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# "Comprehensive Income: Evidence from Portuguese Listed Companies on Reporting Choices and Value Relevance"

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**ABSTRACT**

This work project aims at analysing choices related to Comprehensive income (CI) of Portuguese listed firms and understanding the reasons behind them. Additionally, it studies the relevance of CI *versus* Net Income (NI). It was found that firm's size and volume of Other comprehensive income (OCI) are positively related with the choice for separate statements while smaller firms with positive NI and negative OCI tend to disclose less information about taxes. The value relevance of CI proved to be superior to that of NI but OCI seems to have no incremental value relevance.

**Key Words:** Comprehensive Income, IAS 1, Financial reporting, Euronext Lisbon.

## 1. Introduction

Comprehensive income (CI) comprises all income and expense incurred by a company over a period of time, including realized and non-realized items. According to IAS 1 – Presentation of Financial Statements, it should be recognized, measured and presented in a financial statement. However, companies are free to choose how to present CI, which can either be as one single statement of profit and loss and other comprehensive income or, as two separate statements, one of profit and loss and the one of comprehensive income [IAS 1.81[1]]. This work project aims at understanding how and why Portuguese listed firms report CI according to IAS[2] /IFRS[3] and how important CI is in this market.

This research contributes to the existing literature for standard setters and academics by providing insight into the choices of Portuguese listed companies when reporting comprehensive income and tracking the explanatory variables for financial presentation and disclosure of this item. Furthermore is also provides an understanding of another reporting

[1] EC staff consolidated version as of 18 February 2011.
[2] International Accounting Standards (IAS) as issued by the International Accounting Standards Committee (IASC).
[3] International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

choice that regards tax disclosure. Additionally the value relevance of CI, Net Income (NI) and Other Comprehensive Income (OCI) are also studied.

This paper proceeds as follows. Section 2 provides a background on the concept and the regulation of comprehensive income. Section 3 reviews the literature about comprehensive income, namely empirical studies. Section 4 describes the research questions, methodology and data used to answer them. Section 5 presents the results and its analysis. Finally, Section 6 concludes with a summary of the main results, limitations and suggestions for future research.

## 2. Conceptual and Regulatory Framework

"Comprehensive income is the change in equity during a period resulting from transactions and other events, other than those changes resulting from transactions with owners in their capacity as owners", as follows:

$$CI = \Delta BV + Div - N \quad [1]$$

Where BV stands for book value of equity, Div is payment of dividends and N is equity issued.

From a different perspective "Comprehensive income comprises all components of profit or loss and of other comprehensive income":

$$CI = NI + OCI \quad [2]$$

OCI includes all the items of income and expense that are not recognized in profit and loss, such as – unrealized gains and losses, expected but not yet obtained and NI is the net balance of earned revenues and gains and costs and losses that were incurred during the reporting period. When an amount that has been previously classified as OCI is realized it needs to be reclassified as profit or loss, there is then the need to adjust OCI in order not to double count the gain (or loss).

EC regulation (No 1606/2002) has established that companies with listed shares in any EU stock market must adopt the International Accounting Standards/ International Financial

Reporting Standards (IAS /IFRS) for the year 2005 onwards. This allows better comparison between all European firms that are publicly traded. According to IAS 1[4] firms are required to present Comprehensive Income for the reporting period, however "Statement of Comprehensive Income" [IAS 1.81-1.105] includes one option, and companies are free to choose reporting CI either in: (i) one single statement of profit and loss and other comprehensive income; or (ii) two separate statements, one of profit and loss and another of comprehensive income, the latter shall start with the value of net income. The components of OCI must be classified by nature, and includes the items described in Table 1:

**Table 1 – Composition of OCI**

| Nature of Other Comprehensive Income | Reference |
|---|---|
| Changes in revaluation surplus of Property, Plant and Equipment as well as of intangible assets | IAS 16/ IAS 38 |
| Actuarial gains and losses of net defined benefit plans | IAS 19 |
| Exchange differences from translating functional into presentation currency | IAS 21 |
| Gains and losses on re-measuring available-for-sale financial assets | IAS 39 |
| The effective portion of gains and losses on hedging instruments in a cash flow hedge | IAS 39 |
| Gains and losses on re-measuring an investment in equity instruments where the entity has elected to present them in other comprehensive income | IFRS 9 |

The requirement to present OCI is part of the amendment to IAS 1 in September 2007. It is worth mentioning though that in this matter IAS/ IFRS differs from the US regulation, where the Financial Accounting Standards Board (FASB) has firstly publicized Statement Nr. 130 in 1997. This means that publicly traded companies reporting in the USA have been presenting CI for ten years more than European ones[5].

In 2011[6] the IASB proposed several amendments to IAS 1 which included two relevant chances regarding the comprehensive income reporting[7]. One proposal suggested entities to present a unique statement of profit or loss and other comprehensive income with two

[4] International Accounting Standard 1 – Presentation of Financial Statements.

[5] Under the initial FAS 130 there was a third option to present CI, as part of the statement of stockholders' equity, in a column titled "Accumulated OCI," which totals all OCI amounts recorded.

[6] In the same year FASB issued the Accounting Standards Update (ASU) 2011-05 with the reasoning that it would enhance visibility of OCI as well as allow converging US GAAP with IFRS. Concerning the presentation of CI, ASU 2011-05 reduced the options, to the same two options as in IFRS

[7] Based on the Exposure Draft of May 2010 (ED/2010/05)

sections, namely profit (or loss) of the year and items of other comprehensive income. Another proposal suggested entities to present separately items of other comprehensive income (OCI) that will be reclassified to profit or loss (that is, recycled) in subsequent periods upon derecognizing separately from items of OCI that will not be reclassified to profit or loss. IASB believes that the proposal which sets the presentation under the same statement all non-owner changes in equity enhances a better comparability, transparency and understandability of CI of a company or group of companies[8].

- Comparability as the presentation option currently possible under IAS 1 would be eliminated;
- Understandability as a consequence of a clear distinction would be made between profit or loss and OCI, thus preserving the importance of NI but simultaneously highlighting the importance of all gains or losses;
- Transparency of OCI items, thus highlighting to users the items in OCI that will never be recycled into profit or loss.

Of the two proposals mentioned only the latter was accepted as part of the 2011 amendment to IAS 1 and it became effective for periods of reporting starting after 2012. Its purpose is to facilitate the reclassification of items to NI and the necessary adjustments that must be done to OCI. The proposal of limiting the presentation of CI to a single statement was not approved, and thus companies are free to choose how to report CI concerning the formats of presentation.

Choices made by companies are being explained by the managers as attempts to give more or less relevance to OCI according to their preferences and as such there is still room to improve regulation. Nevertheless consensus about which is the best reporting method has not yet been reached. while some authors defend that two statements do not give enough visibility to CI and may confuse the users (Solomon and Dragomirescu, 2009), others claim that separating

[8] OCIFAQ.

realized from unrealized income is useful and avoids clouding NI with volatile items (Ferraro, 2011), and is easier for readers to analyze. Thus it is particularly interesting to explore CI and OCI because the topic is still open, even among standard setters who recently proposed to change the regulation.

## 3. Literature Review

Several empirical studies have been carried out over the topic but being CI a new concept, and the regulation also relatively recent, the empirical research about CI dates back to no earlier than 1997 in the US and 2005 in Europe. One stream of research about CI explores the choice of format for the statement of CI and the reasons behind it (Exhibit 2). More recently, research has focused on the value relevance and predictability of CI (Exhibit 3).

