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ESCOLA BRASILEIRA DE ADMINISTRAÇÃO PÚBLICA E DE EMPRESAS
PROGRAMA DE PÓS-GRADUAÇÃO EM ADMINISTRAÇÃO

EVERY PENNY COUNTS: COMPREHENSIVE INCOME VALUE RELEVANCE FROM VALUATION, INFORMATIONAL AND FORECASTING PERSPECTIVES

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Supervisor: Professor Ricardo Lopes Cardoso

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Thesis submitted in fulfilment of the requirements for the degree of Doctor in Business Administration at the Fundação Getulio Vargas-RJ – Escola Brasileira de Administração Pública e de Empresas – Brazilian School of Public and Business Administration.

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JANAÍNA SENRA SILVA MARINHO

"EVERY PENNY COUNTS: COMPREHENSIVE INCOME VALUE RELEVANCE FROM VALUATION, INFORMATIONAL AND FORECASTING PERSPECTIVES".

Tese apresentada ao Curso de Doutorado em Administração da Escola Brasilcira de Administração Pública e de Empresas para obtenção do grau de Doutor em Administração.

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I dedicate this thesis to the memory of my grandfather Moacyr Senra, who had no opportunity to study, but bequeathed the most valuable lessons of my life.

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“C’est dans la rêverie que nous sommes des hommes libres.”

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ABSTRACT

The present dissertation is organized in three studies and aims to investigate the value relevance of Comprehensive Income (CI) and Other Comprehensive Income (OCI) and OCI components from valuation, informational and forecasting perspectives compared to P&L (Profit or Loss) after the mandatory adoption of the International Financial Reporting Standards (IFRS) by Brazilian listed companies. Since FASB (Financial Accounting Standards Board, the issuing body of the United States accounting standards) and the IASB (International Accounting Standards Board, the issuing body of IFRS) required the presentation of both P&L and OCI in the Financial Statements, based on the clean surplus theory, this topic drew attention of academics and practioners around the world. Clean surplus supporters argue that the financial statements prepared in accordance with this paradigm provide more useful information to stakeholders than its alternative (dirty surplus approach). The value relevance research of accounting data aims to examine the correlation between accounting information and the information used by investors to make economic decisions. The information can be considered relevant when it influences the decision making of users of financial statements by helping them predict future cash flows and/or confirm previous assumptions. Therefore, based on clean surplus and value relevance theories, the studies provides empirical evidence of clean surplus income measure (CI) value relevance compared to dirty surplus income measure (P&L) by examining the relative and incremental association of P&L, CI, OCI and OCI components with (i) share prices and (ii) share returns. Additionally, the forecasting ability of P&L, CI, OCI and OCI components to predict future OCF (Operating Cash Flows) and future P&L is empirically examined. The present study adopts existing well-established research models on value relevance and forecasting ability of P&L, CI, OCI and OCI components and develops additional statistical models based on those theories and concepts. This dissertation analyzes hand-collected data for a sample of Brazilian companies listed on BMF&BOVESPA and comprises the period from 2010 to 2015. The results indicate that P&L is more value relevant than CI, even though CI provide value relevant information. However, the CI coefficient is lower than P&L coefficient. Although OCI does not provide incremental value relevant information, OCI components add incremental value relevant information compared to standalone P&L, especially adjustments in fair value of available-for-sale financial instruments, gains and losses from translating the financial statements of a foreign operation and adjustments in fair value of cash flow hedging instruments. The present dissertation provided additional insight to the ongoing discussion on value relevance of P&L, CI, OCI and OCI components in the research community, as well as on the standard setter level and contributed to fill, even partially, the lack of research on the issue in the Brazil.

Key words: comprehensive income, other comprehensive income, clean surplus, dirty surplus, value relevance.

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LIST OF ACRONYMS

ACT – Unrealized gains/losses on defined benefit plans

AFS – Unrealized gains/losses on available–for–sale financial instruments

BM – Basic Materials

BM&FBOVESPA – Brazilian Stock Market

BRGAAP – Brazilian Generally Accepted Accounting Principles

BVE – Book value

CC – Consumer Cyclical

CFH – Unrealized gains and losses on derivatives designated as cash flow hedges;

CI – Comprehensive Income

CGS – Capital Goods and Services

CNC – Consumer Non-Cyclical

CT – Construction and Transportation

CVM – Securities and Exchange Commission of Brazil

DP – Discussion Paper

EBITDA – Earnings before interest, taxes, depreciation and amortization

ED – Exposure Draft

EPS – Earnings per share

FASB – Financial Accounting Standards Board

FIN – Financial

FOR – Foreign currency translation adjustments

IASB – International Accounting Standards Board

IFRS – International Financial Reporting Standards

IAS – International Accounting Standards

IS – Income Statement

IT – Information Technology

NI – Net Income

OCI – Other Comprehensive Income

OGB – Oil, Gas and Biofuels

OLS – Ordinary Least Squares

P&L – Profit or loss

ROI – Return on Investments

SFAC – Statement of Financial Accounting Concepts

SFAS – Statement of Financial Accounting Standards

SCF – Statement of Cash Flows

SCE – Statement of Changes in Equity

SD – Standard Deviation

SOCI – Statement of Comprehensive Income

TEL – Telecommunications

UK – United Kingdom

US – United States

USGAAP – United Stated Generally Accepted Accounting Principles

UTI – Utilities

1. Introduction

1.1 Motivation and purpose

The introduction of the Comprehensive Income (CI) and Other Comprehensive Income (OCI) concepts in accounting framework raises the possibility of presenting some gains and losses outside profit or loss (P&L). OCI consists of revenues and expenses that in accordance with specific accounting standards are not recognized as income or expenses in P&L; therefore, they are not presented in the Income Statement (IS). Instead, OCI is directly recognized in shareholders' equity and presented in the Statement of Comprehensive Income (SOCI). Unrealized gains/losses on available-for-sale financial instruments (AFS), unrealized gains and losses on financial instruments designated as cash flow hedges (CFH), foreign currency translation adjustments (FOR) and unrealized gains/losses on defined benefit plans (ACT) are examples of OCI components (IASB, 2011).

CI is a reflection of items that were presented in the IS and items recorded in the equity, except for stock transactions and dividends, thus comprising all components of P&L plus OCI (IASB, 2011). In line with the clean surplus approach, CI aims to disclose the amount corresponding to the equity variation in income, i.e., the concept of income comprehends all changes in equity, except those from the owners, such as contribution of the partners or payment of dividends (RIAHI-BELKAOUI, 2000; CHRISTENSEN & FELTHAM, 2003; SCHROEDER, CLARK, & CATHEY, 2009).

Since December 1997, American companies are required by the Financial Accounting Standards Board – FASB (the issuing body of the United States accounting standards, known as United States Generally Accepted Accounting Principles – USGAAP) to disclose CI (FASB, 1997). Companies that have adopted IFRS are also required to present SOCI, i.e., OCI and P&L, since the revision of the International Accounting Standards 1 (IAS 1) – Presentation of Financial Statements, effective for annual periods beginning on or after 1 January 2009 (RINGSTRÖM & EKSTRÖM, 2012; MECHELLI & CIMINI, 2014).

In Brazil CI was incorporated into the accounting framework for corporations and large-sized companies [1] under the convergence process towards the IFRS, which modified the accounting framework with significant changes in the criteria for recognition, measurement and

[1] Large-sized companies are, by law, companies that have had in the previous fiscal year total assets of more than R$ 240 million or annual gross revenues exceeding R$ 300 million.

disclosure of accounting information (BRASIL, 2007). From annual periods beginning on or after January 2010, entities were required to present SOCI in which they report CI and OCI (CPC, 2011).

At first glance, the inclusion of a comprehensive concept does not cause significant impact on economic and financial analysis of companies. Some studies point out that in general OCI has not been used in the analyst assessments (DHALIWAL, SUBRAMANYAM, & TREZEVANT, 1999; GONCHAROV & HODGSON, 2011), while others found that not only P&L, but also OCI is significant in the company valuation (CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007; CHOI, DAS, & and ZANG, 2007). In some cases the amount recorded in OCI can be recycled to P&L, causing significant impact on the financial and economic health of the company. Thus, some economic events that can affect the entity´s financial position and performance may be recognized in OCI rather than in P&L.

The discussion about aspects of OCI has increased in the last decade. Despite conflicting results, topics related to the presentation and usefulness of CI and OCI have been discussed for some years in the international accounting scenario. Regarding CI and OCI value relevance, there is no consensus in the literature (GÜNTHER, 2014). Empirical studies of the value relevance of CI, OCI and OCI components conducted during the late 1990s and 2000s provided mixed evidence of the superiority of CI (P&L plus OCI) compared to other performance measures (CHENG, CHEUNG, & GOPALAKRISHNAN, 1993; HIRST & HOPKINS, 1998; MAINES & MCDANIEL, 2000; CAHAN, COURTENAY, GRONEWOLLER, & UPTON, 2000). However, other studies did find some evidence to support the value relevance of OCI components (BIDDLE & CHOI, 2006; CHOI, DAS, & and ZANG, 2007; CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007; KANAGARETNAM, MATHIEU, & SHEHATA, 2009).

In Brazil the subject is recent and has not been deeply investigated. Madeira and Costa Junior (2014) examined the issue from the standpoint of the accumulated OCI in equity. They found that accumulated OCI is not value relevant to the Brazilian capital market. Seeking to fill this gap, this study aims to investigate P&L, CI, OCI and OCI components value relevance in Brazilian companies. The research on value relevance aims to examine the correlation between accounting information, such as P&L, CI and OCI, and information used by investors to make economic decisions. In this approach the relevance of a given accounting data is associated with the influence on decisions made by users of financial statements. It mainly considers that investors need information to assess the company's performance and make predictions and

investment decisions (BARTH, BEAVER, & LANDSMAN, 2001; HOLTHAUSEN & WATTS, 2001).

With this in mind, the general objective of this study is to empirically investigate the value relevance of P&L, CI, OCI and OCI components from valuation, informational and forecasting perspectives. The specific objective is to investigate the relative and incremental value relevance of CI, OCI and OCI components in Brazil after the mandatory adoption of IASB's standards (International Accounting Standards Board, the IFRS issuing body) compared to P&L. This study makes use of well-established pricing, return and forecasting models, and it develops them further on the basis of findings from recent regulatory developments and enhancements in the research community. Furthermore, the study proposes an improvement of the commonly used time-series or cross-section ordinary least square (OLS) regressions. The use of a different panel estimation method in the valuation perspective, such as fixed effects regressions, controls the heterogeneity of the sample and may reduce bias in the results.

1.2 Contribution

The relevance of accounting information investigated by BALL and BROWN (1968) many years ago remains the target of many studies, especially in more turbulent times, when relevance of accounting can be questioned. The information can be considered relevant when it influences decision making of users of financial statements by helping them predict future cash flows and/or confirm previous assumptions (IASB, 2010).

In view of capital market research, investors may be considered primary users of financial statements, and earnings might be interpreted as one of the most powerful accounting measures that are of interest to investors. (BALL & BROWN, 1968; KOTHARI, 2001). Professional and non-professional investors who frequently apply fundamental analysis of business valuation use accounting measures such as P&L (BARKER, 2001). Investors will likely include P&L and OCI in their analysis if they are comprehensively verified as value relevant for valuation matters. However, even though the broad concept of CI (P&L plus OCI) was included in the accounting standards, the practical relevance for users of this information could not be reliably assessed in empirical studies so far.

An evaluation of the previous studies shows that the classification of CI, OCI as well as the OCI components differs across industries and countries, and it has enhanced over time.

Therefore, it is relatively difficult to compare the results of the available studies.[2] Based on the conflicting results of CI, OCI and OCI components value relevance, so far it has not been possible to make a consistent statement of whether the requirement to disclose OCI as part of the financial statements adds incremental information for users of the financial reports.

The issue is so important that IASB attempts to enhance the relevance of accounting on the periodic review of standards, such as the changes in IAS 1 and the ongoing Conceptual Framework revision. Over the last decades, the focus of the standard setters' work has been to converge accounting standards to a global standard and improve the usefulness of reported information. Global economies are increasingly more interdependent; therefore, regulators and standard setters need to act globally in all facets, and accounting and auditing areas need strengthening.

Thus, the findings could be of particular interest for standard setters, such as the IASB and the FASB, because results from previous studies based on US samples as well as other international samples have been mixed and the evidence of OCI value relevance has been weak. Therefore, this study focuses on the relevance of reported information of income measures to investors for their valuation efforts. It will disregard the evaluation of financial information by other specific users, such as creditors or suppliers who might be interested in different information, particularly in risk assessment (FRANCIS & SCHIPPER, 1999).

Finally, the aim of this study is to provide additional insight to the ongoing discussion on value relevance of income measures in the research community, as well as on the standard setter level. It is not intended to provide an exclusive recommended course of action, but it is a contribution to assist and further develop the ongoing discussion of aligning and enhancing the reporting of income measures.

1.3 Research questions

This study aims to investigate whether CI, OCI and OCI components are value relevant from the valuation, informational and forecasting perspectives compared to P&L, providing useful information, i.e. investigate if they influence decision making of financial statements users helping them predict future cash flows and/or confirm previous assumptions.

[2] Even though the international standard setters have worked on the convergence of accounting standards, this is still an ongoing process. Especially the different treatment of certain components of OCI over time as well as in different countries, and accounting standards may have influenced the data and complicated a robust comparison of the studies. An overview of past research is illustrated in the literature review in section 2.4.

Based on these considerations, the first issue to be discussed is a comparison between the value relevance of CI and P&L, a classical relative association study with the objective to evaluate which income measure provides more useful information to the investor, as shown below:

Research Question 1: Is CI more value relevant than P&L?

The second research question is an analysis of incremental value relevance of OCI in order to perceive whether OCI offers additional information to investors (besides other income measures such as P&L). Therefore, the second research question discusses whether P&L plus OCI is more value relevant than P&L on a standalone basis.

Research Question 2: Does OCI provide incremental value relevant information compared to P&L on a standalone basis?

Considering that the expected sign of the OCI components differs amongst items and, therefore, an aggregation in the form of OCI may produce less meaningful or even misleading results, the third research question has been formulated to incorporate the potential effect of OCI components.

Research Question 3: Do OCI components provide incremental value relevant information compared to OCI and P&L on a standalone basis?

The research questions are investigated from three perspectives, as shown in Figure 1.

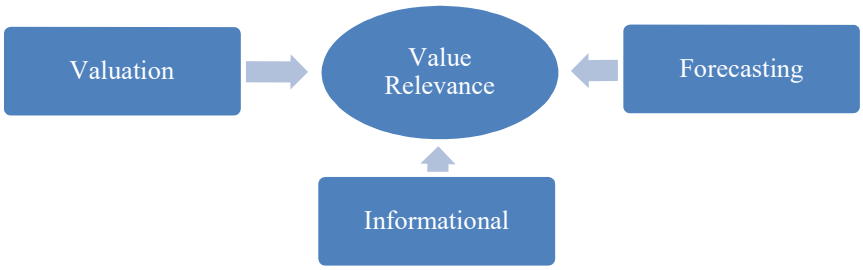


Figure 1: Value Relevance Perspectives

The investigation of the CI, OCI and OCI components in association with share prices, share return, and the forecasting ability to predict OCF and future P&L compared to P&L was split into three studies, as depicted in Figure 2.

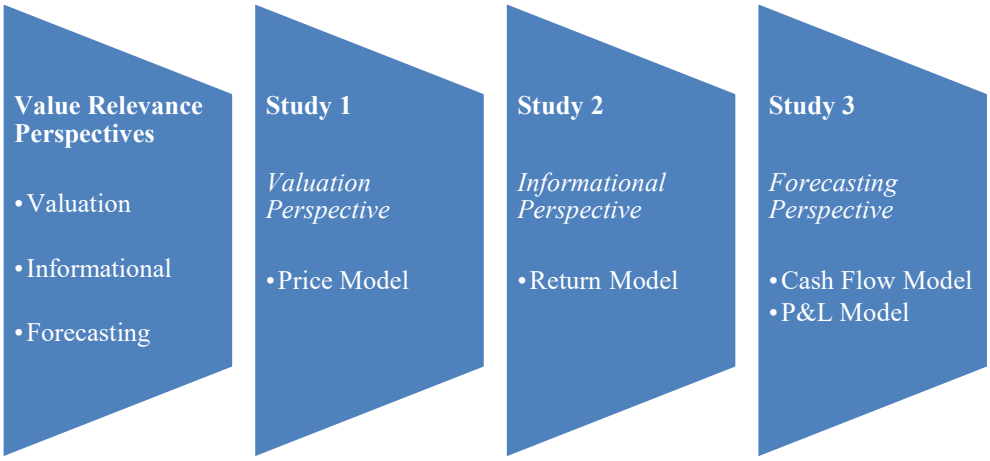


Figure 2: Overview of studies

The studies used Econometric models of value relevance based on hand-collected data for a sample of Brazilian companies listed in BM&BOVESPA from 2010 to 2015. Results of this study provide contributions to the scientific discussion in several aspects that might be of interest for investors, regulators, standard setters, research community, and all other users of financial statements. From a practical point of view, the association between share price and share return and income measures might be especially useful for non-professional investors that make business evaluations without professional investment support. This study extends the discussion of the decision usefulness of CI, OCI and OCI components reporting, especially in Brazil.

1.4 Overview of the structure

This dissertation focuses on the value relevance of CI, OCI and OCI components from valuation (Study 1), informational (Study 2) and forecasting (Study 3) perspectives. The current chapter presents the subject, motivation, purpose and contribution of the dissertation and the structure. Chapter two provides the theoretical framework for the empirical analysis. It presents a review of the literature of related research about clean and dirty surplus, comprehensive income and value relevance that underlay the three studies.

The following chapters discuss in detail the research design, empirical analysis and results of the three studies that comprise this dissertation. Chapter six concludes with a discussion of the results obtained in the studies. The last chapter also presents the relation to the previous research and discusses possible limitations of the studies, and it describes some possible questions for future research in this area. Figure 3 provides a structure overview.

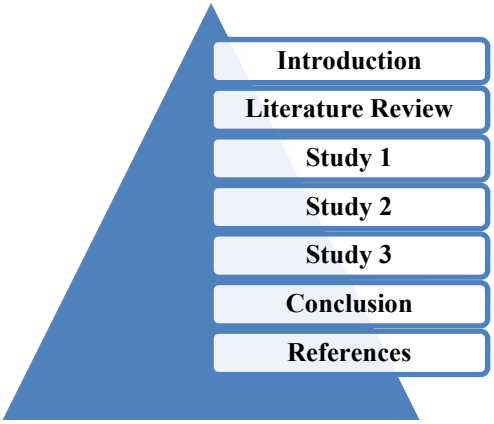


Figure 3: Overview of structure

2. Literature Review

The following sections provide an overview of the concept origin, development, treatment and display of CI, OCI and OCI components, which form the basis for the analysis of the value relevance in the studies.

2.1 Clean and dirty surplus

The concept of income remains the central subject of various discussions. It has been of considerable interest to economists, having been defined by Adam Smith as "an increase in wealth". Alfred Marshall, following Smith's ideas, connected the concept of income to business practices. Fisher, Lindahl and Hicks developed a concept of economic income (RIAHI-BELKAOUI, 2000).

Traditional literature based on the historical-cost principle defines business income as "accounting income", that is, the difference between the realized revenues of the period and the matching historical costs (RIAHI-BELKAOUI, 2000). Nevertheless, there is severe criticism on the limitation of accounting income. One of the criticisms of accounting income is that it does not recognize unrealized increase in values of assets because of the application of the historical-cost and realization principles (RIAHI-BELKAOUI, 2000).

Profit can be understood as value changes over the level that is needed to maintain the value of the firm's capital (net assets). The concept of income as capital maintenance supports the concept of CI because it suggests that income is recognized after capital is maintained and expenses are recovered (RIAHI-BELKAOUI, 2000). Financial capital maintenance means that the financial (money) amount of a company's net assets at the end of the accounting period goes over the financial amount of its net assets at the beginning of the period, excluding transactions with owners.

In addition, the concept of financial capital maintenance considers that holding gains and losses, which arise from changes of the value of items in the balance sheet, should be included in P&L. Holding gains and losses can be separated in two groups. The realized holding gains and losses concerning assets sold or liabilities paid, and non-realized gains and losses relate to assets still held and liabilities still owed (SCHROEDER, CLARK, & CATHEY, 2009; RIAHI-BELKAOUI, 2000).

Historically, income presentation issues were primarily characterized in terms of a contrast between the current operating performance (dirty surplus) and the all-inclusive

approaches (clean surplus). According to the current operating performance concept of income (dirty surplus), only ordinary and recurring revenues, expenses, gains, and losses are recognized as income, while extraordinary and non-recurring gains and losses are excluded from income. In accordance with the all-inclusive concept of income (clean surplus), however, all revenues, expenses, gains, and losses recognized during a given period are included in income, regardless of whether they are considered results of normal, recurring operations of the period or extraordinary income and/or non-recurring transactions (MCCOY, THOMPSON, & HOSKINS, 2009).

The inclusion of SOCI in the financial statements may have been conceptually by clean surplus accounting approach (REES & SHANE, 2012; OHLSON, 1999; OHLSON, 1995; FELTHAM & OHLSON, 1995; FASB, 1997), because the concept of CI or "all-inclusive" income is consistent with such accounting system (CHRISTENSEN & FELTHAM, 2003). The supporters of the clean surplus approach argue that the financial statements prepared in accordance with this paradigm provide more useful information to stakeholders, including those related to the projection of profits, cash flows and to the company's value assessment (KANAGARETNAM, MATHIEU, & SHEHATA, 2009).

According to the clean surplus approach (all inclusive), the concept of CI requires that the amount corresponding to the equity variation is recognized in the income (IS or SOCI), i.e., the concept of income includes all changes in equity, except those from the transactions with owners. The equity book value is the difference between the company's assets and liabilities and can be called the owners' "surplus" (CHRISTENSEN & FELTHAM, 2003). Therefore, the CI definition is similar to the concept of capital maintenance, i.e., the idea of financial capital maintenance supports the concept of CI (RIAHI-BELKAOUI, 2000). In this model all changes in assets and liabilities charged to operations affect the income, having thus integrated the balance sheet and the IS/SOCI (OHLSON, 1995; PINHEIRO, 2012; COELHO & CARVALHO, 2007; CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007; KANAGARETNAM, MATHIEU, & SHEHATA, 2009), as shown in the Equation 1:

$$\boldsymbol{bv_t = bv_{t-1} + cc_t + ci_t - d_t} \qquad \textbf{(1)}$$

Where:

bv_t = book value of the firm's equity, date *t*

bv_{t-1} = book value of the firm's equity, date *t-1*

cc_t = contributed capital for period, date t

ci_t = comprehensive income for period, date t

d_t = dividends, net of capital distributions, date t

Therefore, if the entity does not receive any contributed capital from the shareholders during a given period and does not distribute dividends in the same period, the change in the book value of shareholders' equity is equal to the CI (FELTHAM & OHLSON, 1995; HOLTHAUSEN & WATTS, 2001; OHLSON, 1995).

In other words, clean surplus relation means that there is a connection between equity (balance sheet) and income measures (IS or SOCI), and therefore all changes in equity can affect earnings. Considering that earnings are equal to change in equity reduced by a factor of dividends (net of capital distributions), it is rational to separate changes in equity that come from transactions with owners – dividends (RINGSTRÖM & EKSTRÖM, 2012). This principle of aggregation of changes in equity is obviously applied to the model of CI reporting in revised IAS 1 (2007) and is maintained in the ongoing Conceptual Framework revision.

On the other hand, supporters of the dirty surplus approach argue that the income should reflect only the recurring gains from the core business, because operations that are non-recurring, extraordinary and derived from secondary business operations, despite the impact in the company's value, have low predictive power and generate volatility in income (REES & SHANE, 2012; CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007; DHALIWAL, SUBRAMANYAM, & TREZEVANT, 1999; LEE, PETRONI, & SHEN, 2006).

Dirty surplus accounting exists if some changes in the balance sheet value of equity from non-owner sources are omitted from contemporaneous P&L. Concerns about dirty surplus accounting treatments have largely arisen as a result of the lack of transparency of such treatments and the resultant opportunities for earnings management (LINSMEIER, et al., 1997; FASB, 1997; PATON, 1934; JOHNSON & SWIERINGA, 1996; JOHNSON, REITHER, & SWIERINGA, 1995).

According to Isidro, O'hanlon and Steve (2004), in the period prior to the adoption of the clean surplus approach, a range of dirty surplus accounting practices existed in many different national GAAP regimes. Dirty surplus practices in the UK included goodwill write-offs, revaluations, currency translation differences and prior-year adjustments. In France items giving rise to dirty surplus flows included goodwill, revaluations, currency translation differences, prior-year adjustments, subsidies, regulated provisions, consolidation adjustments,

and changes in accounting policy resulting from new accounting regulations. In Germany they included goodwill, currency translation differences, prior-year adjustments, certain consolidation adjustments, and unrealized appreciation in investments. In the US they included unrealized gains on marketable securities, currency translation differences and minimum pension liability adjustments (ISIDRO, O´HANLON, & YOUNG, 2004).

However, more recently, the development of a single statement of comprehensive income, where CI is defined as the change in equity from non-owner sources, represents the adoption of the clean surplus approach in the IFRSs. (KANAGARETNAM, MATHIEU, & SHEHATA, 2009; ISIDRO, O´HANLON, & YOUNG, 2004). Nevertheless, proponents of dirty surplus model argue that the recognition of gain and loss in OCI is generally related to fluctuations in market conditions and, thus, transitory character, which limits the relevance to cash flow projections (BAMBER, JIANG, PETRONI, & WANG, 2010; BARKER, 2004; CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007; LINSMEIER, et al., 1997).

2.2 Comprehensive income

2.2.1 Origins of comprehensive income

The inclusion of CI and OCI in the financial statements may have been conceptually motivated by the concept of clean surplus accounting (REES & SHANE, 2012; OHLSON, 1995; OHLSON, 1999; FELTHAM & OHLSON, 1995; FASB, 1997; JOHNSON, REITHER, & SWIERINGA, 1995).

The concept of CI is not very new; it has been used in Statement of Financial Accounting Concepts (SFAC) Nº 1 since 1978, but it was introduced in the US accounting standards in 1980 – SFAC nº 3. The basis for the implementation was the fact that the traditional way of reporting income was considered too narrow, and the assumption that prevailed was that a different way of presenting results in financial statements was needed (ROBINSON, 1991). Nevertheless, until the 1990s the disclosure was not required. The United Kingdom (UK) was the first country that required the reporting of CI, which was then called "total recognized revenues and expenses" (ALMEIDA, 2010; GÜNTHER, 2014).

In 1992 the Standard Financial Reporting Statement – FRS nº 3 – required the statement of total recognized gains and losses in the UK, which gave a broad view of the performance of

companies because it also included the changes in the equity that were not allocated to the shareholders of the companies. In June 2012 the standard was reviewed and passed to allow the CI presentation in single statement (SOCI) or two statements (IS plus SOCI). It was reported in an additional primary statement (O'HANLON & POPE, 1999; CAHAN, COURTENAY, GRONEWOLLER, & UPTON, 2000). The advanced initiative taken by the UK with such an implementation increased the pressure on international standard setters.

The presentation of CI in financial statements has been required since December 1997 by the FASB[3]. According to SFAS 130 the components of OCI could be reported in three ways, as follows: (i) the total for net income in an income statement[4], (ii) a separate statement that starts with net income, or (iii) in a statement of changes in equity (SCHROEDER, CLARK, & CATHEY, 2009; FASB, 1997). The issuance of SFAS 130 was an important step for the dissemination of the OCI and CI in the set of financial statements. In 2011, the CI presentation rules were revised and the third option was excluded (EATON, EASTERDAY, & RHODES, 2013). Together with the implementation of SFAS 130, other national standard setters required the disclosure of OCI components, such as standards NZ FRS 2 in New Zealand and CICA Handbook section 1535 in Canada (GÜNTHER, 2014).

Since 2001 the IASB has worked jointly with the FASB on the CI topic under different project titles, with the so-called convergence project being the most prominent. However, while FASB required CI presentation in 1997, only in 2005, with the IAS 1 – Presentation of Financial Statements, companies adopting IFRS were required to present CI. The new standard replaced IAS 30 and some of the requirements that are listed in IAS 32 (GÜNTHER, 2014)[5].

Before the amendment of IAS 1, some non-owner changes in equity could be recognized in equity, which was not consistent with the clean surplus approach. Hence, since the previous way of reporting income violated clean surplus relation, it was referred to in the literature as 'dirty surplus' income. In this way, IAS 1 tries to follow clean surplus relation when showing unrealized gains and losses in the income statement as OCI (SOCI). At the same time, the

[3] The SFAS 130 was published in June 1997 with application for fiscal years beginning on or after December 15, 1997 (LINSMEIER, et al., 1997).

[4] In this study the terms "net income" (NI) and "profit or loss" (P&L) are used interchangeably. The term used under IFRS is "profit or loss" pursuant to IAS 1. However, the term used in the majority of comparable studies, especially in studies examining sample reporting under IFRS, is net income (NI), which is in line with the USGAAP term.

[5] In 2007, IAS 1 was reviewed and the option to present CI in a statement of changes in equity was excluded. Thereby, from anual periods beginning on or after 1 January 2009, companies which have adopted the IFRS were required to present all non-owner changes in equity (CI) either in one statement of comprehensive income (SOCI) or in two statement - IS plus SOCI. The standard was again reviewed in 2011 and companies were also required to disclose income tax and the reclassification adjustments related to component of Other Comprehensive Income (IASB, 2007; LUECKE & MEETING, 1998).

separate post of OCI attempts to point out to users that these gains and losses are not "real" enough to be recognized in P&L (RINGSTRÖM & EKSTRÖM, 2012). The single statement approach reports CI prominently in the bottom line of the statement and P&L only as a subtotal, whereas the two-statement presentation uses the established income statement that concludes with P&L and it displays the "non- recurring" items in a statement of Comprehensive Income. In the two-statement approach, Net Income and Comprehensive Income coexist and give users of financial statements the choice of the two performance indicators (CAUWENBERGE & DE BEELDE, 2007).

In other words, the concept of OCI from the clean surplus perspective (all-inclusive concept), requires that the amount corresponding to the equity variation is recognized in income (IS or SOCI), i.e., the concept of income includes all changes in equity, except those from the owners (COELHO & CARVALHO, 2007). In fact, the reporting of OCI under SFAS 130 and IAS 1 has added another round to the long-lasting debate on whether to use an "all-inclusive" or a more restrictive "current operating" performance concept. The "all-inclusive" income concept is based on the previously described clean surplus relation and should show all changes in economic values of assets and liabilities of a company (KANAGARETNAM, MATHIEU, & SHEHATA, 2009).

Therefore, the introduction of CI in the financial statements allowed readers to analyze changes in a company's equity resulting from transactions with owners in their capacity as owners (such as dividends and share repurchases) separately from 'non-owner' changes (such as transactions with third parties) (IASB, 2007). The aim of introducing Comprehensive Income is not to replace the reporting of P&L, but to provide additional information about items that otherwise do not directly show up in the P&L (GÜNTHER, 2014). In other words, when IASB required the reporting of OCI, the main aim was to provide more comprehensive, consistent, and relevant information to the users of financial statements (CAUWENBERGE & DE BEELDE, 2007).

In Brazil, on 17 July 2009, the Brazilian accounting standard NBC TG 26 – Presentation of Financial Statements – was approved, and it became mandatory to present the SOCI[6]. As a result, public companies and large-sized entities were required to include and present the CI in

[6] In Brazil the adoption of IFRS brought a series of changes in the accounting structure, such as (i) the obligation to prepare, audit and present the Statement of Cash Flows (SCF); (ii) the introduction of the significant influence concept for investments in associates; (iii) the extinction of the deferred income account; (iv) the creation of the intangible subgroup on non-current assets; (v) the extinction of the asset deferred group; (vi) the marking to market of securities held for trading or available for sale; (vii) the increase in disclosure requirements by means of explanatory notes; (viii) the adjustment to present value of receivables and long-term liabilities; and (ix) the recognition of impairment.

the complete set of financial statements. By 2011 this standard allowed the disclosure of CI in the Statement of Changes in Equity. The Brazilian standard setter eliminated the option to present OCI together with P&L in a single statement of CI; hence, currently Brazilian companies are required to present two separate Financial Statements: IS (ending with P&L) and SOCI (starting with P&L and ending with CI) (IASB, 2011; CPC, 2011)[7].

2.2.2 Comprehensive income

Comprehensive Income can be defined as changes that occur in equity during a period resulting from transactions and other events that are not transactions of derivatives with partners in their capacity as owners. It includes incomes and expenses that are not recognized in the P&L as permitted or required by other IFRSs, such as changes in fair value of available-for-sale financial instruments (IASB, 2011).

Hendriksen and Van breda (1999) defined CI as the total variation of the capital recognized by transactions or the remeasurement of assets and liabilities for a given period, excluding dividend payments and increase or decrease of capital transactions. Based on the clean surplus approach, it is a result of items that were recognized in the P&L and the OCI group in the equity, and it comprises all the components of the income statement and statement of other comprehensive income.

Comprehensive Income is defined in IAS 1 as the change in equity during a given period resulting from transactions and other events, other than those changes resulting from transactions with owners in their capacity as owners. Total comprehensive income comprises all components of 'profit or loss' and of 'other comprehensive income'.

In terms of equity, accumulated OCI includes changes that are not recognized in the P&L and are not based on transactions with shareholders. Figure 4 provides a schematic overview of shareholders' equity and causes for changes due to transactions with shareholders and non-shareholders.

[7] The Brazilian Corporate Law in the Statement requires that the income statement be presented in a separate statement.

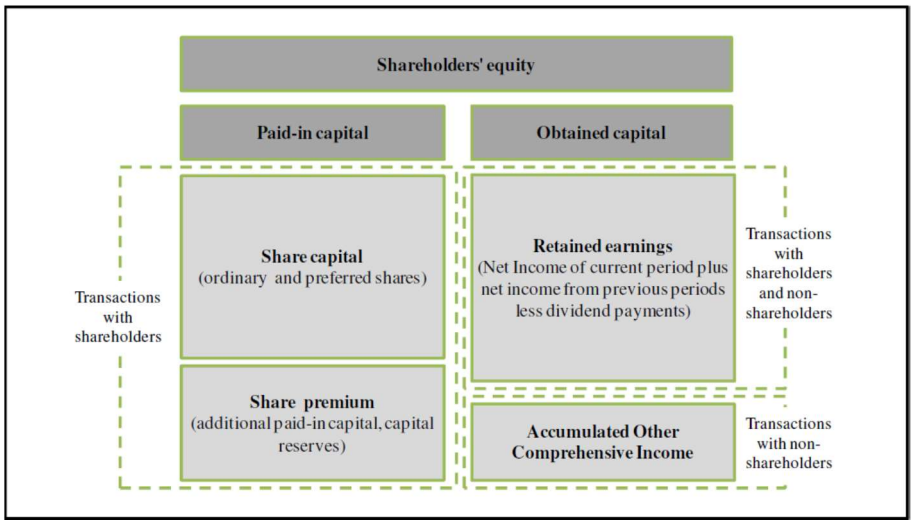


Figure 4: Shareholders' equity and causes for change

Source: Günther, 2014.

