the impact of OCI on market value of equity is not significant, and ii) the impact of neither OCI nor book value of equity on market value of equity does significantly change when OCI is negative. In other words, by concluding the direct and indirect value irrelevance of OCI, this study reveals that OCI is not considered a form of real income by the market.

Keywords: Value Relevance, Other Comprehensive Income, Loss, IAS 1

JEL Codes: G14, M21, M41

Introduction

Income reporting has been a very controversial issue for academia, standard setters, and practitioners. Hodgson and Russell (2014) underline that the root of income reporting goes down the historic cost discussion of Paton and Littleton. From this discussion to the fair value adoption, there has been a rich body of research on the topic, which revolves around the Clean Surplus Approach (CSA) and the Dirty Surplus Approach (DSA). On the one hand, CSA suggests reporting all changes in wealth (or net assets) which spring from non-owner transactions including dividend distribution and issuing new equity in the income statement (Khan, Bradbury, and Courtenay, 2018). CSA-suggested type of income is also known as comprehensive income. On the other hand, DSA suggests reporting only non-transitory items spring from operating activities in the income statement

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Ertuğrul / Is Other Comprehensive Income a Form of Real Income? Evidence from the Value Relevance Analysis

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(O'Hanlon and Pope, 1999). Although the literature considerably contributes to the ongoing discussion on the superiority of CSA and DSA by revealing certain advantages and disadvantages of both approaches, most accounting authorities have implemented actions in line with CSA (Kanagaretnam, Krishnan, and Lobo, 2009). CSA brings other comprehensive income (OCI) in addition to net income into the scene, which together yields an aggregate figure: comprehensive income.

Especially after the mandatory adoption of International Financial Reporting Standards (IFRS) in the European Union in 2005, most countries have replaced their domestic accounting standards (GAAP) by the IFRS-based reporting standards. Under the umbrella of IFRS, International Accounting Standards (IAS) 1, which become effective as of 2009, requires income reporting in line with CSA. As of 2018, there are 144 jurisdictions out of 166 requiring IFRS-based financial reporting for all or a great majority of companies. This fact should be read as the overwhelming dominance of the CSA-based income reporting in today's financial reporting regime.

In his extensive literature review on the value relevance (VR) of comprehensive income, Ertuğrul (2019c) reveals that the efficiency of the CSA-based income reporting is critically questioned from the perspective of capital markets: the literature documents conflicting and mixed outcomes related to the impact of comprehensive income (and its components) on share prices and/or returns. Since comprehensive income is obtained by adding OCI to net income, OCI has become a very important empirical research phenomenon to study whether it is beneficial for its users. Our study aims to reveal whether OCI is a form of real income by analyzing the efficiency and usefulness of this addition to net income from the perspective of the VR.

The literature provides certain findings on the VR of OCI by investigating its effect on share prices and/or returns. As such studies measure the direct association between OCI and market figures, they measure the direct VR of OCI. Our study brings a different perspective to the literature: it measures the VR of OCI by considering the impact of the sign of OCI on the VR of OCI and book value of equity (BVE). Since losses facilitate more information than profits (Hayn, 1995), negative OCI should lead to a significant change in its VR if it is a form of real income. Furthermore, as per the adaptation value of Burgstahler and Dichev (1997), BVE becomes a more significant input of the valuation of loss-making firms. Therefore, negative OCI should make BVE more value relevant if it is a form of real income. All in all, different than the extant literature, this study investigates the VR of OCI 'indirectly'.

We select Turkey for our analyses due to the unique traits of the Turkish financial reporting environment and data accession. All Turkish listed firms are

required to prepare their financial statements based on IFRS since 2005. Turkish responsible authorities directly implement all new standards and amendments in existing standards (Gür, 2016). Any local regulatory intervention in the financial reporting system induces noise in accounting quality that leads to incorrect VR inferences. Since there is no local regulatory intervention in Turkey, the Turkish financial reporting environment does not carry such noise and it is convenient for our analyses. Another significant reason for selecting Turkey is very limited or unavailable data provided by international data vendors which do include neither comprehensive income nor OCI data for most countries including Turkey. Furthermore, since the vast majority of firms publish their statements in their local languages, studies on the VR of OCI based on multinational samples are so very scarce in the literature and very limited to only developed countries. For instance, in the literature review of Ertuğrul (2019c), 24 out of 25 analyzed studies provide evidence for the VR of comprehensive income belonging to a single country, 20 of which are developed countries. Due to this data limitation problem, manual data collection is the only way of analyzing the topic. As IAS 1 introduced the CSA-based income reporting as of 2009 in Turkey, we manually collect the data between 2009 and 2018 to cover the longest available OCI data. Therefore, we have a complete and comprehensive dataset. Additionally, since our period of analysis begins in 2009, instead of employing calculated hypothetical OCI figures (as in Chambers, Linsmeier, Shakespeare, & Sougiannis, 2007; Veltri and Ferraro, 2018), we directly employ reported OCI figures based on IAS 1, which makes our period of analysis purely reflect the VR of CSA-based reported OCI figures. Overall, the sample of Turkish listed firms provides us a very convenient framework to analyze whether OCI is a form of real income.