*Studies about choice of format for statement of CI*

The first studies were conducted in the US ever since 1999, as before 1997 there was no legislation on CI.  all conclude that the preferred choice by far was the statement of owner's equity, that is, the triple statement, as shown in several studies, such as Campbell et al. (1999) and Pandit and Phillips' (2004). Either reporting CI under a single or two statements were rarely used in the US until the later revision of FAS 130 in 2011 that revoked the third option.

In Europe, and more recently in the US, studies were also carried out on when the firms have only the two current alternatives. The results also demonstrated a clear preference but this time for two statements over one single statement.

In Italy, Ferraro (2011) demonstrates that in the year 2011 among Italian companies only 14% report OCI in the income statement, while 86% chose to report it in a separate statement. A similar conclusion was found in a comparative research based in 2013 financial reports of a sample of 600 companies listed in the French, German and Italian markets, with over 85% of the companies reporting the CI in two separate statements, consistently for each of the

countries. As for Portugal, results also align with this conclusion, with 27 companies listed in the Euronext Lisbon presented in their 2012 financial reports 79% of companies choosing to report in CI in two separate statements (Amorim, 2014).

Accordingly the preference is for the reporting under the separated format, however, the motivation behind this choice is unclear. The minority of companies reporting CI under one single statement are companies with either no OCI or positive amounts of OCI (Ferraro, 2011; Amorim, 2014). This fact is very interesting because provided that reporting under one statement is the alternative that provides more visibility to OCI and CI, while reporting in the shareholder's equity is the method that leads to less visibility (Turktas et al., 2013; Shan, 2012). It is possible to understand why the topic has been and still is under discussion: it is important that firms report in the most transparent way possible and the IAS/ IFRS are meant to be straightforward standards ideally with no margin to different interpretations.

Volatility, absolute value and sign of OCI have been previously been proven to be related to the choice of reporting (Georgakopoulos et al., 2012; Shan, (2012); Ferraro, 2011; Campbell *et al*., 1999; Pandit et *al.*, 2004).

*Studies about value relevance and predictive power of CI*

A more recent stream of research about CI are studies on the value relevance[9] and predictive power[10] of CI. This literature is not completely consistent. Most of the studies conclude that CI is indeed value relevant (Biddle and Choia, 2006; Jones and Smith, 2011; Inchausti and Pérez, 2011), however some of them found CI to be less value relevant than NI (Lin et al. 2007; Zülch and Pronobis, 2010, Mechelli, 2014). Research about the predictive power of CI also shows not consistent results, with some finding that OCI has low predictive power (Jones and Smith, 2011; Lin et al. 2007), and others finding that CI also has low predictive power

[9] How much of the stock price/return is explained by CI versus NI – also referred to as price relevance.
[10] How well are future earnings explained by CI versus NI.

(Choi and Zang, 2006). However, it has also been found that CI predicts NI better than NI predicts itself (Biddle and Choia, 2006).

From the previous literature about CI, it is concluded that findings on the matter are still scattered and somehow inconclusive. Regarding the Portuguese market, Amorim (2014) carried a descriptive study about CI, hence included in the first stream of research. She analyzes the formats adopted by Portuguese listed firms in the reporting year 2012 as well as the main components, size and signal of OCI. Thus this work project adds to the literature by studying two additional periods of reporting, the ones after the latest amendments, and also the explanatory variables of the choice of CI format and tax disclosures in the CI statement. Additionally, this research discusses the value relevance of CI.

## 4. Methodology and Data

This research has a two-folded motivation behind. Firstly it explores the reporting of comprehensive income by Portuguese listed firms. to continue the exploratory study initiated by Amorim (2014). Four research questions are developed about CI reporting choices, and their causes. Two concerning the format of the statement and the other about tax reporting.

RQ1: *Is the format reporting choice dependent on particular variables?*

RQ2: *Is the tax reporting choice dependent on particular variables?*

RQ3: *Which are the explanatory variables of the format reporting choice of CI in Portuguese listed firms?*

RQ4: *Which are the explanatory variables of the tax reporting choice of CI in Portuguese listed firms?*

The variables include firm size, CI characteristics such as, volatility, absolute value and sign of OCI, sign of NI; all items that compose OCI as detailed in section 2 (Table 1) such as exchange differences or revaluation surplus and, an additional component, "Others", for when firms do not allocate the gains and losses to a specific nature of OCI. Prior studies suggest that these variables are explanatory variables of the choice of format (Shan, 2012; Ferraro, 2011).

The second part follows the most recent literature and aims at providing insight on the value relevance of CI in Portuguese listed companies[11]. The importance of understanding revelance of CI is based on the fact that it may provide standard setters with a final decision on the reporting method. As said in Section 3 there are advantages and disadvantages of both report choices, for example, the single statement does not give NI the visibility it had before. If the results of this study prove CI as not being the good performance measure expected, than it is plausible to say that NI should have more visibility. The following research question is answered in other to access the value relevance of CI:

RQ5: *Are CI and OCI value-relevant among Portuguese listed firms?*

*Methodology*

Chi-square tests are run to determine dependency or independency between variables, for the choice of format (RQ1) and choice of tax method (RQ2). These tests include the relevant dependent variable (FORMAT, TAX) and each independent variable as detailed in Table 2:

**Table 2 – Description of Variables**

| Variable | Proxies |
|---|---|
| FORMAT | 1 if firm chooses separated statements, 0 otherwise. |
| TAX | 1 if firm chooses to report net of taxes, 0 otherwise. |
| SIZE | Natural logarithm of total assets (*TA*). |
| VOLATILITY* | Absolute value of the difference between $OCI_t$ and $OCI_{t-1.}$ |
| VOLUME* | Absolute value of *OCI*. |
| $SIGN\_{OCI}$ | 1 if *OCI* is negative, 0 otherwise. |
| $SIGN\_{NI}$ | 1 if *NI* is negative, 0 otherwise. |
| $ITEM_i$, with i = 1, …, 7: | |
| 1. REV* | Changes in revaluation surplus. |
| 2. ACT* | Actuarial gains and losses on benefit plans. |
| 3. CCY* | Exchange differences from translating functional currencies into presentation currency. |
| 4. AFS* | Gains and losses on re-measuring available-for-sale financial assets. |
| 5. DERV* | Effective portion of gains and losses on hedging instruments in a cash flow hedge. |
| 6. EQT* | Gains and losses on re-measuring an investment in equity instruments where the entity has elected to present them in other comprehensive income. |
| 7. OTH* | Items allocated as "Other gains and losses". |

*Values scaled by TA

[11] Portuguese data has been previously used in a similar manner by Mechelli and Cimini (2014), but aggregated with 14 other European countries and therefore no conclusions can be made for the Portuguese market itself.

Later T-tests are used to compare the means of firms that chose one method or the other; again parallel tests are developed for format choice (RQ3) and tax choice (RQ4). Finally the following two regression models are used, one for format choice and the other for tax choice.

$$FORMAT = \alpha_0 + \alpha_1 \times SIZE + \alpha_2 \times VOLATILITY + \alpha_3 \times VOLUME + \alpha_4 \times SIGN_{OCI} + \alpha_5 \times SIGN_{NI} + \alpha_6 \dots \alpha_{12} \times ITEM_i \quad [3]$$

$$TAX = \alpha_0 + \alpha_1 \times SIZE + \alpha_2 \times VOLATILITY + \alpha_3 \times VOLUME + \alpha_4 \times SIGN_{OCI} + \alpha_5 \times SIGN_{NI} + \alpha_6 \dots \alpha_{12} \times ITEM_i \quad [4]$$

Note that because the number of companies in Portugal is considerably small it is not possible to add all the variables, as such, the stepwise regression method is used manually with backward elimination which consists on adding all the variables and in each step exclude the less significant up to the point where the adjusted $R^2$ is maximum.

