

## Value Relevance of Other Comprehensive Income and Its Available-For-Sale Financial Instruments (AFS) and Revaluation Surplus of Property, Plant and Equipment (REV) Components

MARYAM YOUSEFINEJAD, AZLINA AHMAD & ZAINI EMBONG

### ABSTRACT

*Studies on value relevance of Other Comprehensive Income (OCI) have thus far provided mixed evidences. Prior studies also found that fair value reporting has a significant impact on the value relevance of OCI. However, most studies on value relevance of OCI focused on developed countries where the capital market is more efficient. In these settings due to the existence of active market, fair valuation of assets may not pose a major problem. Therefore, more studies are needed to better understand the value relevance of such OCI especially in developing countries which have less efficient market. Thus, this study examined whether OCI and its components, Available-For-Sale Financial Instruments (AFS) and Revaluation Surplus of Property, Plant and Equipment (REV) are value relevant in Malaysia as a developing country. In order to fulfill these objectives, this study hypothesized that OCI and its components are associated with share price. These hypotheses were empirically tested using a sample of 1,419 firm years observations from 2011 to 2013, of firms listed on the Main Market of Bursa Malaysia. The results of Panel Analysis indicates that OCI and its components are value relevant. These results remain robust after additional analyses. This study provides additional evidence of value relevance of other comprehensive income in a developing country. The results indicate that the move towards a more comprehensive income reporting through the preparation of the Statement of Comprehensive Income results in more informative financial reporting.*

*Key words: Other Comprehensive Income; Fair value; Developing countries; Efficient Market Hypothesis*

### INTRODUCTION

The main objective of financial reporting standards is to enhance the usefulness and value relevance of financial information to investors and other users (IASB 2011). The usefulness and value relevance of financial information is enhanced when it is comparable, verifiable, timely and understandable (Conceptual Framework for Financial Reporting 2011). Financial information help investors to predict future earnings and hence evaluate the firms. Therefore, financial information is an important factor in decision making to investors, and how particular information influences investors' decision making is an ongoing debate. According to Ohlson (1995) financial information is considered useful to investors if it is associated with market values such as share prices and returns and also lead to investors' reactions such as buying or selling the firms' shares. In other words, reaction of investors to financial information are evidenced by their capital market transactions (Deegan 2010). Indeed, when the special financial information affect investors' decision making, it is said those financial information are value relevant.

One of the most important sources of financial information is the income statement, which is frequently used by investors to evaluate a firm's performance. Prior to the introduction of the statement of comprehensive income, serious concerns have been raised about income

items that are undisclosed in the income statement which in turn reduce the transparency of financial statements and consequently decrease the value relevance of financial information to investors and other users (Devalle & Magarini 2012; Kanagaretnam, Mathieu & Shehata 2009; Smith 2017). The income statement presents only the consequences of the ordinary and regular operations for the current period while non-operating or non-recurring items are excluded from net income. With the exclusion of these items from the income statement, other factors which influence performance, sometimes very important, remain unknown (Pascan 1997). Among the items that is not included in net income is unrealized gains and losses from the sale securities held as investments or available for sale securities. This component only passes through the income statement when the securities are sold and the gain or loss is reported as a part of net income. This means that when the gain is unrealized as a result of changes in fair value, it will not be reported in the income statement even though the current period unrealized gains and losses for available sale marketable securities is indicative of future net income realizations. Income statement as a most important sources for decision making should measure all changes in the value of a firm resulting from all activities and circumstances and should be all-inclusive. Therefore, contemplation of comprehensive income started when the accounting profession and the users of financial

information have raised serious concerns about exclusion or unreported items in income statement.

Proponents of comprehensive income approach argue that the financial statements prepared under the all-inclusive approach provide investors and other users with clear insights into the future prospects of the firm and improve the predictive ability of future earnings and cash flows (Black 2016; Kanagaretnam et al. 2009; Rees & Shane 2012). However, studies conducted on value relevance of comprehensive income in recent years have not found conclusive support for this argument. Some of these studies found no evidence that comprehensive income is more value relevant than net income (e.g. Dhaliwal, Subramanyam & Trezevant 1999; Goncharov & Hodgson 2008; Jahmani, Choi, Park & Wu 2017; Wang & Zhou 2017). On other hand, some studies found that comprehensive income is value relevant (e.g. Kabir & Laswad 2011; Kanagaretnam, Mathieu & Shehata 2009; Mechelli & Cimini 2014; Smith 2017). Based on these mixed results, it is difficult to conclude whether mandating the preparation of the comprehensive income statement results in more informative reporting.

Reporting of Other Comprehensive Income (OCI) is mandatorily applied for financial years starting on or after January 1, 2010. After fair value standard, comprehensive income and specifically OCI, become increasingly important for either practitioners or researchers (Bertoni & Rosa 2013). This is because unrealized gains and losses of fair value of assets and liabilities are disclosed in OCI. Fair values of assets and liabilities change according to the changes in market value (Ball 2006). These changes give rise to the unrealized gains and losses which should be report in OCI. In great majority of countries, the market are less efficient to provide the necessary and reliable data for fair value measurement. Firms in these countries would have to use price of similar assets and liabilities or use projection of future benefits, and combine it in a model with all reasonable assumptions that are available in the market. This situation may result in estimated values that are less reliable and may not truly be comparable between firms and countries (Ball 2006; Hoogendoorn 2006).

In developed countries, market for most assets exist and poses less problem of reliability of fair value measurements. However, in developing countries, some assets do not have available market, therefore, fair value measurement would be more problematic and hence, reliability is questioned. Most studies on value relevance of comprehensive income, however were carried out in developed countries such as the USA (Chambers, Linsmeier, Shakespeare & Sougiannis 2007; Dhaliwal et al. 1999; Jahmani et al. 2017) and Europe (Gazzola & Amelio 2014; Goncharov & Hodgson 2011; Mechelli & Cimini 2014) where the market is more efficient and fair valuation of assets is more reliable. However, very little studies have been carried out in developing countries, which provide a different setting due to differences in economic environments, rules and regulation as well as accounting standards. For example, Malaysia as a developing country,

where majority of firms are family firm (Haji-Abdullah, Marini & Keshab 2016) and very conservative (Marzuki & Wahab 2017) compare to other developing countries provides an alternative setting to study this issue.