By employing a modified Price Model of Ohlson (1995), this study reports the following outcomes. First, the VR of OCI does not significantly change when OCI is negative: from the perspective of Hayn (1995), OCI is not a form of real income as it does not convey more information to the market when it is negative. Second, the VR of BVE does not significantly change when OCI is negative. As per the adaptation value of Burgstahler and Dichev (1997), OCI is not a form of real income since BVE does not convey more information when OCI is negative. We further analyze the direct VR of OCI: the impact of OCI on market value of equity is not statistically significant which refers to the value irrelevance of OCI. Overall, our outcomes strongly reveal that OCI is neither directly nor indirectly value relevant.

The rest of this study is structured as follows. Section 2 presents the concept of VR and a review of the selected literature. Section 3 includes hypotheses

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development. Section 4 describes sample, model and variables, and methodology. Section 5 discusses results. Section 6 concludes.

Concept of VR & Literature Review

Concept of VR

As discussed by Ertuğrul (2018) in detail, the VR concept comes into the academic scene after the pioneering seminal research of Miller and Modigliani (1966), Ball and Brown (1968), and Beaver (1968). Even though the topic has been analyzed for more than 50 years by following these studies, the term 'value relevance' is first used by Amir, Harris, and Venuti (1993) (Barth, Beaver, and Landsman, 2001). Francis and Shipper's (1999) four interpretations are considered very beneficial in explaining the VR concept, and their fourth interpretation is the prevalent definition of the VR in the literature (Ertuğrul, 2019a). As per that interpretation, the statistically significant impact of accounting information on capital market figures is termed the VR. In other words, this statistical association indicates the usefulness of that item for equity investors (Khan, Bradbury, and Courtenay, 2018). Therefore, the VR majorly analyses financial reporting from the valuation perspective. Moreover, the VR is convenient for examining the relevance and reliability of accounting information (Barth, Beaver, and Landsman, 2001).

According to the reviews of Holthausen and Watts (2001) and Ertuğrul (2019a), the VR literature is overwhelmingly dominated by association studies that analyze the VR by considering relative and incremental segments. By focusing on (adjusted) R^2 figures of regressions, relative association studies interpret a higher explanatory power as an indication of the higher VR. Incremental association studies directly focus on the regression coefficient of the variable of interest. If the regression coefficient of that variable is reported as statistically significant, it is an indication of the VR. For the VR of OCI, i) Relative association studies mainly analyze the significant contribution of OCI to the explanatory power of regressions: OCI is value relevant if the contribution is statistically significant, and ii) Incremental association studies analyze the statistical significance of the regression coefficient of OCI: OCI is value relevant if it is reported as significant at conventional significance levels.

Literature Review

Major findings of selected studies on the VR of OCI are presented in this literature review. If any, other outcomes belonging to the VR of other accounting items (including net income, comprehensive income, and several OCI components) are not discussed as they are beyond the scope of this study.

By employing a sample of companies in the UK over 1972-1992, O'Hanlon and Pope (1999) conclude that OCI does not significantly affect share returns.

Although O'Hanlon and Pope (1999) do not directly define OCI, their dirty surplus variable is considered very close to OCI. Moreover, they extend their analyses to 2 years, 5 years, 10 years and 20 years-accumulated intervals, and they report the same outcome for each interval except for 5 years in which the impact of accumulated OCI on accumulated share returns is significantly negative.

By using a sample of Dutch companies over 1988-1997, Wang, Buijink, and Eken (2006) reveal that OCI does not significantly affect share returns. Even though Wang et al. (2006) do not directly define OCI, their dirty surplus variable is considered very close to OCI. Moreover, they extend their analyses to 2 years, 5 years and 10 years-accumulated intervals, and they report the same outcome for each interval. In other words, they find no evidence for the VR of OCI.

Based on a sample consisting of US companies over 1994-2003, Chambers et al. (2007) analyze the VR of OCI before and after Statement of Financial Accounting Standards (SFAS) 130 implementation. They hypothetically calculate OCI before SFAS 130 and obtain reported OCI after SFAS 130, and; they conclude that reported OCI significantly and positively affects share returns whereas calculated OCI has no significant association. To illustrate, OCI becomes value relevant after SFAS 130 implementation. Chambers et al. (2007) also examine the reporting location of OCI: OCI significantly and positively affects share returns when it is reported in the statement of changes in equity while it loses its statistical significance when it is reported in the income statement.

For a sample including companies of certain EU member states over 1991-2005, Goncharov and Hodgson (2011) reveal that OCI significantly and positively affects both share prices and returns. Moreover, by re-performing their analyses for each member state, they report the same outcome for 9 out of 16 member states. Goncharov and Hodgson (2011) also conclude that firm-level reporting incentives including size, leverage and accruals do not alter this outcome: OCI remains value relevant. Lastly, they reveal that both local GAAP-based reported OCI and IFRS-based reported OCI figures significantly and positively influence share prices while US GAAP-based reported OCI figures have no significant association with share prices.