It is expected that format choice to be positively related with size, volatility and volume with less evident. Regarding the signs of OCI and NI previous studies suggest that firms presenting positive OCI and negative NI choose to report the most evident way. The same reasoning is used for tax choice although there is a lack of previous studies.

To conclude about relevance of CI *versus* NI and the incremental value relevance of OCI (RQ5) two sets of model, one for value relevance and another for returns relevance are used. These two sets of regressions derive from equations [1] and [2] (see Section 2) and a third formula (Exhibit 5) used in the study by Lin *et al.* (2007). The six regressions used with the purpose of comparing its adjusted $R^2$ are presented in Table 3.

Table 3 – Regression Models for Value Relevance

| | Price Model | Return Model |
|---|---|---|
| NI | $\frac{P_t}{P_{t-1}} = \beta_0 + \beta_1 \times \frac{BV_t}{P_{t-1}} + \beta_2 \times \frac{NI_t}{P_{t-1}}$ [5.a] | $Ret_t = \beta_0 + \beta_1 \times \frac{NI_t}{P_{t-1}} + \beta_2 \times \frac{\Delta NI_t}{P_{t-1}}$ [6.a] |
| CI | $\frac{P_t}{P_{t-1}} = \beta_0 + \beta_1 \times \frac{BV_t}{P_{t-1}} + \beta_2 \times \frac{CI_t}{P_{t-1}}$ [5.b] | $Ret_t = \beta_0 + \beta_1 \times \frac{CI_t}{P_{t-1}} + \beta_2 \times \frac{\Delta CI_t}{P_{t-1}}$ [6.b] |
| OCI | $\frac{P_t}{P_{t-1}} = \beta_0 + \beta_1 \times \frac{BV_t}{P_{t-1}} + \beta_2 \times \frac{NI_t}{P_{t-1}} + \beta_3 \times \frac{OCI_t}{P_{t-1}}$ [5.c] | $Ret_t = \beta_0 + \beta_1 \times \frac{NI_t}{P_{t-1}} + \beta_2 \times \frac{\Delta NI_t}{P_{t-1}} + \beta_3 \times \frac{OCI_t}{P_{t-1}} + \beta_4 \times \frac{\Delta OCI_t}{P_{t-1}}$ [6.c] |

Where $P_t$ is the price of stock at the end of period *t*, *t* is 2014, $BV_t$ is book value of equity at the end of period *t*, $CI_t$ and $NI_t$ are scaled by the number of ordinary shares and $Ret_t$ (return) are estimated using the following formula (where $DIV_t$ stands for dividends approved for ordinary shares in year *t*):

$$Return_t = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{Div_t}{P_{t-1}} \quad [7]$$

The objective is to compare how much of an investor's return is explained by NI, CI and incrementally OCI, which is possible by comparing the adjusted $R^2$ of each of the regressions. Based on previous results NI is expected to be more relevant than CI (Mechelli and Cimini, 2014), although both should be relevant. OCI is also expected to be relevant (Lin et. al, 2007).

*Sample data*

The sample for analysis includes all companies listed in Euronext Lisbon as of December 31st 2014. The Portuguese market is relatively small, with 47 companies, so the entire population is used in the study. Contrary to Amorim's (2014) research, financial companies, and firms in the sports industry (SAD) are part of the sample of this research. According to Shan (2012), banks provide very meaningful insight when studying comprehensive income issues because its OCI component is higher than in other industries. SAD firms even though reporting under a different fiscal year (ending at 30th June and not on 31st December) because there is no evident conflict given the topic under study. For the study of relevance however, firms in the call market are excluded, hence only the 37 firms in the continuous market are included.

Data is collected from the annual reports[12] of the relevant companies for the years 2013 and 2014 as these are the most current years up to date since the last amendments related to CI and it is not a purpose to study the impact of these changes, moreover the year 2012 was

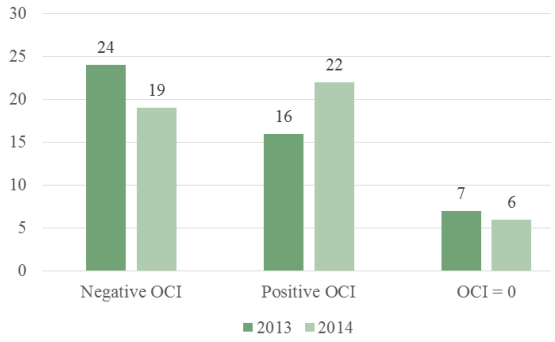
[12] All inputs were manually collected and the process was very time consuming. The original database created for this research comprises 94 lines, each representing one company-year and 38 columns for the different variables. Additional columns were then added based on the original ones (e.g. absolute value of OCI; sign of OCI).

studied by Amorim (2014). Financial date is gathered from either the companies' own websites or the website of the Stock Market authority (*Comissão do Mercado de Valores Mobiliários*, CMVM)[13]. In particular data is collected from the consolidated financial statements. Additionally the 2012 OCI value is also part of the data but it can be found in 2013 annual reports, providing no inside of reporting choices in the year 2012. For the study of value relevance, the stock prices as at the end of each relevant year (2013 and 2014) are extracted from Euronext Lisbon's website.

*Profile of CI and OCI*

In order to have an understanding of the evolution during the two years under study, the descriptive statistics disclose results separately for 2013 and 2014.

**Figure 1 – Presence of OCI in Portuguese Listed Firms**




The number of firms with OCI values different from zero in 2013 was 40 (85%) (7 (15%) with no OCI), of which 16 (34%) had positive values and 24 (51%) negative. In 2014 the result modified with 22 (47%) companies presenting positive OCI and 19 (40%) negative reaching a total of 41 (87%) companies with OCI different from zero (six (13%) with no OCI)[14/15].

The average OCI was -36M in 2013 and 3.57M in 2014. However, when weighted by the total assets, which is recommended to reduce data to a common size because size of

[13] Data was mostly gathered from CMVM website and when not yet available than the firms' own websites was consulted periodically to check if it was available there.

[14] IMOBILIÁRIA CONSTRUTORA GRÃO PARÁ has no reference in neither of the annual reports to the term "Comprehensive Income", it was assumed as if its choice is a single statement, however this may not be the case because the statement of changes in owner's equity has an item under the denomination "Others" that may be composed of gains and losses that should be classified under OCI.

[15] In 2013 IBERSOL reports no values as OCI but presents an item in Owner's Equity called "Conversion reserves – Angola". This should clearly be part of CI but only in the 2014 annual report is the amount correctly reported as OCI.

companies in the Portuguese market vary greatly, the OCI had a negative impact in both years, in fact, this impact was even stronger in 2014 (-0.10% and -0.20% respectively). The interpretation of this seemingly contradictory result is that the companies whose OCI was positive in 2014 were the largest ones (in terms of total assets), as such this improvement was softened by the size while the loss in smaller companies was hardened.

Regarding the choice of format, in 2013 there were 37 (79%) companies reporting OCI and CI in separated statements and 10 (21%) reporting CI in a single one; in 2014 the difference intensified further with 39 (83%) *versus* 8 (17%)[16/17]. The preference for separate statements, hence less visibility for OCI, is the same as the identified by Amorim (2014) in 2012.