The preparation of statement of comprehensive income was made mandatory in Malaysia beginning 1st January, 2010 under FRS 101. The new ruling required public listed companies to separately report comprehensive income in their financial statements (Abdul Rahman & Hmadan 2012). The introduction of the statement of comprehensive income which coincide with FRS 139 Financial Instruments, provide a good opportunity to empirically investigate whether the OCI and its components are value relevant. Among components of OCI, this study examines the value relevance of unrealized changes on available-for-sale financial instruments (AFS) and revaluation surplus of Property, Plant and Equipment (REV). This is mainly because, FRS 139 requires fair value measurement of AFS while FRS 116 under the revaluation model requires fair value measurement of property, plant and equipment, with both changes in fair value to be reported as comprehensive income. Additionally, the AFS and REV are also affected by asset market and its efficiency.

This paper contributes to the literature by providing empirical evidence on the value relevance of OCI. Despite many studies on value relevance of comprehensive income, there are limited empirical evidence on value relevance of OCI and its components after mandatory reporting in 2010. The results obtained from the period after comprehensive income reporting is made mandatory, would provide indication whether the capital market better understands the value implications of components of OCI. This study also contributes to the literature in a way that examines value relevance of OCI in a different market setting. Moreover, this study provides the empirical evidence on value relevance of two components of OCI which are affected from asset market, namely unrealized changes on available-for-sale financial instruments (AFS) and revaluation surplus of PPE (REV). The findings would help to better understand the value implications of components of OCI.

## LITERATURE REVIEW

Studies on value relevance of comprehensive income in recent years although are extensive and diverse but have thus far showed mixed findings (e.g. Biddle & Choi 2006; Deol & Nazari, 2013; Dhaliwal et al. 1999; Gazzola & Amelio 2014; Kanagaretnam et al. 2009; Lee & Park 2013; Smith 2017). Cheng et al. (1993) examined the usefulness of net income and comprehensive income using 18 years of annual data from 1972 to 1989 in the US. They found very little incremental explanatory power between comprehensive income and net income. Similar to Cheng et al. (1993), Dee (1999) compared net income and comprehensive income. The study used data for 126 firms over 11 years (1986-1996). Dee (1999) found that only net income is statistically significant. Dee's (1999)

findings appeared to corroborate Cheng et al. (1993) of the dominance of operating income over net income, and that of net income over comprehensive income. Brimble and Hodgson (2005) using Australian data for the period between 1988 and 1997, also confirmed findings of Cheng et al. (1993). Their study found that comprehensive income is less useful in explaining abnormal returns than net income.

In addition to examining the value relevance of comprehensive income and aggregated OCI compared to net income, several studies have been more explicit and focused on the value relevance of OCI components. Dhaliwal et al. (1999) used a sample of US firms from 1994 to 1995 to evaluate the relative ability of comprehensive income and net income to summarize firm performance as reflected in stock returns. Unlike Cheng et al. (1993) and Dee (1999) who consider OCI as a whole, Dhaliwal et al. (1999) examined which component of OCI are value relevant. Their study found little evidence that OCI is associated with stock returns except for available for sale securities adjustments. Their study also found that among the components of OCI, only the marketable securities adjustment can be associated to return, but only for firms from the financial industry.

Skinner (1999) in a critique of Dhaliwal et al. (1999) showed that net income is more value relevant than comprehensive income. Skinner (1999) argued that comprehensive income amounts to little more than reclassification of income, and as such does not bring in new information. O'Hanlon and Pope (1999) used data from UK companies to examine the relationship between stock returns and OCI for 20 years. O'Hanlon and Pope (1999) similar to their contemporary studies found that comprehensive income is not value relevant. O'Hanlon and Pope's results appear consistent with the conclusions of Cahan et al. (2000). Cahan et al. (2000) also confirmed the finding of Cheng et al. (1993) and Dee (1999). Cahan et al. (2000) examined the value relevance of comprehensive income in New Zealand during 1992-1997. Cahan et al. (2000) did not find evidence for value relevance of comprehensive income relative to net income. Dehning and Ratliff (2004) examined whether the required comprehensive income reporting by FAS 130 provides incremental information for investors' decision making in a sample of US firms from 1998 to 1999. Their results showed that, the disclosure of comprehensive income and components of OCI do not provide additional information content compared to another financial statement.

Goncharov and Hodgson (2011) investigated on usefulness of net income and OCI components. Their study found that net income is better than comprehensive income in terms of value relevance. The study by Wang (2006) which focused on European firms also confirmed the value relevance of net income over comprehensive income. While Wang (2006) focuses only on local GAAP numbers, Goncharov and Hodgson (2011) examined the value relevance of OCI compare between IFRS and US GAAP. They found that under all accounting frameworks

net income is more value relevant than comprehensive income calculated using all accounting bases. Additionally Barton et al. (2010) found no evidence of value relevance of comprehensive income. Mechelli and Cimini (2014) and Kabir and Laswad (2011) also confirmed findings of Goncharov and Hodgson (2011) and Barton et al. (2010). Kabir and Laswad (2011) found that, net income is potentially more persistent than total comprehensive income and no significant difference in the variability and predictive ability of net income and total comprehensive income. Their study did not find OCI to be value relevant. However, Pinto (2005) found that OCI components are value relevant. Their study focused on the value relevance of foreign currency translation adjustments for a sample of US firms between 1991 and 1996. By using an earnings and book value model, the study reported value relevance of foreign currency translation adjustments.

In summary, as shown above, almost majority of past studies found very little evidence supporting the value relevance of comprehensive income, OCI and its components over other measures of earnings such as net income. One of possible reason for these results could be the non-mandatory reporting of comprehensive income. Kanagaretnam and Shehata (2007) examined the value relevance of OCI components before and after the implementation of SFAS 130 using a sample of cross listed Canadian firms from 1998 to 2003. They believe that markets participants better understand the value implications of OCI components after SFAS 130 came into effect in 1997. Kanagaretnam et al. (2007) for the post-implementation period (1998-2003) found that OCI components are incrementally value relevant.