Regarding businesses, CI is the combination of the following amounts occurred during a specified period, such as a year, a quarter, a month, etc., i.e., CI is composed of P&L plus OCI, i.e., all income and expenses, irrespective of the recognition in P&L or in the balance sheet, and does not differentiate between ordinary and extraordinary items as shown in Equation 2. P&L includes all changes in equity that result from transactions with shareholders and non-shareholders representing the company's total profit or loss over a given period as shown in Equation 3.

$$\mathbf{CI_t = P\&L_t + OCI_t} \quad \textbf{(2)}$$

$$\mathbf{P\&L_t = R_t + G_t - E_t - L_t} \quad \textbf{(3)}$$

Where:

CI_t = comprehensive income, date *t*;

$P\&L_t$ = profit or loss, date *t*;

OCI_t = other comprehensive income, date *t*.

OCI_t = other comprehensive income, date *t*.

$P\&L_t$ = profit or loss, date *t*;

R_t = revenues, date *t*;

G_t = gains, date *t*;

E_t = expenses, date *t*;

L_t = losses, date *t*.

Comprehensive Income could be a helpful item in predicting future earnings if it contained additional information that is otherwise not available. The differentiated reporting of recognized items either in IS or in SOCI aims at enhancing information value and relevance of financial information (GÜNTHER, 2014). Furthermore, the position of CI signals to investors that it contains valuable information (SCHROEDER, CLARK, & CATHEY, 2009).

The subject can be discussed from the point of view of return to shareholders, since P&L is the first step for calculating the dividend. Thus, the issue in question becomes even more significant, especially when discussing of its relevance, since P&L can be used as a measure of performance or to endorse other measures, including ROI – return on investment (IASB, 2011). Moreover, parameters such as P&L, EBITDA (earnings before interest, taxes, depreciation and amortization) and EPS (earnings per share) are most often used as key performance measures of companies (BARTON, HANSEN, & POWNALL, 2010). It is important to consider the additional information given by the SOCI because if users of financial statements rely solely on former ratio calculations, the reporting quality may be reduced. Figure 5 shows how an exclusive consideration of P&L bears the risk of losing important value relevant information.

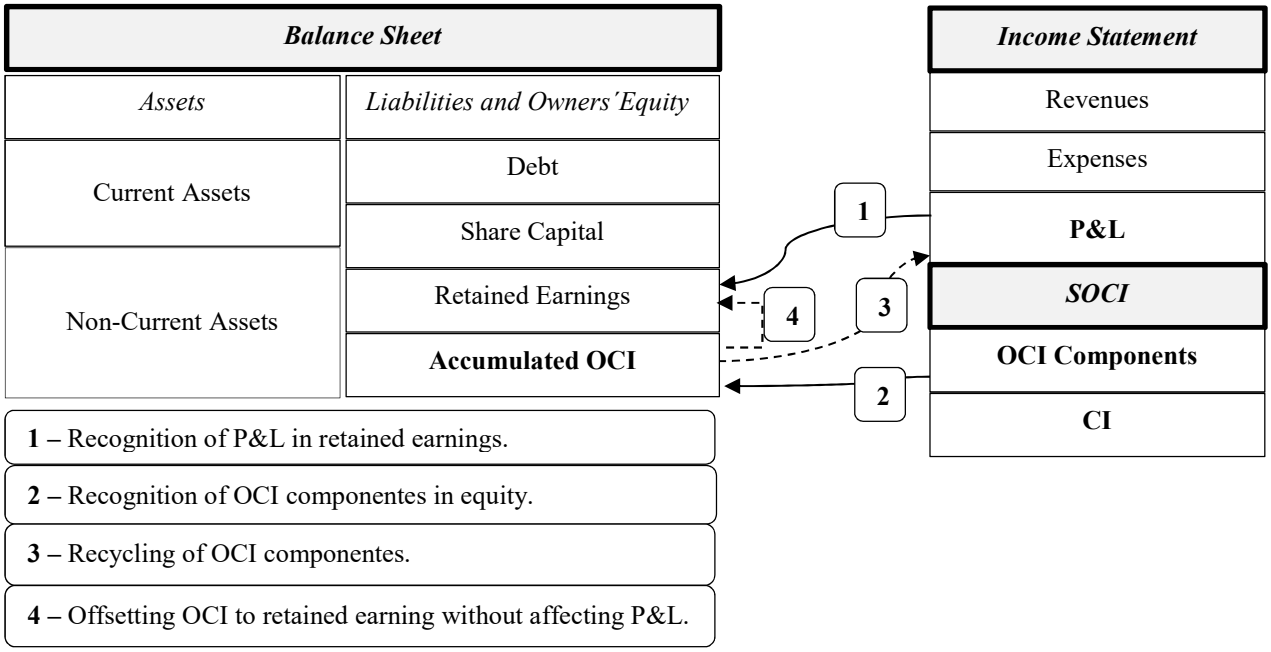


Figure 5: Treatment of P&L and OCI

Source: Based on Günther, 2014.

2.2.3 Other comprehensive income

Components of OCI include revenues and expenses, according to specific IFRSs, which are not recognized in the P&L, i.e., unrealized gains and losses resulting from changes in fair values of assets/liabilities, as detailed in Table 1. In other words, OCI includes changes in equity that are not recognized in the P&L and are not based on transactions with shareholders.

Table 1: OCI Components

Component	International Standard[8]	Brazilian Standard
Changes in revaluation surplus of property, plant, equipment and intangible assets[9]	IAS 16 IAS 38	CPC 4 CPC 27
Actuarial gains and losses in defined benefit plans	IAS 19	CPC 33
Gains and losses from translating the financial statements of a foreign operation (including net investment in foreign operations)	IAS 21	CPC 2
Changes in fair value of available-for-sale financial instruments	IAS 39	CPC 38
Effective portion of gains and losses in cash flow hedge	IAS 39	CPC 38
Share of Other Comprehensive Income in an associate	IAS 28	CPC 18
Taxes related to components of OCI	IAS 12	CPC 32

As a general concept, components of OCI for each given period are posted to the accumulated OCI in the equity. The posted items are regarded as transitory in nature and include components that are realized over time and are, therefore, recycled to P&L later (KANAGARETNAM, MATHIEU, & SHEHATA, 2009). The decision whether to recognize an item partly or completely in P&L or in CI is based on several characteristics rather than a single attribute. Items directly recognized under OCI bypass P&L and may be reclassified to P&L at a later stage. The reason for temporarily posting these components to equity is that the positions are only realized in later periods and are transitory in nature. Consequently, these items that are temporarily recorded under accumulated OCI, are later reclassified into P&L.

However, currently IASB does not provide a clear guidance about OCI components recycle into P&L[10] (HOOGERVORST, 2012). Moreover, IFRS requires that only selected items may be recycled into P&L. The separate reporting of items that will be recycled and items

[8] Standard where the Other Comprehensive Income component is explicitly mentioned.

[9] Pursuant to Law 11,638/07, the revaluation of assets is prohibited in Brazil.

[10] In accounting, the concept of recycling is defined as partial or entire transfer of components previously booked under Other Comprehensive Income into P&L.

that will not be recycled should give stakeholders a better understanding of the actual financial performance of the company. Figure 6 presents the OCI components that may be recycled and those that may not be recycled in accordance with the IFRS.

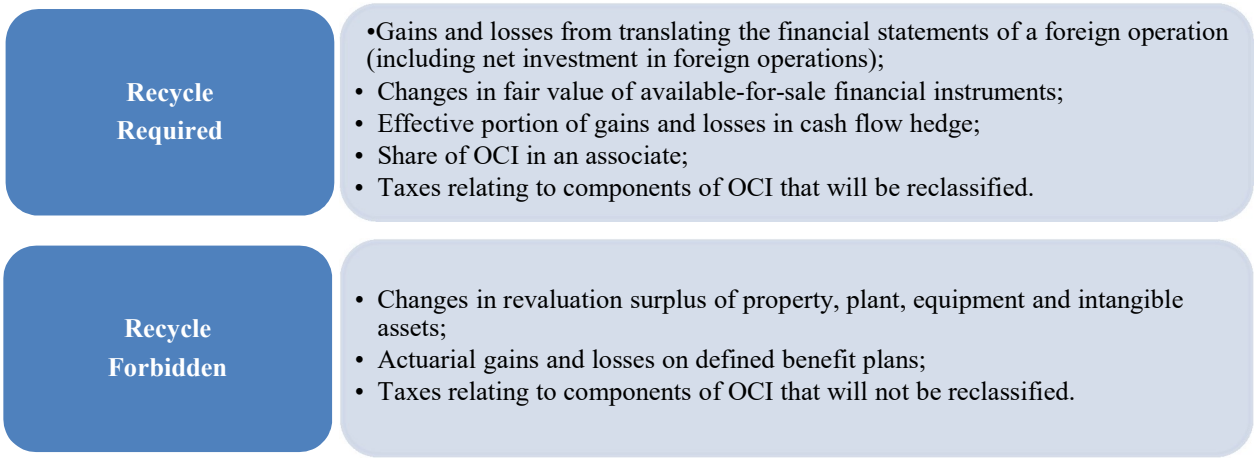


Figure 6: OCI components recycling in accordance with IFRS

The initial recognition of OCI components follows the treatment under certain IFRS standards, but does not rely on a homogenous concept (BARKER, 2004)[11]. Consequently, on June 16, 2011, the IASB issued another amendment to IAS 1 requiring companies to report separate subtotals for elements that may be reclassified to P&L and for those that will not. The changes had to be applied to reporting periods beginning on or after July 1, 2012. These agreed changes will primarily increase presentation and disclosure rather than the composition of OCI components. They may have a relatively minor effect with respect to the overall financial statements. However, for financial statement users the changes should facilitate identification and evaluation of the impact that OCI components have on future P&L (GÜNTHER, 2014).

If all items recognized under OCI are recycled, P&L will equal the CI of an entity over the lifetime of such entity. The concept of recycling all components is also closely linked to the concept of clean surplus accounting, because all changes in equity, excluding transactions with shareholders, are finally booked into P&L. Arguments in favor of general recycling of all OCI components emphasize that reclassification can increase the usefulness of P&L as items in OCI.

[11] On the other hand, the reporting under US GAAP accepts no exceptions from reclassification and, therefore, all items temporarily booked into Other Comprehensive Income need to be recycled in a future period. So, for instance, actuarial gains and losses on defined benefit plans based on a deferred recognition are subsequently recycled through P&L under US GAAP, whereas these items are not recycled under IFRS (GÜNTHER, 2014). The exemptions, as well as the differences between the compulsory and voluntary application of standards under IFRS and US GAAP, demonstrate the need to achieve convergence of the standards.

On the other hand, OCI may provide investors with relevant information about the company, without effects on the P&L. Once the positions temporarily posted under accumulated OCI are realized, they are recycled to P&L or offset to retained earnings. The application of recycling income measures avoids the risk of double counting and ensures that all gains and losses finally show up in the P&L.

In contrast, the concept of dirty surplus accounting allows certain gains and losses previously recognized in accumulated OCI (equity) to be offset to retained earnings at realization, thereby permanently bypassing the P&L (ISIDRO, O'HANLON, & YOUNG, 2006). Based on a pure P&L perspective, the permanent bypassing of certain OCI components represents a breach of the clean surplus approach. However, the matching principle is kept when considering CI instead of P&L.

The overview presented in the preceding sections has shown that looking at CI requires a careful and differentiated view on the single components of OCI. Furthermore, considering the heterogeneous nature of the components of OCI, the sole reliance on bottom-line figures is not appropriate and constructive in this context. Stakeholders have, to some extent, departed from the sole reliance on P&L figures to make use of CI reporting. In addition, the components of OCI may provide indicators that can help to identify risks and help users of financial statements in their decision making. If not carefully examined, the undifferentiated use of CI figures may even lead to a loss of information compared to P&L (REES & SHANE, 2012). Although the impact of OCI and CI affects many aspects, such as future profitability, users of financial statements generally rely on summaries such as P&L instead of complete financial reports for an initial valuation of an entity.

In sum, the differentiated reporting of recognized items either in P&L or in OCI aims at enhancing the value relevance of financial information. The decision whether to partially or completely recognize an item in P&L or in the OCI is based on several characteristics rather than a single attribute. In general, recognition in the OCI is legitimized for items that may distort the reporting of P&L, such as long term items, items outside management and items specified as not being realized, as non-recurring and non-operating and involving a measurement of uncertainty. Items recognized in P&L have opposing attributes.

Besides working on improving understandability, reliability, and comparability of financial information, the major assignment of the IASB includes communication and

persuasion[12] (GÜNTHER, 2014). The research community can support the IASB by providing analyses of the information content and value relevance, which is the aim of this study.

2.2.4 Framework revision

Even though the "all-inclusive" concept[13] has been advocated by standard setters, several standards have been implemented and have deviated from this principle. The inclusion of items in OCI has developed over time and has often been criticized for following no comprehensible concept. Regarding performance measures, the IASB was focusing on CI rather than P&L to conform to the clean surplus concept[14] (GÜNTHER, 2014; HOOGERVORST, 2014).

The reporting of CI has been the basis for several critical debates since its initial introduction under IFRS. The main opposition was formed because the need for an additional and potentially more complex and transitory income measure was not supported by the majority of preparers and users of financial statements. The recognition of certain transactions under OCI was regarded as arbitrary and the application of recycling to selected items was seen as hardly comprehensive. Moreover, rather than providing a deliberated concept, current developments in connection with OCI are viewed as a legitimating process for changes that have continuously been made to the standard over the past years[15].

Despite the relevance of the subject, many people have criticized the fact that international and national standards do not address the issue clearly enough. Furthermore, the Conceptual Framework for Financial Reporting[16] in effect does not elaborate specifically on the presentation of financial performance in the IS and the SOCI (IASB, 2010). For this reason, IASB classified this issue as significant and included it in the review of its conceptual structure. The discussion originated a public consultation – IASB's agenda Consultation 2011 – in which many respondents identified the revision of the Framework as a priority project (IASB, 2012). In summary, the survey respondents cited the following aspects of the subject:

[12] The IASB is discussing the subject. Section 2.2.4 presents more details.
[13] See section 2.1 for more details about clean and dirty surplus.
[14] Despite the different recycle approaches discussed in section 2.2.3.
[15] The comprehensive income origins are presented in Section 2.2.1.
[16] The Conceptual Framework for Financial Reporting describes the objective of and the concepts for general purpose financial reporting. It is a practical tool that (i) assists IASB in developing Standards based on consistent concepts; (ii) assists preparers in developing consistent accounting policies when no Standard applies to a particular transaction or event, or when a Standard allows a choice of accounting policy; and (iii) assists others in understanding and interpreting the Standards.

– The use of non-accounting measures to explain the performance of the entities was an indication that the P&L and CI may not be useful indicators to assess the performance of organizations;

– There was no clarity on the role of P&L and OCI regarding the measurement and disclosure of the entity's performance. Classification in OCI was perceived as an option to mitigate disputes;

– Many users of financial statements ignored the information related to OCI because they believed this was a non-operating result that was not important to designing long-term trends; and

– The interaction between P&L and OCI was unclear, especially with regard to recycling.

In addition, it was unclear which items should be recognized in the P&L and which ones should be recognized in the OCI. Another controversial aspect was the issue of recycling. Which items should be recycled from OCI to P&L? When? Under which circumstances? This led to one question: How can the financial statements better present the performance of companies during a period?

Thus, on July 18, 2013, the IASB published "Discussion Paper DP/2013/1 – A Review of the Conceptual Framework for Financial Reporting" (DP)[17], in order to make the subject more understandable (IASB, 2013). This was the first step in the review process of this standard.

One of the DP objectives was to propose that all items recognized in income (revenues, expenses, gains and losses) were considered information on the financial performance of companies. Section 8 of the DP, which deals with the presentation of P&L and CI, discusses the following topics: (IASB, 2013):

– The purpose of the IS and SOCI;

– Guidance on the classification in P&L or OCI;

– The requirement to provide a total or subtotal result, and the OCI recycling possibility for the result of the period; and

– Approaches to recycling of OCI for P&L.

On May 28, 2015 IASB published "Exposure Draft ED/2015/3" (ED) that establishes the proposals for a revised Conceptual Framework, which was developed in the light of the

[17] In 2010 the IASB in conjunction with the Fasb had initiated a process of revision of the Conceptual Framework, which culminated with the revision of two chapters. However, the process was delayed, since, due to the financial crisis, it was necessary to focus on more urgent projects, and comprehensive income aspects were not discussed.

responses received on the DP, and proposed classifying income and expenses into P&L or OCI (IASB, 2015). However, ED did not propose a definition of P&L, nor did it specify whether the statement(s) of financial performance comprise a single statement or two statements[18]. Instead of defining P&L, it proposed to describe the statement, or section, of P&L as the primary source of information about entity financial performance for the period, and to require a total or subtotal for P&L to be provided.

The ED also proposes that the purposes of the statement of P&L should be: (a) depict the return that an entity has made on its economic resources during the period; and (b) provide information that is helpful in assessing prospects for future cash flows and in assessing management's stewardship of the entity's resources.

Considering income and expenses included in IS as the primary source of information about an entity's financial performance for a given period[19], the ED proposes that all income and expenses will be included in that statement, and that income or expenses included in OCI in one period will be recycled to the statement of P&L in some future period.

However, ED proposes that income or expenses can be reported outside the IS and included in OCI only if (a) the income or expenses relate to assets or liabilities measured at current values; and (b) excluding those items from IS would enhance the relevance of the information in the statement of P&L for the given period.

Moreover, the ED proposes to describe types of income and expenses for which recycling assumption cannot be rebutted. This presumption could be refuted, for example, if there is no clear basis for identifying the period in which that reclassification would enhance the relevance of the information in IS. If there is no such basis, it may indicate that the income or expense should not be included in OCI.

The issue of recycling is controversial[20]. Arguments in favor of general recycling of all OCI components emphasize that reclassification can increase the usefulness of P&L as items in OCI. Finally, it will show up in P&L and, therefore, capture changes in economic resources more accurately and provide the timing of the actual recognition and realization of OCI.

[18] On April 20, 2016, the IASB Board tentatively decided to provide high-level guidance on reporting financial performance in the Conceptual Framework. Such guidance will be based on the proposals in the Exposure Draft, modified in light of the feedback received on the Exposure Draft (IASB, 2016).

[19] In spite of the IASB, having strengthened the P&L as the performance indicator, during the review process of the Conceptual Framework, they had mentioned that the inclusion of CI in the analysis provides relevant information for assessing the company's economic performance (IASB, 2013).

[20] For an overview of arguments both in favor of and against recycling, reference is made to a discussion paper issued by the IASB in 2013 and exposure draft issued by IASB in 2015.

Additionally, the comparability of financial reports is enhanced through limiting the differences in recognition caused by providing reporting choices (GÜNTHER, 2014).

This timing of realization is also raised by objectors. The untimely recognition of amounts in later periods disturbs the information content of financial performance in that period. It bears the risk of leveling results and earnings if management is granted the option to decide when to realize certain asset and liabilities. If, for instance, a financial asset is classified as available-for-sale and has lost value over time, management could be motivated to hold on to the asset even though a sale and therefore a realization of the loss via P&L would be economically reasonable (GÜNTHER, 2014). On the other hand, if a financial asset increases in value, then the management of the entity could postpone the realization and use the items as a reserve for hard times (HIRST & HOPKINS, 1998).

To sum up, the concept of recycling further increases the complexity of the already highly criticized OCI recognition and increases incomprehensibility of financial statements for their users. These arguments demonstrate that based on the current version of IFRS a dissonant approach of recycling is not practical. Consequently, it makes sense to give more attention to this topic.

2.3 Value relevance

The theory of value relevance is closely linked to the concept of decision usefulness of accounting information. According to the Conceptual Framework for Financial Reporting, financial information is regarded as decision useful if it qualifies as being relevant and faithfully represented. The fundamental qualitative characteristics of decision usefulness of financial information are enhanced if the information is also comparable, verifiable, timely and understandable (IASB, 2010). Figure 7 presents an overview of Conceptual Framework for Financial Reporting.

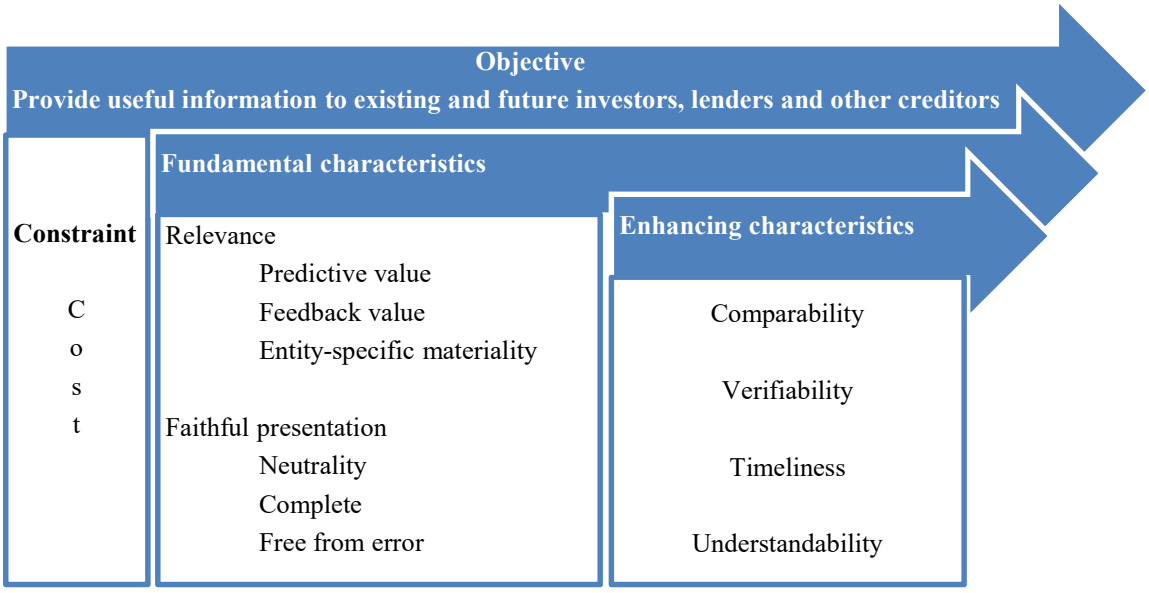


Figure 7: Schematic overview of the Conceptual Framework for Financial Reporting
Source: Based on Conceptual Framework for Financial Reporting (IASB, 2010).

The information can be considered relevant when it influences the decision making of users of financial statements by helping them predict future cash flows and/or confirm previous assumptions. Predictive values relate to the accuracy with which future values can be forecast on the basis of current figures. Moreover, predictive values of financial information can be increased if the additional information given (e.g., by displaying OCI) has an impact on the accuracy of predictions.

The confirmatory value relates to the association of current figures with past results and can provide consistency for users of financial statements. In addition, information given by past period associations should enhance predicted associations in the following periods (GÜNTHER, 2014; IASB, 2010). The predictive value and confirmatory value of financial information are interrelated. Materiality is an entity-specific aspect of relevance based on the nature or magnitude (or both) of the items to which the information relates in an individual entity's financial report.

Faithful representation is the second fundamental quality that makes accounting information useful for decision making. The relevant information needs to faithfully represent the fact that it claims to represent, being complete, neutral, and free from error (IASB, 2010). In general, faithfully represented accounting information is achieved by the obligation to transparently report results according to particular standards (e.g., USGAAP, BRGAAP) and the assurance of the accounting information given by an independent auditor.

Moreover, according to Conceptual Framework (IASB, 2010), information is more decision useful for users of financial statements if it is comparable to similar information of the entity for previous periods, as well as comparable to information provided by different entities for current or past periods. Information is verifiable if observers with different knowledge, such as external auditors and employees from the internal audit, can directly or indirectly[21] verify the information provided in the financial statement. Financial information is regarded as timeliness if it has an impact on the decision making of investors based on the time it is provided. The characteristic of understandability assumes that users of financial information have reasonable knowledge of business and economic activities and they are able to analyze the information with adequate diligence. With this prerequisite, users should be able to understand the essentials of the clearly and concisely presented information. All these characteristics have the persuasive constraint of costs because the benefit produced by the additional information must always justify the additional costs it incurs.

Therefore, the primary goal of published accounting data is to provide relevant and faithfully presented information to investors. Whereas faithfully represented financial information is achieved by committing companies to follow particular standards with the involvement of independent auditors, the characteristic of relevance requires empirical validation. This can explain the fact that most empirical studies in this research area have focused on analyzing the value relevance of financial information (DEOL, 2013).

The concept of relevance has engaged researchers and standard setters all around the world for some time, with the American Accounting Association (1966) being one of the first to quote relevance as the primary standard (GÜNTHER, 2014). Value relevance studies examine the relative and incremental associations of income measures with share prices and other market data. Accounting values are regarded as value relevant if they have a significant association with market values such as share prices and returns (OHLSON, 1995; BARTH, BEAVER, & LANDSMAN, 2001).

Essentially, accounting information can be value relevant, but not decision relevant if there is additional and more current information available in the market (BARTH, BEAVER, & LANDSMAN, 2001). Consequently, accounting information is only regarded as decision relevant if it adds additional information to the already available information, meaning that the

[21] A direct verification in this context relates either to an observation, such as verifying the amount of inventory, or to an indirect verification, which relates to checking the input factors included in an estimation model.

information is new and unexpected (BARTH, BEAVER, & LANDSMAN, 2001; CAUWENBERGE & DE BEELDE, 2007).

The studies about value relevance are new. BALL and BROWN (1968) were the precursors of the studies that analyze the mutual influence and impact between financial accounting and capital markets. They proved empirically the relationship between P&L and stock prices, and the importance of financial information for the investor's decisions. Using event and associate studies, BALL and BROWN (1968) found that P&L was considerably crucial for investors. The study justified that information about companies' annual performance (P&L) is related to stock prices. In other words, BALL and BROWN (1968) showed that the income number was value relevant for investors, since in general value relevance of accounting information means that the reported income figure is associated with share prices or returns (BARTH, BEAVER, & LANDSMAN, 2001).

As previously pointed out, the term "value relevance" refers to how well accounting amounts reflect the underlying economic value of a firm, as measured by stock market prices as a synthesis of market participants' beliefs about future cash flows and discount rates. The term emerged in studies by AMIR, HARRIS and VENUTI (1993), which investigated the relevance of reconciliation in the financial statements prepared in accordance with the accounting rules of a particular country, and compared to the information made on the US standards basis. In the last decade, several academics in accounting research have focused on valuation perspective research / value relevance research (HOLTHAUSEN & WATTS, 2001; KOTHARI & ZIMMERMAN, 1995).

In short, accounting amounts are value relevant if they are associated with stock prices, and value relevance research assesses how well accounting amounts reflect information that investors use (BARTH, BEAVER, & LANDSMAN, 2000; BARTH, BEAVER, & LANDSMAN, 2001). Literature on value relevance suggests that investors are the main users of accounting information and that they primarily use the provided data to predict future cash flows and company values in connection with their investment decisions (BARTH, BEAVER, & LANDSMAN, 2000; HOLTHAUSEN & WATTS, 2001). To identify such an association, most studies use linear regression models. In those studies accounting information is regarded as being value relevant if the estimated regression coefficient is associated with the dependent variable, i.e., statistically significant (CAUWENBERGE & DE BEELDE, 2007). Tests on the value relevance of accounting numbers are typically also tests of reliability, as value relevance

and reliability cannot be separated from each other (BARTH, BEAVER, & LANDSMAN, 2001).

The primary objective of these studies is to provide standard setters and the research community with findings on the value relevance of accounting numbers (GÜNTHER, 2014). BARTH, BEAVER, & LANDSMAN (2001) underline the need of simplify findings for the broader research community. They emphasize that the purpose of value relevance perspective research is not to provide the best prediction for the development of share prices or share return or company values, but to analyze if and to what extent information is used by addressees of financial information.

According to Barth, Beaver, and Landsman (2000), regarding the perspective, value relevance researchers typically adopt a measurement/valuation or informational perspective. As previously pointed out, value relevance research is in general based on valuation models to obtain insight into accounting questions. The valuation, informational and forecasting perspectives are consistent with the Conceptual Framework for Financial Reporting, since the fundamental characteristics of accounting information are relevance and faithful presentation. To be relevant, information should influence the decision making of financial statements users, helping them to predict future cash flows and/or confirm previous assumptions. The fundamental characteristics ensure that the information is useful and represents what it purports to represent.

The value relevance studies can be classified into categories (HOLTHAUSEN & WATTS, 2001; LAMBERT, 2001), as described in Table 2.

Table 2: Value Relevance studies categories

Category	Description
Relative Association Studies	Stock market values (or changes in values/returns) are associated with accounting data/alternative bottom-line measures (different accounting standards, measurement bases and/or national accounting standards).
Incremental Association Studies	Explore if the inclusion of other specified variables in the accounting information is helpful to explaining the market value/returns (longer periods).
Marginal Information Content Studies	The relationship between fluctuations in bond prices and the disclosure of a specific accounting value is analyzed (short window return studies).

Source: HOLTHAUSEN & WATTS (2001).

Studies on relative association of market data, such as share prices, and accounting values investigate if a given income measure, for instance P&L, contains more information than

another, for example CI, also providing a ranking on the information content. In other words, studies in this category analyze if a certain income measure is more suitable than another in explaining the association with market values.

In the context of the studies that comprise this dissertation, "relative association studies" are used to investigate if P&L is relatively more associated with market values, namely share prices and share returns, than CI, OCI and OCI components on a consolidated basis. In addition, the relative association approach is used to investigate the association between forecasted accounting numbers and different income measures (P&L, CI, OCI and OCI components).

The association between accounting and market figures is measured by using statistical model selection criteria and comparing the models against each other by confronting the adjusted R^2. The income measure providing the highest R^2 is considered the most value relevant (CAUWENBERGE & DE BEELDE, 2007).

The incremental association studies aim to investigate the usefulness of individual financial statement components or disclosures, while association studies are focused on examining the relative usefulness of alternative financial statement bottom line number categories. If there is variation in prices, then there is evidence that the accounting data is relevant, once it adds content to the disclosed information. In other words, incremental association studies examine whether successively adding one income measure (e.g., P&L including foreign currency adjustments) can provide additional information to the P&L on a standalone basis (HOLTHAUSEN & WATTS, 2001).

In the context of this dissertation, the incremental association study is used to investigate if the inclusion of OCI components is increasing the association with market values, namely share prices and share returns. Furthermore, a test is conducted to see if the inclusion of additional income measures increases the association with forecasted accounting numbers. The inclusion of an additional OCI component tends to be value relevant if the estimated regression coefficient is significantly different from zero or if the adjusted R^2 improves by subsequently adding components of OCI.

Marginal Information Content Studies investigate whether a particular accounting number adds value to the information available to investors. They typically use event studies (short window return studies) to determine if the release of an accounting number (conditional on other information released) is associated with value changes. Price reactions are considered evidence of value relevance (HOLTHAUSEN & WATTS, 2001).

In general, research in the field of value relevance is based on two theories of accounting and standard setting – "direct valuation" and "input-to-equity valuation". According to the direct valuation theory, accounting income and the book value of equity measure/are associated with changes or levels in the equity market value of the company (direct or almost direct value measurement). The analysis of R^2 is the relevant statistic for association studies, while the coefficient of accounting earnings or book value of equity is the relevant statistic for measurement studies.

According to the theory of input-to-valuation, accounting data are used as assumptions in the models of evaluation of companies – valuation – i.e., accounting plays the role of provider of variables for such models. Incremental association studies are usually based on the inputs-to-equity valuation theory (HOLTHAUSEN & WATTS, 2001).

In both theories there is the understanding that the earnings and the equity measure/or are strongly related to the company's value and its oscillations. In fact, the association between stock prices and accounting numbers from the standpoint of usefulness to obtain the firm's value is the core of value relevance studies. Furthermore, there is always the underlying premise that the accounting role is to provide estimates of equity market values or linear transformations of equity market values (HOLTHAUSEN & WATTS, 2001; BARTH, BEAVER, & LANDSMAN, 2001). Accounting measures are in general assumptions for fundamentalist analysis made by investors.

As previously pointed out, literature on value relevance suggests that investors are the main users of accounting information and that they primarily use the provided data to predict future cash flows and company values in connection with their investment decisions (BARTH, BEAVER, & LANDSMAN, 2000; HOLTHAUSEN & WATTS, 2001). HENDRIKSEN and VANBREDA (1999) explain that disclosure of accounting income, among others, intended to provide information for evaluation of performance and efficiency of the management of company and prediction/orientation of the future. BARTH, BEAVER and LANDSMAN (2000) explain that relevant and reliable accounting has to be significantly associated with any value (price). However, the role of accounting as source of information about the value of the company can be questioned once the balance sheet consists of assets and liabilities recorded at different measurement bases, and only a few are subsequently measured at fair value.

In addition, the market price of the shares incorporates more information than that available to a single/non-professional investor. Thus, each investor can have a proper valuation model in which data demands vary. Information can be timely for many individual investors,

but not the aggregate market. Thus, research of value relevance does not capture the diversity of investor evaluations, especially non-professional. Another important aspect is that accounting information may affect market price before it is disclosed to investors, suggesting that marginal information content cannot be a requirement for the accounting numbers. Therefore, it is clear that the studies under value relevance assume the premise that the share price reflects the expectations of investors in a reasonably efficient market (HOLTHAUSEN & WATTS, 2001).

In summary, the relevance of accounting information in the stock market is associated with the influence on investment decisions. Accordingly, neglect of the transactions recognized as OCI and disclosed in CI, such as the effects of short-term market volatility assets and long-term liabilities retained in the shareholders' equity of the company, can impact the assessment of economic and financial health of the company. Therefore, considering that current accounting standards allow significant gains and losses are not recognized in P&L in a given period, but in OCI, the analysis of this income measures becomes important to evaluate the performance of companies. Jones and Smith (2011) explain that the items recognized in the OCI may not be simply transient since they derive from choices made by managers, reflecting a policy adopted by the company. In addition to volatility and transience, another aspect that may influence the decision of investors regarding the use of CI in the analysis is the possibility of recognition of gains and unrealized losses on OCI, which can trigger uncertainties regarding the realization (HODDER, MAYEW, MCANALLY, & WEAVER, 2006). In other words, not very transparent items, but relevant to users of information, may be included in OCI, which could impact the valuation of a company's performance (O'HANLON & POPE, 1999).