**Figure 2 – CI Reporting Choice**

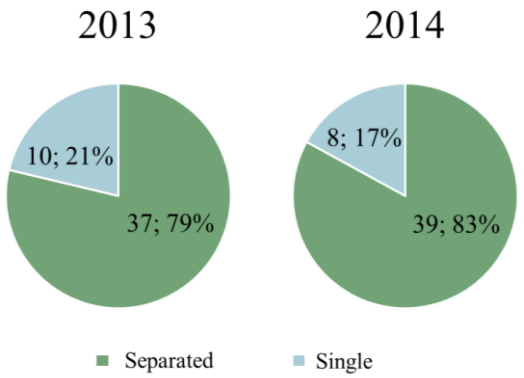
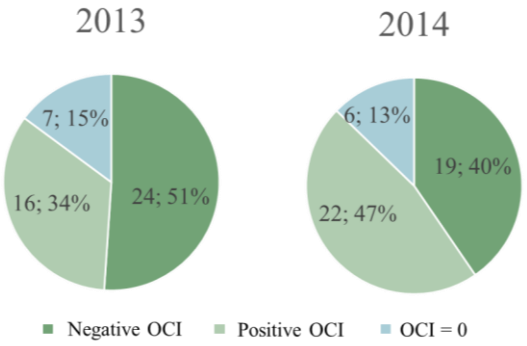



**Figure 3 – CI Tax Choices**




The choice on tax disclosures was in great part to present items net of taxes followed by tax by item (full disclosure of tax in the financial statement). Group tax by reclassification is the least disclosed format choice for tax reporting. The differences

[16] ESTORIL SOL and NOS where the two companies that changed method from single statement to separate statements.

[17] NOS has a particularity in the annual report of 2013 as it has two tables both titled "Consolidated Statement of Comprehensive Income", however the tables are in two consecutive pages and as such it was assumed that it is the same statement divided in two.

between the two years is visible with the latter decreasing from 39% to 31% and the former increasing from 51% to 57%. Firms chose to disclose less information in a primary financial statement in 2014[18] than in 2013.

The result by items shows one particular item that unexpectedly presents a great evolution, "Other", which includes incomes and expenses that the company could not allocate in neither of the items expected by regulation. This component was noticed by Amorim (2014) as it was present in nine Portuguese firms in 2012. In 2013 the number of firms continued to be nine but in 2014 it reduced to 7 although this item is considerably higher in absolute values. "Others" in 2013 represented in average -0.05% of total assets while in 2014 the value rose to -0.88% and it had mainly negative impact to CI. Also worth mentioning is the item "Differences in currency translation" with an increase from -0.60% to 0.48%. Similarly to previous studies, currency translation is a dominant component (Amorim, 2014).

**Table 4 – Components of OCI**

| | 2013 | | | | 2014 | | | |
|---|---|---|---|---|---|---|---|---|
| Item | Average | Positive | Negative | Zero | Average | Positive | Negative | Zero |
| REV | 0.26% | 8 | - | 39 | 0.01% | 7 | 3 | 37 |
| ACT | -0.12% | 6 | 13 | 28 | -0.12% | 5 | 15 | 27 |
| CCY | -0.60% | 3 | 29 | 15 | 0.48% | 21 | 10 | 16 |
| AFS | 0.05% | 8 | 5 | 34 | 0.04% | 6 | 8 | 33 |
| DERV | 0.10% | 20 | 5 | 22 | 0.00% | 12 | 11 | 24 |
| EQT | 0.15% | 11 | 6 | 30 | -0.15% | 8 | 7 | 32 |
| OTH | -0.05% | 3 | 6 | 38 | -0.88% | 1 | 6 | 40 |
| Total | -0.21% | 59 | 64 | 206 | -0.63% | 60 | 60 | 209 |

The reclassification disclosure is mandatory to be reported in one single way: to group items based on whether they are likely to be reclassified to profit or loss in the subsequent periods. An unexpected result came after this analysis because in 2013, 7 companies (18%) do not

[18] Four companies changed tax method, JERÓNIMO MARTINS, net of tax to tax by group, and SDC INVESTMENTOS, BANIF and TOYOTA CAETANO PORTUGAL, change from tax by item to net of tax.

comply with this rule as imposed in the 2011 amendment. Results from 2014 show an improvement, with six companies (14%) not complying with this mandatory disclosure[19].

## 5. Results

*Dependency of variables with Reporting Choices: Format (RQ1) and Tax (RQ2)*

Correlations, between the variables that are expected to be relevant, are considerably weak with only few worth mentioning. SIZE is the only variable presenting a correlation with FORMAT superior to 0.3; all others show the expected sign but low correlation. With TAX the results are stronger for SIZE, SIGN_OCI and SIGN_NI (between |0.3| and |0.4|) but, the first is not in accordance with the expected sign meaning that smaller firms are correlated with less information, in this case by reporting items net of tax (

Exhibit 7). The Chi-Square tests (Exhibit 8) and the T-Tests (Exhibit 9) confirm these findings, namely, that SIZE and firms 'choices are dependent, there is a positive relation with separate statements and negatively with reporting net of tax. The signs of OCI and NI, and their relations with TAX, were again supported by both tests. Most of other variables do not show significant impact on any of the reporting choices.

*Explanatory Variables of Format (RQ3) and Tax (RQ4)*

The regression for format choice (RQ3) required six steps to find the best adjusted R-square with the final result, the fifth, including eight variables, namely SIZE, VOLATILITY, VOLUME, $SIGN\_{OCI}$, CCY, DERV and OTH, of which only SIZE, VOLUME, CCY and OTH are significant at the 5% level. The signs are all in accordance with the expected except for VOLATILITY which has a negative sign meaning that the more volatile is OCI the more

[19] Companies with no OCI don't have any reference to tax or reclassification likelihood with an exception for FUTEBOL CLUBE DO PORTO which even though it has no OCI for any of the years stills has the subtitles "Items that will not be reclassified to profit or loss" and "Items that may be reclassified to profit or loss".

likely is for a firm to choose separate statements. These results support the findings by Campbell et al (1999), Shan (2012) and Pandit and Phillips (2004) regarding OCI volume, firm size and the sign of OCI but contrast in the sign of volatility (Shan, 2012; Turkas et al., 2012). The significance of the variable CCY may be explained by the fact that it is the item that represents the largest slice of OCI in 2013 and the second largest in 2014, thus being among the most important in terms of volume. The variable OTH is an extraordinary item, meaning that firms were not able to allocate some gains or losses among the specified items. The coefficient sign is positive so, firms don't emphasize OCI when this item is present; this result is not surprising especially when most of the companies have no information about the source of these gains and losses even in the notes.

Regarding the regression for tax choice (RQ4), the process to achieve a maximum R-square is longer, with the best being the eighth regression (see Exhibit 10). The final variables are all significant at the 5% level and include SIZE, VOLATILITY, $SIGN\_{OCI}$, $SIGN\_{NI}$ and OTH. The size of the company is opposite to the expected, with large firms reporting taxes in more detailed ways than smaller companies. VOLATILITY, unlike in the format regression, has a positive coefficient as expected. The signs of OCI and NI show also the expected sign, and confirm the results of the Chi-Square tests. Finally the variable OTH is once again significant with the same sign as in format, which leads to the conclusion that it is indeed much related with less information. Only a previous study by Shan (2012) considers the explanatory variables for tax disclosures, however its results were inconclusive and not statistically significant, therefore the expected values were based on the same rationale as for FORMAT because alike TAX can be a read as more or less willingness to provide information in a clear and evident way.

*Value Relevance of comprehensive income (RQ5)*

Regarding value relevance Exhibit 12 shows the results for the NI predictive power regressions and equations [5.a] and [6.a], that are an adjusted R2 of 0.43 and 0.24 in the price and return models, respectively. In both models NI presents positive coefficients and significant p-values (at 1% level). As expected, price of stocks and returns are higher when NI is higher.