By using a sample consisting of certain EU member states' companies over 2005-2007, Devalle and Magarini (2012) find that the effect of OCI on market value of equity is not statistically significant. They further extend their analyses to each member state, and they report that i) there is no statistically significant association between OCI and market value of equity either in France, Great Britain or Spain, ii) OCI has a significantly positive (negative) effect on market value of equity in Italy (France). Devalle and Magarini (2012) also provide findings by taking share returns into account. For the whole sample and Italy, they conclude that the

Ertuğrul / Is Other Comprehensive Income a Form of Real Income? Evidence from the Value Relevance Analysis

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influence of OCI on share returns is positively significant while it is statistically insignificant either in France, Germany, Great Britain, or Spain. This analysis continues to yield mixed outcomes for the impact of the change in OCI on share returns: it is significantly negative in Germany and Italy while it is not statistically significant in other member states, as well as the whole sample.

Based on a sample including companies of certain EU member states over 2006-2011, Mechelli and Cimini (2014) reveal that OCI has a significantly positive influence on both share prices and returns. Besides, they confirm this outcome for strong/weak equity countries, as well as high/low legal enforcement levels. Mechelli and Cimini (2014) also extend their analyses to profit/loss observations by adding interaction terms with loss dummies, and they report that interaction terms with OCI and the change in OCI are significantly negative. To illustrate, the impact of (the change in) OCI on share prices (returns) becomes significantly negative for loss-recording observations. They confirm this outcome for returns (share prices) for a sample of strong-equity countries (strong-equity countries and high legal enforcement countries).

For a sample of US companies over 2010-2013, Schaberl and Victoravich (2015) analyze the VR of the reporting location of OCI. While their general findings indicate that there is a significantly positive association between OCI and share returns, this association mainly springs from the reporting location of OCI. Also, Schaberl and Victoravich (2015) find that this association becomes significantly negative for companies shifting the reporting location of OCI from the statement of the changes in equity to the income statement. To recap, they document no evidence for the VR of OCI reported in the income statement.

By using a sample of Malaysian companies over 2011-2013, Yousefinejad, Ahmad, and Embong (2017) analyze the VR of OCI and they show that OCI has a positive impact on both share prices and returns at conventional levels.

Based on a sample of US companies over 2000-2012, Lin, Martinez, Wang, and Yang (2018) report that the impact of OCI on share returns is significantly positive independent of the reporting location of OCI. Moreover, this impact significantly increases during the period of crisis. However, Lin et al. (2018) conclude that, in both pre-crisis and post-crisis periods, OCI reported in the statement of the changes in equity significantly and positively affects share returns while OCI reported in the income statement has no significant association with share returns.

For South Korean companies over 2007-2014, Park (2018) shows that the impact of the change in OCI on share returns is statistically positive. The author also divides the sample into three based on annual OCI figures and reports that this outcome is valid for observations with large-OCI figures while the change in OCI

becomes value irrelevant for observations with small-OCI figures. By adding an interaction term between negative OCI dummy and OCI, Park (2018) further finds that both the negative OCI dummy and the interaction term have statistically positive impacts on share returns. As an economic interpretation, share returns increase when OCI figures of negative OCI firms decrease. Lastly, Park (2018) concludes that the impact of the change in OCI statistically becomes more positive after the IFRS adoption.

By employing a sample of Italian companies over 2009-2012, Veltri and Ferraro (2018) conclude that the impact of OCI on market value of equity is not statistically significant. They also add an interaction term between negative OCI dummy and OCI in their regressions and they report that this interaction term has no association with market value of equity. They further use calculated OCI figures instead of reported OCI figures in their analyses and they state that these outcomes remain the same.

To our knowledge, only two studies analyze the VR of OCI by using samples of Turkish listed firms. Köse and Gürkan (2014) reveal that OCI has a significantly positive impact on market value of equity by analyzing the period 2008-2013. Caliskan (2019) concludes that the effect of OCI on market value of equity is not significant at conventional levels by examining the period 2009-2017. For the dependent variable measured as of the end of June, he also documents evidence for the statistically significant and positive (negative) effect of OCI (the change in OCI) on share returns. However, this significantly negative impact turns to be insignificant when Caliskan (2019) re-perform his analyses with the dependent variable measured as of the end of March.