2.4 Previous research

CI reporting as required by standard setters has been controversially discussed since its introduction. Opponents of the requirement, preparers and users of financial statements in particular, have emphasized the additional complexity and costs of reporting, among other things. In this respect, higher volatility and, as a consequence, higher perceived risk and the possible inherent confusion created by this transitory income measure affected by judgmental treatment have been criticized (GÜNTHER, 2014). Most preparers and users of financial statements have a tendency to ignore the need to redefine their concept of income and prefer traditional reporting under P&L.

On the other hand, standard setters and regulators have emphasized the need to increase transparency and information value of reporting data for stakeholders. They have highlighted the need to consistently provide important information about the underlying earnings strength for investors and, in particular, the relevance of CI for predicting future earnings and cash flows (BARTH, BEAVER, & LANDSMAN, 2000; HOLTHAUSEN & WATTS, 2001). Standard setters are aiming at aligning international reporting standards, and they intend to increase the use of CI in practice and to establish CI as a key performance indicator (CAUWENBERGE & DE BEELDE, 2007).

In this context, the demand for empirical validation of the dominance of CI over P&L or at least the proof of usefulness of this supplementary information has increased, and the relevance, presentation and usefulness of OCI have been discussed for some years in the accounting scenario. As a consequence, numerous studies have analyzed the value relevance of CI, i.e., the association of different income measures, P&L and CI in particular, with market data from around the world, including share prices or share returns over the past decade (GÜNTHER, 2014).

These studies analyze the statistical relationship between market data and different performance measures in order to provide empirical evidence for standard setters and the research community. However, research results are conflicting, probably because of differences in the years they were conducted, the econometric models used, the countries analyzed or the sectors included in the sample (MECHELLI & CIMINI, 2014; GÜNTHER, 2014). In short, studies are not able to provide consistent evidence that CI or OCI components are value relevant or value irrelevant for investors. This creates the need to enhance existing concepts and to conduct further research to validate presently available results (GÜNTHER, 2014).

Most of the available research concludes that P&L is associated more with share prices or share returns than CI. Additionally, it has been found that P&L is a better predictor of future Operating Cash Flows than CI. The main argument provided for this association is that compared to P&L, OCI is transitory in nature (KANAGARETNAM, MATHIEU, & SHEHATA, 2009). Part of the authors believes that OCI is not directly related to the main business (only one set of gains and unrealized losses), so it should be presented separately from the P&L.

On the other hand, research has shown that separate OCI removes the investor possibility of analyzing an amount that can significantly affect the equity of companies (JONES & SMITH, 2011; BARKER, 2004). The argument against the inclusion of CI as a key

performance measure is that it is often exposed to high volatility (CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007; BAMBER, JIANG, PETRONI, & WANG, 2010; JONES & SMITH, 2011). As a result, it is argued that CI has limited explanatory power for predicting company values and the underlying future Operating Cash Flows. These arguments neglect, however, that P&L also includes, to some extent, special items that are neither recurring nor from continuous operations and are classified as transitory (GÜNTHER, 2014).

From an accounting viewpoint it is not cogent to treat these figures in such a different way (JONES & SMITH, 2011). Relevance and value relevance of the information in financial statements is often understood differently. Various user groups of financial statements can often have different ideas about what information is relevant (HOLTHAUSEN & WATTS, 2001). The Conceptual Framework (IASB, 2010) lists various user groups of financial statements of a listed company and their different information needs. The IASB means that since investors supply equity capital to the company, information is of interest to them. Investors need relevant information to decide whether to sell, hold or buy shares of a company. However, opinions about relevant information may vary between different groups of investors (HOLTHAUSEN & WATTS, 2001).

In view of capital market research, investors are the primary users of financial statements. Capital market research suggests that the primary aim of financial statements is to provide a basis for valuation of companies. It is an extensive research area whose origin can be traced back to Ball and Brown´s (1968) empirical study where they examined the usefulness of income data that existed in the company accounting (BALL & BROWN, 1968; KOTHARI, 2001).

The study conducted by Ball and Brown (1968) is often associated with the term of value relevance that usually means that stock prices have a statistical connection to accounting information. This association indicates that the tested part of accounting information relates to the information used by investors when they make their investment decisions (FRANCIS & SCHIPPER, 1999). An assumption can be made that since most of the research on value relevance of CI used different methods of statistical association between income and some market information (stock prices, stock returns), this research can be understood as capital market research. As capital market research suggests that financial statements provide investors with information for company valuation, information about CI can be of interest to investors (RINGSTRÖM & EKSTRÖM, 2012).

An extensive research on relevance of CI compared to P&L has been carried out in different countries. Kubota, Suda, and Takehara (2009) examined the information content of CI, OCI and P&L for Japanese firms. They concluded that OCI is useful information, although they could not rank between P&L and CI.

In this regard, it is useful to distinguish between the two types of studies identified above. Some relative association studies (CHENG, CHEUNG, & GOPALAKRISHNAN, 1993; GONCHAROV & HODGSON, 2011) found that P&L has more explanatory power than CI. However, Biddle and Choi (2006) and Kanagaretnam, Mathieu, and Shehata (2009) report the opposite result, suggesting that CI has higher value relevance. These contradictory results appear very clearly in the research conducted by Dhaliwal, Subramanyam, and Trezevant (1999), which finds P&L to be more value relevant when including all the sectors in the sample, but found CI to be more value relevant when using a return model and including only financial entities. The uncertainty of their results did not allow them to reach a clear conclusion on the relative value relevance of the two kinds of income. The only conclusion they reached is that their results do not support the claim that income measured on a comprehensive basis is a better measure of firm performance than other summary income measures

Regarding companies, Kanagaretnam, Mathieu and Shehata (2009) sought to verify whether the presentation of OCI improved the informational level of Canadian companies from 1998 to 2003. Results showed that the items comprising OCI are value relevance, especially changes in the fair value of financial instruments "available for sale" and cash flow hedge, with respect to price and market return, especially when one considers that accounting standards tend to include more and more the concept of fair value as the basis of measurement. They found that available-for-sale financial instruments and cash flow hedges components are significantly associated with price and market returns, and that aggregate CI is more strongly associated (in terms of explanatory power) with both stock price and returns compared to P&L. However, P&L is a better predictor of future net income relative to CI. Their findings suggest that mandating all Canadian firms to adopt the new accounting standards is expected to enhance the usefulness of financial statements.

Chambers, Linsmeier, Shakespeare and Sougiannis (2007) and Choi and Zang (2007) found that OCI is significant in the valuation of a company. Choi and Zang (2007) provided evidence that stock prices react on the inclusion of OCI. Roberts and Wang (2009) found that total CI was incrementally relevant in Sweden, where equity market plays a crucial role in

financing of companies. Nonetheless, they conducted their study on total CI, and did not test value relevance of components of OCI.

Cahan, Courtenay, Gronewoller and Upton (2000) and Isidro, O´hanlon and young (2004) emphasized the importance of total OCI and not only of each component of the amount. Biddle and Choi (2006) found evidence for informational increase due to separate disclosure of OCI components.

Soo Soo (1994) and Louis (2003) pointed out that the conversion adjustments recognized in OCI are value relevant. However, the relationship between the stock price and the adjustment is reversed, i.e., a positive adjustment represents a decline in the stock price. This situation can be explained by the fact that the positive adjustment represents an appreciation of the subsidiary currency, which in a competitive scenario, directly impacts on prices, profits and market value (LOUIS, 2003).

In contrast, Dhaliwal, Subramanyam and Trezevant (1999) justified that only such component of CI as marketable securities adjustment was associated with stock returns. The researchers found no evidence that CI is more strongly associated with stock returns and market value of equity than P&L. Pinto, 2005 provides empirical evidence that reporting components of OCI as foreign currency translation adjustments is significantly value relevant. The researcher justifies disclosure of foreign currency translation adjustments when she uses the sample of US multinational companies with considerable investments in foreign countries.

In summary, there is evidence that confirms value relevance of OCI (JONES & SMITH, 2011) and OCI components, mainly: adjustments arising from changes in the fair value of financial instruments classified as "available for sale" (DHALIWAL, SUBRAMANYAM, & TREZEVANT, 1999) and translation adjustments (CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007) Nonetheless, there is research that indicates that investors do not have consistent criteria for assessing OCI (O'HANLON & POPE, 1999).

Moreover, some behavioral studies investigated CI relevance from the perspective of users. The study done by of Hirst and Hopkins (1998) revealed that financial analysts could detect earnings management on some items only if this information was disclosed in a SOCI. The experiment conducted by Maines and Mcdaniel (2000) examined the issue from the perspective of the non-professional investor. In this case, the results showed that analysts include OCI in company performance evaluation only when these items were presented in SOCI. They found that the way accounting information was presented influenced evaluation of the company´s performance by non-professional investors. The studies showed that non-

professional investors used CI information in a SOCI rather than the same information disclosed as a component of equity.

A survey conducted by King, Ortegren and Reed (1999) examined issues related to OCI disclosure and utility from the perspective of users of financial statements and those who prepare the information in the companies. The sample consisted of 234 CFOs (Chief Financial Officer) and 28 analysts from the Association of Investment Management Research (AIMR). The results indicated that for most CFOs, OCI is not useful information for users of financial statements. Thus, there is no need for two separated statements, i.e., OCI should be presented in SCE. The result for the user group indicated that OCI adds useful information that is not, however, the most important item of financial statements to assess the company's performance. Although there was a small number of abstentions, the authors were able to perceive that presentation interfered in the probability of CI analysis (KING, ORTEGREN, & REED, 1999). In sum, results of these studies have shown that the way of reporting CI can affect investors' decision making (SCHROEDER, CLARK, & CATHEY, 2009).

From the standpoint of presentation and usefulness, one of the most discussed issues in the last decades has been the choice of presentation of OCI only in SCE[22], which would reduce the level of transparency for investors and users of financial information (HIRST & HOPKINS, 1998; CAMPBELL, CRAWFORD, & FRANZ, 1999; KING, ORTEGREN, & REED, 1999; PANDIT & PHILLIPS, 2004; LEE, PETRONI, & SHEN, 2006; EATON, EASTERDAY, & RHODES, 2013; HUNTON, LIBBY, & MAZZA, 2006). The recognition of transactions directly in equity can reduce the quality of the income and incite earnings management (O'HANLON & POPE, 1999).

Based on the foregoing debate, it is clear that while the standard allowed the dirty surplus approach, many companies chose to disclose OCI in the SCE, suggesting to users of financial statements that there was no direct relationship between OCI and company performance. Thus, OCI was rarely included in the analyst valuation (JORDAN & CLARK, 2002). In fact, based on previous discussions it is noted that there is a relationship between the form of disclosure of OCI (especially when this item could be evidenced in SCE), its relevance to the users of financial statements and practice earnings management.

[22] Until 2011 the accounting standards allowed the disclosure of OCI only in the relation to the SCE. Currently, the disclosure must be made in a single statement (IS) or in two statements – IS and SOCI (having as starting point the P&L for the year). The Brazilian standards, however, are not fully in line with the current international standard in this regard since they determined that OCI should be disclosed separately (IASB, 2011; CPC, 2011).

The study of Campbell, Crawford and Franz (1999) confirms the relation between the form of presentation of OCI and its relevance. The authors investigated 73 companies and concluded that OCI represented, on average, 57% of the P&L for the companies that have opted for presenting it in a single statement (SOCI), while it was 81% of the P&L for those that presented in two statements (IS and SOCI). On the other hand, in companies that decided to present it directly on SCE, OCI was negative and equivalent to, on average, 17% of the P&L.

Concerning materiality, studies indicate that the components of OCI are material information (GONZALES, 2013; JORDAN & CLARK, 2002). Gonzales (2013) pointed out that OCI was material in the Brazilian equity companies from various sectors, including the agricultural and food sectors. Results showed that the OCI group represented on average between 3% and 4% of equity of the companies studied, and that in general the OCI impact on equity was negative and translation adjustments were the main source of OCI.

Regarding OCI components, especially foreign translation adjustments, several researchers, such as Pinto (2005); Chambers, Linsmeier, Shakespeare and Sougiannis (2007) find this OCI component to be value relevant; however, other studies present opposite results, indicating the lack of relevance of this item (DHALIWAL, SUBRAMANYAM, & TREZEVANT, 1999; O'HANLON & POPE, 1999; CAHAN, COURTENAY, GRONEWOLLER, & UPTON, 2000; GONCHAROV & HODGSON, 2011). It is interesting to note that the results of the study conducted by Louis (2003) highlight the statistical significance of foreign translation adjustments, but with a negative coefficient sign. The researcher attempts to explain this result by arguing that, in general, the translation adjustment are not a value relevant information for companies in the manufacturing sector because the accounting rules governing foreign currency translations generally produce results opposite to the economic effects of exchange rate changes.

Considering studies on unrealized gains and losses on available-for-sale securities, Dhaliwal, Subramanyam and Trezevant (1999), Chambers, Linsmeier, Shakespeare and Sougiannis (2007), Goncharov and Hodgson (2011) and Kanagaretnam, Mathieu and Shehata (2009) find this OCI component to be value relevant, especially when the sample is bound to financial entities.

Practitioners, standard setters and academics appear to consider OCI economically significant (ROBERTS & WANG, 2009). New accounting information has been included in the corporate income number, although there are a few studies on the usefulness of this information for users in Brazil. Value relevance of accounting information can be investigated

by the price model when stock price relates to book value of equity, earnings and other relevant information (OHLSON, 1995). To evaluate whether inclusion of OCI was useful for users in Brazil, a study of the association between stock prices and book value of equity, as well as earnings, might be useful.

Despite the approach (clean or dirty surplus), the association between net book value and the market variables behavior has been the subject of research for decades. Studies by of Ball and Brown (1968) and Beaver (1968) have evidenced the relevance of accounting variables for the analysis of investors. Regarding CI, in addition to research dealing with the relation between presentation and usefulness, there are several studies that deal with informational content of OCI and CI in relation to the capital market (DHALIWAL, SUBRAMANYAM, & TREZEVANT, 1999; CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007; KANAGARETNAM, MATHIEU, & SHEHATA, 2009; PRONOBIS & ZÜLCH, 2011; JONES & SMITH, 2011; MECHELLI & CIMINI, 2014; RINGSTRÖM & EKSTRÖM, 2012; SOO & G., 1994; LOUIS, 2003).

Cauwenberge and De Beelde (2007) focus on limitations of solely using P&L. The authors argue that the publication of two EPS ratios, one based on P&L and the other based on CI, could draw attention to these limitations and promote a more detailed, fundamental analysis of OCI components.

Despite the fact that accounting data are widely employed in the valuation of the performance of organizations, the importance of CI, OCI and OCI components in the assessments has not been investigated extensively, especially in Brazil. The contribution of the three studies is to establish whether CI, OCI and OCI components are value relevant. Value relevance research is important in order to evaluate the usefulness of accounting data for economic decisions (MECHELLI & CIMINI, 2014). Thus, this is a typical method used in the literature to measure accounting quality (CHENG, CHEUNG, & GOPALAKRISHNAN, 1993; BARTH, LANDSMAN, & LANG, 2008).

The study conducted by Madeira and Costa Junior (2014) pointed out the lack of value relevance to accumulated OCI in Brazil. The research was based on a sample of 40 Brazilian public companies in 2010 and 2011. A model similar to Ohlson (1995) was tested and the results showed that accumulated OCI does not have a statistically significant relationship with the market value of the component companies of the sample, that is, it is not value relevant to the Brazilian capital market. According the authors, the reasons for the results are related to the fact that the introduction of OCI in the Brazilian accounting framework is relatively recent (2010),

and the low quality of accumulated OCI disclosure in the financial statements. They pointed out that the capital market cannot understand the information and, therefore, not consider the accumulated OCI value on the stock price in the period analyzed.

The present study differs from the research carried out by Madeira and Costa Junior (2014) since the present dissertation focused on the CI from the point of view of income measure and not the accumulated OCI in equity. In addition, the sample includes Brazil companies that have recognized OCI items in the 2010–2015 period.

3. Comprehensive Income Value Relevance from Valuation Perspective

3.1 Valuation perspective

Studies using the measurement or valuation approach aim to investigate the relevance and faithful presentation, fundamental characteristics of accounting information, by analyzing predictions for regression coefficients. Faithful presentation is secured by the obligation to apply generally accepted accounting standards, whereas relevance needs to be examined empirically. In this perspective, the company value is expressed as a function of accounting variables (GONCHAROV & HODGSON, 2011). Hence, the focus areas of empirical CI research are the validation of value relevance, aiming at providing information for the standard setters (GÜNTHER, 2014).

The association between market data and accounting numbers is founded on a level-based valuation model where the market value of a company (e.g., share price) is expressed as a function of accounting numbers (e.g., CI), that is, the valuation perspective is tested by using a levels-based association model (GONCHAROV & HODGSON, 2011; COLLINS, MAYDEW, & WEISS, 1997; FRANCIS & SCHIPPER, 1999). Therefore, the specification of a value relevance regression equation is derived from a valuation model (CAUWENBERGE & DE BEELDE, 2007). The questions that are appropriate to a measurement perspective include how well accounting income measures economic income and how well an accounting asset or liability measures the associated economic asset or liability (BARTH, BEAVER, & LANDSMAN, 2000).

The valuation perspective incorporates expected and unexpected information using the market value or the share price of a company. The expected information is that which is already known to the market and included in the share price, whereas the unexpected information is represented by the share price change as a reaction of the release of accounting data (GÜNTHER, 2014). In the price-levels approach the accounting variables feed directly into the company value equation and summarize the economic value of the firm regardless of whether accounting information is timely or not (BARTH, BEAVER, & LANDSMAN, 2000). The significance of coefficients in the regression analysis indicates that independent variables include value relevant information. At the same time, the valuation model also delivers predictions for the values of the estimated regression coefficients.

In fact, measurement perspective is based on an important premise that valuation function in terms of accounting variables can be specified (CAUWENBERGE & DE BEELDE,

2010; BARTH, BEAVER, & LANDSMAN, 2000). Due to this assumption, since the end of the 1960s valuation perspective has been subject to severe criticism. The most important source of objection was that owing to uncertainty and the existence of imperfect and incomplete markets for a company's assets and liabilities, it is impossible to maintain the premise that accounting variables bear any simple, direct relationship to valuation (CAUWENBERGE & DE BEELDE, 2010). In other words, association studies based on the measurement approach potentially allow for inferences with regard to relevance of accounting numbers, in accordance with the Conceptual Framework for Financial Reporting.

In this study the level-based valuation perspective is applied in the price model in the following sections.

3.2 Statement of hypothesis

Based on the valuation perspective discussed in the section above, hypotheses making predictions about potential outcomes on the basis of theoretical foundation are developed, and they form the basis for the empirical analysis to answer the three research questions. The results of examining the hypothesis through the empirical analysis can be directly transferred to answering the research questions. The corresponding hypotheses to be tested were defined as follows:

H1a: CI is more associated with share prices than P&L;

H1b: OCI is associated with share prices, providing incremental information to assess the performance of companies compared to standalone P&L;

H1c: OCI on individual components basis is associated with share prices providing incremental information to assess the performance of companies compared to standalone P&L.

The empirical models used to test the hypotheses are detailed in the following section.

3.3 Research design

The research design for price level regressions follows the well-known theoretical study of OHLSON (1995) and FELTHAM & OHLSON (1995)[23] that expresses the investor's firm value as a function of a firm's book value and abnormal or residual earnings. The model focuses on the residual income relation, which provides a direct link between company value and accounting data (CAUWENBERGE & DE BEELDE, 2007). Even though several researchers praised the model as one of the most significant achievements in accounting research in the 1990s, other authors are more restrictive and only attribute a limited innovativeness to existing attempts, mainly in comparison with the dividend-discount model (DECHOW, HUTTON, & SLOAN, 1999; MYERS, 1999; MOREL, 2003; CALLEN & SEGAL, 2005).

Therefore, according to the purpose of this study, the levels-based model or price model was used in order to assess the value relevance of CI, OCI and OCI components compared to P&L, following the measurement perspective. Using a price level regression, the association between share prices and P&L were compared to the association with other accounting data such as CI, OCI and OCI components. This model is appropriate to classical relative and incremental association studies with the objective to evaluating which measure of income provides more useful information for the investor. The empirical implications of Ohlson (1995) and Feltham and Ohlson (1995) were applied to companies using the valuation function to test whether CI, OCI and components of OCI are associated with share prices compared to P&L, similar to DECHOW, HUTTON, & SLOAN (1999) as well as others (e.g., GRAHAM & LEFANOWICZ, 2003; KANAGARETNAM, MATHIEU, & SHEHATA, 2009; GÜNTHER, 2014; and RINGSTRÖM & EKSTRÖM, 2012).

3.3.1 Price model

In order to test the hypothesis, value relevance was tested using the following empirical models similar to those used in previous researches (KANAGARETNAM, MATHIEU, & SHEHATA, 2009; MECHELLI & CIMINI, 2014; GONCHAROV & HODGSON, 2011; RINGSTRÖM & EKSTRÖM, 2012). They are based on an expanded version of the valuation models, which are based on the influence of Book value of Equity and P&L on share prices.

[23] The model developed by OHLSON (1995) and FELTHAM and OHLSON (1995) is regarded as one of the most important landmark study in financial accounting and capital market research in the last decades (BERNARD, 1995; LUNDHOLM, 1995; LO & LYS, 2000; PENMAN, 2005).

In short, to test the hypothesis and answer the research questions, the association between share price and CI, OCI and the components of OCI, the following models were used based on OHLSON (1995) model in which all terms are deflated by the number of shares outstanding[24]:

$$P_{it} = \alpha_{0,1} + \alpha_1 BVE_{it} + \alpha_2 P\&L_{it} + \alpha_3 NegP\&L_{it} + \alpha_4 P\&L_{it} * NegP\&L_{it} + v_i + \varepsilon_{it} \quad \text{(Price\_1)}$$

$$P_{it} = \alpha_{0,2} + \alpha_5 BVE_{it} + \alpha_6 CI_{it} + \alpha_7 NegCI_{it} + \alpha_8 CI_{it} * NegCI_{it} + v_i + \varepsilon_{it} \quad \text{(Price\_2)}$$

$$P_{it} = \alpha_{0,3} + \alpha_9 BVE_{it} + \alpha_{10} P\&L_{it} + \alpha_{11} OCI_{it} + \alpha_{12} NegP\&L_{it} + \alpha_{13} P\&L_{it} * NegP\&L_{it} + \alpha_{14} NegOCI_{it} + \alpha_{15} OCI_{it} * NegOCI_{it} + v_i + \varepsilon_{it} \quad \text{(Price\_3)}$$

$$P_{it} = \alpha_{0,4} + \alpha_{16} BVE_{it} + \alpha_{17} P\&L_{it} + \alpha_{18} ACT_{it} + \alpha_{19} FOR_{it} + \alpha_{20} AFS_{it} + \alpha_{21} CFH_{it} + \alpha_{22} ASS_{it} + \alpha_{23} OTH_{it} + \alpha_{24} NegP\&L_{it} + \alpha_{25} P\&L_{it} * NegP\&L_{it} + \alpha_{26} NegACT_{it} + \alpha_{27} ACT_{it} * NegACT_{it} + \alpha_{28} NegFOR_{it} + \alpha_{29} FOR_{it} * NegFOR_{it} + \alpha_{30} NegAFS_{it} + \alpha_{31} AFS_{it} * NegAFS_{it} + \alpha_{32} NegCFH_{it} + \alpha_{33} CFH_{it} * NegCFH_{it} + \alpha_{34} NegASS_{it} + \alpha_{35} ASS_{it} * NegASS_{it} + \alpha_{36} NegOTH_{it} + \alpha_{37} OTH_{it} * NegOTH_{it} + v_i + \varepsilon_{it} \quad \text{(Price\_4)}$$[25]

Where subscripts (i) stands for the entity and (t) denotes the observation year:

P_{it} = average of the closing share price adjusted for dividends three days before and three days after the manually verified announcement. The share prices have been taken from the Economatica database; [26]

BVE_{it} = book value of equity at the beginning of the reporting period;

[24] Considering that the effect of scale on price level regressions can be substantial, to control heteroscedasticity and to isolate the effect of scale on statistical tests all model variables analyzed were deflated a by the number of shares (BROWN, LO, & LYS, 1999). Number of shares in this study always refers to the total number of shares outstanding which are defined as all issued shares held by the investor base less treasury shares, which are own shares held by the company. It was collected from Economatica.

[25] The revaluation of the company's assets was not included in the model because this variable is not significant to the Brazilian context, since the practice is prohibited by law.

[26] Considering the sample feature consisting of companies of various sizes and sectors, the natural logarithm of the variable Price was used in order not to violate the assumptions of the regressions.

$P\&L_{it}$ = profit or loss;

CI_{it} = comprehensive income;

OCI_{it} = other comprehensive income;

ACT_{it} = actuarial gains and losses on defined benefit plans;

FOR_{it} = gains and losses from translating the financial statements of a foreign operation;

AFS_{it} = adjustments in fair value of available-for-sale financial instruments;

CFH_{it} = adjustments in fair value of cash flow hedging instruments;

ASS_{it} = share of other comprehensive income of associated companies;

OTH_{it} = other items recognized in other comprehensive income;

Neg = binary variable that takes the value "one" if the income variable is negative and the value "zero" if the income measure is positive[27];

v_i= fixed company effect;

ε_{it} = error term.

In order to accommodate the omitted variable bias, the regressions have been expanded by adding control variables DebtEquity and Asset, which is in line with other value relevance researches such as CAUWENBERGE & DE BEELDE (2007), KANAGARETNAM, MATHIEU, & SHEHATA (2009), CAHAN, COURTENAY, GRONEWOLLER, & UPTON (2000) and GONCHAROV & HODGSON (2011). The company leverage (DebtEquity variable) was calculated by applying the logarithm of the division of the total debt by the value of total equity hand collected from the financial statements. The coefficient for leverage is expected to be either positive or negative. The logarithm of total assets (variable Asset), hand collected from the financial statements, was included to control the company size effect. The coefficient for this variable is expected to be positive. Additionally, temporal dummies (D_{2011}, D_{2012}, D_{2013}, D_{2014} and D_{2015}) were included in order to obtain evidence related to possible changes during the study period.

The price model was tested by running fixed effects balanced panel regressions. In the first step the Breusch-Pagan test was used to examine whether the use of pooled OLS regressions would be sufficient in the specific model. Even though the fixed effects are preferred for the value relevance models, the results from the OLS regressions are explicitly shown for comparability with other studies and to illustrate the differences between the applied

[27] The negative income is controlled for the possibly distorting effect of negative income, which is in line with the application in studies by CHAMBERS et al. (2007).

panel models. In the second step, the Hausman test was used to indicate whether the fixed effects model or the random effects model should be used. The performed Breusch-Pagan and the Hausman tests confirmed the application of fixed effects regression to determine the association between price and different income measures.

In general, panel data are multi-dimensional, combining the information on cross-sectional and time series data. The current panel data contains information about individual behavior across companies and over time (CAMERON & TRIVEDI, 2009). The main advantage of panel data is that it allows for the analyses of additional variation in observations over time and individual companies, which cannot be observed when analyzing cross-section or time series data on an individual basis (BALTAGI, 2008).

Moreover, panel data allows for the identification of associations between economic variables accounting for company specific heterogeneity and for dynamic effects that cannot be identified in cross section analyses (GREENE, 2003). The use of panel data, as compared to solely cross-sectional analyses such as OLS, helps to understand the economic connection by modeling differences across individual companies.

Furthermore, panel data allows for the incorporation of observable and unobservable individual heterogeneity in the econometric model (GÜNTHER, 2014). More specifically, panel data allows for the control of variables that change over time but are constant for each entity such as industry regulations, state interventions or international agreements and thereby accounting for individual heterogeneity (BALTAGI, 2008). Moreover, in situations in which the unobserved heterogeneity is correlated with one or more of the explanatory variables, the use of pooled OLS regressions may produce inconsistent or biased results (GÜNTHER, 2014). This study presents results from both fixed effects and pooled OLS regressions. Additionally, to control heteroscedasticity all regressions in this study have been calculated using the Huber–White standard errors on the basis of studies by Huber (1967) and White (1980)[28]. All statistical analyses of the empirical part of the present study have been conducted with the Stata 14 program.

[28] The Stata command “rob” has been used to calculate the Huber-White standard errors.

3.3.2 Sample selection and collection

3.3.2.1 Sample Selection

Sample selection is essential for empirical analysis. After explaining the model specifications and the procedure to be followed in the empirical analysis, the procedures of data collection and the final selection of the sample used in the analysis are depicted in this section.

As the basis for the companies analyzed in this study, public entities have been chosen because they are required to present financial statements under IFRS. The sample selection was conducted in three stages. In the first step, companies were selected by capturing the entities listed in BM&FBOVESPA, which are subject to the rules issued by CVM[29]. Initially, based on data from the database Economatica, 615 observations (shares traded) were selected with the cut-off date of April 30, 2016.

In the second step, from this population, for companies that had common and preferred shares outstanding[30], the observations for preferred share have been removed from the sample to avoid duplication in counting, totaling 226 observations eliminated.

In the third step, market data were collected from 2010 to 2015[31]. Thus, companies that do not have market data from any year in this period were eliminated. Additionally, companies whose shares presented low liquidity in this period were removed from the sample[32]. These data adjustments resulted in a sample of 267 companies. An overview of the adjustments carried out in this passage is provided in Table 3.

[29] As previously pointed out, since 2010 all companies listed in the Brazilian Stock Market (BM&FBOVESPA) are obliged to prepare their consolidated financial statements in accordance with IFRS (BRASIL, 2007).
[30] Ordinary and preferred shares are related to the same underlying accounting figures. In the empirical analysis income measures are examined which relate to the residual payout to ordinary shareholders and not to the fixed payout to preferred shareholders.
[31] Prices adjusted for dividends three days before and three days after the manually verified announcement were collected from the Economatica database
[32] The liquidity of the shares was analyzed based on the index "Stock Liquidity" of Economatica's database, which is based on the relationship between the number of days when action was traded in the period, number of trades and amount traded in comparison to all stocks traded in that period.

Table 3: Data selection, process on company basis

	Removed	Total
Initial Sample based on the Economatica database	-	615
Duplicates removed (preferred and ordinary shares)	226	389
Companies with insufficient market data available or low liquidity removed	122	267
Number of companies after the adjustments made		267
Based on the data collected period (2010-2015) this leads to an observation size of		1.602

3.3.2.2 Sample Collection

Accounting data available from databases, such as Economatica and S&P Capital IQ, currently is not accurate enough; in particular CI, OCI and OCI components are incomplete, unreliable or absent. Hence, to have a comparable and reliable basis for the analysis, the data was manually collected from the annual consolidated Financial Statements presented to CVM for all companies in the sample. This procedure eliminated the incompleteness of the data provided by databases. The procedure of hand collecting accounting data differs from other studies that were carried out by KANAGARETNAM, MATHIEU, & SHEHATA (2009), GONCHAROV & HODGSON (2011). However, the hand-collection is in line with the approach taken by JONES & SMITH (2011), GÜNTHER (2014). DEVALLE & MAGARINI (2012) and CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS (2007).

The market data (e.g., share prices and outstanding shares) were collected from Economatica databases for reasons of accessibility. The dates of announcement were collected from S&P Capital IQ database. The quality of market data in the database was adequate for both providers. This can be an explanation for the fact that the databases used for data collection differs across studies in this research area.

Next, accounting information was collected from annual reports of the companies from 2010 to 2015. Companies that did not present OCI in any year of the reporting period were eliminated. All accounting variables collected from their annual reports are in Brazilian currency, the Real. Therefore, all observations from the initial sample have been removed whenever all components of OCI were equal to zero, since they could be considered as missing data either because the values were not being reported or because the company had no OCI component to report. Such observations result in a CI equal to P&L. For companies where at least one component of OCI was reported, zeros were inserted for the remaining components. These procedures assume that the reporting company followed the concept of CI reporting, and

by using this method avoided that the values in the final sample were actually missing[33]. These procedures are in line with the method adopted in studies conducted by KANAGARETNAM, MATHIEU, & SHEHATA (2009), GONCHAROV & HODGSON, (2011) and JONES & SMITH (2011). Moreover, observations with extreme values deviating significantly from the mean were dropped. This approach is in line with comparable studies in this research area by authors such as GONCHAROV & HODGSON, (2011) and GÜNTHER, (2014). Another motivation for this approach is the possible occurrence of "fat-tailed distributions" when considering the test for normality.

These procedures reduce the partial sample size to 66 companies (396 observations) as presented in Table 4.

Table 4: Sample selection and final sample

	Removed	Total
Number of companies after the data selection process	-	267
Remove companies where all OCI components equal to zero	195	72
Remove companies with extreme values	6	66
Number of companies after the adjustments made		66
Based on the data collected period (2010-2015) this leads to an observation size of		396

3.3.3 Descriptive statistics

3.3.3.1 Quantitative overview

The quantitative overview provides a first impression of the distribution and development of the different income measures, and it can be considered a basis for the regression analysis and the interpretation of the results carried out in the following sections.

In the first step, a general overview of the distribution of P&L, CI, OCI and OCI components in the sample is provided. The number of observations for P&L, CI and components of OCI with non-zero counts over the observation period is presented in Table 5. All observations contain P&L, CI and OCI; however, the number of published OCI components differs significantly across observations and period, as presented below. The number of observations for actuarial gains and losses on defined benefit plans (ACT) represents 34.8% of

[33] If the nonexistence of values are falsely assumed but were in reality not truly missing, this could distort the results significantly. The hand collection of data in addition ensures that there was no information mistakenly lost due wrong classification.

the observations; foreign currency translation adjustments (FOR) amounting to 65.4%, gains and losses on available-for-sale financial assets (AFS) are reported in 45.7%, the effective portion of gains and losses in cash flow hedges (CFH) is equivalent to 29.3% of all observations, share of OCI of investments in associates (ASS) amounting to 21%, and other items recognized in Other Comprehensive Income (OTH), especially deferred taxes, equal to 52.5%.

Table 5: Observations of income measures with non-zero counts

	2010		2011		2012		2013		2014		2015		Total	
	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%
$P\&L_{it}$	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	396	100
CI_{it}	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	396	100
OCI_{it}	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	396	100
ACT_{it}	14	3.5	13	3.3	18	4.5	32	8.1	30	7.6	31	7.8	138	34.8
FOR_{it}	40	10.1	41	10.4	43	10.9	45	11.4	44	11.1	46	11.6	259	65.4
AFS_{it}	35	8.8	33	8.3	35	8.8	27	6.8	26	6.6	25	6.3	181	45.7
CFH_{it}	15	3.8	17	4.3	18	4.5	20	5.1	22	5.6	24	6.1	116	29.3
ASS_{it}	11	2.8	11	2.8	11	2.8	15	3.8	16	4.0	19	4.8	83	21.0
OTH_{it}	39	9.8	39	9.8	37	9.3	31	7.8	32	8.1	30	7.6	208	52.5

The variable acronyms mean profit or loss (P&L), comprehensive income (CI), other comprehensive income (OCI), actuarial gains and losses on defined benefit plans (ACT), gains and losses from translating the financial statements of a foreign operation (FOR), adjustments in fair value of available-for-sale financial instruments (AFS), adjustments in fair value of cash flow hedging instruments (CFH), share of other comprehensive income of associated companies (ASS) and other items recognized in other comprehensive income (OTH).