The CI regressions equations [5.b] and [6.b] show results similar to those of NI, with CI having positive and significant p-values, thus value relevance. Overall the adjusted R2 is higher than the previous, 0.53 and 0.26. Hence, CI has indeed value relevance which is in line with the conclusions of previous research by Choi and Zang (2006) and is superior to NI, contrary to the findings of Mechelli and Cimini (2014). A possible reason can be the fact that OCI is rapidly gaining importance.

The last two regressions, about value relevance of OCI, based on equations [5.c] and [6.c] present different conclusions. With the price model [5.c], OCI has incremental value relevance (p-value significant and adjusted R2 of 0.57 superior to the ones of CI and NI) but in the returns model [6.c] that is not the case, there OCI seems to have no incremental value relevance (non-significant p-value and R2 of 0.23). Literature review revealed inconsistent results, the price model is in accordance to Jones and Smith (2011) and the returns model in accordance with Lin et al. (2007). The conclusion driven from these seemingly incoherent result is that CI is possibly not yet a concept well understood by firms or by investors, hence the non compliance with regulation by some firms. As such, it is possible that when studying prices and returns these may reflect the lack of knowledge on the comprehensive income concept.

## 6. Conclusion

This research has a two-folded motivation behind. Firstly it further explores the topic of reporting comprehensive income with Portuguese listed firms, improving and deepening the current literature, namely Amorim's (2014) research. The second part follows the most recent literature trends and aims at providing insight on the value relevance of NI, CI and OCI. The majority of Portuguese listed companies opted to report CI separately from NI, as observed by prior research in Portugal and other European countries. Regarding choice on tax, Portuguese firms show preference for reporting items net of taxes however a considerable percentage of firms opt to disclose the taxes individually by each item, and finally some few aggregate the tax on items by their reclassification prospect. The study on the explanatory variables of choices about reporting CI showed that larger firms with high absolute value and negative sign of OCI tend to report in a less evident way, namely with separate statements. Larger amounts of foreign currency translation and "Other" gains and losses are also related to the choice of two statements format. Additionally, the choice to disclose items net of tax is associated with higher volatility, negative sign of OCI, positive sign of NI and larger "Other" gains and losses. This is similar to format, except for size of firm which in the case of tax the smaller the firm, the less information is disclosed. These findings suggest that firms have motives behind the choices allowed in the legislation but ideally there should be no significance between the variables under study and the choices, as legislation should not allow different interpretations.

This research also found that both CI and NI are value relevant and CI is more value relevant that NI. OCI however has no incremental value relevance. This suggests that CI is indeed a relevant financial indicator for the Portuguese listed firms, which justifies and supports the decision taken by standard setters to give CI more visibility in financial statements. The fact

that OCI has no incremental value relevance can be due to poor knowledge and lack of understandability of the topic.

A limitation of this study was the small number of listed firms in Portugal even though all the population was included. This fact may have created some atypical results which are nevertheless interesting to be studied. Another limitation is the narrow number of years under study, which in one hand are very up to date and include only the reporting periods after the latest amendment, but on the other hand do not allow as many conclusions on trends. Suggestions for future research overcome the limitations and include more years in the research. This way it will be possible to have more relevant results on the value relevance as well as allow an extra study on predictability power. Additionally it will be interesting to use other statistical models; such as the Logit or Probit regressions to limit the depend variable between 0 and 1 and to compare two regressions with Vuong's test.

Overall it is possible to conclude from this study that IASB's intention to limit the freedom on format choice is intelligible and could be beneficial for several reasons such as the comparability among firms. Given that CI proved to be value relevant, the limitation to present CI in a single statement with a more visible division between NI and OCI is recommended. In addition to improving regulation, it is recommended that firms and mostly prepares become more informed about reporting CI, as they do not comply with the regulation, possibly due to lack of awareness.

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## Appendixes

**Exhibit 1 – List of Companies in the Portuguese Market as of December 31st, 2014**

| Company | Industry |
|---|---|
| Altri | Industrial Goods & Services |
| Banco Comercial Português | Banks |
| Banco BPI | Banks |
| Banco Santander Totta | Banks |
| Banif - Banco de Investimento | Banks |
| Sport Lisboa e Benfica | Travel & Leisure |
| Cimpor - Cimentos de Portugal | Construction & Materials |
| Cofina | Media |
| Compta-Equipamentos e Serviços de Informática* | Technology |
| Corticeira Amorim | Food & Beverage |
| CTT - Correios de Portugal | Industrial Goods & Services |
| EDP - Energias de Portugal | Utilities |
| EDP Renováveis | Utilities |
| Estoril Sol* | Travel & Leisure |
| F. Ramada - Investimentos | Basic Resources |
| Futebol Clube do Porto* | Travel & Leisure |
| Galp Energia | Oil & Gas |
| Glintt - Global Intelligent Technologies | Technology |
| Ibersol | Travel & Leisure |
| Imobiliária Construtora Grão Pará* | Construction & Materials |
| Impresa | Media |
| Inapa - Investimentos, Participações e Gestão | Basic Resources |
| Jerónimo Martins | Retail |
| Lisgráfica - Impressão e Artes Gráficas* | Industrial Goods & Services |
| Luz Saude | Health Care |
| Martifer | Industrial Goods & Services |
| Grupo Media Capital* | Media |
| Mota-Engil | Construction & Materials |
| NOS. | Media |
| Novabase | Technology |
| Sociedade Comercial Orey Antunes | Industrial Goods & Services |
| Portugal Telecom | Telecommunications |
| Portucel - Emp. Celulose e Papel Portugal* | Basic Resources |
| Reditus* | Technology |
| REN - Redes Energéticas Nacionais | Utilities |
| SAG Gest - Soluções Automóvel Globais | Retail |
| SDC- Investimentos | Construction & Materials |
| Semapa - Sociedade Investimento e Gestão | Basic Resources |
| Sonae | Retail |
| Sonae Capital | Financial Services |
| Sonae Indústria | Construction & Materials |
| Sonaecom | Telecommunications |
| Sporting Clube de Portugal* | Travel & Leisure |
| SUMOL+COMPAL | Food & Beverage |
| Teixeira Duarte | Construction & Materials |
| Toyota Caetano Portugal* | Industrial Goods & Services |
| VAA - Vista Alegre Atlantis* | Personal & Household Goods |

* Call market

## Exhibit 2 - Literature on Choices in CI Reporting

| Study | Data | Sample Period | Statement of OE | Separate Statements | Combined Statement | Conclusions |
|---|---|---|---|---|---|---|
| Campbell et. al (1999) | US | 1997 | 53% | 30% | 17% | Firms with smaller OCI absolute value OCI loss present in less salient way |
| Jialu Shan (unknown) | US commercial banks | 1998-2001 | 74% | 18% | 8% | Firms with higher volatility of OCI, smaller OCI absolute value OCI loss present in less salient way |
| Pandit & Phillips (2004) | US | 2002 | 89% | 9% | 2% | Firms with OCI loss present in less salient way |
| Ferraro (2011) | Italy | 2009 | n/a | 86% | 14% | Firms with positive OCI and negative NI report in a more evident way |
| Turktas et al (2012) | S&P 350 Europe Index | 2010 | n/a | 90% | 10% | Firms with higher volatility of OCI present in less salient way |
| Cimini (2013) | France, Germany, Italy | 2009-2010 | n/a | 87% | 13% | No evidence of relation between format chice and size of business or OCI sign. Inconclusive regarding the difference between CI and NI |
| Amorim (2014) | Portugal | 2012 | n/a | 79% | 21% | Firms with small OCI absolute value report in a less evident way |