The literature documents mixed outcomes for the VR of OCI: while Chambers et al. (2007), Goncharov and Hodgson (2011), Mechelli and Cimini (2014), Yousefinejad et al. (2017), Lin et al. (2018), Park (2018) and Köse and Gürkan (2014) document evidence for the VR of OCI, O'Hanlon and Pope (1999), Wang et al. (2006), Devalle and Magarini (2012), Veltri and Ferraro (2018) and Caliskan (2019) report no significant association between OCI and capital market figures. It may spring from dataset characteristics or econometric concerns of researchers. Datasets may be subject to different filters including industry selection and period of analysis, and they may heavily depend on the frequency of accounting information. As highlighted by Bandyopadhyay, Chen, and Wolfe (2017), annual earnings are less volatile than quarterly earnings. For instance, on the one hand, Köse and Gürkan (2014) employ a sample including only banks and manufacturing firms with non-zero OCI figures, and they use quarterly data. On the other hand, Caliskan (2019) excludes financial institutions and other regulated industries from his sample, and he uses annual data. Moreover, the period analysis of Köse and

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Gürkan (2014) is very different than that of Caliskan (2019). By considering these two studies, it can be inferred that they are more likely to yield different outcomes. For econometric concerns, both endogeneity and serial correlation in standard errors problems should be mitigated to obtain unbiased parameters of interest. In other words, without controlling for these problems, regression outcomes may yield incorrect inferences. Studies in our literature review differ for their econometric concerns in addition to dataset characteristics. For instance, as a remedy of endogeneity, Park (2018) takes industry fixed effects into account whereas Lin et al. (2018) consider year fixed effects. Similarly, these studies differ in their serial correlation concerns: Park (2018) employs two-way (at firm and year levels) clustered standard errors while Lin et al. (2018) use White standard errors.

Hypotheses Development

As underlined by De George, Li, and Shivakumar (2016) and Walker (2010), IFRS developers mention a single set of high-quality financial reporting standards. From this vision, IASB (2012) underlines that developments in IFRS aim to faithfully reflect not only the financial position but also the financial performance of a company. Navarro-Garcia and Madrid-Guijarro (2014, 156) state that "*it is widely believed that IFRS has improved in quality during recent years due to the revision process and the issuing of new standards*". In other words, developments are performed in forms of either the issuing of new standards or amendments on existing standards. As an amendment, the CSA-based income reporting was introduced to IAS 1 and become mandatory in 2009. From the perspective of IASB, this amendment should yield more useful and relevant income figures.

As per the Prospect Theory of Kahneman and Tversky (1979), loss aversion dominates the decision-making of an individual since s/he gives more emotional reactions towards losses than an equal amount of gains. This Theory echoes in the capital markets-based accounting research, and Hayn (1995) reports that losses convey more information than profits in her seminal paper. Therefore, the differential valuation implications of negative earnings should be taken into account (Chambers et al., 2007). In our study, we hypothesize that negative OCI figures are expected to facilitate more information to the market if OCI is considered a form of real income by the market. In other words, the sign of OCI should contribute to the VR of OCI as reported by Park (2018). We use the impact of the sign of net income on the VR of net income as a check of the argument of Hayn (1995).

Both the recursion value and the adaptation value determine the firm value (Burgstahler and Dichev, 1997). These values become apparent in firm valuation depending on the current operating performance: when the current operating performance is good, the recursion value becomes dominant in valuation whereas bad operating performance makes the adaptation value dominant in valuation. On

158

the one hand, since earnings are proxy for the future earnings generation capacity of a firm's assets (Miller and Modigliani, 1966), earnings play a more significant role in valuation as per the recursion value. On the other hand, for loss firms, BVE is a good indicator of future earnings (Ciftci and Darrough, 2015) and it may be considered an option of disposing or redeploying some of their assets to boost profitability (Collins, Pincus, and Xie, 1999); therefore, BVE is a more significant determinant of the firm value as per the adaptation value. If OCI is considered a form of real income by the market, BVE figures of observations with negative OCI figures are expected to facilitate more information to the market. The sign of net income should contribute to the VR of BVE as per the recursion value of Burgstahler and Dichev (1997). We use the impact of the sign of net income on the VR of BVE as a check of the recursion value.

All in all, in line with the vision and aim of IASB, we consider OCI, which was introduced by IAS 1, a high-quality income figure and put forward the first two hypotheses to examine the indirect VR of OCI. Furthermore, as an ancillary research problem, we also put forward the third hypothesis in line with the vision of IASB although the literature documents mixed outcomes related to the direct VR of OCI.

H1: Negative OCI leads to a significant change in the VR of OCI.

H2: Negative OCI leads to a significant change in the VR of BVE.

H3: OCI is value relevant.

Sample Selection, Model & Variables, and Methodology

Sample Selection

A sample of listed firms on Borsa Istanbul is used in our study. Since IAS 1 introduced the CSA-based income reporting as of 2009, market value of equity figures covers the period between 2009 and 2019. These data are retrieved from the database of Borsa Istanbul. All necessary accounting information belonging to the period between 2009 and 2018 is manually collected from annual financial statements provided by the Public Disclosure Platform. After performing the following exclusion criteria, the final sample is obtained: i) Financial institutions, holding companies, and utilities are excluded because they are subject to different regulations and reporting regimes, ii) Observations listed on the watchlist market are excluded because of their limited daily trading period, iii) If a firm has more than one listed share, only the most liquid one is included, iv) Observations with non-December fiscal year-ends are excluded, and v) Observations with non-positive BVE figures are excluded because of going concern-related issues

Ertuğrul / Is Other Comprehensive Income a Form of Real Income? Evidence from the Value Relevance Analysis

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highlighted by Gordon, Loeb, and Sohail (2010). After these filters, our final sample contains 2,226 firm-year observations.