In the second step, considering that one of the major aspects covered throughout this study is the comparison of P&L and CI, the development of these income measures over the observation period is analyzed via graphical examination. In Figure 8, the development of income measures is illustrated over the observation period of empirical analysis.

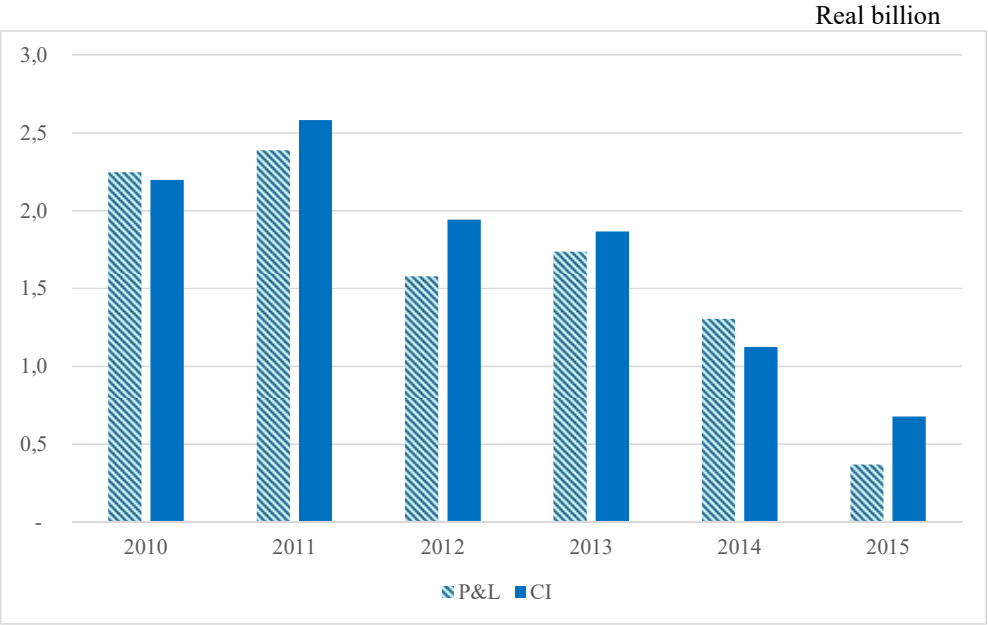


Figure 8: P&L and CI mean

Income measures were strongly impacted by the economic crisis in Brazil in the last years. Moreover, Figure 8 shows that especially for the crisis years, particularly in 2015, P&L is on average significantly lower than CI due to increased OCI, notably the foreign currency translation adjustments (FOR). Figure 8 also shows that the analysis of P&L and CI requires a more differentiated and segregated examination.

The difference between P&L and CI, namely OCI and its components, are displayed in more detail in Figure 9, which shows OCI segregated into the following components: actuarial gains and losses on defined benefit plans (ACT), gains and losses from translating the financial statements of a foreign operation (FOR), adjustments in fair value of available-for-sale financial instruments (AFS), adjustments in fair value of cash flow hedging instruments (CFH), share of other comprehensive income of associated companies (ASS), and other items recognized in other comprehensive income (OTH).

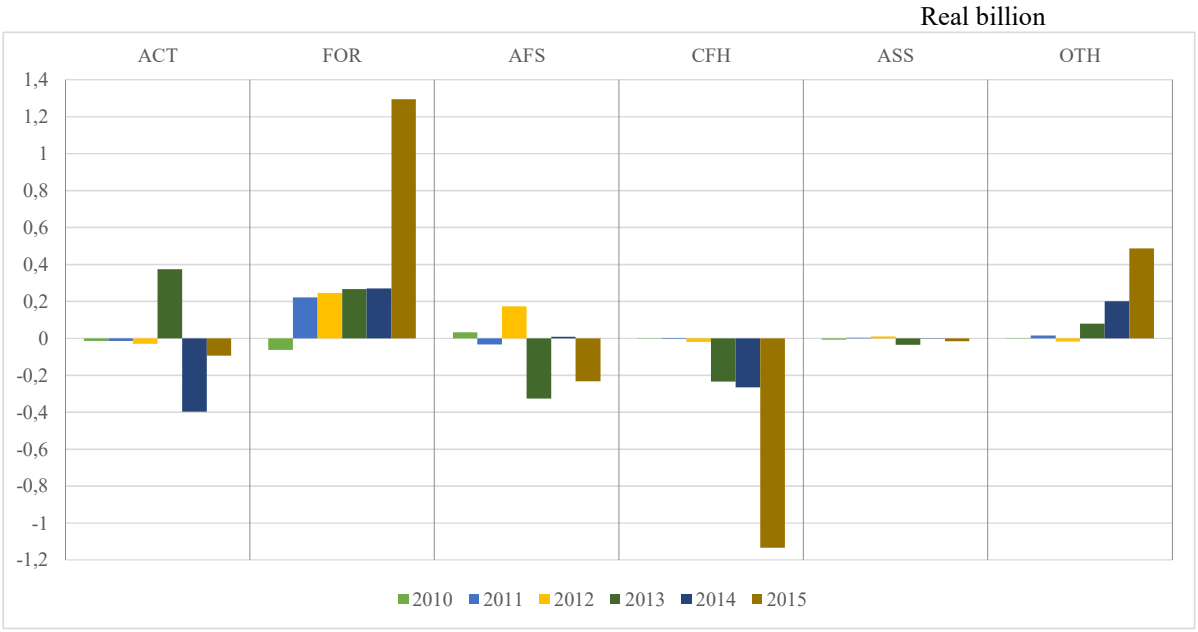


Figure 9: OCI components mean

Figure 9 illustrates that the composition of OCI components vary significantly over time. This result is an indicator of the fact that a comparison based solely on means is insufficient and the use of a fixed effects model including company specific fixed effects could be appropriate. Changes in CI were mainly driven by FOR. The impact of CFH on CI increases over time. In addition, Figure 9 shows that the importance of OCI components significantly changes over time. This graphic also illustrates that there might be companies where those components are non-significant on an absolute basis (based on absolute values) but can be significant on a relative basis (relative to e.g., P&L). In particular, FOR and CFH show extreme values over time.

The increase in gains and losses from translating the financial statements of a foreign operation (FOR) absolute value can be related to the volatility of the US dollar, as shown in Figure 10[34].

[34] The series of dollar price were collected from the Central Bank of Brazil and are available at https://www3.bcb.gov.br/sgspub/consultarvalores/consultarValoresSeries.do?method=trocarGrafico.

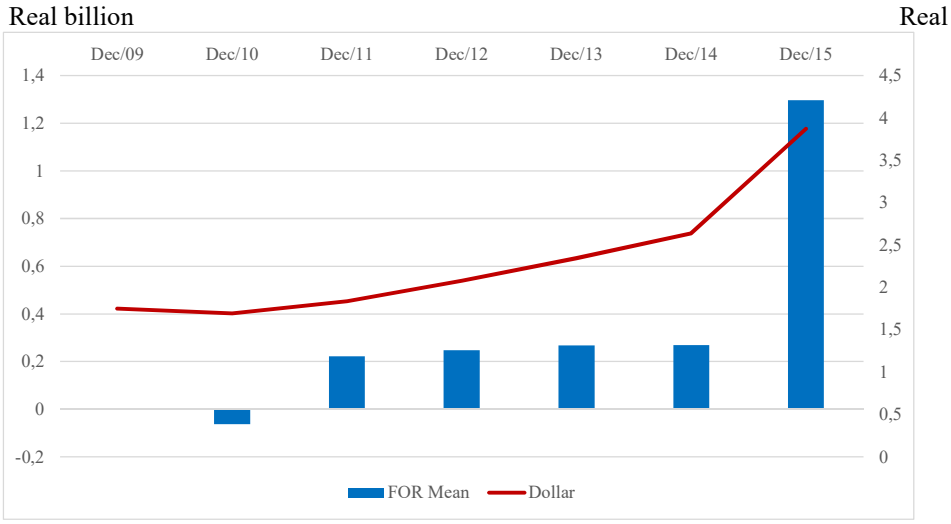


Figure 10: Volatility FOR vs dollar

3.3.3.2 Descriptive statistics

The summary statistics illustrated in Table 6 provide an overview of the different variables used in the price model. The total sample size used to examine the association between share price and income measures amounts to 396 observations.

Table 6: Descriptive Statistics – Price Model

Variables[35]	N	Mean	SD	Min.	Max.
P_{it}	396	2.558	0.814	-0.0985	4.593
BVE_{it}	396	13.62	11.84	0.162	76.87
$P\&L_{it}$	396	1.344	2.092	-8.926	9.394
CI_{it}	396	1.522	2.138	-5.120	9.835
OCI_{it}	396	0.178	1.218	-8.158	8.568
ACT_{it}	396	-0.00187	0.554	-3.769	8.903
FOR_{it}	396	0.215	0.961	-1.669	8.387
AFS_{it}	396	-0.0150	0.248	-2.989	2.012
CFH_{it}	396	-0.0873	0.696	-11.46	0.587
ASS_{it}	396	0.0230	0.321	-0.860	5.839
OTH_{it}	396	0.0442	0.349	-3.027	4.489
$Asset_{it}$	396	3.382	1.029	-1.056	6.209
$DebtEquity_{it}$	396	1.112	0.697	0.0237	3.803

The share price (P_{it}) represents the Price per share natural logarithm that had a mean of 2.558 and a standard deviation of 0.814. The original variable had a mean of 17.4658, and due to the large variation of the share prices in the sample, the standard deviation was 14.443. The

[35] As previously pointed out, the variables are deflated by number of shares outstanding.

mean for P&L and CI are positive and confirm the expected outcome. The OCI mean is positive; however, the OCI components ACT, AFS and CFH had negative means[36]. The mostly negative values for the components of OCI could be a result of the economic downturn for the observation period.

Regarding correlation presented in Table 7, except for the correlation between P&L and CI (83%) and FOR and OCI (82%), situations that violate the multicollinearity assumption was not observed. The high correlation between P&L and CI are expected since CI covers P&L, and OCI covers FOR. Considering that the proposed price models did not include the pairs of variables simultaneously, the high correlation does not cause multicollinearity. Considering the interrelation between the variables, the high correlation is acceptable.

The variance inflation factor (VIF) was used to revalidate the results for a potential indicator of multicollinearity between variables. For the price models the highest observed VIF score is 3.21, which is clearly below the critical value of 10 and indicates that an issue of multicollinearity is not predominant for the observed data.

[36] This distribution of the observation for OCI components is in line with descriptive statistics carried out in comparable studies by KANAGARETNAM, MATHIEU, & SHEHATA (2009) and GONCHAROV & HODGSON (2011).

Table 7: Correlation Matrices – Price Model

	Price	BVE_{it}	PL_{it}	CI_{it}	OCI_{it}	ACT_{it}	FOR_{it}	AFS_{it}	CFH_{it}	ASS_{it}	OTH_{it}	Debt $Equity_{it}$	$Asset_{it}$	PL* Neg $P\&L_{it}$	ACT* Neg ACT_{it}	FOR* Neg FOR_{it}	AFS* Neg AFS_{it}	CFH* Neg CFH_{it}	ASS* Neg ASS_{it}	OTH *Neg OTH_{it}
P_{it}	1.00																			
BVE_{it}	0.32	1.00																		
$P\&L_{it}$	0.53	0.33	1.00																	
CI_{it}	0.50	0.47	0.83	1.00																
OCI_{it}	-0.03	0.25	-0.25	0.32	1.00															
ACT_{it}	-0.04	-0.01	-0.07	0.11	0.31	1.00														
FOR_{it}	-0.03	0.28	-0.24	0.24	0.82	0.01	1.00													
AFS_{it}	0.03	-0.05	-0.02	0.06	0.15	0.06	0.01	1.00												
CFH_{it}	0.00	0.01	-0.00	0.23	0.41	-0.00	0.05	-0.01	1.00											
ASS_{it}	-0.05	0.10	-0.20	-0.03	0.28	-0.00	0.02	-0.04	0.02	1.00										
OTH_{it}	0.05	0.07	0.07	-0.19	-0.46	-0.56	-0.03	-0.28	-0.61	-0.01	1.00									
Debt $Equity_{it}$	-0.18	-0.23	-0.06	-0.20	-0.24	-0.03	-0.12	-0.15	-0.22	-0.11	0.19	1.00								
$Asset_{it}$	0.24	0.51	0.36	0.38	0.05	-0.04	0.13	-0.15	-0.08	-0.00	0.15	0.42	1.00							
$P\&L_{it}$*Neg $P\&L_{it}$	0.20	-0.10	0.63	0.38	-0.42	0.01	-0.42	0.00	0.01	-0.37	-0.02	-0.05	-0.05	1.00						
ACT_{it}*Neg ACT_{it}	-0.06	-0.21	-0.17	-0.07	0.17	0.52	0.00	0.13	-0.01	0.02	-0.33	-0.11	-0.25	-0.02	1.00					
FOR_{it}*Neg FOR_{it}	0.00	0.06	0.04	0.22	0.31	0.03	0.20	-0.01	0.36	0.04	-0.30	-0.20	-0.06	0.10	0.03	1.00				
AFS_{it}*Neg AFS_{it}	0.00	-0.06	-0.09	-0.01	0.13	0.07	0.04	0.62	-0.02	-0.05	-0.24	-0.25	-0.25	-0.01	0.15	-0.03	1.00			
CFH_{it}*Neg CFH_{it}	-0.00	0.00	-0.00	0.23	0.41	0.00	0.05	-0.00	0.52	0.02	-0.61	-0.21	-0.08	0.02	-0.01	0.36	-0.02	1.00		
ASS_{it}*Neg ASS	0.08	-0.03	0.03	0.08	0.10	0.00	0.03	0.01	0.05	0.21	-0.04	-0.02	-0.05	0.05	0.03	0.08	0.01	0.05	1.00	
OTH_{it}* NegOTH_{it}	0.01	-0.07	-0.04	-0.18	-0.25	-0.41	0.02	-0.15	-0.02	0.01	0.50	-0.04	-0.09	-0.03	-0.02	-0.02	-0.01	-0.02	-0.00	1.00

3.4 Results

This section presents the results from the regressions of the association of the P&L, CI, OCI as well OCI components with the share price, illustrated in section 3.3.1, testing the hypothesis H1a, H1b and H1c.

The models were tested in steps. Initially, the association between the independent variables and dependent variable share price (regressions "a") was investigated. In the second step, the control variables were included – Asset and DebtEquity as well as the binary variable that takes the value "one" if the income variable is negative and the value "zero" if the income measure is positive (Neg) – (regressions "b"). In the third stage, the effect of negative income measures on share prices was investigated in the regressions, namely "c". In the last step, temporal dummies were included (regressions "d").

Models 1a, 1b, 1c, 1d, 2a, 2b, 2c and 2b, presented in Table 8, examined H1a, that is, if CI is more associated with share prices than P&L. The models in which only the income measures are considered as independent variables (1a and 2a) are not statistically valid considering the significance of the F-statistic. R^2 of models range from 17.7% (2a) to 31.4% (1 d). The variable BVE is significant at 10% level in models that include P&L (1a, 1b, 1c and 1d) and at 5% for models that include CI (2a, 2b, 2c and 2d). It was observed that the variables P&L and CI are statistically significant at 1% level and have positive coefficients on all models presented. The effect of negative income measures and control variables were not statistically significant.

Although both income measures are relevant regarding price, the result shows that the P&L is more relevant than CI, since P&L coefficient was more significant than CI (0.113 compared to 0.083). Considering that the OCI of the period is non-recurring, CI, which includes OCI, should have a lower coefficient. Furthermore, the R^2 of 31.4% (1d) demonstrates a stronger association between P&L and price compared to the R^2 of the CI model (26.4%).

Table 8: Price Model: P&L vs CI

P_{it} (share price around announcement date of results)								
	Price_1a	**Price_1b**	**Price_1c**	**Price_1d**	**Price_2a**	**Price_2b**	**Price_2c**	**Price_2d**
Constant	2.463***	2.506***	2.506***	2.323***	2.534***	2.582***	2.555***	2.364***
	(0.059)	(0.161)	(0.161)	(0.177)	(0.073)	(0.167)	(0.165)	(0.194)
BVE_{it}	-0.006*	-0.006*	-0.006*	-0.006*	-0.011**	-0.011**	-0.011**	-0.010**
	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
$P\&L_{it}$	0.129***	0.117***	0.112***	0.113***				
	(0.022)	(0.023)	(0.022)	(0.023)				
CI_{it}					0.112***	0.092***	0.083***	0.083***
					(0.025)	(0.027)	(0.027)	(0.025)
$NegP\&L_{it}$		-0.083	-0.077	-0.109				
		(0.118)	(0.119)	(0.110)				
$P\&L_{it}$*$NegP\&L_{it}$			0.012	-0.023				
			(0.051)	(0.051)				
$NegCI_{it}$						-0.192	-0.136	-0.137
						(0.117)	(0.130)	(0.120)
CI_{it}*$NegCI_{it}$							0.073	0.020
							(0.106)	(0.103)
$Asset_{it}$		0.035	0.037	0.062		0.016	0.014	0.054
		(0.055)	(0.055)	(0.067)		(0.055)	(0.055)	(0.069)
$DebtEquity_{it}$		-0.111	-0.109	-0.072		-0.036	0.015	0.026
		(0.112)	(0.110)	(0.113)		(0.130)	(0.131)	(0.142)
D_{2011}				0.080**				0.064*
				(0.036)				(0.036)
D_{2012}				0.245***				0.210***
				(0.050)				(0.052)
D_{2013}				0.098*				0.052
				(0.056)				(0.059)
D_{2014}				-0.027				-0.045
				(0.085)				(0.086)
D_{2015}				-0.113				-0.180*
				(0.102)				(0.102)
Adj. R^2	24.1%	24.3%	24.2%	31.4%	17.7%	18.4%	18.6%	26.4%
F (sig)	0.1770	0.0220	0.0101	0.0003	0.2210	0.0375	0.0289	0.0005
Observations	396	396	396	396	396	396	396	396

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Regarding temporal dummies, there is evidence that 2011, 2015 and especially 2012 were relevant years that influenced share price, as shown in Figure 11, that presents the return of the BM&FBovespa indices: Ibovespa (Bovespa Index)[37], IBrX 100 (Brazil 100 Index)[38] and IBrx 50[39] from 2010 to 2015.

[37] The Bovespa Index is designed to gauge the stock market's average performance tracking changes in the prices of the more actively traded and better representative stocks of the Brazilian stock market.
[38] The IBrX 100 is designed to measure average stock performance tracking changes in the prices of the 100 most actively traded and best representative stocks of the Brazilian stock market.
[39] The IBrX 50 is designed to measure average stock performance tracking changes in the prices of the 50 most actively traded and best representative stocks of the Brazilian stock market.

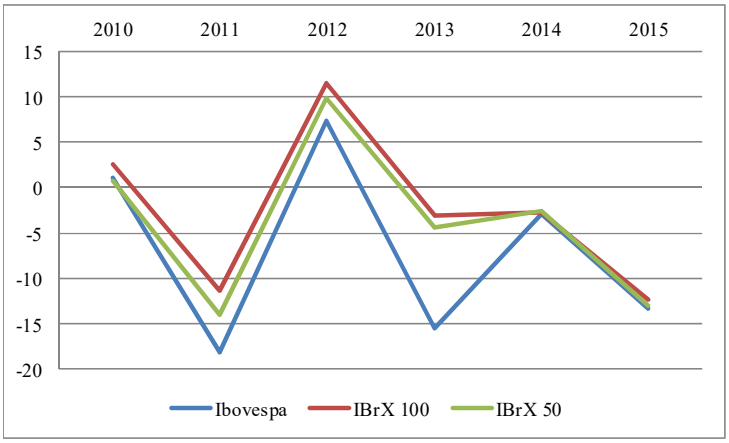


Figure 11: Brazilian broad indices
Source: Economatica

Models 3a, 3b, 3c, 3d, 4a, 4b, 4c and 4d, presented in Table 9 aim to investigate H1b and H1c about the incremental information provided by OCI and OCI components, respectively.

Regarding OCI models (3a, 3b, 3c and 3d), all models are statistically valid according to the significance at 10% of statistical F. R^2 of models range from 24.1% (3a) to 31.4% (3d). As in the previous models, P&L is positive and statistically significant at 1% on all models. The dummy variable that indicates negative OCI ($NegOCI_{it}$) is significant at 5%. However, like the positive OCI, negative OCI (OCI*NegOCI) is not statistically significant. The results show that the inclusion of OCI did not provide significant incremental information, since R^2 of P&L (1a, 1b, 1c and 1d) has not increased significantly compared to OCI models (3a, 3b, 3c and 3d). Moreover, OCI was not significant in any of the investigated models.

Models 4a, 4b, 4c and 4d include OCI components and test the H1c hypothesis. All models are statistically valid according to the significance of statistical F. R^2 of models range from 23.8% (4c) to 32.0% (4d). As in previous models, P&L is positive and statistically significant at 1% on all models.

The results show that ACT, AFS, CFH and OTH are statistically significant in regressions 4a and 4b. The positive and significant CFH coefficient could be an indication of the fact that investors distinguish between effective and ineffective risk management based on cash flow hedges and price them accordingly. Goncharov and Hodgson (2011) and Devalle and Magarini (2012) did not find an association between CFH and the share price, while Kanagaretnam, Mathieu, and Shehata (2009) found a negative and weak association for CFH at 10% for a Canadian sample. Deol (2013) found a positive but weak association at 10% based on Canadian firms. The sign of AFS is positive and

significant at 1% level. This result is consistent with the findings of KANAGARETNAM, MATHIEU, & SHEHATA (2009).

However, after the inclusion of the effects of negatives results (4c) and the time dummies (4d), the significance of these OCI components are no longer significant. Considering that CI, in general, and components of OCI, in particular, are often regarded as being transitory in nature, CI generally follows a random walk model and revert over time and, therefore, should have an expectation value of zero (CHAMBERS, LINSMEIER, SHAKESPEARE, & SOUGIANNIS, 2007).

Table 9: Price Model: OCI vs OCI components

	P_{it} (share price around announcement date of results)							
	Price_3a	**Price_3b**	**Price_3c**	**Price_3d**	**Price_4a**	**Price_4b**	**Price_4c**	**Price_4d**
Constant	2.460***	2.536***	2.532***	2.370***	2.460***	2.475***	2.490***	2.270***
	(0.059)	(0.160)	(0.162)	(0.177)	(0.062)	(0.165)	(0.165)	(0.177)
BVE_{it}	-0.006*	-0.007*	-0.007*	-0.006*	-0.006*	-0.007*	-0.006*	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)
$P\&L_{it}$	0.136***	0.118***	0.114***	0.113***	0.134***	0.117***	0.108***	0.105***
	(0.024)	(0.025)	(0.023)	(0.024)	(0.026)	(0.027)	(0.024)	(0.025)
OCI_{it}	0.025	-0.002	-0.002	0.012				
	(0.029)	(0.031)	(0.044)	(0.045)				
ACT_{it}					0.136***	0.120**	0.119	0.023
					(0.051)	(0.058)	(0.153)	(0.146)
FOR_{it}					0.017	0.011	0.024	0.050
					(0.045)	(0.048)	(0.064)	(0.069)
AFS_{it}					0.232***	0.217***	0.167	-0.021
					(0.064)	(0.072)	(0.163)	(0.144)
CFH_{it}					0.198***	0.180**	0.005	0.103
					(0.058)	(0.075)	(0.571)	(0.578)
ASS_{it}					0.076	0.064	0.042	0.047
					(0.052)	(0.049)	(0.097)	(0.093)
OTH_{it}					0.480***	0.471***	0.420**	0.266
					(0.142)	(0.161)	(0.164)	(0.167)
$NegP\&L_{it}$		-0.078	-0.073	-0.092		-0.096	-0.073	-0.104
		(0.115)	(0.116)	(0.108)		(0.122)	(0.126)	(0.117)
$P\&L*NegP\&L_{it}$			0.013	-0.015			0.028	0.009
			(0.057)	(0.057)			(0.072)	(0.070)
$NegOCI_{it}$		-0.083**	-0.081**	-0.071**				
		(0.036)	(0.036)	(0.034)				
$OCI*NegOCI_{it}$			0.010	-0.047				
			(0.074)	(0.074)				
$NegACT_{it}$						-0.019	0.002	0.003
						(0.054)	(0.061)	(0.065)
$ACT*NegACT_{it}$							0.035	0.077
							(0.166)	(0.160)
$NegFOR_{it}$						0.031	0.028	0.056
						(0.054)	(0.053)	(0.054)
$FOR*NegFOR_{it}$							-0.085	-0.258
							(0.258)	(0.276)
$NegAFS_{it}$						-0.014	-0.016	-0.039
						(0.050)	(0.051)	(0.052)
$AFS*NegAFS_{it}$							0.070	0.201
							(0.192)	(0.155)

	Price_3a	Price_3b	Price_3c	Price_3d	Price_4a	Price_4b	Price_4c	Price_4d
$NegCFH_{it}$						0.031	0.012	-0.002
						(0.056)	(0.066)	(0.055)
$CFH*NegCFH_{it}$							0.157	-0.011
							(0.580)	(0.590)
$NegASS_{it}$						0.009	0.090	0.169**
						(0.068)	(0.060)	(0.072)
$ASS*NegASS_{it}$							0.672**	0.637*
							(0.274)	(0.362)
$NegOTH_{it}$						0.037	0.037	0.045
						(0.055)	(0.058)	(0.058)
$OTH*NegOTH_{it}$							0.102	-0.009
							(0.489)	(0.473)
$Asset_{it}$		0.035	0.035	0.067		0.031	0.034	0.066
		(0.053)	(0.054)	(0.067)		(0.059)	(0.058)	(0.072)
$DebtEquity_{it}$		-0.105	-0.094	-0.087		-0.083	-0.090	-0.080
		(0.118)	(0.126)	(0.127)		(0.134)	(0.136)	(0.137)
D_{2011}				0.053				0.119***
				(0.039)				(0.042)
D_{2012}				0.224***				0.281***
				(0.052)				(0.053)
D_{2013}				0.071				0.143**
				(0.060)				(0.060)
D_{2014}				-0.046				-0.005
				(0.087)				(0.093)
D_{2015}				-0.146				-0.101
				(0.108)				(0.123)
Adj. R^2	24.2%	24.9%	24.5%	31.6%	25.1%	24.1%	23.8%	32.0%
F (sig)	0.0719	0.0103	0.0034	0.0002	0.0002	0.0000	0.0000	0.0000
Observations	396	396	396	396	396	396	396	396

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10 presents recalculated models based on OLS regressions for comparability with other studies closely linked to the empirical analysis in this study, for example, studies by KANAGARETNAM, MATHIEU, & SHEHATA (2009) and GONCHAROV & HODGSON (2011).

The adjusted R^2 on the basis of the OLS regression ranges from 31.6% to 34.4% for different models and between 26.4% and 34.6% on the basis of the fixed effects regression. The model in which CI was an independent variable presented the highest R^2. However, P&L coefficient is more significative than CI coefficient. In general, both the OLS regressions presented higher coefficient than the fixed effects regressions, with the exception of variables controls (Asset and DebtEquity) that were not statistically significant in the fixed effects model, but were in the OLS model. The differences could partly be explained because of the fact that for OLS regressions the coefficients incorporates information to explain differences across companies, such as size and leverage, whereas the fixed effects regression already captures those differences with a specific fixed effect for each company.

Table 10: Price Model: Fixed Effects vs OLS regression

P_S_{it} (share price around announcement date of results)								
	Fixed Effects				OLS regression			
	Price_1d	**Price_2d**	**Price_3d**	**Price_4d**	**Price_1d**	**Price_2d**	**Price_3d**	**Price_4d**
Constant	2.323***	2.364***	2.370***	2.270***	2.118***	2.128***	2.162***	1.984***
	(0.177)	(0.194)	(0.177)	(0.177)	(0.126)	(0.128)	(0.131)	(0.147)
BVE_{it}	-0.006*	-0.010**	-0.006*	-0.005	0.000	-0.000	0.000	-0.002
	(0.004)	(0.005)	(0.003)	(0.003)	(0.004)	(0.005)	(0.004)	(0.004)
$P\&L_{it}$	0.113***		0.113***	0.105***	0.244***		0.240***	0.242***
	(0.023)		(0.024)	(0.025)	(0.029)		(0.030)	(0.032)
CI_{it}		0.083***				0.184***		
		(0.025)				(0.032)		
OCI_{it}			0.012				-0.027	
			(0.045)				(0.043)	
ACT_{it}				0.023				0.066
				(0.146)				(0.160)
FOR_{it}				0.050				0.002
				(0.069)				(0.049)
AFS_{it}				-0.021				0.076
				(0.144)				(0.185)
CFH_{it}				0.103				-0.567
				(0.578)				(0.654)
ASS_{it}				0.047				-0.078
				(0.093)				(0.098)
OTH_{it}				0.266				0.324
				(0.167)				(0.284)
$NegP\&L_{it}$	-0.109		-0.092	-0.104	-0.007		-0.017	-0.015
	(0.110)		(0.108)	(0.117)	(0.128)		(0.132)	(0.140)
$P\&L_{it}*NegP\&L_{it}$	-0.023		-0.015	0.009	-0.202***		-0.209***	-0.217***
	(0.051)		(0.057)	(0.070)	(0.059)		(0.067)	(0.078)
$NegCI_{it}$		-0.137				-0.184		
		(0.120)				(0.159)		
$CI_{it}*NegCI_{it}$		0.020				-0.251**		
		(0.103)				(0.104)		
$Neg_{it}OCI_{it}$			-0.071**				-0.093	
			(0.034)				(0.075)	
$OCI_{it}*NegOCI_{it}$			-0.047				-0.003	
			(0.074)				(0.080)	
$NegACT_{it}$				0.003				0.140
				(0.065)				(0.105)
$ACT_{it}*NegACT_{it}$				0.077				0.227
				(0.160)				(0.200)
$NegFOR_{it}$				0.056				0.043
				(0.054)				(0.104)
$FOR_{it}*NegFOR_{it}$				-0.258				-0.217
				(0.276)				(0.225)
$NegAFS_{it}$				-0.039				0.004
				(0.052)				(0.082)
$AFS_{it}*NegAFS_{it}$				0.201				0.076
				(0.155)				(0.220)
$NegCFH_{it}$				-0.002				0.080
				(0.055)				(0.091)
$CFH_{it}*NegCFH_{it}$				-0.011				0.664
				(0.590)				(0.663)
$NegASS_{it}$				0.169**				-0.109
				(0.072)				(0.104)

	Fixed Effects				OLS regression			
	Price_1d	**Price_2d**	**Price_3d**	**Price_4d**	**Price_1d**	**Price_2d**	**Price_3d**	**Price_4d**
ASS_{it}*$NegASS_{it}$				0.637*				0.783*
				(0.362)				(0.445)
$NegOTH_{it}$				0.045				0.213**
				(0.058)				(0.086)
OTH_{it}*$NegOTH_{it}$				-0.009				0.118
				(0.473)				(0.503)
$Asset_{it}$	0.062	0.054	0.067	0.066	0.065	0.102**	0.076	0.093**
	(0.067)	(0.069)	(0.067)	(0.072)	(0.045)	(0.049)	(0.047)	(0.047)
$DebtEquity_{it}$	-0.072	0.026	-0.087	-0.080	-0.207***	-0.198***	-0.219***	-0.241***
	(0.113)	(0.142)	(0.127)	(0.137)	(0.060)	(0.069)	(0.061)	(0.064)
D_{2011}	0.080**	0.064*	0.053	0.119***	0.069	0.038	0.038	0.101
	(0.036)	(0.036)	(0.039)	(0.042)	(0.111)	(0.111)	(0.112)	(0.124)
D_{2012}	0.245***	0.210***	0.224***	0.281***	0.290***	0.226**	0.268**	0.306**
	(0.050)	(0.052)	(0.052)	(0.053)	(0.110)	(0.112)	(0.112)	(0.125)
D_{2013}	0.098*	0.052	0.071	0.143**	0.157	0.056	0.134	0.224*
	(0.056)	(0.059)	(0.060)	(0.060)	(0.112)	(0.116)	(0.114)	(0.129)
D_{2014}	-0.027	-0.045	-0.046	-0.005	0.026	-0.047	0.005	0.054
	(0.085)	(0.086)	(0.087)	(0.093)	(0.117)	(0.120)	(0.118)	(0.127)
D_{2015}	-0.113	-0.180*	-0.146	-0.101	-0.079	-0.219*	-0.100	-0.029
	(0.102)	(0.102)	(0.108)	(0.123)	(0.126)	(0.127)	(0.126)	(0.138)
Adj. R^2	31.4%	26.4%	31.6%	32.0%	31.6%	34.4%	32,00%	34.3%
F (sig)	0.0003	0.0000	0.0005	0.0000	0.0002	0.0000	0.0000	0.0000
Observations	396	396	396	396	396	396	396	396

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.5 Significant findings

This study provides empirical evidence on value relevance of CI, OCI and OCI components from the perspective of valuation by analyzing the association between the mentioned income measures and market data. In order to answer the three research questions, three hypotheses were investigated.

Results indicate that CI is associated with share prices, providing value relevant information. However, P&L is more value relevant than CI from the valuation perspective. Furthermore, the inclusion of OCI did not provide additional value relevant information compared to standalone P&L. Despite some OCI components such as AFS, CFH and FOR provide value relevant information, results reveal that there is no evidence that OCI components are associated with share prices, nor that they provide incremental information to assess the performance of companies compared to standalone P&L because over time the OCI components fail to be value relevant.

Several reasons may explain the results. From the standpoint of general investor, OCI, incorporating unrealized and non-recurring components, may introduce noise through realization uncertainty because they are temporary and volatile. Hence, this makes the estimation of income

persistence in the valuation models more difficult (HODDER, MAYEW, MCANALLY, & WEAVER, 2006). Moreover, if some unrealized components are capital increments that are required to maintain continued operations, then this may also cloud the valuation fundamentals of firms with long-term operating assets and liabilities, if included in income (GONCHAROV & HODGSON, 2011).

Consequently, CI, OCI and OCI components should not have a higher association with market values compared to P&L, especially in the long-term. In addition, investors can regard CI as distorting and, therefore, would not include this information in their valuation. Studies by Mechelli and Cimini (2014) and Goncharov and Hodgson (2011) have also concluded that P&L is more relevant than CI.