Another possible reason for earlier results could be because these studies examined the aggregate other comprehensive income without giving due consideration to the components. Additionally, majority of earlier studies examined the value relevance of OCI using as *if* estimates rather than actual data of OCI. The as *if* estimation technique constructs an ex-ante measure of OCI before OCI reporting was made mandatory. Recent studies have revisited the issue and reported different findings. Examples include Biddle and Choi (2003) and Chambers et al. (2007) who provided evidence on the value relevance of OCI and its components.

Kanagaretnam et al. (2009) similar to Biddle and Choi (2003) and Chambers et al. (2007) also found that OCI and its components are value relevant. They used a sample of Canadian firms cross-listed in the US which were required to report comprehensive income. Kanagaretnam et al. (2009) found that, comprehensive income is more strongly associated to stock price and returns than net income, and OCI components, change in fair value of cash flow hedges, change in fair value of available-for-sale investments, are also associated with stock price and stock returns. Jones and Smith (2011) is also amongst the recent studies which examine the value relevance of OCI. Based on a sample of 236 US firms from 1986 to 2005, they found that OCI is value relevant. Gazzola and Amelio (2014) use data

from 2010 to 2012 of firms listed on the Prime Market of the Czech Republic Stock Exchange. Results show that the comprehensive income have informative content and gives further information for the evaluation of financial performance, hence could be useful for investors' decision making. Günther (2015) found similar results from a sample of 559 companies from the Eurozone between 2007 and 2012.

Jahmani et al. (2017) examined the value relevance of comprehensive income, OCI and its components using data of 500 US firms in 2014. The study found that both comprehensive income and OCI are not value relevant. However, the study found that, the components of OCI, such as derivatives, hedging and gains and losses from available for sale securities are value relevant. Bao et al. (2017) investigated on usefulness of OCI to debt investors. The study used US firms from 2011 to 2012 and found strong evidence that higher volatility of OCI is associated with a higher cost of debt, and findings of this study suggested that OCI volatility provides useful information to credit markets. Wang and Zhou (2017) using a sample of US firms from 2010 to 2013 investigated whether mandatory reporting of OCI help enhance transparency of financial reporting. Findings of the study suggested that mandatory reporting of OCI improves transparency and usefulness of the reported information.

In contrast to the above findings, several recent studies found weaker evidences. Huang, Ye, and Du (2014) based on the data of annual financial statements in 2012 on the Shenzhen Stock Exchange, found weak evidence of value relevance of OCI. Huang et al. (2014) also found that the lack of accounting standards requirement for comprehensive income reporting in China affect value relevance of comprehensive income. Moreover, Devalle and Magarini (2012) and Zülch and Pronobis (2010) also found no evidence on value relevance of comprehensive income. Devalle and Magarini (2012) used a sample of the largest companies listed on the UK, Germany, France, Italy and Spain stock exchanges between 2005 and 2007. They found support for value relevance of components of OCI. The results show that only components of OCI that can be identified as value relevant are currency translation adjustments but only for companies from the UK. Zülch and Pronobis (2010) used all Germany companies listed in the period of 1998 to 2007. Devalle and Magarini (2012) also similar to Zülch and Pronobis (2010) found no evidence on value relevance of comprehensive income. However, they find significant incremental predictive power of individual components of OCI.

A review of the literature shows that value relevance of OCI and its components varies across countries and has also changed over time. This literature review also indicates that most of the past studies have been done in an efficient market such as US, Europe, New Zealand and Canada. However, very little research has directly address the value relevance of OCI and its components in countries with less efficient market. Therefore, one objective of this paper is

to fill gap in the accounting knowledge and examine the value relevance of OCI in less efficient market

Considering the studies that have been done in less efficient market, to the best of our knowledge, only Huang et al. (2014) has some similarity to this paper. However, this paper is different from Huang et al. (2014) in several ways. First, Huang et al. (2014) conduct their study based on data from small and medium-sized enterprises (SMEs), while this paper examines the value relevance of OCI using data from firms listed on the main market of Bursa Malaysia. Secondly Huang et al. (2014) examined the value relevance of total OCI, and did not examine the value relevance of components of OCI. While this paper in addition to examining the value relevance of OCI, also examine the value relevance of two components of OCI which are the unrealized changes in available-for-sale financial instruments and revaluation of PPE Thirdly, Huang et al. (2014) focused on one year only which is 2012. While this paper considers three years. Longer time period should lead to more reliable statistical analysis and results. Additionally, reporting of OCI components is mandatorily applied for financial years starting on or after January 1, 2010. Therefore, comparable accounting data for doing empirical research has only been available since 2011. Additionally analysis of actual data based on mandatory reporting of comprehensive should lead to a more reliable findings.

#### HYPOTHESES DEVELOPMENT

Empirical research on the relation between capital markets and financial statements is referred to as capital market research. This branch of studies examines the role of accounting and financial information in capital market by looking at the statistical relation between financial information and share prices or returns (Deegan 2010). A capital market research is often used to examine investors' reactions to announcements of firm information, and to assess the relevance of alternative accounting and disclosure choice for investors.

As this paper examines the relationship between OCI and share price, it is therefore a form of capital market research. One of the factors considered in capital market research is market efficiency (Rankin, Stanton, McGowan, Ferlauto & Tilling 2012). Market efficiency is defined in accordance to the Efficient Market Hypothesis (EMH) as a market which adapt rapidly to fully impound information into share price when the information is released (Fama, Fisher, Jensen and Roll 1969). According to EMH, an efficient market is a market in which its share prices always fully reflect all available information (Fama 1970). There are three forms of market efficiency, weak, semi-strong and strong (Valentine 2007).

The weak form of market efficiency is when share prices simply reflect information about past prices and trading volumes. Under semi-strong form efficiency, the current prices reflects the information contained not only in past prices but also all public information (including

in financial statements). Semi-strong form efficiency is when the markets respond rapidly to publicly available information. The publicly available information includes information on annual earnings, dividends as well as after information that are made available to the public. The strong form of market efficiency on the other hand assumes that share prices, on average, reflect all information known to anyone at that point in time, including information not publicly available, meaning that, strong form market efficiency is when share prices reflect all information, both public and private.