## Exhibit 3 - Literature on Value Relevance and Predictive Power of CI *versus* NI

| Study | Data | Sample Period | Conclusions |
|---|---|---|---|
| Choi & Zang (2006) | US | 1998-2005 | Comprehensive income is value relevant but has low predictive power |
| Biddle & Choia (2006) | US | 1994-1998 | Comprehensive income can predict subsequent period net income, over and above current period net income. |
| Lin et. Al (2007) | UK, Germany, France, Italy and Spain | 1992-2004 | OCI is value relevant (less than NI) but has no significant incremental price relevance |
| Solomon & Dragomirescu (2009) | n/a | n/a | Present advantages and disadvantages of separate vs combined statements |
| Zülch & Pronobis (2010) | Germany | 1998-2007 | OCI has lower predictive power than NI and no incremental predictive power for subsequent firms' performance. |
| Inchausti & Pérez (2011) | Germany, France, Netherlands and UK | 1993-2002 | Both CI and NI are value relevant with none being significantly superior to the other, hence it is suggested to present them separetly |
| Jones & Smith (2011) | US | 1986-2005 | OCI is value relevant but has weak prediction power |
| Fiori et. Al (2012) | Europe | 2005-2010 | IAS 1 revised increased the value relevance of OCI |
| Mechelli & Cimini (2014) | Europe | 2006-2010 | NI is more value relevant than CI and format choice does not affect relevance |

## Exhibit 4 – Comprehensive Income Templates

**Combined statement of Income and Comprehensive Income**

| | |
|---|---|
| Revenues | x |
| Expenses | (x) |
| Dividend Income | x |
| Gains on sales of securities | x |
| Net Income | xx |
| Other Comprehensive Income | |
| Items not to be reclassified subsequently to Net Income: | |
| Reclassification adjustment | y |
| ... | |
| Items that may be reclassified subsequently to Net Income: | |
| Foreign currency translation gains | y |
| ... | |
| **Comprehensive Income** | xy |

**Income Statement**

| | |
|---|---|
| Revenues | x |
| Expenses | (x) |
| Dividend Income | x |
| Gains on sales of securities | x |
| Net Income | xx |

**Statement of Comprehensive Income**

| | |
|---|---|
| Net Income | xx |
| Other Comprehensive Income | |
| Items not to be reclassified subsequently to Net Income: | |
| Reclassification adjustment | y |
| ... | |
| Items that may be reclassified subsequently to Net Income: | |
| Foreign currency translation gains | y |
| ... | |
| **Comprehensive Income** | xy |

**Exhibit 5 – Simplified Price formula as used by Lin et. Al (2007)**

$$P = k(\varphi CI - Div) + (1 - k)BV + \alpha V \rightarrow \boldsymbol{P = BV + CI + \varepsilon}$$

Where, k is a factor weighting the contribution of change in book value and V other information about future earnings not reflected in CI or BV.

**Exhibit 6 – Descriptive Statistics on Variables**

| | Min | Max | Mean | Median | Std Dev |
|---|---|---|---|---|---|
| FORMAT | - | 1.00 | 0.81 | 1.00 | 0.40 |
| TAX | - | 1.00 | 0.46 | - | 0.50 |
| SIZE | 14.71 | 25.13 | 20.64 | 20.26 | 2.04 |
| VOLATILITY | - | 0.41 | 0.02 | 0.00 | 0.05 |
| VOLUME | - | 0.21 | 0.01 | 0.00 | 0.03 |
| SIGN_OCI | - | 1.00 | 0.46 | - | 0.50 |
| SIGN_NI | - | 1.00 | 0.31 | - | 0.46 |
| REV | - 0.02 | 0.10 | 0.00 | - | 0.01 |
| ACT | - 0.04 | 0.02 | - 0.00 | - | 0.01 |
| CCY | - 0.07 | 0.16 | - 0.00 | - | 0.02 |
| AFS | - 0.01 | 0.01 | 0.00 | - | 0.00 |
| DERV | - 0.01 | 0.02 | 0.00 | - | 0.00 |
| EQT | - 0.06 | 0.06 | 0.00 | - | 0.01 |
| OTH | - 0.40 | 0.00 | - 0.00 | - | 0.04 |

**Exhibit 7 – Correlation Matrix of Independent and Dependent Variables**

| | **FORMAT** | **TAX** | Consolidated Tax | Tax by Item | SIZE | VOLA-TILITY | VOLUME | SIGN_OCI | SIGN_NI | REV | ACT | CCY | AFS | DERV | EQT | OTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FORMAT** | **1.00** | | | | | | | | | | | | | | | |
| **TAX** | **0.18** | **1.00** | | | | | | | | | | | | | | |
| Consolidated Tax | **0.16** | **-0.30** | 1.00 | | | | | | | | | | | | | |
| Tax by Item | **0.15** | **-0.61** | -0.22 | 1.00 | | | | | | | | | | | | |
| SIZE | **0.31** | **-0.32** | 0.13 | 0.57 | 1.00 | | | | | | | | | | | |
| VOLATILITY | **0.07** | **-0.03** | 0.01 | 0.13 | 0.06 | 1.00 | | | | | | | | | | |
| VOLUME | **0.08** | **-0.03** | -0.01 | 0.17 | 0.07 | 0.89 | 1.00 | | | | | | | | | |
| SIGN_OCI | **0.12** | **0.27** | 0.06 | -0.10 | 0.20 | 0.16 | 0.20 | 1.00 | | | | | | | | |
| SIGN_NI | **-0.08** | **-0.38** | 0.10 | 0.25 | -0.06 | 0.27 | 0.25 | -0.15 | 1.00 | | | | | | | |
| REV | **0.06** | **-0.09** | 0.24 | -0.02 | -0.02 | 0.07 | 0.18 | -0.15 | 0.17 | 1.00 | | | | | | |
| ACT | **-0.10** | **-0.17** | 0.04 | 0.10 | -0.02 | 0.26 | 0.01 | -0.21 | 0.17 | 0.04 | 1.00 | | | | | |
| CCY | **0.13** | **-0.09** | -0.02 | 0.10 | -0.04 | 0.66 | 0.44 | -0.08 | 0.08 | -0.08 | 0.37 | 1.00 | | | | |
| AFS | **0.09** | **-0.18** | -0.10 | 0.32 | 0.29 | -0.07 | -0.07 | -0.10 | 0.00 | -0.02 | 0.04 | -0.10 | 1.00 | | | |
| DERV | **0.09** | **0.08** | -0.01 | -0.02 | -0.06 | -0.04 | -0.02 | -0.16 | -0.09 | -0.02 | 0.04 | 0.00 | -0.02 | 1.00 | | |
| EQT | **0.00** | **-0.16** | 0.01 | 0.17 | 0.00 | 0.01 | 0.06 | -0.20 | 0.04 | 0.02 | 0.06 | 0.12 | -0.01 | 0.32 | 1.00 | |
| OTH | **-0.05** | **0.09** | 0.04 | -0.15 | -0.01 | -0.86 | -0.78 | -0.12 | -0.15 | 0.01 | -0.32 | -0.82 | 0.01 | 0.02 | -0.10 | 1.00 |