The results are summarized in Figure 12.

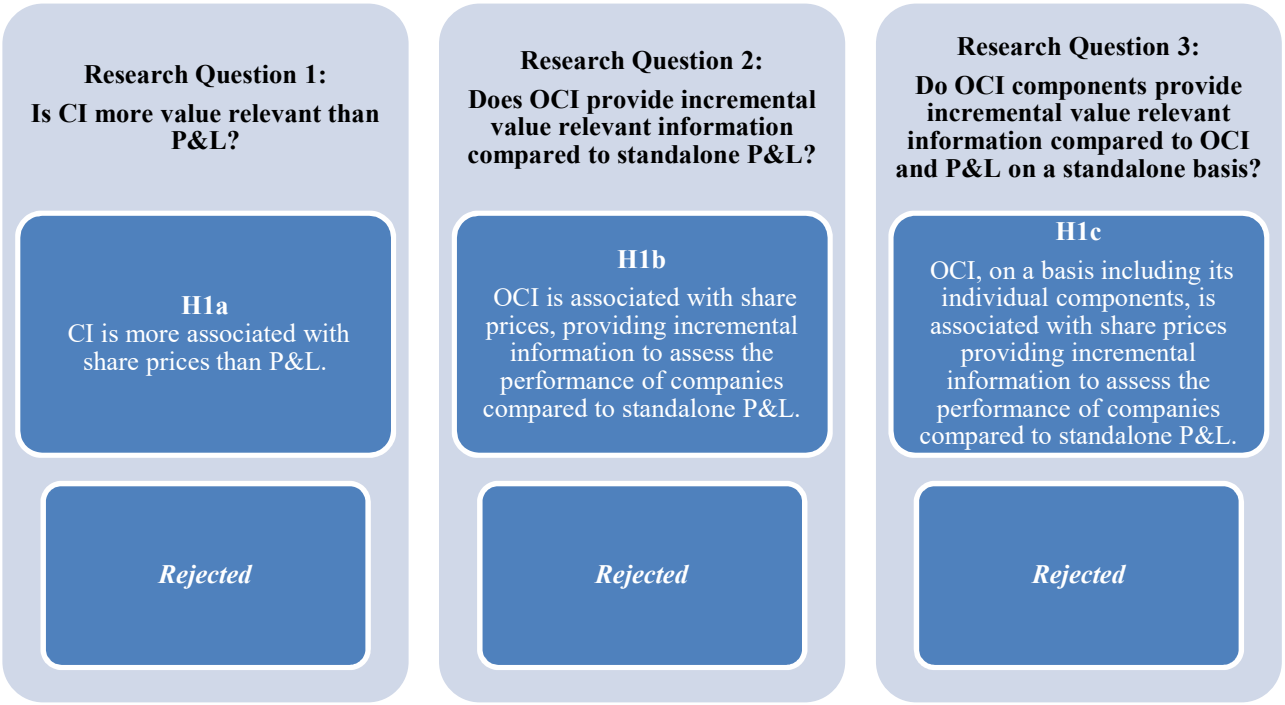


Figure 12: Valuation Perspective: Results

4. Comprehensive Income Value Relevance from Informational Perspective

4.1 Informational perspective

The question of income measures usefulness is very important for financial information users as well as accounting researchers, practitioners, and regulators (LEV, 1989). According to BARTH, LANDSMAN, & LANG (2008), the quality of financial statements is associated with the relation between P&L / shareholders' equity and stock prices, i.e., a high association between accounting information and market data indicates that the accounting numbers are able to capture the economic reality of company.

The issue can be analyzed from various angles. This study examines the question from the informational perspective. While the measurement perspective focuses on the value relevance of accounting information by including the share price level in the model, the informational perspective focuses on the share prices change and, therefore, analyzes if the additional information is useful for users of financial statements (CAUWENBERGE & DE BEELDE, 2010).

In other words, the informational perspective primarily reflects unexpected information and unexpected earnings (LEV, 1989). According to Ball and Brown (1968), “An observed revision of stock prices associated with the release of the income report would thus provide evidence that the information reflected in income numbers is useful."

From the informational perspective, accounting information is only regarded as value relevant if the information is unexpected and provides additional information to the already available information in the market, implying that it comes as a surprise. Therefore, accounting numbers are only regarded as having informational value if they incrementally adjust prices by taking all other value relevant information as given (GONCHAROV & HODGSON, 2011). The maintained assumptions of this paradigm are the capital market efficiency and the usefulness of accounting data to investors (LEV & OHLSON, 1982; LEV, 1989).

Research designs that provide evidence on informational perspective issues can be similar to those that address measurement perspective questions, although the predictions tested are likely to differ. In particular, determining whether an accounting amount is value relevant can reflect the informational perspective as well as the measurement perspective. By the use of regressions, investigation was conducted on which income measure was more related to the share returns. A relative association test was carried out to determine whether CI is more associated to the share return than P&L. An incremental association test was carried out to explore whether the components of OCI

increase the association with share return in compared to P&L on standalone basis. The association tested in these models provided implications in connection with relevance and reliability of accounting numbers.

The statistical significance of independent variables indicates a value relevant impact on the share return. As pointed out by BARTH, BEAVER, & LANDSMAN (2001), a higher association of income measures and share return implies that the additional accounting information is likely to be used in the investor's assessments. The estimated regression coefficients provide an indication of the impact that particular independent variables have on the share return. The income measure with the most significant coefficient or the highest adjusted R^2 is assumed to be the most value relevant.

In the context of this study, the informational approach is applied through the return model, as detailed in the following sections.

4.2 Statement of hypothesis

The hypotheses were developed based on theoretical concepts that underlie the informational perspective in order to answer the three research questions. The corresponding hypotheses were defined as follows:

H2a: CI variation is more associated with share returns than P&L variation;

H2b: OCI variation is associated with share returns, providing incremental information to assess the performance of companies compared to P&L variation;

H2c: OCI on individual components variation basis is associated with share returns providing incremental information to assess the performance of companies compared to P&L variation.

The empirical models used to test the hypotheses are detailed in the following section.

4.3 Research design

Research design is founded on clean surplus and value relevance theories. The clean surplus theory determines that the amount corresponding to the equity variation is recognized in income (RIAHI-BELKAOUI, 2000). Value relevance theory is based on the comparison between the market value of the equity/stock prices and accounting information in order to ascertain how relevant this

information is to the investor decisions (BALL & BROWN, 1968; OHLSON, 1995). Research on value relevance uses several statistical models to structure the relationship between accounting information and the value of the company. Therefore, regression analyses are used (KANAGARETNAM, MATHIEU, & SHEHATA, 2009; PRONOBIS & ZÜLCH, 2011; ROBERTS & WANG, 2009) and, in particular, the Ohlson model (OHLSON, 1995).

Therefore, the value relevance of accounting amounts can be investigated with both price and return models. Despite their common theoretical framework, these two types of models allow the researcher to investigate different aspects of value relevance. This study uses an empirical quantitative research approach to examine the relative and incremental associations between share returns and CI, OCI and OCI components from 2010 to 2015. This specific approach of examining the statistical relation between market data and different income measures in connection with CI has been referred to as "empirical comprehensive income research" by CAUWENBERGE & DE BEELDE (2007).

The model specifications developed to investigate the research questions and to examine the hypotheses detailed in the previous sections are presented in the following sections.

4.3.1 Return model

Following an informational perspective, the change based return model is applied to evaluate the association between share return and income measures. Based on relative and incremental approaches, the present study investigates whether CI, OCI and components of OCI provided value relevant information compared to standalone P&L.

Kothari and Zimmerman (1995) and Kanagaretnam, Mathieu, and Shehata (2009) argue that relying exclusively on price or return models could lead to misinterpretation of results. The estimated slope coefficients are less biased in price models compared to returns models. However, price models have more econometric problems in the form of heteroskedastic specification errors (KOTHARI & ZIMMERMAN, 1995; CHRISTIE, 1987). The authors show that there is a higher probability for a price model to wrongly reject homoscedasticity than for return models. On the other hand, they demonstrate that the regression coefficient relating to earnings responses is more biased for return models than for price models. Consequently, they recommend the use of both forms to avoid a possible model specific interference and to improve the validity of results. The second study that comprises this dissertation investigated the association between share returns, CI, OCI and OCI components.

Moreover, since market returns models often use change variables, omitted variables should have less of an effect on results. Whereas the price level regression analyzes the association between absolute market values in the form of share prices and income measures (valuation model), the return model is based on the relation between changes in share prices and income measures, i.e., built on the difference between changes in the share price and changes in different income measures (CAUWENBERGE & DE BEELDE, 2007). While the price model incorporates all available market information, expected and unexpected, return regression focuses on unexpected information, represented by the return. The assumption of the return model is based on the study conducted by BALL & BROWN (1968) that demonstrates that information is only relevant to investors if they incorporate the information in their valuation and that this results in price revisions.

Therefore, inclusion of both the price and the returns models potentially provides more convincing evidence. In this context, income measures are only regarded as value relevant if they incrementally adjust the share price under the assumption that all other available information is already reflected in the share price. Based on this assumption, the unexpected part of the information needs to be separated from the expected part (CAUWENBERGE & DE BEELDE, 2007).

In this study a random walk model is applied to predict the expected part of the information, which implies that the expectations for income components are equal to the reported income measures in the current period, which is in line with findings in other studies (KOTHARI, 2001; CAUWENBERGE & DE BEELDE, 2007; LEV & OHLSON, 1982; KOTHARI & ZIMMERMAN, 1995). Consequently, the unexpected part of the information is equal to the difference between the income components of two periods.

Analogous to the price model, all variables were measured on a per share basis[40]. The models detailed below are similar to those applied in other studies, such as Kanagaretnam, Mathieu and Shehata (2009), Goncharov and Hodgson (2011), Mechelli & Cimini (2014).

[40] Considering that the effect can be substantial, to control heteroscedasticity and to isolate the effect of scale on statistical tests, all model variables analyzed was deflated a by the number of shares (BROWN, LO, & LYS, 1999). Number of shares in this study always refer to the total number of shares outstanding, which are defined as all issued shares held by the investor base less treasury shares, which are the company's own shares. It was collected from Economatica.

$$RET_{it} = \beta_{0,1} + \beta_1 \Delta P\&L_{it} + \beta_2 Neg\Delta P\&L_{it} + \beta_3 \Delta P\&L_{it} * Neg\Delta P\&L_{it} + v_i + \varepsilon_{it} \quad \text{(Return\_1)}$$

$$RET_{it} = \beta_{0,2} + \beta_4 \Delta CI_{it} + \beta_5 Neg\Delta CI_{it} + \beta_6 \Delta CI_{it} * Neg\Delta CI_{it} + v_i + \varepsilon_{it} \quad \text{(Return\_2)}$$

$$RET_{it} = \beta_{0,3} + \beta_7 \Delta P\&L_{it} + \beta_8 \Delta OCI_{it} + \beta_9 Neg\Delta P\&L_{it} + \beta_{10} \Delta P\&L_{it} * Neg\Delta P\&L_{it} + \beta_{11} Neg\Delta OCI_{it} + \beta_{12} \Delta OCI_{it} * Neg\Delta OCI_{it} + v_i + \varepsilon_{it} \quad \text{(Return\_3)}$$

$$RET_{it} = \beta_{0,4} + \beta_{13} \Delta P\&L_{it} + \beta_{14} \Delta ACT_{it} + \beta_{15} \Delta FOR_{it} + \beta_{16} \Delta AFS_{it} + \beta_{17} \Delta CFH_{it} + \beta_{18} \Delta ASS_{it} + \beta_{19} \Delta OTH_{it} + \beta_{20} Neg\Delta P\&L_{it} + \beta_{21} \Delta P\&L_{it} * Neg\Delta P\&L_{it} + \beta_{22} Neg\Delta ACT_{it} + \beta_{23} \Delta ACT_{it} * Neg\Delta ACT_{it} + \beta_{24} Neg\Delta FOR_{it} + \beta_{25} \Delta FOR_{it} * Neg\Delta FOR_{it} + \beta_{26} Neg\Delta AF_{it} + \beta_{27} \Delta AFS_{it} * Neg\Delta AFS_{it} + \beta_{28} Neg\Delta CFH_{it} + \beta_{29} \Delta CFH_{it} * Neg\Delta CFH_{it} + \beta_{30} Neg\Delta ASS_{it} + \beta_{31} \Delta ASS_{it} * Neg\Delta ASS_{it} + \beta_{32} Neg\Delta OTH_{it} + \beta_{33} \Delta OTH_{it} * Neg\Delta OTH_{it} + v_i + \varepsilon_{it} \text{ (Return\_4)}$$ [41]

Where subscripts (i) stands for the entity and (t) denotes the observation year[42]:

RET_{it}= cum-dividend share return between two reporting dates of results (t and t-1)[43];

$\Delta P\&L_{it}$ = changes in profit or loss between t and t-1;

ΔCI_{it} = changes in comprehensive income between t and t-1;

ΔOCI_{it} = changes in other comprehensive income between t and t-1;

ΔACT_{it} = changes in actuarial gains and losses on defined benefit plans between t and t-1;

ΔFOR_{it} = changes in gains and losses from translating the financial statements of a foreign operation between t and t-1;

ΔAFS_{it} = changes in adjustments in fair value of available-for-sale financial instruments between t and t-1;

ΔCFH_{it} = changes in adjustments in fair value of cash flow hedging instruments between t and t-1;

ΔASS_{it} = changes in share of other comprehensive income of associated companies between t and t-1;

[41] The revaluation of the company's assets was not included in the model because this variable is not significant in the Brazilian context since the practice is prohibited by law

[42] Control variables Asset and DebtEquity as already used in the first study and detailed in the price model (valuation perspective) were also included in the return model to test for effects that may have biased the results in the regressions.

[43] The cum-dividend share return has been calculated by subtracting the average of the closing share price three days before and three days after the manually verified announcement dates (between two dates of Financial Statements announcement). Share prices have been taken from the Economatica database.

ΔOTH_{it} = changes in other items recognized in other comprehensive income between t and t-1;
Neg = binary variable that takes the value "one" if the income variable is negative and the value "zero" if the income measure is positive[44];
v_i = fixed company effect;
ε_{it} = error term.

Considering the results of the statistical tests performed by Breusch-Pagan[45] and Hausman[46], the return model was tested by running fixed effects balanced panel regressions. Even though the fixed effects are preferred for the value relevance models, the results from the OLS regressions are explicitly shown for comparability with other studies and to illustrate the differences between the applied panel models[47].

The motivation for using the fixed effects model is to control a potential bias within the individual company by including a company specific constant in the model. As a result, the time-invariant fixed effect is separated from the other independent variables, enabling an unbiased assessment of the net effect. One limitation of the fixed effects model is that time-invariant variables such as dummy sector variables cannot be included in the model as they are assumed to be collinear with the company and therefore omitted from the regression (GÜNTHER, 2014).

In order to control for heteroscedasticity all regressions in this study have been calculated using the Huber–White standard errors on the basis of the studies by Huber (1967) and White (1980)[48]. All statistical analyses of the empirical part have been conducted with the Stata 14 program.

4.3.2 Sample selection and collection[49]

The procedures for sample selection are the same used in the Valuation Perspective (Study 1), as shown in Figure 13.

[44] The negative income is controlled for the possibly of a distorting effect of negative income. This procedure is in line with other studies, such as Chambers et al. (2007).
[45] The test was used to examine whether the use of pooled OLS regressions would be sufficient in the specific model.
[46] The Hausman test indicates whether the fixed effects model or the random effects model should be used.
[47] The section 3.3.1 discusses the panel data in more detail.
[48] The Stata command "rob" has been used to calculate the Huber-White standard errors
[49] Section 3.3.2 describes in detail the sample selection and collection procedures used in the first study.

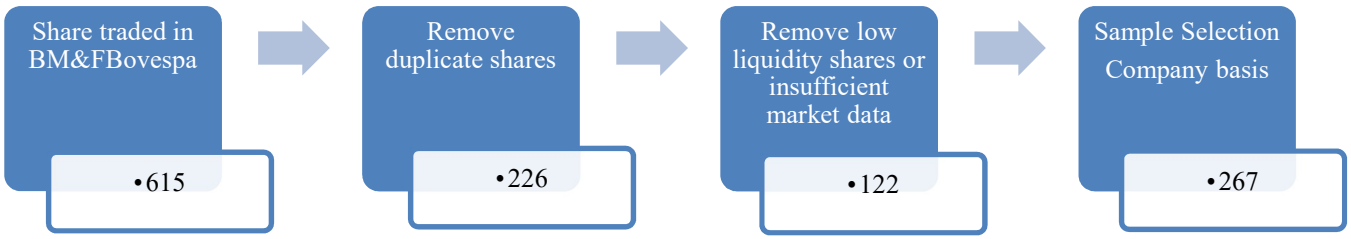


Figure 13: Return Model: Sample selection

The procedures used in the sample collection are similar to those used in the Valuation Perspective. Market[50] and accounting[51] data were collected from 2009 to 2015, as shown in Figure 14.

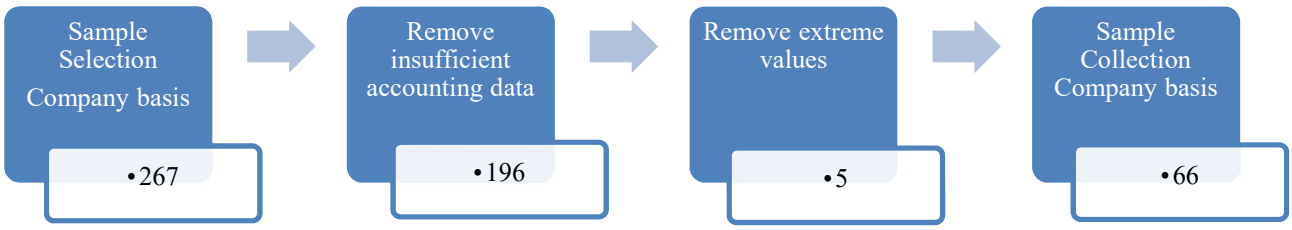


Figure 14: Return Model: Sample collection

Considering that the return model is based on the variation in the OCI components between two report periods, it was considered insufficient data only when the company didn´t have all OCI components in both periods.

The procedures reduce the partial sample size by 66 companies (396 observations). However, although both final samples (Price and Return Models) contain the same number of observations, the samples are not compound by the same companies.

[50] Closing cum-dividend share price three days before and three days after the manually verified announcement dates (between two dates of Financial Statements announcement). The share prices have been taken from the Economatica database.

[51] Accounting information were collected from company annual reports from 2010 (compared to 2009) to 2015 presented to CVM. All accounting variables collected from the annual reports are in Brazilian currency - Real.

4.3.3 Descriptive statistics

This section presents the descriptive statistic of the sample and begins with a quantitative overview of income measures based on the sample used in the analysis. The following sections present the descriptive statistics and provide an overview of the main characteristics of data, including correlation matrices.

4.3.3.1 Quantitative overview

The number of observations for the changes in P&L, CI, OCI and components of OCI with non-zero counts over the observation period is presented in Table 11. All observations contain P&L, CI and OCI; however, the number of published OCI components differs significantly across observations and period, as presented below. The number of observations for actuarial gains and losses on defined benefit plans (ACT) represents 36.4% of the observations; foreign currency translation adjustments (FOR) amounting to 67.2%, gains and losses on available-for-sale financial assets (AFS) are reported in 52.5%, the effective portion of gains and losses in cash flow hedges (CFH) is equivalent to 34.1% of all observations, share of OCI of investments in associates (ASS) amounting to 25.8%, and other items recognized in Other Comprehensive Income (OTH), especially deferred taxes, equal to 61.4%.

Table 11: Observations of income measures with non-zero counts – Return Model

	2010		2011		2012		2013		2014		2015		Total	
	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%
RET_{it}	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	396	100.0
$\Delta P\&L_{it}$	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	396	100.0
ΔCI_{it}	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	396	100.0
ΔOCI_{it}	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	66	16.7	396	100.0
ΔACT_{it}	16	4.0	14	3.5	18	4.5	33	8.3	32	8.1	31	7.8	144	36.4
ΔFOR_{it}	43	10.9	41	10.4	43	10.9	47	11.9	46	11.6	46	11.6	266	67.2
ΔAFS_{it}	39	9.8	37	9.3	38	9.6	38	9.6	28	7.1	28	7.1	208	52.5
ΔCFH_{it}	18	4.5	19	4.8	20	5.1	25	6.3	25	6.3	28	7.1	135	34.1
ΔASS_{it}	14	3.5	13	3.3	15	3.8	20	5.1	19	4.8	21	5.3	102	25.8
ΔOTH_{it}	43	10.9	42	10.6	43	10.9	43	10.9	37	9.3	35	8.8	243	61.4

The variables acronyms are cum-dividend share return (RET), changes in profit or loss (ΔP&L), changes in comprehensive income (ΔCI), changes in other comprehensive income (ΔOCI),

changes in actuarial gains and losses on defined benefit plans (ΔACT), changes in gains and losses from translating the financial statements of a foreign operation (ΔFOR), changes in adjustments in fair value of available-for-sale financial instruments (ΔAFS), changes in adjustments in fair value of cash flow hedging instruments (ΔCFH), changes in share of other comprehensive income of associated companies (ΔASS) and changes in other items recognized in other comprehensive income (ΔOTH).

The FOR variation was very significant in the period examined[52]. Figure 15 presents the OCI component mean per share variation from 2009 to 2015.

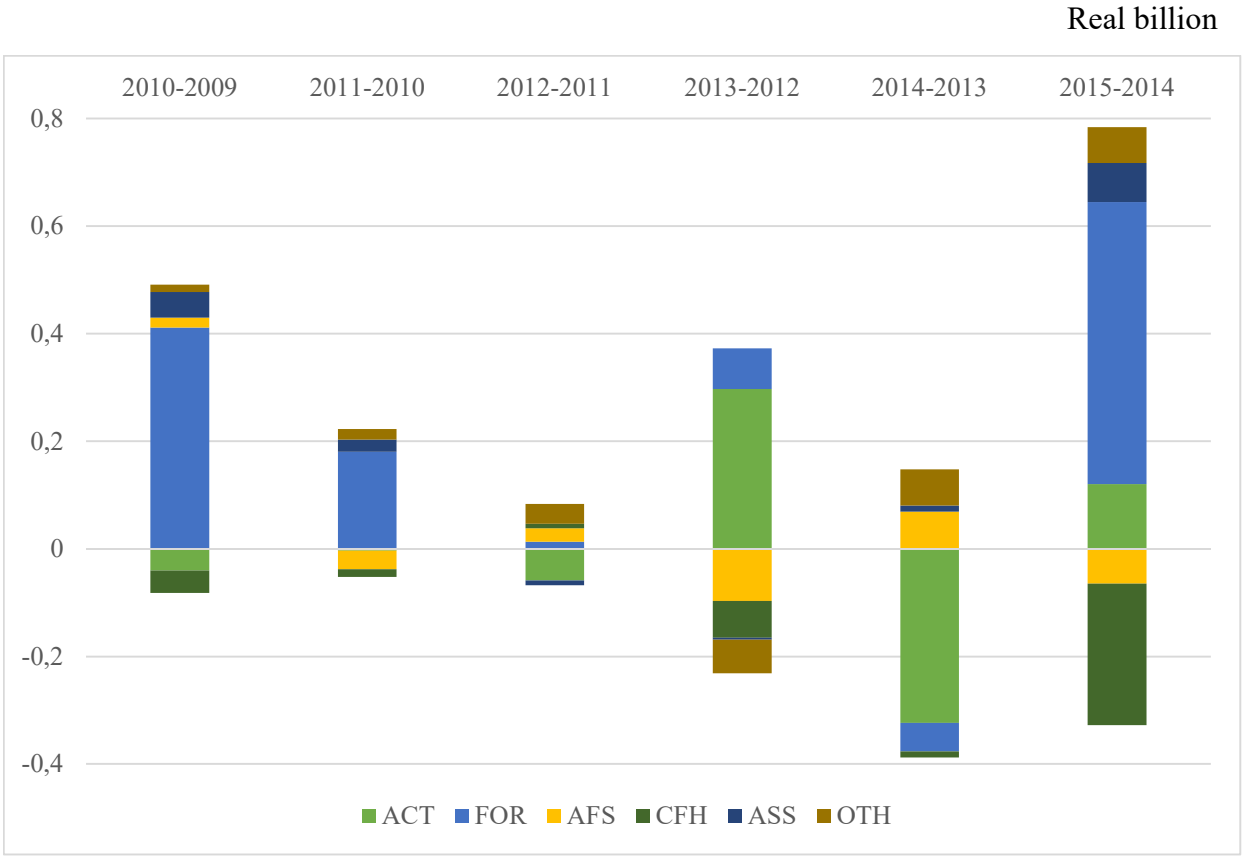


Figure 15: OCI variation from 2009 to 2015

4.3.3.2 Descriptive statistics

The summary statistics illustrated in Table 12 provide an overview of the different variables used in the return model. The total sample size used to examine the association between share return and income measures amounts to 396 observations.

[52] The discussion about the reasons for this impact were made in Study 1 (valuation perspective).

Table 12: Descriptive Statistics – Return Model

Variables[53]	N	Mean	SD	Min.	Max.
RET_{it}	396	-0.0549	0.3312	-0,8744	1,0582
ΔPL_{it}	396	-0.0851	1.627	-8.968	7.951
ΔCI_{it}	396	0.0770	1.884	-9.346	10.56
ΔOCI_{it}	396	0.159	1.273	-6.695	11.57
ΔACT_{it}	396	-0.00152	0.797	-10.14	8.903
ΔFOR_{it}	396	0.192	0.995	-1.770	9.997
ΔAFS_{it}	396	-0.0138	0.387	-4.819	3.164
ΔCFH_{it}	396	-0.0652	0.542	-8.357	1.121
ΔASS_{it}	396	0.0235	0.311	-1.013	4.682
ΔOTH_{it}	396	0.0236	0.380	-3.251	3.449
$Asset_{it}$	396	3.404	1.061	-1.056	6.209
$DebtEquity_{it}$	396	1.119	0.697	0.0237	3.803

The share return (RET_{it}) had a mean of -0.0549 and a standard deviation of 0.3312. The mean for P&L variation is negative. However, ΔCI mean is positive since OCI variation mean is positive; despite the changes in OCI components ACT, AFS and CFH had negative means[54]. The mostly negative values for the income measures could be a result of the economic downturn in the observation period.

The analysis of correlations presented in Table 13 indicates that, except for the correlation between ΔP&L and ΔCI (75%) and ΔFOR and ΔOCI (80%), situations that violate the multicollinearity assumption were not observed. The high correlation between changes in P&L and CI are expected, since CI covers P&L and OCI covers FOR. Considering that the proposed return models did not include the pairs of variables simultaneously, the high correlation does not cause multicollinearity. Considering the interrelation between variables, the high correlation is acceptable. The variance inflation factor (VIF) was used to revalidate the results for potential indicator of multicollinearity between variables. For the returns models the highest observed VIF score is 5.23, which is below the critical value of 10 and indicates that an issue of multicollinearity is not predominant for the observed data.

[53] As previously pointed out, the variables are deflated by number of shares outstanding.
[54] This distribution of the observation for OCI components is in line with descriptive statistics carried out in comparable studies by Kanagaretnam, Mathieu, and Shehata (2009) and Goncharov and Hodgson (2011).

Table 13: Correlation Matrices – Return Model

	RET	Δ P&L	ΔCI	ΔOCI	Δ ACT	Δ FOR	ΔAFS	Δ CFH	ΔASS	Δ OTH	Asset	Debt Equity
RET	1.00											
ΔP&L	0.27	1.00										
ΔCI	0.16	0.75	1.00									
ΔOCI	-0.10	-0.18	0.52	1.00								
ΔACT	-0.04	0.06	0.34	0.42	1.00							
ΔFOR	-0.09	-0.16	0.40	0.80	0.00	1.00						
ΔAFS	0.10	0.06	0.21	0.23	0.03	0.01	1.00					
ΔCFH	-0.11	-0.11	0.04	0.20	-0.02	-0.10	-0.01	1.00				
ΔASS	-0.05	-0.20	0.09	0.39	-0.02	0.20	0.04	0.02	1.00			
ΔOTH	0.08	-0.05	-0.35	-0.45	-0.50	0.02	-0.37	-0.47	-0.07	1.00		
Asset	-0.02	-0.01	0.00	0.02	-0.02	0.08	-0.06	-0.08	-0.01	0.07	1.00	
Debt Equity	-0.03	0.04	-0.10	-0.19	-0.03	-0.11	-0.06	-0.18	-0.10	0.13	0.39	1.00

	ΔP&L*Neg ΔP&L	ΔCI*Neg ΔCI	OCI* Neg ΔOCI	ACT*Neg ΔACT	FOR*Neg ΔFOR	ASS* Neg ΔASS	CFH*Neg ΔCFH	AFS* Neg ΔAFS	OTH*Neg ΔOTH
ΔP&L*Neg ΔP&L	1.00								
ΔCI* NegΔCI	0.51	1.00							
ΔOCI* Neg ΔOCI	0.07	0.47	1.00						
ΔACT*Neg ΔACT	0.10	0.42	0.67	1.00					
ΔFOR*Neg ΔFOR	0.02	0.19	0.38	0.01	1.00				
ΔASS* Neg ΔASS	0.09	0.14	0.13	0.01	0.05	1.00			
ΔCFH*Neg ΔCFH	-0.03	0.10	0.49	-0.00	0.11	0.02	1.00		
ΔAFS* Neg ΔAFS	0.06	0.18	0.30	-0.01	-0.03	0.11	-0.02	1.00	
ΔOTH*Neg ΔOTH	-0.02	-0.01	-0.02	-0.02	0.03	0.03	-0.03	-0.02	1.00

4.4 Results

This section presents the results from regressions of the association between the changes in P&L, CI, OCI and OCI components and the share return, described in section 4.3.1, testing hypothesis H2a, H2b and H2c. Following the procedures similar to that adopted in Study 1, the return model was tested in steps, as demonstrated in Figure 16.

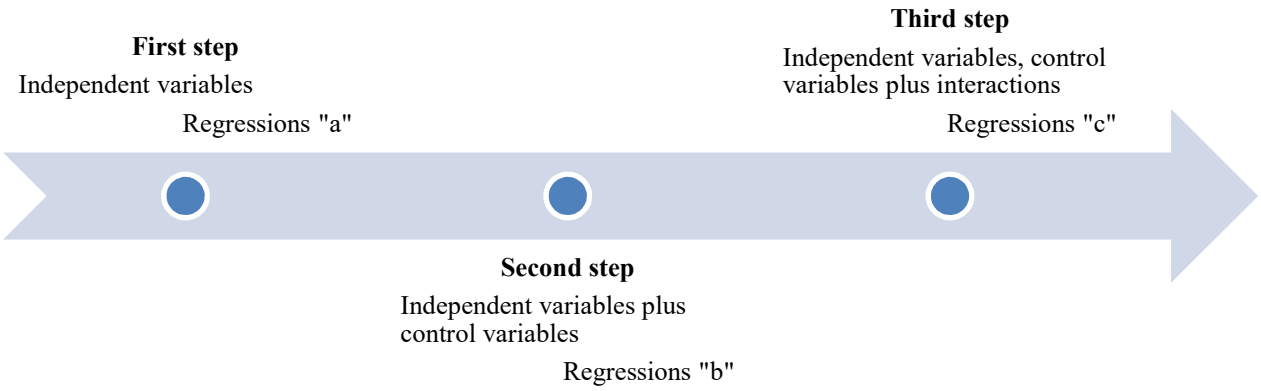


Figure 16: Return model: Steps

Return models 1a, 1b, 1c, 2a, 2b and 2c, presented in Table 14, tested hypothesis H2a, i.e., if ΔCI is more associated with return share than ΔP&L. Models 1a, 1b, 1c and 2a are statistically valid according to the significance at 5% of statistical F, while models 2b and 2c are statistically valid according to the significance at 10% of statistical F.

R^2 of models range from 2.23% (2a) to 6.99% (1c). The ΔP&L is significant at 1% level and has positive coefficient in model 1a and at 5% in models that include control variables and interactions (1b and 1c). The variation of negative P&L is significant at 1% level.

Regarding ΔCI, in model 2a it is significant at 1% level. However, ΔCI was not statistically significant in the models that included control variables and interactions (2b and 2c). Nevertheless, the variation of negative CI is significant at 1% level.

Thus, there is evidence that ΔP&L is more associated to share returns than ΔCI. Moreover, despite the effect of Negative ΔCI being statistically significant, the effect of Negative ΔP&L presented coefficient that is higher than the effect of Negative ΔCI coefficient.

Table 14: Return Model: P&L vs CI

	Return					
	Return_1a	**Return_1b**	**Return_1c**	**Return_2a**	**Return_2b**	**Return_2c**
Constant	-0.051***	-0.111	-0.119	-0.057***	-0.063	-0.063
	(0.001)	(0.162)	(0.164)	(0.001)	(0.165)	(0.166)
$\Delta P\&L_{it}$	0.047***	0.028**	0.049**			
	(0.011)	(0.012)	(0.024)			
ΔCI_{it}				0.027***	0.005	0.004
				(0.008)	(0.008)	(0.014)
$Neg\Delta P\&L_{it}$		-0.117***	-0.114***			
		(0.038)	(0.038)			
$\Delta P\&L_{it}$*$Neg\Delta P\&L_{it}$			-0.032			
			(0.033)			
$Neg\Delta CI_{it}$					-0.154***	-0.154***
					(0.042)	(0.041)
ΔCI_{it}*$Neg\Delta CI_{it}$						0.003
						(0.023)
$Asset_{it}$		0.044	0.044		0.028	0.028
		(0.052)	(0.052)		(0.054)	(0.054)
$DebtEquity_{it}$		-0.046	-0.052		-0.019	-0.028
		(0.069)	(0.069)		(0.079)	(0.081)
Adj. R^2	5.46%	6.97%	6.99%	2.23%	5,16%	4.92%
F(sig.)	0.0000	0.0481	0.0271	0.0000	0.0727	0.0546
Observations	396	396	396	396	396	396

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Return models 3a, 3b, 3c, 4a, 4b and 4c, displayed in Table 15 aim to test H2b and H2c on the incremental information provided by ΔOCI and ΔOCI components, respectively.

ΔOCI models 3b and 3c are statistically valid according to the significance at 10% of statistical F, but model 3a is not statistically valid according to statistical F. R^2 of models range from 5.48% (3a) to 7.00% (3c). As in the previous models, the ΔP&L is positive and statistically significant at 5% on all models. The dummy variable that indicates negative P&L ($\Delta NegP\&L_{it}$) is significant at 10%. However, the negative OCI variation effect is not statistically significant.