Based on Cheah (2005) and Abdullahi, Baharuddin and Ying (2010) Malaysian stock market is identified as semi-strong efficient. According to Watts and Zimmerman (1978), the available evidence is generally consistent with the semi-strong form of the efficient market hypothesis, that is, the market reacts rapidly to publicly available information. Hence, this means that in Malaysia, investor reacts rapidly to publically available information including information reported in financial statements.

This paper identifies Efficient Market Hypothesis (EMH) as the relevant underlying theory. As discussed above, an information is said to be value relevant if it affect investors' decision and is reflected in the share price. This is in line with the EMH which states that an efficient market is a market in which its share prices always fully reflect all available information. The reporting of OCI and its components is aimed at enhancing financial reporting transparency. Therefore in line with the EMH, OCI information would have an effect on share price as such information could positively affect the ability of investors to make more effective decisions.

Therefore, based on above arguments in literature review section and semi-strong form market efficiency, this study hypothesizes that:

- H<sub>1</sub>: Other comprehensive income is positively associated with share price.
- H<sub>2</sub>: The unrealized changes on available-for-sale financial instruments component of other comprehensive income is positively associated with share price.
- H<sub>3</sub>: The revaluation surplus of Property, Plant and Equipment component of other comprehensive income is positively associated with share price.

#### METHODOLOGY

This paper takes a quantitative approach and applies panel data design. Panel data design follows a given sample of companies over time, and thus provides multiple observations on each company in the sample (Hsiao 2003). According to Gujarati (2003) panel data offers several advantages, which include estimation technique which considers heterogeneous data, more complicated model, minimize the bias and more importantly, panel data allow a researcher to analyze a number of important economic

questions that cannot be addressed using cross-sectional or time-series data sets (Hurlin 2010).

The research samples were obtained from firms listed on the Main Market of Bursa Malaysia from 2011 to 2013. The final sample of this study is 1,419 firms-year. Data for this paper was obtained from the Thomson Reuters DataStream Professional (DataStream) and Annual Reports of companies from 2011 to 2013. 2011 was chosen because the requirement to prepare the statement of comprehensive income became effective beginning 1 January 2010. As 2010 is considered as transition year, the effect of the new requirement is expected to be more observable from 2011 onwards. 2013 was chosen because it is the period with the latest available data when the study commenced.

In order to statistically examine the hypotheses, this paper applies Ohlson's valuation model. Ohlson (1999) extends the work of Ohlson (1995) and Feltham and Ohlson's (1995, 1996) on the residual income model. Ohlson's model is a widely used model among researchers because it provides testable equation to examine the value relevance of accounting information and non-accounting information (Dhaliwal et al. 1999; Kanagaretnam et al. 2009; Graham et al. 2005; Deol & Nazari 2013). In Ohlson's model, book value of equity and earnings are the explanatory variables of a firm's share price as follows:

$$P_{it} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 NI_{it} + \alpha_3 v_t$$

Where:

- $P_{it}$  = Share price  
 $BVE_{it}$  = Book value of equity per share  
 $NI_{it}$  = Net income per share  
 $v_t$  = Error term

This paper develops the Ohlson's model and specifies Model 1, 2 and 3 for testing the first, second and third hypotheses (H<sub>1</sub>, H<sub>2</sub> and H<sub>3</sub>). The main variables of this study are other comprehensive income (OCI), unrealized changes in available for sale financial instruments (AFS), revaluation surplus of property, plant and equipment (REV) and share price. Firm size and leverage are included as control variables to reduce potential measurement and model specification error. These control variables were included in the regressions as they were found in the literatures to have an effect on the dependent variables. Firm size is widely controlled in value relevance studies (So & Smith 2009). Based on Barth and Clinch (1998), large and small firms have different economic characteristics that may influence the results of value relevance study. Several studies included size as a control variable and reported the effect of the size on value relevance of other comprehensive income, such as Lee et al. (2006), Turktas et al. (2013), Bamber et al. (2010) and Goncharov and Hodgson (2008). For example, Kanagaretnam et al. (2009) believe that it is possible that larger firms are more likely to have other comprehensive income than smaller firms. Deol and Nazari (2013) also conclude that firm size is found to be highly significantly associated with stock price.

Therefore, this study predicts that firm size has a positive relationship with share price. In line with past studies, this study measures size as the natural logarithm of total assets (Biddle & Choi 2006; Choi & Somnath Das 2003; Deol & Nazari 2013; Goncharov & Hodgson 2008; Lee & Park 2013). Leverage is important for a number of reasons. First, a highly leveraged firm is more likely to enforce a greater degree of manipulation in the accounts and this introduces noise into the information content of the income stream (Watts & Zimmerman 1986). Secondly, according to Christie (1982), as firms' leverage increase, the volatility of the impact of news increase, and this impacts upon the value of firm's equity. For example, firms with more leverage are less likely to report other comprehensive income components to manipulate their earnings (Zülch & Pronobis 2010). Consequently, an increase in the financial leverage ratio contributes to lower share price. Therefore, this study expects that leverage has negative association with share price. Leverage is measured as the ratio of total debt to total equity. This measure is also used by Deol and Nazari (2013), Lee and Park (2013); Bamber et al. (2010) and Zülch and Pronobis (2010).

Panel data analysis will be used to analyse the data. Panel data method considers individuality of every company and enables computation of intercept distinct for every company using pooled OLS Regression model, fixed effect or random effect model (Gujarati 2003). The major problem with pooled OLS regression model is that it does not distinguish between the samples (Bltagi & Song 2006; Hsiao 2007). In other word, the pooled model deny the heterogeneity or individuality that may exit among samples. However, fixed effect model allows for heterogeneity or individuality among samples by allowing to have its own intercept value and the random effects model is a special case of the fixed effects model. In order to select the appropriate research design between pooled and fixed effect (panel), the 'Redundant Fixed

Effect- Likelihood Ratio' test is carried out and in order to find out the appropriate research design between fixed and random effect model, the 'Hausman' test is carried out. The fixed effect model was found to be more appropriate for all specified regression models, based on both tests. In models 2 and 3, OCI is replaced by unrealized changes on available for sale financial assets (AFS) (Model 2) and revaluation surplus of PPE (REV) (Model 3). These Models are expressed as follows in Table 1.