**Exhibit 8 – Chi Square Test Results**

| Variable | Diff | Format | | | Tax | | |
|---|---|---|---|---|---|---|---|
| | | Single | Separate | P-value | Disclosed | Net of Tax | P-value |
| SIZE | High | 3 | 37 | 0.0135 | 29 | 11 | 0.0022 |
| | Low | 15 | 39 | | 22 | 32 | |
| VOLATILITY | High | 4 | 43 | 0.0088 | 24 | 23 | 0.5345 |
| | Low | 14 | 33 | | 27 | 20 | |
| VOLUME | High | 3 | 44 | 0.0017 | 24 | 23 | 0.5345 |
| | Low | 15 | 32 | | 27 | 20 | |
| SIGN_OCI | Positive | 6 | 35 | 0.3278 | 15 | 26 | 0.0025 |
| | Negative | 12 | 41 | | 36 | 17 | |
| SIGN_NI | Positive | 7 | 24 | 0.5531 | 26 | 5 | 0.0001 |
| | Negative | 11 | 52 | | 25 | 38 | |
| REV | High | 0 | 8 | 0.1501 | 3 | 5 | 0.3200 |
| | Low | 18 | 68 | | 48 | 38 | |
| ACT | High | 18 | 60 | 0.0326 | 40 | 38 | 0.2014 |
| | Low | 0 | 16 | | 11 | 5 | |
| CCY | High | 15 | 49 | 0.1227 | 37 | 27 | 0.3120 |
| | Low | 3 | 27 | | 14 | 16 | |
| AFS | High | 0 | 10 | 0.1035 | 9 | 1 | 0.0164 |
| | Low | 18 | 66 | | 42 | 42 | |
| DERV | High | 1 | 19 | 0.0699 | 12 | 8 | 0.5611 |
| | Low | 17 | 57 | | 39 | 35 | |
| EQT | High | 1 | 18 | 0.0850 | 13 | 6 | 0.1653 |
| | Low | 17 | 58 | | 38 | 37 | |
| OTH | High | 18 | 72 | 0.3199 | 50 | 40 | 0.2300 |
| | Low | 0 | 4 | | 1 | 3 | |

**Exhibit 9 – T-Test Results**

| | Single Statement | | Separate Statements | | two tail |
|---|---|---|---|---|---|
| Variable | Mean | Var | Mean | Var | p-value |
| SIZE | 19.3342 | 3.6539 | 20.9479 | 3.8101 | 0.0021 |
| VOLATILITY | 0.0100 | 0.0005 | 0.0180 | 0.0027 | 0.3295 |
| VOLUME | 0.0064 | 0.0003 | 0.0122 | 0.0008 | 0.2948 |
| SIGN_OCI | 0.6667 | 0.2353 | 0.5395 | 0.2518 | 0.3331 |
| SIGN_NI | 0.6111 | 0.2516 | 0.6842 | 0.2189 | 0.5580 |
| REV | - | - | 0.0016 | 0.0002 | 0.2555 |
| ACT | - 0.0000 | 0.0000 | - 0.0015 | 0.0000 | 0.3454 |
| CCY | - 0.0062 | 0.0004 | 0.0007 | 0.0004 | 0.1762 |
| AFS | - | - | 0.0006 | 0.0000 | 0.0727 |
| DERV | - 0.0000 | 0.0000 | 0.0006 | 0.0000 | 0.3717 |
| EQT | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.9974 |
| OTH | - | - | - 0.0057 | 0.0021 | 0.2819 |

| | Disclosed Tax | | Net of Tax | | two tail |
|---|---|---|---|---|---|
| Variable | Mean | Var | Mean | Var | p-value |
| SIZE | 21.2269 | 5.6290 | 19.9414 | 1.5657 | 0.0012 |
| VOLATILITY | 0.0177 | 0.0035 | 0.0150 | 0.0008 | 0.7777 |
| VOLUME | 0.0119 | 0.0011 | 0.0102 | 0.0004 | 0.7456 |
| SIGN_OCI | 0.7059 | 0.2118 | 0.3953 | 0.2447 | 0.0022 |
| SIGN_NI | 0.4902 | 0.2549 | 0.8837 | 0.1052 | 0.0000 |
| REV | 0.0023 | 0.0002 | 0.0002 | 0.0000 | 0.3246 |
| ACT | - 0.0003 | 0.0000 | - 0.0023 | 0.0001 | 0.1235 |
| CCY | 0.0011 | 0.0006 | - 0.0026 | 0.0002 | 0.3572 |
| AFS | 0.0009 | 0.0000 | - 0.0000 | 0.0000 | 0.0783 |
| DERV | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.5008 |
| EQT | 0.0013 | 0.0001 | - 0.0015 | 0.0001 | 0.1252 |
| OTH | 0.0013 | 0.0001 | - 0.0015 | 0.0001 | 0.1316 |

**Exhibit 10 – Multiple Regressions for Reporting Choices**

| FORMAT | | 1st regression | | 2nd regression | | 3rd regression | | 4th regression | | **5th regression** | | 6th regression | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Predicted Sign | αi | p-value | αi | p-value | αi | p-value | αi | p-value | **αi** | **p-value** | αi | p-value |
| Intercept | | -0.35 | 0.404 | -0.35 | 0.404 | -0.37 | 0.367 | -0.36 | 0.385 | **-0.35** | **0.389** | -0.49 | 0.213 |
| SIZE | + | 0.05 | 0.014 | 0.05 | 0.014 | 0.05 | 0.012 | 0.05 | 0.013 | **0.05** | **0.013** | 0.06 | 0.003 |
| VOLATILITY | + | -3.08 | 0.296 | -3.23 | 0.208 | -3.45 | 0.167 | -3.13 | 0.197 | **-3.29** | **0.172** | -3.24 | 0.178 |
| VOLUME | + | 8.76 | 0.120 | 9.14 | 0.037 | 9.18 | 0.035 | 8.80 | 0.040 | **9.52** | **0.021** | 8.69 | 0.032 |
| SIGN_OCI | + | 0.14 | 0.136 | 0.14 | 0.117 | 0.15 | 0.093 | 0.16 | 0.071 | **0.15** | **0.085** | 0.13 | 0.130 |
| SIGN_NI | - | -0.03 | 0.713 | -0.04 | 0.698 | n/a | n/a | n/a | n/a | **n/a** | **n/a** | n/a | n/a |
| REV | ? | 2.54 | 0.518 | 2.44 | 0.520 | 2.32 | 0.538 | 2.36 | 0.53 | **n/a** | **n/a** | n/a | n/a |
| ACT | ? | -1.02 | 0.914 | n/a | n/a | n/a | n/a | n/a | n/a | **n/a** | **n/a** | n/a | n/a |
| CCY | ? | 14.68 | 0.004 | 14.86 | 0.002 | 15.00 | 0.002 | 14.79 | 0.002 | **14.89** | **0.001** | 13.45 | 0.00 |
| AFS | ? | 18.76 | 0.297 | 18.94 | 0.287 | 18.79 | 0.289 | 19.19 | 0.276 | **19.10** | **0.277** | n/a | n/a |
| DERV | ? | 22.56 | 0.191 | 22.44 | 0.189 | 23.30 | 0.167 | 20.39 | 0.205 | **19.77** | **0.216** | 19.25 | 0.23 |
| EQT | ? | -2.67 | 0.579 | -2.70 | 0.571 | -2.84 | 0.548 | n/a | n/a | **n/a** | **n/a** | n/a | n/a |
| OTH | ? | 6.91 | 0.046 | 7.07 | 0.022 | 7.01 | 0.023 | 7.11 | 0.020 | **7.36** | **0.015** | 6.38 | 0.027 |
| R2 | | | 0.228 | | 0.228 | | 0.226 | | 0.223 | | **0.219** | | 0.208 |
| Adjusted R2 | | | 0.114 | | 0.124 | | 0.133 | | 0.140 | | **0.146** | | 0.144 |