Then, the results show that the inclusion of the ΔOCI did not provide significant incremental information since it was not statistically significant in any of investigated models and R^2 of ΔP&L (1a, 1b and 1c) did not increase significantly compared to ΔOCI models (3a, 3b and 3c).

Models 4a, 4b and 4c include ΔOCI components and test hypothesis H2c. All models are statistically valid according to the significance of statistical F. R^2 of models range from 7.21% (4a) to 8.35% (4c). As in previous models, ΔP&L is positive and statistically significant at 1% on all models.

The results indicate that ΔAFS, ΔFOR and ΔOTH are statistically significant in the regressions. Therefore, increase/decrease changes in AFS, FOR and OTH, compounded especially

by deferred taxes, predict increases/decreases in share returns. Moreover, the negative changes affect share return. Thus, the positive association between the changes in share price (return), and changes in certain components of OCI is an indication of the fact that investors regard gains recognized under OCI as having a positive impact on the performance of the company and losses as having a negative impact. The high significance level for the coefficient is an indicator for the value relevance of the reported components for investors.

Table 15: Return Model: OCI vs OCI components

	Return					
	Return_3a	**Return_3b**	**Return_3c**	**Return_4a**	**Return_4b**	**Return_4c**
Constant	-0.049***	-0.099	-0.099	-0.049***	-0.082	-0.094
	(0.002)	(0.158)	(0.161)	(0.002)	(0.174)	(0.176)
$\Delta P\&L_{it}$	0.046***	0.026**	0.051**	0.047***	0.027**	0.037**
	(0.011)	(0.012)	(0.023)	(0.011)	(0.012)	(0.024)
ΔOCI_{it}	-0.014	-0.020*	-0.011			
	(0.011)	(0.012)	(0.009)			
ΔACT_{it}				0.038	0.017	-0.060
				(0.033)	(0.036)	(0.040)
ΔFOR_{it}				-0.025***	-0.029***	-0.025**
				(0.007)	(0.009)	(0.012)
ΔAFS_{it}				0.137***	0.116**	0.064**
				(0.050)	(0.052)	(0.077)
ΔCFH_{it}				0.005	-0.029	0.145
				(0.043)	(0.050)	(0.107)
ΔASS_{it}				0.050	0.042	0.020
				(0.043)	(0.042)	(0.039)
ΔOTH_{it}				0.189**	0.147*	0.471***
				(0.094)	(0.094)	(0.143)
$Neg\Delta P\&L_{it}$		-0.121***	-0.117***		-0.118***	-0.120***
		(0.038)	(0.039)		(0.040)	(0.039)
$\Delta P\&L_{it}$*$Neg\Delta P\&L_{it}$			-0.036			-0.016
			(0.032)			(0.034)
$Neg\Delta OCI_{it}$		-0.015	-0.018			
		(0.039)	(0.039)			
ΔOCI_{it}*$Neg\Delta OCI_{it}$			-0.038			
			(0.045)			
$Neg\Delta ACT_{it}$					-0.037	-0.037
					(0.056)	(0.058)
ΔACT_{it}*$Neg\Delta ACT_{it}$						0.183
						(0.067)
$Neg\Delta FOR_{it}$					0.010	0.013
					(0.046)	(0.051)
ΔFOR_{it}*$Neg\Delta FOR_{it}$						-0.007
						(0.156)
$Neg\Delta AFS_{it}$					-0.028	-0.016
					(0.041)	(0.042)
ΔAFS_{it}*$Neg\Delta AFS_{it}$						0.143*
						(0.084)
$Neg\Delta CFH_{it}$					-0.033	-0.011
					(0.045)	(0.046)
ΔCFH_{it}*$Neg\Delta CFH_{it}$						-0.079
						(0.127)

	Return_3a	Return_3b	Return_3c	Return_4a	Return_4b	Return_4c
$Neg\Delta ASS_{it}$					0.000	0.063
					(0.060)	(0.053)
ΔASS_{it}_$Neg\Delta ASS_{it}$						0.441
						(0.134)
$Neg\Delta OTH_{it}$					0.001	-0.002
					(0.042)	(0.043)
ΔOTH_{it}*$Neg\Delta OTH_{it}$						-0.574
						(0.163)
$Asset_{it}$		0.047	0.047		0.055	0.058
		(0.052)	(0.052)		(0.054)	(0.054)
$DebtEquity_{it}$		-0.046	-0.069		-0.081	-0.095
		(0.064)	(0.062)		(0.060)	(0.061)
Adj. R2	5.48%	6.95%	7,00%	7.21%	8.03%	8.35%
F(sig.)	0.254	0.0249	0.0067	0.0030	0.0000	0.000
Observations	396	396	396	396	396	396

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Seeking comparability with other studies closely linked to the empirical analysis in this study (KANAGARETNAM, MATHIEU, & SHEHATA, 2009; GONCHAROV & HODGSON, 2011), the models were recalculated based on OLS regressions. The results are illustrated in Table 16. The adjusted R^2 on the basis of the OLS regression ranges from 5.56% to 10.4% for the different models and between 4.92% and 8.35% on the basis of the fixed effects regression. The models that took into account the OCI components changes presented the highest R^2.

Based on the OLS regression the changes in FOR do not affect the share return, whereas based on the fixed effects regression, increases in FOR predict higher share returns at 5%. Moreover, according to OLS regressions, changes in ACT affect share returns at 10%, while in fixed effects models changes in this component was not statistically significant. The differences could be an indicator of the fact that these OCI components are used by the OLS regression to explain differences between companies, whereas this company specific effect is already incorporated by the fixed effects and could be an explanation for the different results. The impact of negative changes is significant in both methods.

Table 16: Return Model: Fixed Effects *versus* OLS regression

	Return							
	Fixed Effects				OLS regression			
	Return 1c	**Return 2c**	**Return 3c**	**Return 4c**	**Return 1c**	**Return 2c**	**Return 3c**	**Return 4c**
Constant	-0.119	-0.063	-0.099	-0.094	0.007	0.015	0.019	-0.002
	(0.164)	(0.166)	(0.161)	(0.176)	(0.065)	(0.067)	(0.065)	(0.068)
$\Delta P\&L_{it}$	0.049**		0.051**	0.037	0.045**		0.045**	0.034
	(0.024)		(0.023)	(0.024)	(0.022)		(0.022)	(0.021)
ΔCI_{it}		0.004				-0.004		
		(0.014)				(0.010)		
ΔOCI_{it}			-0.011				-0.017	
			(0.009)				(0.012)	
ΔACT_{it}				-0.060				-0.067*
				(0.040)				(0.040)
ΔFOR_{it}				-0.025**				-0.011
				(0.012)				(0.013)
ΔAFS_{it}				0.064				0.042
				(0.077)				(0.068)
ΔCFH_{it}				0.145				0.060
				(0.107)				(0.086)
ΔASS_{it}				0.020				-0.040
				(0.038)				(0.028)
ΔOTH_{it}				0.471***				0.503***
				(0.143)				(0.123)
$Neg\Delta P\&L_{it}$	-0.114***		-0.117***	-0.120***	-0.086**		-0.087**	-0.095**
	(0.038)		(0.039)	(0.039)	(0.038)		(0.039)	(0.039)
$\Delta P\&L_{it}$* $Neg\Delta P\&L_{it}$	-0.032		-0.036	-0.016	-0.007		-0.010	0.001
	(0.033)		(0.032)	(0.034)	(0.029)		(0.028)	(0.029)
$Neg\Delta CI_{it}$		-0.154***				-0.148***		
		(0.041)				(0.038)		
ΔCI_{it}* $Neg\Delta CI_{it}$		0.003				0.026		
		(0.023)				(0.022)		
$Neg\Delta OCI_{it}$			-0.018				-0.018	
			(0.039)				(0.038)	
ΔOCI_{it}* $Neg\Delta OCI_{it}$			-0.038				-0.017	
			(0.045)				(0.043)	
$Neg\Delta ACT_{it}$				-0.037				-0.043
				(0.058)				(0.047)
ΔACT_{it}* $Neg\Delta ACT_{it}$				0.183***				0.214***
				(0.067)				(0.061)
$Neg\Delta FOR_{it}$				0.013				0.021
				(0.051)				(0.047)
ΔFOR_{it}* $Neg\Delta FOR_{it}$				-0.007				-0.040
				(0.156)				(0.124)
$Neg\Delta AFS_{it}$				-0.016				-0.010
				(0.042)				(0.040)

	Fixed Effects				OLS regression			
	Return 1c	**Return 2c**	**Return 3c**	**Return 4c**	**Return 1c**	**Return 2c**	**Return 3c**	**Return 4c**
ΔAFS_{it}*								
$Neg\Delta AFS_{it}$				0.146*				0.206**
				(0.084)				(0.091)
$Neg\Delta CFH_{it}$				-0.011				-0.053
				(0.046)				(0.040)
ΔCFH_{it}*								
$Neg\Delta CFH_{it}$				-0.079				0.027
				(0.127)				(0.104)
$Neg\Delta ASS_{it}$				0.063				0.051
				(0.053)				(0.044)
ΔASS_{it}*								
$Neg\Delta ASS_{it}$				0.441***				0.615***
				(0.135)				(0.130)
$Neg\Delta OTH_{it}$				-0.002				0.015
				(0.043)				(0.038)
ΔOTH_{it}*								
$Neg\Delta OTH_{it}$				-0.574***				-0.558***
				(0.163)				(0.176)
$Asset_{it}$	0.044	0.028	0.047	0.058	-0.003	0.002	-0.002	0.012
	(0.052)	(0.054)	(0.052)	(0.054)	(0.019)	(0.020)	(0.019)	(0.020)
$DebtEquity_{it}$	-0.043	-0.018	-0.069	-0.095	-0.012	-0.001	-0.020	-0.031
	(0.068)	(0.080)	(0.062)	(0.061)	(0.027)	(0.030)	(0.024)	(0.023)
Adj. R^2	6.99%	4.92%	7,00%	8.35%	7.31%	5.56%	7.15%	10.4%
F (sig.)	0.0263	0.0543	0.0064	0.0000	0.0221	0.0322	0.0154	0.0000
Observations	396	396	396	396	396	396	396	396

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.5 Significant findings

This study provides empirical evidence on CI, OCI and OCI components value relevance from the informational perspective by analyzing the association between the changes in the P&L, CI, OCI and OCI components and changes in share prices (share return)[55]. In order to answer the three research questions, three hypotheses were investigated.

Results suggest that CI is associated with share returns, providing value relevant information. However, considering the coefficients, P&L is more value relevant than CI from the informational perspective. Therefore, hypothesis H2a was rejected.

Furthermore, as in the price model (Study 1), OCI was not statistically significant and the inclusion of OCI did not provide incremental value relevant information compared to standalone P&L. Thus, hypothesis H2b was rejected.

[55] The return model investigated if there was association between changes in the CI, OCI and OCI componentes and changes in the share prices (share return), as detailed in section 4.3.1.

Regarding OCI components, results revealed that changes in adjustments in fair value of available-for-sale financial instruments (AFS), gains and losses from translating the financial statements of a foreign operation (FOR) and other items recognized in other comprehensive income (OTH) were associated with changes in share return, providing value relevant information. This implies that these OCI components represent unexpected information of the market indicated by the return model. So, hypothesis H2c was not rejected.

The results are summarized in Figure 17.

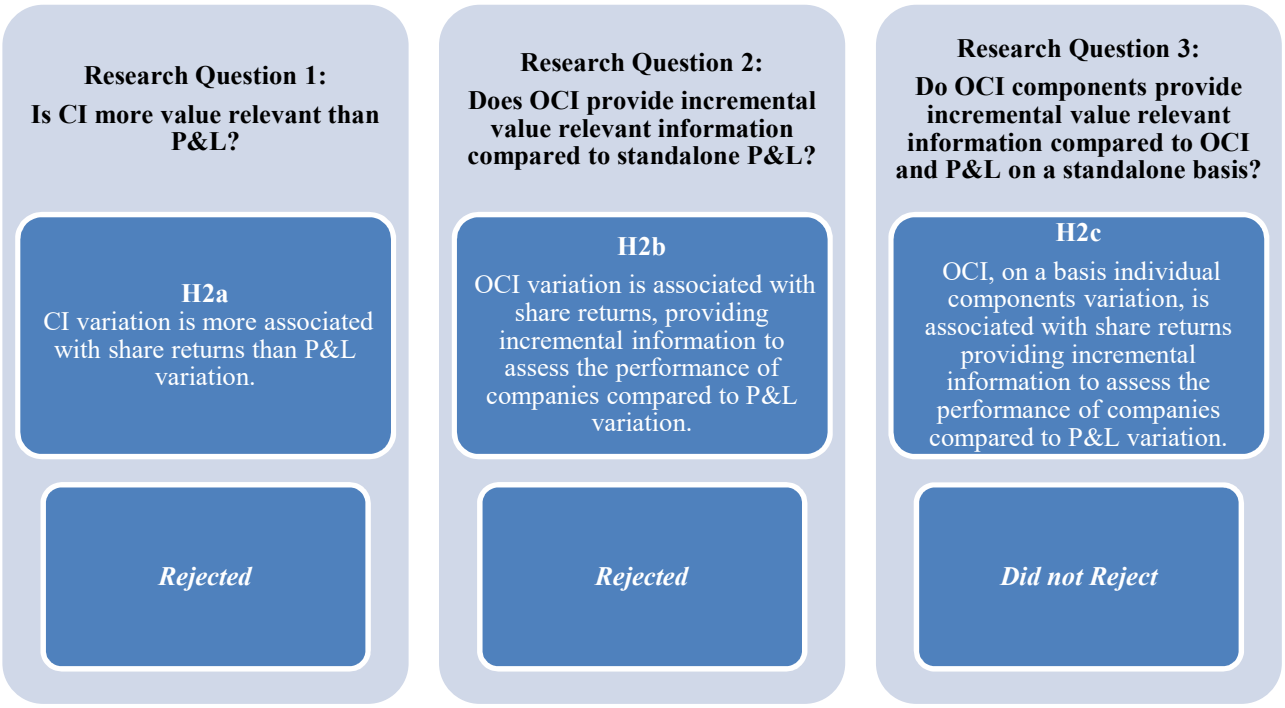


Figure 17: Valuation Perspective: Results

5. Comprehensive Income Value Relevance from Forecasting Perspective

5.1 Forecasting perspective

Financial Statements users are not only interested in the potential association of income measures and market data, but also in the forecasting ability of accounting information (BARTON, HANSEN, & POWNALL, 2010). Providing investors with accounting information that can help predict future Operating Cash Flows (OCF) is one of the IASB objectives (IASB, 2011). Whereas price and return models have focused on the association between market data and accounting information, the forecasting models analyze the association between different accounting information. The present study aims to analyze the forecasting ability of P&L, CI, OCI and OCI components.

The inclusion of CI, OCI and OCI components in the analysis brings up the discussion about transitory income value relevance, since they can be considered transitory in nature (JONES & SMITH, 2011). Some OCI components are recycled to P&L, i.e., reversible over time. In accordance with OHLSON (1999), transitory income can be characterized as being forecasting irrelevant, value irrelevant and unpredictable.

Therefore, the first goal of Study 3 is to establish whether current CI can predict future OCF compared to current P&L, as well as investigate if current OCI and OCI components provide incremental information to predict future OCF in comparison with standalone P&L.

However, from the forecasting point of view, the OCF is not the only interest of financial statements users, the P&L forecasting on the basis of current income measures is too. Therefore, the second goal of the present study is to investigate if current CI can predict future P&L compared to current P&L, as well as investigate if current OCI and OCI components provide incremental information to predict future P&L in comparison with current standalone P&L.

The following sections describe the forecasting models.

5.2 Statement of hypothesis

The hypotheses were developed based on theoretical concepts that underlie forecasting perspective in order to answer the three research questions based on relative and incremental approaches. Considering that from the forecasting perspective value relevance is associated with forecasting ability, the corresponding hypotheses were defined as follows:

H3a: CI is a better OCF forecasting predictor compared to P&L, implying value relevance;

H3b: OCI increases the OCF forecasting ability compared to standalone P&L ability, implying value relevance;

H3c: OCI, on an individual components basis, increases the OCF forecasting ability compared to standalone P&L ability, implying value relevance.

In addition, the P&L, CI, OCI and OCI components forecasting ability of future P&L were examined by testing the following hypotheses:

H3d: CI is a better future P&L forecasting predictor compared to P&L, implying value relevance;

H3e: OCI increases the future P&L forecasting ability compared to standalone P&L ability, implying value relevance;

H3f: OCI, on an individual components basis, increases future P&L forecasting ability compared to standalone P&L ability, implying value relevance.

The empirical models used to test the hypotheses are detailed in the following section.

5.3 Research design

5.3.1 Forecasting models

The valuation and informational perspectives (studies 1 and 2) focused on the association between current market data and accounting information. However, financial statements users, especially investors, assess expected Operating Cash Flows [56] and P&L to predict the future performance of an entity and to appraise the current value of a company. For this reason, forecasting

[56] Operating Cash Flows are also referred to as e.g. cash flows from operations, cash flows from operating activities, cash inflow/outflow from operating activities or cash provided by operating activities in annual reports (GÜNTHER, 2014).

models complement the results of price and return models, providing a robustness check for the findings (GONCHAROV & HODGSON, 2011).

Based on the relative association approach, forecasting models aim to investigate if current CI is a superior predictor of future Operating Cash Flows and future P&L compared to current P&L. An incremental association approach is taken to investigate if the inclusion of OCI and OCI components[57] in the models increases the ability of the forecasting OCF and P&L[58] in comparison to current standalone P&L.

Control variables Asset, DebtEquity and a binary variable that takes the negative value as already used in studies 1 and 2 were also included for the forecasting models to test for effects that may have biased the results in the regressions. The negative dummy variable and income variables are multiplied, then the negative income is controlled to avoid the possibility of distortion, which is in line with the application in studies by Chambers et al. (2007).

Moreover, a dummy variable was included to control the impact of the company sector on the results. Considering that financial companies have particular characteristics, the binary variable takes the value "one" for financial companies and the value "zero" for non-financial companies.

Even though the fixed effects model was preferred to analyze the association between market values and accounting numbers (studies 1 and 2), it may not be the preferred model to examine forecasting accounting numbers based on current accounting numbers. For analyzing the association between market values and accounting numbers for the value relevance analysis, fixed effects and P&L, CI, OCI and OCI components effects were based on the same time period. However, on the forecasting models, accounting variables were not in the same period. This is based on the fact that future values for fixed effects cannot be measured, thus the prediction cannot include this "potential" effect in the regression. In other words, the application of the fixed effects regressions for the forecasting models is not appropriate in this study. Consequently, the forecasting models in this section were based on OLS regressions.

[57] The revaluation of the company's assets was not included in the models because this variable is not significant to the Brazilian context, since the practice is prohibited by law

[58] Considering that the effect can be substantial, to control heteroscedasticity and to isolate the effect of scale on statistical tests all model variables analyzed were deflated by the number of shares (BROWN, LO, & LYS, 1999). Number of shares in this study always refer to the total number of shares outstanding which are defined as all issued shares held by the investor base less treasury shares, which are the company's own shares. It was collected from Economatica.

Additionally, to control for heteroscedasticity all regressions in this study have been calculated using the Huber–White standard errors based on studies by Huber (1967) and White (1980)[59]. All statistical analyses of the empirical part have been conducted with the Stata 14 program.

5.3.1.1 OCF model

The importance of the prediction future OCF is that it mainly relates to the discounted cash flow (DCF) model commonly used by investors and in the research area as well. The forecasting ability of future OCF on the basis of current P&L, CI, OCI and OCI components is analyzed in line with approaches carried out in previous studies, by DHALIWAL, SUBRAMANYAM, & TREZEVANT (1999) and GONCHAROV & HODGSON (2011) and is as follows:

$$OCF_{it} = \Omega_{0,1} + \Omega_1 P\&L_{i(t-1)} + \Omega_2 NegP\&L_{i(t-1)} + \Omega_3 P\&L_{i(t-1)} * Ne \quad \&L_{i(t-1)} + \varepsilon_{it} \qquad \text{(OCF\_1)}$$

$$OCF_{it} = \Omega_{0,2} + \Omega_4 CI_{i(t-1)} + \Omega_5 NegCI_{i(t-1)} + \Omega_6 CI_{i(t-1)} * NegCI_{i(t-1)} + \varepsilon_{it} \qquad \text{(OCF\_2)}$$

$$OCF_{it} = \Omega_{0,3} + \Omega_7 P\&L_{i(t-1)} + \Omega_8 OCI_{i(t-1)} + \Omega_9 NegP\&L_{i(t-1)} + \Omega_{10} P\&L_{i(t-1)} * NegP\&L_{i(t-1)} + \Omega_{11} NegOCI_{i(t-1)} + \Omega_{12} OCI_{i(t-1)} * NegOCI_{i(t-1)} + \varepsilon_{it} \qquad \text{(OCF\_3)}$$

$$OCF_{it} = \Omega_{0,4} + \Omega_{13} P\&L_{i(t-1)} + \Omega_{14} ACT_{i(t-1)} + \Omega_{15} FOR_{i(t-1)} + \Omega_{16} AFS_{i(t-1)} + \Omega_{17} CFH_{i(t-1)} + \Omega_{18} ASS_{i(t-1)} + \Omega_{19} OTH_{i(t-1)} + \Omega_{20} NegP\&L_{i(t-1)} + \Omega_{21} P\&L_{i(t-1)} * NegP\&L_{i(t-1)} + \Omega_{22} NegACT_{i(t-1)} + \Omega_{23} ACT_{i(t-1)} * NegACT_{i(t-1)} + \Omega_{24} NegFOR_{i(t-1)} + \Omega_{25} FOR_{i(t-1)} * NegFOR_{i(t-1)} + \Omega_{26} NegAFS_{i(t-1)} + \Omega_{27} AFS_{i(t-1)} * NegAFS_{i(t-1)} + \Omega_{28} NegCFH_{i(t-1)} + \Omega_{29} CFH_{i(t-1)} * NegCFH_{i(t-1)} + \Omega_{30} NegASS_{i(t-1)} + \Omega_{31} ASS_{i(t-1)} * NegASS_{i(t-1)} + \Omega_{32} NegOTH_{i(t-1)} + \Omega_{33} OTH_{i(t-1)} * NegOTH_{i(t-1)} + \varepsilon_{it} \qquad \text{(OCF\_4)}$$

Where subscripts (i) stands for the entity and (t) denotes the observation year, and:

[59] The Stata command "rob" has been used to calculate the Huber-White standard errors

OCF_{it} = operating cash flow, date *t*[60];

$P\&L_{i(t-1)}$ = profit or loss, date *t-1*;

$CI_{i(t-1)}$ = comprehensive income, date *t-1*;

$OCI_{i(t-1)}$ = other comprehensive income, date *t-1*;

$ACT_{i(t-1)}$ = actuarial gains and losses on defined benefit plans, date *t-1*;

$FOR_{i(t-1)}$ = gains and losses from translating the financial statements of a foreign operation, date *t-1*;

$AFS_{i(t-1)}$ = adjustments in fair value of available-for-sale financial instruments, date *t-1*;

$CFH_{i(t-1)}$ = adjustments in fair value of cash flow hedging instruments, date *t-1*;

$ASS_{i(t-1)}$ = share of other comprehensive income of associated companies, date *t-1*;

$OTH_{i(t-1)}$ = other items recognized in other comprehensive income, date *t-1;*

Neg = binary variable that takes the value "one" if the income variable is negative and the value "zero" if the income measure is positive;

ε_{it} = error term.

5.3.1.2 P&L model

As previously pointed out, not only the forecasting ability of OCF on the basis of P&L, CI, OCI and OCI components interests financial statements users , but also the forecasting ability of future P&L on the basis of current income measures. The forecasting ability of future P&L was tested by the association between future P&L and current P&L, CI, OCI and OCI components, as follows:

$$P\&L_{it} = \gamma_{0,1} + \gamma_1 P\&L_{i(t-1)} + \gamma_2 NegP\&L_{i(t-1)} + \gamma_3 P\&L_{i(t-1)} * NegP\&L_{i(t-1)} + \varepsilon_{it} \quad \text{(P\&L\_1)}$$

$$P\&L_{it} = \gamma_{0,2} + \gamma_4 CI_{i(t-1)} + \gamma_5 NegCI_{i(t-1)} + \gamma_6 CI_{i(t-1)} * NegCI_{i(t-1)} + \varepsilon_{it} \quad \text{(P\&L\_2)}$$

$$P\&L_{it} = \gamma_{0,3} + \gamma_7 P\&L_{i(t-1)} + \gamma_8 OCI_{i(t-1)} + \gamma_9 NegP\&L_{i(t-1)} + \gamma_{10} P\&L_{i(t-1)} * NegP\&L_{i(t-1)} + \gamma_{11} NegOCI_{i(t-1)} + \gamma_{12} OCI_{i(t-1)} * NegOCI_{i(t-1)} + \varepsilon_{it} \quad \text{(P\&L\_3)}$$

[60] Operating cash flow variable was hand collected as reported by Brazilian companies in the cash flow statement from 2010 to 2015.

$$P\&L_{it} = \gamma_{0,4} + \gamma_{13}P\&L_{i(t-1)} + \gamma_{14}ACT_{i(t-1)} + \gamma_{15}FOR_{i(t-1)} + \gamma_{16}AFS_{i(t-1)} + \gamma_{17}CFH_{i(t-1)} + \gamma_{18}ASS_{i(t-1)} + \gamma_{19}OTH_{i(t-1)} + \gamma_{20}NegP\&L_{i(t-1)} + \gamma_{21}P\&L_{i(t-1)} * NegP\&L_{i(t-1)} + \gamma_{22}NegACT_{i(t-1)} + \gamma_{23}ACT_{i(t-1)} * NegACT_{i(t-1)} + \gamma_{24}NegFOR_{i(t-1)} + \gamma_{25}FOR_{i(t-1)} * NegFOR_{i(t-1)} + \gamma_{26}NegA_{i(t-1)} + \gamma_{27}AFS_{i(t-1)} * NegAFS_{i(t-1)} + \gamma_{28}NegCFH_{i(t-1)} + \gamma_{29}CFH_{i(t-1)} * NegCFH_{i(t-1)} + \gamma_{30}NegASS_{i(t-1)} + \gamma_{31}ASS_{i(t-1)} * NegASS_{i(t-1)} + \gamma_{32}NegOTH_{i(t-1)} + \gamma_{33}OTH_{i(t-1)} * NegOTH_{i(t-1)} + \varepsilon_{it} \quad \text{(P\&L\_4)}$$

Where subscripts (i) stands for the entity and (t) denotes the observation year, and:

$P\&L_{it}$ = profit or loss, date *t*;

Other variables are the same used in the OCF models, as described in section 5.3.1.1.

5.3.2 Sample selection and collection [61]

The sample selection and collection procedures are similar to those used in Study 1 (valuation perspective), as demonstrated in Figure 18.

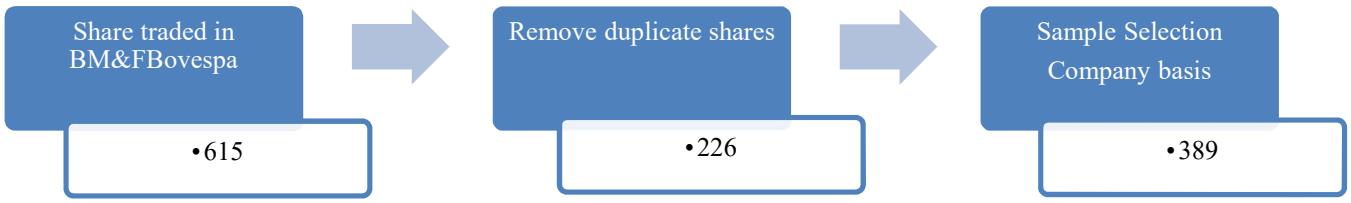


Figure 18: Forecasting Models: Sample selection

Accounting data[62] were hand collected from company annual reports from 2009 to 2015. Companies with insufficient data were removed from the sample. Considering the heterogeneous characteristic of the sample, which includes different size companies, outliers (extreme values) were

[61] The sample selection and collection procedures used in the first study are detailed in Section 3.3.2.
[62] For the empirical analysis in this study, the dependent, independent and control variables have been hand collected from the financial statements because of the insufficient quality of data provided by databases. All accounting variables collected from the annual reports are in Brazilian currency - Real.

observed in some variables. The presence of outliers can lead to the violation of the homoscedasticity assumption. Thus, the choice to drop the extreme values was made. Collection procedures reduce the initial sample size by 102 companies (OCF models) and 99 companies (P&L models) as summarized in Table 17.

Table 17: Data selection, process on company basis

	OCF Models	P&L Models
Initial Sample based on the Economatica database	615	615
Remove duplicates (preferred and ordinary shares)	(226)	(226)
Remove companies with insufficient accounting data available	(276)	(276)
Remove outliers	(11)	(14)
Number of companies after the adjustments made	102	99
Observation size	612	594

5.3.3 Descriptive statistics

The descriptive statistics of samples are described in this section, which begins with a quantitative overview of income measures based on the samples used in the analysis. The following sections present the descriptive statistics and provide an overview of the main characteristics of data, including correlation matrices.

5.3.3.1 Quantitative overview

Table 18 presents the number of observations for P&L, CI, OCI and components of OCI with non-zero counts over the observation period.

In the OCF Model, all observations contain P&L, CI and OCI. However, the number of reported OCI components differs significantly across observations and period. The number of observations for ACT represents 29.6% of the observations; FOR amounting to 57.5%, AFS are reported in 41.0%, the effective portion of gains and losses in cash flow hedges (CFH) is equivalent to 23% of all observations, ASS amounting to 17.3%, and OTH, specially deferred taxes, equal to 53.3% of the observations.

Table 18: Observations of income measures with non-zero counts – OCF Model

OCF Model	2009		2010		2011		2012		2013		2014		Total	
	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%
$P\&L_{i(t-1)}$	102	16.7	102	16.7	102	16.7	102	16.7	102	16.7	102	16.7	612	100.0
$CI_{i(t-1)}$	102	16.7	102	16.7	102	16.7	102	16.7	102	16.7	102	16.7	612	100.0
$OCI_{i(t-1)}$	102	16.7	102	16.7	102	16.7	102	16.7	102	16.7	102	16.7	612	100.0
$ACT_{i(t-1)}$	22	3.6	22	3.6	21	3.4	29	4.7	44	7.2	43	7.0	181	29.6
$FOR_{i(t-1)}$	57	9.3	56	9.2	58	9.5	58	9.5	62	10.1	61	10.0	352	57.5
$AFS_{i(t-1)}$	45	7.4	47	7.7	45	7.4	45	7.4	36	5.9	33	5.4	251	41.0
$CFH_{i(t-1)}$	19	3.1	22	3.6	23	3.8	22	3.6	26	4.2	29	4.7	141	23.0
$ASS_{i(t-1)}$	14	2.3	16	2.6	16	2.6	17	2.8	22	3.6	21	3.4	106	17.3
$OTH_{i(t-1)}$	52	8.5	56	9.2	58	9.5	56	9.2	51	8.3	53	8.7	326	53.3

The variable acronyms are operating cash flow (OCF), profit or loss (P&L), comprehensive income (CI), other comprehensive income (OCI), actuarial gains and losses on defined benefit plans (ACT), gains and losses from translating the financial statements of a foreign operation (FOR), adjustments in fair value of available-for-sale financial instruments (AFS), adjustments in fair value of cash flow hedging instruments (CFH), share of other comprehensive income of associated companies (ASS) and other items recognized in other comprehensive income (OTH).

In the P&L model, all observations contain P&L, CI and OCI, as detailed in Table 19. The number of observations for ACT represents 29.5% of the observations; FOR amounting to 59.1%, AFS are reported in 42.8%, CFH is equivalent to 22.1% of all observations, ASS amounting to 14.6%, OTH equal to 51.3%.

Table 19: Observations of income measures with non-zero counts – P&L Model

P&L Model	2009		2010		2011		2012		2013		2014		Total	
	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%
$P\&L_{i(t-1)}$	99	16.7	99	16.7	99	16.7	99	16.7	99	16.7	99	16.7	594	100.0
$CI_{i(t-1)}$	99	16.7	99	16.7	99	16.7	99	16.7	99	16.7	99	16.7	594	100.0
$OCI_{i(t-1)}$	99	16.7	99	16.7	99	16.7	99	16.7	99	16.7	99	16.7	594	100.0
$ACT_{i(t-1)}$	21	3.5	21	3.5	20	3.4	28	4.7	43	7.2	42	7.1	175	29.5
$FOR_{i(t-1)}$	56	9.4	56	9.4	58	9.8	58	9.8	62	10.4	61	10.3	351	59.1
$AFS_{i(t-1)}$	45	7.6	47	7.9	45	7.6	46	7.7	37	6.2	34	5.7	254	42.8
$CFH_{i(t-1)}$	17	2.9	20	3.4	22	3.7	21	3.5	24	4.0	27	4.5	131	22.1
$ASS_{i(t-1)}$	11	1.9	13	2.2	12	2.0	14	2.4	19	3.2	18	3.0	87	14.6
$OTH_{i(t-1)}$	49	8.2	53	8.9	54	9.1	52	8.8	48	8.1	49	8.2	305	51.3

As business models significantly differ among industries, Tables 20 and 21 present the number of observations for OCI components with non-zero counts over the observation period by sector. Non-financial companies represent about 85% of the companies in both samples. The sector acronyms mean Basic Materials (BM), Consumer Cyclical (CC), Capital Goods and Services (CGS), Consumer

Non-Cyclical (CNC), Construction and Transportation (CT), Financial (FIN), Information Technology (IT), Oil, Gas and Biofuels (OGB), Telecommunications (TEL) and Utilities (UTI) [63].

The sectors BM and UTI together represent about 50% of ACT observations. Regarding FOR, observations are more dispersed, BM, CC, CGS, CNC and CT sector account for about 80% of the observations. About 35% of the AFS observations are concentrated in the FIN sector. In relation to CFH, the sectors BM and CNC account for approximately 45% of the observations. FIN and BM represent about 45% of ASS observations. OTH already has the most dispersed distribution, and UTI is the sector with the highest concentration (about 20% of observations).