## RESULTS

This study employs multiple regression to examine the hypotheses. Prior to regression analysis, the required assumptions for regressions are tested which include normality, test of homoscedasticity and multi-collinearity. Normality refers to the distribution of the data for a particular variable. Normality is applied to describe asymmetrical, bell-shaped curve, which means the biggest frequency of scores should be in the middle and fewer frequencies towards the extremes (Gravetter & Wallnau 2006). This study uses Kolmogorov-Smirnov test in order to check the normality of data. Based on Kolmogorov-Smirnov results, it can be concluded that all variables are not normally distributed. Therefore, further tests were carried to identify outliers. The first step in treating outliers is to ensure that the data were correct entered, because incorrect data may cause data to contain extreme cases. Therefore, data were checked against the data sources to insure that they were not wrongly entered. Next univariate outliers were identified by examining the value of z-score of a variable, and multivariate outliers were identified according to the value of Mahalanabis distance (Tabachnick & Fidell 2007). A data with z-score value of more than 3.29, is considered as a univariate outlier, while multivariate outliers are identified based on Mahalanabis distance that exceeds the critical value of  $\chi^2 = 0.41209$

TABLE 1. Models used in the study

$PRICE_{it} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 NI_{it} + \alpha_3 OCI_{it} + \alpha_4 Size_{it} + \alpha_5 Lev_{it} + \epsilon_{it}$	(1)
$PRICE_{it} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 NI_{it} + \alpha_3 AFS_{it} + \alpha_4 Others_{it} + \alpha_5 Size_{it} + \alpha_6 Lev_{it} + \epsilon_{it}$	(2)
$PRICE_{it} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 NI_{it} + \alpha_3 REV_{it} + \alpha_4 Others_{it} + \alpha_5 Size_{it} + \alpha_6 Lev_{it} + \epsilon_{it}$	(3)
$PRICE_{it}$ = Price per share for firm $i$ , 3 months after the end of financial as year $t$	
$BVE_{it}$ = Book value of common equity for firm $i$ deflated by the number of outstanding shares as year $t$	
$NI_{it}$ = Annual net income for firm $i$ deflated by the number of outstanding shares as year $t$	
$OCI_{it}$ = Total Other Comprehensive Income (OCI) for firm $i$ deflated by the number of outstanding shares as year $t$	
$AFS_{it}$ = Unrealized Changes on Available for Sale Financial Assets (AFS) for firm $i$ deflated by the number of outstanding shares as year $t$	
$REV_{it}$ = Revaluation surplus of PPE (REV) for firm $i$ deflated by the number of outstanding shares as year $t$	
$Others_{it}$ = Total other comprehensive income minus AFS in model 2 and minus REV in model 3	
$Size_{it}$ = Firm size measured based on natural logarithm of the total assets of firm $i$ in year $t$	
$Lev_{it}$ = Firm leverage measured based on total debt to total equity of firm $i$ in year $t$	
$\epsilon_{it}$ = Error	

( $\alpha=0.001$ ,  $df=5$ ). As the observations for this study were large, all outliers were treated by way of elimination, in line with Tabachnick and Fidell (2007). Since the data after outlier treatment was still not normal, data transformation was carried out. According to Pallant (2011) transformation techniques could be used in the presence of non-normal distribution. There are a number of different types of transformation, depending on the shape of the distribution. This paper applies the natural logarithm transformation for data of price, OCI and leverage. Panel B of Table 2 provide the descriptive statistics after outliers' treatment and data transformation. Based on Table 2 the value of skewness and kurtosis values have improved, however, the non-normality still exist. According to Hayes (2013) normality is one of the least important in linear regression analysis, thus, the non-normal distribution of data in this study is not likely to be an issue. Moreover, the central limit theorem states that the sampling distribution of any statistic will be normal or nearly normal, if the sample size is large enough (Gujarati 2003). The Breusch-Pagan was carried out to test for homoscedasticity (Breusch & Pagan 1979). The results indicate that heteroscedasticity is an issue. Thus, this study runs all of main regression models while taking into account White's heteroscedasticity consistent standard error and covariance to solve the issue. Therefore, the results are less likely to suffer from heteroscedasticity. Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated (Sekaran & R. 2010). Based on the prepared correlation matrix between variables in this study, it can be concluded that there is no serious multicollinearity issue.

Table 2 provides the descriptive statistics for all variables used in the study. Panel A shows the descriptive statistics of all variables before outlier treatment and Panel B shows the descriptive statistics of all variables after outlier treatment. Based on Panel A of Table 2, the average net income is 0.147 with the maximum value of

1.423 and minimum value of -0.382, indicating that the majority of sample firms are profitable over the period 2011 to 2013. Table 2 also shows, the mean values of OCI is higher than average net income, indicating that the OCI can have great impact on a firms' value. Therefore, the preliminary conclusion that can be drawn is that OCI is an important item that need to be disclose.

#### DATA ANALYSIS

Table 3 presents the results for regressions of three models (Model 1, 2 and 3). Based on Table 3, Model 1, the book value of common equity (BVE) (coefficient value 0.0761, t-stat 4.647) and net income (NI) (coefficient value 0.238, t-stat 4.022) are positively and significantly related to share price at 1 percent level. This finding confirms the importance of equity book value and accounting earnings for market valuation as suggested in the Ohlson's model. Total OCI is also positively and significantly related to share price at 5 percent level with a coefficient value of 0.014 (t-stat 2.374). A positive relationship means that OCI is value relevant for investors' decision making. The findings suggest that the requirement for firms to prepare the statement of comprehensive income results in better reporting quality as information provided are value relevant for economic decision making. Therefore, Hypothesis 1 is supported.