Model & Variables

One of our research questions intends to reveal the association between negative OCI and the VR of BVE. Therefore, from the measurement perspective of Hellström (2006), we employ a modified Price Model of Ohlson (1995) which allows for testing the VR of BVE. To test our third hypothesis, we employ Equation (1). In this Equation, a statistically significant regression coefficient (β_3) of OCI gives a solid ground for our third hypothesis.

By employing loss dummies for negative OCI figures and related interaction terms into Equation (1), we obtain Equation (2) to test our first two hypotheses. A statistically significant regression coefficient (β_6) [β_5] of the interaction term between negative OCI dummy and OCI [BVE] confirms our first [second] hypothesis. As per the adaptation value of Burgstahler and Dichev (1997), β_5 is expected to be positive. We are also interested in the significance level of β_3 to test our first hypothesis.

To control for the impact of the sign of net income on our regression coefficients, as a robustness check, we utilize Equation (3) by additionally employing loss dummies for negative net income figures. In this equation, expectedly, statistically significant regression coefficients of OCI interaction terms (β_8 and β_9), as well as the statistically significant regression coefficient of OCI (β_3), confirm our hypotheses.

$$MV_{i,t+1} = \beta_0 + \beta_1 \times BVE_{i,t} + \beta_2 \times NI_{i,t} + \beta_3 \times OCI_{i,t} \qquad (1)$$

$$MV_{i,t+1} = \beta_0 + \beta_1 \times BVE_{i,t} + \beta_2 \times NI_{i,t} + \beta_3 \times OCI_{i,t} + \beta_4 \times OCI\_L_{i,t} + \beta_5 \times OCI\_L_{i,t} \times BVE_{i,t} + \beta_6 \times OCI\_L_{i,t} \times OCI_{i,t} \qquad (2)$$

$$MV_{i,t+1} = \beta_0 + \beta_1 \times BVE_{i,t} + \beta_2 \times NI_{i,t} + \beta_3 \times OCI_{i,t} + \beta_4 \times NI\_L_{i,t} + \beta_5 \times OCI\_L_{i,t} + \beta_6 \times NI\_L_{i,t} \times BVE_{i,t} + \beta_7 \times NI\_L_{i,t} \times NI_{i,t} + \beta_8 \times OCI\_L_{i,t} \times BVE_{i,t} + \beta_9 \times OCI\_L_{i,t} \times OCI_{i,t} \qquad (3)$$

where i, t, MV, BVE, NI, and OCI respectively represent firm, year, market value of equity, book value of equity, net income, and other comprehensive income. NI_L (OCI_L) is a dummy variable that is equal to one if a firm's net income (OCI) is below zero. As revealed by Ertuğrul (2019a), the literature extensively uses market value of equity measured after three months from the fiscal year-end as a dependent variable. We follow the literature. We calculate BVE figures by

subtracting liabilities and net income from total assets. Net income is the bottom-line net income.

The Price Model is seriously criticized by the extant literature (see, among others, Brown, Lo, and Lys, 1999; Easton and Sommers, 2003; Kothari and Zimmerman, 1995) as it is subject to two essential problems: the scale effect and the stale information problem. The most prevalent approach of eliminating these impacts from regression outcomes is scaling all variables by a common item. In this study, by following concrete and convincing evidence of Goncharov and Veenman (2014), we use the lagged market value of equity as our deflator to mitigate these problems.

Methodology

Each variable is winsorized at the top and bottom 1% percentiles to mitigate the overinfluence of extreme values. Before analyses, we perform the Variance Inflation Factor (VIF) analysis after each regression to detect a significant multicollinearity problem if any. All individual VIF values and mean VIF values indicate no significant multicollinearity problem as they are considerably smaller than the critical VIF value of 10.

After controlling for the multicollinearity problem, the next step is determining the correct regression method. As illustrated by Ertuğrul and Demir (2018) and Onali, Ginesti, and Vasilakis (2017), the success of the VR test heavily depends on the regression method and it may yield incorrect inferences if the correct method is not performed. To determine the convenient method, we separately run the Hausman Test for each analysis. All results provided by the Hausman Test significantly suggest using the fixed effects method which controls for unobserved heterogeneity at the firm level. We also add untabulated dummy variables for each year to mitigate the potential effect of year-level unobserved heterogeneity on our regressions.