Table 20: Observations of OCI components with non-zero counts by sector – OCF Model

OCF Model	$ACT_{i(t-1)}$	%	$FOR_{i(t-1)}$	%	$AFS_{i(t-1)}$	%	$CFH_{i(t-1)}$	%	$ASS_{i(t-1)}$	%	$OTH_{i(t-1)}$	%
BM	43	23.8	73	20.7	36	14.3	31	22.0	20	18.9	31	9.5
CC	18	9.9	59	16.8	29	11.6	18	12.8	12	11.3	36	11.0
CGS	21	11.6	63	17.9	19	7.6	9	6.4	6	5.7	39	12.0
CNC	25	13.8	59	16.8	19	7.6	27	19.1	13	12.3	43	13.2
CT	8	4.4	42	11.9	5	2.0	8	5.7	8	7.5	36	11.0
FIN	8	4.4	22	6.3	84	33.5	20	14.2	25	23.6	51	15.6
IT	0	0.0	6	1.7	0	0.0	0	0.0	6	5.7	6	1.8
OGB	2	1.1	6	1.7	5	2.0	6	4.3	2	1.9	12	3.7
TEL	6	3.3	6	1.7	6	2.4	4	2.8	0	0.0	6	1.8
UTI	50	27.6	16	4.5	48	19.1	18	12.8	14	13.2	66	20.2
Total	181	100	352	100	251	100	141	100	106	100	326	100

Table 21: Observations of OCI components with non-zero counts by sector – P&L Model

P&L Model	$ACT_{i(t-1)}$	%	$FOR_{i(t-1)}$	%	$AFS_{i(t-1)}$	%	$CFH_{i(t-1)}$	%	$ASS_{i(t-1)}$	%	$OTH_{i(t-1)}$	%
BM	43	24.6	73	20.8	36	14.2	31	23.7	20	23.0	31	10.2
CC	18	10.3	59	16.8	29	11.4	18	13.7	12	13.8	36	11.8
CGS	21	12.0	57	16.2	19	7.5	9	6.9	6	6.9	39	12.8
CNC	25	14.3	59	16.8	19	7.5	27	20.6	13	14.9	37	12.1
CT	8	4.6	42	12.0	2	0.8	2	1.5	8	9.2	30	9.8
FIN	8	4.6	33	9.4	96	37.8	20	15.3	20	23.0	53	17.4
IT	0	0.0	6	1.7	6	2.4	0	0.0	1	1.1	6	2.0
OGB	2	1.1	6	1.7	5	2.0	6	4.6	2	2.3	12	3.9
TEL	6	3.4	6	1.7	6	2.4	4	3.1	0	0.0	6	2.0
UTI	44	25.1	10	2.8	36	14.2	14	10.7	5	5.7	55	18.0
Total	175	100	351	100	254	100	131	100	87	100	305	100

[63] The BMF&Bovespa industry classification details is presented in the Appendix.

5.3.3.2 Descriptive statistics

The summary statistics illustrated in Table 22 provides an overview of the different variables used in the forecasting models. Total sample size amounts to 612 and 594 observations for OCF Model and P&L Model, respectively.

Table 22: Descriptive Statistics – Forecasting Models[64]

Variables	N	Mean	SD	Min	Max
OCF_{it}	612	1.943	2.722	-9.575	14.18
$P\&L_{i(t-1)}$	612	1.064	1.855	-5.467	9.394
$CI_{i(t-1)}$	612	1.072	2.045	-7.413	12.73
$OCI_{i(t-1)}$	612	0.0148	0.747	-8.600	5.876
$ACT_{i(t-1)}$	612	-0.00762	0.431	-3.774	8.903
$FOR_{i(t-1)}$	612	0.00556	0.614	-11.22	3.961
$AFS_{i(t-1)}$	612	-0.00281	0.357	-4.348	3.322
$CFH_{i(t-1)}$	612	-0.0111	0.245	-3.105	2.695
$ASS_{i(t-1)}$	612	0.00197	0.159	-1.481	2.168
$OTH_{i(t-1)}$	612	0.0198	0.261	-4.527	1.714

Variables	N	Mean	SD	Min	Max
$P\&L_{it}$	594	0.982	1.974	-8.926	9.394
$P\&L_{i(t-1)}$	594	1.124	1.746	-4.858	9.394
$CI_{i(t-1)}$	594	1.143	1.907	-7.413	9.556
$OCI_{i(t-1)}$	594	0.0190	0.722	-8.600	5.876
$ACT_{i(t-1)}$	594	-0.00475	0.428	-3.774	8.903
$FOR_{i(t-1)}$	594	0.00555	0.624	-11.22	3.961
$AFS_{i(t-1)}$	594	0.00582	0.308	-2.990	3.322
$CFH_{i(t-1)}$	594	-0.0104	0.247	-3.105	2.695
$ASS_{i(t-1)}$	594	0.00682	0.145	-1.481	2.168
$OTH_{i(t-1)}$	594	0.0160	0.207	-3.027	1.714

Current OCF and P&L (date t) had means of 1.943 and 0.982, respectively. Previous P&L and CI (date t-1) means were positive. However, previous ACT, AFS and CFH had negative means[65]. The mostly negative values for the income measures could be a result of the economic downturn in the observation period.

Regarding correlation, except for the correlation between previous P&L and CI (93%) and previous FOR and OCI (about 70%), situations that violate the multicollinearity assumption were not observed. The high correlation between P&L and CI are expected, since CI includes P&L, and OCI includes FOR. Considering that the proposed P&L model did not look at the pairs of variables

[64] As previously pointed out, the variables are deflated by number of shares outstanding.
[65] This distribution of the observation for OCI components is in line with descriptive statistics carried out by comparable studies, such KANAGARETNAM, MATHIEU, & SHEHATA (2009) and GONCHAROV & HODGSON (2011).

simultaneously, the high correlation does not cause multicollinearity. Considering the interrelation between variables, the high correlation is acceptable.

The variance inflation factor (VIF) was used to revalidate results of a potential indicator of multicollinearity between variables. For the forecasting models the highest observed VIF score is 5.23 (OCF Model) and 5.24 (P&L Model), which is below the critical value of 10 and indicates that an issue of multicollinearity is not predominant for the observed data. Tables 23 and 24 present the correlation matrices.

Table 23: Correlation Matrices – OCF Model

	$OCF_{i(t-1)}$	$P\&L_{i(t-1)}$	$CI_{i(t-1)}$	$OCI_{i(t-1)}$	$ACT_{i(t-1)}$	$FOR_{i(t-1)}$	$AFS_{i(t-1)}$	$CFH_{i(t-1)}$	$ASS_{i(t-1)}$	$OTH_{i(t-1)}$
$OCF_{i(t-1)}$	1.00									
$P\&L_{i(t-1)}$	0.38	1.00								
$CI_{i(t-1)}$	0.35	0.93	1.00							
$OCI_{i(t-1)}$	0.01	0.07	0.42	1.00						
$ACT_{i(t-1)}$	-0.12	-0.02	0.12	0.37	1.00					
$FOR_{i(t-1)}$	-0.01	0.01	0.27	0.72	-0.01	1.00				
$AFS_{i(t-1)}$	0.08	0.01	0.13	0.38	0.01	-0.01	1.00			
$CFH_{i(t-1)}$	-0.05	0.06	0.04	-0.03	-0.00	-0.34	0.00	1.00		
$ASS_{i(t-1)}$	-0.03	-0.04	0.07	0.29	-0.01	0.02	0.28	0.01	1.00	
$OTH_{i(t-1)}$	0.14	0.06	-0.06	-0.32	-0.66	0.05	-0.34	-0.25	-0.13	1.00
$P\&L_{i(t-1)}$*Neg $P\&L_{i(t-1)}$	0.04	0.50	0.47	0.06	0.10	0.04	-0.03	0.01	-0.05	-0.04
$CI_{i(t-1)}$*Neg $CI_{i(t-1)}$	0.02	0.46	0.49	0.22	0.33	0.09	0.00	0.02	0.02	-0.23
$OCI_{i(t-1)}$*Neg $OCI_{i(t-1)}$	-0.16	-0.03	0.24	0.62	0.14	0.69	0.28	-0.09	0.15	-0.20
$ACT_{i(t-1)}$*Neg $ACT_{i(t-1)}$	-0.21	-0.06	0.01	0.17	0.50	-0.04	0.03	0.02	0.02	-0.32
$FOR_{i(t-1)}$*Neg $FOR_{i(t-1)}$	-0.14	-0.03	0.18	0.56	0.00	0.64	-0.01	-0.40	0.01	0.02
$AFS_{i(t-1)}$*Neg$AFS_{i(t-1)}$	0.07	-0.03	0.05	0.22	0.01	0.00	0.62	-0.01	0.08	-0.29
$CFH_{i(t-1)}$*Neg $CFH_{i(t-1)}$	-0.12	0.03	0.09	0.19	0.00	0.00	0.00	0.63	0.01	-0.27
$ASS_{i(t-1)}$*Neg $ASS_{i(t-1)}$	-0.06	-0.09	-0.04	0.12	-0.01	0.01	0.12	0.00	0.61	-0.07
$OTH_{i(t-1)}$*Neg $OTH_{i(t-1)}$	0.02	-0.04	-0.16	-0.36	-0.61	0.03	-0.17	-0.04	-0.12	0.67
DebtEquity	0.38	0.28	0.26	0.02	-0.02	0.02	0.00	-0.02	-0.00	0.06
Asset	-0.01	-0.05	-0.07	-0.06	-0.00	-0.04	-0.01	-0.10	-0.01	0.04

	$P\&L_{i(t-1)}$* Neg $P\&L_{i(t-1)}$	$CI_{i(t-1)}$* Neg $CI_{i(t-1)}$	$OCI_{i(t-1)}$* Neg $OCI_{i(t-1)}$	$ACT_{i(t-1)}$* Neg $ACT_{i(t-1)}$	$FOR_{i(t-1)}$* Neg $FOR_{i(t-1)}$	$AFS_{i(t-1)}$* Neg $AFS_{i(t-1)}$	$CFH_{i(t-1)}$* Neg $CFH_{i(t-1)}$	$ASS_{i(t-1)}$* Neg $ASS_{i(t-1)}$	$OTH_{i(t-1)}$* Neg $OTH_{i(t-1)}$	DebtEquity	Asset
$P\&L_{i(t-1)}$* Neg $P\&L_{i(t-1)}$	1.00										
$CI_{i(t-1)}$* Neg $CI_{i(t-1)}$	0.93	1.00									
$OCI_{i(t-1)}$* Neg $OCI_{i(t-1)}$	0.04	0.11	1.00								
$ACT_{i(t-1)}$* Neg $ACT_{i(t-1)}$	0.11	0.14	0.27	1.00							
$FOR_{i(t-1)}$* Neg $FOR_{i(t-1)}$	0.05	0.07	0.61	0.00	1.00						
$AFS_{i(t-1)}$* Neg $AFS_{i(t-1)}$	-0.06	-0.01	0.36	0.02	-0.02	1.00					
$CFH_{i(t-1)}$* Neg $CFH_{i(t-1)}$	0.02	0.03	0.25	0.03	0.02	-0.02	1.00				
$ASS_{i(t-1)}$* Neg $ASS_{i(t-1)}$	-0.12	-0.03	0.21	0.01	-0.00	0.16	-0.01	1.00			
$OTH_{i(t-1)}$* Neg $OTH_{i(t-1)}$	-0.06	-0.29	0.00	-0.02	0.02	-0.01	-0.01	-0.00	1.00		
DebtEquity	-0.02	-0.02	-0.14	-0.18	-0.07	-0.05	-0.08	-0.04	-0.06	1.00	
Asset	-0.04	-0.06	-0.04	-0.02	-0.01	0.01	-0.11	0.01	0.01	0.04	1.00

Table 24: Correlation Matrices – P&L Model

	$P\&L_{it}$	$P\&L_{i(t-1)}$	$CI_{i(t-1)}$	$OCI_{i(t-1)}$	$ACT_{i(t-1)}$	$FOR_{i(t-1)}$	$AFS_{i(t-1)}$	$CFH_{i(t-1)}$	$ASS_{i(t-1)}$	$OTH_{i(t-1)}$
$P\&L_{it}$	1.00									
$P\&L_{i(t-1)}$	0.69	1.00								
$CI_{i(t-1)}$	0.59	0.93	1.00							
$OCI_{i(t-1)}$	-0.10	0.03	0.40	1.00						
$ACT_{i(t-1)}$	-0.07	-0.04	0.11	0.38	1.00					
$FOR_{i(t-1)}$	-0.10	0.01	0.29	0.76	-0.01	1.00				
$AFS_{i(t-1)}$	0.03	0.02	0.17	0.39	0.00	-0.01	1.00			
$CFH_{i(t-1)}$	0.02	0.05	0.03	-0.04	-0.00	-0.34	0.00	1.00		
$ASS_{i(t-1)}$	-0.10	0.00	0.12	0.31	-0.01	0.02	0.31	0.01	1.00	
$OTH_{i(t-1)}$	0.10	0.05	-0.08	-0.35	-0.52	0.06	-0.30	-0.31	-0.12	1.00
$P\&L_{i(t-1)}$*Neg $P\&L_{i(t-1)}$	0.23	0.29	0.27	0.01	-0.01	0.00	-0.01	0.09	-0.03	-0.03
$CI_{i(t-1)}$*Neg $CI_{i(t-1)}$	0.19	0.27	0.28	0.08	-0.01	0.08	-0.01	0.08	-0.02	-0.02
$OCI_{i(t-1)}$*Neg$OCI_{i(t-1)}$	-0.11	-0.05	0.23	0.62	0.13	0.72	0.21	-0.10	0.11	-0.20
$ACT_{i(t-1)}$*Neg$ACT_{i(t-1)}$	-0.12	-0.12	-0.05	0.15	0.47	-0.04	0.03	0.03	0.00	-0.39
$FOR_{i(t-1)}$*Neg$FOR_{i(t-1)}$	-0.07	-0.03	0.20	0.59	0.00	0.64	-0.01	-0.40	0.02	0.02
$AFS_{i(t-1)}$*Neg$AFS_{i(t-1)}$	-0.05	-0.04	0.05	0.22	0.01	-0.00	0.65	-0.01	0.04	-0.22
$CFH_{i(t-1)}$*Neg$CFH_{i(t-1)}$	-0.03	0.01	0.09	0.20	0.00	0.00	0.00	0.63	0.01	-0.34
$ASS_{i(t-1)}$*Neg$ASS_{i(t-1)}$	-0.08	-0.03	0.03	0.14	-0.02	0.01	0.06	0.01	0.52	0.01
$OTH_{i(t-1)}$*Neg$OTH_{i(t-1)}$	-0.03	-0.07	-0.21	-0.38	-0.58	0.04	-0.23	-0.05	-0.19	0.61
DebtEquity	-0.17	-0.19	-0.21	-0.10	0.01	-0.04	-0.05	-0.13	-0.08	0.04
Asset	0.27	0.32	0.30	0.01	-0.02	0.02	-0.02	-0.02	0.00	0.08

	$P\&L_{i(t-1)}$* Neg $P\&L_{i(t-1)}$	$CI_{i(t-1)}$* Neg $CI_{i(t-1)}$	$OCI_{i(t-1)}$* Neg $OCI_{i(t-1)}$	$ACT_{i(t-1)}$* Neg $ACT_{i(t-1)}$	$FOR_{i(t-1)}$* Neg $FOR_{i(t-1)}$	$AFS_{i(t-1)}$* Neg$AFS_{i(t-1)}$	$CFH_{i(t-1)}$* Neg $CFH_{i(t-1)}$	$ASS_{i(t-1)}$* Neg $ASS_{i(t-1)}$	$OTH_{i(t-1)}$* Neg $OTH_{i(t-1)}$	Debt Equity	Asset
$P\&L_{i(t-1)}$* Neg $P\&L_{i(t-1)}$	1.00										
$CI_{i(t-1)}$* Neg $CI_{i(t-1)}$	0.93	1.00									
$OCI_{i(t-1)}$* Neg $OCI_{i(t-1)}$	0.01	0.05	1.00								
$ACT_{i(t-1)}$* Neg $ACT_{i(t-1)}$	-0.01	-0.00	0.26	1.00							
$FOR_{i(t-1)}$* Neg $FOR_{i(t-1)}$	0.01	0.04	0.85	0.00	1.00						
$AFS_{i(t-1)}$* Neg$AFS_{i(t-1)}$	0.01	0.01	0.30	0.03	-0.02	1.00					
$CFH_{i(t-1)}$* Neg $CFH_{i(t-1)}$	0.02	0.02	0.27	0.04	0.02	-0.02	1.00				
$ASS_{i(t-1)}$* Neg $ASS_{i(t-1)}$	-0.00	0.00	0.18	-0.01	0.01	0.09	-0.00	1.00			
$OTH_{i(t-1)}$* Neg $OTH_{i(t-1)}$	-0.06	-0.04	0.02	-0.02	0.03	-0.01	-0.02	0.00	1.00		
DebtEquity	-0.09	-0.08	-0.06	-0.04	-0.01	-0.05	-0.13	0.01	-0.03	1.00	
Asset	0.09	0.12	-0.14	-0.15	-0.06	-0.12	-0.07	-0.04	-0.07	0.17	1.00

5.3.4 Results

This section presents results from the regressions of the association between current income measures and future OCF and P&L, described in section 5.3.1, testing hypothesis H3a, H3b, H3c, H3d, H3e and H3f.

The models were tested in steps. In the first step, the association between the independent variables and dependent variables OCF and P&L (regressions "a") was investigated. In a second step, the control variables were included – Asset, DebtEquity, Sector and the binary variable that takes the value "one" if the income variable is negative and the value "zero" if the income measure is positive (Neg) – (regressions "b"). In the third stage, the effect of negative income measures on share prices was investigated (regressions "c"). Figure 19 illustrates the steps.

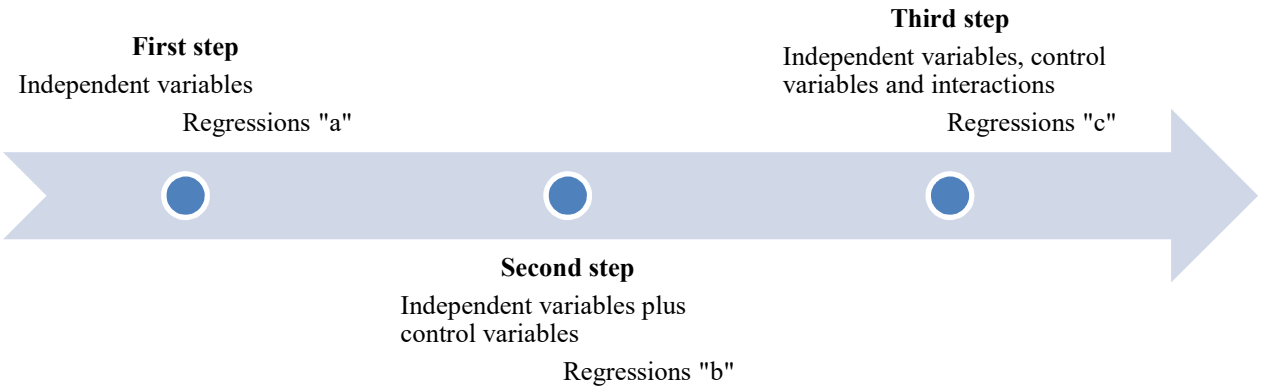


Figure 19: Forecasting models: Steps

The following sections present the OCF Model and P&L Model results based on the OLS regressions.

5.3.4.1 OCF model

OCF regressions 1a, 1b, 1c, 2a, 2b and 2c, presented in Table 25, tested hypothesis H3a, i.e., if the current CI is a better OCF forecasting predictor compared to the current P&L. Models 1b, 1c, 2b and 2c are statistically valid according to the significance at 5% of statistical F.

The R^2 of models range from 12.0% (2a) to 24.9% (1c). The current P&L and CI are significant at 1% level and has a positive coefficient in all models. However, the current P&L

coefficient is higher than the current CI coefficient. The results also indicate that negative P&L, negative CI and company size impact future OCF.

Table 25: OCF Model: P&L vs CI

OCF_{it} (Operating Cash Flow forecast)						
	OCF_1a	**OCF_1b**	**OCF_1c**	**OCF_2a**	**OCF_2b**	**OCF_2c**
Constant	1.353***	0.454	0.402	1.445***	0.510*	0.457*
	(0.120)	(0.279)	(0.278)	(0.131)	(0.278)	(0.277)
$P\&L_{i(t-1)}$	0.554***	0.376***	0.475***			
	(0.087)	(0.090)	(0.109)			
$CI_{i(t-1)}$				0.465***	0.299***	0.389***
				(0.084)	(0.087)	(0.102)
$NegP\&L_{i(t-1)}$		-0.516**	-0.485**			
		(0.240)	(0.244)			
$P\&L_{i(t-1)}$*$NegP\&L_{i(t-1)}$			-0.409**			
			(0.203)			
$NegCI_{i(t-1)}$					-0.659***	-0.624**
					(0.242)	(0.247)
$CI_{i(t-1)}$*$NegCI_{i(t-1)}$						-0.364*
						(0.189)
DebtEquity		-0.229	-0.223		-0.233	-0.221
		(0.152)	(0.151)		(0.151)	(0.151)
Asset		0.550***	0.510***		0.570***	0.535***
		(0.078)	(0.078)		(0.082)	(0.082)
Sector		-0.914***	-0.819**		-0.906***	-0.832**
		(0.353)	(0.362)		(0.349)	(0.355)
Adj. R^2	14.1%	24.0%	24.9%	12.0%	23.1%	24.1%
F(sig.)	0.1240	0.0005	0.0001	0.1430	0.0005	0.0001
Observations	612	612	612	612	612	612

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

OCF regressions 3a, 3b, 3c, 4a, 4b and 4c, displayed in Table 26 aim to test H3b and H3c about the incremental information provided by OCI and OCI components for predict OCF, respectively.

Current OCI models are statistically valid according to the statistical F significance. R^2 of models range from 14.00% (3a) to 26.70% (3c). The current P&L is positive and statistically significant at 1% on all models. The current OCI is not statistically significant in models 3a and 3b. However, in model 3c (including the effect of negative OCI), OCI and the negative effect are statistically significant at 5%, which could be an indication for the reverting nature of the OCI over time. As in the first regressions, results also indicate that negative P&L and company size impact future OCF.

Then there is evidence that the inclusion of the current OCI and especially the negative OCI provide significant incremental information to predict OCF since they were statistically significant and R^2 of P&L (1b and 1c) increased compared to OCI models (3b and 3c).

Models 4a, 4b and 4c include the current OCI components and test hypothesis H3c. All models are statistically valid according to the significance of statistical F. R^2 of models range from 16.7% (4a) to 31.5% (4c). As in previous models, P&L is positive and statistically significant at 1% on all models.

The results indicate that FOR, AFS, CFH and OTH are associated with OCF forecasting. Additionally, the increase in R^2 compared to the previous models, indicates that the inclusion of OCI improves OCF predictability, especially when the OCI components are included in the model. It could be evidence that these OCI components, especially with a negative signal, turns into OCF in the following year through realization via P&L, which contrasts to the concept by Ohlson (1999) that OCI is transitory in nature and forecasting irrelevant.

Table 26: OCF Model: OCI vs OCI components

OCF_{it} (Operating Cash Flow forecast)						
	OCF_3a	**OCF_3b**	**OCF_3c**	**OCF_4a**	**OCF_4b**	**OCF_4c**
Constant	1.352***	0.508*	0.399	1.334***	0.255	0.369
	(0.120)	(0.296)	(0.286)	(0.117)	(0.306)	(0.303)
$P\&L_{i(t-1)}$	0.555***	0.378***	0.456***	0.540***	0.345***	0.411***
	(0.087)	(0.090)	(0.109)	(0.085)	(0.086)	(0.111)
$OCI_{i(t-1)}$	-0.041	-0.067	0.524**			
	(0.251)	(0.236)	(0.258)			
$ACT_{i(t-1)}$				0.131	0.386	0.813
				(0.588)	(0.543)	(1.283)
$FOR_{i(t-1)}$				-0.122	-0.206	0.876***
				(0.397)	(0.289)	(0.253)
$AFS_{i(t-1)}$				1.130***	1.216***	0.663***
				(0.271)	(0.267)	(0.518)
$CFH_{i(t-1)}$				-0.463	-0.070	-2.113**
				(0.684)	(0.637)	(1.047)
$ASS_{i(t-1)}$				-0.608	-0.745	-0.041
				(0.687)	(0.520)	(0.604)
$OTH_{i(t-1)}$				1.787**	2.059**	2.009**
				(0.866)	(0.851)	(0.941)
Neg $P\&L_{i(t-1)}$		-0.506**	-0.555**		-0.516**	-0.598**
		(0.241)	(0.244)		(0.238)	(0.242)
$P\&L_{i(t-1)}$*Neg $P\&L_{i(t-1)}$			-0.393**			-0.310
			(0.198)			(0.195)
$NegOCI_{i(t-1)}$		-0.113	-0.090			
		(0.211)	(0.199)			
$OCI_{i(t-1)}$*$NegOCI_{i(t-1)}$			-1.173***			
			(0.355)			
Neg $ACT_{i(t-1)}$					0.560**	0.267
					(0.249)	(0.233)

	OCF_3a	OCF_3b	OCF_3c	OCF_4a	OCF_4b	OCF_4c
$ACT_{i(t-1)}$*Neg $ACT_{i(t-1)}$						-1.461
						(1.425)
$NegFOR_{i(t-1)}$					-0.339	-0.353
					(0.235)	(0.222)
$FOR_{i(t-1)}$*$NegFOR_{i(t-1)}$						-1.937***
						(0.390)
$NegAFS_{i(t-1)}$					0.522*	0.477*
					(0.294)	(0.285)
$AFS_{i(t-1)}$*$NegAFS_{i(t-1)}$						0.961
						(0.783)
$NegCFH_{i(t-1)}$					0.575**	0.353
					(0.291)	(0.274)
$CFH_{i(t-1)}$*$NegCFH_{i(t-1)}$						1.809
						(1.233)
$NegASS_{i(t-1)}$					0.151	0.041
					(0.472)	(0.425)
$ASS_{i(t-1)}$*$NegASS_{i(t-1)}$						-1.593
						(1.496)
$NegOTH_{i(t-1)}$					0.385	0.440
					(0.258)	(0.268)
$OTH_{i(t-1)}$*$NegOTH_{i(t-1)}$						0.258
						(2.745)
DebtEquity		-0.228	-0.154		-0.192	-0.205
		(0.152)	(0.148)		(0.152)	(0.154)
Asset		0.550***	0.459***		0.518***	0.427***
		(0.079)	(0.075)		(0.071)	(0.070)
Sector		-0.924***	-0.840**		-1.027***	-0.805**
		(0.356)	(0.364)		(0.380)	(0.392)
Adj. R^2	14.0%	23.8%	26.7%	16.7%	27.6%	31.5%
F(sig.)	0.0477	0.0001	0.0000	0.0016	0.0000	0.0000
Observations	612	612	612	612	612	612

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.3.4.2 P&L model

In addition, the forecasting ability of P&L based on current P&L, CI, OCI and OCI components is tested in this study. The following regression models have been applied to test hypothesis 3d, 3e and 3f.

P&L regressions 1a, 1b, 1c, 2a, 2b and 2c, presented in Table 27, tested hypothesis H3d, i.e., if the current CI is a better P&L forecasting predictor compared to the current P&L. All models are statistically valid according to the statistical F significance.

The R^2 of models range from 34.9% (2a) to 48.5% (1c). The current P&L and CI are significant at 1% level and has a positive coefficient in all models. However, as in the previous models, the current P&L coefficient is higher than the current CI coefficient. Results also indicate that negative P&L, negative CI, size and leverage impact on the OCF forecasting.

Table 27: P&L Model: P&L vs CI

	$P\&L_{it}$ (profit or loss forecast)					
	PL_1a	**PL_1b**	**PL_1c**	**PL_2a**	**PL_2b**	**PL_2c**
Constant	0.108	0.122	0.160	0.283***	0.226*	0.241*
	(0.085)	(0.110)	(0.113)	(0.094)	(0.127)	(0.127)
$P\&L_{i(t-1)}$	0.779***	0.735***	0.706***			
	(0.065)	(0.073)	(0.076)			
$CI_{i(t-1)}$				0.612***	0.552***	0.531***
				(0.063)	(0.069)	(0.073)
$NegP\&L_{i(t-1)}$		-0.337**	-0.497**			
		(0.163)	(0.216)			
$P\&Li(t-1)*NegP\&L_{i(t-1)}$			0.218			
			(0.179)			
$NegCI_{i(t-1)}$					-0.376**	-0.550**
					(0.178)	(0.219)
$CIi(t-1)*NegCI_{i(t-1)}$						0.196
						(0.157)
DebtEquity		-0.135	-0.142		-0.209**	-0.187*
		(0.086)	(0.093)		(0.100)	(0.098)
Asset		0.083**	0.070**		0.129***	0.126***
		(0.036)	(0.036)		(0.042)	(0.042)
Sector			0.227		0.272	0.248
			(0.192)		(0.209)	(0.208)
Adj. R^2	47.3%	48.1%	48.5%	34.9%	36.8%	37.1%
F(sig.)	0.0668	0.0003	0.0000	0.0819	0.0002	0.0001
Observations	594	594	594	594	594	594

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

P&L regressions 3a, 3b, 3c, 4a, 4b and 4c, displayed in Table 28, aim to test H3e and H3f related to the incremental information provided by OCI and OCI components for P&L forecasting, respectively.

Current OCI models are statistically valid according to the statistical F significance. R^2 of models range from 48.7% (3a) to 49.8% (3c). Current P&L is positive and statistically significant at 1% on all models. Current OCI is negative and statistically significant. As pointed out in the OCF model analysis, this fact could be an indication for the reverting nature of the OCI over time, which impacts the P&L forecasting. As in the first regressions, the results also indicate that negative P&L, leverage and company size impact on P&L forecasting.

Therefore, results indicate that the inclusion of the current OCI, provide significant incremental information to predict OCF, since it was statistically significant and R^2 of P&L (1b and 1c) increased compared to OCI models (3b and 3c).

Models 4a, 4b and 4c include the current OCI components and test hypothesis H3f. All models are statistically valid according to the significance of statistical F. R^2 of models range from 49.7%

(4a) to 51.5% (4c). As in previous models, P&L is positive and statistically significant at 1% on all models.

The results indicate that FOR, AFS and ASS are associated with P&L forecasting. Additionally, the increase in R^2, compared to models 1a, 1b and 1c, indicates that the inclusion of OCI improves P&L forecasting, especially when the OCI components are included in the model. It could be evidence that these OCI components, especially FOR and AFS, are reverted to P&L in the following year through realization via P&L.

Table 28: P&L Model: OCI vs OCI components

	$P\&L_{it}$ (profit or loss forecast)					
	PL_3a	**PL_3b**	**PL_3c**	**PL_4a**	**PL_4b**	**PL_4c**
Constant	0.110	0.117	0.136	0.107	0.167	0.197
	(0.085)	(0.122)	(0.122)	(0.084)	(0.122)	(0.122)
$P\&L_{i(t-1)}$	0.782***	0.734***	0.711***	0.777***	0.727***	0.700***
	(0.066)	(0.073)	(0.077)	(0.067)	(0.075)	(0.079)
$OCI_{i(t-1)}$	-0.330***	-0.314***	-0.378**			
	(0.109)	(0.100)	(0.156)			
$ACT_{i(t-1)}$				-0.061	-0.125	-0.536
				(0.217)	(0.232)	(0.469)
$FOR_{i(t-1)}$				-0.372***	-0.380***	-0.615**
				(0.142)	(0.135)	(0.304)
$AFS_{i(t-1)}$				0.411*	0.453**	0.601**
				(0.222)	(0.209)	(0.240)
$CFH_{i(t-1)}$				-0.285	-0.518	-0.499
				(0.327)	(0.334)	(1.032)
$ASS_{i(t-1)}$				-1.472*	-1.667*	-2.140*
				(0.857)	(0.900)	(1.257)
$OTH_{i(t-1)}$				0.533	0.339	0.882
				(0.586)	(0.636)	(1.072)
Neg $P\&L_{i(t-1)}$		-0.281*	-0.443**		-0.246	-0.352*
		(0.152)	(0.207)		(0.153)	(0.212)
$P\&L_{i(t-1)}$*Neg $P\&L_{i(t-1)}$			0.198			0.159
			(0.170)			(0.167)
$NegOCI_{i(t-1)}$		0.094	0.081			
		(0.106)	(0.106)			
$OCI_{i(t-1)}$*$NegOCI_{i(t-1)}$			0.136			
			(0.233)			
Neg $ACT_{i(t-1)}$					-0.031	-0.064
					(0.159)	(0.169)
$ACT_{i(t-1)}$*Neg $ACT_{i(t-1)}$						0.394
						(0.679)
$NegFOR_{i(t-1)}$					0.111	0.101
					(0.106)	(0.107)
$FOR_{i(t-1)}$*$NegFOR_{i(t-1)}$						0.360
						(0.444)
$NegAFS_{i(t-1)}$					0.232	0.214
					(0.166)	(0.160)
$AFS_{i(t-1)}$*$NegAFS_{i(t-1)}$						-0.469
						(0.380)
$NegCFH_{i(t-1)}$					-0.213	-0.096
					(0.238)	(0.221)

	PL_3a	PL_3b	PL_3c	PL_4a	PL_4b	PL_4c
$CFH_{i(t-1)}$*$NegCFH_{i(t-1)}$						0.294
						(1.173)
$NegASS_{i(t-1)}$					-0.136	-0.121
					(0.229)	(0.203)
$ASS_{i(t-1)}$*$NegASS_{i(t-1)}$						0.660
						(1.344)
$NegOTH_{i(t-1)}$					0.036	-0.021
					(0.146)	(0.149)
$OTH_{i(t-1)}$*$NegOTH_{i(t-1)}$						-1.959
						(1.801)
DebtEquity		-0.194**	-0.172*		-0.229***	-0.212**
		(0.090)	(0.090)		(0.087)	(0.086)
Asset		0.074**	0.079**		0.067*	0.068*
		(0.036)	(0.036)		(0.036)	(0.037)
Sector		0.262	0.236		0.260	0.147
		(0.191)	(0.189)		(0.181)	(0.187)
Adj. R^2	48.7%	49.6%	49.8%	49.7%	50.5%	51.1%
F(sig.)	0.0139	0.0000	0.0000	0.0000	0.0000	0.0000
Observations	594	594	594	594	594	594

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.3.5 Significant findings

This study provides empirical evidence on CI, OCI and OCI components value relevance under the forecasting perspective by analyzing the association between OCF and P&L prediction and current P&L, CI, OCI and OCI components. In order to answer the three research questions, six hypotheses were examined.