Table 3, Model 2, shows the results of the regression analysis for the second hypothesis. This hypothesis examined the value relevance of unrealized changes on available for sale financial instruments components of OCI (AFS). Based on Table 3, Model 2, it can be seen that the unrealized changes in available for sale financial instruments component of OCI is positively and significantly related to share price at 5 percent level with a coefficient level of 0.018 and t-stat of 3.198. A positive relationship means that unrealized changes in available for sale financial instruments component of OCI is value

TABLE 2. Descriptive statistics

Panel A: Descriptive statistics of original data							
Variables	Mean	Median	Max	Min	S. D	Skew	Kurt
PRICE	2.208	0.909	67.192	0.009	4.771	8.071	90.623
BVE	1.675	1.224	7.865	0.042	1.534	1.819	6.529
NI	0.147	0.091	1.423	-0.382	0.258	2.430	10.555
OCI	0.314	0.005	382.32	0.004	9.884	38.42	95.042
SIZE	5.823	5.706	8.747	4.322	0.739	0.959	4.204
LEV	0.612	0.319	51.464	-13.952	2.019	18.164	435.52
Panel B: Descriptive statistics after outlier treatment and data transformation							
Variables	Mean	Median	Max	Min	S. D	Skew	Kurt
PRICE (Log Price)	-0.009	-0.043	1.287	-2.046	0.531	0.101	2.877
BVE	1.671	1.171	7.074	0.042	1.531	1.603	5.292
NI	0.140	0.087	1.423	-0.381	0.229	1.406	6.363
OCI (Log OCI)	-2.385	-2.259	2.582	-6.337	1.081	-0.370	3.518
SIZE	5.822	5.700	8.281	4.322	0.754	0.880	-1.832
LEV (Log LEV)	-0.538	-0.345	0.886	-4.945	0.787	-1.832	7.905

TABLE 3. Regressions results of testing association of OCI, its AFS and REV components and share price

Independent variables	Model 1		Model 2		Model 3	
	Coefficient	T-statistics	Coefficient	T-statistics	Coefficient	T-statistics
BVE	0.0761	4.647***	0.078	4.749***	0.078	4.759***
NI	0.238	4.022***	0.235	5.936***	0.240	3.089***
OCI	0.014	2.374**	–	–	–	–
AFS	–	–	0.018	3.198**	–	–
REV	–	–	–	–	0.015	1.978**
Others	–	–	0.001	3.092**	0.016	2.672**
Size	0.314	5.617***	0.323	4.769***	0.314	3.634***
Lev	-0.024	-2.377**	-0.023	-2.249*	-0.024	-2.393**
Adj R <sup>2</sup>	0.95		0.95		0.95	
F-statistics	14.78		14.34		14.92	
N	1,419		1,419		1,419	

relevant for investors' decision making. Therefore, second hypothesis is supported.

Table 3, Model 3, shows the results of the regression analysis of the third hypothesis. This hypothesis investigates on value relevance of the revaluation surplus of PPE component of OCI (REV). Based on Table 3, Model 3, the revaluation surplus of PPE component of OCI (REV) is positively and significantly related to share price at 5 percent level with a coefficient level of 0.015 and t-stat of 1.978. A positive relationship means that the revaluation surplus of PPE component of OCI is value relevant for investors' decision making. Therefore, third hypothesis is also supported.

Referring to Table 3, both firm's size and financial leverage of all regression applied models are significantly related to share price. The adjusted R<sup>2</sup> of three models are 0.95. This means that 95 percent of the changes in share price can be explained by the applied explanatory variables. Although this adjusted R<sup>2</sup> value seems to be high and inflated, this outcome is consistent with finding of several past studies such as Kabir and Laswad (2011)(Adj R<sup>2</sup>: 0.96), Kanagaretnam et al. (2009)(Adj R<sup>2</sup>: 0.68) and Deol and Nazari (2013)(Adj R<sup>2</sup>: 0.83). Therefore, although this paper has a high adjusted R<sup>2</sup> for all applied models, based on past studies, it is not due to any mistakes in data entry.

#### ADDITIONAL ANALYSIS

Notwithstanding, this paper applies a robustness test to reduce the possible bias of main results and corroborate the main findings. Kothari and Zimmerman (1995) suggest that price models are better specified than returns models in that their estimated slope coefficients. However, inclusion of both price and returns models potentially provides more convincing evidence of the value relevance of OCI. Therefore, this study follow Kanagaretnam et al. (2009), and run the following returns regressions.

$$Return_{it} = \alpha_0 + \alpha_1 NI_{it} + \alpha_2 OCI_{it} + \alpha_3 Size_{it} + \alpha_4 Lev_{it} + \varepsilon_{it}$$

Where:

$Return_{it}$  = Stock returns (inclusive of dividends) for the year ended 3 months after the end of financial year t

$NI_{it}$  = net income deflated by common equity

$OCI_{it}$  = Total Other Comprehensive Income (OCI) deflated by common equity

$Size_{it}$  = Firms' size measured based on natural logarithm of the assets

$Lev_{it}$  = Firms' leverage measured based on total debt to total equity

$\varepsilon_{it}$  = Error

Table 4 presents the results for the return regression model. Table 4 shows that net income (NI) is positively and significantly related to market return at 5 percent level. OCI is also positively and significantly related to market return at 5 percent level. The results presented in table 4 indicate that total OCI is significantly related with stock returns. Therefore, this model confirm the main findings of the price model.

#### CONCLUSIONS AND LIMITATIONS

This paper develops three hypotheses to answer the research questions. The regression analyses result of the first hypothesis (H<sub>1</sub>) reveals that total OCI is positively associated with share price. This means that total OCI is value relevant. The regression results of testing hypotheses H<sub>2</sub> and H<sub>3</sub> indicate that the unrealized changes in available for sale financial instruments (AFS) and revaluation surplus of property, plant and equipment (REV) are significantly and positively associated with share price. In other words, unrealized changes in available for sale financial instruments (AFS) and revaluation surplus of property, plant and equipment (REV), are value relevant. In general it can be concluded that information on OCI and its component is informative and useful for investors' decision making.



TABLE 4. Tests of association between market return and total other comprehensive income

	Prediction	Coefficient
<i>NI</i>	+	0.122** (2.505)
<i>OCI</i>	+	0.173** (2.412)
<i>SIZE</i>	+	0.908*** (3.009)
<i>LEV</i>	-	-0.202** (-2.054)
<i>Adj R<sup>2</sup></i>		0.42
<i>F-statistics</i>		9.234***
<i>N</i>		1,479
$RETURN_{it} = \alpha_0 + \alpha_1 NI_{it} + \alpha_2 OCI_{it} + \alpha_3 Size_{it} + \alpha_4 Lev_{it} + \varepsilon_{it}$		

\*, \*\*, \*\*\* Represent significance at the 10, 5, and 1 percent level, respectively. *NI* is annual net income for the financial year *t* deflated by common equity; *OCI* is the total other comprehensive income for the financial year *t* deflated by common equity; *SIZE* is firm' size (natural logarithm of the assets of firm *i* in year *t*); *LEV* is firm's leverage (total debt to total equity). T-statistics are presented in parenthesis below the coefficients and White robust standard errors are used to control for heteroscedasticity.