Another concern regarding regressions is correlations between standard errors. As excellently illustrated and exemplified by Gow, Ormazabal, and Taylor (2010) and Petersen (2009), standard errors should be controlled for both cross-sectional correlation and serial correlation to obtain unbiased standard errors. By following their concrete findings, two-way (at both the firm level and the year level) clustered standard errors are used to mitigate the impact of cross-sectional correlation and serial correlation on our regression standard errors.

Results

Descriptive Statistics and Correlation Matrix

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Panel A of Table 1 presents descriptive statistics and presents important characteristics of our sample. Note that all variables are deflated by the lagged market value of equity. First, regarding market value of equity, the positive mean and median figures indicate that firms do not have a decreasing market value problem. Second, the mean (median) BVE figure is (distinctively) smaller than 1 which means that firms are traded at a considerable premium to BVE. Third, firms do not suffer from profitability-related problems as indicated by the positive mean and median net income figures. Last, the mean OCI figure may be read as the materiality of OCI in the existing income reporting regime.

Table 1: Descriptive Statistics and Correlation Matrix.

PANEL A						
	N	MEAN	P50	SD	MIN	MAX
MV	2,226	1.2693	1.0554	0.7263	0.3478	4.5742
BVE	2,226	0.9562	0.7253	0.8205	0.0664	4.6416
NI	2,226	0.0306	0.0453	0.2124	-0.8133	0.7305
OCI	2,226	0.0401	0	0.1345	-0.1221	0.8106
PANEL B						
	MV	BVE	NI	OCI		
MV	1					
BVE	0.2810*	1				
NI	0.1747*	-0.0237	1			
OCI	0.0835*	0.2731*	-0.1669*	1		

Notes: Panel A (B) presents descriptive statistics (correlation matrix). MV, BVE, NI, and OCI respectively stand for market value of equity measured after three months from the fiscal year-end, book value of equity, net income, and other comprehensive income. Each variable is deflated by the lagged market value of equity. N, MEAN, P50, SD, MIN, and MAX refer to the total number of observations, mean, median, standard deviation, minimum, and maximum. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Panel B of Table 1 presents the correlation matrix which reveals that all independent variables are significantly and positively associated with the dependent variable. The correlation between OCI and net income is significantly negative which may indicate a tradeoff between these income measures (which may spring from recycling) while the correlation between OCI and BVE is significantly positive. Despite smaller correlation coefficients, independent variables may be mechanically interdependent in regression analyses. Since a correlation matrix provides a sole and direct association between two variables, VIF analyses should be performed to check the significant presence of multicollinearity if any. We separately perform VIF analyses to each Equation by ignoring both firm and year fixed effects to be econometrically at the safe side. The mean and maximum VIF figures of Equation (1) [2] {3} are (1.07 and 1.11) [1.80 and 3.07] {3.03 and 4.98}, respectively. Note that higher VIF figures are induced by loss dummies. All these

VIF figures are much lower than the critical VIF value of 10 which should be read as the presence of no significant multicollinearity problem.

Multivariate Analyses

Table 2 shows regression outcomes. As a general finding, all regression coefficients belonging to BVE and net income are reported as significantly positive, which indicates the VR of these items. This outcome is consistent with most studies (e.g., Ates, 2020; Caliskan, 2019; Ertuğrul, 2019b, 2020; Ertuğrul and Demir, 2018; Gökten and Atalay, 2019) documenting evidence for the VR of Turkish firms in the post-IFRS adoption period.

Table 2: Regression Outcomes.

	PANEL A	PANEL B	PANEL C
BVE	0.4195***	0.4019***	0.2677***
	(0.0535)	(0.0525)	(0.0477)
NI	0.8298***	0.8172***	1.9838***
	(0.1348)	(0.1289)	(0.2303)
NI_L			-0.2129***
			(0.0618)
NI_L x BVE			0.1209**
			(0.0401)
NI_L x NI			-2.2605***
			(0.2469)
OCI	0.1771	0.3032	0.2346
	(0.2273)	(0.2472)	(0.2511)
OCI_L		-0.0015	-0.0003
		(0.0509)	(0.0453)
OCI_L x BVE		0.0454	0.0481
		(0.0482)	(0.0427)
OCI_L x NI		-1.2969	-0.4480
		(0.9403)	(0.9014)
Constant	0.8357***	0.8270***	0.8243***
	(0.0518)	(0.0549)	(0.0514)
Observations	2,226	2,226	2,226
R-squared	0.476	0.478	0.513

Notes: The dependent variable of regressions is market value of equity measured after three months from the fiscal year-end. BVE, NI, and OCI respectively stand for book value of equity, net income, and other comprehensive income. Each variable is deflated by the lagged market value of equity. NI_L (OCI_L) is a dummy variable that is equal to one if a firm's net income (OCI) figure is below zero. Firm and year fixed effects are controlled. Two-way (at both firm and year levels) clustered standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

In last two Panels of Table 2, the regression coefficients of negative OCI dummy are not reported as statistically significant. However, the regression

Ertuğrul / Is Other Comprehensive Income a Form of Real Income? Evidence from the Value Relevance Analysis