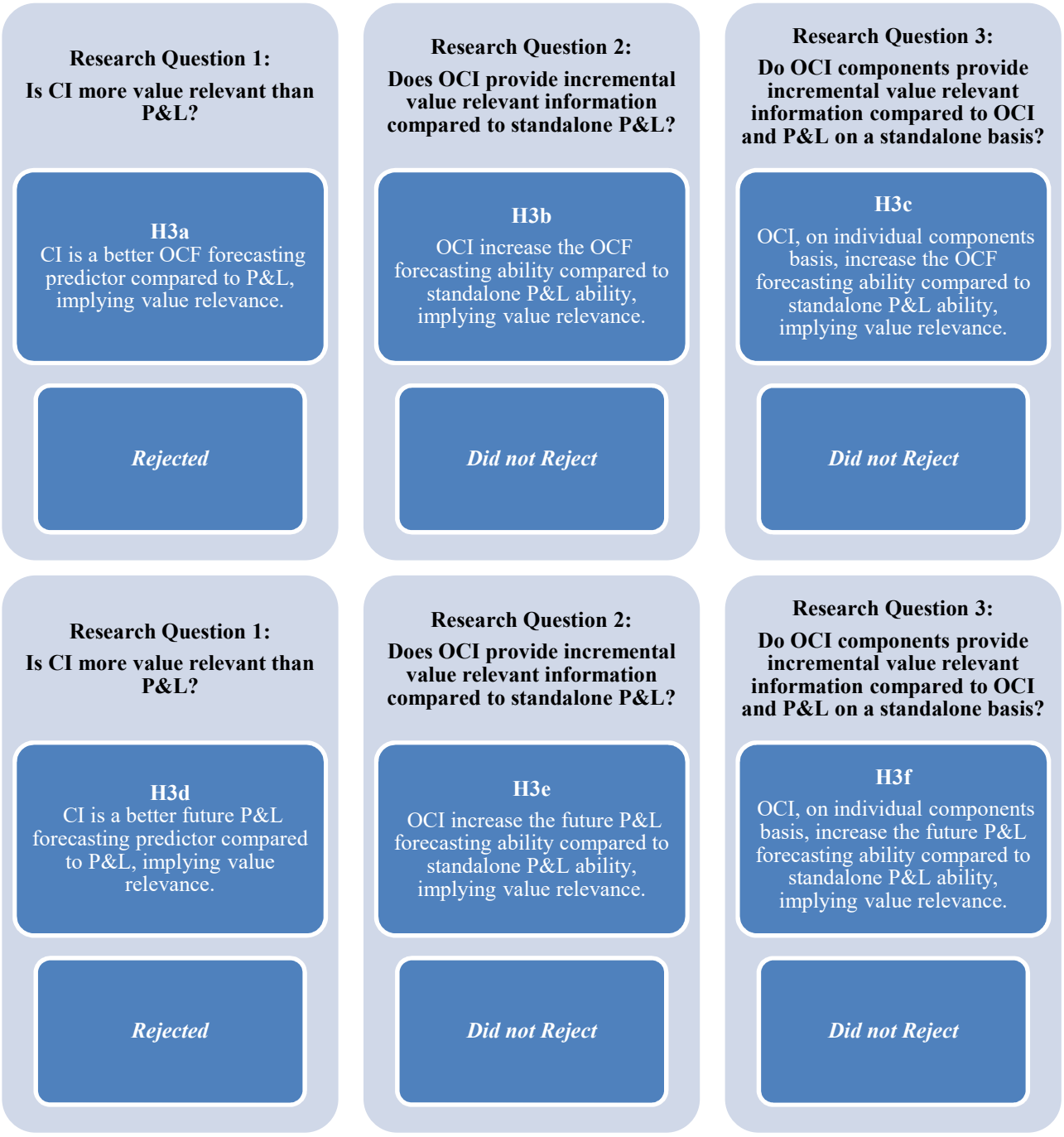
The results suggest that CI is associated with OCF and P&L forecasting, providing value relevant information. However, considering the coefficients, P&L is more value relevant than CI from the forecasting perspective. Therefore, hypotheses H3a and H3d were rejected.

Regarding Research Question 2, results indicated that OCI provides incremental value relevant information compared to standalone P&L. Thus, hypothesis H3b and H3e were not rejected.

From the OCI components perspective, results indicated that they provide incremental value relevant information compared to OCI and P&L, especially gains and losses from translating the financial statements of a foreign operation (FOR) and adjustments in fair value of available-for-sale financial instruments (AFS) are associated with OCF and P&L forecasting. Thus, hypothesis H3c and H3f were not rejected.

The results are summarized in Figure 20.

Figure 20: Forecasting perspective: Results



6. Conclusion

The present dissertation, organized in three studies, investigated the value relevance of CI, OCI and OCI components compared to P&L, from the valuation, informational and forecasting perspectives in Brazilian companies after the adoption of IFRS. The theory of value relevance is related to the concept of decision usefulness of accounting information. According to the Conceptual Framework for Financial Reporting, financial information is regarded as decision useful if it qualifies as being relevant, i.e., when it influences the decision making of users of financial statements by helping them to predict future cash flows and/or confirm previous assumptions (predictive and confirmatory values).

Therefore, the relative and incremental association between CI, OCI and OCI components and share prices, share returns and P&L/OCF forecasting were investigated by price model (valuation perspective), return model (informational perspective) and forecasting models (forecasting perspective), respectively. The main results are presented in Table 29.

Table 29: Summary of results

Research Question	Valuation Perspective	Informational Perspective	Forecasting Perspective
Is CI more value relevant than P&L?	No. P&L is more value relevant than CI.		
Does OCI provide incremental value relevant information compared to standalone P&L?	No. OCI is not value relevant.		Yes, OCI is value relevant.
Do OCI components provide incremental value relevant information compared to OCI and P&L on a standalone basis?	There is no clear evidence that OCI components provide incremental value relevant information compared to standalone P&L, because when the temporal effect is considered, OCI components are no longer significant.	OCI components, especially AFS, FOR and OTH (deferred taxes) provide incremental value relevant information.	OCI components, especially FOR and CFH provide incremental value relevant information.

The finding that P&L is more value relevant than CI is consistent with the majority of the studies, such as those performed by Goncharov and Hodgson (2011); Devalle and Magarini (2012); Mechelli and Cimini (2014). However, results obtained by Deol (2013) and Günther (2014) diverge

from the present research. The differences between results can be explained by the countries analyzed, data and method used.

Table 30: Summary of the main differences

Paper	Countries analyzed[66]	Sample period	Data
Goncharov and Hodgson (2011)	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom.	1991 to 2005	→ Accounting data: Worldscope database[67]; → Market data: Datastream database.
Devalle and Magarini (2012)	United Kingdom, French, German, Spanish and Italian.	2005 to 2007	→ Accounting data: annual consolidated financial statements[68]. → Market data: Thomson analytics.
Mechelli and Cimini (2014)	Countries belonging to the European Union[69].	2006 to 2011	→ Datastream database.
Deol (2013)	Canadian companies.	2001 to 2010[70]	→ Accounting data: Compustat database; → Market data: Center for Research in Security Prices (CRSP) database.
Günther (2014)	Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain (EURO STOXX TMI members)[71].	2007 to 2012	→ Accounting data: annual consolidated financial statements; → Market data: Bloomberg database.

Several reasons may explain the obtained results. Regarding the general investor, CI, incorporates temporary, volatile and unrealized components, which may introduce noise through realization uncertainty to the valuation assessments. Hence, this makes the estimation of income persistence more difficult (HODDER, MAYEW, MCANALLY, & WEAVER, 2006). Moreover, if some unrealized components are capital increments that are required to maintain continued operations, then this may also cloud the valuation fundamentals of firms with long-term operating

[66] From 1 January 2005 IFRS apply for the consolidated financial statements of listed companies in the European Union (GONCHAROV & HODGSON, 2011). Comprehensive income reporting became mandatory in Canada for firm fiscal years starting October 1, 2006 and later (DEOL, 2013).
[67] Goncharov and Hodgson (2011) used a proxy for estimate other comprehensive income (OCI is equal to change in book value of equity minus net income available to common plus dividends paid, plus net capital contributions).
[68] Data were converted in euros according to the exchange rate at the closing year date.
[69] Mechelli and Cimini (2014) study used a sample made of all the European listed entities of countries belonging to the European Union at the date of issuance of EU Regulation 1606/2002.
[70] OCI and OCI components data were available for very few companies for periods prior to 2006. These were firms which were either using US-GAAP for accounting, or provided the information for SEC filings.
[71] The EURO STOXX Total Market Index (TMI) is a regional subset of the STOXX Europe TMI Index which covers approximately 95 percent of the free float market capitalisation of Europe.With a variable number of components, the EURO STOXX TMI Index represents a broad coverage of Eurozone companies.

assets and liabilities, if included in income. In addition, lack of expert knowledge together with behavioral and cognitive issues may mean that investors are not able to disentangle the subtle characteristics of more complex income determinants (MECHELLI & CIMINI, 2014).

Regarding OCI components, individually adjustments in fair value of available-for-sale financial instruments (AFS), gains and losses from translating the financial statements of a foreign operation (FOR) and adjustments in fair value of cash flow hedging instruments (CFH), provide value relevant information. This result is in line with Kanagaretnam, Mathieu and Shehata (2009) for Canadian companies, but is contrary to findings by Dhaliwal, Subramanyam and Trezevant (1999) based on American companies. This finding is evidence that approaches which aggregate and mix gains and losses unrealized with income components derived from transactions are more likely to reduce the relevance and usefulness of accounting information.

Even though P&L is more value relevant than CI, OCI and OCI components, they are useful for investors to assess a company´s value and/or predict OCF and P&L. Thus, standard setters should focus on the establishment of clear guidelines for recognition of gains and losses in OCI and the subsequent recycling into P&L.

The limitations identified in this study are primarily related to the availability of specific data during the observation period. Repeating the analysis when more reporting years will be available, and ideally with the accessibility of high quality and machine readable data, the study may yield more resilient results.

Future research could investigate investor behavior, cognitive and educational issues related to CI, OCI and OCI components.

This dissertation provided additional insight to the ongoing discussion on value relevance of income measures in the research community, as well as on the standard setter level and contributed to fill the lack of research on the subject in Brazil.

Appendix

A.1 BMF&Bovespa Industry Classification Standard[72]

Sector	Subsector	Corporate Governance
Basic Materials BM	Chemicals	Chemicals – Others
		Fertilizers
		Petrochemicals
	Diversified Materials	Other Materials
	Mining	Metallic Minerals
		Non Metallic
	Packaging	Packaging
	Steel and Metallurgy	Copper Products
		Iron and Steel Products
		Steel
	Wood and Paper	Pulp and Paper
		Wood
Capital Goods and Services CGS	Electric Equipment	Electric Equipment
	Machines and Equipment	Agricultural and Construction Machinery
		Hospital Equipment
		Machines and Industrial Equipment
		Motors and Compressors
		Weapons and Munitions
	Retail	Transportation Material
	Services	Diversified Services
	Transportation Equipment and Components	Aerospace and Defense
		Railroad Materials
		Transportation Equipment/Diversified
Construction and Transportation CT	Construction and Engineering	Build Mat Retailers
		Building Materials
		Consultive Engineering
		Divers Services
		Heavy Construction
		Property Agency
		Residential Building Construction
	Transportation	Airlines
		Marine and Water Transport

[72] The Industry Classification Standard is published BMF&Bovespa website. Available at: http://www.bmfbovespa.com.br/en_us/products/listed-equities-and-derivatives/variable-income/listed-companies.htm [accessed 10/04/2016].

Sector	Subsector	Corporate Governance
		Railroads
		Toll Roads and Highways
		Trucking
		Warehousing and Storage
Consumer Cyclical CC	Diversified	Car rental
		Education Services
		Loyalty Programs
	Hotels and Restaurants	Hotels
		Restaurants and Similar
	Household Products	Home Furnishing
		Household Appliance
		Houseware Utensils
	Media	Advertising
		Books, Magazines and Newspapers
	Retail	Apparel. Fabric and Footwear
		Diversified Retailers
		Electronics and Household Appliance
	Textiles	Accessories
		Apparel and Clothing
		Fabric. Thread and Fibers
		Footwear
	Travel	Bicycles
		Entertainment and Leisure
		Theme Parks
		Toys and Games
		Travel and Tourism
Consumer Non-Cyclical CNC	Beverage	Beer and Soft Drinks
	Diversified	Diversified Products
	Farming	Agriculture
	Food Processors	Dairy Products
		Meat. Poultry and Others
		Other Food Manufacturing
		Sugar – Alcohol
	Health	Med Hosp Serv. Anal and Diagnostics
		Pharmaceutical and Others Products
	Personal Care and Cleaning Products	Cleaning Products
	Retail and Distribution	Drugstores
		Food Retailers
Financial FIN	Asset-backed Securitization	Asset-backed Securitization
	Diversified Financial Services	Asset Management and Investments

Sector	Subsector	Corporate Governance
		Diversified Financial Services
	Financial Intermediaries	Banks
		Leasing
		Others Financial Intermediaries
		Savings and Loans
	Holdings – Diversified	Holdings – Diversified
	Insurance	Insurance Life and Multi-line
		Insurance Brokers
	Others	Others
	Real Estate	Real Estate
Information Technology IT	Hardware and Equipment	Hardware and Equipment
	Software and Services	Software and Services
Oil, Gas and Biofuels OGB	Oil, Gas and Biofuels	Equipment and Services
		Exploration and Refining
Telecommunications TEL	Fixed Line Communications	Fixed Line Communications
	Wireless Communications	Wireless Communications
Utilities UTI	Electric Utilities	Electric Utilities
	Gas Utilities	Gas Utilities
	Water Utilities	Water Utilities

References

ALEXANDER, D. R., FALTA, M., & WILLETT, R. J. (2012). Using Forecasting Criteria to Identify Value Relevance in the Relationship Between Accounting Numbers and Market Value. *Abacus, 48*(3), pp. 316–347.

ALI, A., & ZAROWIN, P. (1991). Permanent versus transitory components of annual earnings and estimation error in earnings response coefficients. *Journal of Accounting and Economics, 15*, pp. 249—264.

ALI, A., & ZAROWIN, P. (1992). The role of earnings levels in annual earnings—returns studies. *Journal of Accounting Research, 30*, pp. 286—296.

ALMEIDA, D. L. (2010). Reclassificação dos ativos financeiros e os possíveis impactos nos indicadores prudenciais e de rentabilidade dos bancos brasileiros. *Master Thesis*. São Paulo. Retrieved 2013, from http://www.teses.usp.br/teses/disponiveis/12/12136/tde-13102010-182733/pt-br.php

AMIR, E., TREVOR, S. H., & VENUTI, E. K. (1993). Comparision of the Value-Relevance of U.S. Versus Non-U.S. GAAP Accounting Measures Using Form 20-F Reconciliations. *Journal of Accounting Research, 31*, pp. 230-264.

BALL, R., & BROWN, P. (1968, Autumn). An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research, 6*(2), pp. 159-178.

BALTAGI, B. H. (2008). *Economics Analysis of Panel Data* (4 ed.). Chichetser, United Kingdom: John Wiley & Sons.

BAMBER, L. S., JIANG, J., PETRONI, K. R., & WANG, I. Y. (2010). Who's afraid of performance reporting? *The Accounting Review, 85*(1), pp. 97–126.

BANDYOPADHYAY, P., HANNA, J., & RICHARDSON, G. (1994). Capital market effects of US–Canada GAAP differences. *Journal of Accounting Research, 32*, pp. 262–277.

BARKER, R. (2001). *Determining value: valuation models and financial statements.* Harlow: Pearson Education.

BARKER, R. (2004). Reporting financial performance. *Accounting Horizons, 18*(2), pp. 157–172.

BARTH, M. E., & CLINCH, G. (1996). International accounting differences and their relation to share prices: evidence from UK, Australian, and Canadian firms. *Contemporary Accounting Research, 13*, pp. 135–170.

BARTH, M. E., BEAVER, W. H., & LANDSMAN, W. R. (2000). Valuation-based accounting research: Implications for financial reporting and opportunities for future research. *Accounting and Finance, 40*, pp. 7–31.

BARTH, M. E., BEAVER, W. H., & LANDSMAN, W. R. (2001). The Relevance of Value Relevance Research. *Journal of Accounting and Economics, 31*, pp. 77–104.

BARTH, M. E., BEAVER, W. H., HAND, J. R., & LANDSMAN, W. R. (1999). Accruals, Cash Flows, and Equity Values. *Review of Accounting Studies, 3*, pp. 205–229.

BARTH, M. E., LANDSMAN, W. R., & LANG, M. H. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, 46*(3), pp. 467–498.

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*, pp. 753–789.

BEAVER, W. H. (1968). The Information Content of Annual Earnings Announcements. *Journal of Accounting Research, 6*, pp. 67–92.

BERNARD, V. L. (1995). The Feltham-Ohlson Framework: Implications for Empiricists. *Contemporary Accounting Research, 11*(2), pp. 733–747.

BIDDLE, G. C., & CHOI, J. (2006, June). Is comprehensive income useful? *Journal of Contemporary Accounting and Economics, 2*(1), pp. 1–30.

BRASIL. (2007, December 28). Lei nº 11.638. Brasília. Retrieved 2014, from http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/lei/l11638.htm

BREUSCH, T., & PAGAN, A. (1980). The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. *The Review of Economic Studies, 47*(1), pp. 239-253.

BROWN, S., LO, K., & LYS, T. (1999). Use of R 2 in accounting research: measuring changes in value relevance over the last four decades. *Journal of Accounting and Economics, 28*(2), pp. 83-115.

CAHAN, S., COURTENAY, S., GRONEWOLLER, P., & UPTON, D. (2000, Nov./Dec.). Value relevance of mandated comprehensive income disclosures. *Journal of Business, Finance, and Accounting, 27*(9 & 10), pp. 1273–1301.

CALLEN, J. L., & SEGAL, D. (2005). Empirical Tests of the Feltham–Ohlson (1995). *Review of Accounting Studies, 10*(4), pp. 409–429.

CAMERON, A. C., & TRIVEDI, P. K. (2009). *Microeconometrics Using Stata.* College Station, Texas, United States of America: Stata Press.

CAMPBELL, L., CRAWFORD, D., & FRANZ, D. R. (1999). How Companies Are Complying With the Comprehensive Income Disclosure Requirements. *The Ohio CPA Journal, 58*(1), pp. 13-20.

CAUWENBERGE, P. V., & DE BEELDE, I. (2007). On the IASB Comprehensive Income Project: An Analysis of the Case for Dual Income Display. *Abacus, 43*(1), pp. 1-26.

CAUWENBERGE, P. V., & DE BEELDE, I. (2010). A Critical Note on Empirical Comprehensive Income. *Betriebswirtschaftliche Forschung und Praxis, 62*(1), pp. 82-101.

CHAMBERS, D. J., LINSMEIER, T., SHAKESPEARE, C., & SOUGIANNIS, T. (2007). An evaluation of SFAS Nº. 130 comprehensive income disclosures. *Review of Accounting Studies, 12*, 557–593.

CHENG, C. S., 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, 23*(91), pp. 195–203.

CHOI, J., DAS, S., & and ZANG, Y. (2007). Comprehensive Income, Future Earnings, and Market Mispricing. *Research Collection School of Accountancy, Paper 162*. Retrieved 2016, from http://ink.library.smu.edu.sg/soa_research/162

CHRISTENSEN, P., & FELTHAM, G. (2003). *Economics of accounting. Information in Markets.* (Vol. 1). New York: Springer.

CHRISTIE, A. (1987). On cross-sectional analysis in accounting research. *Journal of Accounting and Economics, 9*, pp. 231–258.

COELHO, A. C., & CARVALHO, L. N. (2007). Análise Conceitual de Lucro Abrangente e Lucro Operacional Corrente: Evidências no Setor Financeiro Brasileiro. *Brazilian Business Review, 4*(2), 119-139.

COLLINS, D., MAYDEW, E., & WEISS, I. (1997). Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics, 24*(1), pp. 39–67.

CPC. (2011, Dezembro). Pronunciamento Técnico CPC 26 (R1). Apresentação das Demonstrações Contábeis. Brasília. Retrieved 2014, from http://static.cpc.mediagroup.com.br/Documentos/312_CPC_26_R1_rev%2003.pdf

DECHOW, P., HUTTON, A., & SLOAN, R. (1999). An empirical assessment of the residual income valuation model. *Journal of Accounting and Economics, 26*, pp. 1–34.

DEOL, H. (2013, April). The Decision Usefulness Of Comprehensive Income Reporting In Canada. *Thesis*. Calgary, Alberta, Canada: Haskayne School Of Business. Retrieved 2016, from http://theses.ucalgary.ca/handle/11023/670

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), pp. 43–68.

DHALIWAL, D., SUBRAMANYAM, K., & TREZEVANT, R. (1999). Is comprehensive income superior to net income as a measure of firm performance? *Journal of Accounting and Economics, 26*, pp. 43–67.

EASTON, P. D., & HARRIS, T. S. (1991). Earnings as explanatory variables for returns. *Journal of Accounting Research, 29*, pp. 19—36.

EATON, T. V., EASTERDAY, K. E., & RHODES, M. R. (2013, March). The Presentation of Other Comprehensive Income. *The CPA Journal*, pp. 32-35.

FASB. (1997, June). Statement of Financial Accounting Standards nº 130. Reporting Comprehensive Income. Norwalk. Retrieved 2014, from http://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1218220124511&acceptedDisclaimer=true

FELTHAM, J., & OHLSON, J. A. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research, 11*, pp. 689–731.

FERRARO, O., & VELTRI, S. (2012). A Critical Analysis of the Empirical Researches on Comprehensive Income Value Relevance. *European Journal os Scientific Research, 76*(4), pp. 587-594.

FRANCIS, J., & SCHIPPER, K. (1999). Have Financial Statements Lost Their Relevance? *Journal of Accounting Research, 37*(2), pp. 319-352.

GONCHAROV, I., & HODGSON, A. (2011). Measuring and Reporting Income in Europe. *Journal of International Accounting Research, 10*(1), pp. 27-59.

GONZALES, A. (2013). Alterações no patrimônio líquido a partir de 2010 e a percepção dos docentes de contabilidade. *Doctoral Thesis*. São Paulo: Universidade de São Paulo. Retrieved 2014, from http://www.teses.usp.br/teses/disponiveis/12/12136/tde-25092013-081152/pt-br.php

GRAHAM, R., & LEFANOWICZ, C. P. (2003). The value relevance of equity method fair value disclosures. *Journal of Business Finance and Accounting, 30*, pp. 1065–1088.

GREENE, W. H. (2003). *Econometrics Analysis* (5 ed.). New Jersey, United States of America: Prentice Hall International.

GÜNTHER, R. (2014, December). Value-Relevance of Other Comprehensive Income under IFRS. *Dissertation*. St. Gallen: University of St. Gallen, School of Management, Economics, Law, Social Sciences and International. Retrieved July 2015, from http://www1.unisg.ch/www/edis.nsf/SysLkpByIdentifier/4386/$FILE/dis4386.pdf

HARRIS, M. S., & MULLER III, K. A. (1999). The market valuation of IAS versus US-GAAP accounting measures using Form 20-F reconciliations. *Journal of Accounting and Economics, 26*, pp. 285–312.

HAUSMAN, J. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society, 6*(1), pp. 1251-1271.

HENDRIKSEN, E. S., & VAN BREDA, M. F. (1999). *Teoria da Contabilidade.* Rio de Janeiro: Atlas.

HIRST, D., & HOPKINS, P. (1998). Comprehensive Income Reporting and Analysts' Valuation Judgments. *Journal of Accounting Research, 36*, pp. 47-75.

HODDER, L., MAYEW, W. J., MCANALLY, M. L., & WEAVER, C. D. (2006). Employee stock option fair-value estimates: Do managerial discretion and incentives explain accuracy? *Contemporary Accounting Research, 23*(4), pp. 933–975.

HOLTHAUSEN, R. W., & WATTS, R. L. (2001). The Relevance of the Value Relevance Literature for Financial Accounting Standard Setting. *Journal of Accounting and Economics, 31*, pp. 3–75.
HOOGERVORST, H. (2012, June 20). The imprecise world of accounting. *Speech at the International Association for Accounting Education & Research (IAAER) conference*. Amsterdam. Retrieved April 2016, from http://www.ifrs.org
HOOGERVORST, H. (2014). The dangers of ignoring unrealized income. *IFRS Conference Tokyo.* Retrieved September 11, 2014, from http://www.ifrs.org/Alerts/Conference/Documents/2014/Speech-Hans-Hoogervorst-Dangers-of-ignoring-unrealised-income-September-2014.pdf
HUNTON, J. E., LIBBY, L., & MAZZA, C. L. (2006). Financial Reporting Transparency and Earnings Management. *The Accounting Review, 81*, pp. 135-157.
IASB. (2007, September 6). IASB issues revised standard on the presentation of financial statements. London. Retrieved 2014, from http://www.iasplus.com/en/binary/pressrel/0709ias1revpr.pdf
IASB. (2010). The Conceptual Framework for Financial Reporting.
IASB. (2011, June). International Accounting Standard 1. Presentation of Financial Statements. London.
IASB. (2012, January). Comments received on the Agenda Consultation 2011. London. Retrieved 2014, from http://www.ifrs.org/Meetings/Pages/IASB-January-2012.aspx
IASB. (2013, July). Discussion Paper DP/2013/1. A Review of Conceptual Framework for Financial Reporting. London. Retrieved 2014, from http://www.ifrs.org/Current-Projects/IASB-Projects/Conceptual-Framework/Discussion-Paper-July-2013/Documents/Discussion-Paper-Conceptual-Framework-July-2013.pdf
IASB. (2015, May). Conceptual Framework for Financial Reporting. *Exposure Draft ED/2015/3*. Retrieved July 2015, from http://www.ifrs.org/Current-Projects/IASB-Projects/Conceptual-Framework/Documents/May%202015/ED_CF_MAY%202015.pdf
IASB. (2015, May). Updating References to the Conceptual Framework. *Exposure Draft ED/2015/4*. Retrieved July 2015, from http://www.ifrs.org/Current-Projects/IASB-Projects/Conceptual-Framework/Documents/May%202015/ED_Updating-references-to-the-CF_MAY2015.pdf
IASB. (2016, May). Effect of Board redeliberations on the Exposure Draft Conceptual Framework for Financial Reporting. *IASB Staff Paper*. Retrieved 2016, from http://www.ifrs.org/Current-Projects/IASB-Projects/Conceptual-Framework/Documents/Summary_of_tentative_decisions.pdf
ISIDRO, H., O´HANLON, J., & YOUNG, S. (2004). Dirty Surplus Accounting Flows: International Evidence. *Working Paper, Lancaster University Management School, 21*.
ISIDRO, H., O'HANLON, J., & YOUNG, S. (2006). Dirty Surplus Accounting Flows and Valuation Errors. *Abacus, 42*(3/4), pp. 302–344.
JOHNSON, T., & SWIERINGA, R. (1996, December). Derivatives, hedging and comprehensive income. *Accounting Horizons*, pp. 109-122.
JOHNSON, T., REITHER, C., & SWIERINGA, R. (1995, December). Toward reporting comprehensive income. *Accounting Horizons*, pp. 128-137.
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), pp. 2047-2073.
JORDAN, C. E., & CLARK, S. (2002). Comprehensive Income: How Is It Being Reported and What are Its Effects? *The Journal of Applied Business Research, 18*(2), pp. 1-8.

KABIR, M. H., & LASWARD, F. (2011). Properties of net income and total comprehensive income: New Zealand evidence. *Accounting Research Journal, 24*(3), pp. 268-289.
KANAGARETNAM, K., MATHIEU, R., & SHEHATA, M. (2009). Usefulness of comprehensive income reporting in Canada. *J. Account. Public Policy, 28*, pp. 49–365.
KING, T., ORTEGREN, A., & REED, B. (1999). An Analysis of the Impact of Alternative Financial Statement Presentations of Comprehensive Income. *Academy of Accounting and Financial Studies Journal, 3*(1), pp. 19-42.
KOTHARI, S. P. (1992). Price earnings regressions in the presence of prices leading earnings: Implications for earnings response coefficients. *Journal of Accounting and Economics, 15*, pp. 173—202.
KOTHARI, S. P. (2001). Capital markets research in accounting. *Journal of Accounting and Economics, 31*, pp. 105-231.
KOTHARI, S. P., & ZIMMERMAN, J. L. (1995). Price and return models. *Journal of Accounting and Economics, 20*(2), pp. 155–192.
KUBOTA, K., SUDA, K., & TAKEHARA, H. (2009, April). Information Content of Other Comprehensive Income and Net Income: Evidence for Japanese Firms. *Asia-Pacific Journal of Accounting and Economics*.
LAMBERT, R. (2001). Contracting theory and accounting. *Journal of Accounting and Economics, 32*, pp. 3-87.
LEE, Y. J., PETRONI, K. R., & SHEN, M. (2006). Cherry Picking, Disclosure Quality, and Comprehensive Income Reporting Choices: The Case of Property-Liability Insurers. *Contemporary Accounting Research, 23*, pp. 655-692.
LEV, B. (1989). On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research. *Journal of Accounting Research, 27*, pp. 153-192.
LEV, B., & OHLSON, J. A. (1982). Market-Based Empirical Research in Accounting: A Review, Interpretation, and Extension. *Journal of Accounting Research, 20*, pp. 249– 322.
LINSMEIER, T., GRIBBLE, J., JENNINGS, R., LANG, M., PENMAN, S., PETRONI, K., . . . WARFIELD, T. (1997, June). An issues paper on comprehensive income. *Accounting Horizons*, pp. 120-126.
LO, K., & LYS, T. Z. (2000). The Ohlson Model: Contribution to Valuation Theory, Limitations, and Empirical Applications. *Journal of Accounting, Auditing & Finance, 15*(3), pp. 337–367.
LOUIS, H. (2003). The relevance of the foreign translation adjustment. *The Accounting Review, 78*(4), pp. 1027-1047.
LUECKE, R., & MEETING, D. (1998). How Companies Report Income. *Journal of Accountancy, 185*, pp. 45-52.
LUNDHOLM, R. J. (1995). A Tutorial on the Ohlson and Feltham/Ohlson Models: Answers to Some Frequently Asked Questions. *Contemporary Accounting Research, 11*(2), pp. 749–761.
MADEIRA, F. L., & COSTA JUNIOR, J. V. (2014). Value relevance dos outros resultados abrangentes nas companhias abertas brasileiras. *VII Congresso ANPCONT.* Rio de Janeiro. Retrieved September 12, 2014, from http://www.furb.br/_upl/files/especiais/anpcont/2014/44_3.pdf?20140918105232
MAINES, L., & MCDANIEL, L. (2000). Effects of Comprehensive Income Characteristics on Nonprofessional Investors' Judgments: the Role of Financial Statement Presentation Format. *Accounting Review, 75*, pp. 179-208.

MCCOY, T. T., THOMPSON, J. H., & HOSKINS, M. A. (2009). Early evidence of the volatility of comprehensive income and its components. *Academy of Accounting and Financial Studies Journal, 13*, pp. 83-92.
MECHELLI, A., & CIMINI, R. (2014). Is Comprehensive Income Value Relevant and Does Location Matter? A European Study. *Accounting in Europe, 11*, pp. 59-87.
MOREL, M. (2003). Endogenous Parameter Time Series Estimation of the Ohlson Model: Linear and Nonlinear Analyses. *Journal of Business Finance & Accounting, 30*(9/10), pp. 1341–1362.
MYERS, J. N. (1999). Implementing Residual Income Valuation With Linear Information Dynamics. *The Accounting Review, 74*(1), pp. 1–28.
O'HANLON, J., & POPE, P. (1999). The value-relevance of UK dirty surplus accounting flows. *British Accounting Review, 31*, pp. 459–482.
OHLSON, J. A. (1995). Earnings, book values, and dividends in security valuation. *Contemporary Accounting Research, 11*, pp. 161–182.
OHLSON, J. A. (1999). On transitory earnings. *Review of Accounting Studies, 4*, pp. 145–162.
OHLSON, J. A., & SHROFF, P. (1992). Changes versus levels in earnings as explanatory variables for returns: Some theoretical considerations. *Journal of Accounting Research, 30*, pp. 210—226.
PANDIT, G., & PHILLIPS, J. (2004). Comprehensive Income: reporting preferences of Public Companies. *The CPA Journal, 74*, pp. 40-41.
PATON, W. (1934, February). Shortcoming of present-day financial statements. *Journal of Accountancy*, pp. 108-132.
PENMAN, S. H. (2005). Discussion of "On Accounting-Based Valuation Formulae" and "Expected EPS and EPS Growthas Determinants of Value.". *Review of Accounting Studies, 10*(2/3), pp. 367–378.
PENMAN, S. H. (2007). Financial reporting quality: is fair value a plus or a minus? *Accounting and Business Research, Special Issue: International Accounting Policy Forum*, pp. 33-44.
PINHEIRO, L. E. (2012). Lucro Líquido versus lucro abrangente: uma análise empírica da volatilidade. *Revista Universo Contábil, 8*(4), 6- 18.
PINTO, J. (2005). How comprehensive is comprehensive income? The value relevance of foreign currency translation adjustments. *Journal of International Financial Management and Accounting, 16*(2), pp. 97-122.
PREINREICH, G. A. (1938). Annual Survey of Economic Theory: The Theory of Depreciation. *Econometrica: Journal of the Econometric Society, 6*(3), pp. 219–241.
PRONOBIS, P., & ZÜLCH, H. (2011). The predictive power of comprehensive income and its individual components under IFRS. *Problems and Perspectives in Management, 9*, pp. 72-88.
REES, L., & ELGERS, P. (1997). The market's valuation of non-reported accounting measures: retrospective reconciliations of non-US and US-GAAP. *Journal of Accounting Research, 35*, pp. 115–127.
REES, L., & SHANE, P. B. (2012). Academic Research and Standard-Setting: The Case of Other Comprehensive Income. *Accounting Horizons, 26*, pp. 789-815.
RIAHI-BELKAOUI, A. (2000). *Accounting theory* (4th ed.). Chicago: Business Press.
RINGSTRÖM, E., & EKSTRÖM, J. (2012). The value relevance of comprehensive income. *Master Thesis*. Uppsala, Sweden. Retrieved 2014, from http://uu.diva-portal.org/smash/get/diva2:545222/FULLTEXT01.pdf
ROBERTS, W., & WANG, Y. (2009, 340-368). Accounting harmonization and the value-relevance of dirty surplus accounting flows. *Review of Accounting and Finance, 8*(4).

ROBINSON, L. (1991). The time has come to report comprehensive income. *Accounting Horizons, 5*, pp. 107- 112.
SCHROEDER, R., CLARK, J., & CATHEY, J. (2009). *Financial accounting theory and analysis: text and cases* (9th ed.). Hoboken, NJ: John Wiley & Sons.
SOO, B., & G., S. L. (1994). Accounting for the multinational firm: is the translation process valued by stock market? *The Accounting Review, 69*(4), pp. 617-637.
STRONG, N. (1992). Modelling abnormal returns: a review article. *Journal of Business Finance & Accounting, 19*(4), pp. 533–553.
SUBRAMANYAM, K. R. (1996). The pricing of discretionary accruals. *Journal of Accounting and Economics, 22*, pp. 249—281.
WAGENMAKERS, E. J., & FARRELL, S. (2004). AIC model selction using Akaike weights. *Psychonomic Bulletin & Review, 11*(1), pp. 192-196.
WHITE, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica, 48*(4), 817–838.