While this paper is subject to the common limitation of empirical researches, specific caveats are worth noting. First, this paper, due to the availability of data, only focuses on all firms listed under the Main Market of Bursa Malaysia. Therefore, caution should be taken with regard to the generalization on the findings to firms listed on the ACE Market which consists of relatively new and growth firms. The findings may differ as the use of fair value measurement are likely to be more pervasive in Main Market firms which are established firms. Secondly this paper in line with most past studies on value relevance of financial information, takes the three month share price of firms after closing of each financial year. However, according to Bursa Main Market Listing Requirement that requires every listed firm to announce their annual audited report within a period of not more than four months from the close of the financial year.

## REFERENCES

- Abdul Rahman, A. & Hmadan, M.D.H. 2012. Reporting Comprehensive Income: Evidence from Malaysian ACE Market Companies. *SSRN Electronic Journal* 1-26.
- Abdullahi, A., Baharuddin, M.H. & Ying, T.C. 2010. Semi-Strong Form Efficiency: Market reaction to dividend and earning announcements in Malaysian stock exchange. *IUP Journal of Applied Finance*.
- Ball, R. 2006. (IFRS): pros and cons for investors International Financial Reporting Standards (IFRS): pros and cons for investors, (June 2013). *Accounting and Business Research* 37-41.
- Bamber, L.S., Jiang, J. (Xuefeng), Petroni, K.R. & Wang, I.Y. 2010. Comprehensive Income: Who's Afraid of Performance Reporting? *The Accounting Review* 85(1): 97-126.
- SMITH & UNLU. 2017. Does the Variability of Other Comprehensive Income (OCI) Play a Role in the Determination of Cost of Debt, Capital Structure and Credit Ratings? *Electronic copy available at: https://ssrn.com/abstract=2939958*
- Barth, M.E. & Clinch, G. 1998. Revalued financial, Tangible, and Intangible Assets: Associations with Share Prices and Non-Market-Based Value Estimates. *Journal of Accounting Research*.
- Barton, J., Hansen, T.B. & Pownall, G. 2010. Which Performance Measures Do Investors Around the World Value the Most-and Why? *The Accounting Review* 85(3): 753-789.
- Bertoni, M. & Rosa, B. De. 2013. Comprehensive Income, Fair Value, And Conservatism: A Conceptual Framework, 1-14. *Electronic copy available at: http://ssrn.com/abstract=2239303*
- Biddle, G.C. & Choi, J.-H. 2006. Is Comprehensive Income Useful? *Journal of Contemporary Accounting & Economics* 2(1): 1-32.
- Black, D.E. 2016. Other comprehensive income : a review and directions for future research, 56(May 2015). *Journal of Accounting in Emerging Economies* 9-45.
- Brimble, M. & Hodgson, A. 2005. The Value Relevance of Comprehensive Income and Components for Industrial Firms. *Working paper, Amsterdam Business School Research Institute (ABS-RI)*
- Breusch, Pagan. 1979. A simple test for heteroscedasticity and random coefficient variation. *Econometrica* 1287-1294
- Cahan, S.F., Courtenay, S.M., Gronnewoller, P.L. & Upton, D.R. 2000. Value Relevance of Mandated Comprehensive Income Disclosures. *Journal of Business Finance Accounting* 27(9&10): 1233-1265.
- Chambers, D., Linsmeier, T.J., Shakespeare, C. & Sougiannis, T. 2007. An evaluation of SFAS No. 130 comprehensive income disclosures. *Review of Accounting Studies* 12(4): 557-593.
- Cheah, E.T. 2005. A quality award and stock market reaction: Evidence from Malaysia., *Total Quality Management & Business Excellence* 681-691.
- Cheng, C.S.A., Cheung, J.K., & Gopalakrishnan, V. 1993. On the usefulness of operating income, net income and comprehensive income in explaining security returns. *Accounting and Business Research*.