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coefficient of negative net income dummy is reported as significantly negative as shown in Panel C. These outcomes may indicate that OCI is not considered a form of real income like net income by the market. On the one hand, in Panels B and C, the interaction terms between negative OCI dummy and OCI are not reported as statistically significant. If OCI would be a form of real income, it could convey more information to the market when it was negative from the perspective of Hayn (1995). In other words, these insignificant interaction terms show that OCI is not value relevant even if it is negative. By being consistent with Veltri and Ferraro (2018) and opposite to Park (2018), this finding rejects our first hypothesis which defends that negative OCI leads to a significant change in the VR of OCI. On the other hand, in Panel C, the interaction term between net income and negative net income dummy is significantly negative. From the perspective of Hayn (1995), net income is expectedly proven to be a kind of real income as its VR changes with its sign. However, OCI is not a form of real income since the sign of OCI does not significantly alter the VR of OCI.

As per the adaptation value of Burgstahler and Dichev (1997), BVE becomes dominant in the valuation of loss firms. From that perspective, if OCI would be a form of real income, it had to significantly increase the information content of BVE when it was negative. The interaction terms between negative OCI dummy and BVE are not reported as statistically significant in last two Panels of Table 2. This finding rejects our second hypothesis which defends that negative OCI leads to a significant change in the VR of BVE. However, in Panel C, the interaction term between negative net income dummy and BVE is found as significantly positive. From the perspective of Burgstahler and Dichev (1997), net income is expectedly proven to be a kind of real income; however, OCI is not a form of real income as the sign of OCI does not significantly alter the VR of BVE.

In all Panels of Table 2, no regression coefficient of OCI is found as statistically significant. To illustrate, OCI figures do not significantly contribute to the information mix available in the market. This outcome rejects our last and ancillary hypothesis which defends that OCI is value relevant. This value irrelevance indicates that the amendment introduced by IAS 1 does not significantly improve the reporting quality from the perspective of the VR. To our knowledge, only two studies analyze the VR of OCI by documenting evidence for Turkish listed firms; and this outcome is not in line with Köse and Gürkan (2014) who report a positive VR of OCI by employing a very small sample belonging to 37 firms with non-zero OCI figures in banking and manufacturing industries while it is consistent with Caliskan (2019) who employs a large sample consisting of more than 200 firms from different industries and a longer time interval compared to Köse and Gürkan (2014). Among several studies analyzing the VR of OCI, this finding confirms

outcomes provided by O'Hanlon and Pope (1999), Wang et al. (2006), Devalle and Magarini (2012) and Veltri and Ferraro (2018).

To sum, above analyses shed light on whether OCI is a form of real income by considering i) its impact on its VR when it is negative from the perspective of Hayn (1995), ii) its impact on the VR of BVE when it is negative from the perspective of the adaptation value of Burgstahler and Dichev (1997), and iii) its direct VR. We find evidence for neither indirect VR nor direct VR of OCI in all analyses. Therefore, we conclude that OCI is not considered a form of real income by the market.

Robustness Analyses

In this section, certain robustness checks are presented. First, as shown by Ertuğrul (2019a), employing several market value of equity figures measured at different dates is a prevalent robustness check in the literature. We measure market value of equity after 4 months from the fiscal year-end. Outcomes belonging to these analyses are presented in Table 3. Second, after carefully examining data, we realize that almost 50% of the sample contains zero OCI figures in the first four years of the analysis. Hence, by excluding the first four years, we re-perform our analysis over 2013-2018. Outcomes belonging to these analyses are presented in Table 4. Third, we perform an additional robustness check, but we do not prefer presenting it for the sake of brevity. As underlined by Correia (2015), the impact of singleton observations may overstate significance levels which may result in incorrect inferences. Hence, by excluding all singleton observations, we re-perform our analyses. All outcomes reported in Table 3 and Table 4 together with our untabulated third robustness check confirm our findings presented in Table 2: i) the sign of OCI does not lead to a significant change in either its VR or it's the VR of BVE, and ii) OCI is not value relevant. To sum, our robustness analyses reveal that OCI is not a form of real income.

Conclusion

By using a sample of Turkish listed firms from 2009 to 2018, we examine whether OCI is a form of real income. In order to shed light on this research question, we analyze the usefulness and efficiency of OCI from the perspective of the market in three ways. First, we investigate the impact of the sign of OCI on the VR of OCI by considering analyses of Hayn (1995) regarding loss firms. Second, we examine the effect of the sign of OCI on the VR of BVE by considering the adaptation value of Burgstahler and Dichev (1997). Our analyses reveal that the sign of OCI does not lead to a significant change in the VR of OCI as well as the VR of BVE. In other words, the market does not differently react to negative OCI figures. Third, we analyse the direct VR of OCI. Our outcomes show that the impact

Ertuğrul / Is Other Comprehensive Income a Form of Real Income? Evidence from the Value Relevance Analysis

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of OCI on market value of equity is not statistically significant, which refers to the value irrelevance of OCI. Hence, our outcomes strongly indicate that OCI is not valued as a form of real income by the market.