| TAX | | 1st regression | | 2nd regression | | 3rd regression | | 4th regression | | 5th regression | | 6th regression | | 7th regression | | **8th regression** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Predicted Sign | αi | p-value | αi | p-value | αi | p-value | αi | p-value | αi | p-value | αi | p-value | αi | p-value | **αi** | **p-value** |
| Intercept | | 2.46 | 0.000 | 2.46 | 0.000 | 2.46 | 0.000 | 2.47 | 0.000 | 2.48 | 0.000 | 2.49 | 0.000 | 2.51 | 0.000 | **2.54** | **0.000** |
| SIZE | + | -0.10 | 0.000 | -0.10 | 0.000 | -0.10 | 0.000 | -0.10 | 0.000 | -0.10 | 0.000 | -0.10 | 0.000 | -0.10 | 0.000 | **-0.10** | **0.000** |
| VOLATILITY | + | 4.99 | 0.129 | 5.05 | 0.080 | 5.11 | 0.070 | 5.15 | 0.065 | 4.23 | 0.028 | 4.27 | 0.026 | 4.53 | 0.017 | **4.54** | **0.016** |
| VOLUME | + | -1.59 | 0.798 | -1.75 | 0.705 | -1.94 | 0.648 | -1.94 | 0.647 | n/a | n/a | n/a | n/a | n/a | n/a | **n/a** | **n/a** |
| SIGN_OCI | + | 0.26 | 0.014 | 0.26 | 0.009 | 0.26 | 0.007 | 0.27 | 0.006 | 0.26 | 0.006 | 0.27 | 0.003 | 0.29 | 0.002 | **0.27** | **0.003** |
| SIGN_NI | - | -0.42 | 0.000 | -0.42 | 0.000 | -0.42 | 0.00 | -0.42 | 0.00 | -0.43 | 0.00 | -0.44 | 0.00 | -0.44 | 0.00 | **-0.45** | **0.00** |
| REV | ? | -0.51 | 0.907 | -0.49 | 0.91 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | **n/a** | **n/a** |
| ACT | ? | -5.26 | 0.617 | -5.39 | 0.58 | -5.63 | 0.56 | -5.63 | 0.55 | -3.25 | 0.68 | n/a | n/a | n/a | n/a | **n/a** | **n/a** |
| CCY | ? | 0.21 | 0.970 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | **n/a** | **n/a** |
| AFS | ? | -2.13 | 0.915 | -2.35 | 0.901 | -2.29 | 0.903 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | **n/a** | **n/a** |
| DERV | ? | 20.60 | 0.282 | 20.60 | 0.279 | 20.72 | 0.273 | 20.74 | 0.269 | 20.27 | 0.277 | 19.98 | 0.281 | 15.02 | 0.395 | **n/a** | **n/a** |
| EQT | ? | -4.45 | 0.406 | -4.43 | 0.403 | -4.41 | 0.402 | -4.37 | 0.40 | -4.66 | 0.37 | -4.55 | 0.37 | n/a | n/a | **n/a** | **n/a** |
| OTH | ? | 4.50 | 0.239 | 4.38 | 0.059 | 4.33 | 0.055 | 4.37 | 0.050 | 4.56 | 0.037 | 4.75 | 0.025 | 5.11 | 0.014 | **5.11** | **0.014** |
| R2 | | | 0.404 | | 0.404 | | 0.404 | | 0.404 | | 0.402 | | 0.401 | | 0.395 | | **0.390** |
| Adjusted R2 | | | 0.315 | | 0.324 | | 0.332 | | 0.340 | | 0.346 | | 0.352 | | 0.354 | | **0.356** |

**Exhibit 11 – Correlation of Variables used for Value Relevance**

| | Return | NI (2014) | Δ NI | OCI (2014) | Δ OCI | CI (2014) | Δ CI | Δ BV |
|---|---|---|---|---|---|---|---|---|
| Return | 1.0000 | | | | | | | |
| NI (2014) | 0.4952 | 1.0000 | | | | | | |
| Δ NI | 0.3942 | 0.9184 | 1.0000 | | | | | |
| OCI (2014) | 0.2587 | 0.1504 | 0.3469 | 1.0000 | | | | |
| Δ OCI | -0.1301 | -0.1192 | -0.0717 | -0.0166 | 1.0000 | | | |
| CI (2014) | 0.5244 | 0.9746 | 0.9424 | 0.3680 | -0.1158 | 1.0000 | | |
| Δ CI | 0.3720 | 0.8972 | 0.9864 | 0.3435 | 0.0931 | 0.9216 | 1.0000 | |
| Δ BV | 0.1839 | 0.1381 | 0.1211 | 0.1672 | -0.1500 | 0.1677 | 0.0962 | 1.0000 |

**Exhibit 12 – Regressions for Value Relevance**

Price Model

$P(t)/P(t-1) = \alpha 0 + \alpha 1*\Delta BV(t)/P(t-1) + \alpha 2*NI(t)/P(t-1)$

| Variables | Coefficients | P-value |
|---|---|---|
| Intercept | 0.7929 | 0.0000 |
| BV (2014) | 0.0314 | 0.3119 |
| NI (2014) | 0.7880 | 0.0000 |
| R Square | | 0.4659 |
| Adj. R Square | | 0.4335 |

$P(t)/P(t-1) = \alpha 0 + \alpha 1*\Delta BV(t)/P(t-1) + \alpha 2*CI(t)/P(t-1)$

| Variables | Coefficients | P-value |
|---|---|---|
| Intercept | 0.8163 | 0.0000 |
| BV (2014) | 0.0240 | 0.3979 |
| CI (2014) | 0.8220 | 0.0000 |
| R Square | | 0.5570 |
| Adj. R Square | | 0.5302 |

$P(t)/P(t-1) = \alpha 0 + \alpha 1*\Delta BV(t)/P(t-1) + \alpha 2*NI(t)/P(t-1) + \alpha 3*OCI(t)/P(t-1)$

| Variables | Coefficients | P-value |
|---|---|---|
| Intercept | 0.8380 | 0.0000 |
| BV (2014) | 0.0179 | 0.5131 |
| NI (2014) | 0.7282 | 0.0000 |
| OCI (2014) | 1.9114 | 0.0021 |
| R Square | | 0.6044 |
| Adj. R Square | | 0.5673 |

Return Model

$Ret(t) = \alpha 0 + \alpha 1*NI(t)/P(t-1) + \alpha 2*\Delta NI(t)/P(t-1)$

| Variables | Coefficients | P-value |
|---|---|---|
| Intercept | -0.0820 | 0.1514 |
| NI (2014) | 0.6554 | 0.0020 |
| Δ NI | -0.3542 | 0.1659 |
| R Square | | 0.2885 |
| Adj. R Square | | 0.2454 |

$Ret(t) = \alpha 0 + \alpha 1*CI(t)/P(t-1) + \alpha 2*\Delta CI(t)/P(t-1)$

| Variables | Coefficients | P-value |
|---|---|---|
| Intercept | -0.0716 | 0.2095 |
| CI (2014) | 0.6600 | 0.0046 |
| Δ CI | -0.3637 | 0.2521 |
| R Square | | 0.3036 |
| Adj. R Square | | 0.2614 |

$Ret(t) = \alpha 0 + \alpha 1*NI(t)/P(t-1) + \alpha 2*\Delta NI(t)/P(t-1) + \alpha 3*OCI(t)/P(t-1) + \alpha 4*\Delta OCI(t)/P(t-1)$

| Variables | Coefficients | P-value |
|---|---|---|
| Intercept | -0.0652 | 0.2775 |
| NI (2014) | 0.6391 | 0.0093 |
| Δ NI | -0.3901 | 0.2420 |
| OCI (2014) | 1.1222 | 0.3003 |
| Δ OCI | -0.4327 | 0.4232 |
| R Square | | 0.3131 |
| Adj. R Square | | 0.2245 |