- Choi, J.-H. & Somnath Das. 2003. The Predictive Ability of Comprehensive Income Disclosures Under SFAS No. 130. <https://www.researchgate.net>, (130).
- Dee, C.C. 1999. Comprehensive income and its relation to firm value and transitory earnings. *LSU Historical Dissertations and Theses*. 7039
- Deegan, C. 2010. *Financial Accounting Theory*.
- Dehning, B. & Ratliff, P.A. 2004. Comprehensive Income: Evidence on the Effectiveness of FAS 130. *The Journal of American Academy of Business*.
- Deol, H.S. & Nazari, J.A. 2013. The Decision Usefulness of Comprehensive Income Reporting: Evidence from Canada. *Working Paper*
- Devalle, A. & Magarini, R. 2012. Assessing the value relevance of total comprehensive income under IFRS: an empirical evidence from European stock exchanges. *International Journal of Accounting, Auditing and Performance Evaluation* 8(1).
- Dhaliwal, D., Subramanyam, K.R. & Trezevant, R. 1999. Is comprehensive income superior to net income as a measure of firm performance? *Journal of Accounting and Economics* 26(1-3): 43-67.
- Fama, E.F. 1970. Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance* 25: 383-417.
- Fama, E.F., Fisher, L., Jensen, M.C. & Roll, R. 1969. The adjustment of stock prices to new information. *International Economic Review*.
- Gazzola, P. & Amelio, S. 2014. Is total comprehensive income or net income better for the evaluation of companies' financial performance? *Central European Review of Economic Issues* 17(2014): 39-51.
- Goncharov, I. & Hodgson, A. 2008. The Comprehensive Income Issue in Europe, Available at SSRN: <https://ssrn.com/abstract=1313134> (31).
- Goncharov, I. & Hodgson, A. 2011. Measuring and Reporting Income in Europe. *Journal of International Accounting Research* 10(1): 27-59.
- Gravetter, F. & Wallnau, L. 2006. *Statistics for the Behavioral Sciences*.
- Gujarati, D. 2003. *Basic econometrics. 4th Edition. McGraw-Hill Companies. The USA*.
- Günther, R. 2015. Value-Relevance of Other Comprehensive Income under IFRS-. *Dissertation of the University of St. Gallen, School of Management, Economics, Law, Social Sciences and International Affairs to Obtain the Title of Doctor of Philosophy in Management*, (4386).
- Haji-Abdullah, Marini, N., Rohana, O. & Keshab, S. 2016. Family Firms, Audit Committees and Audit Fees: Evidence from an Emerging Economy. *Advanced Science Letters* 22(12).
- Hayes, A.F. 2013. *Introduction to Mediation, Moderation, and Condition Process Analysis*.
- Hoogendoorn, M. 2006. International Accounting Regulation and IFRS Implementation in Europe and Beyond - Experiences with First-time Adoption in Europe, *Accounting in Europe*, 3.
- Hsiao, C. 2003. *Analysis of panel data*. Cambridge university press.
- Huang, Q., Ye, J. & Du, G. 2014. Value Relevance of Comprehensive Income in Small and Medium-size Enterprises. 978-1-4799-3134-7/14/\$31.00 ©2014 IEEE
- Hurlin, C. 2010. What would Nelson and Plosser find had they used panel unit root tests? *Applied Economics* 1515-1531.
- Jahmani, Y., Choi, H.Y., Park, Y. & Wu, G.J. 2017. The value relevance of other comprehensive income and its components, *Accounting and Taxation* 9(1): 1-11.
- Jones, D.A. & Smith, K.J. 2011. Comparing the Value Relevance, Predictive Value, and Persistence of Other Comprehensive Income and Special Items. *The Accounting Review* 86(6): 2047-2073.
- Kabir, M.H. & Laswad, F. 2011. Properties of net income and total comprehensive income: New Zealand evidence. *Accounting Research Journal* 24(3): 268-289.
- Kanagaretnam, K., R.M. & Shehata, M. 2007. Usefulness of comprehensive income reporting in Canada: Evidence from adoption of SFAS130. *Working Paper, McMaster University, Canada*.
- Kanagaretnam, K., Mathieu, R. & Shehata, M. 2009. Usefulness of comprehensive income reporting in Canada. *Journal of Accounting and Public Policy* 28(4): 349-365.
- Kothari, S.P. & Zimmerman, J.L. 1995. Price and return models. *Journal of Accounting and Economics*, 20(2): 155-192.
- Lee, Y., Petroni, K. & Shen, M. 2006. Cherry picking, financial reporting quality, and comprehensive income reporting choices: the case of property-liability insurers. *Contemporary Accounting Research*.
- Lee, C. & Park, M.S. 2013a. Subjectivity in fair-value estimates, audit quality, and informativeness of other comprehensive income. *Advances in Accounting* 29(2): 218-231.
- Lee, C. & Park, M.S. 2013b. Subjectivity in fair-value estimates, audit quality, and informativeness of other comprehensive income. *Advances in Accounting*.
- Marzuki, M.M. & Wahab, E.A.A. 2017. Institutional factors and conditional conservatism in Malaysia: Does international financial reporting standards convergence matter? *Journal of Contemporary Accounting & Economics* 12(3).
- Mechelli, A. & Cimini, R. 2014. Is Comprehensive Income Value Relevant and Does Location Matter? A European Study. *Accounting in Europe*.
- O'Hanlon, J.F. & Pope, P. F. 1999. The Value-Relevance Of UK Dirty Surplus Accounting. *The British Accounting Review* 31.
- Ohlson, J.A. 1995. Earnings, book values, and dividends in security valuation. *Contemporary Accounting Research*.
- Pallant, J. 2011. *SPSS SURVIVAL MANUAL; A step by step guide to data analysis using SPSS*.
- Pascan, Irina. 1997. A new measure of financial performance : the comprehensive income – opinions and debates, *Applied Economics, Business and Development* (June)186-191.
- Pinto, J.A. 2005. How Comprehensive is Comprehensive Income ? The Value Relevance of Foreign Currency Translation Adjustments *Journal of International Financial Management and Accounting* (1990).
- Rankin, Stanton, McGowan, Ferlauto & Tilling. 2012. *Contemporary issues in accounting*.
- Rees, L.L. & Shane, P.B. 2012. Academic Research and Standard-Setting: The Case of Other Comprehensive Income. *Accounting Horizons* 26(4): 789-815.
- Sekaran, U. & R., B. 2010. *Research Methods for Business*. 5th ed. United Kingdom.
- Skinner, D.J. 1999. How well does net income measure firm performance? A discussion of two studies 1 26(130): 105-111.
- So, S. & Smith, M. 2009. Value-relevance of presenting changes in fair value of investment properties in the income statement: evidence from Hong Kong. *Accounting & Business Research*.
- Tabachnick, B.G. & Fidell, L.S. 2007. *Using Multivariate Statistics*.
- Turktas, B., Georgakopoulos, G., Sotiropoulos, I. & Vasileiou, K.Z. 2013. Reporting Comprehensive Income: Reasons for Reporting Choices and Investor Reactions. *International Journal of Economics and Finance* 5(4): 1-21.

Wang, P. & Zhou, N. 2017. Enhanced disclosure of other comprehensive income and increased usefulness of net income: The implications of Accounting Standards Update 2011-05. *Research in Accounting Regulation, Forthcoming*.  
Zülch, H. & Pronobis, P. 2010. The Predictive Power of Comprehensive Income and Its Individual Components under IFRS The Predictive Power of Comprehensive Income and Its Individual Components under IFRS, *Working Paper* (95).

Maryam Yousefinejad\*  
Faculty Economic and Management  
Universiti Kebangsaan Malaysia  
43600 UKM Bangi Selangor  
MALAYSIA  
E-mail: maryamyousefinejad@siswa.ukm.edu.my

Azlina Ahmad  
Faculty Economic and Management  
Universiti Kebangsaan Malaysia  
43600 UKM Bangi Selangor  
MALAYSIA  
E-mail: azlina@ukm.edu.my

Zaini Embong  
Faculty Economic and Management  
Universiti Kebangsaan Malaysia  
43600 UKM Bangi Selangor  
MALAYSIA  
E-mail: zainiembong@ukm.edu.my

\*Corresponding author