Although the literature discusses the direct VR of OCI in detail, its indirect VR is not studied by the literature in detail to the best of our knowledge. We contribute to the existing literature by examining the indirect VR of OCI from the perspectives of Hayn (1995) and Burgstahler and Dichev (1997). We further contribute to the accounting quality literature, which includes very little evidence for emerging economies, by documenting evidence based on a sample of Turkish listed firms. Note that our sample covers the latest available data to depict a more recent picture of the topic.

Table 3: Robustness Analysis I.

	PANEL A	**PANEL B**	**PANEL C**
BVE	0.4025***	0.3871***	0.2720***
	(0.0641)	(0.0612)	(0.0674)
NI	0.7622***	0.7559***	2.0308***
	(0.1390)	(0.1380)	(0.2433)
NI_L			-0.1806**
			(0.0651)
NI_L x BVE			0.0963*
			(0.0507)
NI_L x NI			-2.3360***
			(0.3064)
OCI	0.1696	0.2786	0.2182
	(0.1750)	(0.1903)	(0.1974)
OCI_L		-0.0105	-0.0076
		(0.0486)	(0.0444)
OCI_L x BVE		0.0429	0.0451
		(0.0521)	(0.0517)
OCI_L x NI		-1.1369	-0.3253
		(0.8226)	(0.8084)
Constant	0.8487***	0.8437***	0.8164***
	(0.0601)	(0.0640)	(0.0652)
Observations	2,226	2,226	2,226
R-squared	0.445	0.447	0.486

Notes: The dependent variable of regressions is market value of equity measured after four months from the fiscal year-end. BVE, NI, and OCI respectively stand for book value of equity, net income, and other comprehensive income. Each variable is deflated by the lagged market value of equity. NI_L (OCI_L) is a dummy variable that is equal to one if a firm's net income (OCI) figure is below zero. Firm and year fixed effects are controlled. Two-way (at both firm and year levels) clustered standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Robustness Analysis II.

	PANEL A	PANEL B	PANEL C
BVE	0.5310***	0.4992***	0.3464**
	(0.0968)	(0.0901)	(0.1080)
NI	0.7608**	0.7622**	1.8766***
	(0.2024)	(0.2089)	(0.3124)
NI_L			-0.2504**
			(0.0900)
NI_L x BVE			0.1547*
			(0.0645)
NI_L x NI			-2.1562***
			(0.3205)
OCI	0.1901	0.3746	0.3418
	(0.3309)	(0.3392)	(0.3478)
OCI_L		-0.0072	0.0071
		(0.0581)	(0.0563)
OCI_L x BVE		0.0880	0.0812
		(0.0522)	(0.0585)
OCI_L x NI		-1.0662	-0.2181
		(1.2161)	(1.4173)
Constant	0.6292***	0.6115***	0.6172***
	(0.0900)	(0.0988)	(0.1198)
Observations	1,419	1,419	1,419
R-squared	0.413	0.418	0.459

Notes: Regressions are performed by excluding the first four years. The dependent variable of regressions is market value of equity measured after three months from the fiscal year-end. BVE, NI, and OCI respectively stand for book value of equity, net income, and other comprehensive income. Each variable is deflated by the lagged market value of equity. NI_L (OCI_L) is a dummy variable that is equal to one if a firm's net income (OCI) figure is below zero. Firm and year fixed effects are controlled. Two-way (at both firm and year levels) clustered standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

This study generates useful insights for regulatory authorities because it shows that the market does neither directly nor indirectly value OCI. The issuing of new standards or improvements in existing standards (especially in IAS 1) may be designed by considering our outcomes in order to make OCI value relevant. This study also provides beneficial inputs for investors using accounting-based valuation models by showing that OCI is not a useful ingredient of equity valuation. Therefore, our outcomes indicate that investors should mainly rely on the traditional bottom-line net income figure.

This study produces certain issues for future research. First, as we document outcomes for a single economy, their generalizability is narrow. Future research may use a large dataset belonging to several economies and extend our analyses to provide more generalizable outcomes. However, future research should be aware

Ertuğrul / Is Other Comprehensive Income a Form of Real Income? Evidence from the Value Relevance Analysis

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of the fact that global databases provide very incomplete and mostly missing OCI items (and also certain financial statement figures), especially for emerging economies. Note that, for that reason, we manually collect financial statement items including OCI to have a complete dataset and to mitigate the impact of missing observations or data from our regression analyses. Future research should deal with this incomplete data problem. Second, future research may extend our analyses by considering components of OCI. Again, global databases provide very incomplete and mostly missing OCI components. For such an analysis, future research should consider the following facts: i) the number of OCI components has changed since 2009, and ii) the concept of recycling was introduced by IAS 1 beginning from the second half of 2012. Future research should also take these changes into account.

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